

CREW ACTIVITY

PLAN

FINAL PCN-12

Flight Data File Crew Activity Plan

STS 51-A

Mission Operations Directorate
Operations Division

Final, PCN-1,2
October 17, 1984

EVENT: (Cycle 6)	CST		
Launch (13:18 GMT)	07:18	Wed	Nov 7
Telesat Deploy	16:05	Thu	Nov 8
SYNCOM Deploy	07:57	Fri	Nov 9
Rendezvous-1	03:13	Sun	Nov 11
EVA-1 (Retrieval-1)	03:18	Sun	Nov 11
Rendezvous-2	01:08	Tue	Nov 13
EVA-2 (Retrieval-2)	06:03	Tue	Nov 13
Crew Press Conference	05:48	Wed	Nov 14
KSC Landing	06:57	Thu	Nov 15

NASA

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

PAGE CHANGE NOTICE

JSC-19919

Incorporates 482
No:
CAP - 256
CAP - 255
CAP - 259

SIS 51-A CREW ACTIVITY PLAN
FINAL 09/20/84
PCN-2 10/30/84
Sheet 1 of 1

Replace the following:

1. Pages i and ii
2. Pages 1-1 and 1-2
3. Pages 2-1 thru 2-6, 2-11 and 2-12, 2-15 and 2-16
4. Pages 3-3 thru 3-8, 3-11 and 3-12, 3-25 and 3-26, 3-35 and 3-36

File this PCN immediately behind the front cover as a permanent record

Prepared by:

Chewen Bol la
Book Manager

Approved by:

202 for Chris Poppert
Head, Crew Activity
Planning Section 2

Ed. B. Gentry
Chief, Flight Activity
Branch

Enc1: 26 pages

PAGE CHANGE NOTICE

JSC-19349

Incorporates 492
No: CAP-253
CAP-254

STS 51-A CFEW ACTIVITY PLAN
FINAL 09/20/84
PCN-1 10/17/84
Sheet 1 of 1

Replace the following:

1. Cover
2. Pages i & ii
3. Pages 2-1 and 2-2
4. Pages 3-9 and 3-10 (*bound copies only*)
5. Pages 5-1 thru 5-4
6. Pages 6-3 and 6-4

NOTE: The wrong pages 3-9 and 3-10 were inadvertently published in the bound copies. Flight copies were correct.

File this PCN immediately behind the front cover as a permanent record

Prepared by:

Cherita Bohannon
Book Manager

Approved by:

Elvin S. Pappalardo 10-17-84
Head, Crew Activity
Planning Section 2

J. L. Hickey
Chief, Flight Activity
Branch

Encl: 14 pages

MISSION OPERATIONS DIRECTORATE

STS 51-A CREW ACTIVITY PLAN

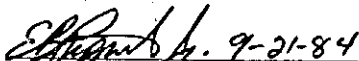
FINAL
September 20, 1984

PREPARED BY:



Chevon (Mi-Mi) B. Lau
Book Manager

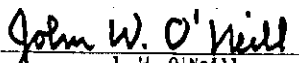
APPROVED BY:



9-21-84
Elvin G. Pippert
Head, Crew Activity Planning
Section 2



Ted A. Gullory
Chief, Flight Activity Branch



John W. O'Neill
J. W. O'Neill
Chief, Operations Division



Eugene F. Kranz
Director, Mission Operations

This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted on standard JSC Form 482 to DH4/FDF Manager, Bldg 4, Rm 352, 713-483-2868.

Comments concerning this document may be addressed to DH4/Mi-Mi Lau or DH4/Rick Jurmain, Bldg 4, Rm 353, 713-483-2307.

Changes to the distribution list should be submitted in writing to DH4/Gwen Butler, Bldg 4, Rm 373, 713-483-5224.

Incorporates 422	
No: CAP-232A	CAP-241
CAP-233	CAP-242A
CAP-234	CAP-243A
CAP-235	CAP-244
CAP-237A	CAP-245
CAP-239	PDF-455A
CAP-240	PDF-460

ACKNOWLEDGMENTS

The following individuals contributed significantly to preparing the STS 51-A Crew Activity Plan:

<u>AREA</u>	<u>NAME</u>	<u>PHONE NO.</u>
Nominal Timeline	Steve Gibson	483-2201
	Rick Jurmain	483-2307
High Priority Timeline	Barbara Schwartz	483-5871
Attitude and Pointing	Ted Wang	483-2201
	Steve Hoeffler	483-2201
Editing (Omniplan)	Mildred Cherry	483-3844
Word Processing (Omniplan)	R. Evans	483-3810
	D. Prange	
	J. Roberts	
	P. Romero	
	T. Walker	

STS 51-A CREW ACTIVITY PLAN

LIST OF EFFECTIVE PAGES

FINAL 09/20/84
 PCN-1 10/17/84
 PCN-2 10/30/84

i	CAP/51-A/FIN 2	3-22	CAP/51-A/FIN
ii	CAP/51-A/FIN	3-23	CAP/51-A/FIN
iii	CAP/51-A/FIN	3-24	CAP/51-A/FIN
iv	CAP/51-A/FIN	3-25	CAP/51-A/FIN 2
v	CAP/51-A/FIN	3-26	CAP/51-A/FIN
vi	CAP/51-A/FIN	3-27	CAP/51-A/FIN
1-1	CAP/51-A/FIN	3-28	CAP/51-A/FIN
1-2	CAP/51-A/FIN 2	3-29	CAP/51-A/FIN
1-3	CAP/51-A/FIN	3-30	CAP/51-A/FIN
1-4	CAP/51-A/FIN	3-31	CAP/51-A/FIN
2-1	CAP/51-A/FIN	3-32	CAP/51-A/FIN
2-2	CAP/51-A/FIN 2	3-33	CAP/51-A/FIN
2-3	CAP/51-A/FIN	3-34	CAP/51-A/FIN
2-4	CAP/51-A/FIN 2	3-35	CAP/51-A/FIN 2
2-5	CAP/51-A/FIN	3-36	CAP/51-A/FIN 2
2-6	CAP/51-A/FIN 2	3-37	CAP/51-A/FIN
2-7	CAP/51-A/FIN	3-38	CAP/51-A/FIN
2-8	CAP/51-A/FIN	3-39	CAP/51-A/FIN
2-9	CAP/51-A/FIN	3-40	CAP/51-A/FIN
2-10	CAP/51-A/FIN	4-1	CAP/51-A/FIN
2-11	CAP/51-A/FIN 2	4-2	CAP/51-A/FIN
2-12	CAP/51-A/FIN	4A-1	CAP/51-A/FIN
2-13	CAP/51-A/FIN	4A-2	CAP/51-A/FIN
2-14	CAP/51-A/FIN	5-1	CAP/51-A/FIN
2-15	CAP/51-A/FIN 2	5-2	CAP/51-A/FIN 1
2-16	CAP/51-A/FIN 2	5-3	CAP/51-A/FIN 1
2-17	CAP/51-A/FIN	5-4	CAP/51-A/FIN 1
2-18	CAP/51-A/FIN	5-5	CAP/51-A/FIN
3-1	CAP/51-A/FIN	5-6	CAP/51-A/FIN
3-2	CAP/51-A/FIN	5-7	CAP/51-A/FIN
3-3	CAP/51-A/FIN 2	5-8	CAP/51-A/FIN
3-4	CAP/51-A/FIN 2	6-1	CAP/51-A/FIN
3-5	CAP/51-A/FIN	6-2	CAP/51-A/FIN
3-6	CAP/51-A/FIN 2	6-3	CAP/51-A/FIN 1
3-7	CAP/51-A/FIN	6-18	CAP/51-A/FIN
3-8	CAP/51-A/FIN 2	7-1	CAP/51-A/FIN
3-9	CAP/51-A/FIN	7-2	CAP/51-A/FIN
3-10	CAP/51-A/FIN	7-3	CAP/51-A/FIN
3-11	CAP/51-A/FIN	7-4	CAP/51-A/FIN
3-12	CAP/51-A/FIN 2	7-5	CAP/51-A/FIN
3-13	CAP/51-A/FIN	7-6	CAP/51-A/FIN
3-14	CAP/51-A/FIN	7-7	CAP/51-A/FIN
3-15	CAP/51-A/FIN	7-8	CAP/51-A/FIN
3-16	CAP/51-A/FIN	7-9	CAP/51-A/FIN
3-17	CAP/51-A/FIN	7-10	CAP/51-A/FIN
3-18	CAP/51-A/FIN	7-11	CAP/51-A/FIN
3-19	CAP/51-A/FIN	7-12	CAP/51-A/FIN
3-20	CAP/51-A/FIN		
3-21	CAP/51-A/FIN		

SIS 51-A CAP CUE CARDS

DAP Book Front Cover.....	6-4	CAP/51-A/O/BAS
UNIV PTG (Back of DAP Book Front Cover).....	6-4	CAP/51-A/O/BAS
DAP A TOC.....	6-5	CAP/51-A/O/FIN
DAP A1.....	6-5	CAP/51-A/O/BAS
A1.....	6-5	CAP/51-A/O/BAS
DAP A2.....	6-6	CAP/51-A/O/BAS
A2.....	6-6	CAP/51-A/O/BAS
DAP A3.....	6-6	CAP/51-A/O/BAS
A3.....	6-6	CAP/51-A/O/BAS
DAP A4.....	6-6	CAP/51-A/O/BAS
A4.....	6-7	CAP/51-A/O/BAS
DAP A5.....	6-7	CAP/51-A/O/BAS
A5.....	6-7	CAP/51-A/O/BAS
DAP A6.....	6-7	CAP/51-A/O/BAS
A6.....	6-8	CAP/51-A/O/EAS
DAP A7.....	6-8	CAP/51-A/O/BAS
A7.....	6-8	CAP/51-A/O/BAS
DAP A8.....	6-8	CAP/51-A/O/BAS
A8.....	6-9	CAP/51-A/O/FIN
DAP A9.....	6-9	CAP/51-A/O/FIN
A9.....	6-9	CAP/51-A/O/BAS
DAP A10.....	6-9	CAP/51-A/O/BAS
A10.....	6-10	CAP/51-A/O/BAS
DAP A11.....	6-10	CAP/51-A/O/BAS
A11.....	6-10	CAP/51-A/O/BAS
(Blank).....	6-10	CAP/51-A/O/BAS
DAP B TOC.....	6-11	CAP/51-A/O/BAS
DAP B1.....	6-11	CAP/51-A/O/FIN
B1.....	6-11	CAP/51-A/O/BAS
DAP B2.....	6-11	CAP/51-A/O/BAS
B2.....	6-12	CAP/51-A/O/BAS
DAP B3.....	6-12	CAP/51-A/O/BAS
B3.....	6-12	CAP/51-A/O/BAS
DAP B4.....	6-12	CAP/51-A/O/BAS
B4.....	6-13	CAP/51-A/O/EAS
DAP B5.....	6-13	CAP/51-A/O/BAS
B5.....	6-13	CAP/51-A/O/BAS
DAP B6.....	6-13	CAP/51-A/O/BAS
B6.....	6-14	CAP/51-A/O/BAS
DAP B7.....	6-14	CAP/51-A/O/BAS
B7.....	6-14	CAP/51-A/O/BAS
DAP B8.....	6-14	CAP/51-A/O/BAS
B8.....	6-15	CAP/51-A/O/FIN
DAP B9.....	6-15	CAP/51-A/O/FIN
B9.....	6-15	CAP/51-A/O/FIN
DAP B10.....	6-15	CAP/51-A/O/FIN
B10.....	6-16	CAP/51-A/O/BAS
(Blank).....	6-16	CAP/51-A/O/BAS
DAP Book (Back Cover).....	6-16	CAP/51-A/O/BAS
	6-17	CAP/51-A/O/BAS

<u>CONTENTS</u>	<u>PAGE</u>
INTRODUCTION.....	v
STS 51-A OVERVIEW.....	1-1
SUMMARY TIMELINE.....	2-1
DETAILED TIMELINE.....	3-1
FLT DAY 1.....	3-2
FLT DAY 2.....	3-6
FLT DAY 3.....	3-10
FLT DAY 4.....	3-15
FLT DAY 5.....	3-20
FLT DAY 6.....	3-24
FLT DAY 7.....	3-29
FLT DAY 8.....	3-34
FLT DAY 9.....	3-38
CONTINGENCY TIMELINES.....	4-1
HIGH PRIORITY MISSION.....	4A-1
CONSUMABLES CURVES.....	5-1
STS 51-A DAP BOOK.....	6-1
STS 51-A ATTITUDE TIMELINE	7-1

This Page Intentionally Blank

INTRODUCTION

The STS 51-A 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, Rendezvous, EVA, Deorbit Prep, and Entry checklists. The STS 51-A Rendezvous Book contains all RMS procedures required until grapple of the HS376 spacecraft. The EVA checklist contains the detailed procedures required for HS376 berthing including MFR, RMS, and MMU operations. All other RMS procedures are in the PDRS OPS Checklist. For continuity, the entire flight is shown in the summary level timeline.

The section entitled 'Crew Activity Plan Notes (constraints and guidelines)', included in CAPs for previous flights, has been published as a generic document (not in individual CAPs).

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS 51-A Flight Requirements Document.

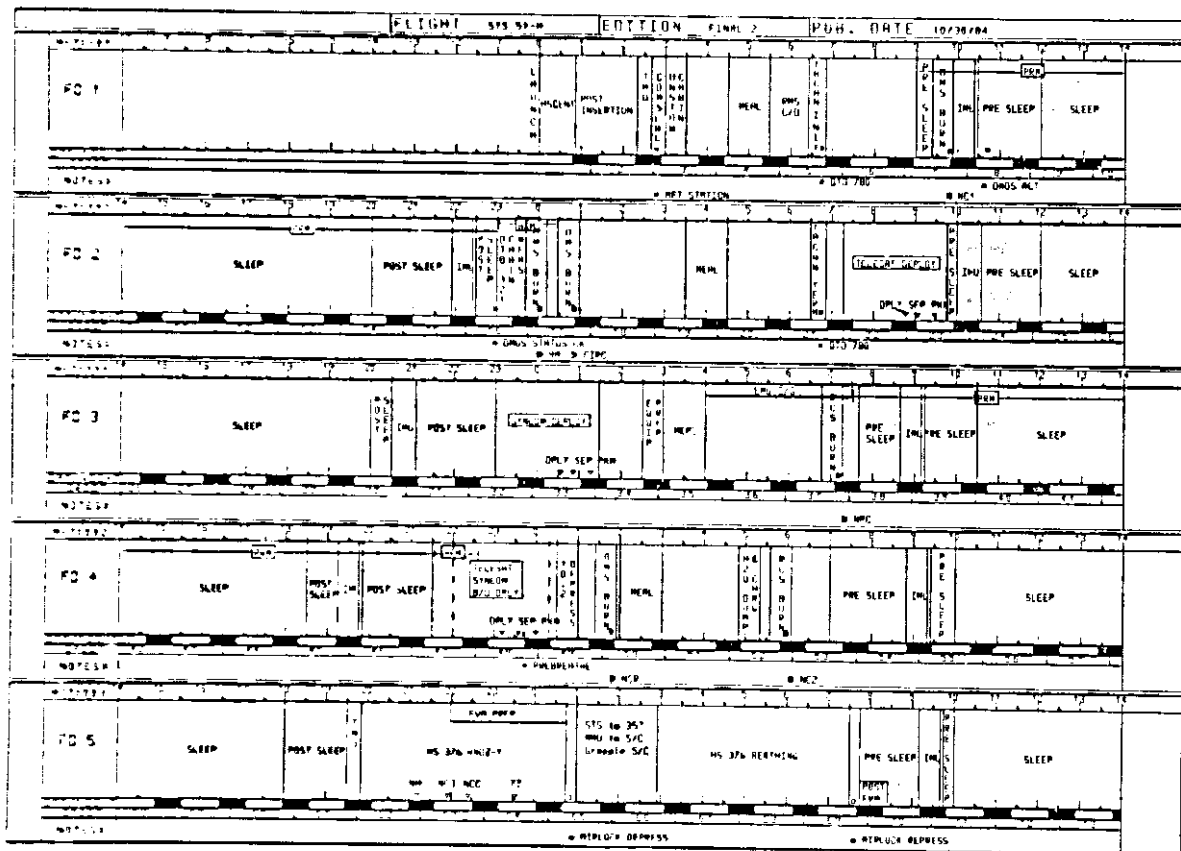
The flight profile (Cycle 5 trajectory data) used for this Crew Activity Plan is for a launch date of November 2, 1984, at 13:23 GMT. Orbiter inertial attitudes are expressed relative to Mean of J2000 (M50) reference frame.

Exercise has not been scheduled but will be accomplished every day except for the ascent and entry days.

This Page Intentionally Blank

STS 51-A OVERVIEW

OVERVIEW

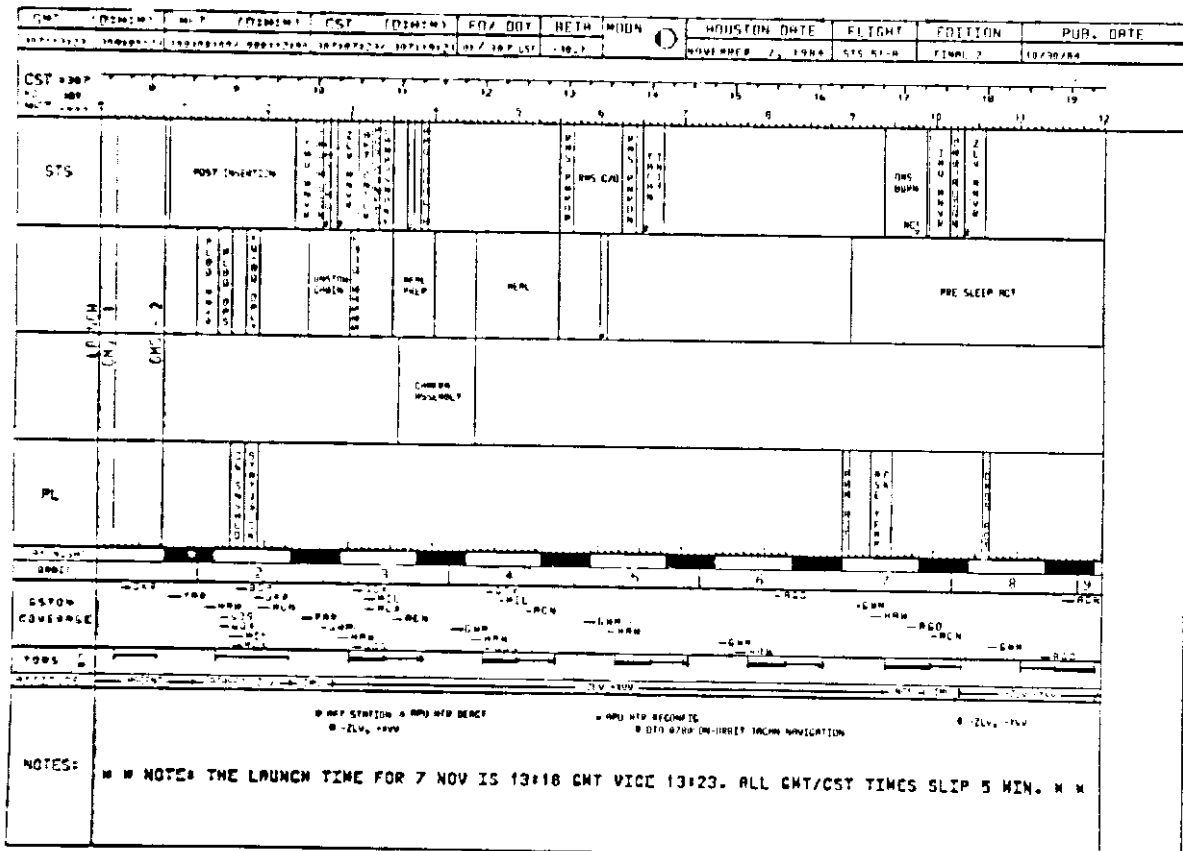


This Page Intentionally Blank

SUMMARY
TIMELINE

SUMMARY TIMELINE

SUMMARY
TIMELINE



UNIT	STATUS	FLY	CST	FD/ DRY	BETH	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
				8 / 10 P CST	-20.4	☉	NOVEMBER 2, 1984	515 51-8	FINAL	9/28/84
CST 800P FD 104 MO 1000										
STS	SLEEP								T M W W W W W W W W W	DPS DUPN
								POST SLEEP ACT	OMP NEWS	RU LA TO CA NS
PL										
	9	10	11	12	13	14	15	16		
ESION	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS
COVERGE	-DAR	-DAR	-DAR	-DAR	-DAR	-DAR	-DAR	-DAR	-DAR	-DAR
TOPS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS	-RCS
NOTES:										B 010 8321 EREN COMPARTMENT STRUCTURE DEFLECTION 8 -ZLV, -IIV

UNIT	COMPONENT	NO. 1	(DOWNT)	OST	(DOWNT)	ADJ. DTY	REFTH	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
						02/100.041	-20.0	(C)	1973 FEB 11 1900	STS 51-L	FINAL 2	10/78/00
<p>CST 1300 TO 1402 MCT 1300</p>												
<p>STS</p>												
<p>PL</p>												
<p>DEPT</p>												
<p>COVERAGE</p>												
<p>FOCUS</p>												
<p>NOTES:</p>												

COMP	FLIGHT	MCY	EDITION	EST	EDITION	FD/DTY	RTM	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE	
19811101	13111111	13111111	13111111	13111111	13111111	13111111	13111111	13111111	NOVEMBER 1, 1980	STS 51-L	1 (01)	9/28/80	
CST 1300	20	21	22	23	24	25	26	27	28	29	30	31	
RD 102	17	18	19	20	21	22	23	24	25	26	27	28	
MCY	17	18	19	20	21	22	23	24	25	26	27	28	
STS	SLEEP								T O O B E E T E E T E E T			P I N E T E E T	
									POST SLEEP ACT				P I N E T E E T
											P I N E T E E T		P I N E T E E T
PL											P I N E T E E T		P I N E T E E T
	25	26	27	28	29	30	31	32					
65700													
CSVEPAGE													
7000													
NOTES:	B -ZLV, -SW												

GMT (ZONED)	GMT (ZONED)	CST (ZONED)	FDZ DRY	RFIM	MON	HOUSTON DATE	FLIGHT	COITION	PUB. DATE	
10/20/1957 06:00Z					10/21/1957 06:00Z	11/7/30 EST	-21.0			
						NOVEMBER 6, 1954	STS 51-L	FLIGHT 2	11/19/54	
<div style="display: flex; justify-content: space-between;"> CST 0300 0 1 2 3 4 5 6 7 8 9 10 11 12 </div>										
<div style="display: flex; justify-content: space-between;"> STS 0 1 2 3 4 5 6 7 8 9 10 11 12 </div>										
<div style="display: flex; justify-content: space-between;"> PL 0 1 2 3 4 5 6 7 8 9 10 11 12 </div>										
<div style="display: flex; justify-content: space-between;"> 34353637383940 </div>										
<div style="display: flex; justify-content: space-between;"> ESPDCONECNRCNACNRCNACNRCNACNRCNACNRCNACN </div>										
<div style="display: flex; justify-content: space-between;"> 0-ZL, -FW0-ZL, -FW </div>										
NOTES:										

COMP	APPROX	WPT	CRS	FROM	TO	FDX	DOY	RFTD	MOON	MOON PHASE	MOON DATE	FLIGHT	EDITION	PIR. DATE	
STG															
CSF	20	21	22	23	24	25	26	27	28	29	30	31	1	2	
STG	SLEEP										11	12	13	14	15
	POST SLEEP ACT														
P.															
STG	41	42	43	44	45	46	47	48	49	50	51	52	53	54	
STG	COVERABLE														
STG	COVERABLE														
STG	COVERABLE														
NOTES:	0 - FC PURGE NTR ON 1 - FC PURGE NTR OFF 2 - ZLV, -EVV 3 - FC PURGE NTR OFF														

COMP.	ADDRESS	NO.	COMM.	TYPE	INSTR.	NO.	REF.	MOON	MOON DATE	FLIGHT	EDITION	PUB. DATE
									NOVEMBER 5, 1964	STS 51-L	15901	4/28/84
CST 4398												
STS												SLEEP
												PRE SLEEP ACT
PL												
ASTON												
CONCEPT												
NOTES:												

EMP.	COMP	NO. 7	CDMW	CSF	(BIMM)	EDZ	DOB	AF-10	MION	MONITOR DATE	FLIGHT	EDITION	PUR. DATE
						AN/374 CSF	1938			NUMBER 4, 1994	STS 51-L	FORM 2	10/30/84
STS			SLEEP										
PL													
ESPDR													
COVERAGE													
NOTES:													

D DB 8324 CMW COMPARTMENT
STRUCTURE DEFLECTION

GMT (D:MM:Y)	MET (D:MM:Y)	CST (D:MM:Y)	FOZ DOZ	BETH	MOON	HOUSTON DATE	FLIGHT	EDITION	PUR. DATE
312013023/ 313101123	80K100100/ 80K102100	312107123/ 312119123	06/ 312 CST	-12.8	☉	NOVEMBER 2, 1990	SFS K1-A	FINL	9/20/80
CST 1312	FO 180	MET 1800							
STS	NEAL		RCS BURN NOZ	I W U P M V K	SW BN V RR P T RR H			SLEEP	
	P/IV SETUP	P/IV ACT				PRE SLEEP ACT			
PL	V T P C O C O N T R O L S	ENG MINT/BCH							
DAY/INVT									
ORBIT	B0	B1	B2	B3	B4	B5	B6	B7	B8
ESTDN COVERAGE	-RCH	-TAP -GMM -HAM -GSS -G01 -R1	-RCH -GMM -HAM -GSS -GDS	-LW -HAM	-HAM -GMM -HAM -RCD -RCH	-HAM -RCD -RCH	-RCD -RCH -GMM -RCD -RCH	-GMM -RCD -RCH	-RCD -RCH -RCD -RCH
FDWS									
DIFF/DOZ									
NOTES:	 								

GMT	ZONE	NET	(D:1:M)	EST	(D:1:M)	10Z	DAY	BETA	MISSION	HOUSTON LMP	FLIGHT	EDITION	PIR	DATE
133000Z	133000Z	133000Z	133000Z	133000Z	133000Z	133000Z	133000Z	133000Z	133000Z	NOVEMBER 7, 1964	133000Z	133000Z	133000Z	133000Z
OST 1312 TO 00 NET 133000Z														
SLEEP PENDING-2 ESTABLISH P/TW SETUP P/TW ACT EYE SUPPORT EYE PREP EVA-2														
POST SLEEP NET P/TW SETUP P/TW ACT EYE SUPPORT														
PL EYE PREP EVA-2														
0800Z 0900Z 1000Z 1100Z 1200Z 1300Z 1400Z 1500Z 1600Z 1700Z 1800Z 1900Z 2000Z 2100Z 2200Z 2300Z 0000Z														
COVERAGE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60														
IDPS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60														
NOTES:														

GMT	(DISHM)	MET	(DISHM)	CST	(DISHM)	FID/DOY	HLTH	MOON	ADDITION DATE	FLIGHT	EDITION	PUB. DATE
071200Z	071200Z	071200Z	071200Z	071200Z	071200Z	PLA		<input type="radio"/>	071200Z	B, 0000	071200Z	071200Z

CST 1313	071200											
ED 187												
MET 1300												

STS												
									S M O N I T O R I N G			
											SLEEP	

DRY/ACFT												
URBT	96	97	98	99	100	101	102	103	104	105	106	107

COV												
STCN												
COVERAGE												

TORS												

RESIDUALS												

RENDREVOUS-2

NOTES:

GMT (012000Z)	MET (012000Z)	CST (012000Z)	F01Z BODY (07Z 113 CST)	RUIN	MOON	HOUSTON DATE	FLIGHT	POSITION	DIR. DATE	
012000Z	012000Z	012000Z	07Z 113 CST			NUMBER 6, 1964	STS 51-L	STAGE 3	10/10/64	
CST 1313	FD 107	MET 1000 12	10	17	19	20	21	22	23	0
STS	SLEEP									
PL										
ORBIT	104	105	106	107	108	109	110	111		
CS10M COVERAGE										
ID#5										
NOTES:										

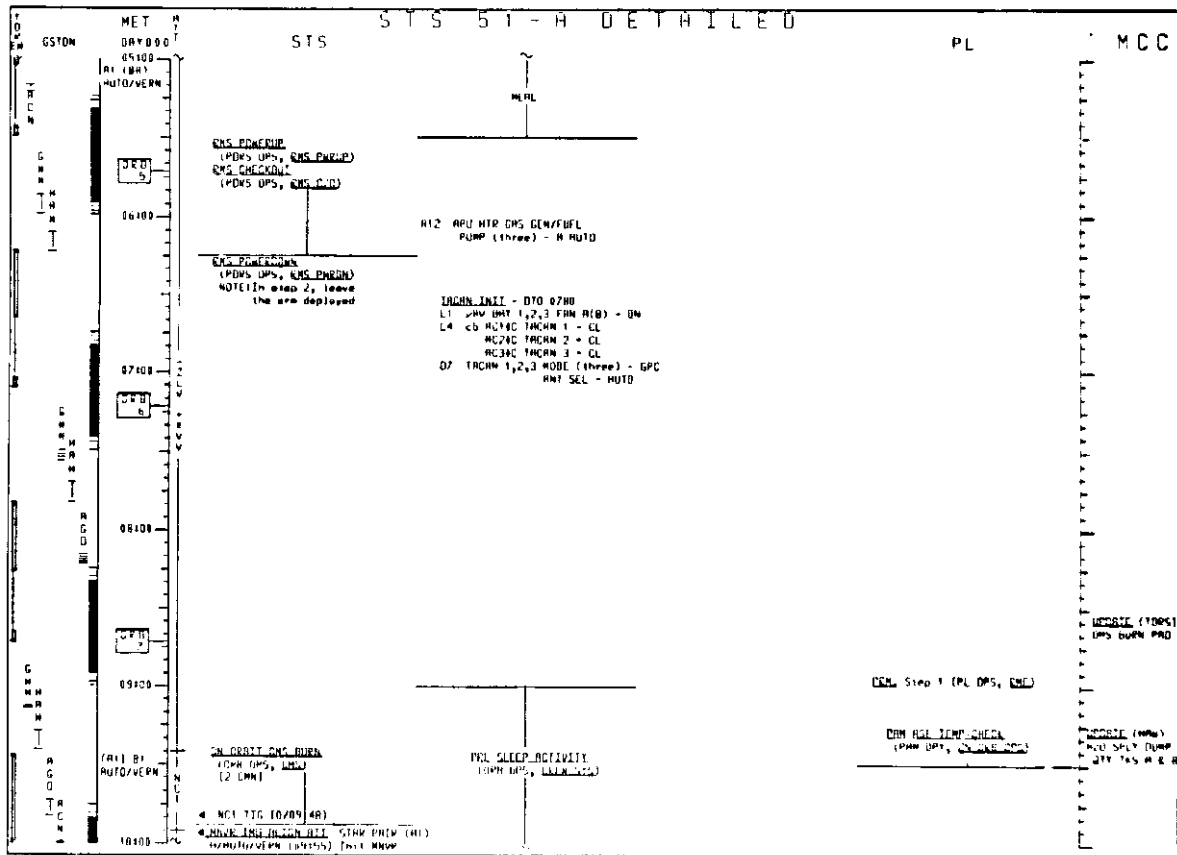
GMT (D:M:Y)	MET (D:M:Y)	EST (D:M:Y)	FDZ DDY	HTA	MOON	HOUSTON DATE	FLIGHT	FOTTON	POP DATE
11/11/12 14:50:13	00708100/0071000	11/10/12 24:19:24	00/00000	00000	☉	NOV 11 1994	015 SLR	FINAL 3	11/07/94
CST 139 FD 100 MET 129									
STS	POST EVA ENT PREP	CABIN STOW			I M U N N W W W			SLEEP	
						PRE SLEEP ACT			
	REL								
PL									
GMT:GMT	112	113	114	115	116	117	118	119	
ESTON COVERAGE	-HAW -GDS -WFL -MFL	-HAW -GDS -LOR	-HAW -HAW	-HAW -HAW -RCN	-HAW -RCN	-RCN -GWN	-RCN -GWN -DGV	-RCN -GWN	-RCN
TOWS									
ACTIVITY									
NOTES:	0 *LU, *ZM								

GMT (0000)	MET (0000)	CS (0000)	10/00	11/00	MOON	HOUSTON TIME	FLIGHT	STATION	PROP. DATA
120	120	120	120	120	120	120	120	120	120
057 131	188								
MET 120	12	13	14	15	16	17	18	19	20
STS	SLEEP								
PL									
DRAC	120	121	122	123	124	125	126	127	
ESTOR									
COVERAGE									
FORMS									
ATTITUDE									
NOTES:									

This Page Intentionally Blank

DETAILED TIMELINE

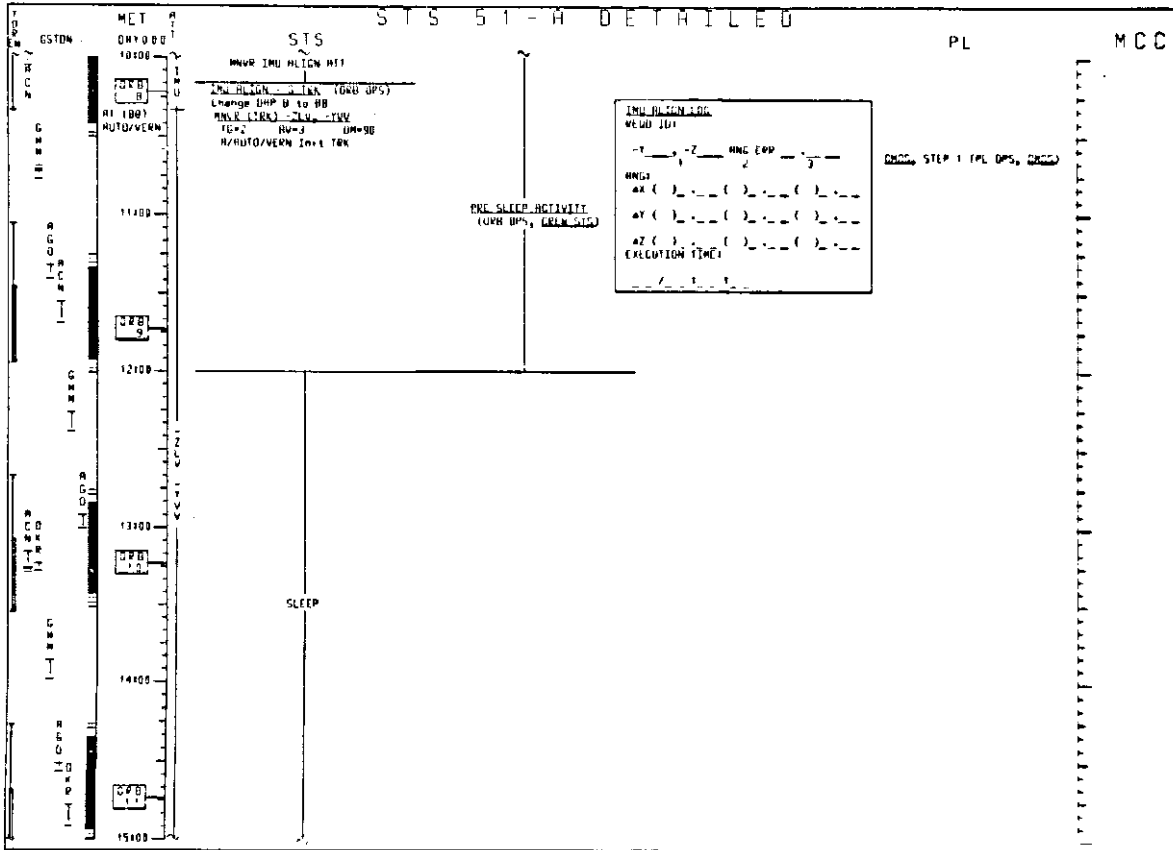
DETAILED
TIMELINE



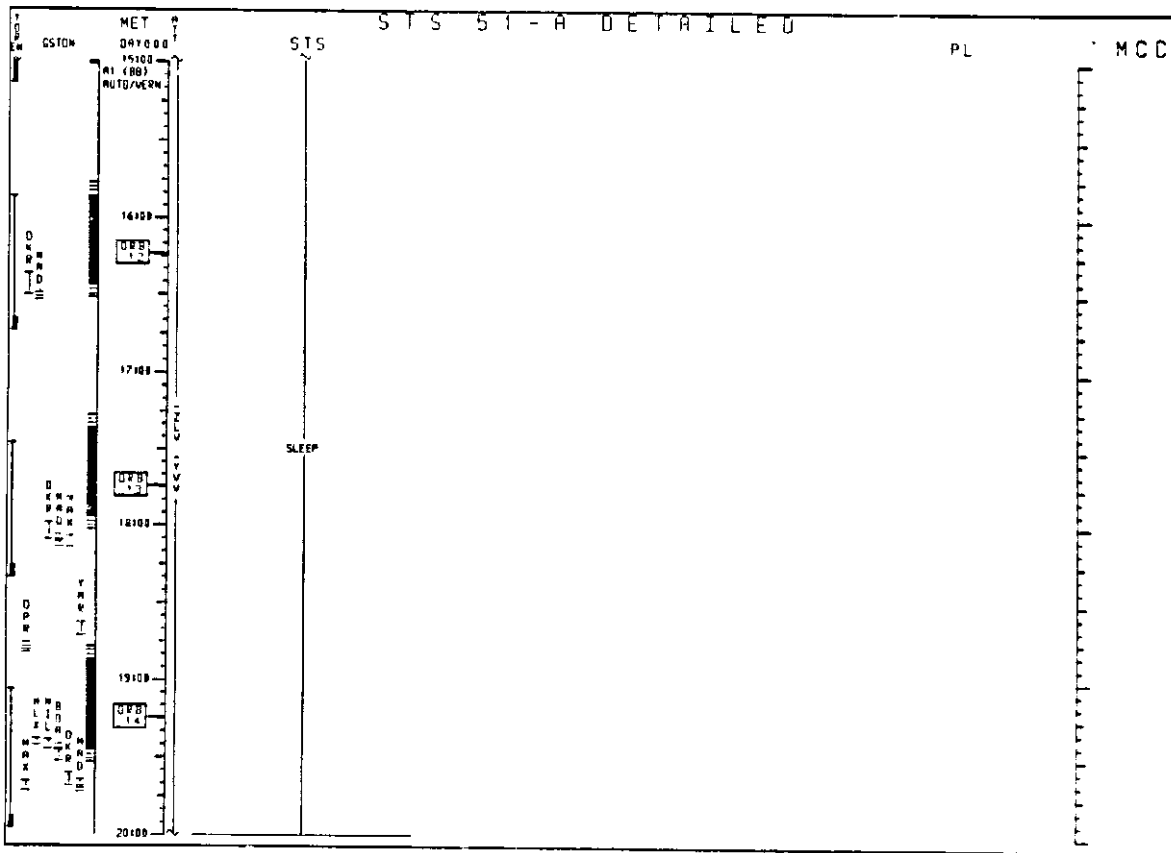
STS ST-4 DETAILED

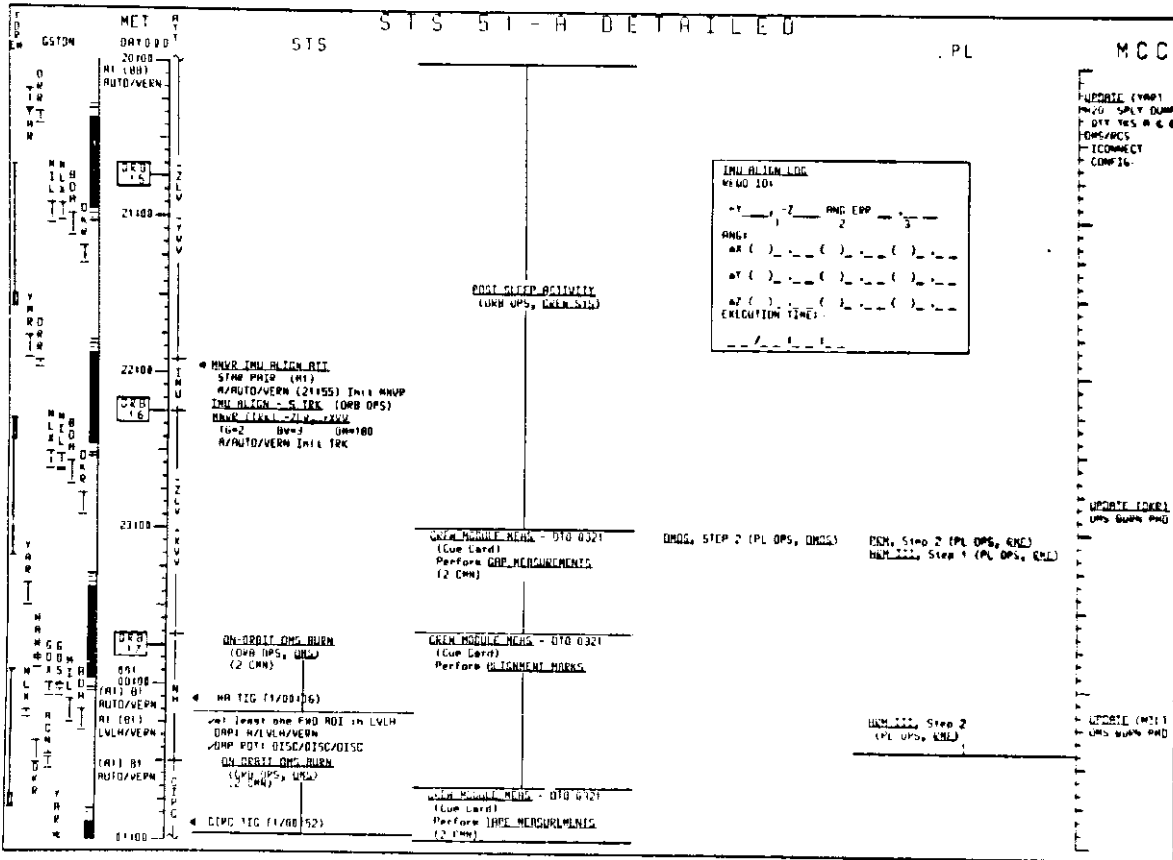
PL

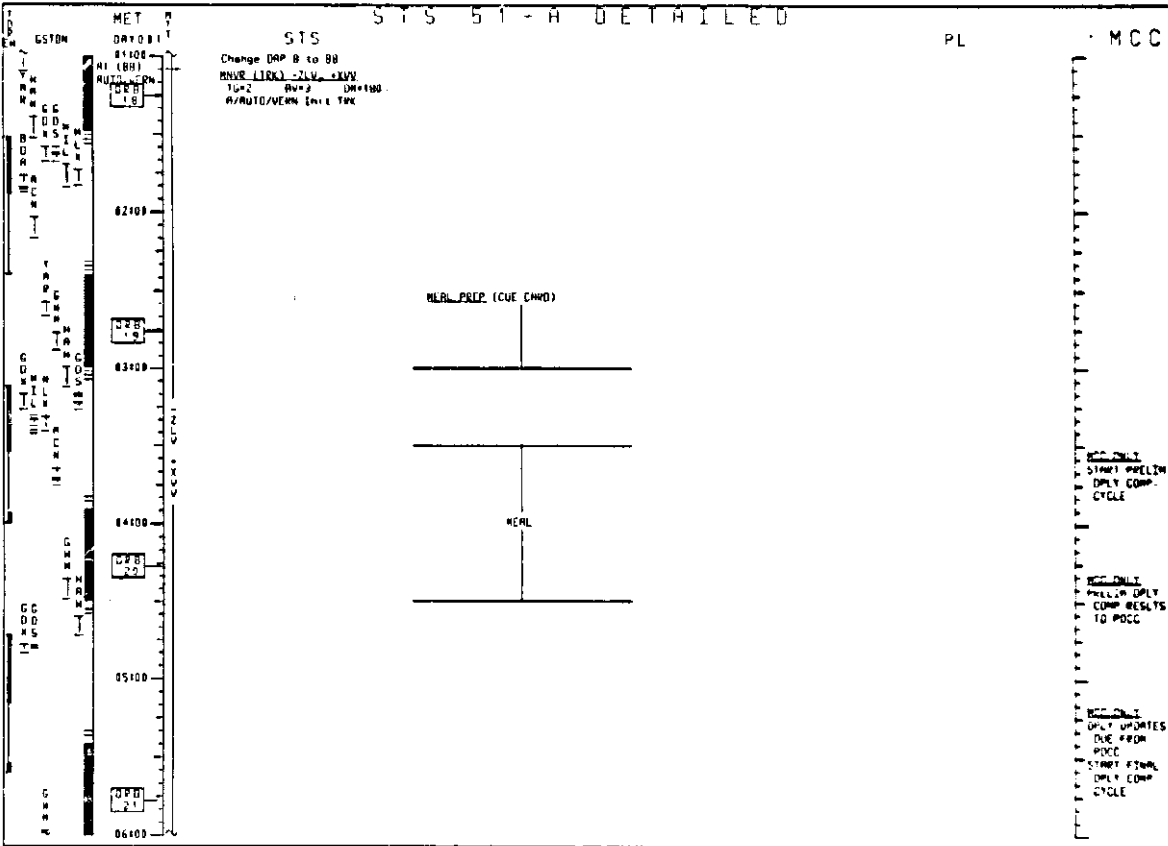
MCC



STS 51-A DETAILED







STS

STS 51-LH DETAILED

PL

MCC

EMERGENCY TEMP CHECK
(LMD OPS, WINDSHIELD)UPLINK (GND)
DPLY TIME &
SEP PAUS

MISSION TIME - 070 - 700
 1. 4000 1.2.3 WIDE (LMD OPS) - OFF
 2. 4000 1.2.3 WIDE (LMD OPS) - ON
 3. 4000 1.2.3 WIDE (LMD OPS) - ON
 4. 4000 1.2.3 WIDE (LMD OPS) - ON

R/TX 13 SETUP CONT. DEPLOY PAUS
 (MWD OPS, WINDSHIELD)

R/TX 13 SETUP CONT. DEPLOY PAUS
 (MWD OPS, WINDSHIELD)

UPLINK (TOPS)
DPLY TIME &
SEP PAUS

REC ONLY
START BU
DPLY COMP.
CYCLE

DEPLOY REVIEW

EMERGENCY TEMP CHECK
(LMD OPS, WINDSHIELD)

TV (MWD)
(GND CTRL-CARD)

MWR TO DEPLOY ATT

REC SEQ START/SUNSHIELD OPEN
SPIN SEQ START

* DEPLOY (01/0814Z)

* SEP BURN (01/0814Z)
DMS PAUS
MWR WINDSHIELD PROTECT ATT

* PLM (MMS PAUS VIEW)

UPLINK (MWD)
NO COMM
PAUS - ON

UPLINK (GND)
MWD DPLY COMP
DPLY TIME & B

PLM (MWD)	
PLM	EXECUTION TIME
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

PER DEPLOY SEQUENCE
 (LMD OPS, WINDSHIELD)

R/TX 13 SETUP CONT. DEPLOY PAUS
 (MWD OPS, WINDSHIELD)
 MWR IN WINDSHIELD PROTECT ATT
 REC SEQ START/SUNSHIELD OPEN
 SPIN SEQ START
 * DEPLOY (01/0814Z)
 * SEP BURN (01/0814Z)
 DMS PAUS
 MWR WINDSHIELD PROTECT ATT
 * PLM (MMS PAUS VIEW)

* DEPLOY SEQUENCE (0800Z) INCL MWD
 INCL WINDSHIELD PROTECT ATT
 INCL REC SEQ START/SUNSHIELD OPEN
 INCL SPIN SEQ START
 INCL * DEPLOY (01/0814Z)
 INCL * SEP BURN (01/0814Z)
 INCL DMS PAUS
 INCL MWR WINDSHIELD PROTECT ATT
 INCL * PLM (MMS PAUS VIEW)

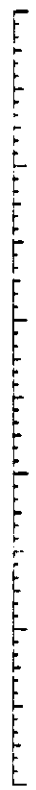
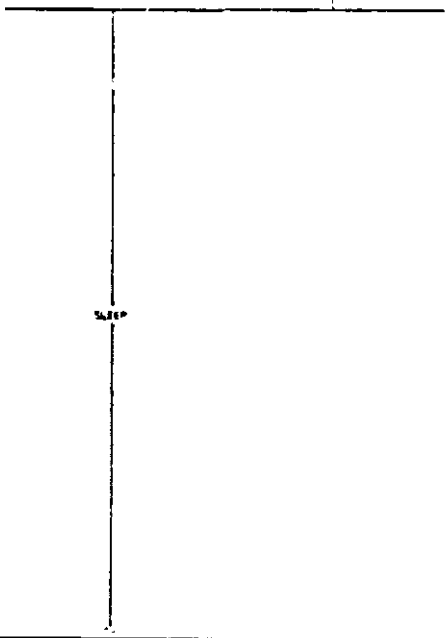
STS ST-H DETAILED

STS

PL

MCC

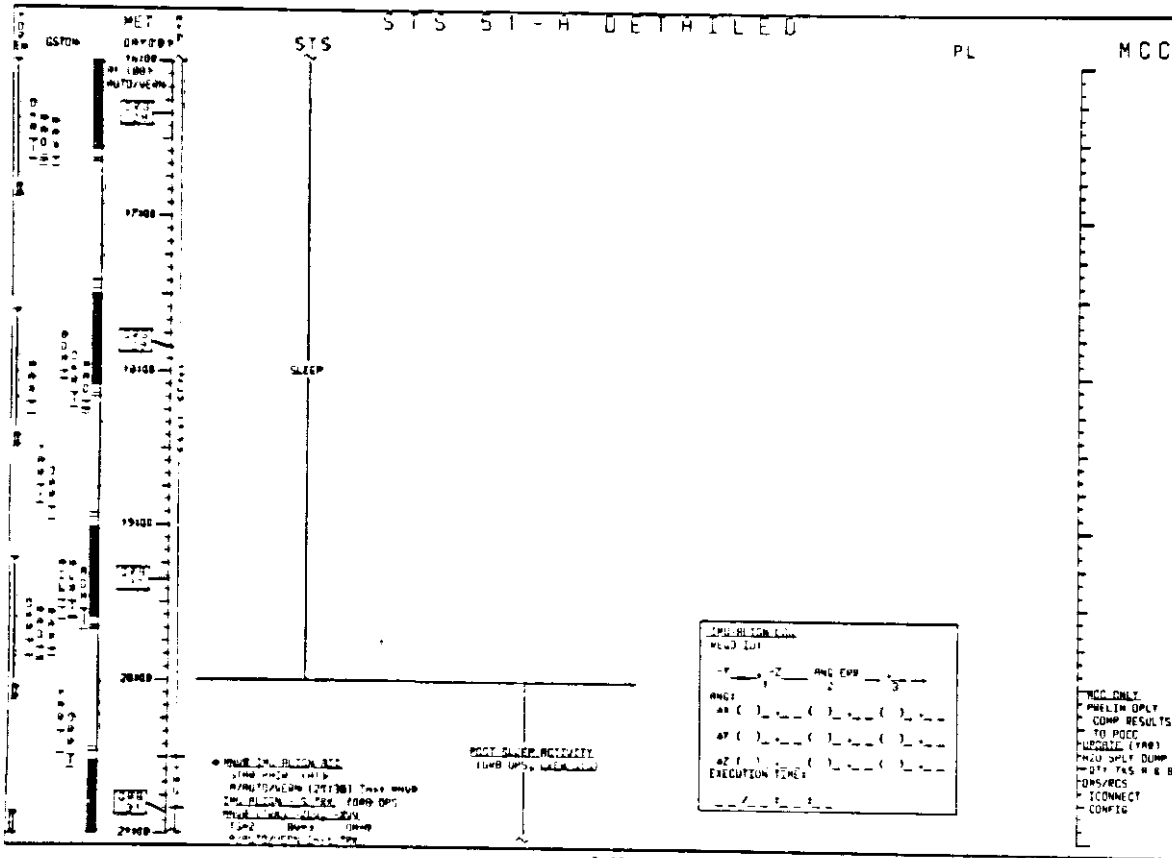
ENGINEER'S SIGNATURE
(UPPER PORTION SIGNATURE)

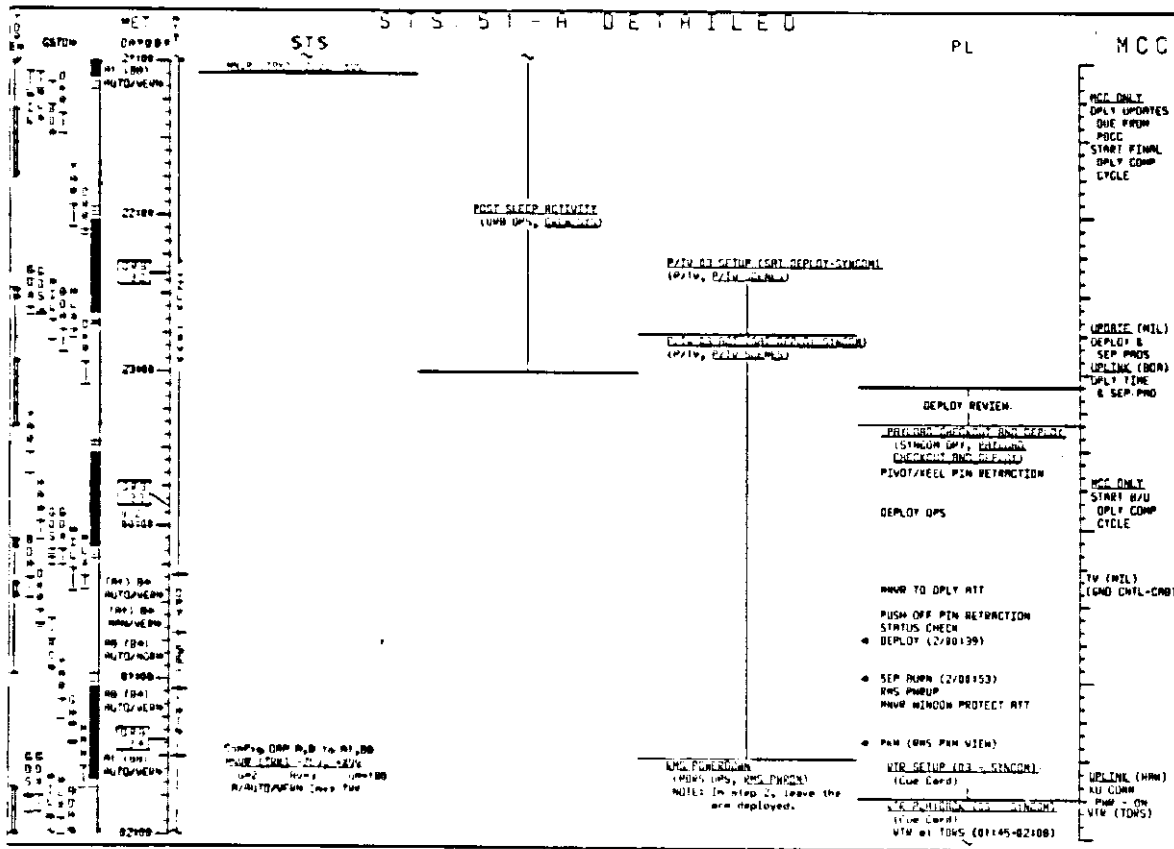


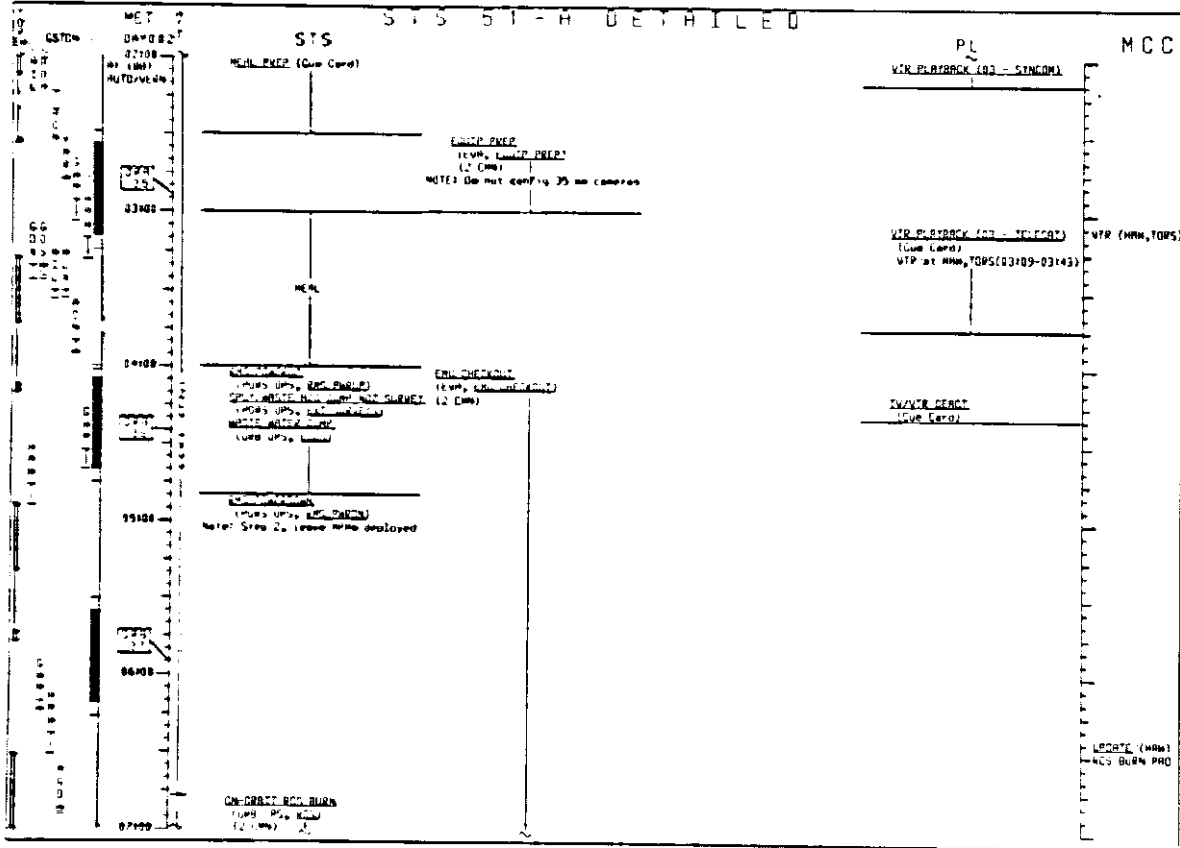
STS ST-H DETAILED

PL

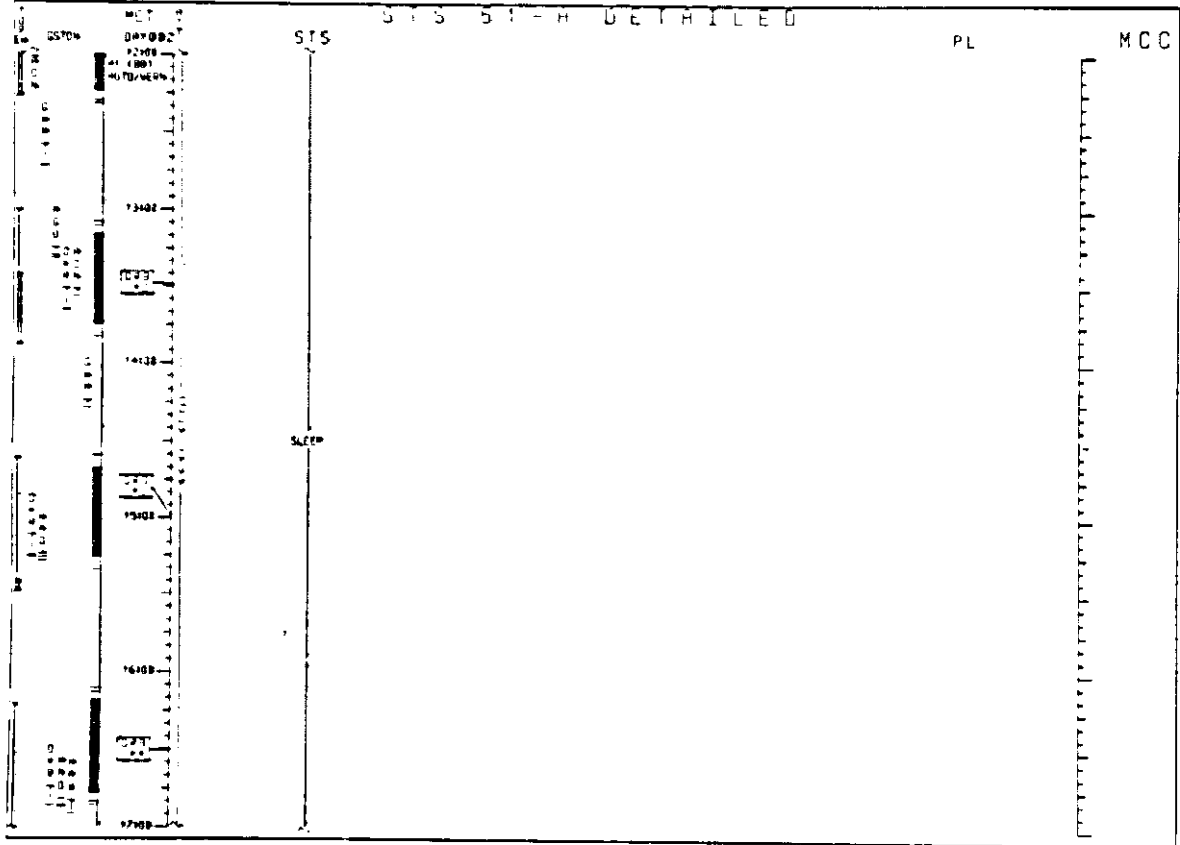
MCC







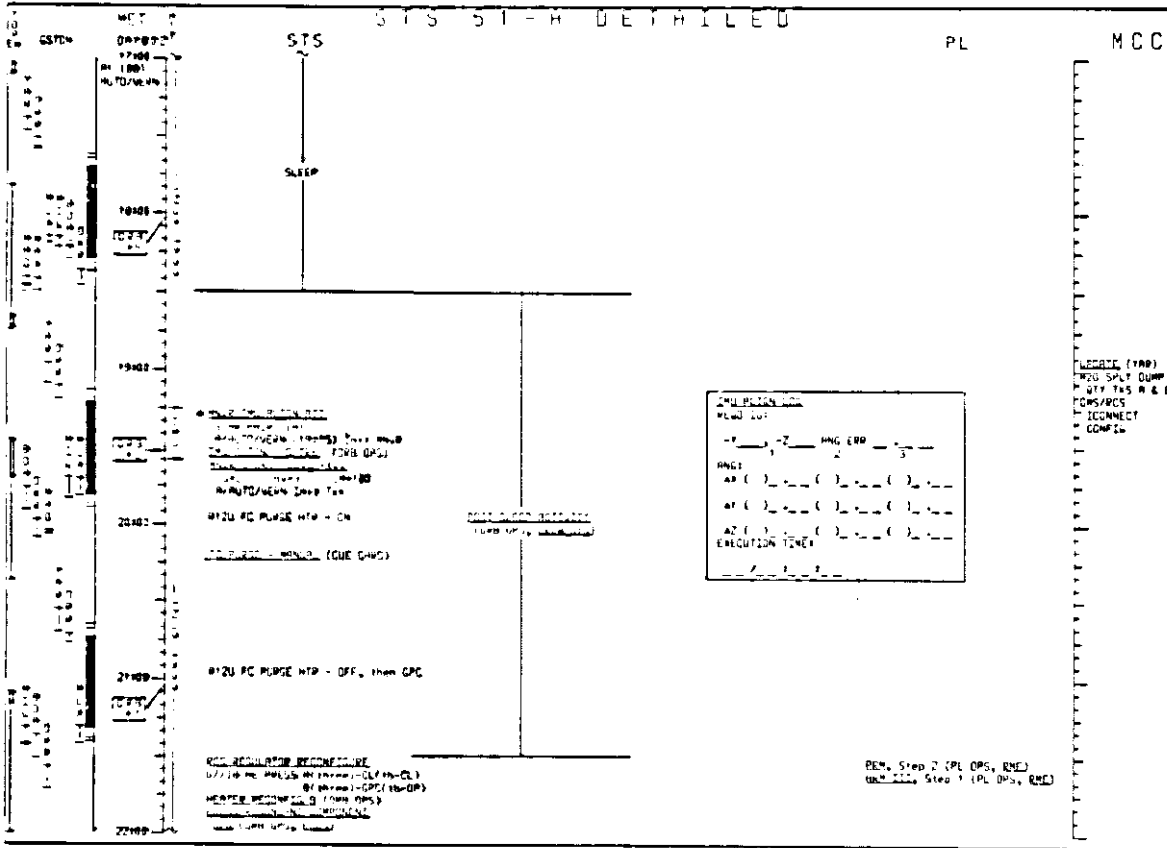
SYS STATE DETAILED

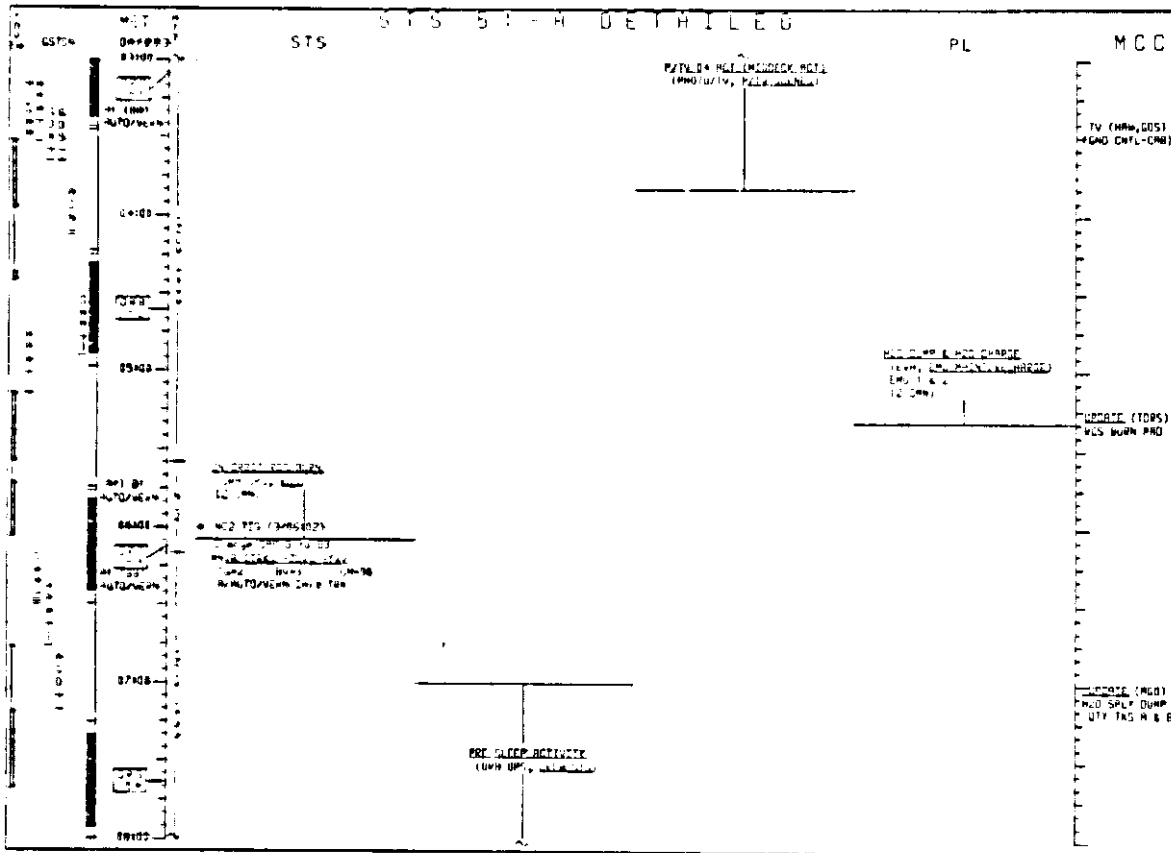


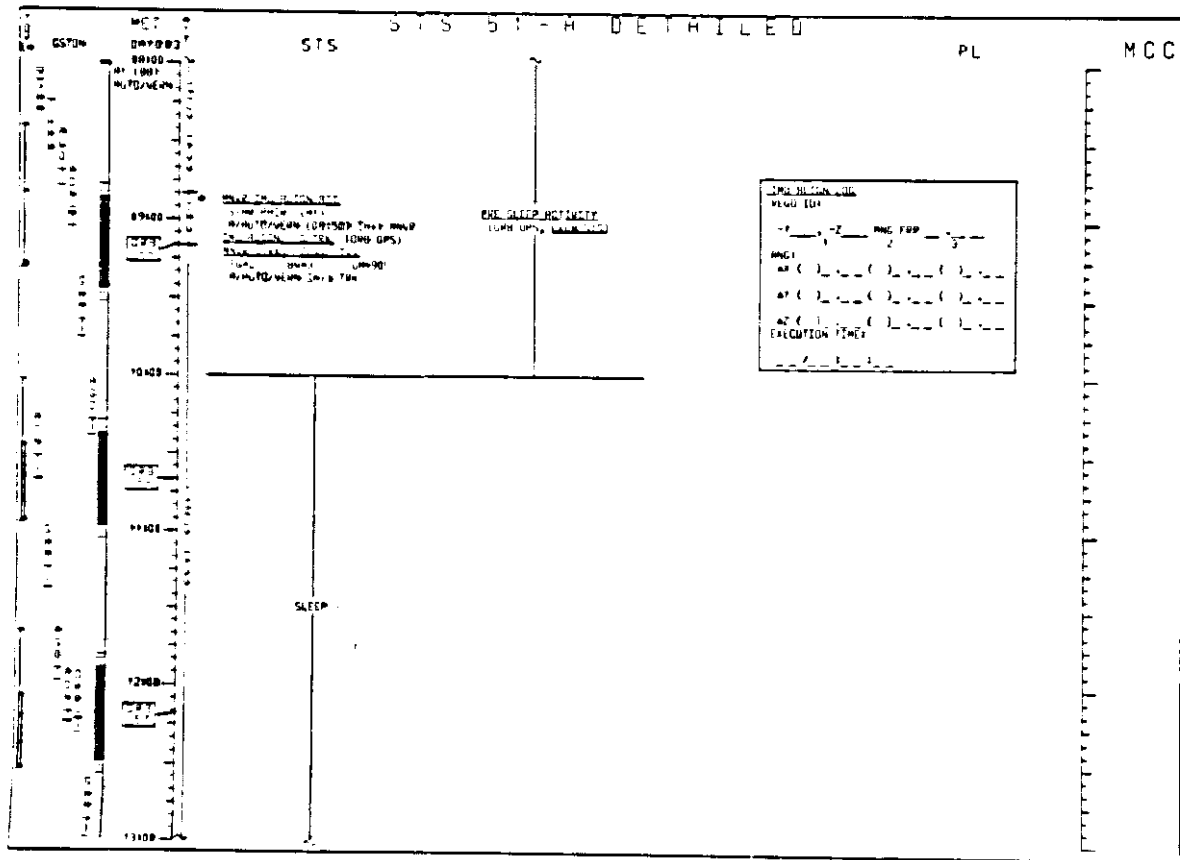
STS S1-H DETAILED

PL

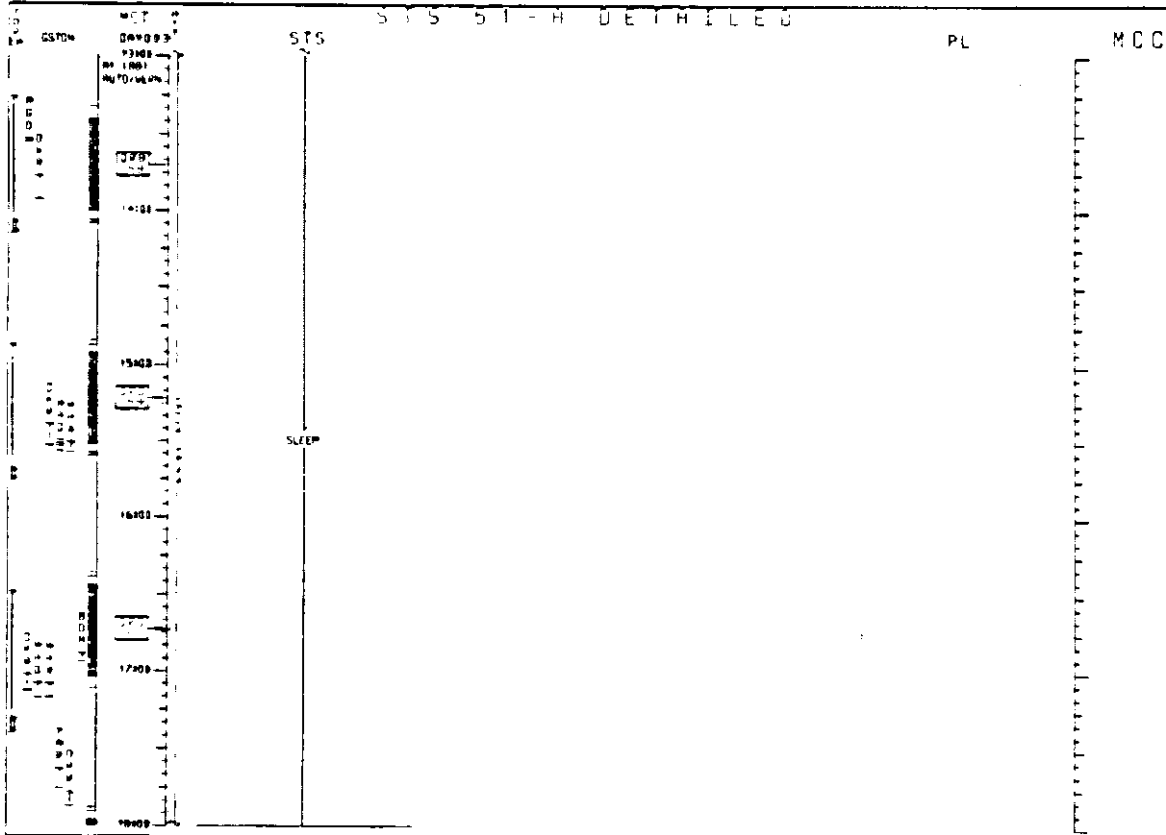
MCC

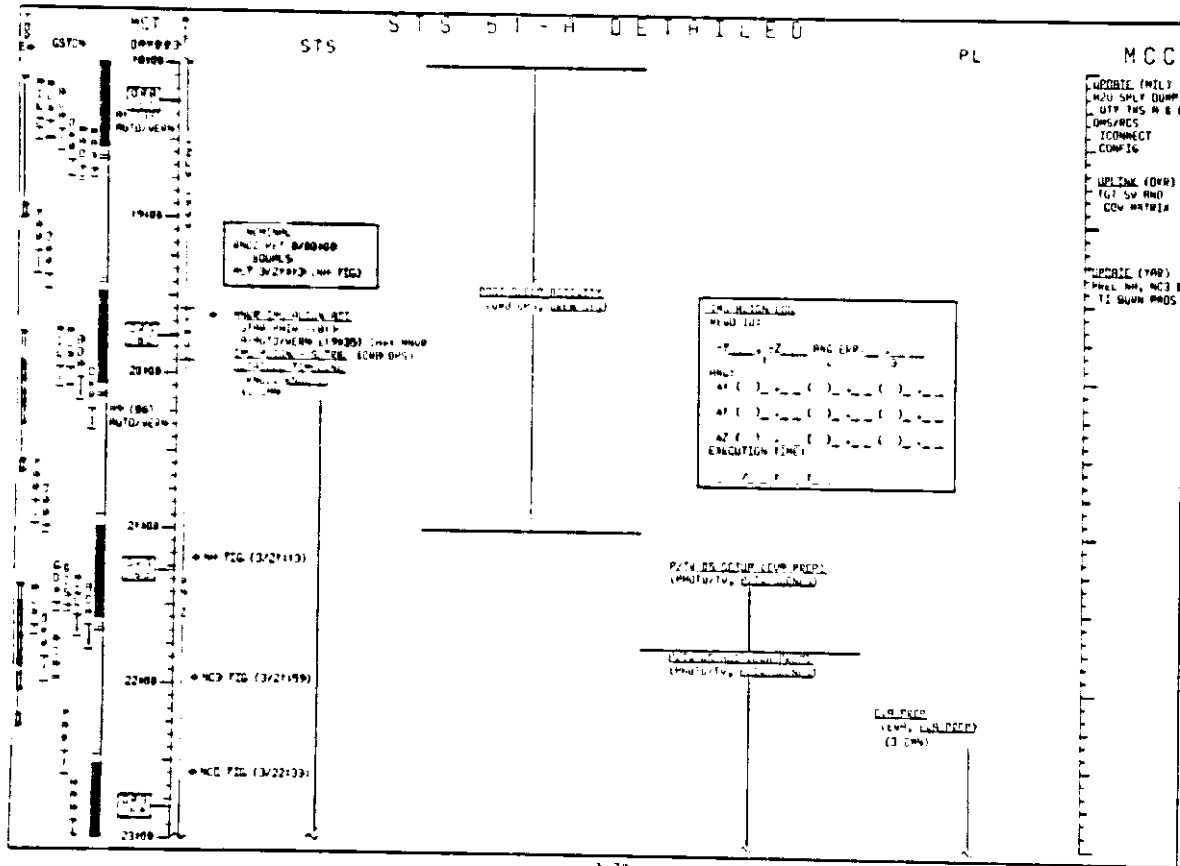




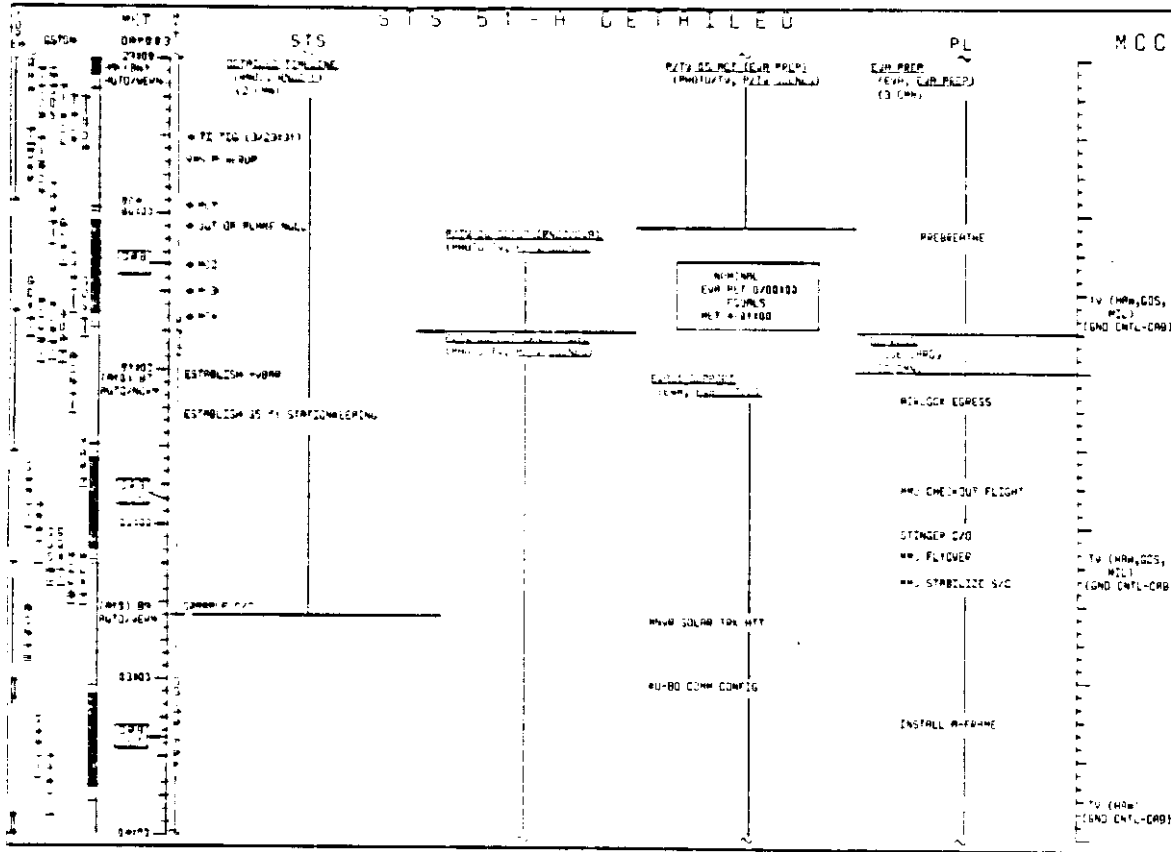


SYS 51-H DETAILED





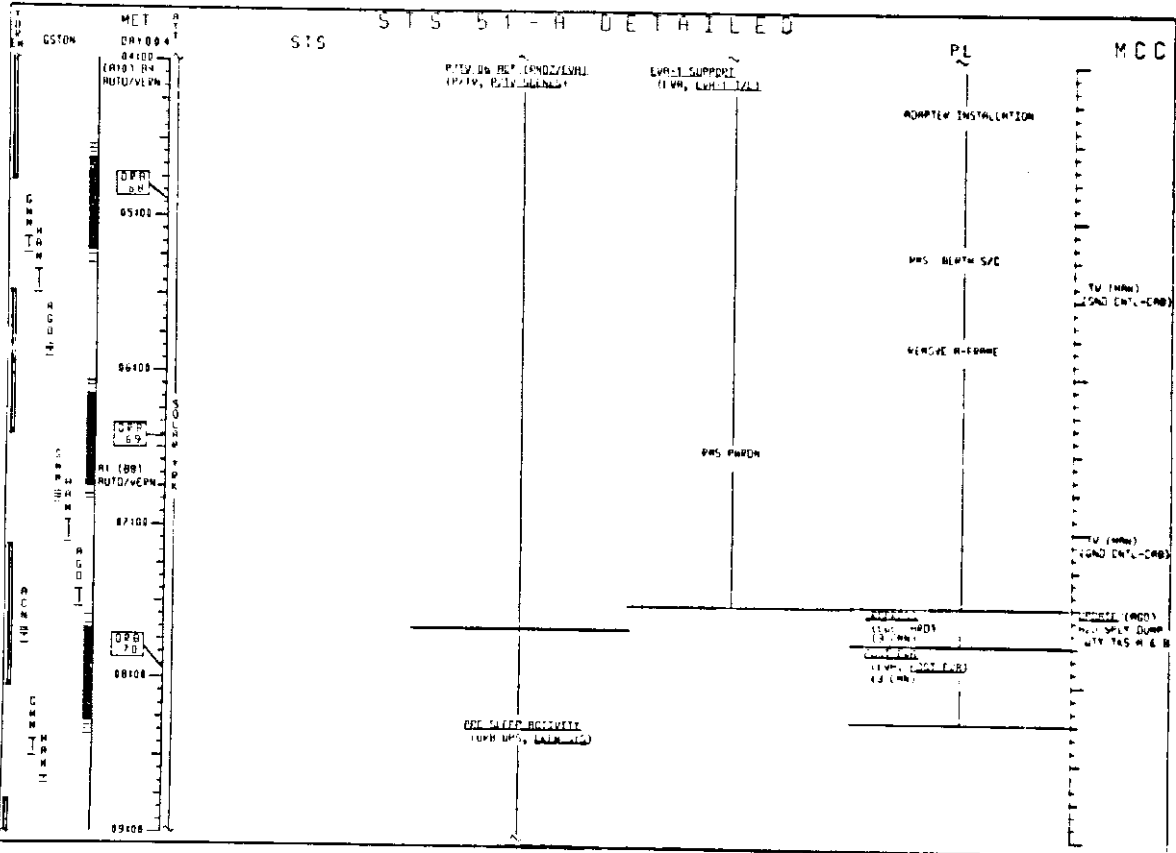
S T S 5 1 - H G E T H I L E U

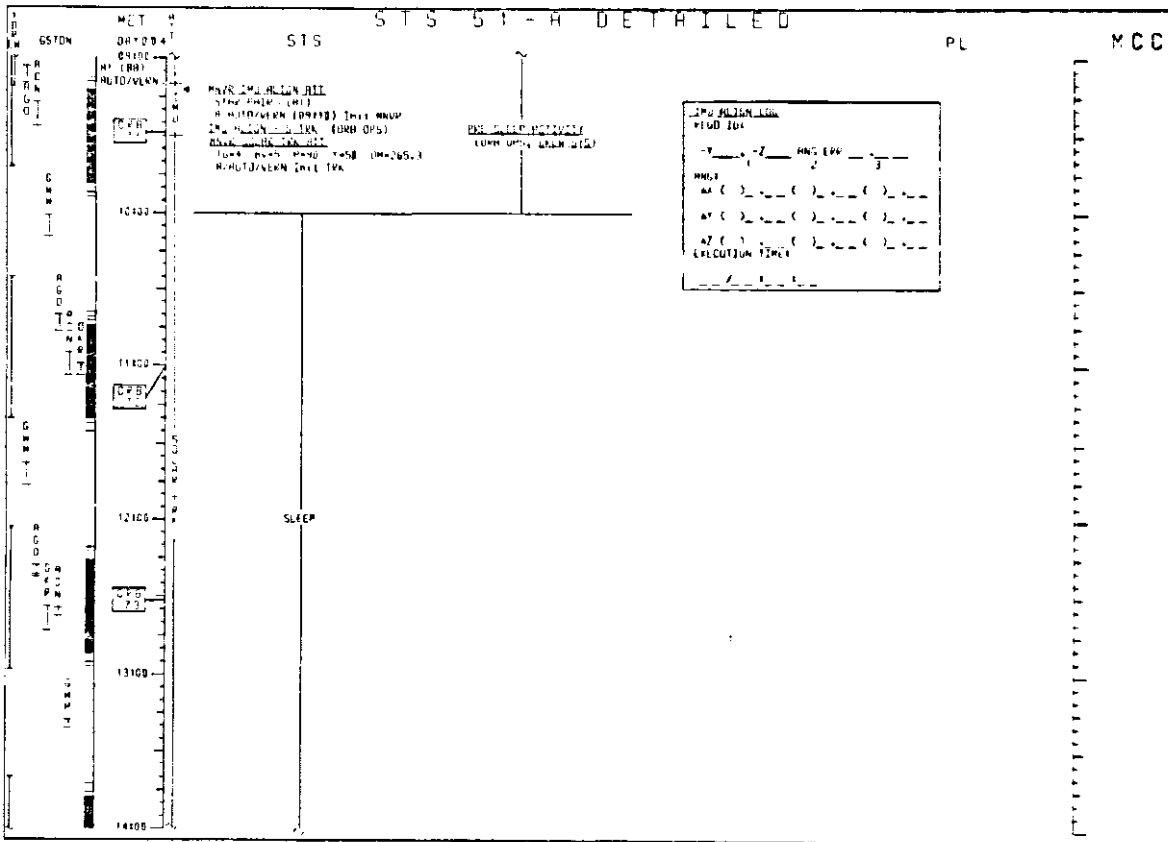


STS 51-A DETAILED

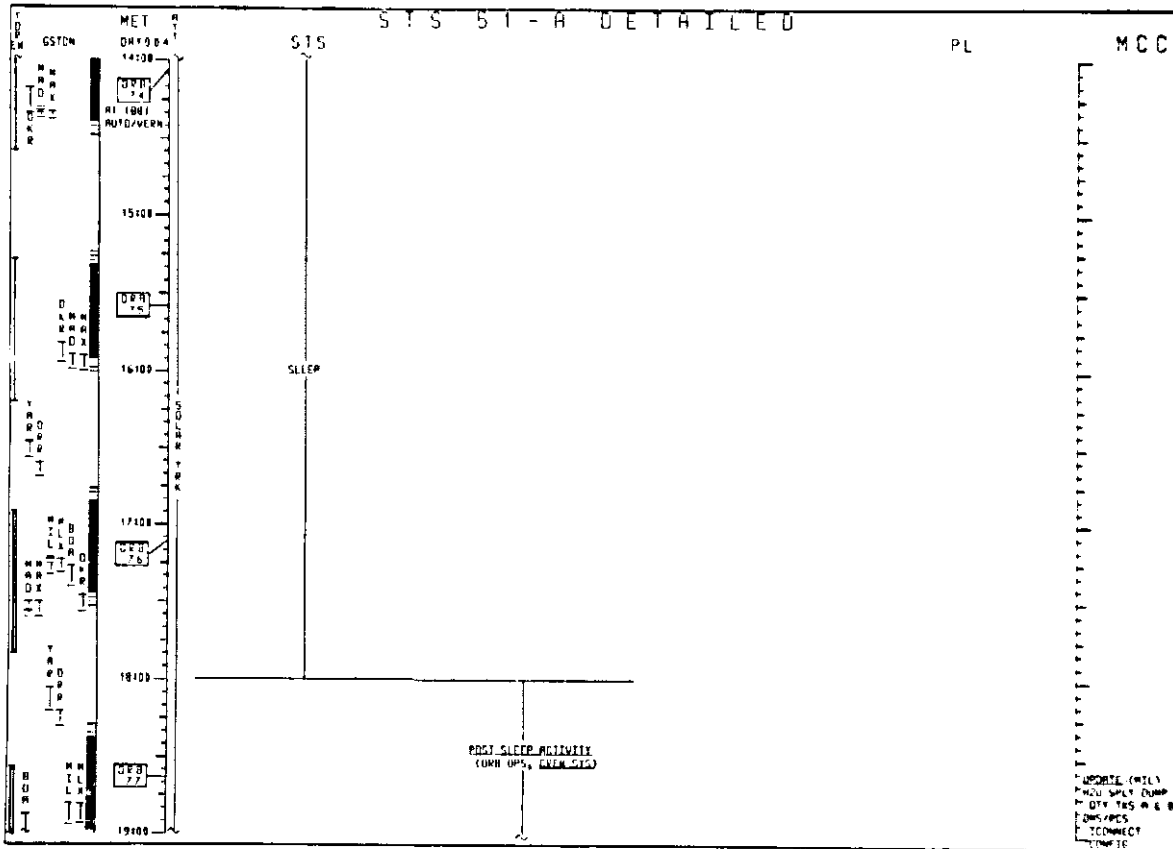
STS

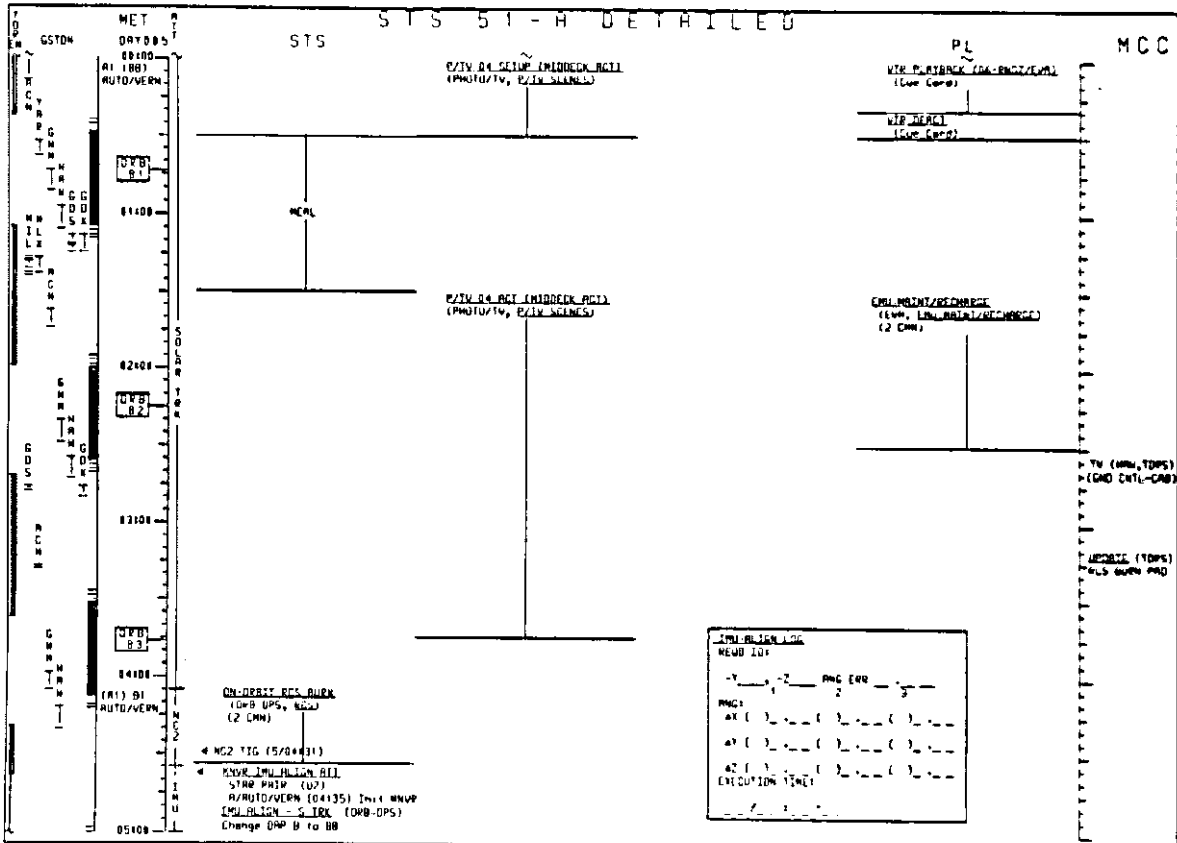
MCC

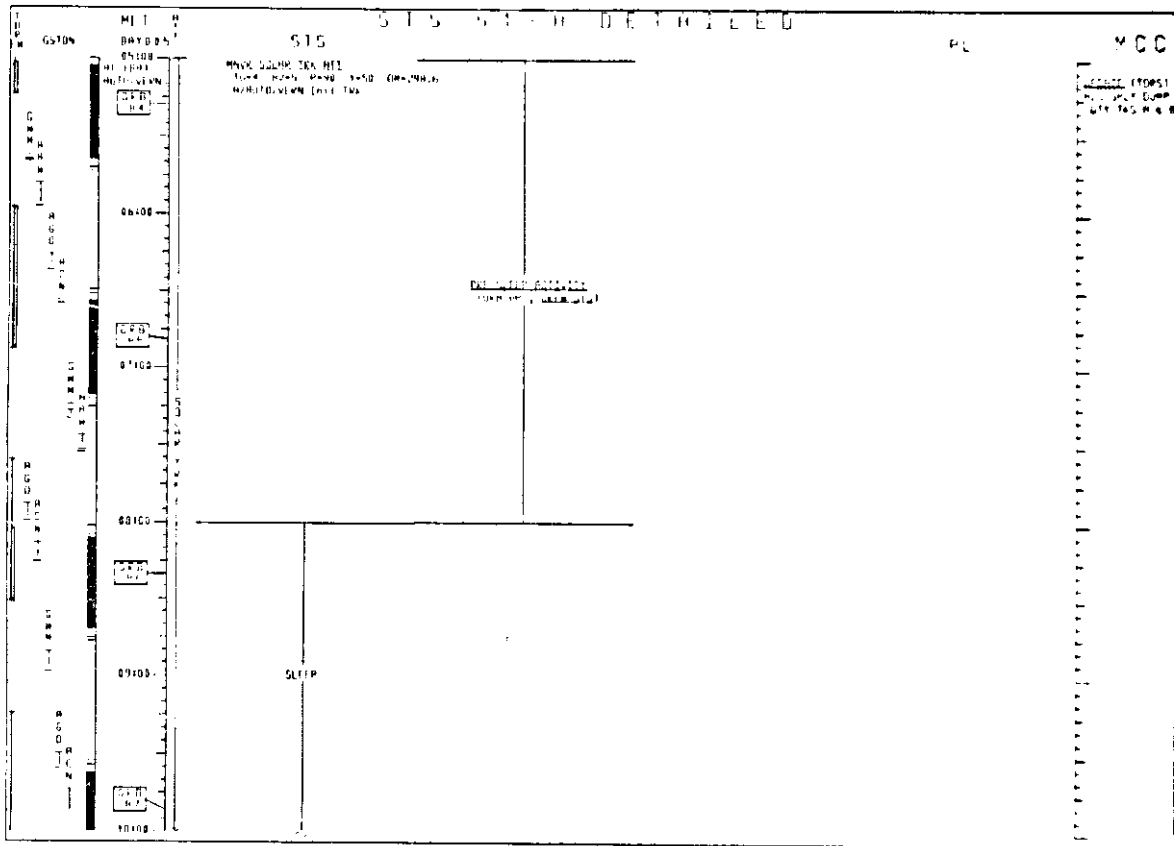




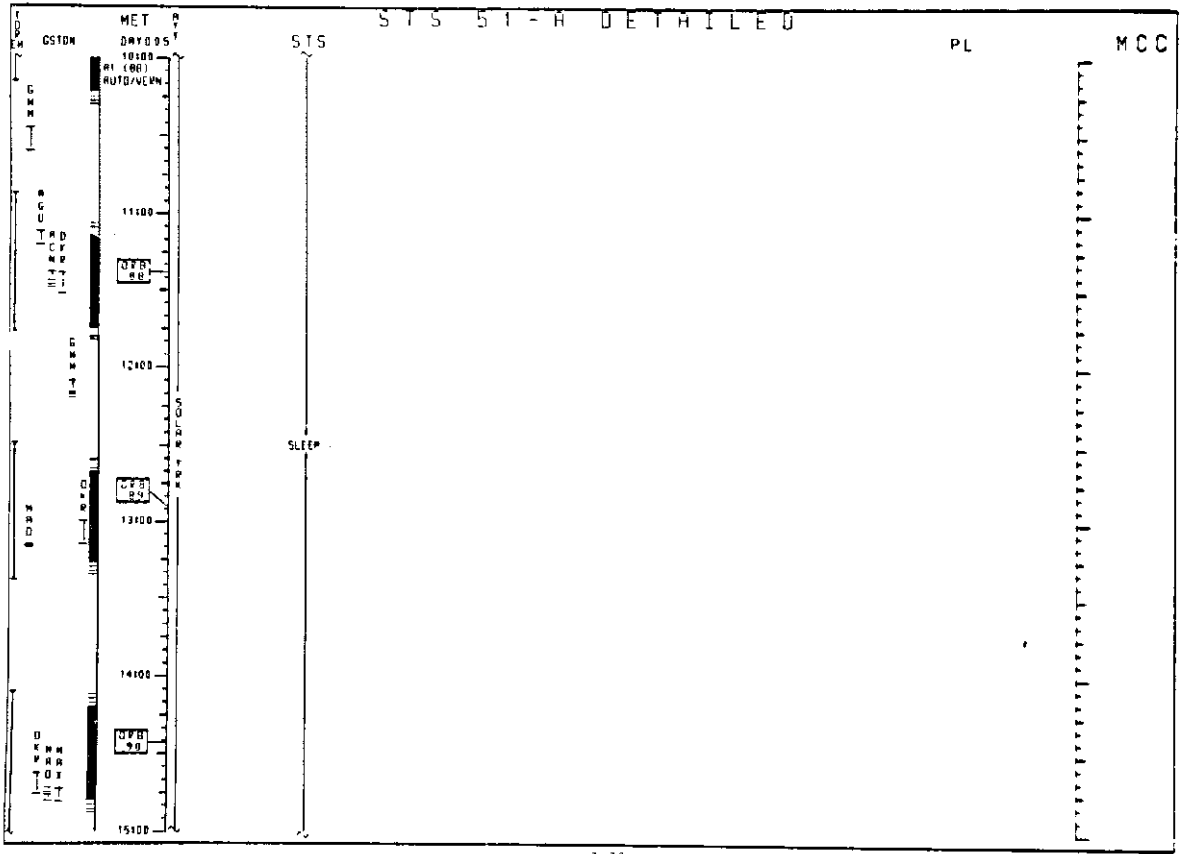
SYS 51-A DETAILED



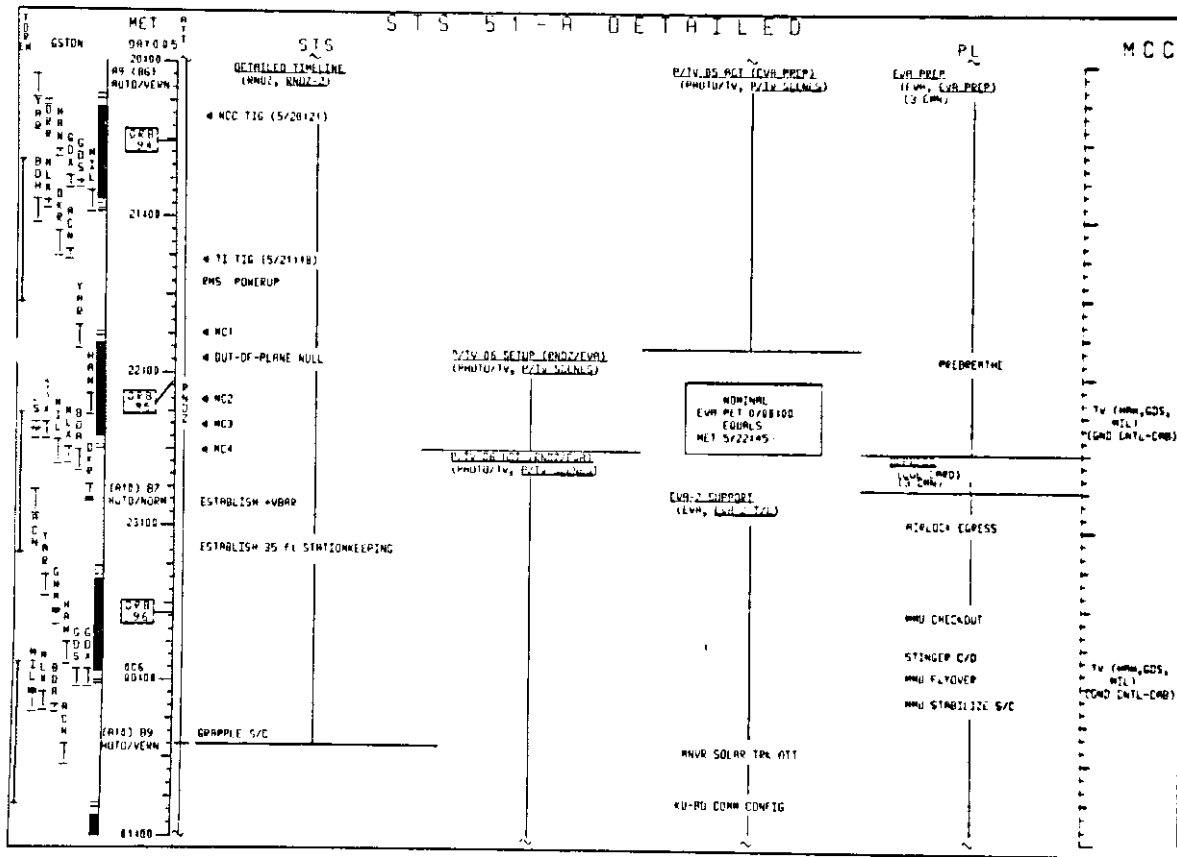


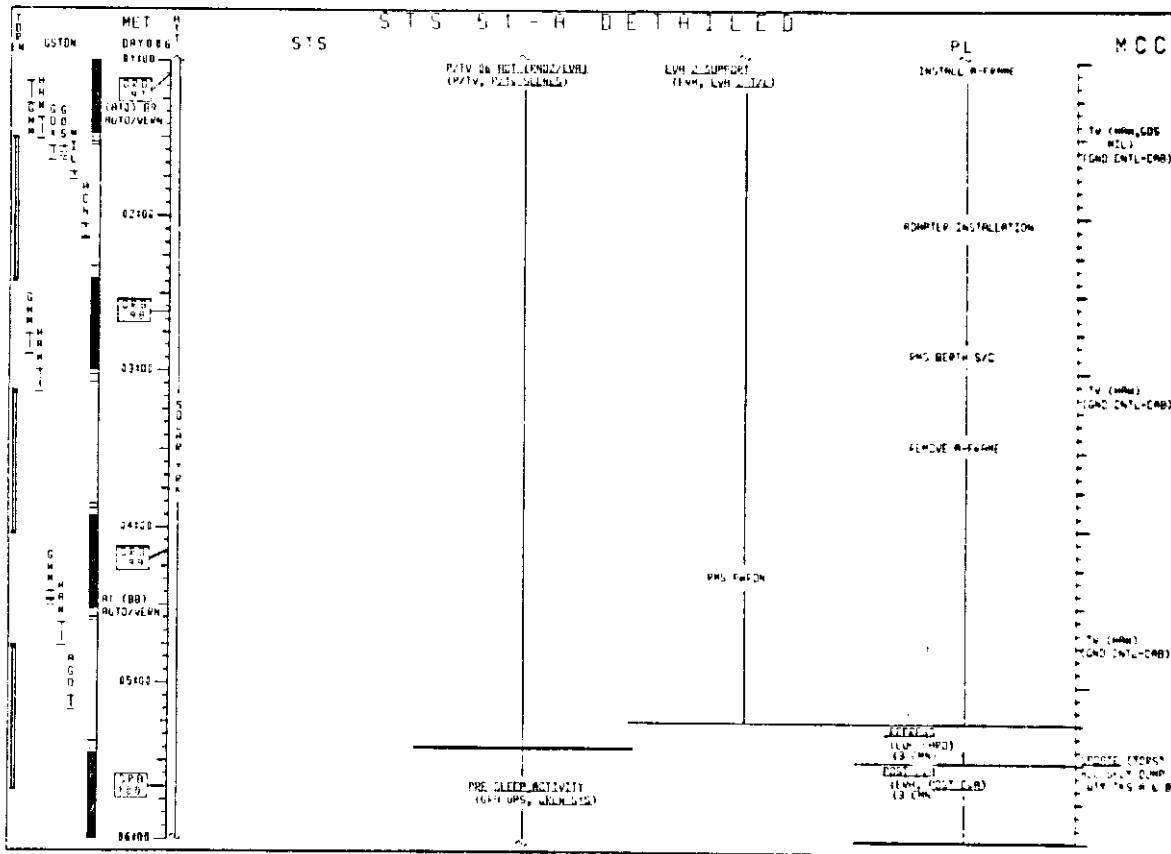


STS 51-L DETAILED



STS 51-A DETAILED



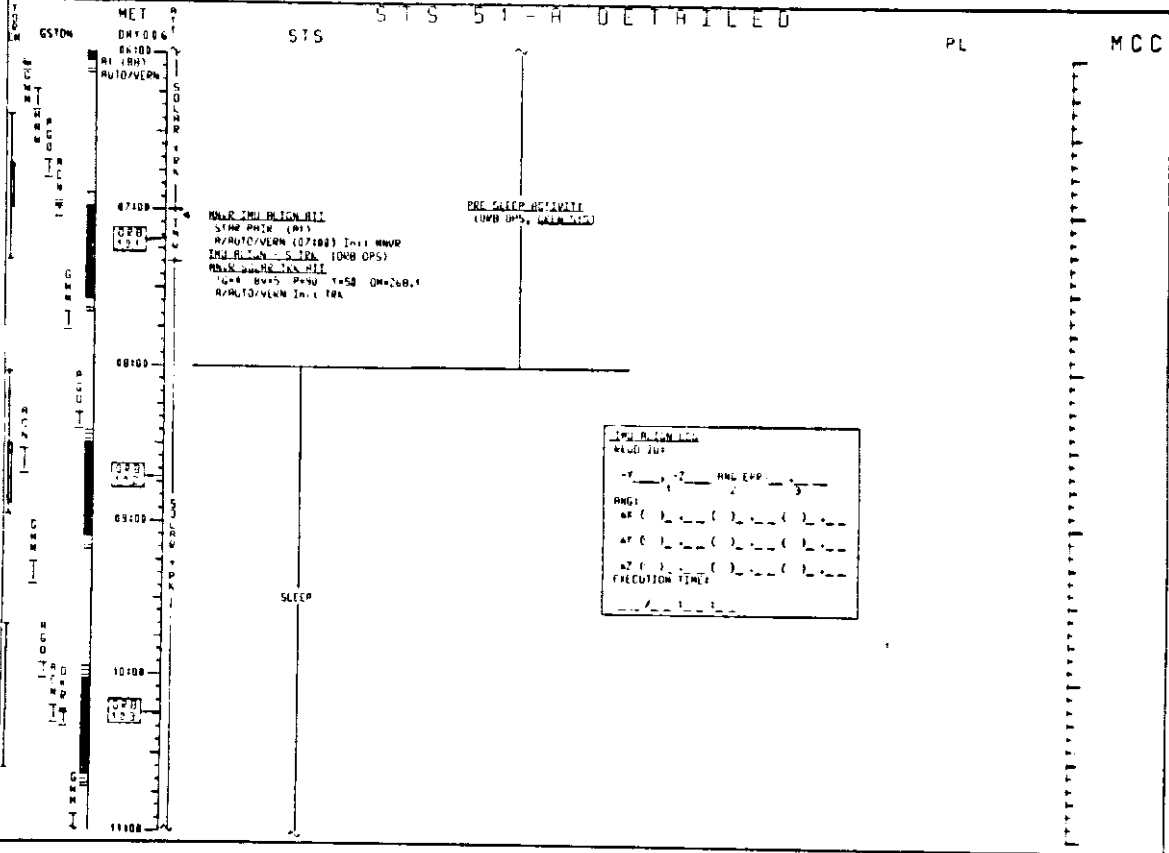


SYS 51 - A DETAILED

SYS

PL

MCC



SIS 5: - H DETAILED

0510N

M: I
0110886

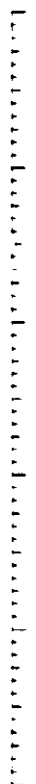
SIS

PL

MCC



SLEEP



STS 51-A DETAILED

PL

MCC

MET
 041086
 1400
 A1 (RB)
 AUTO/VERN
 1700
 18400
 19100
 20100
 2100
 21800

GSTDW
 H
 M
 B
 O
 O
 M
 I
 L
 A
 I
 T
 I
 O
 N
 S
 Y
 P
 O
 W
 E
 R
 T
 R
 A
 N
 S
 M
 I
 S
 S
 I
 O
 N
 S
 Y
 P
 O
 W
 E
 R
 T
 R
 A
 N
 S
 M
 I
 S
 S
 I
 O
 N
 S

1700
 18400
 19100
 20100
 2100
 21800

MNR IMPLIGN RTT
 STW MNR (M)
 R/AUTO/VERN (17100) Init MNR
 IMPLIGN - 5 TRN (OVB OPS)
 Type OPS: P=50 T=50 DM=100.6
 R/AUTO/VERN Init TRN

19100
 20100
 2100
 21800

19200
 20100
 2100
 21800

20100
 2100
 21800

2100
 21800

19100
 20100
 2100
 21800

19100
 20100
 2100
 21800

19100
 20100
 2100
 21800

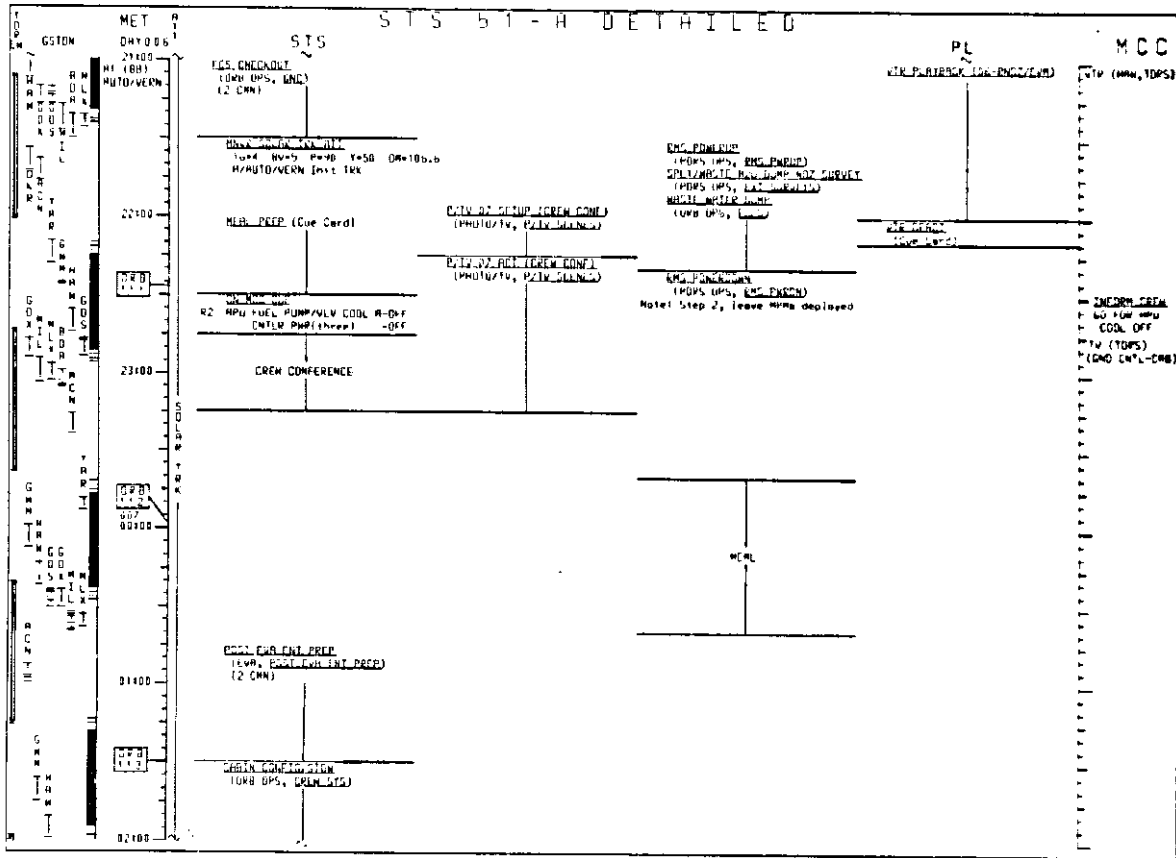
19100
 20100
 2100
 21800

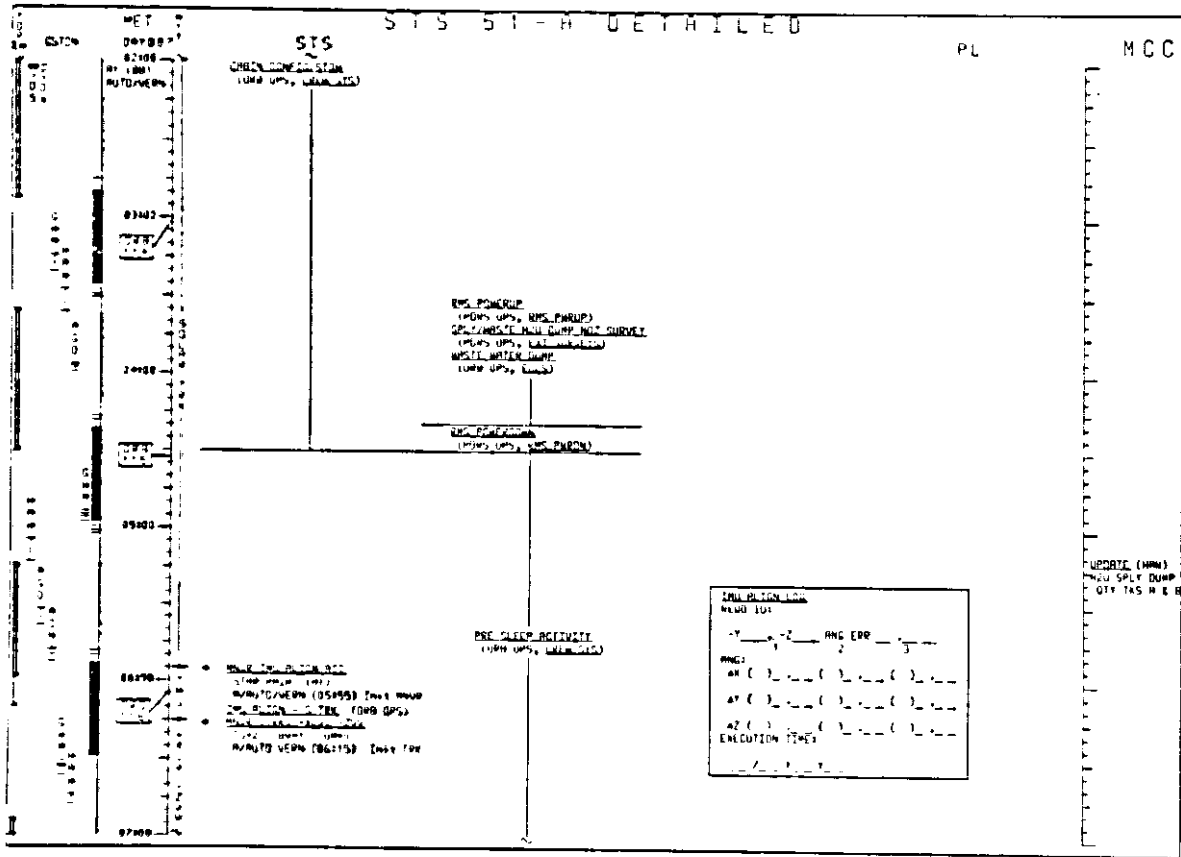
19100
 20100
 2100
 21800

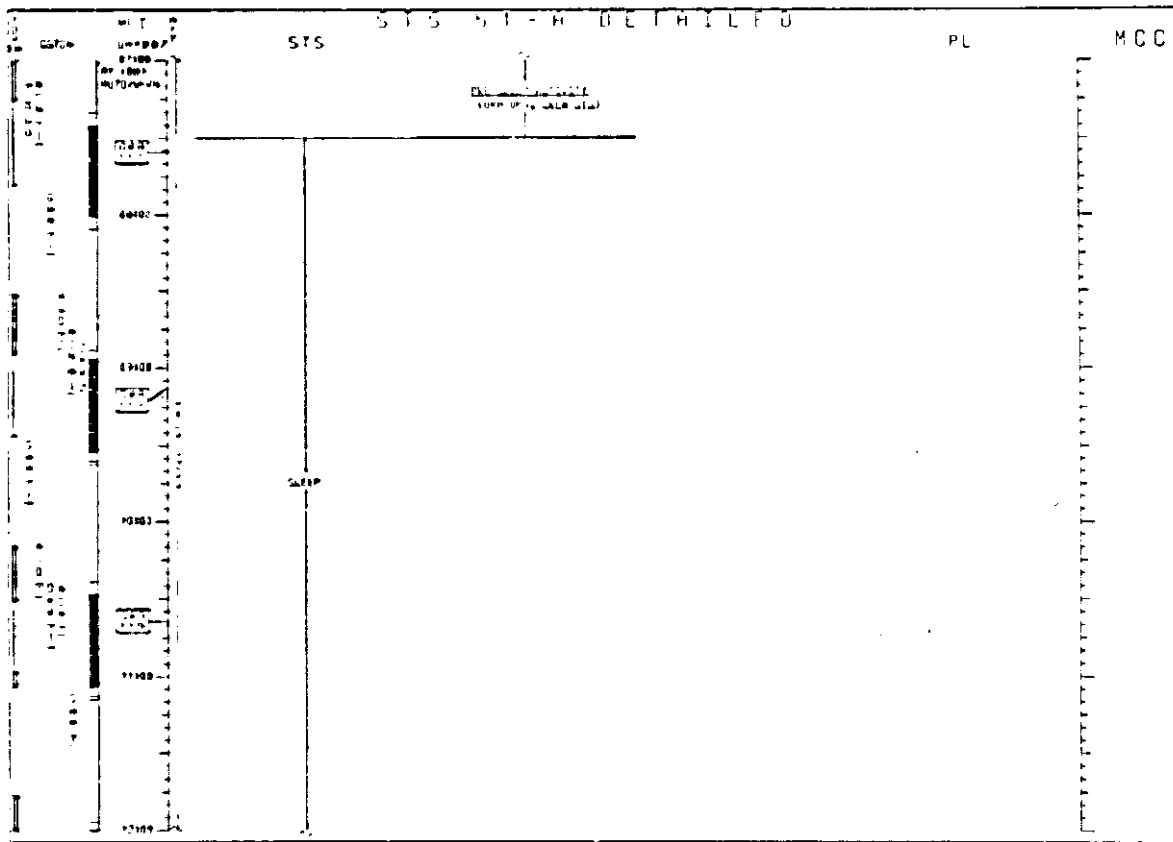
19100
 20100
 2100
 21800

19100
 20100
 2100
 21800

19100
 20100
 2100
 21800







SYS 51-H DETAILED

PL

MCC

STS

W.C. LINDSAY, Chief, Sec
1001
W. 4170 Main (471000) [Area 700]

EDIT WALKPROG/STY
(1000 0000 000000)

Update: OPT TIME SETUP PRO
**

UPDOK (MIL)
OPT TIME
SETUP PRO

GO TO DECBIT PROP AT 18:39 NET

05706
05707
05708
05709
05710
05711
05712
05713
05714
05715
05716
05717
05718
05719
05720
05721
05722
05723
05724
05725
05726
05727
05728
05729
05730
05731
05732
05733
05734
05735
05736
05737
05738
05739
05740
05741
05742
05743
05744
05745
05746
05747
05748
05749
05750
05751
05752
05753
05754
05755
05756
05757
05758
05759
05760
05761
05762
05763
05764
05765
05766
05767
05768
05769
05770
05771
05772
05773
05774
05775
05776
05777
05778
05779
05780
05781
05782
05783
05784
05785
05786
05787
05788
05789
05790
05791
05792
05793
05794
05795
05796
05797
05798
05799
05800

This Page Intentionally Blank

CONTINGENCY TIMELINES

CONTINGENCY
TIMELINES

CONTINGENCY
TIMELINES

This Page Intentionally Blank

HIGH PRIORITY MISSION

The High Priority mission timeline is based on the following assumptions:

- The mission duration is ~144 hours with landing occurring on FD7.
- The following priority activities, as defined by Flight Rules, comprise the requirements for the High Priority mission plan:
 - (1) Anik deployment
(23D PKM Primary/49A PKM Backup)
 - (2) Syncom deployment
(34A PKM Primary/49A PKM Backup)
 - (3) Palapa retrieval
- Nominal mission timeline is followed through FD5, MET 4/18:00.
- The nominal day prior to entry (FD8) timeline is used as FD6 for the High Priority timeline. Crew will wake up at MET 4/18:00 and start sleep at MET 5/08:00.
- The primary landing is at KSC runway 33 on orbit 96, MET 6/00:23, with a backup to ECW on orbit 97.
- Other payload activities will be scheduled to the maximum extent possible.

This Page Intentionally Blank

CONSUMABLES CURVES

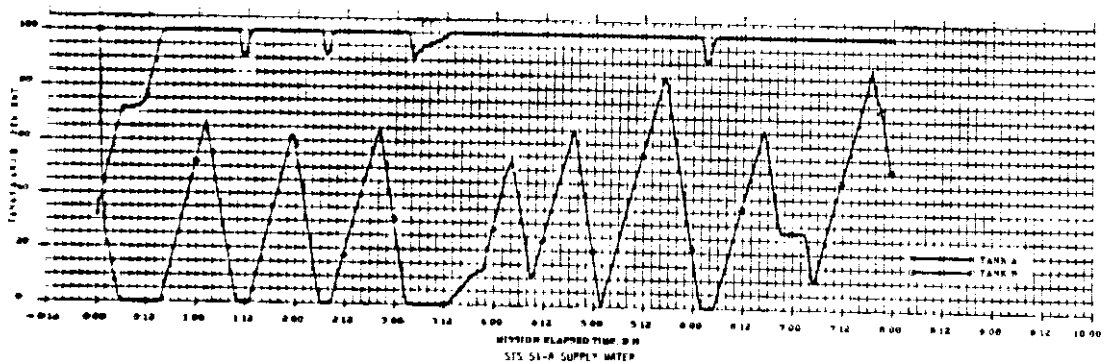
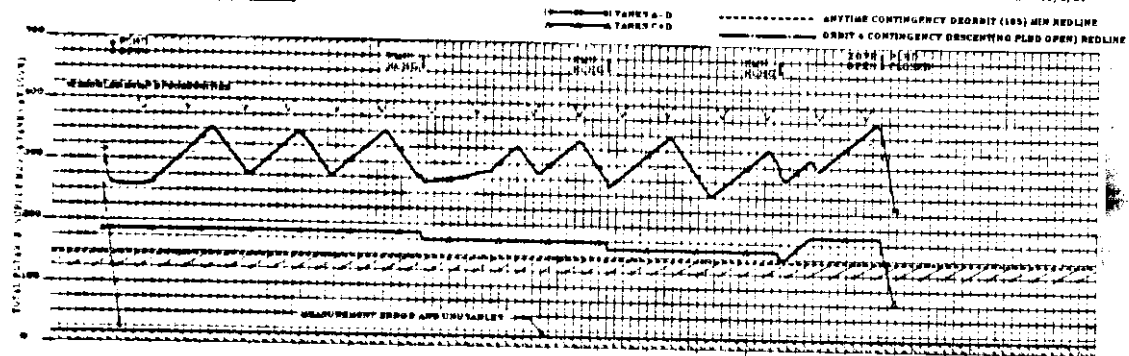
CONSUMABLES
CURVES

CONSUMABLES CURVES

MISSION PLANNING AND ANALYSIS OFFICE

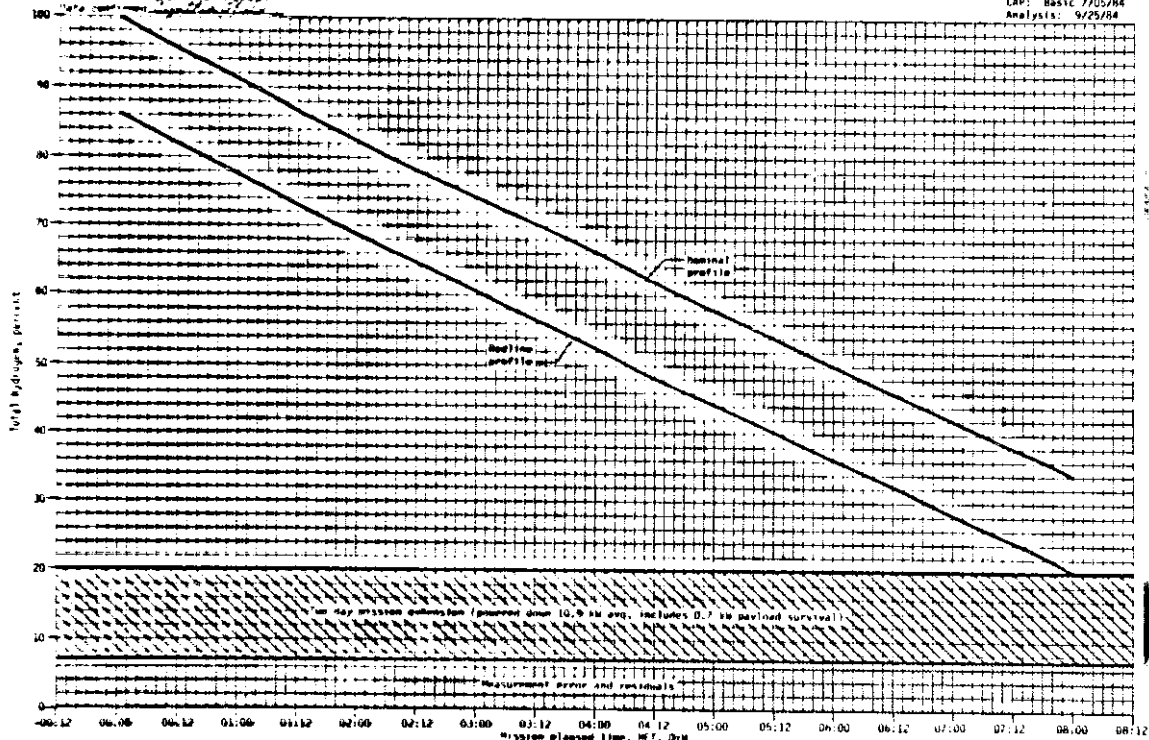
C WORLD V 2 PROGRAM
IN: 10000 10/11/84
DATE: 10/11/84

TRAJECTORY OFF
700 10/11/84
ANALYSIS DATE: 10/3/84



S. Perceval/PL/1040
Data source: JSC 198004 CAP1 2705/84
Data source: JSC 198004 CAP1 2705/84

Trajectory: Cycle 3
CAP: Basic 7705/84
Analysis: 9/25/84



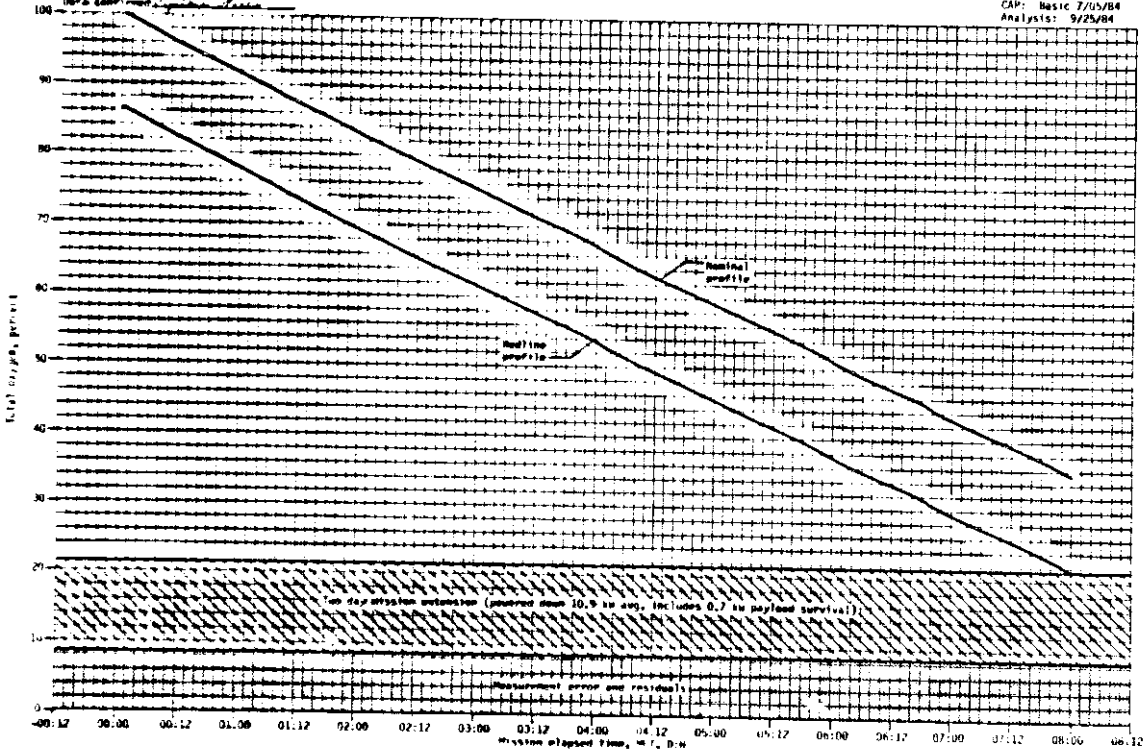
SPS 51-A cryogenic hydrogen profile.

5-3

CAP/51-A/FIN 1

S. Price/FPB/MPAD
Data source: JN-1944(CAP) 7, 05, 84
Data sample rate: 1/1000

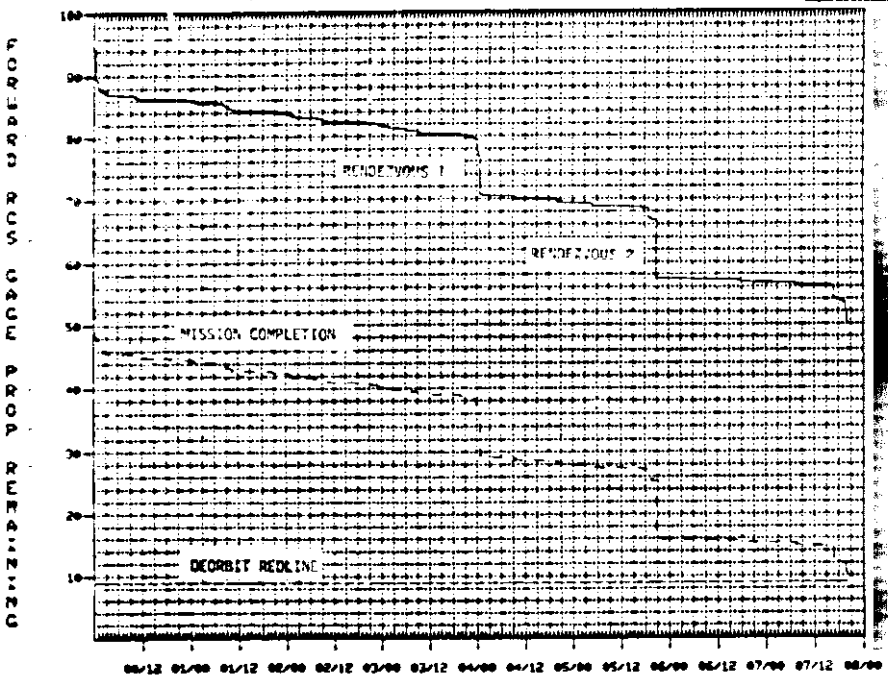
Trajectory: Cycle 3
CAP: Basic 7/US/84
Analysis: 9/25/84



ST5 51-A cryogenic oxygen profile

51-A FORWARD RCS PROP REMAINING (%GAGE)

B. E. JONES/FM2
 DATA ORIGINATOR J-737 Add 6
 J05-11949
 CHECKED BY *[Signature]*



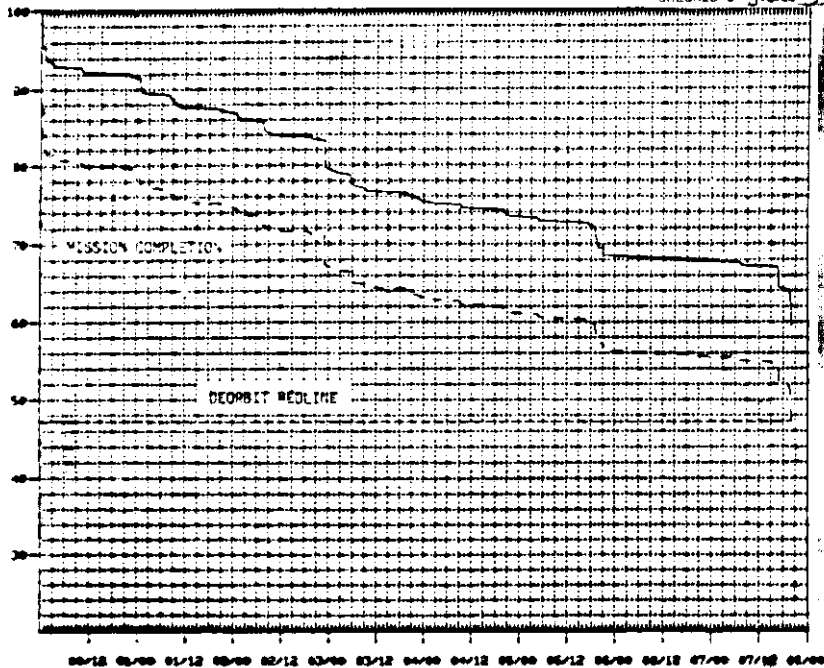
MISSION ELAPSED TIME IN DAYS/HOURS

FORWARD RCS PROP REMAINING (%GAGE)

S1-A AFT RCS PROP REMAINING (XGAGE)

B. E. JONES/PM2
 DATA SUBMITTAL J-737 Add 6
 JSC-1999 (CAP)
 CHECKED BY *[Signature]*

ALL RCS PROP AREA REMOVED

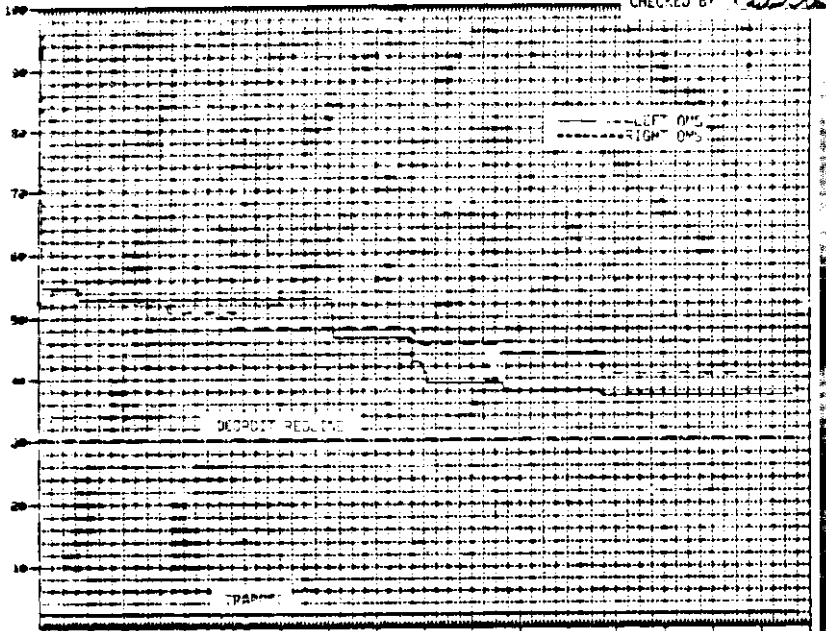


MISSION ELAPSED TIME IN DAYS/HOURS

S1-A OMS PROP REMAINING (%GAGE)

B.E. JONES/FMG
 DATA SUBJECT: J-737 AND 6
 JSC-19969
 CHECKED BY: *[Signature]*

OBS DATA FROM RECD 0110



00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00

MISSION ELAPSED TIME IN DAYS/HOURS

This Page Intentionally Blank

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

STS 51-A DAP BOOK

DAP A CONFIGURATIONS.....	6-2
DAP B CONFIGURATIONS.....	6-3
STS 51-A DAP BOOK.....	6-4

DAP BOOK

TABLE 6-1
DAP A CONFIGURATIONS

	A1*	A2	A3	A4	A5	A6	A7	A8	A9	A10
<u>TRANSLATION</u>										
PULSE ft/sec	0.10	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.05
<u>ROTATION</u>										
DSC RT										
NORM $^{\circ}$ /sec	0.200	0.400	0.200	0.200	0.200	0.200		0.500	0.200	0.200
VERN $^{\circ}$ /sec	0.200	0.400	0.200	0.008	0.200	0.200		0.200	0.200	0.200
PULSE										
NORM $^{\circ}$ /sec	0.10	0.10	0.30	0.10	0.10	0.10		0.10	0.10	0.10
VERN $^{\circ}$ /sec	0.010	0.010	0.010	0.010	0.050	0.010		0.010	0.010	0.010
COMP										
NORM $^{\circ}$ /sec	.00	.00	.00	.00	.00	.00		.00	.00	.00
VERN $^{\circ}$ /sec	.000	.000	.000	.000	.000	.000		.000	.000	.000
<u>DEADBAND</u>										
ATT										
NORM (deg)	5.00	1.00	5.00	1.00	5.00	5.00		3.00	2.00	2.00
VERN (deg)	1.000	1.000	1.000	0.070	1.000	1.000		1.000	1.000	1.000
RATE										
NORM $^{\circ}$ /sec	0.20	0.20	0.20	0.20	0.20	0.20		0.20	0.20	0.20
VERN $^{\circ}$ /sec	.020	.020	.020	.010	.020	.020		.020	.020	.020
<u>NET OPT</u>										
P	1	1	3	1	1	3		1	1	1
Y	1	1	3	3	1	3		1	1	1
CTRL ACCEL	0	0	0	0	0	0		0	0	0

*I-LOADED OPS-2 DAP Configuration

TABLE 6-1 (Cont)
DAP B CONFIGURATIONS

	B1*	B2	B3	B4	B5	B6	B7	B8	B9
<u>TRANSLATION</u>									
PULSE F ^o /sec	0.02	0.02	0.02	0.02	0.02	0.05	0.01	0.02	0.01
<u>ROTATION</u>									
DSC RT	NORM ^o /sec VERN ^o /sec	0.500 0.200	0.200 0.200	0.200 0.008	0.200 0.016	0.500 0.200	0.200 0.200	0.200 0.200	0.100 0.200
PULSE	NORM ^o /sec VERN ^o /sec	0.04 0.002	0.04 0.002	0.04 0.002	0.04 0.002	0.04 0.002	0.04 0.002	0.04 0.002	0.04 0.002
COMP	NORM ^o /sec VERN ^o /sec	.00 .000	.00 .000	.00 .000	.00 .000	.00 .000	.00 .000	.00 .000	.00 .000
<u>DEADRANG</u>									
ATT	NORM (deg) VERN (deg)	3.00 1.000	3.00 1.000	3.00 0.100	3.00 0.033	2.00 1.000	2.00 1.000	7.50 1.000	7.50 5.000
RATE	NORM ^o /sec VERN ^o /sec	0.20 .020	0.20 .020	0.20 .010	0.20 .020	0.20 .020	0.20 .020	0.20 .020	0.20 .100
<u>NET OPT</u>									
P		3	1	1	3	1	1	3	3
Y		3	1	3	3	1	1	3	3
<u>CNTRL ACCEL</u>									
		0	0	0	0	0	0	0	1

*1-LOADED OPS-2 DAP Configuration

TOP
FRONT COVER (DAP BOOK)

DAP BOOK

HOOK
VFLCRO

CAP/51-A/3/BAS

ONLY BIG	
TGT ID	1 Orbiting vehicle
	2 Earth ctr
	3 Earth tag
	Input LAT (+90)
	LPN (+180, + = East)
	ALT (+99.99-m)
	4 Sun ctr
	5 Celestial tag
	Input RA (0-359.99)
	DEC (+90)
	11-110 New Stars
ENR VFLCRO	1 - -
	2 - -
	3 - -
	4 PIC (-2" below -X)
	5 Optional
	Input P (0-359.99)
	" (270-359.99, 0-90)
	CM (2-351.99)
Input CM	-
M.N. APIS	1 - -
	2 - -

CAP/51-A/0/PEN 1

620 CAP. CONTIG	
CNTL. A/CCEL	0 - Orbiter alone
	1 - RMS OPS
OFF OF C/P	1 - Normal
	2 - Nose only
	3 - Tail only

TOP
BACK OF FRONT COVER
(DAP BOOK)

(reduced copy)

TOP

DAP PURPOSE

- A1 - NOMINAL
- ZLV
- IMJ ALIGN
- TAIL ONLY CONTROL
- BACKOUT
- PRE/POST ARM DEPLOY
- OMG BURN
- TAIL-TO-SUN
- LOSS OF VERN
- A2 - PTC
- A3 - RCS HOT FIRE
- A4 - GG
- A5 - IMJ ROTATION
- A6 - LOSS OF VERN
- (TAIL ONLY)
- A7 - (Blank)
- A8 - FRISBEE SEP
- A9 - RENDEZVOUS
- A10 - FROM DFS
- MMJ RESOLVE
- A11 - (Blank)

CAP/ST-A/D/SEN

A1

TOP

DAPA1

PURPOSE:

- ZLV
- IMJ ALIGN
- TAIL ONLY CONTROL
- BACKOUT
- PRE/POST ARM DEPLOY
- OMG BURN
- TAIL-TO-SUN
- LOSS OF VERN
- (NOSE & TAIL)

CAP/ST-A/D/SEN

A1

- | | | |
|-------|----|----------------------|
| 0-1 Q | 1 | TRANSLATION PULSE |
| 0-0 Q | 2 | ROTATION ESC AT VERN |
| 0-0 Q | 3 | ESC AT VERN |
| 0-0 Q | 4 | PULSE VERN |
| 0-0 Q | 5 | COMP VERN |
| 0-0 Q | 6 | COMP VERN |
| 0-0 Q | 7 | COMP VERN |
| 0-0 Q | 8 | DEARBAND ATT VERN |
| 0-0 Q | 9 | ATT VERN |
| 0-0 Q | 10 | RATE VERN |
| 0-0 Q | 11 | RATE VERN |
| | 12 | JET OFF P |
| | 13 | JET OFF P |
| Q | 14 | CTRL ACCEL |

CAP/ST-A/D/SEN

A2

TOP



A1

DAPA2

PURPOSE:

PTC



TOP



A2

0.1	0	1	TRANSLATION	
			PULSE	
0.4	0	2	ROTATION	
0.4	0	3	DSC RT	NORM
0.4	0	3		VERN
0.4	0	4	PULSE	NORM
0.4	0	5		VERN
0.0	0	6	COMP	NORM
0.0	0	7		VERN
DEADBAND				
1.0	0	8	ATT	NORM
1.0	0	9		VERN
0.2	0	10	RATE	NORM
0.2	0	11		VERN
		12	JET OFF	P
		13		Y
0		14	CTRL ACCEL	

CAP/51-A/O/BAS

CAP/51-A/O/BAS



TOP



A3



A2

DAPA3

PURPOSE:

PCS HOT PIPE



TOP

A3

0.1	0	1	TRANSLATION	
			PULSE	
0.4	0	2	ROTATION	
0.4	0	3	DSC RT	NORM
0.4	0	3		VERN
0.4	0	4	PULSE	NORM
0.4	0	5		VERN
0.0	0	6	COMP	NORM
0.0	0	7		VERN
DEADBAND				
1.0	0	8	ATT	NORM
1.0	0	9		VERN
0.2	0	10	RATE	NORM
0.2	0	11		VERN
		12	JET OFF	P
		13		Y
0		14	CTRL ACCEL	

CAP/51-A/O/BAS

CAP/51 A/O/BAS



TOP



A4



(reduced copy)

A3

DAPA 4

PURPOSE:
GG

CAP/SI-A/D/EAS

+

TCP

+

DAPA 5

PURPOSE:
IMU ROTATION

CAP/SI-A/D/EAS

+

TCP

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

+

TOP

+

A4

0.1 Q	1	TRANSLATION PULSE	
0.2 Q	2	ROTATION OSC RT	NORM
0.1 Q	3		VERN
0.1 Q	4	PULSE	NORM
0.1 Q	5		VERN
0.1 Q	6	COMP	NORM
0.1 Q	7		VERN
DEADBAND			
1.0 Q	8	ATT	NORM
0.2 Q	9		VERN
0.2 Q	10	RATE	NORM
0.1 Q	11		VERN
1	12	JET OPT	P
3	13		Y
Q	14	ENTL ACCEL	

CAP/SI-A/D/EAS

A5

0.1 Q	1	TRANSLATION PULSE	
0.2 Q	2	ROTATION OSC RT	NORM
0.1 Q	3		VERN
0.1 Q	4	PULSE	NORM
0.1 Q	5		VERN
0.1 Q	6	COMP	NORM
0.1 Q	7		VERN
DEADBAND			
1.0 Q	8	ATT	NORM
0.2 Q	9		VERN
0.2 Q	10	RATE	NORM
0.1 Q	11		VERN
1	12	JET OPT	P
3	13		Y
Q	14	ENTL ACCEL	

CAP/SI-A/D/EAS

A6

+

+

+

+

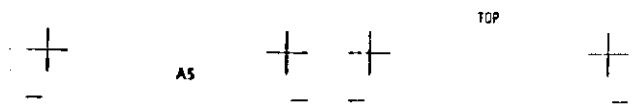
+

+

+

+

+



A5

DAP A6

PURPOSE:
LOSS OF VERN
(TAIL ONLY)

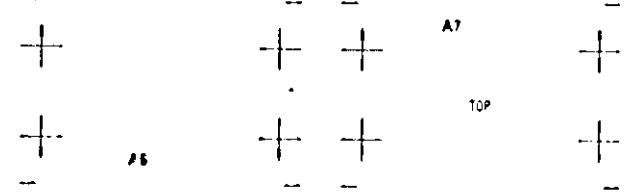
TOP

A6

- 0-1 0 1 TRANSLATION PULSE
- 0-2 0 2 ROTATION
- 0-3 0 3 DSC RT NORM
- 0-4 0 4 VERN
- 0-5 0 5 PULSE NORM
- 0-6 0 6 VERN
- 0-7 0 7 COMP NORM
- 0-8 0 8 VERN
- 0-9 0 9 DEADBAND
- 0-10 0 10 ATT NORM
- 0-11 0 11 VERN
- 0-12 0 12 RATE NORM
- 0-13 0 13 VERN
- 0-14 0 14 JET OPT P
- 0-15 0 15 Y
- 0-16 0 16 CNTL ACCEL

CAP/SI-A/O/BAS

CAP/SI-A/O/BAS



A7

TOP

A6

DAPA7

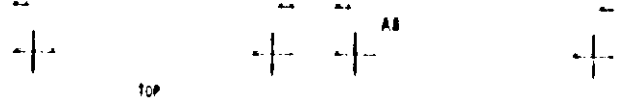
PURPOSE: (BTA-k)

A7

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

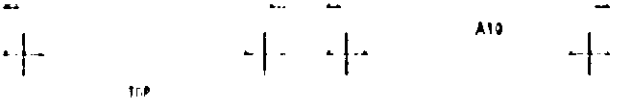
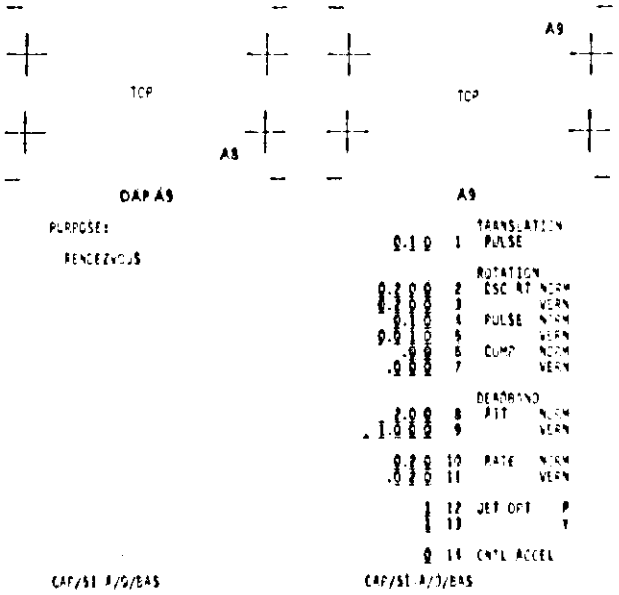
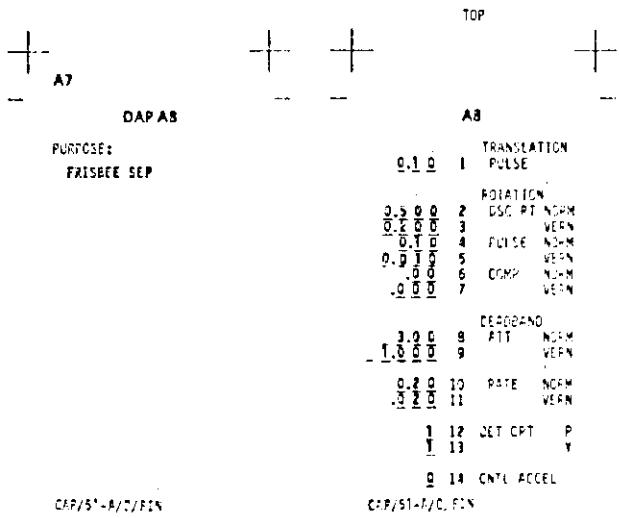
CAP/SI-A/O/BAS

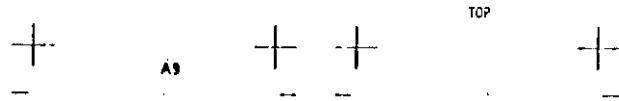
CAP/SI A/O/BAS



A8

TOP





A9

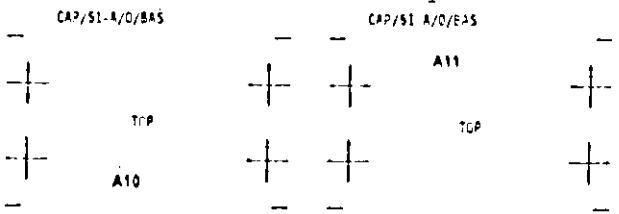
DAPA10

PURPOSE:
PROX OPS
MMU RESCUE

TOP

A10

- | | | |
|-----|----|----------------------|
| 0.0 | 1 | TRANSLATION PULSE |
| 0.2 | 2 | ROTATION DSC RT NORM |
| 0.0 | 3 | VERN |
| 0.0 | 4 | PULSE NORM |
| 0.0 | 5 | VERN |
| 0.0 | 6 | COMP NORM |
| 0.0 | 7 | VERN |
| 2.0 | 8 | DEADBAND ATT NORM |
| 1.0 | 9 | VERN |
| 0.2 | 10 | RATE NORM |
| 0.0 | 11 | VERN |
| 1 | 12 | JET OPT P |
| 1 | 13 | Y |
| 0 | 14 | CNTL ACCEL |



CAP/SI-A/O/BAS

CAP/SI A/O/EAS

TOP

TOP

A10

A11

DAPA11

PURPOSE: (B1a +)

A11

- | | | |
|-----|----|----------------------|
| 0.0 | 1 | TRANSLATION PULSE |
| 0.2 | 2 | ROTATION DSC RT NORM |
| 0.0 | 3 | VERN |
| 0.0 | 4 | PULSE NORM |
| 0.0 | 5 | VERN |
| 0.0 | 6 | COMP NORM |
| 0.0 | 7 | VERN |
| 2.0 | 8 | DEADBAND ATT NORM |
| 1.0 | 9 | VERN |
| 0.2 | 10 | RATE NORM |
| 0.0 | 11 | VERN |
| 1 | 12 | JET OPT P |
| 1 | 13 | Y |
| 0 | 14 | CNTL ACCEL |



CAP/SI-A/O/BAS

CAP/SI A/C/BAS

TOP

+

A11

+

TOP

+

DSP

PERPUSE

- B1 - NOMINAL
PCIS IMJ ALIGN
TOP-TO-SUN
TAIL ONLY CONTROL
BACKOUT
CAS & PCS BUENS
- B2 - LOSS OF OPEN
(TAIL ONLY)
- B3 - LOSS OF REFR;
DD PWR
- B4 - FAN REPLY
FANSEE DEFECT
- B5 - DD PWR
DD PWR CALL
- B6 - DD PWR CALLS
- B7 - LOSS OF PS
- B8 - LOSS OF PS
(TAIL ONLY) (2.5"SB)
- B9 - RMS EPS
- B10 - (318**)

CAP/S1-A/O/BAS

CAP/S1-A/O/FIN

+

+

B1

+

+

+

TOP

+

OAP B1

B1

PURPOSE:

- PCIS IMJ ALIGN
- TOP-TO-SUN
- TAIL ONLY CONTROL
- BACKOUT
- CAS & PCS BUENS

TRANSLATION	15	0.0 Z
PULSE		
ROTATION		
DSC RT NORM	16	0.5 0.0 0.0
PCIS RT NORM	17	0.5 0.0 0.0
PULSE NORM	18	0.0 0.0 0.0
VERN	19	0.0 0.0 0.0
COMP NORM	20	0.0 0.0
VERN	21	0.0 0.0

DEROBAND

ATT	NORM	22	1.0 0
VERN	23	1.0 0 0	
RATE	NORM	24	0.0 0
VERN	25	0.0 0	

JET OPT	P	26	1
	Y	27	1

ONTL ACCEL 28 0

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS

+

+

B2

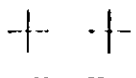
+

TOP

+	+	+	+
-	-	-	-
B1			TOP
DAP B2			B2
PURPOSE:		TRANSLATION	
LOSS OF VERN		PULSE	15 0.0 2
(TAIL ONLY)		ROTATION	
		DSC RT NORM	16 0.2 0 0
		VERN	17 0.2 0 0
		PULSE NORM	18 0.0 0 0
		VERN	19 0.0 0 2
		COMP NORM	20 0.0 0 0
		VERN	21 0.0 0 0
		DEADBAND	
		ATT NORM	22 3.0 0
		VERN	23 1.0 0 0
		RATE NORM	24 0.2 0
		VERN	25 0.2 0
		JET OPT P	26 3
		Y	27 3
		CNT'L ACCEL	28 0
CAP/S1-A/O/BAS		CAP/S1-A/O/BA"	

+	+	+	+
-	-	-	-
TOP			TOP
B2			B3
DAP B3			B3
PURPOSE:		TRANSLATION	
LOSS OF VERN		PULSE	15 0.0 2
(NOSE & TAIL)		ROTATION	
GG MNR		DSC RT NORM	16 0.2 0 0
		VERN	17 0.2 0 0
		PULSE NORM	18 0.0 0 0
		VERN	19 0.0 0 0
		COMP NORM	20 0.0 0 0
		VERN	21 0.0 0 0
		DEADBAND	
		ATT NORM	22 3.0 0
		VERN	23 1.0 0 0
		RATE NORM	24 0.2 0
		VERN	25 0.2 0
		JET OPT P	26 1
		Y	27 1
		CNT'L ACCEL	28 0
CAP/S1-A/O/BAS		CAP/S1-A/O/BAS	

+	+	+	+
-	-	-	-
TOP			TOP
B4			B4



TOP

DAP B4

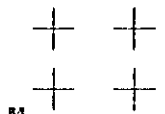
PURPOSE:
PAM DEPLOY
FRISBEE DEPLOY

B4

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

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



TOP

TOP

B4

B5

DAP B5

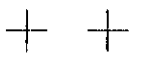
PURPOSE:
CCAS CAL

B5

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

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



B6

TOP

TOP

B5

DAP B6

PURPOSE:
RENDEZVOUS

B6

TRANSLATION
PULSE 15 0.0 5ROTATION
DSC RT NORM 16 0.5 0 0
VERN 17 0.2 0 0
PULSE NORM 18 0.0 0 0
VERN 19 0.0 0 0
COMP NORM 20 0.0 0 0
VERN 21 0.0 0 0DEADBAND
ATT NORM 22 2.0 0
VERN 23 1.0 0 0RATE NORM 24 0.2 0
VERN 25 0.2 0 0JET CPT P 26 1
Y 27 1

CNTL ACCEL 28 0

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS

B7

TOP

TOP

B6

DAP B7

B7

PURPOSE:
PRCK OPSTRANSLATION
PULSE 15 0.0 1ROTATION
DSC RT NORM 16 0.2 0 0
VERN 17 0.2 0 0
PULSE NORM 18 0.0 0 0
VERN 19 0.0 0 0
COMP NORM 20 0.0 0 0
VERN 21 0.0 0 0DEADBAND
ATT NORM 22 2.0 0
VERN 23 1.0 0 0RATE NORM 24 0.2 0
VERN 25 0.2 0 0JET OPT P 26 1
Y 27 1

CNTL ACCEL 28 0

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS

B8

TOP



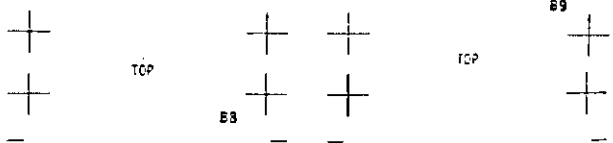
DAP 88

PURPOSE:
LOSS OF VERN (2.5°DB)
TAIL ONLY MWR

88

TRANSLATION			
PULSE	15	0.0	2
ROTATION			
DSC RT NORM	16	0.2	0 0
VERN	17	0.2	0 0 0 0
PULSE NORM	18	0.0	0 0 4
VERN	19	0.0	0 0 2 0
COMP NORM	20	0.0	0 0 0 0
VERN	21	0.2	0 0 0
DEADBAND			
ATT NORM	22	7.5	0
VERN	23	1.0	0 0
RATE NORM	24	0.2	0
VERN	25	0.2	0
JET CPT P	26		3
Y	27		3
CNTL ACCEL	28		0

CAP/ST-A/O/FIN



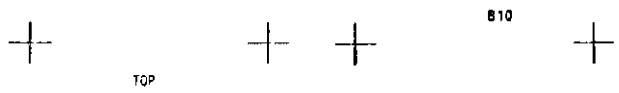
DAP 89

PURPOSE:
RMS GPS

89

TRANSLATION			
PULSE	15	0.0	1
ROTATION			
DSC RT NORM	16	0.1	0 0
VERN	17	0.2	0 0 0 0
PULSE NORM	18	0.0	0 0 0 0
VERN	19	0.0	0 0 0 0
COMP NORM	20	0.0	0 0 0 0
VERN	21	0.1	0 0
DEADBAND			
ATT NORM	22	7.5	0
VERN	23	5.0	0 0
RATE NORM	24	0.2	0
VERN	25	0.1	0 0
JET CPT P	26		1
Y	27		1
CNTL ACCEL	28		1

CAP/ST-A/O/FIN





89

CAP 810

PURPOSE: (81a-4)



TOP



810

TRANSLATION		
PULSE	15	----
ROTATION		
DSC RT NORM	16	----
VERM	17	----
PULSE NORM	18	----
VERM	19	----
COMP NORM	20	----
VERM	21	----

DEADEND		
ATT NORM	22	----
VERM	23	----

RATE NORM	24	----
VERM	25	----

JET OPT P	26	----
Y	27	----

CNTL ACCEL 28

CAP/51-A/D/BAS

CAP/51-A/D/BAS



TOP



810



CAP/51-A/D/BAS



TOP



TOP
BACK COVER "DAP BOK"



HOOK
VELCRO

CAP/SI-A/O/BAS



This Page Intentionally Blank

1 7

ATTITUDE
TIMELINE

STS 51-A ATTITUDE TIMELINE

Attitude Timeline

REV	MNVR OPTION		DAF	E S	REMARKS	EVENT
1	0 00:03:34		* AUTO * DSC 0.500 DB AT 3.50 DB RT 0.30			RECO
2	0 00:04:30 12:59	MNVR F+110.00 F+ 43.00 Y+297.00	* AUTO * DSC 0.500 DB AT 3.50 DB RT 0.30	SUN 0 69 0 209		OMS-1 ATT
3	0 00:10:35	OMS IGNITION	* AUTO * DSC 0.500 DB AT 3.50 DB RT 0.30		DV = 240.8 DT = 2:36	OMS-1
4	0 00:20:00 24:07	MNVR F+116.50 F+ 2.22 Y+ 72.97	* AUTO * DSC 0.500 DB AT 3.50 DB RT 0.30	SUN 0 142 0 306		OMS-2 ATT
5	0 00:44:53	OMS IGNITION	* AUTO * DSC 0.500 DB AT 3.50 DB RT 0.30		DV = 175.9 DT = 1:59.8	OMS-2
6	0 01:10:00 17:07	TF# TGT#2 EV#3: 90.00, 320.40 OM=100.00	A1 AUTO NOFM DSC 0.200 DB AT 5.00 DB RT 0.20	EARTH 0 90 0 328	LVLH F+212 F+ 0 Y+ 0	IRABED -OLV FLIED OPENING ATT
7	0 01:20:00 14:12	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO NEFH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 76 0 134	-Y ST: 38 -Z ST: 13 03:19-03:04	IMU ALIGN (A1) COAS STAF 13 ANG DIFF 85.1
8	0 01:50:00 33:04:03	TF# TGT#2 EV#3: 90.00, 0.00 OM=100.00	A1 AUTO NEFH DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0 0	LVLH F+180 F+ 0 Y+ 0	-OLV NOISE FWD
9	0 01:25:00 33:49	MNVR F+124.00 F+354.29 Y+ 74.14	E1 AUTO NEFH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 142 0 309	TVF = 100	NO1-1 ATT (PALAPA)
10	0 01:47:33	OMS IGNITION	E1 AUTO NOFM DSC 0.500 DB AT 3.00 DB RT 0.20		DV = 10.3 DT = 0:9.4	NO1-1
11	0 01:55:00 10:02:43	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO NEFH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 76 0 134	-Y ST: 38 -Z ST: 13 03:50-10:35	IMU ALIGN FAIR A!
12	0 10:20:00 34:06	TF# TGT#2 EV#3: 90.00, 0.00 OM= 90.00	A1 AUTO NEFH DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0 360	LVLH F+180 F+ 0 Y+270	-OLV -YVV FOPT WING FLD

Attitude Timeline

NET	MNVR OPTION		DAP	E-S	REMARKS	EVENT
1 0 21:55:00 22:04:19	MNVR R+ 92.40 P+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	SUN 0 76 1 134	-Y 51: 38 -Z 51: 13 21:53-22:38	JMU ALIGN FAIR A1
2 0 22:15:00 28:40	TRF TGT=2 EV=3(90.00, 0.00) OM=100.00	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	EARTH 0 90 1 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE PWD
3 0 22:40:00 49:42	MNVR R+233.21 P+171.23 Y+288.31	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	SUN 0 35 1 232		NH ATT
4 1 00:06:23	RCS EURN	E1 MAN NORM	DSC 0.500 DE AT 3.00 DE RT 0.20		DV = 0.0 DT = 0:26.3	NH
5 1 00:08:00	LVLH	A1 LVLH VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	EARTH 0 12 1 0	LVLH F+100 F+355 Y+100	LVLH ATT HOLD
6 1 00:30:00 35:58	MNVR R+115.86 P+ 3.00 Y+ 64.20	E1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	SUN 0 150 1 297	TRF = 100	CIRC ATT
7 1 00:51:34	CMS IGNITION	E1 MAN NORM	DSC 0.500 DE AT 3.00 DE RT 0.20		DV = 14.1 DT = 0:09	CIRC
8 1 01:25:00 29:15	TRF TGT=2 EV=3(90.00, 0.00) OM=100.00	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	EARTH 0 90 1 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE PWD
9 1 01:08:19 19:35	MNVR R+ P+ TED Y+	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	SUN 0 90 1 251		TELESAT DEPLOY ATT
10 1 02:47:09	TELESAT DEPLOY	E4 AUTO VERN	DSC 0.008 DE AT 0.10 DE RT 0.01			
11 1 03:50:09 56:05	MNVR R+255.12 P+197.40 Y+324.39	A1 AUTO VERN	DSC 0.200 DE AT 1.00 DE RT 0.02	SUN 0 30 1 300		CMS SEP ATT
12 1 03:02:50	CMS IGNITION	E1 AUTO NORM	DSC 0.500 DE AT 3.00 DE RT 0.20		DV = 11.0 DT = 0:19.7	TELESAT SEP

Attitude Timeline

MEY	MNVR OPTION	IAP	E/S	REMARKS	EVENT
1 1 09:05:09 06:01	TRK TGT=2 EV=3: 90.00, 0.00 OM=100.00	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0	LVLH R+100 F+ 0 Y+ 0	TELESAT MONITOR ATT -ZLV NOSE FWD
2 1 09:16:09 21:02	TRK	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 115 0 215		CREITER WINDOW FACILEY ATT
3 1 09:22:09	STOP	A1 MAN VERN DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 77 0 55	TRD	ATTITUDE HOLD FMS FHM VIEW
4 1 10:00:00 11:02	MNVR R+ 92.40 F+210.00 Y+ 17.00	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 77 0 134	-Y ST: 38 -Z ST: 13 09:57-10:42	IMJ ALIGN FAIR A1
5 1 10:20:00 34:02	TRK TGT=2 EV=3: 90.00, 0.00 OM= 90.00	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0 360	LVLH R+100 F+ 0 Y+270	-ZLV -YVV PORT WING FWD
6 1 10:30:00 39:32	MNVR R+ 92.40 F+210.00 Y+ 17.00	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 77 0 134	-Y ST: 38 -Z ST: 13 20:32-21:16	IMJ IGN FAIR A1
7 1 10:50:00 21:03:44	TRK TGT=2 EV=3: 90.00, 0.00 OM= 0.00	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0	LVLH R+ 0 F+100 Y+ 0	-ZLV TAIL FWD
8 2 00:13:48 25:30	MNVR R+ F+ TRD Y+	A1 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 76 0 158		SYNCOM DEPLOY ATT
9 2 00:33:48	SYNCOM DEPLOY	E4 AUTO VERN DSC 0.000 DB AT 0.10 DB RT 0.01			
10 2 00:41:48 47:37	MNVR R+106.52 F+ 16.54 Y+ 30.61	B5 AUTO NOFM DSC 0.500 DB AT 3.00 DB RT 0.20	SUN 0 149 0 229		OMS SEP ATT
11 2 00:53:02	OMS IGNITION	E1 AUTO NOFM DSC 0.500 DB AT 3.00 DB RT 0.20		DV = 15.0 DT = 0:12.2	SYNCOM SEP
12 2 00:59:48 51:02	TRK TGT=2 EV=3: 90.00, 0.00 OM=100.00	B5 AUTO VERN DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0	LVLH R+100 F+ 0 Y+ 0	SYNCOM MONITOR ATT -ZLV NOSE FWD

Attitude Timeline

KEY	MNVR OPTION		DHP	E/E	REMARKS	EVENT	
1 2-01:07:48 22:14	TSD		AB AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 111 1 171	TSD CPRETR WINDOW PROTECT ATT	
2 2-01:23:48	STOP		AB MAN VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 102 1 149	ATTITUDE HOLD	
3 2-01:33:48 45:04	TRF TGT=2 EV=3(90.00, 0.00) CM=100.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 1 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE FWD
4 2-06:53:00 07:00:31	MNVR R+182.91 F+293.30 Y+244.12		B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 104 1 145		NFC ATT
5 2-07:12:29	POS BURN		B1 MAN NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		IV = 0.8 IT = 0:3.1	NFC
6 2-07:13:00	LVLH		A1 LVLH VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 83 1 312	LVLH F+ 90 F+272 Y+291	LVLH ATT HOLD
7 2-08:35:00 42:37	MNVR F+ 92.40 F+218.00 Y+ 17.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 78 1 135	-Y ST: 38 -Z ST: 13 08:38-09:22	IMU ALIGN PAIR A1
8 2-08:55:00 09:07:36	TRF TGT=2 EV=3(90.00, 0.00) CM= 90.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 1 100	LVLH F+100 F+ 0 Y+270	-ZLV -YVW PORT WING FWD
9 2-19:15:00 24:02	MNVR F+ 92.40 F+218.00 Y+ 17.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 78 1 135	-Y ST: 38 -Z ST: 13 19:13-19:58	IMU ALIGN PAIR A1
10 2-19:35:00 43:07	TRF TGT=2 EV=3(90.00, 0.00) CM=100.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 1 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE FWD
11 2-23:05:00 15:42	MNVR F+112.07 F+ 9.09 Y+ 36.00		A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 157 1 208		OMS SEP ATT RESULT INTO TRAJECTORY
12 2-23:31:23	OMS IGNITION		B1 MAN NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		DV = 6.1 DT = 0:6.3	BACK UP DEPLOY SEP

Attitude Timeline

REV	MNVR OPTION		DAP	E/S	PERAPS	EVENT
1						
2	23:40:00 TFK TGT=2 40:52 EV=3: 90.00, 0.00 CM=100.00	R1 AUTO VERN	DSC 0.00 DB AT 1.00 DB RT 0.02	EARTH 0 90 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE FWD
2	3 01:25:00 26:51 MNVR R+228.28 F+164.56 Y+296.53	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 25 0 231		NR ATT
3	3 01:49:45 OMS IGNITION	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		IV = 16.0 DT = 0:12.5	NSF
4						
3	02:00:00 TFK TGT=2 00:16 EV=3: 90.00, 0.00 CM=100.00	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0	LVLH F+100 F+ 0 Y+ 0	-ZLV NOSE FWD
5						
3	05:25:00 MNVR R+245.31 44:51 F+220.12 Y+ 42.63	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 99 0 341		NR2-1 ATT
6						
3	02:02:04 RCS BURN	B1 NRM NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		IV = 2.1 DT = 0:8.2	NR2-1
7						
3	06:10:00 TFK TGT=2 17:59 EV=3: 90.00, 0.00 CM= 90.00	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0 360	LVLH F+100 F+ 0 Y+270	-ZLV -YVV FOOT WING FWD
8						
3	03:50:00 MNVR R+ 92.48 59:19 F+218.00 Y+ 17.00	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 79 0 135	-Y ST: 38 -Z ST: 13 CS:50-09:36	IMU ALIGN PAIR R1
9						
3	09:10:00 TFK TGT=2 20:41 EV=3: 90.00, 0.00 CM= 90.00	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 90 0 360	LVLH F+100 F+ 0 Y+270	-ZLV -YVV FOOT WING FWD
10						
3	19:35:00 MNVR R+ 93.30 43:22 F+192.50 Y+337.00	R1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 33 0 126	-Y ST: 45 -Z ST: 21 19:37-20:24	IMU ALIGN PAIR B1
11						
3	20:13:13 TFK TGT=1 24:34 EV=3: 90.00, 0.00 CM= 0.00	R9 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 0 0	LVLH R+ 0 F+270 Y+ 0	FALAPA TRACK ATT - I
12						
3	20:58:12 MNVR R+ 49.20 59:44 F+241.00 Y+ 62.48	B0 AUTO NORM	DSC 0.500 DB AT 2.00 DB RT 0.20	SUN 0 121 0 159	TVF = 0	NR-1 ATT

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

NET	MNVR OPTION	DAP	E/S	REMARKS	EVENT	
1 3 21113:12	OMS IGNITION	A9 AUTO NORM	DSC 0.200 IB AT 2.00 IB RT 0.20		DV = 27.6 DT = 0:19.0	NH-1
2 3 21115:00	LVLH	A9 LVLH VEFN	DSC 0.200 IB AT 1.00 IB RT 0.02	EARTH 0 52 179	LVLH F+ 2 F+ 22 Y+ 1	LVLH ATT HOLD
3 3 21143:12 43:56	MNVR R+311.90 P+ 61.10 Y+297.70	A9 AUTO VEFN	DSC 0.200 IB AT 1.00 IB RT 0.02	SUN 0 59 21	TVF = 0	MC3-1 ATT
4 3 21158:59	OMS IGNITION	A9 AUTO NORM	DSC 0.200 IB AT 2.00 IB RT 0.20		DV = 14.0 DT = 0:10.3	MC3-1
5 3 22102:00 05:55	TAN TGT=1 EV+30 90.00, 0.00 OM= 0.00	E6 AUTO NORM	DEC 0.500 IB AT 2.00 IB RT 0.20	EARTH 0 0 0	LVLH F+ 0 F+270 Y+ 0	FALAPA TRACK ATT - II
6 3 22133:28	PCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IB AT 2.00 IB RT 0.20			NCC
7 3 22115:13 19:02	MNVR R+310.00 P+ 59.10 Y+296.40	A9 AUTO VEFN	DSC 0.200 IB AT 1.00 IB RT 0.02	SUN 0 59 21	TVF = 0	TI ATT
8 3 22118:55	OMS IGNITION	A9 AUTO NORM	DSC 0.200 IB AT 2.00 IB RT 0.20		DV = 12.1 DT = 0:19.0	TI
9 3 22134:25 44:44	TAN TGT=1 EV+30 90.00, 0.00 OM= 0.00	A9 AUTO VEFN	DEC 0.200 IB AT 1.00 IB RT 0.02	EARTH 0 0 0	LVLH F+ 0 F+270 Y+ 0	FALAPA TRACK ATT - III
10 3 22159:52	PCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IB AT 2.00 IB RT 0.20			MC 1
11 4 00120:05	PCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DEC 0.200 IB AT 2.00 IB RT 0.20		LVLH F+ 0 F+270 Y+ 0	MC 2
12 4 00130:05	PCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DEC 0.200 IB AT 2.00 IB RT 0.20		LVLH F+ 0 F+270 Y+ 0	MC 3

Attitude Timeline

NET	MNVR OPTION		DRP	E/S	REMARKS	EVENT
1 4 00:40:05	RCS TURN PER PAD (IF REQUIRED)	R3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH R+ 0 F+ 0 Y+ 0	MC 4
2 4 00:42:05	MANUAL APPROACH TO VEEF	R3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20			TRANSITION TO +VEEF
3 4 00:42:05	STOP	R3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	SUN B 139 S 156	INRTL F+296 F+ 38 Y+221	INERTIAL ATT HOLD
4 4 01:03:13	TRF TGT#2 EV=2(160.00, 0.00) OMA 0.00	R10 AUTO NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	EARTH B 100 S 0	LVLH R+ 0 F+ 90 Y+ 0	+VEEF STATION KEEPING
5 4 02:35:00	FREE DRIFT	B7 LVLH VEEF	DSC 0.200 DB AT 1.00 DB RT 0.02			FALAPA GRAFFLE
6 4 02:35:00 42:21	TRF TGT#4 EV=5(90.00, 50.00) OMA 90.34	B3 AUTO VEEF	DSC 0.200 DB AT 5.00 DB RT 0.10	SUN B 90 S 50	INRTL F+179 F+260 Y+328	SOLAR TR ATT-1 EVA--UPPER MU CONSTRAINT
7 4 05:10:00		B3 AUTO VEEF	DSC 0.200 DB AT 5.00 DB RT 0.10			FALAPA EARTH
8 4 09:10:00 13:43	MNVR R+ 92.40 F+219.00 Y+ 17.00	R1 AUTO VEEF	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN B 60 S 136	-Y ST: 30 -Z ST: 13 09:13-09:57	IMU ALIGN PAIR R1
9 4 09:30:00 40:44	TRF TGT#4 EV=5(90.00, 50.00) OMA=265.25	R1 AUTO VEEF	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN B 90 S 50	INRTL F+258 F+105 Y+ 35	SOLAR TR ATT-2
10 4 13:50:00 20:00:44	MNVR R+ 92.40 F+219.00 Y+ 17.00	R1 AUTO VEEF	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN B 60 S 136	-Y ST: 30 -Z ST: 13 13:55-20:38	IMU ALIGN PAIR R1
11 4 20:25:00 19:53	MNVR R+ 37.25 F+247.39 Y+ 61.34	B1 AUTO VEEF	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN B 125 S 165		NC1-2 ATT (WESTAR)
12 4 20:52:08	OMB IGNITION	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		BV + 16.5 BT 0:13.6	NC1-2

ALL ATTITUDES IN MEAN OF 1950

Attitude Timeline

MET	MNVR OPTION	DRP	E/S	REMARKS	EVENT	
1 4-21:00:00 12:43	TRK TGT=4 EV=5C 90.00, 50.00 OM=110.66	A1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 90 0 50	INRTL F+173 F+204 Y+342	SOLAR TR ATT-3
2 5 04:05:00 12:37	MNVR F+120.00 F+ 30.17 Y+320.13	B1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 62 0 191		NC2-2 ATT
3 5 04:30:43	PCS BLAH	B1 MAN NCRM	DSC 0.500 SB AT 3.00 SB RT 0.20		EV = 0.1 DT = 0:0.2	NC-2
4 5 04:35:00 46:28	MNVR F+342.70 F+ 14.90 Y+ 13.30	A1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 130 0 330	-Y ST: 22 -Z ST: 51 04:30-05:17	IMU ALIGN FAIR 22
5 5 05:00:00 02:53	TRK TGT=4 EV=5C 90.00, 50.00 OM=232.57	A1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 90 0 50	INRTL F+200 F+ 78 Y+ 12	SOLAR TR ATT 4
6 5 17:15:00 27:37	MNVR F+ 92.40 F+210.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 01 0 136	-Y ST: 38 -Z ST: 13 17:15-17:59	IMU ALIGN FAIR A1
7 5 17:35:00 49:07	TRK TGT=4 EV=5C 90.00, 310.00 OM=242.50	A1 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 90 0 311	INRTL F+ 7 F+ 79 Y+ 13	FAIR2 SOLAR TR -Y ST EP4 TR 3 NOON-12:5 MIN
8 5 18:00:00	TRK TGT=1 EV=5C 0.00, 280.00 OM= 26.27	A3 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	EARTH 0 64 0 175	LVLM F+ 70 F+293 Y+ 62	WESTAR TRACK ATT - 1 (-Y ST TLT TH)
9 5 18:35:00 52:06	MNVR F+323.90 F+ 67.90 Y+232.70	A3 AUTO VERN	DSC 0.200 SB AT 1.00 SB RT 0.02	SUN 0 54 0 13	TVR = 0	NC3-2 ATT (ALSO NH-2)
10 5 19:00:44	PCS BLAH	A3 MAN NCRM	DSC 0.200 SB AT 2.00 SB RT 0.20		EV = 0.2 DT = 0:0.8	NH-2 (AXIS 17 A-15)
11 5 19:46:13	PCS BLAH	A3 MAN NCRM	DSC 0.200 SB AT 2.00 SB RT 0.20		EV = 1.0 DT = 0:4.1	NC3-2
12 5 19:49:00 52:02	TRK TGT=1 EV=3C 90.00, 0.00 OM= 0.00	B1 AUTO NCRM	DSC 0.500 SB AT 2.00 SB RT 0.20	EARTH 0 0 0 0	LVLM F+ 0 F+270 Y+ 0	WESTAR TRACK ATT - 11

Attitude Timeline

NET	MNVR OPTION		DRP	E/S	REMARKS	EVENT
1 5:20:20:54	RCS BURN PER PAD (IF FEED)	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20			NCC
2 5:21:02:30 06:39	MNVR R+322.60 P+ 67.50 Y+301.90	A9 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 56 12	TVR = 0	TI ATT
3 5:21:18:00	GMS IGNITION	A9 AUTO NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		DV = 12.1 DT = 0:09.0	TI
4 5:21:21:33 31:55	TF+ TGT=1 IV=3(30.00, 0.00) OM= 0.00	A9 AUTO NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	EARTH 0 0 0	LVLH F+ 0 F+270 Y+ 0	WESTAR TRACK ATT - III
5 5:21:43:17	RCS BURN PER PAD (IF FEED)	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20			MC 1
6 5:22:07:30	RCS BURN PER PAD (IF FEED)	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH F+ 0 F+230 Y+ 0	MC 2
7 5:22:17:30	RCS BURN PER PAD (IF FEED)	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH F+ 0 F+350 Y+ 0	MC 3
8 5:22:27:30	RCS BURN PER PAD (IF FEED)	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH F+ 0 F+ 0 Y+ 0	MC 4
9 5:22:30:30	MANUAL APPROACH TO VEAR	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20			TRANSITION TO + VEAR
10 5:22:50:30	STOP	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH F+ 0 F+170 Y+110	INERTIAL ATT HOLD
11 5:22:50:30	TF+ TGT=2 IV=2(150.00, 0.00) OM= 0.00	A10 AUTO NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	EARTH 0 100 0	LVLH F+ 0 F+ 90 Y+ 0	+ VEAR STATION KEEPING
12 6:00:25:00	FREE DRIFT	B7 LVLH VERN	DSC 0.200 DB AT 1.00 DB RT 0.02			WESTAR GRAPPLE

Attitude Timeline

MET	MNVR OPTION	DRP	E'S	FENAPPS	EVENT
1 6 00:25:00 33:33	TRK TGT=4 EV=5(90.00, 50.00) CM=121.55	B3 AUTO VERH DSC 0.200 DB AT 5.00 DB RT 0.10	SUN 0 90 0 50	INRTL F+172 F+256 Y+351	SOLAR TR ATT-5 EVA--DIFFER FU CONSTRAINT
2 6 02:55:00		B3 AUTO VERH DSC 0.200 DB AT 5.00 DB RT 0.10			WESTAR EEFTH
3 6 07:00:00 07:42	MNVR F+ 32.40 F+218.00 Y+ 17.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 81 0 136	-Y ST: 38 -Z ST: 13 07:00-07:42	IMU ALIGN FAIR A1
4 6 07:20:00 30:54	TRK TGT=4 EV=5(90.00, 50.00) CM=229.14	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 0 50	INRTL F+158 F+101 Y+ 32	SOLAR TR ATT-6
5 6 17:40:00 50:54	MNVR F+ 32.40 F+218.00 Y+ 17.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 82 0 137	-Y ST: 38 -Z ST: 13 17:41-18:23	IMU ALIGN FAIR A1
6 6 19:00:00 05:11	TRK TGT=4 EV=5(90.00, 50.00) CM=106.62	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 0 50	INRTL F+174 F+266 Y+340	SOLAR TR ATT-7
7 6 19:50:00	FREE TRIFT	B3 MAN NORM DSC 0.200 DB AT 3.00 DB RT 0.20			FCS HOT FIRE FCS C O
8 6 21:50:00 30:03	TRK TGT=4 EV=5(90.00, 50.00) CM=106.62	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 0 50	INRTL F+174 F+266 Y+340	BACK TO SOLAR TRACE
9 7 05:55:00 06:03:12	MNVR F+ 32.40 F+218.00 Y+ 17.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 82 0 137	-Y ST: 38 -Z ST: 13 05:54-06:05	IMU ALIGN FAIR A1
10 7 06:15:00 23:00	TRK TGT=2 EV=1(0.00, 0.00) CMA 0.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	EAETH 0 0 0 0	LVLM F+ 0 F+270 Y+ 0	* LV -2VV
11 7 16:40:00 43:57	MNVR F+ 32.40 F+218.00 Y+ 17.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 83 0 137	-Y ST: 38 -Z ST: 13 16:35-17:16	IMU ALIGN FAIR A1
12 7 17:00:00 03:07	TRK TGT=2 EV=1(0.00, 0.00) CMA 0.00	A1 AUTO VERH DSC 0.200 DB AT 1.00 DB RT 0.02	EAETH 0 0 0 0	LVLM F+ 0 F+270 Y+ 0	* LV -2VV

7-11

CAP 51-A FIN

ALL ATTITUDES IN MEAN OF 1970

Attitude Timeline

REF	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 7-19:38:30 44:51	MNVR R+ 15.00 P+282.60 Y+ 44.50	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 142 1 102	-Y ST: 27 -Z ST: 54 19:22-20:11	IMU ALIGN FOR DEORBIT
2 7-19:46:00 48:50	MNVR R+ 86.10 P+191.60 Y+ 10.60	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN 0 63 1 155	-Y ST: 45 -Z ST: 24 19:39-20:26	IMU VERIF
3 7-20:23:30 25:42	MNVR R+ 50.92 P+160.94 Y+315.21	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN 0 4 1 106		DEORBIT BLAH ATT
4 7-22:38:30	OMS IGNITION	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30		DV = 306.4 DT = 3:10	DEORBIT BLAH
5 7-22:43:30 47:33	MNVR R+ 32.91 P+242.13 Y+ 56.14	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30	SUN 0 123 1 177		EI-5 ATT
6 7-23:01:00	LVLH	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30	EARTH 0 76 1 179	LVLH R+ 1 P+ 39 Y+359	EI-5

ALL ATTITUDES IN MEAN OF 1950

7-12

CAP 51-A FIN
NASA SC

SE-MSD-117 Vitez
24-25/DIC Memphis
24-25/Rochester Tech Data (19)

NASA-ISC
CNA-002/B. Olson

TRW - Houston
C. Cooper
L. Penner

TRW - Greenville
P.O. Box 385
Greenville, MD 20770
L. A. Champion (2)

Charles Draper Laboratory
555 Technology Square
Cambridge MA 02139
J. Turnbull

Draper Research Facility
OSU - P. Layton

NO-ORAD-000V
Chapman Air Complex
CU 80914-21

Hamilton Standard
Windsor Locks, CT 06096
TADAR C. White
TAD-7 R. H. Greenwood (4)

Rockwell - Houston
2001-112

Rockwell International STS
12214 Lakeside Blvd
Downey, CA 90241
G41-FA43/W. O. Ruffin (59)

McDonnell Douglas Astronautics
P.O. Box 516
SP Lewis, MD 83766
MS10a P. Rose

McDonnell Douglas Astronautics
5001 Balboa Ave
A03, Dept. 214, Group AEDO
Huntington Beach, CA 92647
12-36, Quittes
S. Timony
J. J. Webster (10)
R. Arnold

AFSPC - Edwards AFB
Air Force Flight Test Center
6510 Test Wing TEG
Edwards AFB, CA 93523
23a/R. G. Huey

Ford Aerospace Communications
Corp.
3939 Fabian Way
Palo Alto, CA 94303
GB0W C. Hayes

Ford Aerospace - Houston
5507A Tech Ln (13)
5507B/R. Marriott (2)
5507C/C. Camp (2)

Marshall Space Flight Center
AS17C. Majumdar
AS21 R. McAnally
R. Vantine
AS01 C. Johnson
AS151 R. M. Hoodless
VS103 Cheen

JR
4600 Oak Grove Dr
Pasadena, CA 91109
D. J. Harris

SPAR Aerospace
825 Caedonia Rd
Toronto, Canada M6B 3H5
P. Chadwick

US Space Command
AFS/Colt J. P. Squanto
Peterson, AFB CO 80914

Hughes Communications Service
inc.
Bldg. 532
P.O. Box 92919
Los Angeles, CA 90009
C377 C. Ruben
P. Sengstorf
R. E. Phoads
M. Hauferman

TELESA
333 River Rd
Ottawa, Ontario, Canada
K1L 8B9
P. Gubby

NOAA-NEOS
Dr. Michael R. McHaffert (2)
NOAA Liaison Manager
Code SC2, NASA-ISC
Houston, TX 77058

Dr. Russell Koffler (1)
Director,
NOAA-NEOS
1984, Room 1009
Code RFP
Suitland, MD 20233

ATTN TECH LIBRARY MCGASO
3370 Meixima Ave
Anaheim, CA 92803

National Research Council of
Canada
Space Technology Program
Office
Bldg. M-60, Room B-21
Montreal, Quebec
Ottawa, Ontario, Canada
K1A 0H6
Dr. H. Doersch
B. A. Aikenhead

Barnes Technology - Houston
D. A. Hessler
C. J. Mallin

Hughes Aircraft
P.O. Box 92919
Los Angeles, CA 90003
541-8326 J. Jurak
541-8333/A. Castellano

Marshall Space Flight Center
EC25C. McCleard

Science Research Labs/IBM
201-38-03 3M Center
St. Paul, MN 55144
ATTN: W. C. Egbert (2)

FLIGHT DATA FILE
CODE DISTRIBUTION
09/24/84

ISC
APD Director
APD Support (2)
Pub. Information (1)
CAD Manager
CAD Chief
DfA Chief (2)
DF Chief
DF2/INCO (4)
DF3 Head
DF4/Comm Sys (2)
DF4/Comm & Attached PL (2)
DF4/DFB Mgr
FAO
TL

8th Air (16)
DME Branch Chief (2)

EC Chief
EC2/Support (4)
EC3 Chief
Support
EN2 Head
EN3 Chief
EN4 Chief
EN5 Chief
Support
EN4.5 Head
EN4.5 Support
EN5 Support
EN7 Support
EN8/DFB CECB Rep.

FE4/Head
FE4/Comm. Analysis Sect.
FE5/Space Nav. Sect. (2)
FE6/Space Nav. Sect. (2)
FE7/Technical Library (2)
FE8/COOP/Program Center
MD Manager
MD2/Support
MD3/Project Office
Support (10)
NP2 CECB Rep.
NS/Support Div.
SO2/Support
Support
SAS/MD/MOM/CS
ZM/AMC Library (2)
ZM2/Mission Support (2)

Brings
WS/CS/1 Bennett

Dryden Flight Research Facility
OS/ L. Hall
NASA Headquarters
MOV/ Lee
TX-7/3 G. Maloy
MOBR/ D. McCallerty (2)

Jennedy Space Center
S/2/0/2 J. Thomas
SO-A/Astronaut Office (2)
24-25/Support Tech Data
24-58/A. Grenville

Marshall Space Flight Center
MO/SCO. diag. 4800
D/CCL White
SAD/2 R. Prude

Sond. Aerospace Division
SIS/TA Tech. Lab

Goddard Space Flight Center
4524 D. Martmann
NASA SSARO - Pamdale
NASA R. Frazer
PL/Tech. 422221

McDonnell Douglas - Houston
A2/L. T. Anderson
A/G. Venables
D3/M. Pipher (2)
D4/M. Stegall
R. Devell

Charles Stark Draper Lab
MS/LR. A. Carlson (2)

IBM - Houston
MC/236/A. J. Sawa
TAO Library
MCB2/2/Verification Library
MC91/6/Project Office Library
MC62/5/Wilson/Lib

Lockheed - Houston
B12/M. Martin
B12/E. M. Batts
G2/O. Welch

Singtel. Inc. - Houston
SWS Data Library

Honeywell Inc. Avionics Division
13350 U. S. Highway 19
Clearwater, FL 33546
#178-5/1 R. Peterson

Martin-Marietta Corp. - Denver
-GOLDENHOD-
G6245/Library
G6495/3 Ferguson
G Miller
G64/No. Barnes

Space Division
Military Postal Center
10000
10000 CA 90009
10000 (5)
10000 (5)
10000 (5)
10000 (5)

Space Communications Co.
10000
10000
10000

AFSCPA-05
P.O. Box 3430
Sunnyvale, CA 94086
March E. Franz (10)

709V
1 Space Park
Bldg 312/Rm 2375
Redondo Beach, CA 90278
J. M. Payne

6555M ASTG
Kennedy Space Center, FL
SP/Anal. G. Connor

Applied Research Inc.
AM/E. C. Miller

Applied Research Inc.
3430 Freedom Circle
Santa Clara, CA 95054
P. Howland

LAN For A7MOS & SPACE PHYS
5525 Central Ave
Boulder, CO 80301
ATTN: Alan Stern

Total 150

51-A
CREW ACTIVITY PLAN
DELTA DISTRIBUTION
09/24/84

ISC
Assoc. Director

Dep. Director
1/5/Support (3)
Pub. Info (3)
BARR/ Director
DAD/ Director (2)
1/2/Support (2)
DF 2/Head
DF 2/Chief
DF 2/Chief (4)
Chief

DF 2/Chief
Environ. Sect. (2)
Elect. Sect. (2)
DC/Chief
Dep. Chief
Tech. Assist.
DG4/Chief
Comm & Attached (5)
Crew Sys. (10)
Orbiter Sys. (4)
DG6/ASC-Ent. Sect. (7)
Detached-Payload Sect. (6)
Orb.-Computer Sect. (8)

DW/Chief
USAF (8)
DH32/Flt. Dynamics (8)
DH33/ANE Proc. (1)
DH4/Book manager (50)
DH6/Branch Office (12)
EC/Asst. Chief
Asst. for Payloads
Support (2)

EC6/Chief
EC12/Support
EE2/Support (2)
EE3/JECA Support
EE4/Support
EE7/TCD PDR Mgr. (2)
EE8/Support (2)
EE9/2/Support
EE13/Support (2)
EH5/Support (2)
EL25/Mission Analysis Div
EL3/Support (3)
EX/LFC (10)
ES12/Chief
ESJ/Secl. Head
E55/Support (3)
ETS Support

EL3/Support (3)
FA/ Director
Asst. Director
FE/Chief
FM/Chief
Asst. Chief
Payloads & Adv. Tech. Mgr.
FM17/Support
FM2/Chief
Support
FM4/Chief
Support (5)
FM5/Chief
FM6/Chief (1)
Support (6)
Intermetrics
FR4/Support
FS45/Documental (3)
FS/NHO
JU/Chief (3)
JL15/Support (6)
LAV/Program Mgr.
LAI/Manager
Tech. Assist. (3)
LAI/Manager
LAI/Manager
LD/Support
LE/Support
LF/Support

LHF J. Jung*
Z. K. Eubanks*
Manager
Support (4)
LN/Support (2)
LO/ACT. Mgr.
LP/Manager
Support (5)
LT/Manager
VA/Manager (2)
MO/Manager (2)
MD3/Chief (2)
ME/Manager (2)
ME3/Manager (2)
MG/Manager (2)
MP2/CPCB Rep (2)
NS2/Chief
SC5/Support
SC5/LFC (3)
SD3/Support
Mission Scientist
SR/Manager, SSEOP
SP4/Mgr. CREW Provision (5)
SN3/Support
W/CB Support
A. J. Collom*
2R/ATLC

EX3/Support (3)
FA/ Director
Asst. Director
FE/Chief
FM/Chief
Asst. Chief
Payloads & Adv. Tech. Mgr.
FM17/Support
FM2/Chief
Support
FM4/Chief
Support (5)
FM5/Chief
FM6/Chief (1)
Support (6)
Intermetrics
FR4/Support
FS45/Documental (3)
FS/NHO
JU/Chief (3)
JL15/Support (6)
LAV/Program Mgr.
LAI/Manager
Tech. Assist. (3)
LAI/Manager
LAI/Manager
LD/Support
LE/Support
LF/Support
LHF J. Jung*
Z. K. Eubanks*
Manager
Support (4)
LN/Support (2)
LO/ACT. Mgr.
LP/Manager
Support (5)
LT/Manager
VA/Manager (2)
MO/Manager (2)
MD3/Chief (2)
ME/Manager (2)
ME3/Manager (2)
MG/Manager (2)
MP2/CPCB Rep (2)
NS2/Chief
SC5/Support
SC5/LFC (3)
SD3/Support
Mission Scientist
SR/Manager, SSEOP
SP4/Mgr. CREW Provision (5)
SN3/Support
W/CB Support
A. J. Collom*
2R/ATLC

Goddard Space Flight Center
470/M. F. Sevilazek
732/D. Butler
742/L. Barrowman
804/A./ M. Stevens
R. J. McCeney
853/2/R. Morgan
872/L. Teles (3)

IBM - Houston
1179-C102/B. J. Graves

NASA GSFC*
800/3/T. Roberts*
842/B. Tomardy (2)

NASA Headquarters
EM-WL. Demas (2)
MOM/E. Harkleroad
LT/ Director
LFD-10/J. W. McCulla
MC-7/M. Tucker
EBMM. Biehlstein

NASA Headquarters*
E2/B. R. McCullar*
OTI-6/D. N. Turner*

McDonnell Douglas - Houston
ATP O'Neill
T. D. Bruchmiller
J. S. French
C2/B. Howard
C3/R. Conson
CS/M. M. Ferrill (2)
D3/M. D. Pipher (3)

MDTSCO - Houston*
AD/R. R. Paulson*
S. K. Steas*
P. B. Chiu*
A. Mian*
A3/D. Allison*
D2/G. H. Barton*
R. T. Theobald*
DH2/E. Taylor*

Singer, Link - Houston
K. Nelson

Kennedy Space Center
CM-C10-2A/W. R. Fletcher
CM-C10-2/D. Bragdon
CO-17-CCAS/D. Maclean
CO-5ED-32/D. Link
MDTSCO/B. C. Adams
EX-NITS/B. Buckley
SE-GDS-21/M. Patrick
SE-GDS-22/P. Puckett

ROOM COPY

FINAL

Flight Data File Crew Activity Plan STS 51-A

Mission Operations Directorate
Operations Division

Final

September 20, 1984

EVENT:	CST		
Launch (13:23 GMT)	07:23	Fri	Nov 2
Telesat Deploy	16:10	Sat	Nov 3
SYSGOM Deploy	08:02	Sun	Nov 4
Rendezvous-1	03:18	Tue	Nov 6
EVA-1 (Retrieval-1)	08:23	Tue	Nov 6
Rendezvous-2	01:13	Thu	Nov 8
EVA-2 (Retrieval-2)	06:08	Thu	Nov 8
Crew Press Conference	05:53	Fri	Nov 9
KSC Landing	07:02	Sat	Nov 10

NASA

National Aeronautics and
Space Administration

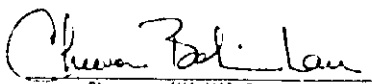
Lyndon B. Johnson Space Center
Houston, Texas

MISSION OPERATIONS DIRECTORATE

STS 51-A CREW ACTIVITY PLAN

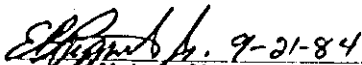
FINAL
September 20, 1984

PREPARED BY:

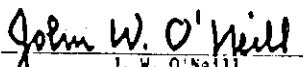


Cheevon (MI-MI) B. Lau
Book Manager

APPROVED BY:


Elvin B. Pippert
Head, Crew Activity Planning
Section 2


Ted A. Gullory
Chief, Flight Activity Branch


John W. O'Neill
Chief, Operations Division


Eugene Kranz
Director, Mission Operations

This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted on standard JSC Form 432 to DM4/FGF Manager, Bldg 4, Rm 352, 713-493-2868.

Comments concerning this document may be addressed to DM4/MI-MI Lau or DM4/Rick Jurmain, Bldg 4, Rm 353, 713-493-2307.

Changes to the distribution list should be submitted in writing to DM4/Sven Butler, Bldg 4, Rm 373, 713-493-5224.

Incorporates 482	
No: CAP-232A	CAP-241
CAP-233	CAP-242A
CAP-234	CAP-243A
CAP-235	CAP-244
CAP-237A	CAP-245
CAP-239	FDF-455A
CAP-240	FDF-440

ACKNOWLEDGMENTS

The following individuals contributed significantly to preparing the STS 51-A Crew Activity Plan:

<u>AREA</u>	<u>NAME</u>	<u>PHONE NO.</u>
Nominal Timeline	Steve Gibson	483-2201
	Rick Jurmain	483-2307
High Priority Timeline	Barbara Schwartz	483-5871
Attitude and Pointing	Ted Wang	483-2201
	Steve Hoefler	483-2201
Editing (Orniplan)	Mildred Cherry	483-3844
Word Processing (Orniplan)	B. Evans	483-3810
	D. Prange	
	J. Roberts	
	T. Walker	

STS 51-A CREW ACTIVITY PLAN

LIST OF EFFECTIVE PAGES

FINAL 09/20/84

i.....	CAP/51-A/FIN	3-22.....	CAP/51-A/FIN
ii.....	CAP/51-A/FIN	3-23.....	CAP/51-A/FIN
iii.....	CAP/51-A/FIN	3-24.....	CAP/51-A/FIN
iv.....	CAP/51-A/FIN	3-25.....	CAP/51-A/FIN
v.....	CAP/51-A/FIN	3-26.....	CAP/51-A/FIN
vi.....	CAP/51-A/FIN	3-27.....	CAP/51-A/FIN
1-1.....	CAP/51-A/FIN	3-28.....	CAP/51-A/FIN
1-2.....	CAP/51-A/FIN	3-29.....	CAP/51-A/FIN
1-3.....	CAP/51-A/FIN	3-30.....	CAP/51-A/FIN
1-4.....	CAP/51-A/FIN	3-31.....	CAP/51-A/FIN
2-1.....	CAP/51-A/FIN	3-32.....	CAP/51-A/FIN
2-2.....	CAP/51-A/FIN	3-33.....	CAP/51-A/FIN
2-3.....	CAP/51-A/FIN	3-34.....	CAP/51-A/FIN
2-4.....	CAP/51-A/FIN	3-35.....	CAP/51-A/FIN
2-5.....	CAP/51-A/FIN	3-36.....	CAP/51-A/FIN
2-6.....	CAP/51-A/FIN	3-37.....	CAP/51-A/FIN
2-7.....	CAP/51-A/FIN	3-38.....	CAP/51-A/FIN
2-8.....	CAP/51-A/FIN	3-39.....	CAP/51-A/FIN
2-9.....	CAP/51-A/FIN	3-40.....	CAP/51-A/FIN
2-10.....	CAP/51-A/FIN	4-1.....	CAP/51-A/FIN
2-11.....	CAP/51-A/FIN	4-2.....	CAP/51-A/FIN
2-12.....	CAP/51-A/FIN	4A-1.....	CAP/51-A/FIN
2-13.....	CAP/51-A/FIN	4A-2.....	CAP/51-A/FIN
2-14.....	CAP/51-A/FIN	5-1.....	CAP/51-A/FIN
2-15.....	CAP/51-A/FIN	5-2.....	CAP/51-A/FIN
2-16.....	CAP/51-A/FIN	-3.....	CAP/51-A/FIN
2-17.....	CAP/51-A/FIN	6-4.....	CAP/51-A/FIN
2-18.....	CAP/51-A/FIN	5-5.....	CAP/51-A/FIN
3-1.....	CAP/51-A/FIN	5-6.....	CAP/51-A/FIN
3-2.....	CAP/51-A/FIN	5-7.....	CAP/51-A/FIN
3-3.....	CAP/51-A/FIN	5-8.....	CAP/51-A/FIN
3-4.....	CAP/51-A/FIN	6-1.....	CAP/51-A/FIN
3-5.....	CAP/51-A/FIN	6-2.....	CAP/51-A/FIN
3-6.....	CAP/51-A/FIN	6-3.....	CAP/51-A/FIN
3-7.....	CAP/51-A/FIN	6-18.....	CAP/51-A/FIN
3-8.....	CAP/51-A/FIN	7-1.....	CAP/51-A/FIN
3-9.....	CAP/51-A/FIN	7-2.....	CAP/51-A/FIN
3-10.....	CAP/51-A/FIN	7-3.....	CAP/51-A/FIN
3-11.....	CAP/51-A/FIN	7-4.....	CAP/51-A/FIN
3-12.....	CAP/51-A/FIN	7-5.....	CAP/51-A/FIN
3-13.....	CAP/51-A/FIN	7-6.....	CAP/51-A/FIN
3-14.....	CAP/51-A/FIN	7-7.....	CAP/51-A/FIN
3-15.....	CAP/51-A/FIN	7-8.....	CAP/51-A/FIN
3-16.....	CAP/51-A/FIN	7-9.....	CAP/51-A/FIN
3-17.....	CAP/51-A/FIN	7-10.....	CAP/51-A/FIN
3-18.....	CAP/51-A/FIN	7-11.....	CAP/51-A/FIN
3-19.....	CAP/51-A/FIN	7-12.....	CAP/51-A/FIN
3-20.....	CAP/51-A/FIN		
3-21.....	CAP/51-A/FIN		

CAP/51-A/FIN

STS 51-A CAP CUE CARDS

DAP Book Front Cover.....	6-4	CAP/51-A/O/BAS
UNIV PTG (Back of DAP Book Front Cover).....	6-4	CAP/51-A/O/BAS
DAP A TOC.....	6-5	CAP/51-A/O/FIN
DAP A1.....	6-5	CAP/51-A/O/BAS
A1.....	6-5	CAP/51-A/O/BAS
DAP A2.....	6-6	CAP/51-A/O/BAS
A2.....	6-6	CAP/51-A/O/BAS
DAP A3.....	6-6	CAP/51-A/O/BAS
A3.....	6-6	CAP/51-A/O/BAS
DAP A4.....	6-7	CAP/51-A/O/BAS
A4.....	6-7	CAP/51-A/O/BAS
DAP A5.....	6-7	CAP/51-A/O/BAS
A5.....	6-7	CAP/51-A/O/BAS
DAP A6.....	6-8	CAP/51-A/O/BAS
A6.....	6-8	CAP/51-A/O/BAS
DAP A7.....	6-8	CAP/51-A/O/BAS
A7.....	6-8	CAP/51-A/O/BAS
DAP A8.....	6-9	CAP/51-A/O/FIN
A8.....	6-9	CAP/51-A/O/FIN
DAP A9.....	6-9	CAP/51-A/O/BAS
A9.....	6-9	CAP/51-A/O/BAS
DAP A10.....	6-10	CAP/51-A/O/BAS
A10.....	6-10	CAP/51-A/O/BAS
DAP A11.....	6-10	CAP/51-A/O/BAS
A11.....	6-10	CAP/51-A/O/BAS
(Blank).....	6-11	CAP/51-A/O/BAS
DAP B TOC.....	6-11	CAP/51-A/O/FIN
DAP B1.....	6-11	CAP/51-A/O/BAS
B1.....	6-11	CAP/51-A/O/BAS
DAP B2.....	6-12	CAP/51-A/O/BAS
B2.....	6-12	CAP/51-A/O/BAS
DAP B3.....	6-12	CAP/51-A/O/BAS
B3.....	6-12	CAP/51-A/O/BAS
DAP B4.....	6-13	CAP/51-A/O/BAS
B4.....	6-13	CAP/51-A/O/BAS
DAP B5.....	6-13	CAP/51-A/O/BAS
B5.....	6-13	CAP/51-A/O/BAS
DAP B6.....	6-14	CAP/51-A/O/BAS
B6.....	6-14	CAP/51-A/O/BAS
DAP B7.....	6-14	CAP/51-A/O/BAS
B7.....	6-14	CAP/51-A/O/BAS
DAP B8.....	6-15	CAP/51-A/O/FIN
B8.....	6-15	CAP/51-A/O/FIN
DAP B9.....	6-15	CAP/51-A/O/FIN
B9.....	6-15	CAP/51-A/O/FIN
DAP B10.....	6-16	CAP/51-A/O/BAS
B10.....	6-16	CAP/51-A/O/BAS
(Blank).....	6-16	CAP/51-A/O/BAS
DAP Back (Back Cover).....	6-17	CAP/51-A/O/BAS

<u>CONTENTS</u>	<u>PAGE</u>
INTRODUCTION.....	v
STS 51-A OVERVIEW.....	1-1
SUMMARY TIMELINE.....	2-1
DETAILED TIMELINE.....	3-1
FLT DAY 1.....	3-2
FLT DAY 2.....	3-6
FLT DAY 3.....	3-10
FLT DAY 4.....	3-15
FLT DAY 5.....	3-20
FLT DAY 6.....	3-24
FLT DAY 7.....	3-29
FLT DAY 8.....	3-34
FLT DAY 9.....	3-33
CONTINGENCY TIMELINES.....	4-1
HIGH PRIORITY MISSION.....	4A-1
CONSUMABLES CURVES.....	5-1
STS 51-A DAP BOOK.....	6-1
STS 51-A ATTITUDE TIMELINE	7-1

This Page Intentionally Blank

INTRODUCTION

The STS 51-A 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, Rendezvous, EVA, Deorbit Prep, and Entry checklists. The STS 51-A Rendezvous book contains all RMS procedures required until grapple of the HS376 spacecraft. The EVA checklist contains the detailed procedures required for HS376 berthing including MFR, RMS, and MMU operations. All other RMS procedures are in the PDRS OPS Checklist. For continuity, the entire flight is shown in the summary level timeline.

The section entitled 'Crew Activity Plan Notes (constraints and guidelines)', included in CAPs for previous flights, has been published as a generic document (not in individual CAPs).

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS 51-A Flight Requirements Document.

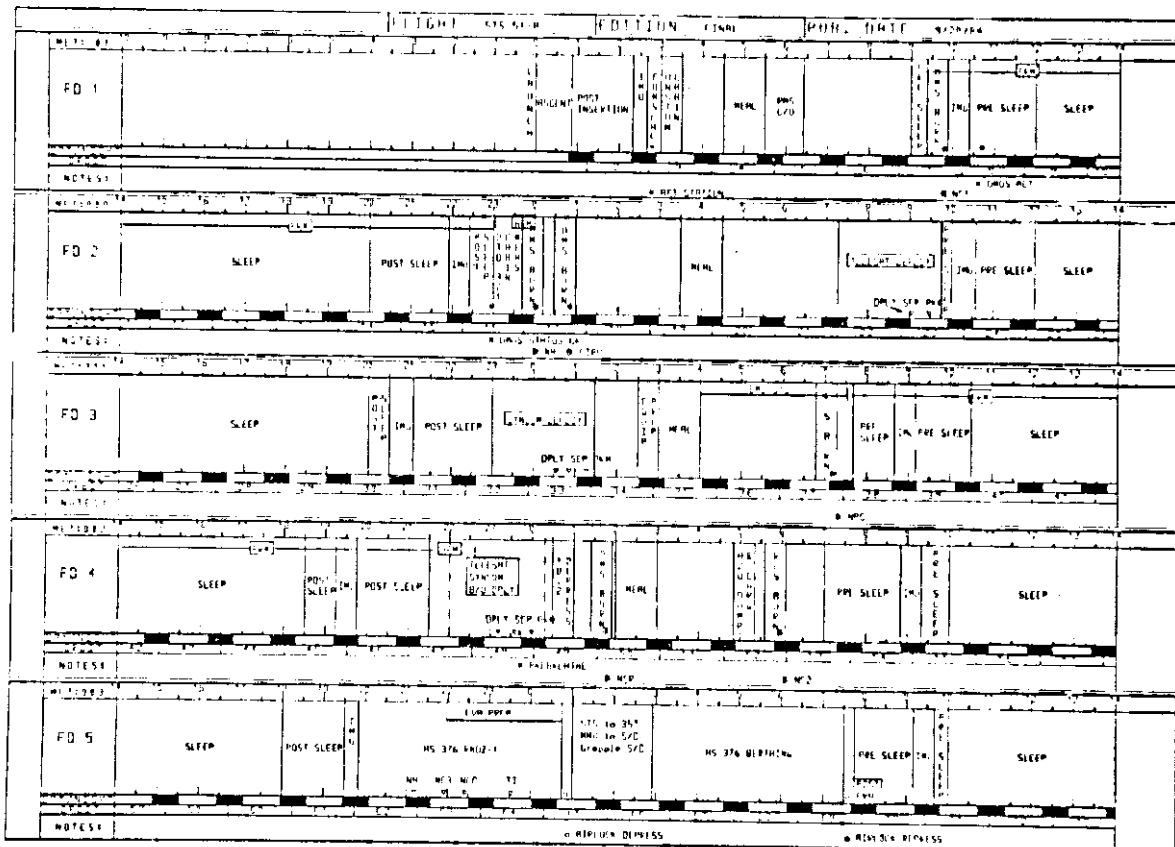
The flight profile (Cycle 5 trajectory data) used for this Crew Activity Plan is for a launch date of November 2, 1984, at 13:23 GMT. Orbiter Inertial attitudes are expressed relative to Mean of J2000 (M50) reference frame.

Exercise has not been scheduled but will be accomplished every day except for the ascent and entry days.

This Page Intentionally Blank

STS 51-A OVERVIEW

OVERVIEW



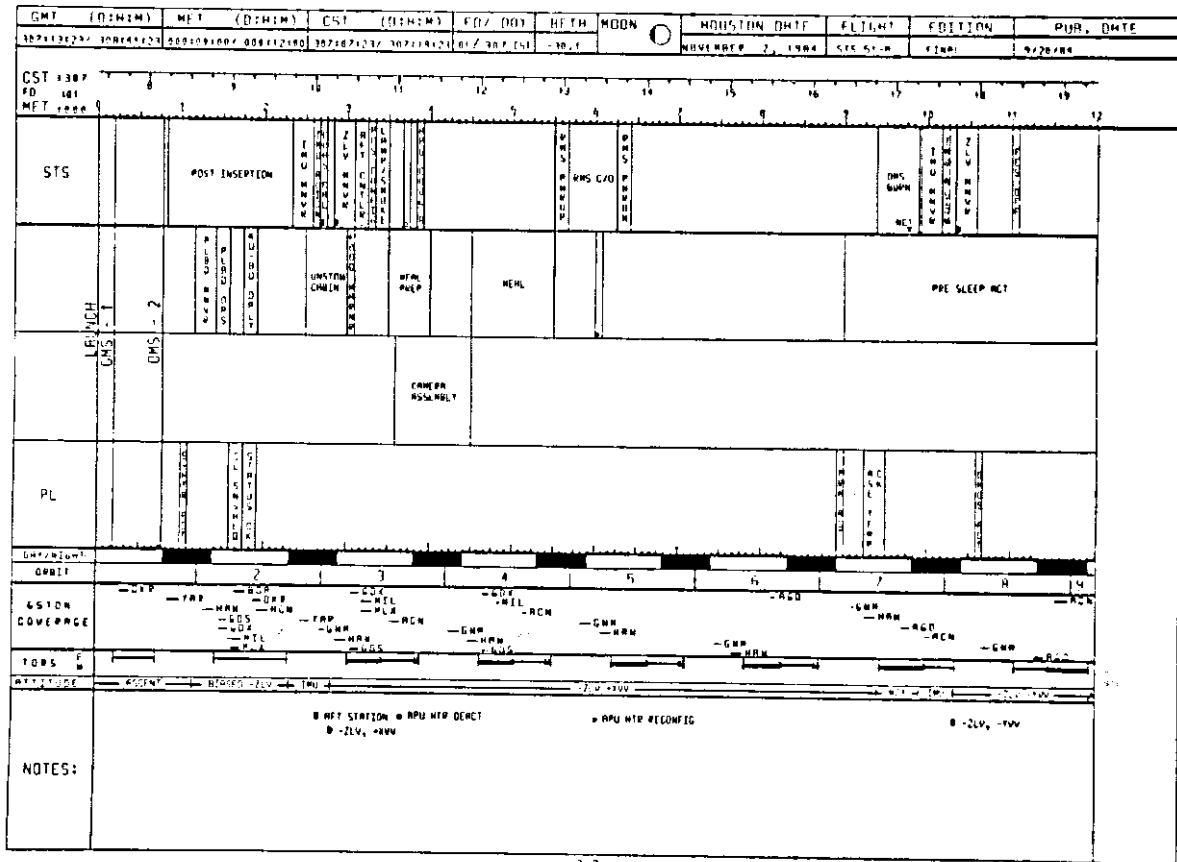
FLIGHT		515 51-R		EDITION		FINAL		PUB. DATE		9/20/84	
FD 6	SLEEP	POST SLEEP	IMU	(IMU)	FD 321 CABIN MEALS	MEAL	EMERGENCY MEALS	IMU	PRE SLEEP	SLEEP	
NOTES:											
FD 7	SLEEP	POST SLEEP	IMU	EMERGENCY MEALS	MS 376 PROZ-2	MS 376 BERTHING	MS 376 BERTHING	POST SLEEP	IMU	SLEEP	
NOTES:											
FD 8	SLEEP	POST SLEEP	IMU	POST SLEEP	FCS C/O	MEAL	POST EMERGENCY MEALS	CABIN STOW	PRE SLEEP	IMU	POST SLEEP
NOTES:											
FD 9	SLEEP	POST SLEEP	IMU	POST SLEEP	GEORBIT PREP	SEC. LANDING					
NOTES:											
NOTES:											

This Page Intentionally Blank

SUMMARY
TIMELINE

SUMMARY TIMELINE

SUMMARY TIMELINE



GMT	(03H00M)	MET	(03H00M)	CST	(03H00M)	FDZ/DOY	DFLH	MOON	HOUSTON DATE	FLIGHT	EJECTION	PUR. DATE
030003Z	030015Z	030015Z	030015Z	030015Z	030015Z	412 / 042 ENT	-24.4	0	NOVEMBER 2, 1984	STS 51-L-B	FERN	9/20/84
CST 1300						CST 1300			10102			
FD	11	12	13	14	15	16	17	18	19	20	21	22
MET												
STS	SLEEP										1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	
	POST SLEEP ACT											GAP REFS 00 01 02 03
												17 18 19 20 21 22 23 24 25 26
PL												27 28 29 30 31 32 33 34 35 36 37
DATETIME	[Bar chart]											
DOY	[Bar chart]											
COVERAGE		9	10	11	12	13	14	15	16	17	18	19
FORWARD												
STRUCTURE												
NOTES:	O STD 9321 EXEM COMMITMENT STRUCTURE DEFLECTION O -ZLV, -14W											

GMT (02H:MM)	MET (02H:MM)	CST (02H:MM)	F1/ DBY	H1 TA	MOON	HOUSTON DATE	FLIGHT	POSITION	PUR. DATE
0800:00	0800:00	0800:00	02 / 10R CST	-26.6	☉	NUMBER 3, 1968	515 514	11001	9/28/68
CST #300	FD 102	MET #001							
STS	OPS BURN CIRC								
	ALIGN MARKS	TIME MARKS	MEME PREP	MEME					PRE SLEEP ACT
						TELEMET DEPLOY			
PL									
ORBIT	17	18	19	20	21	22	23	24	
ESTON COVERAGE	WIL -WJA -WLR -WDP -WDR	WAW -WOC -WLS -WLL -WLR	WAK -WAK -WAK -WAK	WAK -WAK -WAK -WAK	WAW -WAW -WAW -WAW	WAW -WAW -WAW -WAW	WAW -WAW -WAW -WAW	WAW -WAW -WAW -WAW	WAW -WAW -WAW -WAW
1005									
NOTES:	= DTO 017 CREW COMPARTMENT STRUCTURE DEFLECTION # -ZLV, +XVV # -ZLV, +XVV								

GMT (ZTIME)	MET (ZTIME)	CST (ZTIME)	FZ/DOY	BETH	MOON	HOUSTON DATE	FLIGHT	EDITION	PIH. DATE						
19630727 1040Z12Z	19630727 082700Z	19630727 0600Z10Z	02/100 EST	-14.8		NOVEMBER 3, 1964	KFS 41-A	FIND	972788						
CST 1300	FD 102	MST 1412	20	21	22	23	0	1	2	3	4	5	6	7	8
			081309	17	18	19	20	21	22	23	24	25	26	27	28
STS		SLEEP													
PL															
ORBIT	25	26	27	28	29	30	31	32							
ESTDN															
COVERAGE															
TOWNS															
ATTN/DOC															
NOTES:															

GMT (01:00)	MET (01:00)	CST (01:00)	ED/ DAY	BEFL	MOON	HOUSTON DATE	FLIGHT	EDITION	PUR. DATE							
19920323 130000Z	ANDOR1007 00231200	19920323 000000Z	01/ APR 03	-11.0	☉	NOVEMBER 4, 1994	STS 51-L	ST01	9/20/88							
CST 1309	ED 183	MET 1992	0	1	2	3	4	5	6	7	8	9	10	11	12	
STS	D E P L Y	C L O S E	M I N I M U M	P A R K W	Z L V	N E A L P R E P	N E A L			P I C B U N		I N T E R M E D I A T E		S L E E P		
	N O V E M B E R	S E E D B U N W	S E E D B U N W			F O R T W A I P P A R K		E N D C U				P R E S L E E P A C T				
SINON DEPLOY																
	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	
PL	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	S T A T U S	
ORBIT	33	34	35	36	37	38	39	40								
ESTDN	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	NR - RCS	
COVERAGE	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	GD - RCS	
TDPS	E	W	E	W	E	W	E	W	E	W	E	W	E	W	E	
NOTES:	0 -ZLV, +VV								0 -ZLV, +VV							

GMT	TIMEZONE	NET	POSITION	POST	INDICATOR	RDZ	UNIT	HETR	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE	
000000	000000	000000	000000	000000	000000	000000	000000	000000	000000	NOVEMBER 1, 1964	STS 314B	1100	9/28/64	
DST 1300 12 100 NET 0000 12														
20 21 22 23 0 0500 10 15 20 21 22 23 4														
STS	SLEEP								1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000					
	POST SLEEP ACT													
PL														
41 42 43 44 45 46 47 48														
SSPDR	-000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000													
COVERDGE	-000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000 -000													
49 50 51 52 53 54 55 56 57 58 59 60 61 62														
NOTES:	* FC PURGE MTR ON * FC PURGE MTR OFF													

UNIT	COMPONENT	UNIT	COMPONENT	CST	COMPONENT	REP/POS	REFN	WJDN	MOBILIZATION DATE	FLIGHT	POSITION	REP. DATE
									NOVEMBER 5, 1984	CLS ATB	ETRM	9/25/84

CST 0310	20	21	22	23	24	25	26	27	28	29	30	31
03 100												
03 100												

STS	SLEEP						RENEZVOUS-1					

	POST SLEEP ACT											

							PVTY SETUP				PVTY ACT	

PL							EAR PREP					

0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700

NOTES:												

COMP	FLIGHT NO	TYPE	CLASS	EQUIP	ED:MM:Y	RPT DTY	HT TH	IMJON	HOUSTON DATE			FLIGHT		EDITION		PUR. DATE												
									MM	DD	YY	01	02	01	02	MM	YY											
OST	100								01	02	01	02	01	02	01	02	01	02										
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19										
STS	WINDOWS															1	2	3	4	5	6	7	8	9	10	11	12	SLEEP
	ESTABLISH															11	12	13	14	15	16	17	18	19	20			
	PTR	PTR														PRE SLEEP												
																EWP SUPPORT (EML AND OPS)												
PL	EWP	A	P	L	L	S	S	EWP	P	P																		
		L	L	S	S	EWP	P	P																				
COMP 68 69 70 71 72 EWP 68 69 70 71 72 EWP 68 69 70 71 72 EWP 68 69 70 71 72 EWP 68 69 70 71 72 EWP 68 69 70 71 72																												
NOTES: PREPARING																												

UNIT	COMPONENT	NO. 1	COMPONENT	CSF	COMPONENT	ED/DOY	REFN	MIJON	ADJUSTMENT DATE	FLIGHT	EDITION	PUR. DATE
CSF 339	20	21	22	23	24	25	26	27	28	29	30	31/28/88
STS	SLEEP							POST SLEEP NCT	LAP MENS	ALIGN MENS	TARE MENS	WEL PREP
PL												UTM PLACES
CSFOM	73	74	75	76	77	78	79	80				
CODES/PC												
FORM												
NOTES:	# 070 8237 0274 COMMENT STRUCTURE DEFLECTION											

UNIT	POSITION	NO.	POSITION	POST (ELEMENT)	RDY	DDY	REFR	MOON	HOUSTON DATE	FLIGHT	POSITION	PUR. DATE																																																				
					14/	01/	02/0		NOVEMBER 7, 1966	STS-51-L	1101	07/27/66																																																				
OST STPP RD 000 MCT 0000																																																																
<table border="1"> <tr> <td colspan="2">SFS</td> <td colspan="2">WR</td> <td colspan="2">RCS</td> <td colspan="2">CUB</td> <td colspan="2">C</td> <td colspan="2">SLEEP</td> <td></td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">RCS</td> <td colspan="2">CUB</td> <td colspan="2">C</td> <td colspan="2"></td> <td></td> </tr> <tr> <td colspan="2">P/S</td> <td colspan="2">P/S</td> <td colspan="2">P/S</td> <td colspan="2">P/S</td> <td colspan="2">P/S</td> <td colspan="2">P/S</td> <td></td> </tr> <tr> <td colspan="2">PL</td> <td colspan="2">PL</td> <td colspan="2">PL</td> <td colspan="2">PL</td> <td colspan="2">PL</td> <td colspan="2">PL</td> <td></td> </tr> </table>													SFS		WR		RCS		CUB		C		SLEEP							RCS		CUB		C					P/S		P/S		P/S		P/S		P/S		P/S			PL		PL		PL		PL		PL		PL		
SFS		WR		RCS		CUB		C		SLEEP																																																						
				RCS		CUB		C																																																								
P/S		P/S		P/S		P/S		P/S		P/S																																																						
PL		PL		PL		PL		PL		PL																																																						
<table border="1"> <tr> <td>01</td> <td>02</td> <td>03</td> <td>04</td> <td>05</td> <td>06</td> <td>07</td> <td>08</td> <td>09</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> </tr> <tr> <td>01</td> <td>02</td> <td>03</td> <td>04</td> <td>05</td> <td>06</td> <td>07</td> <td>08</td> <td>09</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> </tr> <tr> <td>01</td> <td>02</td> <td>03</td> <td>04</td> <td>05</td> <td>06</td> <td>07</td> <td>08</td> <td>09</td> <td>10</td> <td>11</td> <td>12</td> <td>13</td> </tr> </table>													01	02	03	04	05	06	07	08	09	10	11	12	13	01	02	03	04	05	06	07	08	09	10	11	12	13	01	02	03	04	05	06	07	08	09	10	11	12	13													
01	02	03	04	05	06	07	08	09	10	11	12	13																																																				
01	02	03	04	05	06	07	08	09	10	11	12	13																																																				
01	02	03	04	05	06	07	08	09	10	11	12	13																																																				
NOTES:																																																																

UNIT	MISSION	DATE	TIME	LOCATION	MISSION DATE	FLIGHT	POSITION	PIR DATE
CSF 0312		20	10	054200	NOVEMBER 7, 1968	CES 50-6	0100	9/20/68

CSF 0312	20	21	22	23	24	25	26	27	28	29	30	31
----------	----	----	----	----	----	----	----	----	----	----	----	----

STS	SLEEP																			

ESPDR	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
COVERAGE																					

NOTES:																					
--------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

UNIT	OPERATOR	NO. 7	GENERAL	POST	ELEMENT	FDA NOY	REFN	MIIDN	HOUSTON DATE	FLIGHT	FOCTION	PUR. DATE																																						
1377000	1377000	1377000	1377000	1377000	1377000	1377000	1377000	0	NOVEMBER 8, 1964	STS 514	1200	11/11/64																																						
CST 8000																																																		
NO. 7 - 1964																																																		
<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;"></td> <td style="width:5%;">8</td> <td style="width:5%;">9</td> <td style="width:5%;">10</td> <td style="width:5%;">11</td> <td style="width:5%;">12</td> <td style="width:5%;">13</td> <td style="width:5%;">14</td> <td style="width:5%;">15</td> <td style="width:5%;">16</td> <td style="width:5%;">17</td> <td style="width:5%;">18</td> <td style="width:5%;">19</td> </tr> </table>														8	9	10	11	12	13	14	15	16	17	18	19																									
	8	9	10	11	12	13	14	15	16	17	18	19																																						
STS								<table style="border-collapse: collapse;"> <tr><td>1</td><td>CM</td></tr> <tr><td>2</td><td>TR</td></tr> <tr><td>3</td><td>TR</td></tr> <tr><td>4</td><td>TR</td></tr> <tr><td>5</td><td>TR</td></tr> <tr><td>6</td><td>TR</td></tr> <tr><td>7</td><td>TR</td></tr> <tr><td>8</td><td>TR</td></tr> <tr><td>9</td><td>TR</td></tr> <tr><td>10</td><td>TR</td></tr> <tr><td>11</td><td>TR</td></tr> <tr><td>12</td><td>TR</td></tr> <tr><td>13</td><td>TR</td></tr> <tr><td>14</td><td>TR</td></tr> <tr><td>15</td><td>TR</td></tr> <tr><td>16</td><td>TR</td></tr> <tr><td>17</td><td>TR</td></tr> <tr><td>18</td><td>TR</td></tr> <tr><td>19</td><td>TR</td></tr> </table>	1	CM	2	TR	3	TR	4	TR	5	TR	6	TR	7	TR	8	TR	9	TR	10	TR	11	TR	12	TR	13	TR	14	TR	15	TR	16	TR	17	TR	18	TR	19	TR	SLEEP			
1	CM																																																	
2	TR																																																	
3	TR																																																	
4	TR																																																	
5	TR																																																	
6	TR																																																	
7	TR																																																	
8	TR																																																	
9	TR																																																	
10	TR																																																	
11	TR																																																	
12	TR																																																	
13	TR																																																	
14	TR																																																	
15	TR																																																	
16	TR																																																	
17	TR																																																	
18	TR																																																	
19	TR																																																	
POST NCP						PRE SLEEP NCP																																												
<p style="text-align: center;">EVA SUPPORT (AM, MA, PM)</p> <table style="width:100%; border-collapse: collapse;"> <tr> <td>A</td><td>L</td><td>B</td><td>S</td><td>Z</td><td>C</td> <td>E</td><td>H</td><td>S</td><td>F</td><td>C</td> <td></td><td></td> </tr> </table>													A	L	B	S	Z	C	E	H	S	F	C																											
A	L	B	S	Z	C	E	H	S	F	C																																								
PL	<table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%;"></td> <td style="width:5%;">96</td> <td style="width:5%;">97</td> <td style="width:5%;">98</td> <td style="width:5%;">99</td> <td style="width:5%;">100</td> <td style="width:5%;">101</td> <td style="width:5%;">102</td> <td style="width:5%;">103</td> <td style="width:5%;">104</td> <td style="width:5%;">105</td> <td style="width:5%;">106</td> <td style="width:5%;">107</td> </tr> </table>													96	97	98	99	100	101	102	103	104	105	106	107																									
	96	97	98	99	100	101	102	103	104	105	106	107																																						
<p>EXPD →</p> <p>COVERAGE →</p>																																																		
<p>1005 →</p>																																																		
<p>NOTES:</p>																																																		

CMT	(DTM:MM)	MO	(DTM:MM)	DST	(DTM:MM)	ACZ	DDY	MO	YEAR	HOUSTON DATE	FLIGHT	POSITION	PIR.	DATE
310131001	100000	0001	0000	0000	0000	0000	00	00	00	000000	00	0000		000000
CST	0000	0	10	11	12	13	14	15	16	17	18	19		
NET		1	2	3	4	5	6	7	8	9	10	11	12	
STS	PLT EXP EXT REP		ONIN STN				AL LM DM RM VM WM YM NM				SLEEP			
							WT SLEEP ACT							
ML														
PL														
ASPO														
COVERGE														
COGS														
NOTES:														

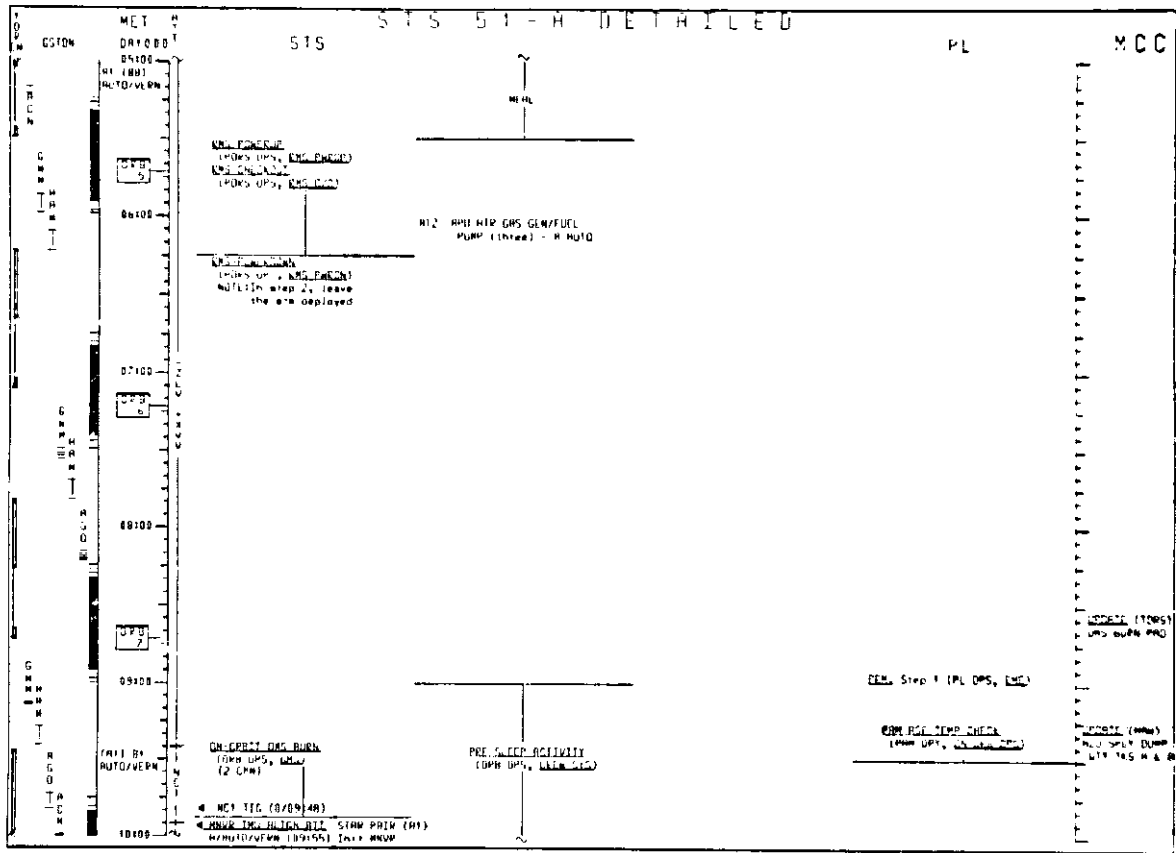
TIME	COORDS	NO. P.	APPROX.	EST.	LODGE	NOZ.	DOY.	BETH	MOON	HOUSTON DATE	FLIGHT	POSITION	PUR.	DATE
CST	100	25	26	27	28	29	30	31	1	2	3	4	5	6
		17	18	19	20	21	22	23		24	25	26	27	28
SFS		SLEEP								MRB				
					POST SLEEP ACT					GEORGE PWR				
											GEORGE ELEN	ENTRY INTERCE		
														MSC. LEADING (7/23/33)
PL														
		120	121	122	123	124	124	125	126	127				
SSPDR														
COMENRUE														
NOTES:														

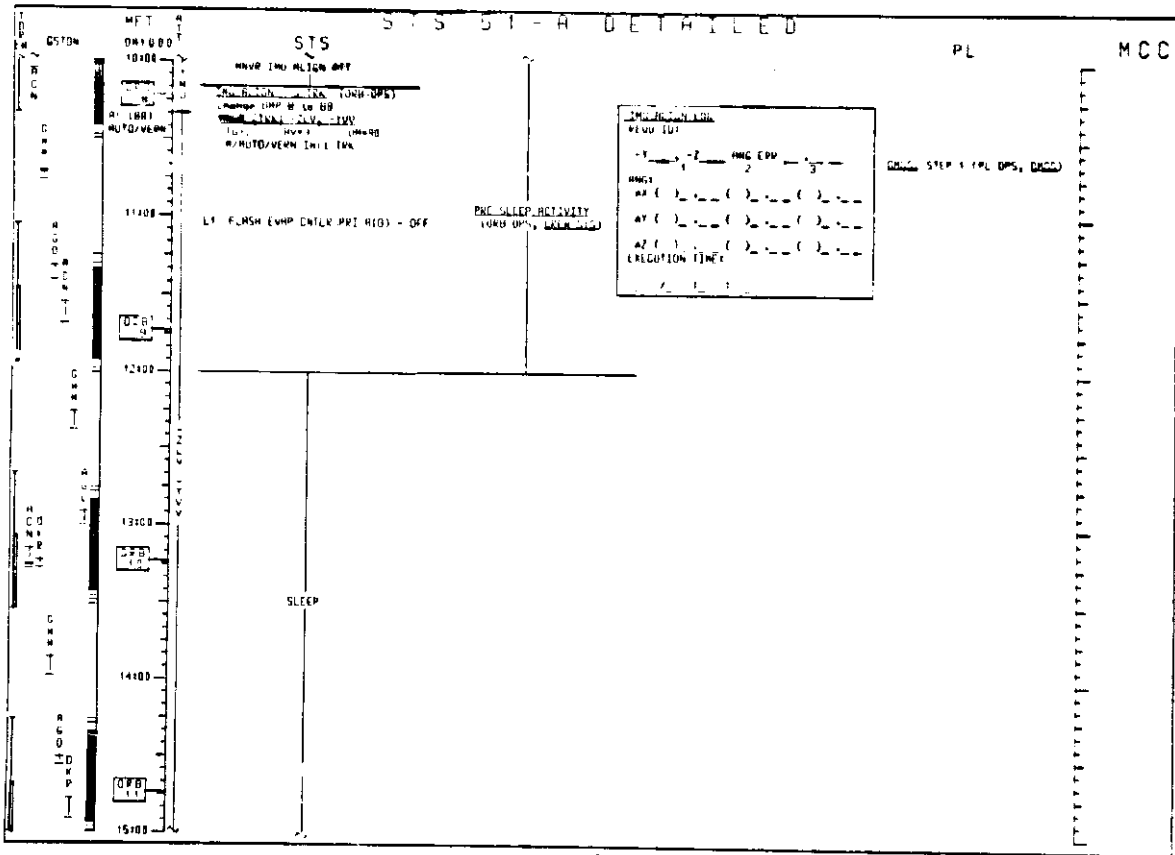
• -RLS, -200 • MI LONG MFC CN
 MILES ENTER UNDER

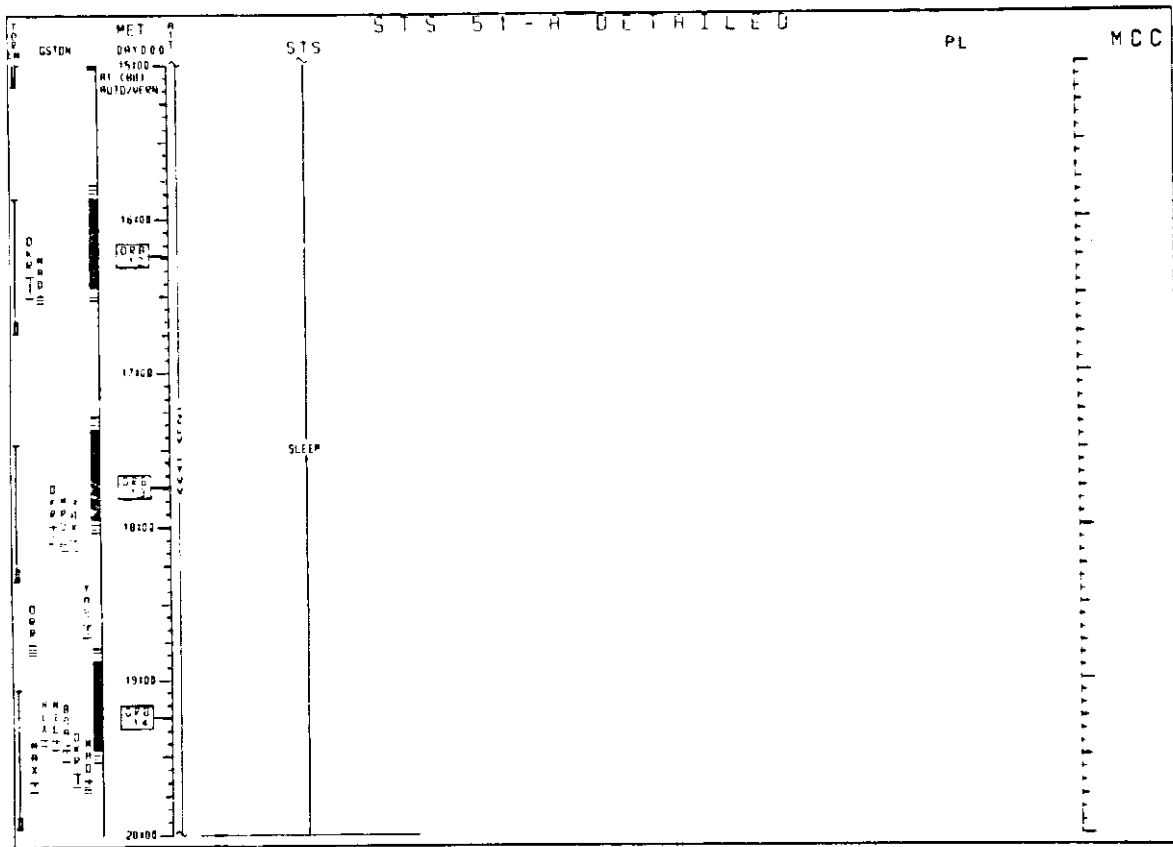
This Page Intentionally Blank

DETAILED TIMELINE

DETAILED
TIMELINE





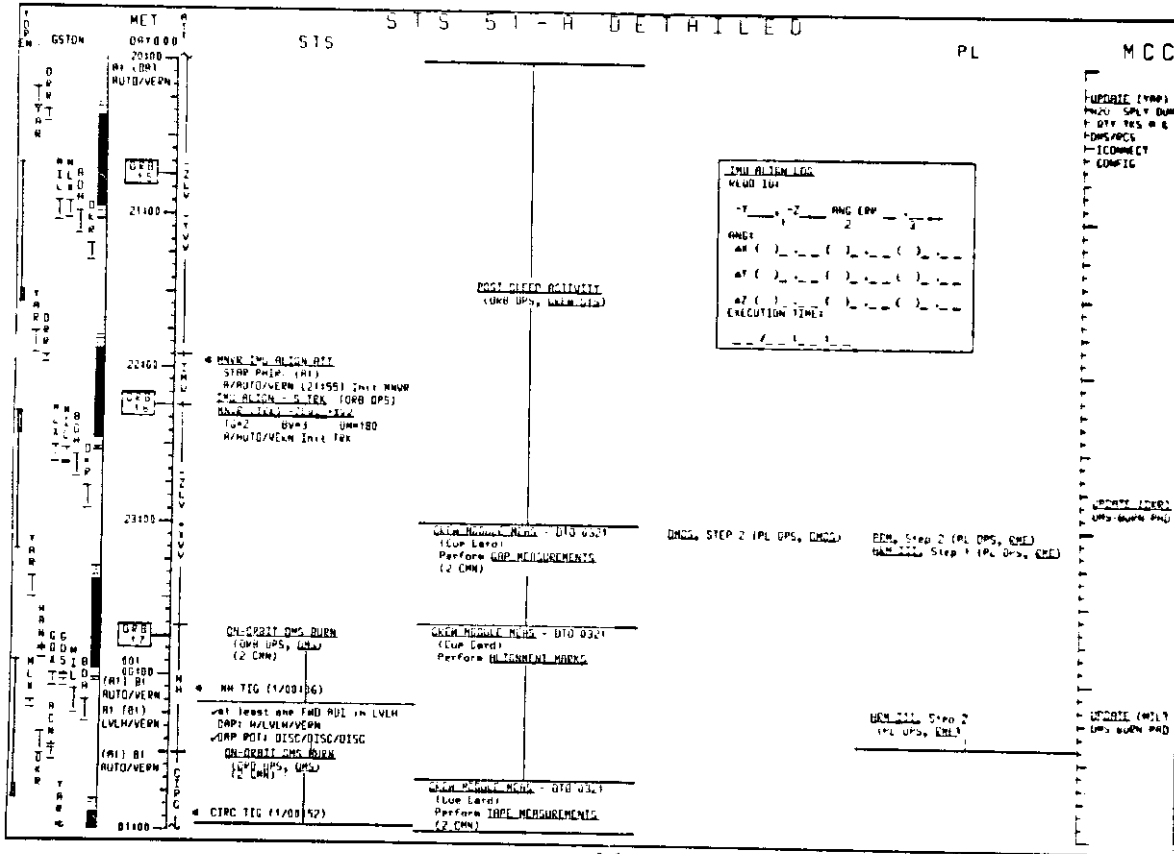


S T S 51 - A D E T A I L E D

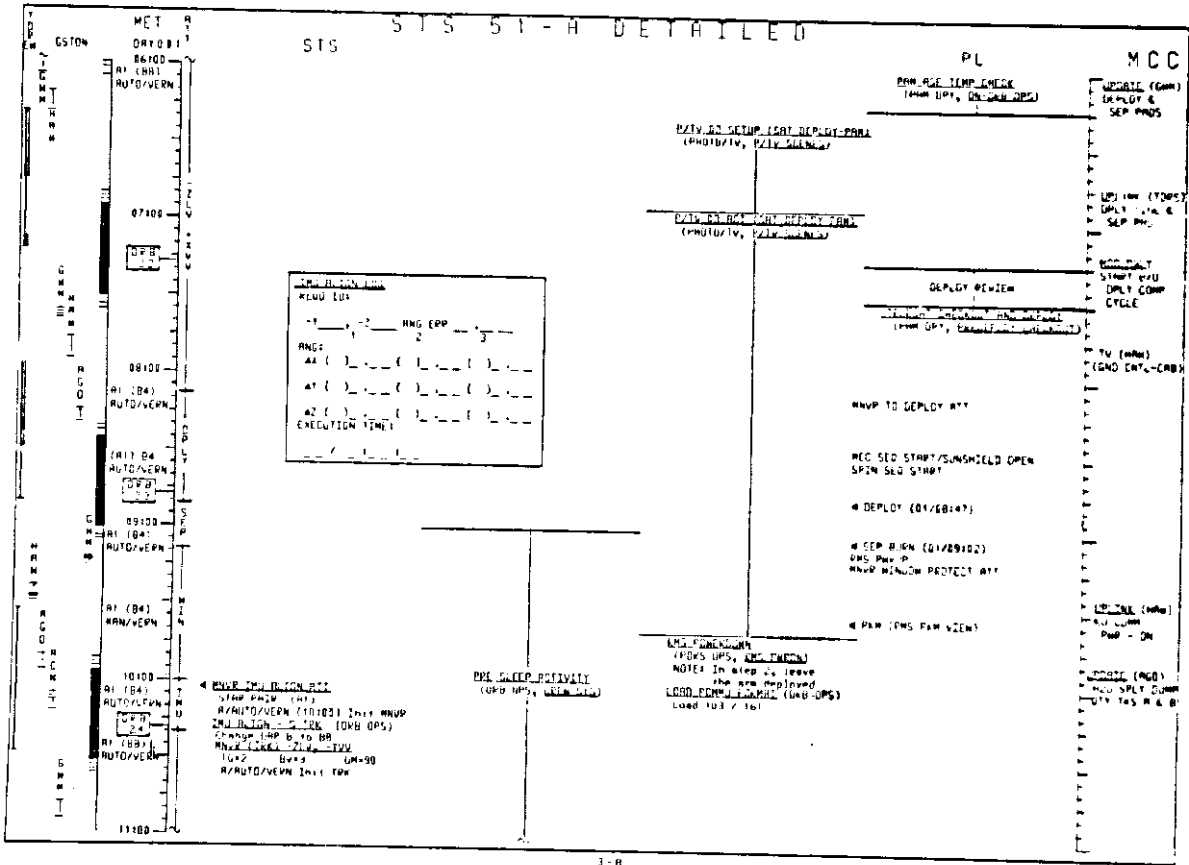
S T S

P L

M C C



SIS 51-A DETAILED



TIME BLOCK

RNG (PP)

RNG (US)

	1	2	3	4	5	6	7	8	9	10
RNG:	A4 ()	()	()	()	()	()	()	()	()	()
A1 ()	()	()	()	()	()	()	()	()	()	()
A2 ()	()	()	()	()	()	()	()	()	()	()

EXECUTION TIME

MAN/VERN AT
 0740-0800 (H)
 R/AUTO/VERN (10:00) Init MNVP
 0810-0830 (H) (DB OPS)
 Change MAP B to BR
 0830-0845 (H) (DB OPS)
 Load Bunk LM-90
 R/AUTO/VERN Init TX

PRE SLEEP ACTIVELY
 (DB OPS, UNK)

MS. PREWORK
 (DBS OPS, UNK)

NOTES: In step 2, leave
 the ARM deployed
LOAD SCHEM. (DBS OPS)
 Load 103 / 101

PL
 0650-0700 (H)
 DEPLOY REVIEW
 (DBS OPS, UNK)

MCC
 0650 (GMM)
 WORLD (GMM)
 DEPLOY &
 SEP PH

DEPLOY REVIEW
 (DBS OPS, UNK)

DEPLOY REVIEW
 (DBS OPS, UNK)

DEPLOY REVIEW
 (DBS OPS, UNK)

DEPLOY REVIEW
 (DBS OPS, UNK)

MNVP TO DEPLOY AT

REC SEQ START/SUNSHIELD OPEN
 SPIN SEQ START

4 DEPLOY (01/08:47)

4 SEP HIGH (01/29:02)
 WMS Pwr P
 MNVP WINDOW PROTECT AT

4 PAR (MS PAR VIEW)

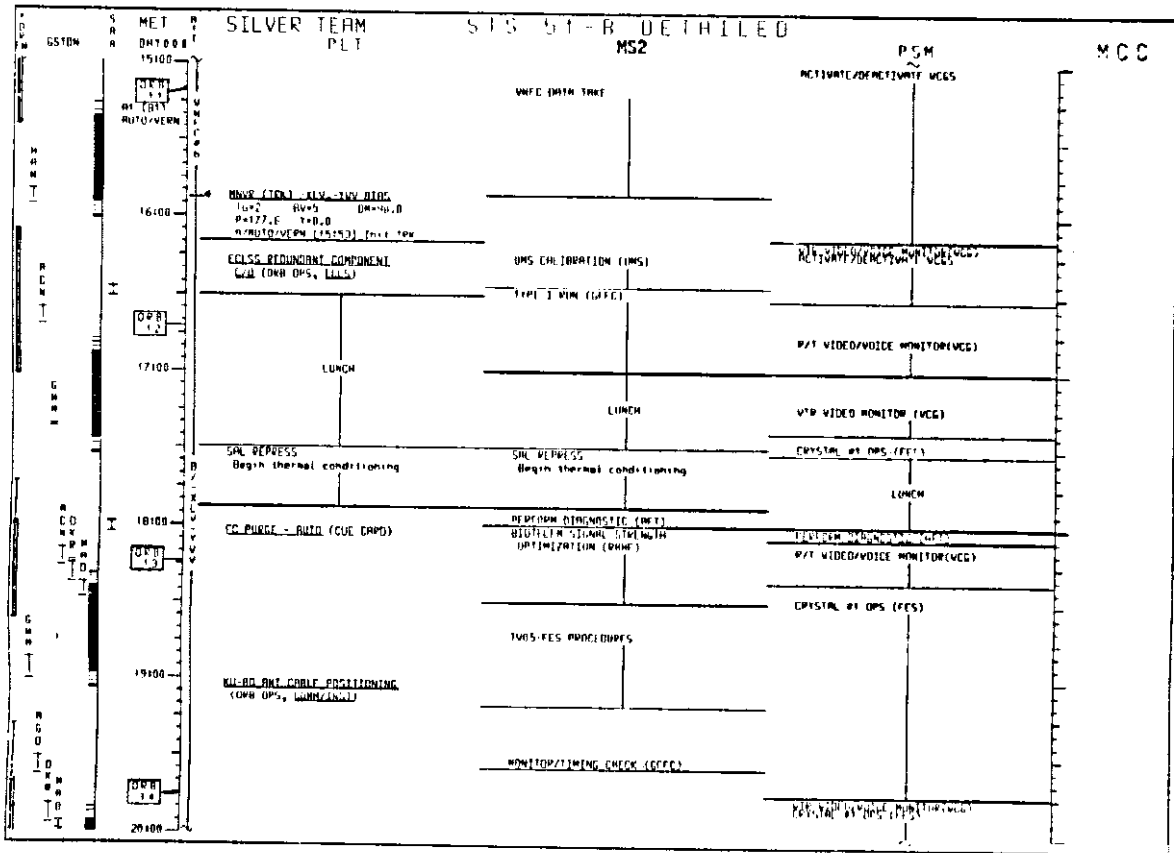
0710 (YDPS)
 WORLD (YDPS)
 DEPLY PH &
 SEP PH

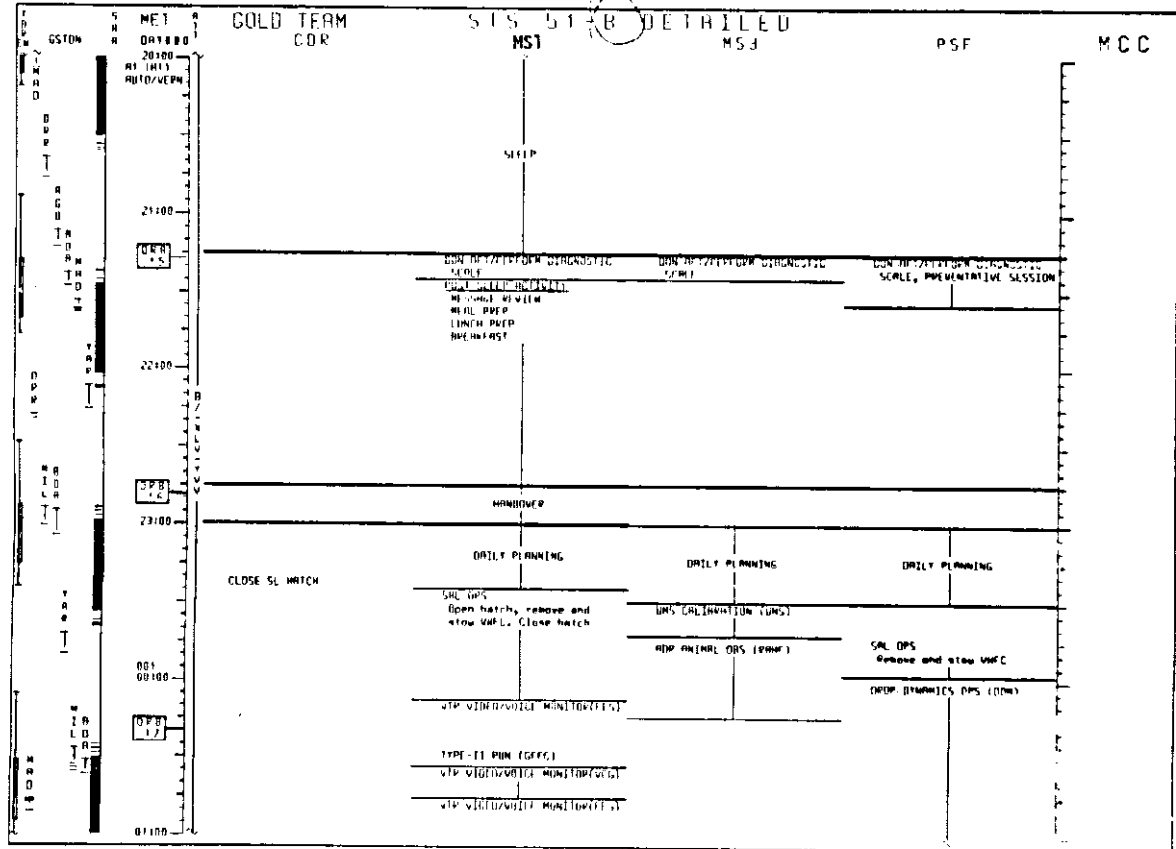
0810 (YDPS)
 WORLD (YDPS)
 DEPLY PH &
 DEPLY COMP
 CYCLE

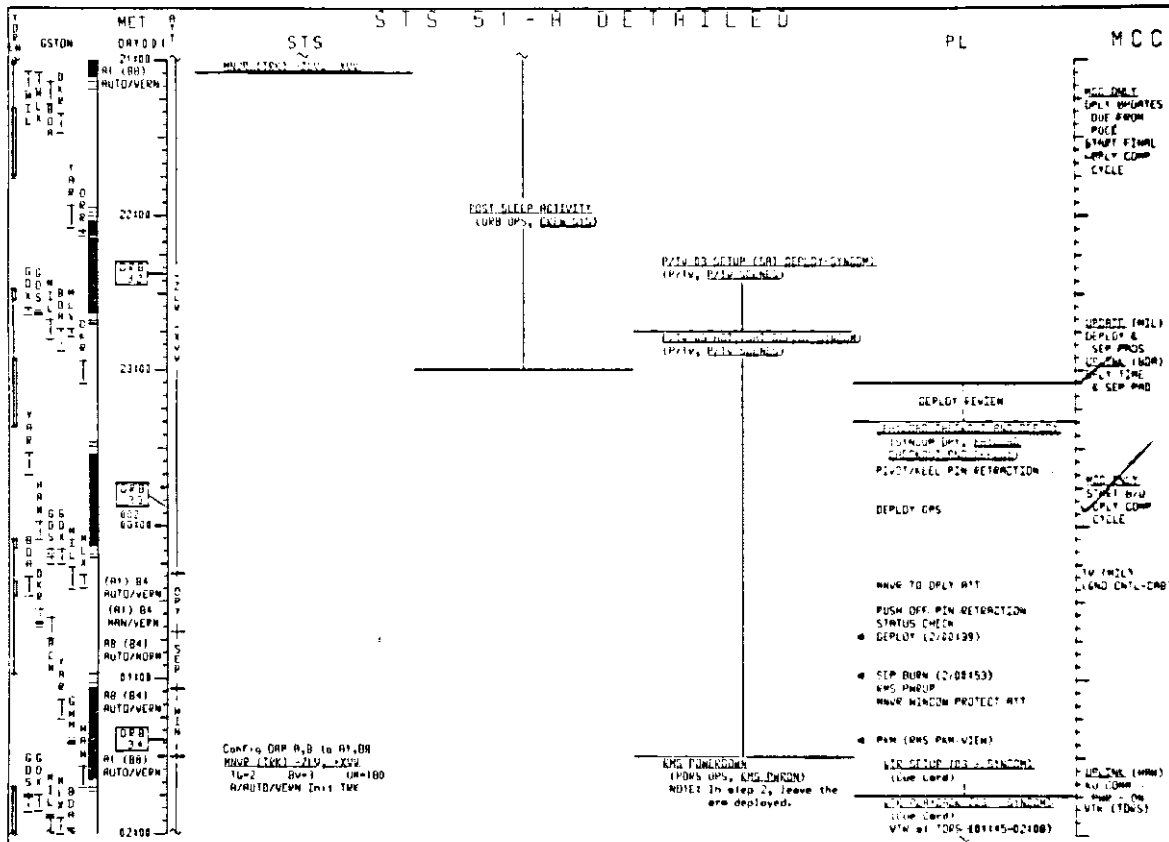
0910 (YDPS)
 WORLD (YDPS)
 DEPLY PH &
 DEPLY COMP
 CYCLE

1010 (YDPS)
 WORLD (YDPS)
 DEPLY PH &
 DEPLY COMP
 CYCLE

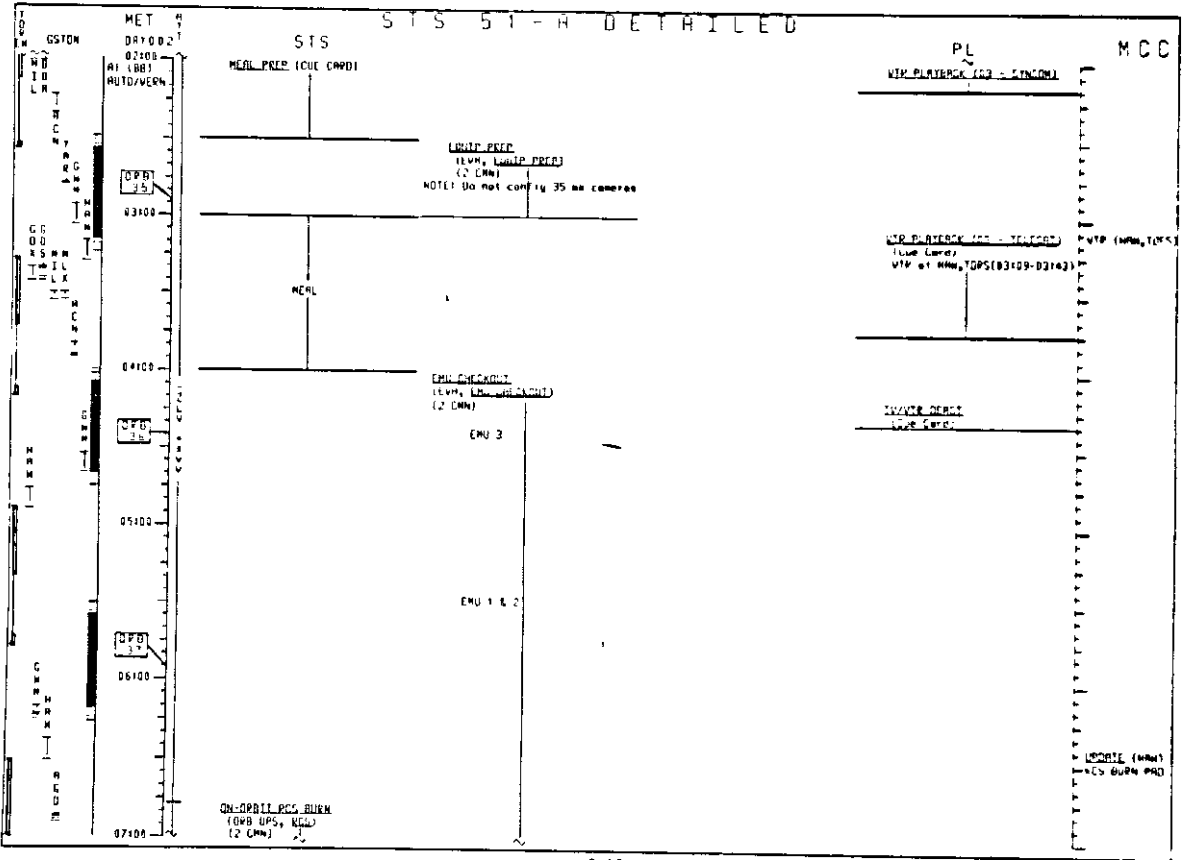
1130 (YDPS)
 WORLD (YDPS)
 DEPLY PH &
 DEPLY COMP
 CYCLE







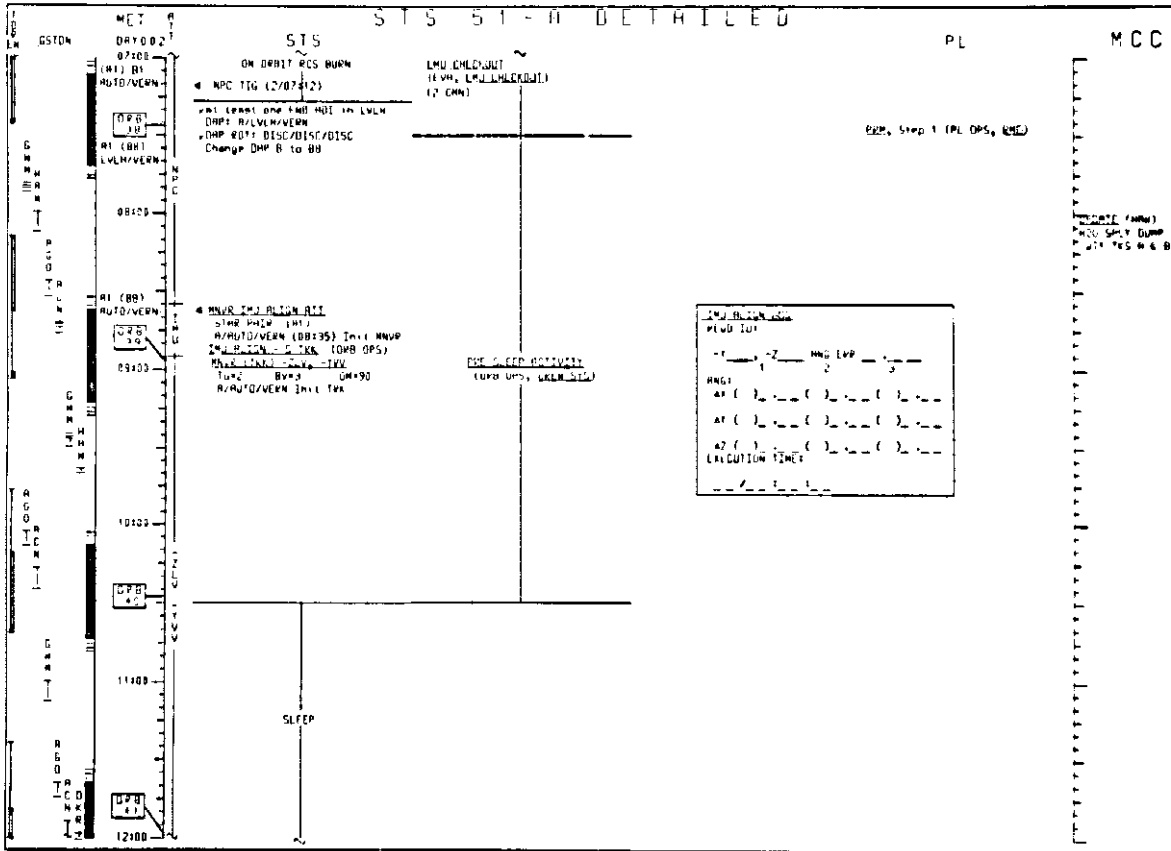
SIS 51-A DETAILED



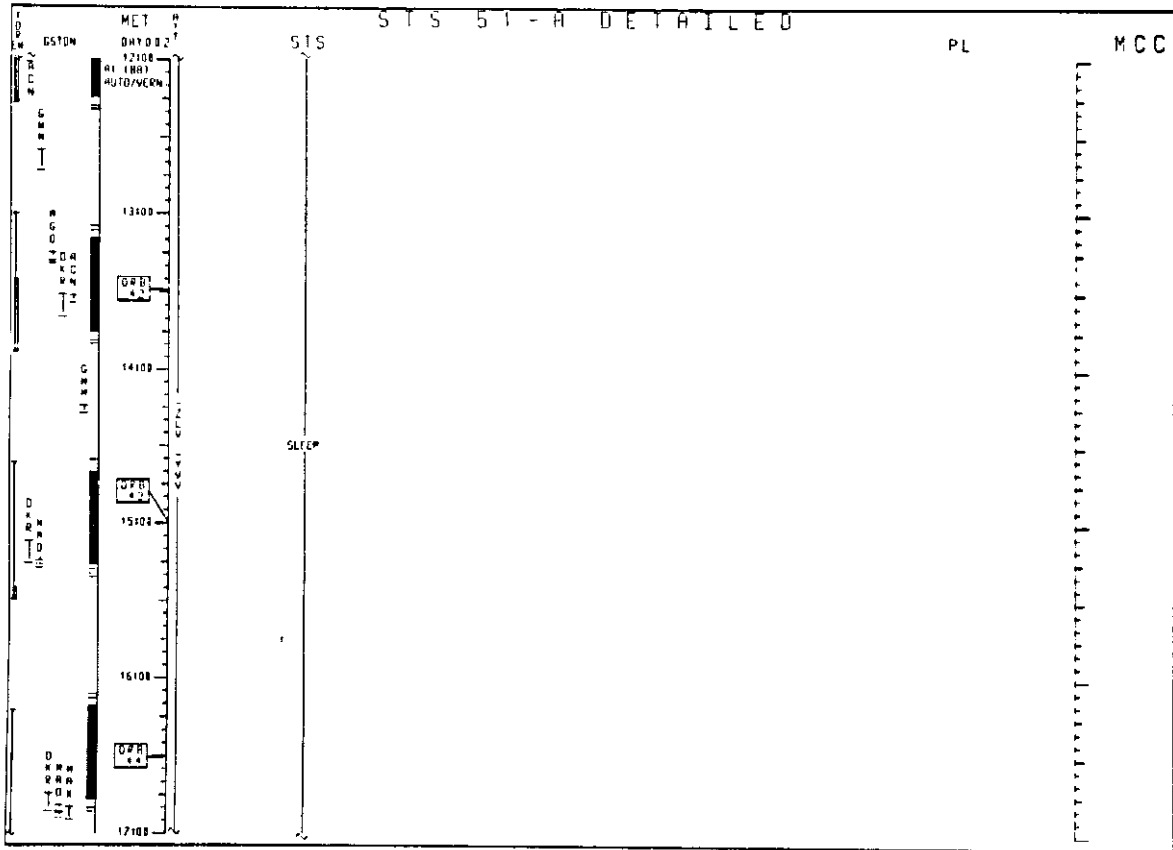
STS 51-A DETAILED

PL

MCC



STS 51-A DETAILED



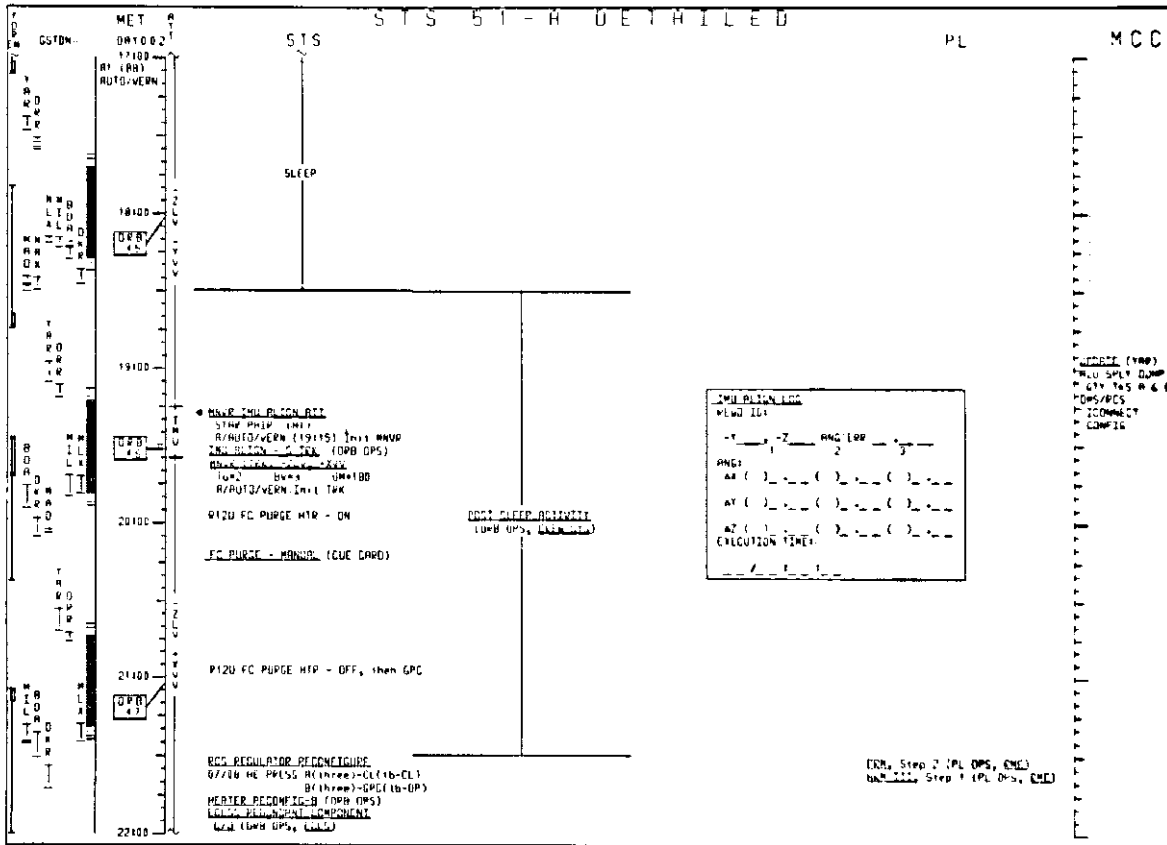
PL

MCC

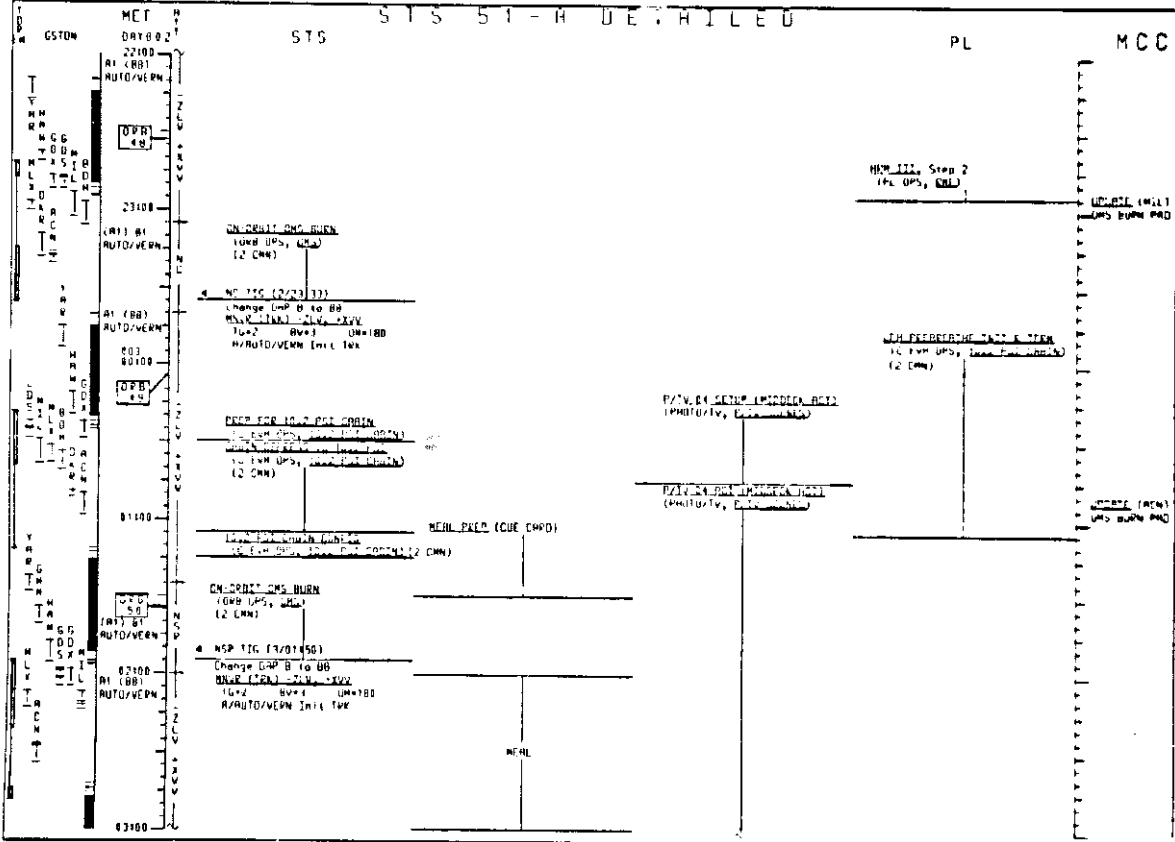
SYSTEM-A DETAILED

PL

MCC



STS 51-A DETAILED



STS

SYS 51-H DETAILED

PL

MCC

DATA 24 HRS (MARRIED, PAID)
(MARRIED, PAID)

TV (MARR, GDS)
GND CNTL-CRB

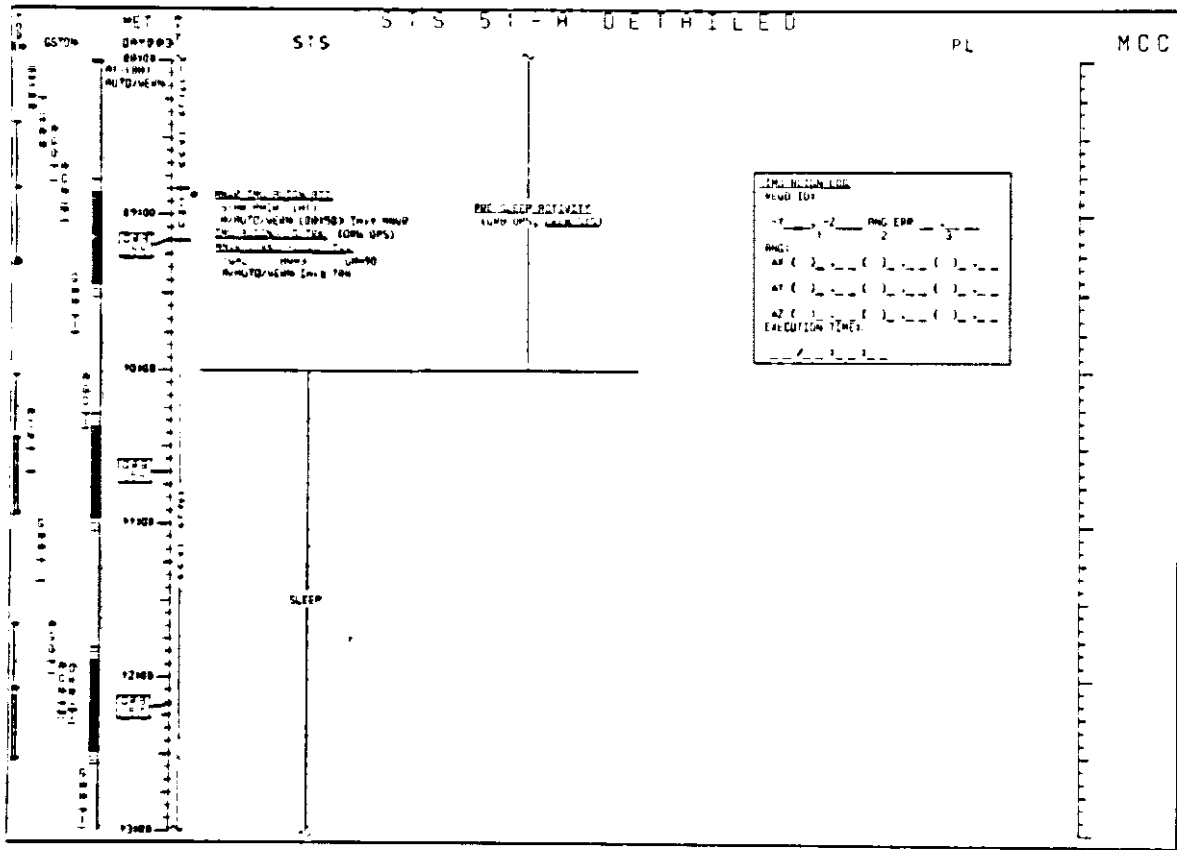
NO. 1000 & 1000 CURR
LATE IN (MARRIED, PAID)
(MARR, GDS)
(2 CAR)

LEGAGE (TDS)
MCS BURN PAD

NO. 1000 & 1000 CURR
LATE IN (MARRIED, PAID)
(MARR, GDS)
(2 CAR)

PRE. SLEEP, ACTIVITY
LATE (MARR, GDS)

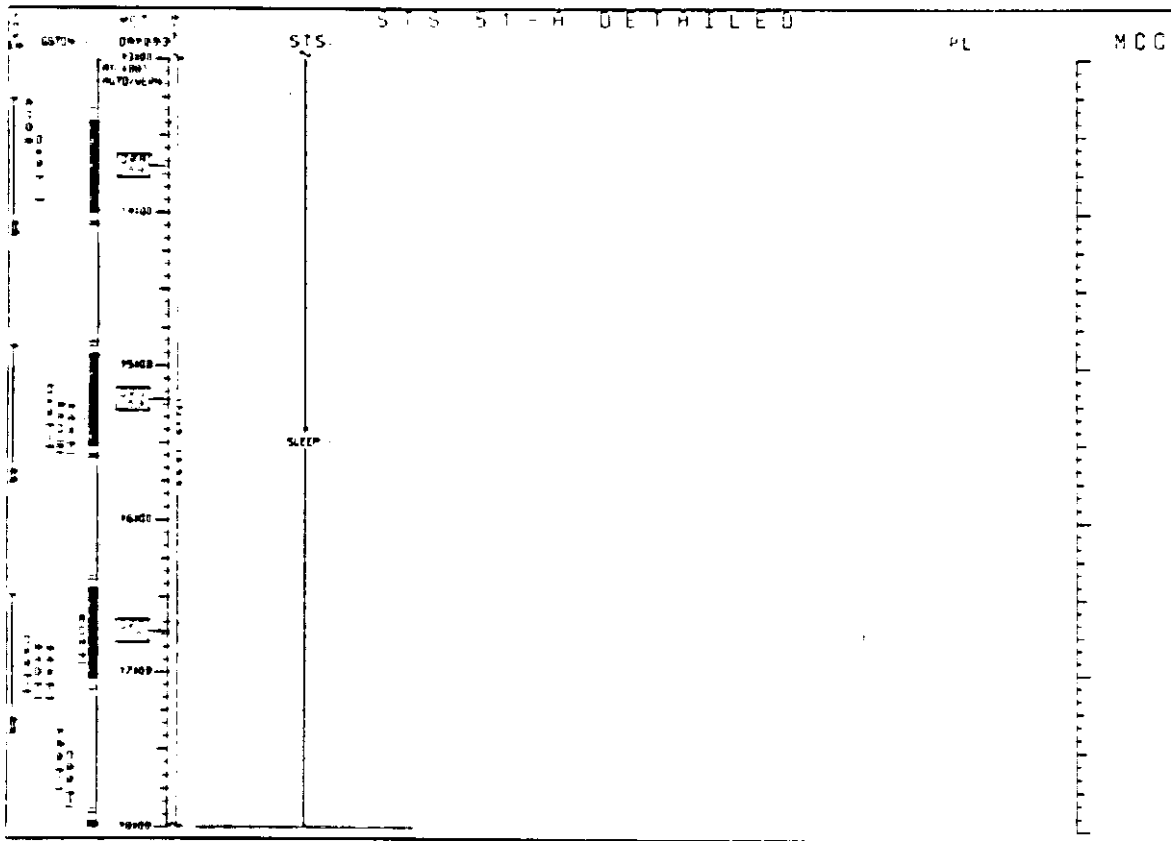
MARRIED, (MARR)
MARRIED, (MARR)
OTT 145 W & B



S T S S T - H D E T A I L E D

PL

MCC

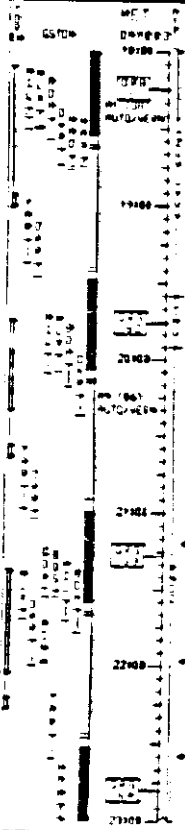


SYS D-T-H DETAILED

SIS

PL

MCC



NUMERICAL
AND MET 0480400
EQUALS
MET 21213 (LOW TIG)

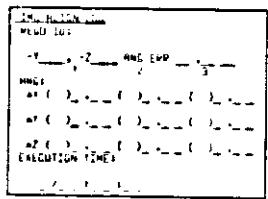
• WIRE CONTROL SYSTEM
CONTROL UNIT (COP)
AUTO/REVERSE (19135) (LOW OPS)
CONTROL UNIT (LOW OPS)
CONTROL UNIT (LOW OPS)
CONTROL UNIT (LOW OPS)

• WPC PDS (192173)

• MCP PDS (192155)

• MCC PDS (1922133)

CONTROL SYSTEM
(LOW OPS, LOW OPS)



SYSTEM GROUP LOW PDS
(PHOTOV, CONTROL)

SYSTEM GROUP LOW PDS
(PHOTOV, CONTROL)

LOW PDS
(LOW, LOW PDS)
(3 CH)

- UPDATE (MIL)
- WU SPLY DUMP
- QTY TIS A & B
- DMS/RCS
- TCONNECT
- CONFIG
- UPS LNK (OKP)
- TGI SV AND
- COV MATRIX
- UPDATE (YAP)
- PVEL MW, MCS
- TI BURN PMS

STS

STS 51-LH DETAILED

PL

MCC

REMOVE WALL SUPPORTS
(277V, 277V, 277V)

WALL SUPPORT
(177V, 177V, 177V)

RAMMER INSTALLATION

PMS BERTH S/C

REMOVE A-FRAME

PMS PNRON

TU (RAM)
(END CNTL-CAB)

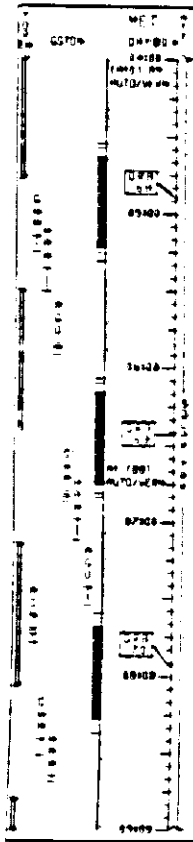
TU (RAM)
(END CNTL-CAB)

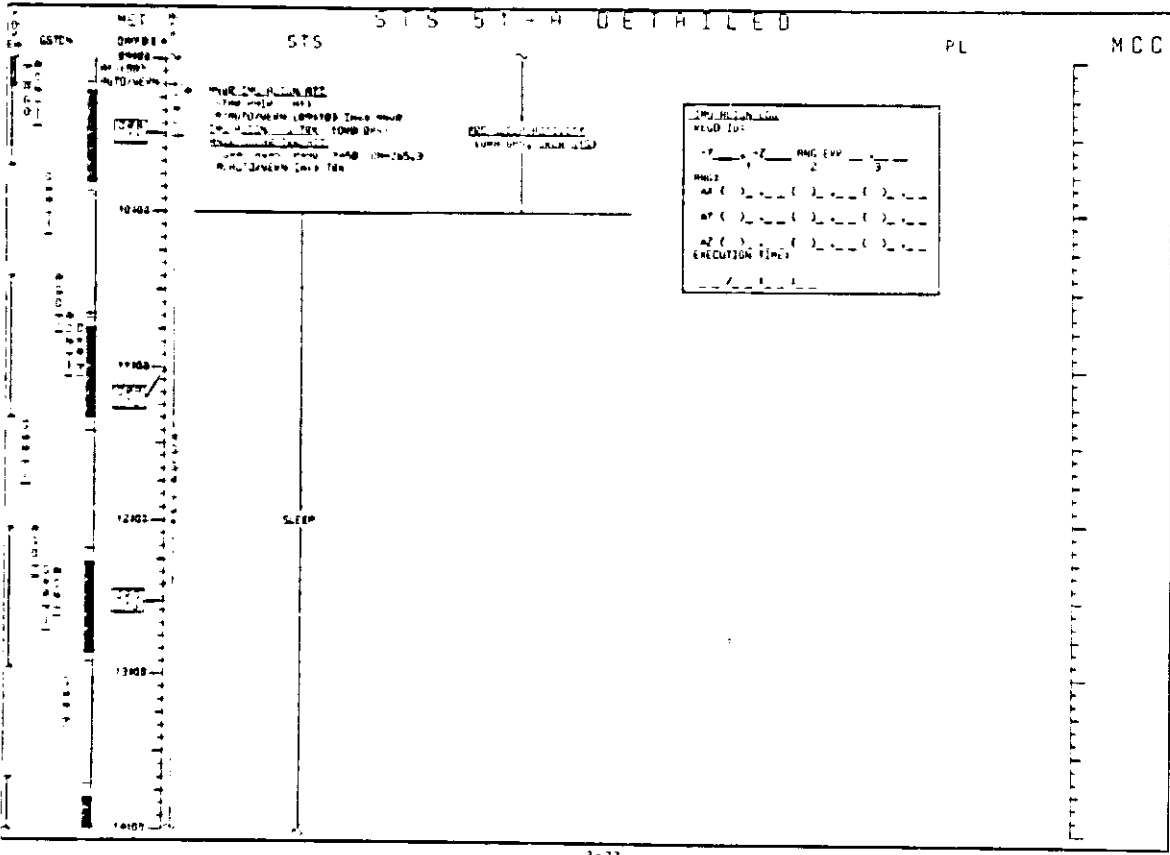
REMOVE (AGG)
R20 SPLY DUMP
OFF TMS R & B

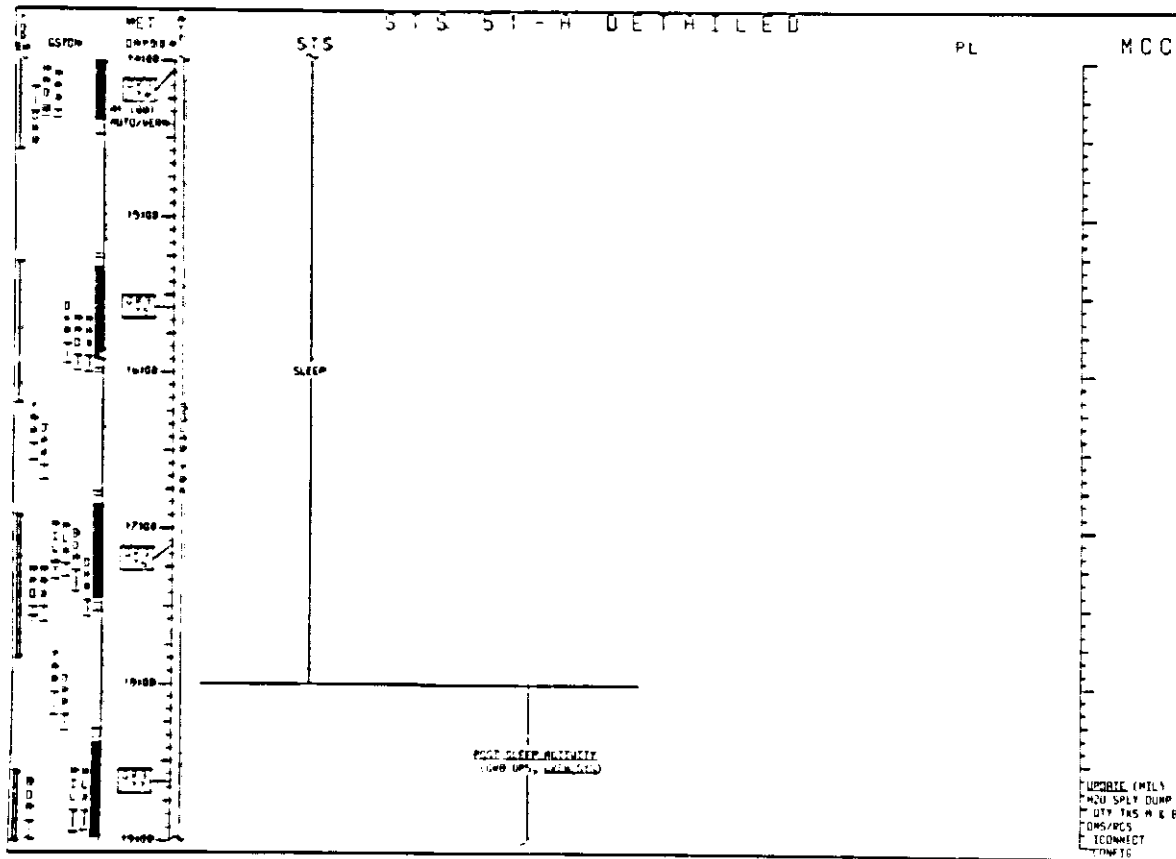
REMOVE COP. HOIST
(177V, 177V, 177V)

REMOVE
SPLY (RAM)
(177V)

REMOVE
SPLY (RAM)
(177V)







SYS 51-H DETAILED

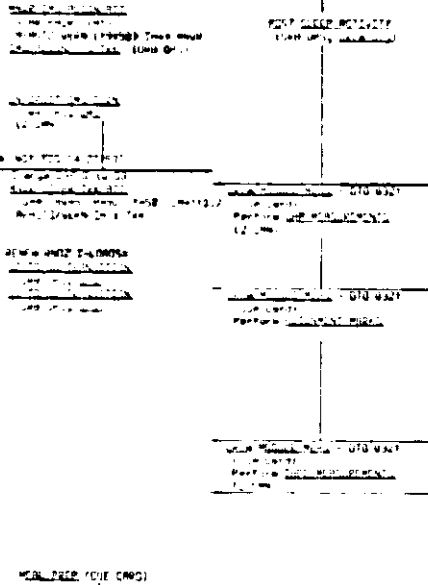
PL

MCC

IN. BLANK
 NO. 10
 -P ____ -2 ____ NO. EXP ____
 HWLT
 AF () ____ () ____ () ____
 AF () ____ () ____ () ____
 AF () ____ () ____ () ____
 CALCULATION TIME
 / /

UPDATE (196)
 OP: BURN PRO

0510
 0000
 0100
 0200
 0300
 0400
 0500
 0600
 0700
 0800
 0900
 1000
 1100
 1200
 1300
 1400
 1500
 1600
 1700
 1800
 1900
 2000
 2100
 2200
 2300
 2400
 2500
 2600
 2700
 2800
 2900
 3000
 3100
 3200
 3300
 3400
 3500
 3600
 3700
 3800
 3900
 4000
 4100
 4200
 4300
 4400
 4500
 4600
 4700
 4800
 4900
 5000
 5100
 5200
 5300
 5400
 5500
 5600
 5700
 5800
 5900
 6000
 6100
 6200
 6300
 6400
 6500
 6600
 6700
 6800
 6900
 7000
 7100
 7200
 7300
 7400
 7500
 7600
 7700
 7800
 7900
 8000
 8100
 8200
 8300
 8400
 8500
 8600
 8700
 8800
 8900
 9000
 9100
 9200
 9300
 9400
 9500
 9600
 9700
 9800
 9900



INITIAL, Step 1 (PL OPS, SCL)

INITIAL, Step 2 (PL OPS, SCL)

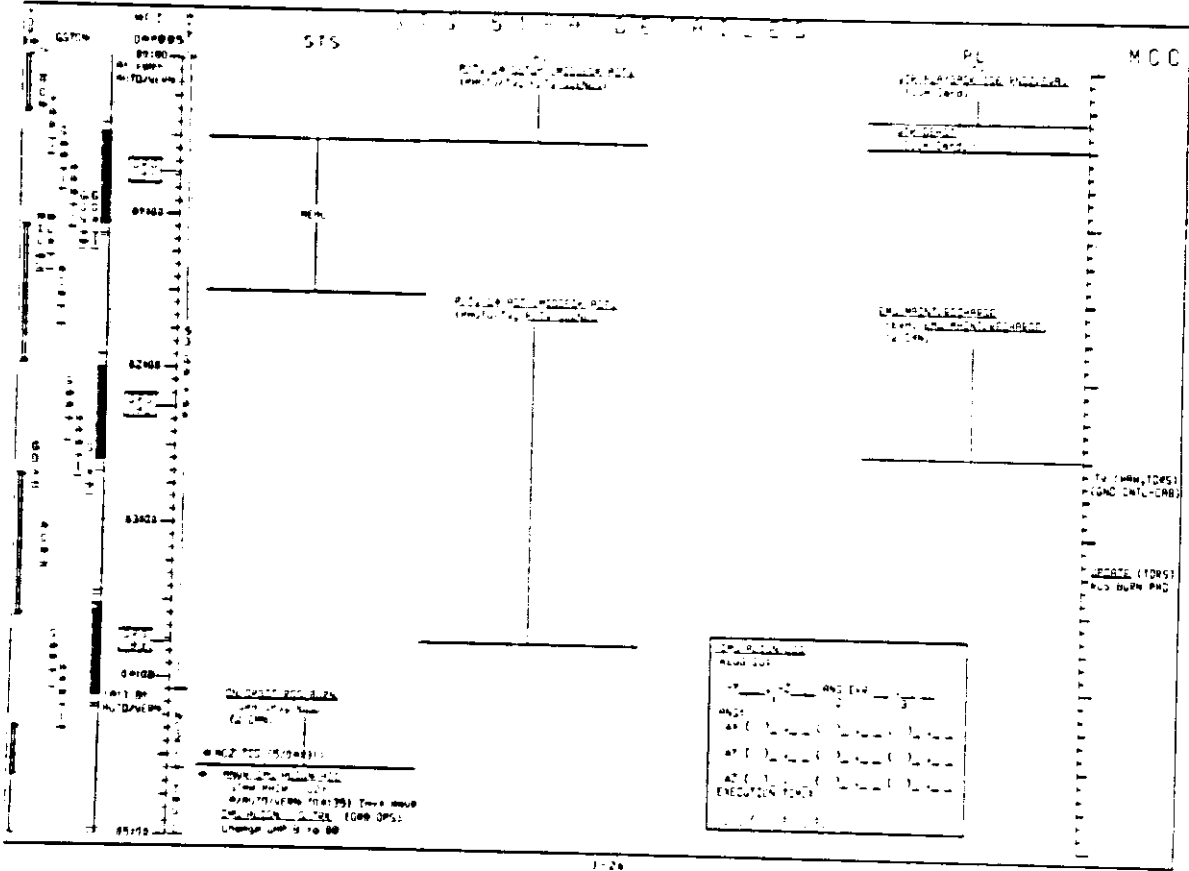
INITIAL, Step 3 (PL OPS, SCL)

INITIAL, Step 4 (PL OPS, SCL)

INITIAL, Step 5 (PL OPS, SCL)

INITIAL, Step 6 (PL OPS, SCL)

INITIAL, Step 7 (PL OPS, SCL)





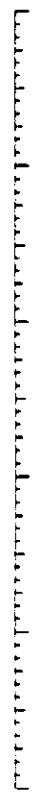
MET
04-000
07000
00000
00000

STS
SLEEP

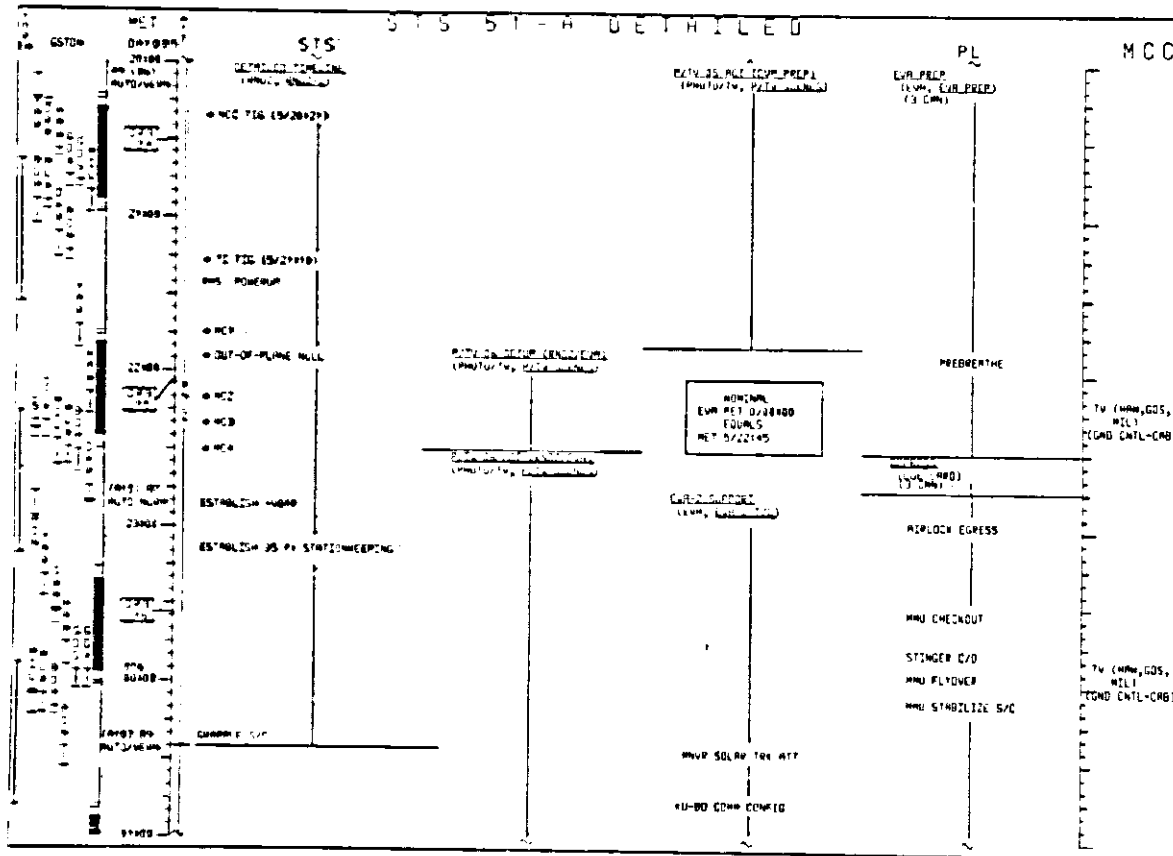
STS SLEEP DETAILED

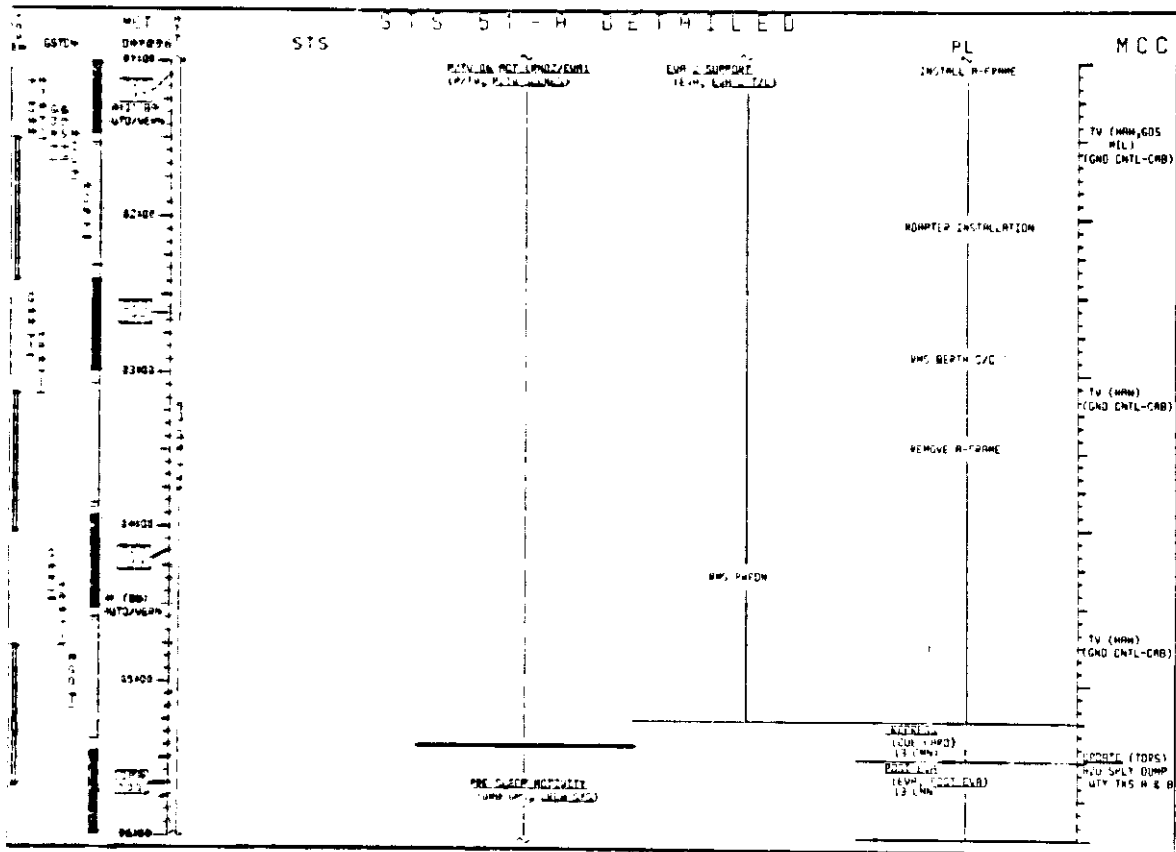
PL

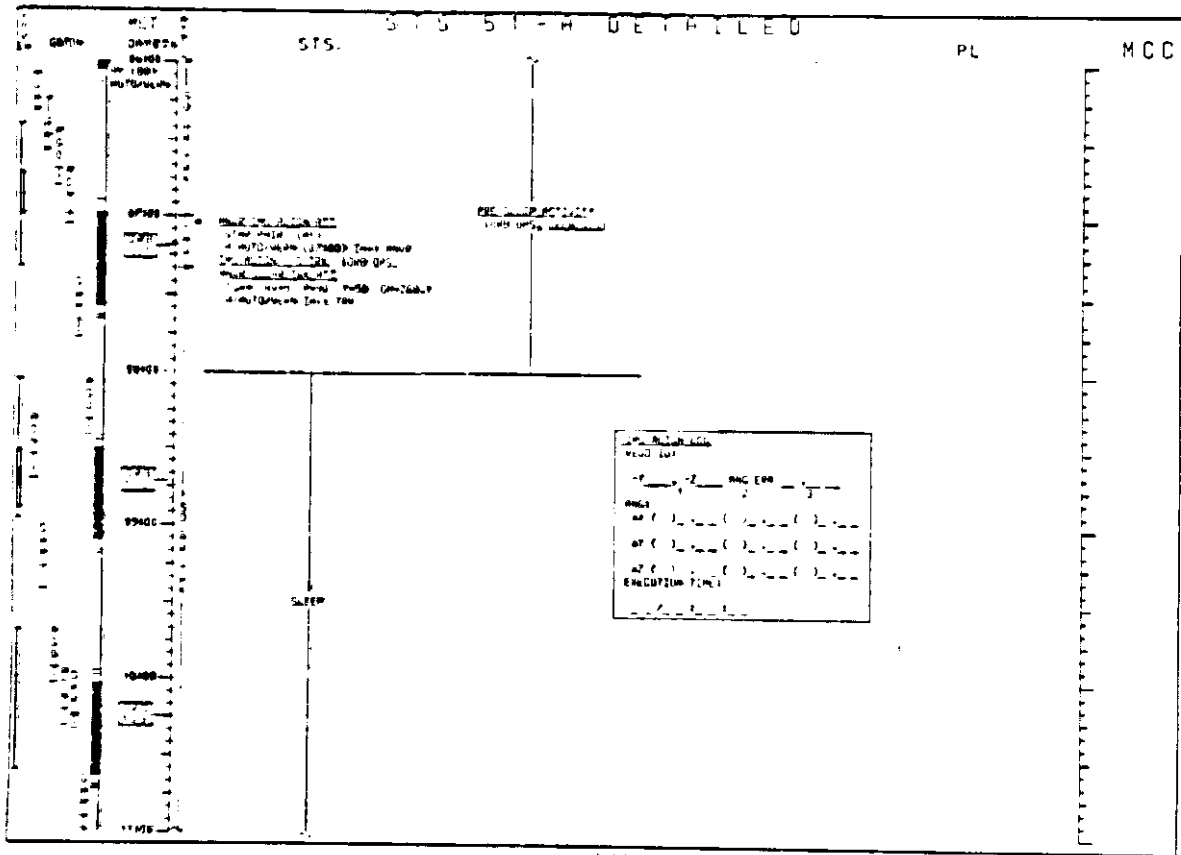
MCC



SYS 51-A DETAILED



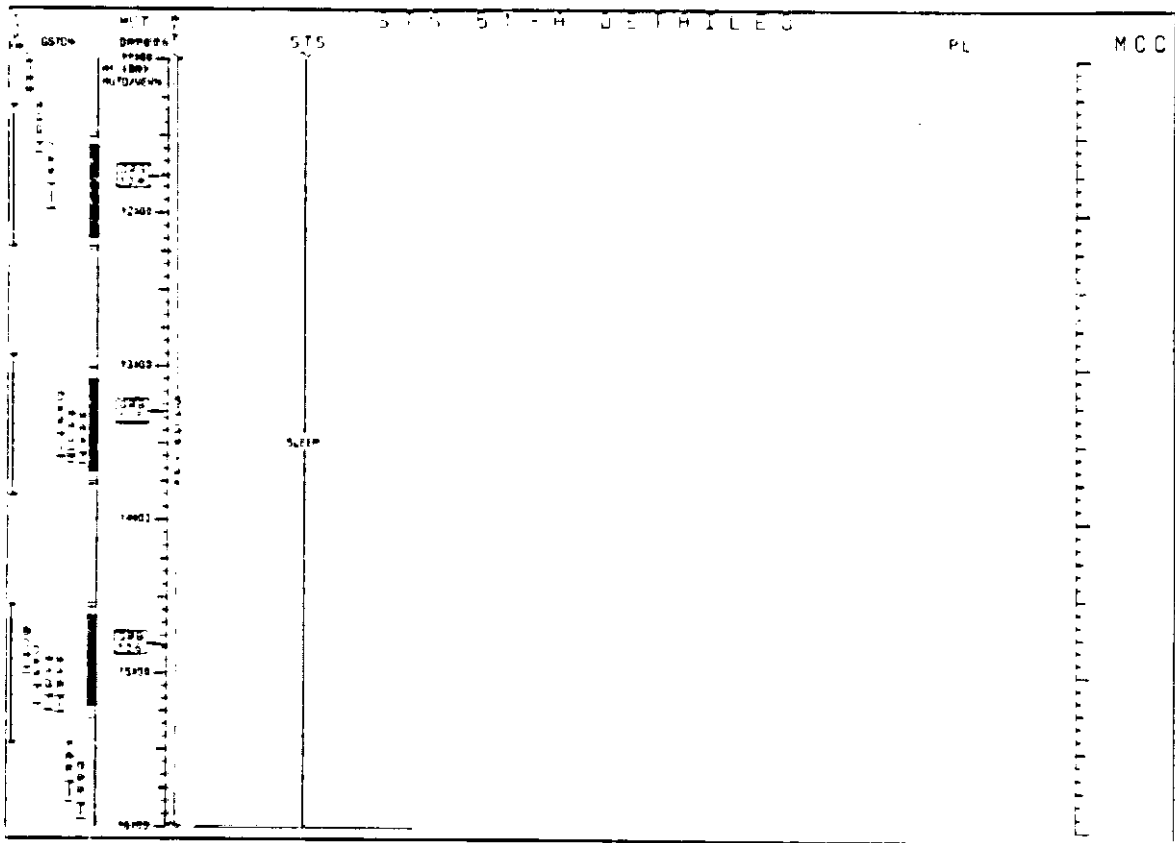




SYNOPSIS DETAILS

PL

MCC



STS. SYS SITH DETAILED

PL

MCC

UPDATE (MIL)
 WFO SMLT DUMP
 DTY TMS A & B
 TMS/ACS
 TLOWRECT
 COMFLO

DATA OPER. HISTORY
 (TURN OFF, RESTART)

DATA OPER. HISTORY
 HEAD LOG

1	2	ANC	EMP
ANC			
AT			
AZ			
EXECUTION TIME			

PLR-100 (MIL)
 3100 (MIL)
 A. AUTO. (MIL) (1700) (MIL) (MIL)
 B. AUTO. (MIL) (1700) (MIL) (MIL)
 C. AUTO. (MIL) (1700) (MIL) (MIL)
 D. AUTO. (MIL) (1700) (MIL) (MIL)

PLR-100 (MIL)
 3100 (MIL)
 A. AUTO. (MIL) (1700) (MIL) (MIL)
 B. AUTO. (MIL) (1700) (MIL) (MIL)
 C. AUTO. (MIL) (1700) (MIL) (MIL)
 D. AUTO. (MIL) (1700) (MIL) (MIL)

PLR-100 (MIL)
 3100 (MIL)
 A. AUTO. (MIL) (1700) (MIL) (MIL)
 B. AUTO. (MIL) (1700) (MIL) (MIL)
 C. AUTO. (MIL) (1700) (MIL) (MIL)
 D. AUTO. (MIL) (1700) (MIL) (MIL)

PLR-100 (MIL)
 3100 (MIL)
 A. AUTO. (MIL) (1700) (MIL) (MIL)
 B. AUTO. (MIL) (1700) (MIL) (MIL)
 C. AUTO. (MIL) (1700) (MIL) (MIL)
 D. AUTO. (MIL) (1700) (MIL) (MIL)

NEW-100 Step 1 (PL OPS, ENG)

NEW-100 Step 2
 (PL OPS, ENG)

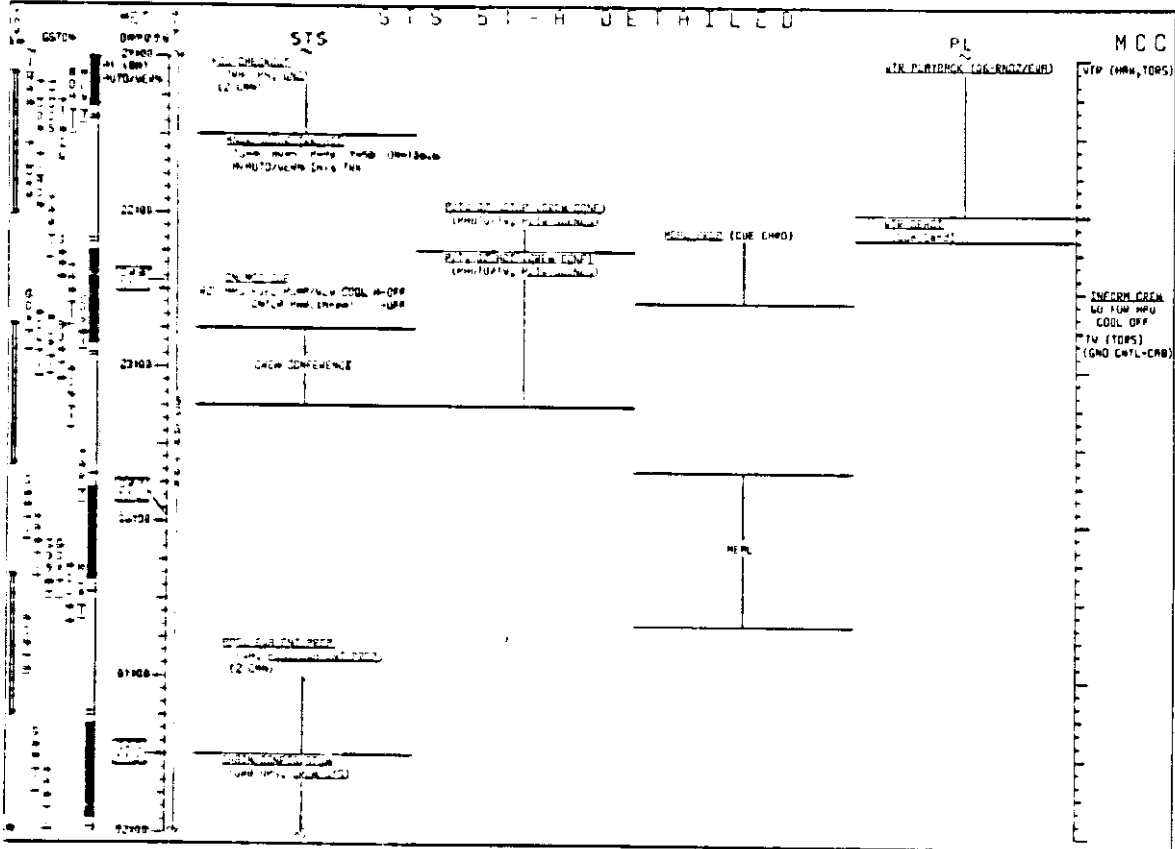
VIR. SETUP (CON. RNDZ/EVRL)
 (Cup Card)

VIR. PL. TMS (CON. RNDZ/EVRL)
 (Cup Card)

VIR. PL. TMS (CON. RNDZ/EVRL)
 (Cup Card)

VIR. (MIL, TMS)

SYS 51-H DETAILED



STS

PL

MCC

MR PLTRNG (GRNDZEND)

WTP (HW, TORS)

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

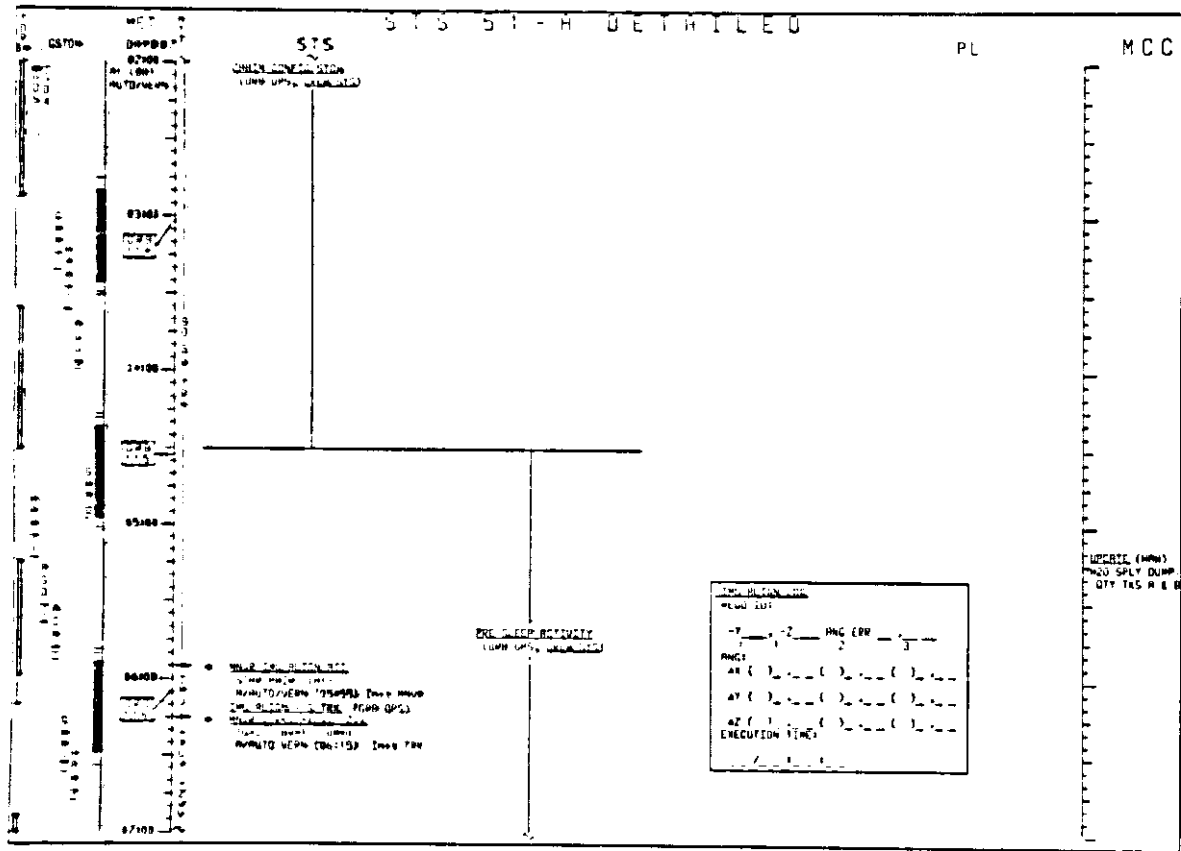
2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400

2200
2210
2220
2230
2240
2250
2260
2270
2280
2290
2300
2310
2320
2330
2340
2350
2360
2370
2380
2390
2400



S.T.S. 51-H DETHILED

S.T.S.

PL

MCC

CHEN (UNCLASSIFIED)
UNCLASSIFIED

CST06

0900
0850
0800

0700
0650
0600
0550
0500

0400
0350
0300
0250
0200

0100
0050
0000

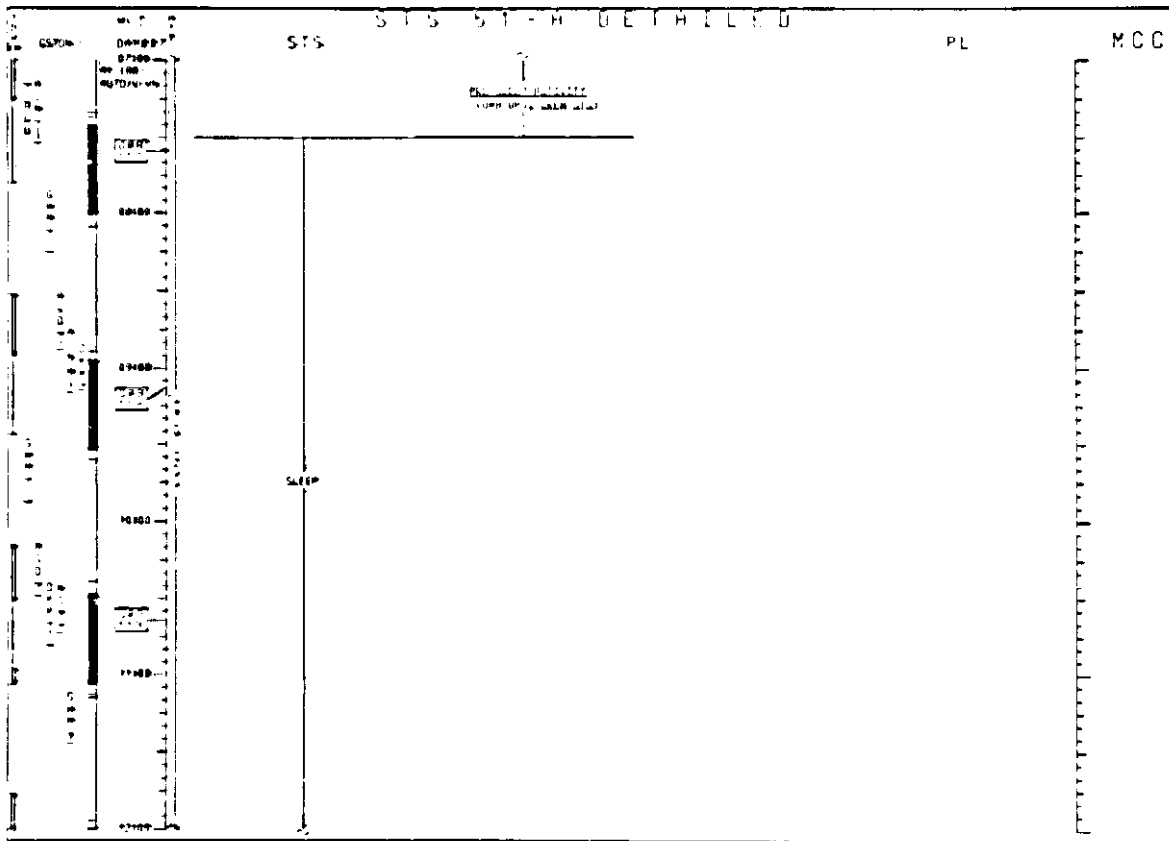


DEGREE (MIN)
DUMP
DUMP
DUMP

PRE-SLEEP ACTIVITY
(UNCLASSIFIED)

- [unreadable]
- [unreadable]

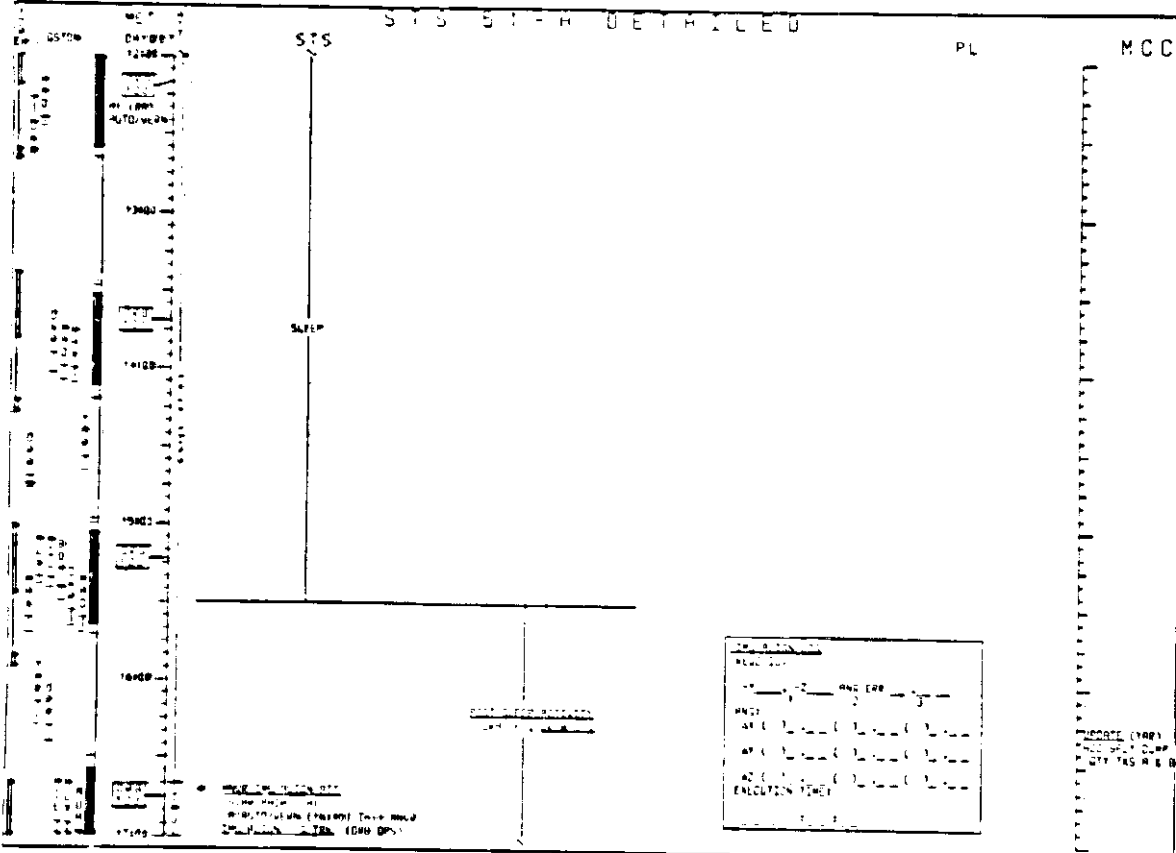
TOP-BLOCK LOG	
REC'D	1
PLC	2
REC'D	3
PLC	4
REC'D	5
PLC	6
EXECUTION TIME	7

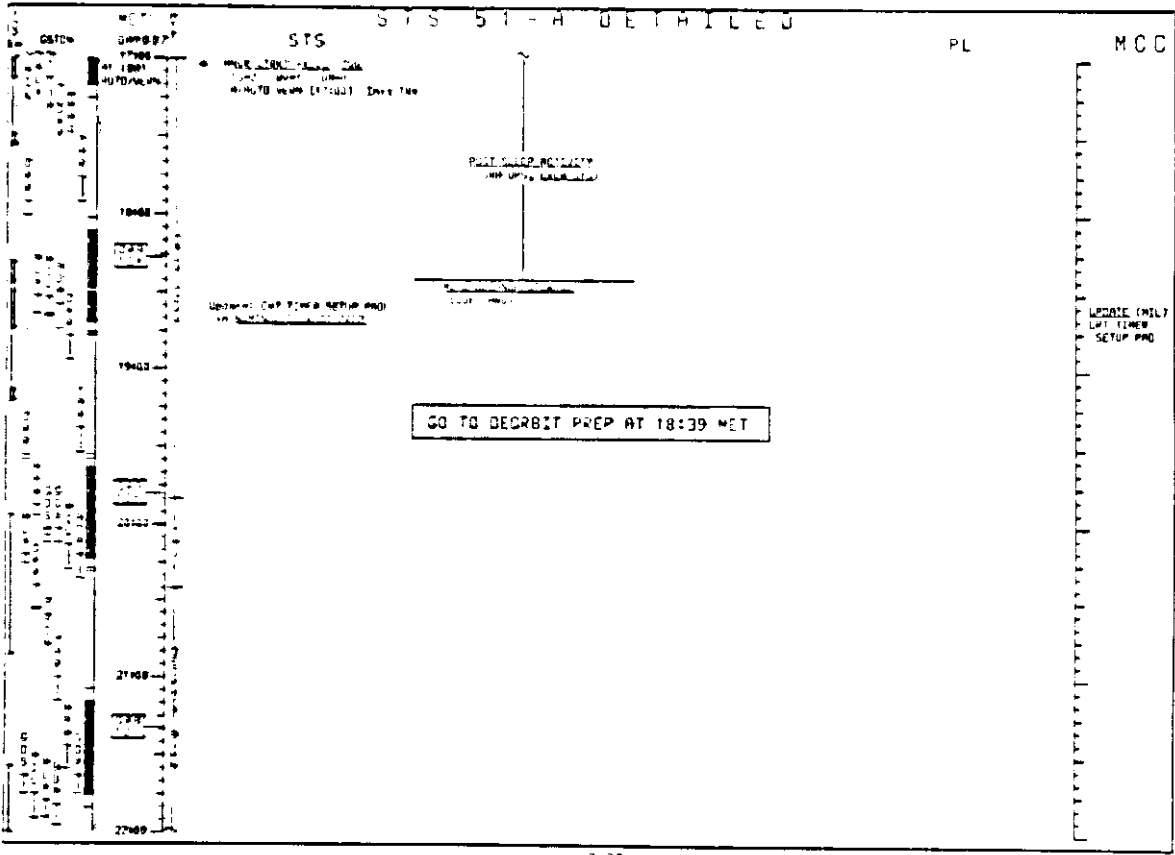


SYS STR DETAILED

PL

MCC





This Page Intentionally Blank

3-40

CAP/51-A/FIN

CONTINGENCY TIMELINES

CONTINGENCY
TIMELINES

This Page Intentionally Blank

CONTINGENCY
TIMELINES

HIGH PRIORITY MISSION

The High Priority mission timeline is based on the following assumptions:

- The mission duration is ~144 hours with landing occurring on FD7.
- The following priority activities, as defined by Flight Rules, comprise the requirements for the High Priority mission plan:
 - (1) Anik deployment
(230 PKM Primary/49A PKM Backup)
 - (2) Syncom deployment
(34A PKM Primary/49A PKM Backup)
 - (3) Palapa retrieval
- Nominal mission timeline is followed through FD5, MET 4/18:00.
- The nominal day prior to entry (FD8) timeline is used as FD6 for the High Priority timeline. Crew will wake up at MET 4/18:00 and start sleep at MET 5/08:00.
- The primary landing is at KSC runway 33 on orbit 96, MET 6/00:23, with a backup to EDW on orbit 97.
- Other payload activities will be scheduled to the maximum extent possible.

This Page Intentionally Blank

CONSUMABLES CURVES

CONSUMABLES
CURVES

Supply Water Profile
(TBD)

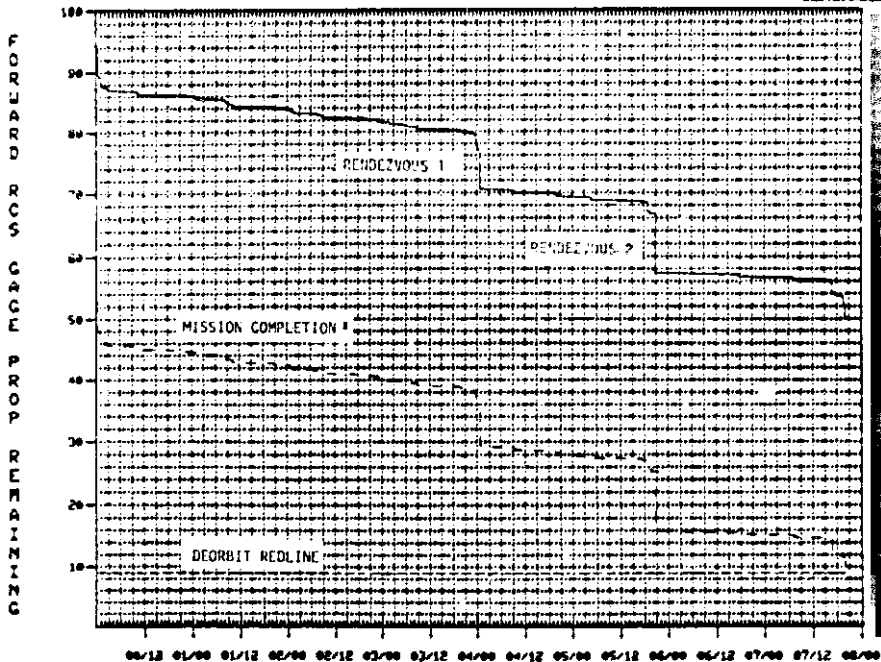
CONSUMABLES
CURVES

Cryogenic Hydrogen Profile
(TED)

Cryogenic Oxygen Profile
(T80)

B. L. JONES/EM
DATA SUBMITTA 3-727 Add 4
JSC-19549
CHECKED BY *[Signature]*

S1-A FORWARD RCS PROP REMAINING (%GAGE)



MISSION ELAPSED TIME IN DAYS/HOURS

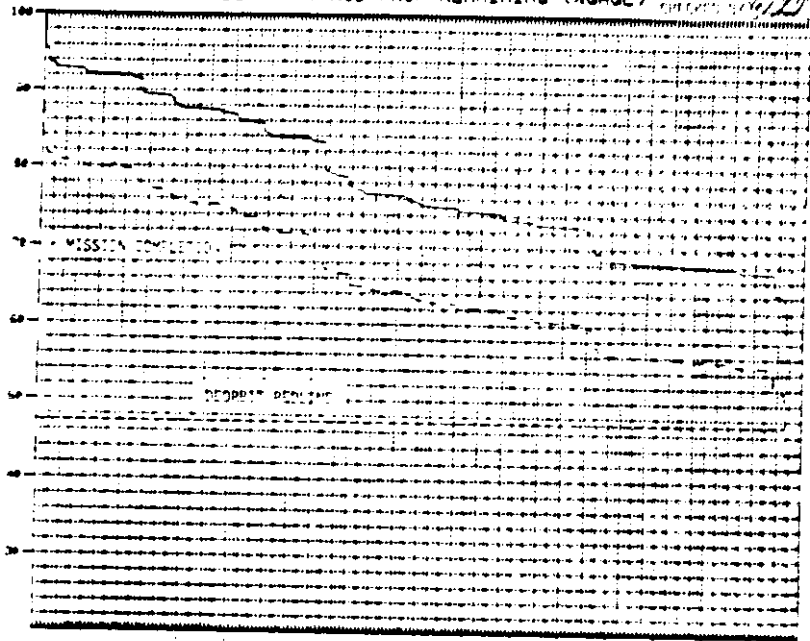
5-5

CAP/51-R/FIN

51-A AFT RCS PROP REMAINING (XGAGE)

B. I. JOHNSON
DATA SUBMITTED 3 27 1964
JSC-12469
3/27/64
W. J. ...

PERCENT REMAINING



SCALE MARKS HAVE BEEN MADE EVERY 10% ON THE Y-AXIS AND EVERY 10 DAYS/HOURS ON THE X-AXIS

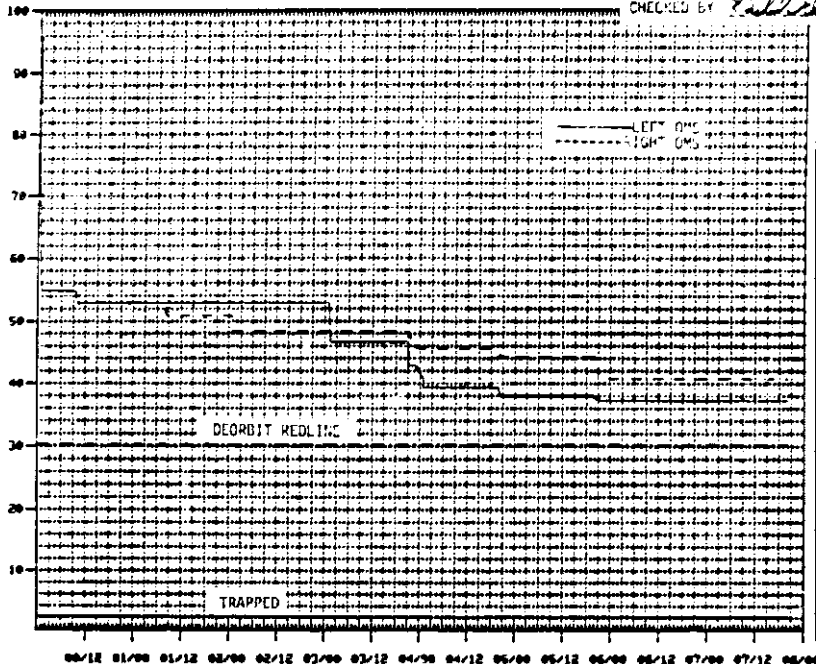
MISSION ELAPSED TIME IN DAYS/HOURS

CALCULATION

51-A OMS PROP REMAINING (%GAGE)

B.F. JONES/FM2
 DATA SUBMITTAL C-737 201 4
 JSC-19949 (201) 7/19/64
 CHECKED BY *F. J. Jones*

OMS PROP REMAINING (%GAGE)



MISSION ELAPSED TIME IN DAYS/HOURS

This Page Intentionally Blank

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

STS 51-A DAP BOOK

DAP A CONFIGURATIONS.....	6-2
DAP B CONFIGURATIONS.....	6-3
STS 51-A DAP BOOK.....	6-4

DAP BOOK

TABLE 6-1
DAP A CONFIGURATIONS

	A1*	A2	A3	A4	A5	A6	A7	A8	A9	A10
<u>TRANSLATION</u>										
PULSE FT/sec	0.10	0.10	0.10	0.10	0.10	0.10		0.10	0.10	0.05
<u>ROTATION</u>										
DSC RT										
NORM °/sec	0.200	0.400	0.200	0.200	0.200	0.200		0.500	0.200	0.200
VERN °/sec	0.200	0.400	0.200	0.008	0.200	0.200		0.200	0.200	0.200
PULSE										
NORM °/sec	0.10	0.10	0.30	0.10	0.10	0.10		0.10	0.10	0.10
VERN °/sec	0.010	0.010	0.010	0.010	0.050	0.010		0.010	0.010	0.010
COMP										
NORM °/sec	.00	.00	.00	.00	.00	.00		.00	.00	.00
VERN °/sec	.000	.000	.000	.000	.000	.000		.000	.000	.000
<u>DEADBAND</u>										
ATT										
NORM (deg)	5.00	1.00	5.00	1.00	5.00	5.00		3.00	2.00	2.00
VERN (deg)	1.000	1.000	1.000	0.070	1.000	1.000		1.300	1.000	1.300
RATE										
NORM °/sec	0.20	0.20	0.20	0.20	0.20	0.20		0.20	0.20	0.20
VERN °/sec	.020	.020	.020	.010	.020	.020		.020	.020	.020
<u>JET OPT</u>										
P	1	1	3	1	1	3		1	1	1
Y	1	1	3	3	1	3		1	1	1
CNTL ACCEL	0	0	0	0	0	0		0	0	0

*I-LOADED OPS-2 DAP Configuration

TABLE 6-1 (Cont)
DAP B CONFIGURATIONS

		B1*	B2	B3	B4	B5	B6	B7	B8	B9
<u>TRANSLATION</u>										
PULSE ft/sec		0.02	0.02	0.02	0.02	0.02	0.05	0.01	0.02	0.01
<u>ROTATION</u>										
DSC RT	NORM °/sec	0.500	0.200	0.200	0.200	0.200	0.500	0.200	0.200	0.100
	VERN °/sec	0.200	0.200	0.200	0.008	0.016	0.200	0.200	0.200	0.200
PULSE	NORM °/sec	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	VERN °/sec	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	NORM °/sec	.00	.00	.00	.00	.00	.00	.00	.00	.00
	VERN °/sec	.000	.000	.000	.000	.000	.000	.000	.000	.000
<u>DEADBAND</u>										
ATT	NORM (deg)	3.00	3.00	3.00	0.30	3.00	2.00	2.00	7.50	7.50
	VERN (deg)	1.000	1.000	1.000	0.100	0.033	1.000	1.000	1.000	5.000
RATE	NORM °/sec	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	VERN °/sec	.020	.020	.020	.010	.020	.020	.020	.020	.100
<u>JET OPT</u>										
P		1	3	1	1	3	1	1	3	3
Y		1	3	1	3	3	1	1	3	3
CNTL ACCEL		0	0	0	0	0	0	0	0	1

*1-LOADED OPS-2 DAP Configuration

TOP
FRONT COVER 'DAP BOOK'

DAP BOOK

HOOK
VELCRO

CAP/51-A/O/B/S

NEW FIG	
TGT ID	= 1 Orbiting vehicle = 2 Earth ctr = 3 Earth tgt Input LAT (+90) LON (+180, + = East) ALT (+99.99m) = 4 Sun ctr = 5 Celestial tgt Input RA (0-359.99) DEC (+90) = 11-110 New Stars
BODY VECT	= 1 +x = 2 -x = 3 -z = 4 PIC (-2° below +x) = 5 Optional Input P (0-359.99) V (270-359.99, 0-90)
* Input OM	= OM (0-359.99)
MON AXIS	= 1 +x = 2 -x

CAP/51-A/O/B/S

G2C DAP CONFIG	
ENTL ACCEL = 0 Orbiter alone	JET OPT = 1 Normal = 2 Nose only = 3 Tail only
= 1 TDD	
= 2 TDD	

TOP
BACK OF FRONT COVER
'DAP BOOK'

TOP

DAP PURPOSE

- A1 - NOMINAL
 - ZLY
 - IMU ALIGN
 - TAIL ONLY CONTROL
 - BACKOUT
 - PRI/POST PAM DEPLOY
 - OMS BURN
 - TAIL-TO-SUN
 - LOSS OF VERN
- A2 - PTC
- A3 - RCS HOT FIRE
- A4 - CG
- A5 - IMU ROTATION
- A6 - LOSS OF VERN (TAIL ONLY)
- A7 - (Blank)
- A8 - FRISBEE SEP
- A9 - RENDEZVOUS
- A10 - PROM OPS
- A11 - (Blank)

CAP/51-A/C/F2N

A1

TOP

DAP A1

PURPOSE:

- ZLY
- IMU ALIGN
- TAIL ONLY CONTROL
- BACKOUT
- PRI/POST PAM DEPLOY
- OMS BURN
- TAIL-TO-SUN
- LOSS OF VERN (NOSE & TAIL)

CAP/51-A/D/EAS

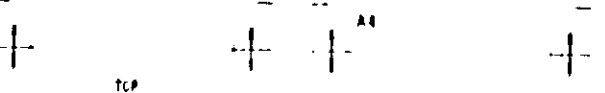
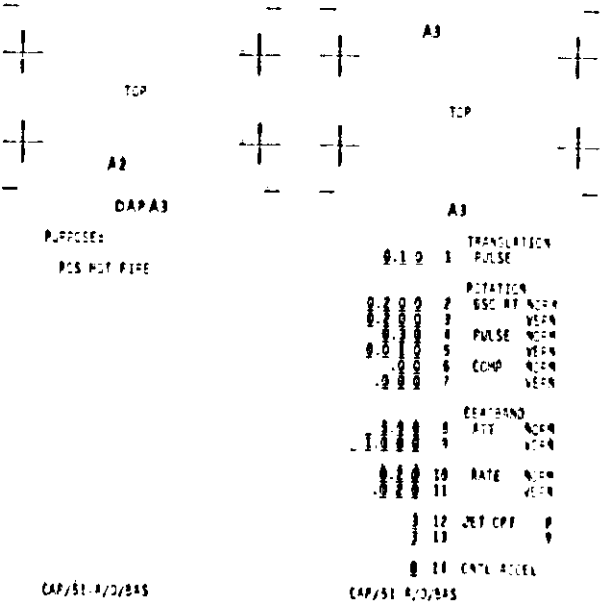
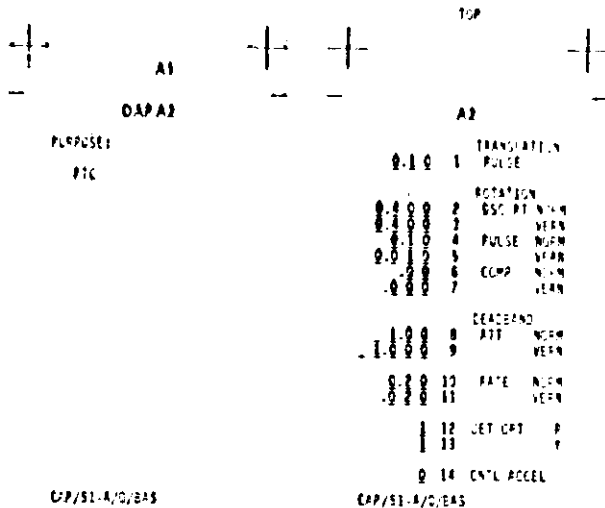
A1

0.1 0	1	TRANSLATION PULSE	
		ROTATION	
0.2 7	2	DSC RT NORM	
0.3 1	3	VERN	
0.4 1	4	PULSE NORM	
0.5 1	5	VERN	
0.6 0	6	COMP NORM	
0.7 0	7	VERN	
		DEADBAND	
0.8 0	8	ATT NORM	
0.9 0	9	VERN	
0.2 0	10	RATE NORM	
0.2 0	11	VERN	
	12	JET OPT	P
	13		Y
	14	ENTL ACCEL	

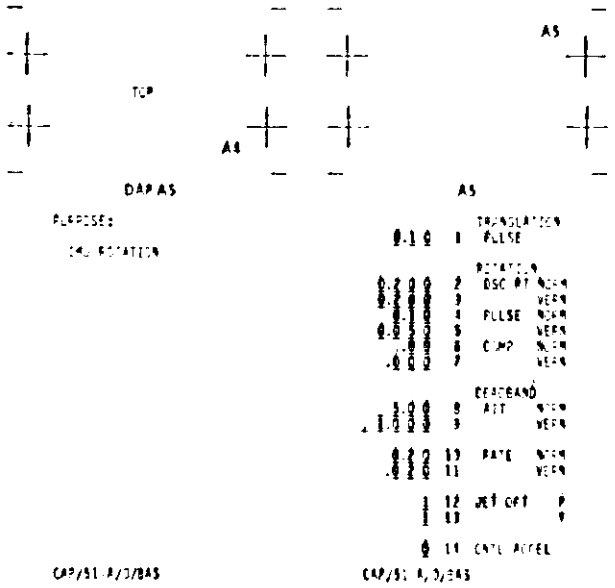
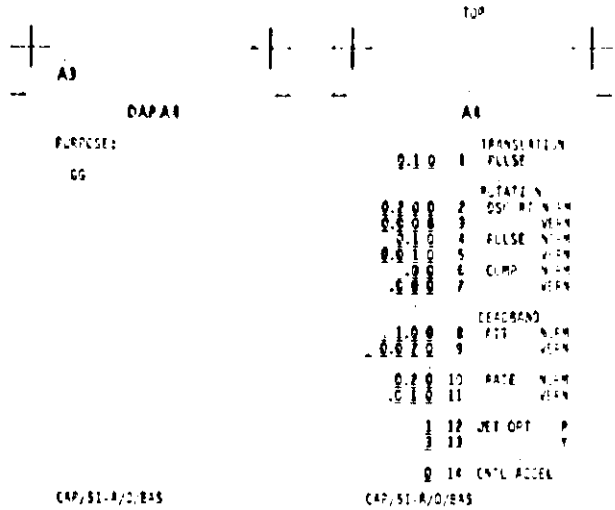
CAP/51-A/D/BAS

A2

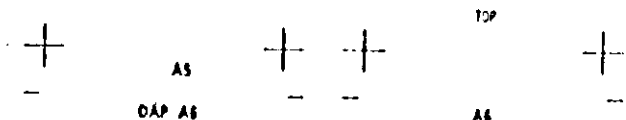
TOP



(reduced copy)



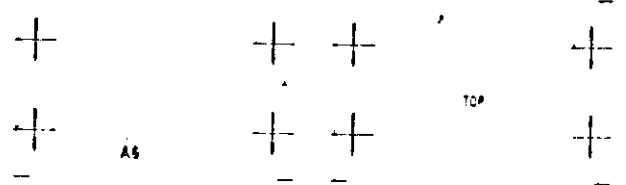
(reduced copy)



AS
DAP A6

PURPOSE:
LOSS OF VERN
(TAIL CNL)

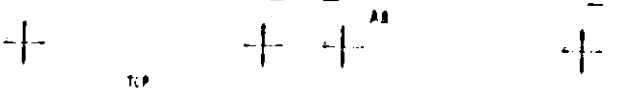
CAP/SI-A/O/EAS



AS
DAP A7

PURPOSE: (B7a-k)

CAP/SI-A/O/EAS



TOP

TOP

A6

- | | | | | |
|-----|---|----|-------------|------|
| Q-1 | Q | 1 | TRANSLATION | |
| | | | PULSE | |
| | | 2 | ROTATION | |
| | | | ESC RT | NORM |
| | | 3 | | VERN |
| | | 4 | PULSE | NORM |
| | | 5 | | VERN |
| | | 6 | COMP | NORM |
| | | 7 | | VERN |
| | | 8 | DEACRND | |
| | | | ATT | NORM |
| | | 9 | | VERN |
| | | 10 | RATE | NORM |
| | | 11 | | VERN |
| | | 12 | JET OFF | P |
| | | 13 | | Y |
| | | 14 | CN'L ACCEL | |

CAP/SI-A/O/EAS

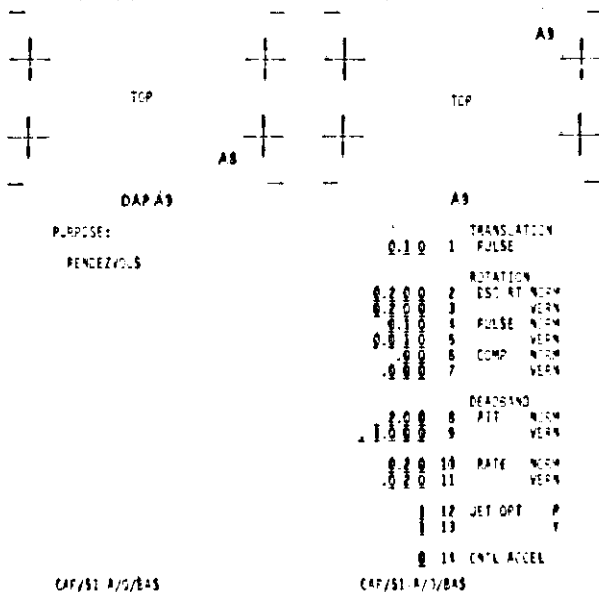
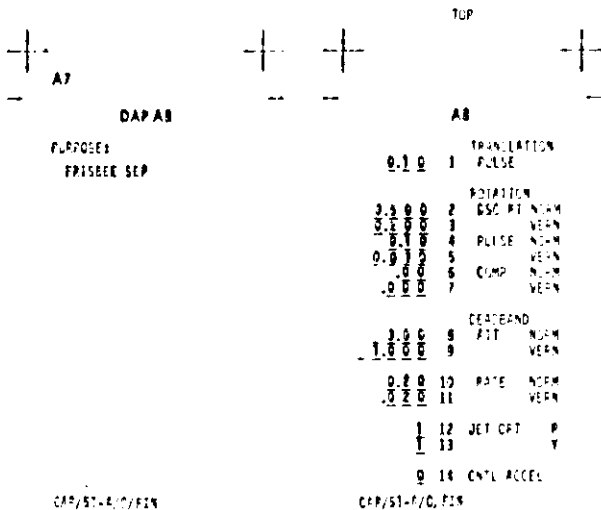
TOP

A7

- | | | | | |
|--|--|----|-------------|------|
| | | 1 | TRANSLATION | |
| | | | PULSE | |
| | | 2 | ROTATION | |
| | | | ESC RT | NORM |
| | | 3 | | VERN |
| | | 4 | PULSE | NORM |
| | | 5 | | VERN |
| | | 6 | COMP | NORM |
| | | 7 | | VERN |
| | | 8 | DEACRND | |
| | | | ATT | NORM |
| | | 9 | | VERN |
| | | 10 | RATE | NORM |
| | | 11 | | VERN |
| | | 12 | JET OFF | P |
| | | 13 | | Y |
| | | 14 | CN'L ACCEL | |

CAP/SI-A/O/EAS

AS





A9

DAPA10

PURPOSE:
PROX CFS
MMU RESCUE

CAP/SI-A/C/BAS



TOP

A10

DAPA11

PURPOSE: (Blank)

CAP/SI-A/C/BAS



TOP

(reduced copy)

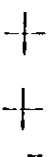


TOP

A10

0.0 0	1	TRANSLATION	
		PULSE	
0.0 0	2	ROTATION	
0.0 0	3	DSC RT	NORM
0.0 0	4	PULSE	VERN
0.0 0	5	PULSE	NORM
0.0 0	6	COMP	VERN
0.0 0	7	COMP	NORM
		DEADBAND	
1.0 0	8	ATT	NORM
	9		VERN
0.0 0	10	RATE	NORM
0.0 0	11		VERN
	12	JET OFF	P
	13		Y
	14	CNTL ACCEL	

CAP/SI A/C/BAS



A11

TOP

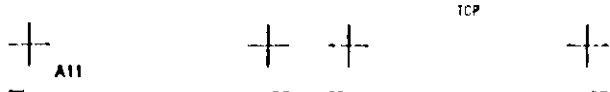
A11

----	1	TRANSLATION	
		PULSE	
----	2	ROTATION	
----	3	DSC RT	NORM
----	4	PULSE	VERN
----	5	PULSE	NORM
----	6	COMP	VERN
----	7	COMP	NORM
		DEA/BAND	
▲▲▲▲	8	ATT	NORM
▲▲▲▲	9		VERN
▲▲▲▲	10	RATE	NORM
▲▲▲▲	11		VERN
▲	12	JET OFF	P
▲	13		Y
▲	14	CNTL ACCEL	

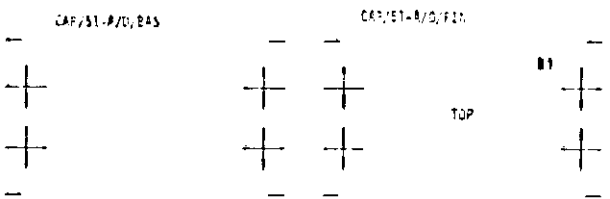
CAP/SI-A/C/BAS



E-10



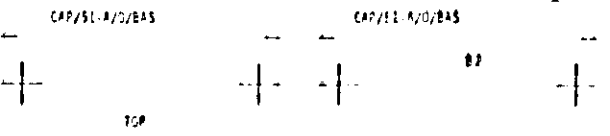
- DSP PURPOSE
- B1 - NOMINAL
PPCS IMU ALIGN
TOP-TO-SUN
TAIL ONLY CONTROL
BACKOUT
OMS & PCS EUPNS
 - B2 - LOSS OF VERN
(TAIL ONLY)
 - B3 - LOSS OF VERN;
DG MVR
 - B4 - FAM DEPLOY
FRISEE DEPLOY
 - B5 - CGAS CAL
 - B6 - RENDEZVOLS
 - B7 - PRCK OPS
 - B8 - LOSS OF VERN (7.5"DB)
TAIL ONLY MVR
 - B9 - RMS CAS
 - B10 - (Blank)



DAP B1
PURPOSE:
PPCS IMU ALIGN
TOP-TO-SUN
TAIL ONLY CONTROL
BACKOUT
OMS & PCS EUPNS

B1

TRANSLATION			
PULSE	15	0.2	2
ROTATION			
ESC RT NWR	16	0.5	0.5
VERN	17	0.5	0.5
PULSE NWR	18	0.5	0.5
VERN	19	0.5	0.5
COMP NWR	20	0.5	0.5
VERN	21	0.5	0.5
DEADBAND			
ATT NWR	22	1.0	0.5
VERN	23	1.0	0.5
RATE			
NWR	24	0.5	0.5
VERN	25	0.5	0.5
JET OPT			
P	26		1
V	27		1
ENTL ACCEL			
	28		2





 B1


 DAP B2

PURPOSE:


 LOSS OF VERN

 (TAIL ONLY)

CAP/SI-A/O/BAS



 TOP



 B2

 DAP B3


PURPOSE:

 LOSS OF VERN

 (NOSE & TAIL)

 GS MNR

CAP/SI-A/O/BAS



 TOP



 B2

TRANSLATION

 PULSE 15 0.0 0

ROTATION

 DSC RT NORM 16 0.2 0 0

 VERN 17 0.2 0 0

 PULSE NORM 18 0.0 0 0

 VERN 19 0.0 0 0

 COMP NORM 20 0.0 0 0

 VERN 21 0.0 0 0

DECBAND

 ATT NORM 22 1.0 0

 VERN 23 1.0 0 0

RATE NORM 24 0.2 0


 VERN 25 0.2 0

JET OPT P 26 1


 V 27 1

CNTL ACCEL 28 0


CAP/SI-A/O/BAS



 B3



 TOP



 B3

TRANSLATION

 PULSE 15 0.0 0

ROTATION

 DSC RT NORM 16 0.2 0 0

 VERN 17 0.2 0 0

 PULSE NORM 18 0.0 0 0

 VERN 19 0.0 0 0

 COMP NORM 20 0.0 0 0

 VERN 21 0.0 0 0

DECBAND

 ATT NORM 22 1.0 0

 VERN 23 1.0 0 0

RATE NORM 24 0.2 0


 VERN 25 0.2 0

JET OPT P 26 1


 V 27 1

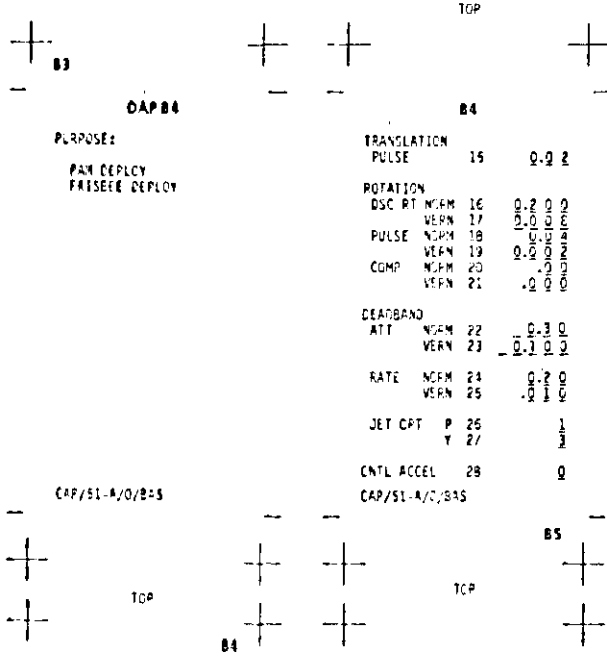
CNTL ACCEL 28 0

CAP/SI-A/O/BAS



 B4





DAP B4

PURPOSE:
PAN DEPLOY
FRISEEE DEPLOY

CAP/SI-A/O/BAS

DAP B5

PURPOSE:
CCAS CAL

CAP/SI A/O/BAS

TOP

TRANSLATION PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0
	VERN 17	0.0	0
PULSE	NORM 18	0.0	0
	VERN 19	0.0	0
COMP	NORM 20	0.0	0
	VERN 21	0.0	0
DEADBAND			
ATT	NORM 22	0.3	0
	VERN 23	0.1	0
RATE			
	NORM 24	0.2	0
	VERN 25	0.1	0
JET OPT			
	P 26		1
	Y 27		1
CNTRL ACCEL			
	28		0
CAP/SI-A/C/BAS			

TOP

TRANSLATION PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0
	VERN 17	0.0	0
PULSE	NORM 18	0.0	0
	VERN 19	0.0	0
COMP	NORM 20	0.0	0
	VERN 21	0.0	0
DEADBAND			
ATT	NORM 22	0.3	0
	VERN 23	0.1	0
RATE			
	NORM 24	0.2	0
	VERN 25	0.1	0
JET OPT			
	P 26		1
	Y 27		1
CNTRL ACCEL			
	28		0
CAP/SI A/O/BAS			



TOP

B5

DAP B6

PURPOSE:
RENDEZVOUS

B6

TRANSLATION					
PULSE	15	0	0	0	0
ROTATION					
DSC RT	NORM 16	0	0	0	0
VERN	17	0	0	0	0
PULSE	NORM 18	0	0	0	0
VERN	19	0	0	0	0
COMP	NORM 20	0	0	0	0
VERN	21	0	0	0	0

DEADBAND					
ATT	NORM 22	2	0	0	0
VERN	23	1	0	0	0
RATE					
NORM	24	0	2	0	0
VERN	25	0	2	0	0

JET OPT	P 26				1
	Y 27				1

CNTL ACCEL 28 0

CAP/SI-A/O/BAS

CAP/SI-A/O/BAS

B7

TOP

TOP

B6

DAP B7

PURPOSE:
PROX OPS

B7

TRANSLATION					
PULSE	15	0	0	0	1
ROTATION					
DSC RT	NORM 16	0	0	0	0
VERN	17	0	0	0	0
PULSE	NORM 18	0	0	0	0
VERN	19	0	0	0	0
COMP	NORM 20	0	0	0	0
VERN	21	0	0	0	0

DEADBAND					
ATT	NORM 22	2	0	0	0
VERN	23	1	0	0	0
RATE					
NORM	24	0	2	0	0
VERN	25	0	2	0	0

JET OPT	P 26				1
	Y 27				1

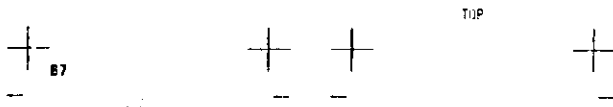
CNTL ACCEL 28 0

CAP/SI-A/O/BAS

CAP/SI-A/O/BAS

B8

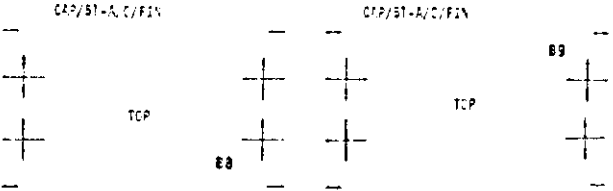
TOP



DAP 88

PURPOSE:
LOSS OF VERN (7.5°DB)
TAIL ONLY MWR

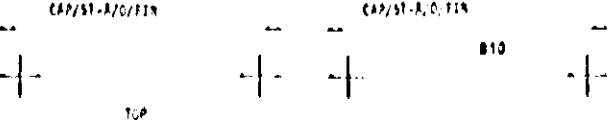
TRANSLATION			
PULSE	15	0.0	2
ROTATION			
DSC RT	NORM 16	0.2	0 0
	VERN 17	0.2	0 0 0
PULSE	NORM 18	0.0	0 0 4
	VERN 19	0.0	0 0 2 2
COMP	NORM 20	-0.0	0 0 0
	VERN 21	-0.0	0 0 0
DEADBAND			
ATT	NORM 22	7.5	0
	VERN 23	1.0	0 0
RATE	NORM 24	0.2	0
	VERN 25	1.0	0 0
JET OPT	P 26		3
	Y 27		3
CNTL ACCEL	28		0

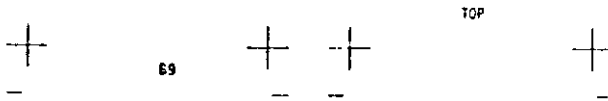


DAP 89

PURPOSE:
RMS OPS

TRANSLATION			
PULSE	15	0.0	1
ROTATION			
DSC RT	NORM 16	0.1	0 0
	VERN 17	0.2	0 0 0
PULSE	NORM 18	0.0	0 0 4
	VERN 19	0.0	0 0 2 2
COMP	NORM 20	-0.0	0 0 0
	VERN 21	-0.2	0 0 0
DEADBAND			
ATT	NORM 22	7.5	0
	VERN 23	3.2	0 0
RATE	NORM 24	0.2	0
	VERN 25	1.0	0 0
JET OPT	P 26		1
	Y 27		1
CNTL ACCEL	28		1





69

DAP B10

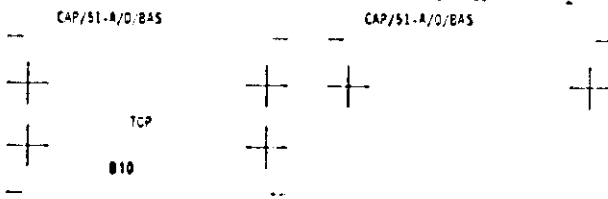
PURPOSE: (Blank)

TOP



B10

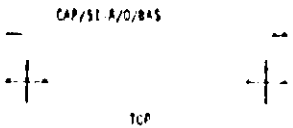
TRANSLATION		
PULSE	15	-----
ROTATION		
DSC RT	NORM 16	-----
	VERN 17	-----
PULSE	NORM 18	-----
	VERN 19	-----
CGMP	NORM 20	-----
	VERN 21	-----
DEADBAND		
ATT	NORM 22	-----
	VERN 23	-----
RATE	NORM 24	-----
	VERN 25	-----
JET DPT	P 26	-----
	V 27	-----
ENTL ACCEL	28	-----



CAP/SI-A/O/BAS

TOP

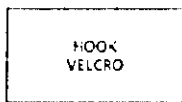
B10



CAP/SI-A/O/BAS

TOP

TOP
BACK COVER 'DAP BOMK'



CAP/51-A/G/B15



This Page Intentionally Blank

ATTITUDE
TIMELINE

STS 51-A ATTITUDE TIMELINE

Altitude Timelining

REF	MNR OPTION		ERP	E S	DETAILS	EVENT
1 0 00103134		* AUTO *	DEC 0.500 IS AT 3.50 IS RT 0.30			REC'D
2 0 00104130 14159	MNR F+110.00 F+ 42.00 F+297.00	* AUTO *	DEC 0.500 IS AT 3.50 IS RT 0.30	SUN 0 69 0 209		OMS-1 ATT
3 0 00110115	OMS IGNITION	* AUTO *	DEC 0.500 IS AT 3.50 IS RT 0.30		IV = 240.5 DT = 2176	OMS-1
4 0 00120140 14117	MNR F+110.50 F+ 0.00 F+ 72.97	* AUTO *	DEC 0.500 IS AT 3.50 IS RT 0.30	SUN 0 142 0 206		OMS-2 ATT
5 0 00144150	OMS IGNITION	* AUTO *	DEC 0.500 IS AT 3.50 IS RT 0.30		IV = 175.9 DT = 1459.2	OMS-2
6 0 01101000 17407	T#1 TGT#2 E+9: 90.00, 508.40 OM#150.00	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	EARTH 0 90 0 328	LVM F+110 F+ 0 F+ 0	STEER -OLV FLIGHT OPENING ATT
7 0 00120100 14113	MNR F+ 92.40 F+110.00 F+ 17.00	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	SUN 0 74 0 134	HY ST# 38 +2 ST# 13 00119-03104	IMP ALIGN (AI) CCAS ST# 13 AVG DIFF 25.0
8 0 01101000 1741105	T#1 TGT#2 E+9: 90.00, 0.00 OM#150.00	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	EARTH 0 90 0 0	LVM F+110 F+ 0 F+ 0	-OLV NOSE PAD
9 0 00120100 14119	MNR F+124.00 F+110.00 F+ 74.14	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	SUN 0 142 0 209	T.F. = 120	NOI-1 ATT -PALAPA
10 0 00147133	OMS IGNITION	AI AUTO VER#	DEC 0.500 IS AT 3.00 IS RT 0.20		IV = 10.3 DT = 019.4	NOI-1
11 0 00120100 14122143	MNR F+ 92.40 F+110.00 F+ 17.00	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	SUN 0 74 0 134	HY ST# 38 +2 ST# 13 00120-10115	IMP ALIGN PAIR AI
12 0 10120100 14106	T#1 TGT#2 E+9: 90.00, 0.00 OM# 90.00	AI AUTO VER#	DEC 0.200 IS AT 1.00 IS RT 0.00	EARTH 0 90 0 140	LVM F+110 F+ 0 F+270	-OLV -HYV FOOT WING PAD

Attitude Timeline

MET	MNVR CPTION		ZAP	E S	PERMITS	EVENT
1 0 21:55:00 22104119	MNVR R+ 92.40 F+218.00 Y+ 17.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 3 76 1 134	-Y ST: 38 -Z ST: 15 21:53-22:38	IMU ALIGN PAIR R1
2 0 22:15:00 28140	TR+ TOT=2 EV=31 90.00, 0.00 CM=100.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLM F+100 F+ 0 Y+ 0	-ZLV NOISE FWD
3 0 23:40:00 49142	MNVR R+239.21 F+171.23 Y+289.31	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 35 0 232		NH ATT
4 1 00:00:00	FCB EARN	B1 MAN NORM	DSC 0.500 IS AT 3.00 IS RT 0.20		EV = 0.0 DT = 0:22.3	NH
5 1 00:00:00	LVLM	R1 LVLM VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 12 0 0	LVLM F+100 F+355 Y+100	LVLM ATT HOLD
6 1 00:30:00 34119	MNVR R+115.86 F+ 3.00 Y+ 64.20	B1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 150 0 237	T.F = 100	CIRC ATT
7 1 00:51:00	OMS IGNITION	B1 MAN NORM	DSC 0.500 IS AT 3.00 IS RT 0.20		EV = 14.1 DT = 0:09	CIRC
8 1 01:05:00 09115	TR+ TOT=2 EV=31 90.00, 0.00 CM=100.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLM F+100 F+ 0 Y+ 0	-ZLV NOISE FWD
9 1 03:00:00 19135	MNVR R+ 101 Y+	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 90 0 251		TELESTAT DEPLOY ATT
10 1 03:14:00	TELESTAT DEPLOY	B1 AUTO VERN	DSC 0.000 IS AT 0.10 IS RT 0.01			
11 1 03:30:00 26105	MNVR R+155.12 F+197.40 Y+224.33	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 300 0 300		OMS SEP ATT
12 1 03:42:00	OMS IGNITION	B1 AUTO NORM	DSC 0.500 IS AT 3.00 IS RT 0.20		EV = 11.0 DT = 0:07	TELESTAT SEP

Attitude Scheduling

KEY	MNR OPTION	MAP	E-S	REMARKS	EVENT	
1 09105109 02101	TF= TGT#2 EV#3: 90.00, 0.00 GM#120.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLH F#100 F# 0 Y# 0	TELESTAT MONITOR ATT -OLV NOISE FWD
2 109106109 23153	TF=	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 115 0 215		CREITER WINDOW PROTECT ATT
3 109102109	STOP	R1 MAN VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 77 0 55	TSO	ATTITUDE HOLD FMS FHM VIEW
4 110100100 11126	MNR F# 92.40 F#219.00 Y# 17.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 77 0 134	-Y ST: 38 -Z ST: 13 09157-10142	IMU ALIGN FAIR R1
5 110100100 14106	TF= TGT#2 EV#3: 90.00, 0.00 GM# 90.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 360	LVLH F#100 F# 0 Y#270	-OLV -YVV PORT WING FWD
6 120100100 23132	MNR F# 92.40 F#219.00 Y# 17.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 77 0 134	-Y ST: 38 -Z ST: 13 20152-21116	IMU ALIGN FAIR R1
7 120100100 21103144	TF= TGT#2 EV#3: 90.00, 0.00 GM# 0.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLH F# 0 F#100 Y# 0	-OLV TAIL FWD
8 200103143 25110	MNR F# F# 180 Y#	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 72 0 153		SYNCOM DEPLOY ATT
9 200103143	SYNCOM DEPLOY	R1 AUTO VERN	DSC 0.000 IS AT 0.10 IS RT 0.01			
10 200141143 47137	MNR F#106.50 F# 16.24 Y# 30.61	R1 AUTO VERN	DSC 0.000 IS AT 3.00 IS RT 0.20	SUN 0 149 0 229		GMS SEP ATT
11 200103102	GMS IGNITION	R1 AUTO VERN	DSC 0.000 IS AT 3.00 IS RT 0.20		DV # 15.0 DT # 012.2	SYNCOM SEP
12 200100143 51102	TF= TGT#2 EV#3: 90.00, 0.00 GM#120.00	R1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLH F#100 F# 0 Y# 0	SYNCOM MONITOR ATT -OLV NOISE FWD

Attitude Timeline

NET	MNVR OPTION		EAP	E S	REMARKS	EVENT
1 2 01107149 22114	TED	AS AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 111 0 171	TED	CRITER UNIGN PROTECT ATT
2 01123145	STCF	AS MAN VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 102 0 149		ATTITUDE HOLD
3 01133145 49104	TF# TGT#2 EV#30 90.00, 0.00 OM=150.00	A1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLH F+150 F+ 0 Y+ 0	-ZLV NOSE FWD
4 02150100 07100131	MN.R F+150.91 F+253.30 Y+244.12	B1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 104 0 45		NFC ATT
5 07112129	RCS 1.94	B1 MAN NORM	DSC 0.500 IS AT 3.00 IS RT 0.20		IV = 0.8 IT = 013.1	NFC
6 07111100	LVLH	A1 LVLH VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 83 0 312	LVLH F+ 90 F+272 Y+251	LVLH ATT HOLD
7 02155100 41137	MN.R F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 78 0 155	-Y ST: 38 -Z ST: 13 02155-09122	IMU ALIGN FAIR A1
8 02155100 09107135	TF# TGT#2 EV#30 90.00, 0.00 OM= 90.00	A1 F.TD VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 360	LVLH F+150 F+ 0 Y+270	-ZLV HWY POST WING FWD
9 19115100 24102	MN.R F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 78 0 155	-Y ST: 38 -Z ST: 13 19113-19159	IMU ALIGN FAIR A1
10 19115100 49107	TF# TGT#2 EV#30 90.00, 0.00 OM=150.00	A1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	EARTH 0 90 0 0	LVLH F+150 F+ 0 Y+ 0	-ZLV NOSE FWD
11 2-23105100 15142	MN.R F+112.07 F+ 9.09 Y+ 31.50	A1 AUTO VERN	DSC 0.200 IS AT 1.00 IS RT 0.02	SUN 0 157 0 238		OMS SEP ATT VEILT INTO TRAJECTORY
12 2-23135123	OMS IGNITION	B1 MAN NORM	DSC 0.500 IS AT 3.00 IS RT 0.20		IV = 6.1 ST = 016.3	EACH LF DEPLOY SEP

Attitude Timeline

RET	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 2 23:40:00 40:52	TRF TGT=2 EV=30 90.00, 0.00 CM=180.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	EARTH 0 90 0	LVLH F+180 F+ 0 Y+ 0	-ZLV NOSE FWD
2 3 01:12:00 36:51	MNVR R+228.28 F+164.56 Y+296.53	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	SUN 0 25 0 231		NR ATT
3 3 01:49:45	OMS IGNITION	B1 AUTO NCRM	DSC 0.500 DB AT 3.00 DE RT 0.20		DV * 16.6 DT * 0:12.5	NR
4 3 02:00:00 00:13	TRF TGT=2 EV=30 90.00, 0.00 CM=180.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	EARTH 0 90 0	LVLH F+180 F+ 0 Y+ 0	-ZLV NOSE FWD
5 3 05:15:00 44:51	MNVR R+245.31 F+220.12 Y+ 42.83	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	SUN 0 99 0 341		NR2-1 ATT
6 3 06:02:04	POS BLRN	B1 TRF NCRM	DSC 0.500 DB AT 3.00 DE RT 0.20		DV * 2.1 DT = 0:15.2	NR2-1
7 3 06:10:00 17:33	TRF TGT=2 EV=30 90.00, 0.00 CM= 90.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	EARTH 0 90 0 360	LVLH F+180 F+ 0 Y+270	-ZLV -YVV PORT WING FWD
8 3 09:10:00 59:19	MNVR R+ 90.40 F+215.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	SUN 0 79 0 135	-Y ST: 38 -Z ST: 13 09:50-09:56	IMU ALIGN FAIR A1
9 3 09:10:00 22:41	TRF TGT=2 EV=30 90.00, 0.00 CM= 90.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	EARTH 0 90 0 360	LVLH F+180 F+ 0 Y+270	-ZLV -YVV PORT WING FWD
10 3 19:35:00 43:22	MNVR R+ 90.30 F+192.50 Y+327.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	SUN 0 33 0 126	-Y ST: 45 -Z ST: 21 19:37-20:24	IMU ALIGN FAIR B1
11 3 20:13:13 24:34	TRF TGT=1 EV=30 90.00, 0.00 CM= 0.00	A9 AUTO VERN	DSC 0.200 DB AT 1.00 DE RT 0.02	EARTH 0 0 0 0	LVLH F+ 0 F+270 Y+ 0	FAIRRA TRACK ATT - I
12 3 20:58:12 59:44	MNVR R+ 40.00 F+241.00 Y+ 62.40	B6 AUTO NCRM	DSC 0.500 DB AT 2.00 DE RT 0.20	SUN 0 121 0 159	TVR * 0	NR-1 ATT

Attitude Timeline

REV	MNR OPTION	REP	E/S	REMARKS	EVENT	
1	3 21:13:12 OMS IGNITION	A9 AUTO NORM	DSC 0.200 IE AT 2.00 IS RT 0.20		DV = 27.6 DT = 0:19.0	MC-1
2	3 21:15:00 LVLH	A9 LVLH VERN	DSC 0.200 IE AT 1.00 IS RT 0.02	EARTH B 52 I 173	LVLH R+ 2 F+ 22 Y+ 1	LVLH ATT HOLD
3	3 21:43:12 48:52 MNR R+311.50 F+ 61.10 Y+297.70	A9 AUTO VERN	DSC 0.200 IE AT 1.00 IS RT 0.02	SUN B 59 I 21	TVF = 0	MC3-1 ATT
4	3 21:52:59 OMS IGNITION	A9 AUTO NORM	DSC 0.200 IE AT 2.00 IS RT 0.20		DV = 14.0 DT = 0:10.5	MC3-1
5	3 22:02:00 05:55 TR+ TOT=1 EV+3(90.00, 0.00) OM= 0.00	B6 AUTO NORM	DSC 0.500 IE AT 2.00 IS RT 0.20	EARTH B 0 I 0	LVLH R+ 0 F+170 Y+ 0	FALAPA TRACI ATT - II
6	3 22:33:28 FCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IE AT 2.00 IS RT 0.20			NCC
7	3 23:15:13 19:02 MNR R+310.00 F+ 55.10 Y+296.48	A9 AUTO VERN	DSC 0.200 IE AT 1.00 IS RT 0.02	SUN B 53 I 21	TVF = 0	TI ATT
8	3 23:30:35 OMS IGNITION	A9 AUTO NORM	DSC 0.200 IE AT 2.00 IS RT 0.20		DV = 12.1 DT = 0:19.8	TI
9	3 23:34:55 44:44 TR+ TOT=1 EV+3(90.00, 0.00) OM= 0.00	A9 AUTO VERN	DSC 0.200 IE AT 1.00 IS RT 0.02	EARTH B 0 I 0	LVLH R+ 0 F+170 Y+ 0	FALAPA TRACI ATT - III
10	3 23:55:52 FCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IE AT 2.00 IS RT 0.20			MC 1
11	4 20:20:05 FCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IE AT 2.00 IS RT 0.20		LVLH R+ 0 F+298 Y+ 0	MC 2
12	4 20:30:05 FCS BURN PER PAD (IF REQUIRED)	A9 MAN NORM	DSC 0.200 IE AT 2.00 IS RT 0.20		LVLH R+ 0 F+300 Y+ 0	MC 3

Attitude Timeline

KEY	MNVR OPTION		D/PT	E/S	REMARKS	EVENT
1 4 00:40:05	RCS SURF PER FAD (IF REQUIRED)	A3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		LVLH R+ 0 P+ 0 Y+ 0	MC 4
2 4 00:42:05	MANUAL APPROACH TO +VEAR	A3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20			TRANSITION TO +VEAR
3 4 00:42:05	STOP	A3 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	SUN 0 139 1 156	INRTL R+296 F+ 38 Y+321	INERTIAL ATT HOLD
4 4 01:03:13	TRK TGT=2 EV=2(150.00, 0.00) OM= 0.00	A10 AUTO NORM	DSC 0.200 DB AT 2.00 DB RT 0.20	EARTH 0 100 1 0	LVLH R+ 0 F+ 90 Y+ 0	+VEAR STATION KEEPING
5 4 02:35:00	FREE DRIFT	B7 LVLH VEAR	DSC 0.200 DB AT 1.00 DB RT 0.02			FALAFF GAFFLE
6 4 02:35:00 42:21	TRK TGT=4 EV=5(90.00, 50.00) OM= 90.34	B9 AUTO VEAR	DSC 0.200 DB AT 5.00 DB RT 0.10	SUN 0 90 1 50	INRTL R+179 F+260 Y+226	SOLAR TR ATT-1 EVA--UFFER +U CONSTRAINT
7 4 05:10:00		B9 AUTO VEAR	DSC 0.200 DB AT 5.00 DB RT 0.10			FALAFF BERTH
8 4 09:10:00 18:43	MNVR R+ 92.40 P+218.00 Y+ 17.00	A1 AUTO VEAR	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 60 1 136	-Y ST: 38 -Z ST: 13 09:13-09:57	IMU ALIGN FAIR A1
9 4 09:30:00 40:44	TRK TGT=4 EV=5C(90.00, 50.00) OM=265.25	A1 AUTO VEAR	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 1 50	INRTL R+158 F+105 Y+ 35	SOLAR TR ATT-2
10 4-13:50:00 20:08:44	MNVR R+ 92.40 P+218.00 Y+ 17.00	A1 AUTO VEAR	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 60 1 136	-Y ST: 38 -Z ST: 13 19:55-20:39	IMU ALIGN FAIR A1
11 4-20:25:00 29:53	MNVR R+ 37.25 P+247.99 Y+ 61.94	B1 AUTO VEAR	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 125 1 165		MC1-2 ATT (KESTAR)
12 4-20:52:58	OMS IGNITION	B1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		DV = 18.5 DT 0:13.6	MC1-2

Attitude Timelapse

MEAN	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 4-21:00:00 12:43	TRF TGT=4 EV=5(90.00, 50.00) OM=110.66	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 0 50	INATL F+173 F+264 Y+342	SOLAR T) ATT-3
2 5-04:05:00 18:37	MNVR F+120.00 F+ 38.17 Y+320.13	B1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 82 0 191		NC2-2 ATT
3 5-04:30:43	FCS EURN	B1 MAN NORM	DSC 0.500 DB AT 3.00 DB RT 0.20		DV = 0.1 DT = 0:0.2	NC-2
4 5-04:35:00 46:25	MNVR F+342.70 F+ 14.90 Y+ 13.30	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 138 0 330	-Y ST: 20 -Z ST: 51 04:30-05:17	IMU ALIGN PAIR D0
5 5-05:00:00 00:58	TRF TGT=4 EV=5(90.00, 50.00) OM=293.57	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 90 0 50	INATL F+268 F+ 78 Y+ 12	SOLAR T) ATT-4
6 5-17:15:00 27:37	MNVR F+ 90.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 81 0 136	-Y ST: 28 -Z ST: 13 17:15-17:53	IMU ALIGN PAIR A1
7 5-17:35:00 49:07	TRF TGT=4 EV=5(90.00, 310.00) OM=206.50	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 80 0 311	INATL F+ 7 F+ 79 Y+ 13	FWDZ SOLAR T) -Y ST EPH T) 3 NOM-12.5 MIN
8 5-18:06:00	TRF TGT=1 EV=3(0.00, 200.00) OM= 26.27	A9 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 0 64 0 175	LVLH F+ 70 F+293 Y+ 62	WESTAR TRACK ATT - 1 (-Y ST TGT TH)
9 5-18:38:00 50:05	MNVR F+323.50 F+ 67.90 Y+293.70	A9 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 54 0 13	TVR = 0	NC3-2 ATT (ALSO NH-2)
10 5-19:00:44	FCS EURN	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		DV = 0.2 DT = 0:0.8	NH-2 (AXIS BY AXIS)
11 5-19:40:31	FCS EURN	A9 MAN NORM	DSC 0.200 DB AT 2.00 DB RT 0.20		DV = 1.0 DT = 0:4.1	NC3-2
12 5-19:45:05 52:02	TRF TGT=1 EV=3(90.00, 0.00) OM= 0.00	B0 AUTO NORM	DSC 0.500 DB AT 2.00 DB RT 0.20	EARTH 0 0 0 0	LVLH R+ 0 F+270 Y+ 0	WESTAR TRACK ATT - 11

Attitude Timeline						
NET	MNVR OPTION	DRP	E/E	REMARKS	EVENT	
1 5-20:20:54	RCS BURN PER PAD (IF REQD)	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20			MCC
2 5-21:02:30 26:39	MNVR R+322.00 F+ 67.50 Y+381.90	A9 AUTO VERN	DSC 0.200 IB AT 1.00 DB RT 0.02	SUN 0 56 12	TVR = 0	TI ATT
3 5-21:18:00	OMS IGNITION	A9 AUTO NORM	DSC 0.200 IB AT 2.00 DB RT 0.20		DV = 12.1 DT = 0:09.8	TI
4 5-21:21:33 31:55	TRK TGT=1 BV=2(90.00, 0.00) CM= 0.00	A9 AUTO NORM	DSC 0.200 IB AT 2.00 DB RT 0.20	EARTH 0 0 0	LVLH F+ 0 F+270 Y+ 0	WESTAR (PACK ATT - III
5 5-21:43:17	RCS BURN PER PAD (IF REQD)	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20			MC 1
6 5-22:07:30	RCS BURN PER PAD (IF REQD)	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20		LVLH F+ 0 F+298 Y+ 0	MC 2
7 5-22:17:30	RCS BURN PER PAD (IF REQD)	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20		LVLH R+ 0 F+350 Y+ 0	MC 3
8 5-22:27:30	RCS BURN PER PAD (IF REQD)	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20		LVLH R+ 0 F+ 0 Y+ 0	MC 4
9 5-22:30:30	MANUAL APPROACH TO VEAR	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20			TRANSITION TO + VEAR
10 5-22:30:30	STOP	A9 MAN NORM	DSC 0.200 IB AT 2.00 DB RT 0.20		INCL F+ 0 F+100 Y+100	INERTIAL ATT HOLD
11 5-22:50:30	TRK TGT=2 BV=2(100.00, 0.00) CM= 0.00	A10 AUTO NORM	DSC 0.200 IB AT 2.00 DB RT 0.20	EARTH 0 120 0	LVLH R+ 0 F+ 90 Y+ 0	+ VEAR STATION KEEPING
12 6-02:25:00	FREE DRIFT	B7 LVLH VERN	DSC 0.200 DB AT 1.00 IB RT 0.02			WESTAR GRAPPLE

ALL ATTITUDES IN MEAN OF 1950

7-10

CAP/51-A-FIN

Attitude Timeline

RET	MNVR OPTION		CAP	E'S	REMARKS	EVENT
1 6 00:25:00 33:33	TRK TGT#4 EV#5: 90.00, 50.00 OM=121.55	B9 AUTO VERN	DSC 0.200 DB AT 5.00 DB RT 0.10	SUN 8 90 8 50	INRTL F+172 F+250 Y+351	SOLAR TO ATT-5 EV#-LFFER +U CONSTRAINT
2 6 02:55:00		B9 AUTO VERN	DSC 0.200 DB AT 5.00 DB RT 0.10			WESTAR BEPTH
3 6 07:00:00 07:42	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SLN 8 81 8 136	-Y ST: 38 -Z ST: 13 07:00-07:42	IMU ALIGN FAIR A1
4 6 07:20:00 30:54	TRK TGT#4 EV#5: 90.00, 50.00 OM=263.14	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 90 8 50	INRTL F+258 F+101 Y+ 32	SOLAR TO ATT-6
5 6 17:40:00 50:54	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 82 8 137	-Y ST: 38 -Z ST: 13 17:41-18:23	IMU ALIGN FAIR A1
6 6 18:00:00 05:11	TRK TGT#4 EV#5: 90.00, 50.00 OM=106.62	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 90 8 50	INRTL F+176 F+266 Y+240	SOLAR TO ATT-7
7 6 19:50:00	FREE DRIFT	E3 PPN NORM	DSC 0.200 DB AT 3.00 DB RT 0.20			FCS HOT FIRE FCS C 0
8 6 21:30:00 20:03	TRK TGT#4 EV#5: 90.00, 50.00 OM=106.62	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 90 8 50	INRTL F+176 F+266 Y+240	EACH TO SOLAR TRACE
9 7 05:55:00 05:01:12	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 82 8 137	-Y ST: 38 -Z ST: 13 05:54-06:35	IMU ALIGN FAIR A1
10 7 05:15:00 23:00	TRK TGT#2 EV#1: 0.00, 0.00 OM= 0.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 8 3 8 0	LVLH F+ 0 F+270 Y+ 0	+SLV -ZVV
11 7 16:40:00 43:57	MNVR F+ 92.40 F+218.00 Y+ 17.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 8 83 8 137	-Y ST: 38 -Z ST: 13 16:35-17:16	IMU ALIGN FAIR A1
12 7 17:00:00 09:07	TRK TGT#2 EV#1: 0.00, 0.00 OM= 0.00	A1 AUTO VERN	DSC 0.200 DB AT 1.00 DB RT 0.02	EARTH 8 3 8 0	LVLH F+ 0 F+270 Y+ 0	+SLV -ZVV

Attitude Timeline

MEF	MNVR OPTION		DAP	E/S	REMARKS	EVENT
1 7-19:38:30 44:51	MNVR R+ 15.00 P+202.60 Y+ 44.50	R1 AUTO VEFN	DSC 0.200 DB AT 1.00 DB RT 0.02	SUN 0 142 1 182	-Y ST: 27 -Z ST: 54 19:22-20:11	IMU ALIGN FOR DEGREIT
2 7-19:46:00 49:50	MNVR R+ 66.10 P+191.60 Y+ 10.60	R1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN 0 63 1 155	-Y ST: 45 -Z ST: 24 19:33-20:26	IMU VERIF
3 7-20:23:30 25:42	MNVR R+ 50.92 P+160.94 Y+315.21	R1 AUTO NORM	DSC 0.500 DB AT 3.00 DB RT 0.20	SUN 0 4 1 106		DEGREIT ELPH ATT
4 7-22:38:30	OMS IGNITION	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30		DV = 306.4 DT = 3:18	DEGREIT ELPH
5 7-22:43:30 47:33	MNVR R+ 32.91 P+242.19 Y+ 55.14	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30	SUN 0 123 1 177		EI-5 ATT
6 7-23:01:00	LVLH	* AUTO *	DSC 0.500 DB AT 3.50 DB RT 0.30	EARTH 0 76 1 179	LVLH R+ 1 P+ 39 Y+559	EI-5

SE-MSD-117/ Velez
SO-TOD/C Henschel
ZK-25/Rockwell Tech Data (19)

NASA/CSX
CM-CIO-2/B Oiton

TRW - Houston
C. Cooper
L. Pniemazek

TRW - Greenbelt
P.O. Box 385
Greenbelt, MD 20770
L. L. Champion (2)

Charles Draper Laboratory
955 Technology Square
Cambridge, MA 02139
J. Turnbull

Dryden Etl. Research Facility
OS/G P. Layton

HQ NORAD/DQVV
Chryenne Mtn Complex,
CU 80914 (2)

Hamilton Standard
Windsor Locks, CT 06096
TA204/R C. Wilde
TA-2/F. H. Greenwood (4)

Rockwell - Houston
ZC01 (12)

Rockwell International/S75
12214 Lakewood Blvd
Downey, CA 90241
O41-FA43/W. O. Ruffin (59)

McDonnell Douglas Astronautics
P.O. Box 516
St. Louis, MO 63166
MS-10/J. T. Rose

McDonnell Douglas Astronautics Corp.
5301 Boise Ave
A01, Dept. 236, Group A/EDO
Huntington Beach, CA 92647
12-3/L. DeRosier
J. Timony
J. J. Webster (10)
R. Arnold

AFTIC - Edwards AFB
Air Force Flight Test Center
6510 Test Wing/TEG
Edwards AFB, CA 93523
236/R. G. Hoey

Ford Aerospace Communications Corp.
3939 Fabian Way
Palo Alto, CA 94303
G60/W. C. Hayes

Ford Aerospace - Houston
SISD/2A7/Tech Lib (13)
SISD/308/R. Marriot (2)
SISD-30C/C. Capps (2)

Marshall Space Flight Center
JA01-C. Hagood*
JA21/R. McAnnally
R. Valentine
NA01-C. Johnson
NA51/R. M. Hoodless
MS10/J. Creech

JPL
4800 Oak Grove Dr
Pasadena, CA 91109
D. J. Kerrisk

SPAR Aerospace
825 Caledonia Rd
Toronto, Canada M6B3X8
P. Chadwick

HQ's Space Command
XPE Capt. J. P. Squarito
Peterson, AFB CO 80914

Hughes Communications Service Inc.
Blag 532
P.O. Box 92919
Los Angeles, CA 90009
C371-C. Ruben
K. Sengstocr
R. L. Rhoads
M. Hauferman

TELESAT
333 River Rd
Ottawa, Ontario, Canada
K1L 8B9
R. Gunby

NOAA-NEDIS
Dr. Michael R. Helfert (2)
NOAA Liaison Manager
Code SC2, NASA-JSC
Houston, TX 77058

Dr. Russell Koffler (1)
Director,
NOAA-NI/SDIS
HQ, Room 1106
Code LSP
Suitland, MD 20233

ATTN TECH LIBRARY MC/GA50
3370 Miraloma Ave
Anaheim, CA 92803

National Research Council of Canada
Space Technology Program
Office
Bldg. M-60, Room B-21
Montreal Road
Ottawa, Ontario, Canada
K1A 0R6
Dr. K. H. Doetsch
B. A. Aikenhead

Barris Technology - Houston
D. A. Kessler
C. J. Mallin

Hughes Aircraft
P.O. Box 92919
Los Angeles, CA 90009
S41-B328/J. Juraco
S41-B333/A. Castellano

Marshall Space Flight Center
EL25/C. McClard

Science Research Labs/3M
201-3L-03 3M Center
St. Paul, MN 55144
ATTN: W. C. Egbert (2)

FLIGHT DATA FILE
CORE DISTRIBUTION
09/24/84

JSC
AP/Director
AP3/Support (2)
Pub. Information (1)

CA/Director
CA7/Chief
DA6/Chief (2)
DF/Chief
DF24/INCO (4)
DF37/Head
DG/Rockwell
DG4/Crew Sys. (2)
DG44/Comm & Attached PL (2)
DH4/DF MGR
FAO

TIL
Flt. Act Br (16)
DH6/Branch Off (3)

EC/Chief
EC2/Support (4)
EH13/Chief

Support
EH2/Head
EH3/Chief
LH4/Chief
LH5/Chief

Support
EH4/Head
EH44/Head
ESS/Support
ET/Support
EK/DFD/CPCB Rep

FE42/Head
FM2/Consum. Analysis Sect
FM83/Space Nav. Sect (2)
FM85/Ground Near Sect
JM27/Technical Library (3)
JM24/COD Pub. Center

MD/Manager
MD3/Support
MF/GFE Project Office
Support (RIC)
MP2/CPCB Rep
NS/Safety Div
SD2/Surgeon

Support
SM5/MDD MOM (3)
ZR1/MAC Library (2)
ZR2/Mission Support (2)

Support (RIC)
MP2/CPCB Rep
NS/Safety Div
SD2/Surgeon

Support
SM5/MDD MOM (3)
ZR1/MAC Library (2)
ZR2/Mission Support (2)

Support (RIC)
MP2/CPCB Rep
NS/Safety Div
SD2/Surgeon

Support
SM5/MDD MOM (3)
ZR1/MAC Library (2)
ZR2/Mission Support (2)

Dryden Flight Research Facility
OSJ, L. Kuhl

NASA Headquarters
MO/C. Lee
TX-12/ G. Maley
MODE/R. D. McCafferty (2)

Kennedy Space Center
SC-PEO-A/J. A. Thomas
SO-A/Astronaut Office (2)
ZK-25/Rockwell Tech Data
ZK-56/A. Grenville

Marshall Space Flight Center
MDTSCO, Bldg 4666,
DCCCL White
SAB2/R. R. Pride

Ford Aerospace Houston
SISD-1A/Tech Lib

Goddard Space Flight Center
4052/ B. Hartmann

NASA SSPRO - Palmdale
MR5/R. R. Frazer
PL14/H. Kuznicki

McDonnell Douglas - Houston
A2/L. T. Guderman

A3/G. Venables
D3/M. Pipmer (2) P
D4/H. Stegall
R. DeVall

Charles Stark Draper Lab
MS23/R. A. Larson (2)

IBM - Houston
MC9236/A. J. Sava
T&O Library

MC8212/Verification Library
MC9186/Project Office Library
MC6251/Wilson-Lib.

Lockheed - Houston
B127/M. Martin
B127E. M. Bains
C22/D. Welch

Singer-Link - Houston
SM5 Data Library

Honeywell Inc. Avionics Division
13350 U.S. Highway 19
Clearwater, FL 33545
#B18-S/J. R. Peterson

Martin-Marietta Corp. - Denver
-GOLDENROU-
G6245/Library
G6495/J. Ferguson
G Miller
G6496/J. Barnes

Space Division
Worldway Postal Center
P.O. Box 9296d
Los Angeles, CA 90009.
SD-YOM/DFD (5)
YOO/Data Mgr (5)
SD-YUI/J. Laur
CFC7/M. Bangan

Space Communications Co.
P.O. Box 233
Las Cruces, NM 88001
Attn: G. Harris

AFSC/FNOS
P.O. Box 3430
Sunnyvale, CA 94086
Maj. H. E. Haliasz (10)

TRW
1 Space Park
Bldg M2/Rm 2375
Redondo Beach, CA 90278
J. M. Payne

6555thAS1G
Kennedy Space Center, FL
SP-AF/Col. O'Connor

Applied Research Inc.
AHL/C. Miller

Applied Research Inc.
3930 Freedom Circle
Santa Clara, CA 95054
P. Howland

LAB Exp. ATMOS & SPACE PHYS
5525 Central Ave
Boulder, CO 80301
ATTN: Alan Stern

Total 150

51-A
CREW ACTIVITY PLAN
DELTA DISTRIBUTION
09/24/84

JSC
AC Associate Director
AP/Crew Director

AP3/Support (3)
Pub. Info. (3)

BARR/Director
DAV/Director (2)
DAB/H: Tech. (2)

DF22/Head
DF4/Head
DF4/Chief

DH6/INC (4)
Chief
DF7/Chief

Environ Sect (2)
Flect. Sect (2)
DG/Chief

Dep. Chief
Tech. Assis.
DG4/Chief

Comm & Attached (5)
Crew Sys. (10)
Orbiter Sys. (4)

DG6/ASC-Ent. Sect. (7)
Detached-Payload Sect. (6)
Orb.-Computer Sect. (8)

DH/Chief
USAF (6)

DH32/F: Dynamics (8)
DH4/Bookmanager (50)
DH6/Branch Office (12)

EC/Assist. Chief
Assist. for Payloads
Support (2)

EC6/Chief
EC12/Support
EC12/Support
EC13/CA Support

EC4/Support
EL7/CD FDI Mgr (2)
ELB/Support (2)

ELF2/Support
ELH3/Oper. Branch
EH13/Support (2)

EH5/Support (2)
EL25/Mission Analysis Div
FX3/Support (3)

EXM/LFC (10)
EX12/Chief
EX15/Asst. Head

EX15/Support (4)
EX15/Support (4)
EX15/Support (4)

EX35/Support (3)
FA/Director
Assist. Director

FE/Chief
FM/Chief
Assist. Chief

Payloads & Adv. Tech Mgr
FM17/Support
FM2K/Chief

Support (16)
FM4/Chief
Support (5)

FM5/Chief (2)
FM6/Chief (6)
Support (6)

Intermetrics
FR4/Support
FS45/Documentation (3)

FS/WFO
JL/Chief (3)
JL15/Support (6)

LA/Program Mgr
LA3/Manager
Tech. Assis. (3)

LA5/Manager
LA6/Manager
LD/Support

LE/Support
LF5/Support
LME J. Jung*

Z. K. Eubanks*
Manager
LM/Manager

Support (4)
LN/Support (2)
LO/ACT. Mgr

LP/Manager
Support (5)
LT/Manager

MA/Manager (2)
MD/Manager (2)
MD3/Chief (2)

MC/Manager (2)
ME3/Manager
ME5/Manager (2)

MO/Manager (2)
MP2/CPCB Rep (2)
NS2/Chief

SC5/Support
SC5/LFC (3)
SD3/Support (2)

Mission Scientist
SK/Manager, SSEOP
SP4/Mgr CFE Crew Provision (5)

SN3/Support
WC6/Support
A. J. Collum*

ZR2/AFTCC

Goddard Space Flight Center
4704/F. T. Sedizack
732/D. Butler
782/II. Barrowman
804 4/I. M. Stevens
R. J. McCaney
853.2/R. Murgan
872/II. Teles (3)

IBM - Houston
1179-C102/B. J. Greves

NASA GSFC*
800 3/T. Roberts*
842/B. Tomardy (2)

NASA Headquarters
EM-8/L. Demas (2)
MO/IE. Markleroad

LF/Director
LFD-10/I. W. McCulla
MC-7/R. Tucker
EBMM. Barstern

NASA Headquarters*
EZ/R. McCuller*
OTI-6/D. N. Turner*

McDonnell Douglas - Houston
A179/O'Neill
T. D. Bruchmiller

J. S. French
C2/R. Howard
C3/R. Conson

CS/M. Ferrill (2)
D3/M. D. Pipher (3)

MOTS/CO - Houston*
A2/R. R. Paulson*
S. K. Staus*

P. B. Chu*
A. Mann*
A3/J. D. Allison*

D2/G. H. Barton*
R. T. Theobald*
DH2/E. Taylor*

Singer-Link - Houston
A. Nelson

Kennedy Space Center
CM-C10-24/W. R. Fletcher
CM-C10-2/D. Braggion

CK17-CCAFS/D. Maclean
CS-SED-32/J. D. Link
MDTSCO/B. C. Adams

WWSI-D/Repository (30)
EX-NTSR Buckley
SE-GDS-21/W. Patrick

SE-GDS-22/P. Puckett

BASIC

Flight Data File Crew Activity Plan

STS 51-A

Mission Operations Directorate
Operations Division

Basic
July 5, 1984

EVENTS	GSF		
Launch (13:45 GMT)	07:40	Fri	Nov 2
Telesat Deploy	15:44	Sat	Nov 3
SYNCOM Deploy	08:19	Sun	Nov 4
Re-Dezvous-1	03:35	Tue	Nov 6
EVA-1 (Retrieval-1)	08:40	Tue	Nov 6
Re-Dezvous-2	01:25	Thu	Nov 8
EVA-2 (Retrieval-2)	06:25	Thu	Nov 8
Crew Press Conference	06:10	Fri	Nov 9
RST Landing	07:17	Sat	Nov 10

NASA

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

MISSION OPERATIONS DIRECTORATE

SIS 51-A CREW ACTIVITY PLAN

BASIC
July 5, 1984

PREPARED BY:

Chevon B. Lau
Chevon (MI-MI) B. Lau
Book Manager

APPROVED BY:

Elwin B. Piggitt 7-23-84
Elwin B. Piggitt
Head, Crew Activity Planning
Section 2

Ted A. Guillory
Ted A. Guillory
Chief, Flight Activity Branch

John W. O'Neill
J. W. O'Neill
Chief, Operations Division

This document is under the configuration control of the Crew Procedures Control Board (CPCB). All proposed changes must be submitted on standard JSC Form 482 to CH4/PDF Manager, Bldg 4, Rm 352, 713-483-2669.

Comments concerning this document may be addressed to CH4/MI-MI Lau or CH4/Rick Jurmain, Bldg 4, Rm 353, 713-483-2307.

Changes to the distribution list should be submitted in writing to CH4/Gwen Butler, Bldg 4, Rm 373, 713-483-5224.

Incorporates 482
No: N/A

ACKNOWLEDGMENTS

The following individuals contributed significantly to preparing the
SIS 51-A Crew Activity Plan:

<u>AREA</u>	<u>NAME</u>	<u>PHONE NO.</u>
Nomral Itinerary	Steve Gibson	483-2201
	Rick Jurmain	483-2307
Attitude and Pointing	Ted Wang	483-2201
	Steve Hoeffer	483-2201
Editing (Orniplan)	Mildred Cherry	483-3814
Word Processing (Orniplan)	B. Evans	483-3810
	D. Prange	
	J. Roberts	
	P. Pothero	
	T. Walker	

STS 51-A CREW ACTIVITY PLAN

LIST OF EFFECTIVE PAGES

BASIC 07/05/84

1.....	CAP/51-A/BAS	3-22.....	CAP/51-A/BAS
11.....	CAP/51-A/BAS	3-23.....	CAP/51-A/BAS
111.....	CAP/51-A/BAS	3-24.....	CAP/51-A/BAS
iv.....	CAP/51-A/BAS	3-25.....	CAP/51-A/BAS
v.....	CAP/51-A/BAS	3-26.....	CAP/51-A/BAS
vi.....	CAP/51-A/BAS	3-27.....	CAP/51-A/BAS
1-1.....	CAP/51-A/BAS	3-28.....	CAP/51-A/BAS
1-2.....	CAP/51-A/BAS	3-29.....	CAP/51-A/BAS
1-3.....	CAP/51-A/BAS	3-30.....	CAP/51-A/BAS
1-4.....	CAP/51-A/BAS	3-31.....	CAP/51-A/BAS
2-1.....	CAP/51-A/BAS	3-32.....	CAP/51-A/BAS
2-2.....	CAP/51-A/BAS	3-33.....	CAP/51-A/BAS
2-3.....	CAP/51-A/BAS	3-34.....	CAP/51-A/BAS
2-4.....	CAP/51-A/BAS	3-35.....	CAP/51-A/BAS
2-5.....	CAP/51-A/BAS	3-36.....	CAP/51-A/BAS
2-6.....	CAP/51-A/BAS	3-37.....	CAP/51-A/BAS
2-7.....	CAP/51-A/BAS	3-38.....	CAP/51-A/BAS
2-8.....	CAP/51-A/BAS	3-39.....	CAP/51-A/BAS
2-9.....	CAP/51-A/BAS	3-40.....	CAP/51-A/BAS
2-10.....	CAP/51-A/BAS	4-1.....	CAP/51-A/BAS
2-11.....	CAP/51-A/BAS	4-2.....	CAP/51-A/BAS
2-12.....	CAP/51-A/BAS	4A-1.....	CAP/51-A/BAS
2-13.....	CAP/51-A/BAS	4A-2.....	CAP/51-A/BAS
2-14.....	CAP/51-A/BAS	5-1.....	CAP/51-A/BAS
2-15.....	CAP/51-A/BAS	5-2.....	CAP/51-A/BAS
2-16.....	CAP/51-A/BAS	6-1.....	CAP/51-A/BAS
2-17.....	CAP/51-A/BAS	6-2.....	CAP/51-A/BAS
2-18.....	CAP/51-A/BAS	6-3.....	CAP/51-A/BAS
3-1.....	CAP/51-A/BAS	6-18.....	CAP/51-A/BAS
3-2.....	CAP/51-A/BAS	7-1.....	CAP/51-A/BAS
3-3.....	CAP/51-A/BAS	7-2.....	CAP/51-A/BAS
3-4.....	CAP/51-A/BAS		
3-5.....	CAP/51-A/BAS		
3-6.....	CAP/51-A/BAS		
3-7.....	CAP/51-A/BAS		
3-8.....	CAP/51-A/BAS		
3-9.....	CAP/51-A/BAS		
3-10.....	CAP/51-A/BAS		
3-11.....	CAP/51-A/BAS		
3-12.....	CAP/51-A/BAS		
3-13.....	CAP/51-A/BAS		
3-14.....	CAP/51-A/BAS		
3-15.....	CAP/51-A/BAS		
3-16.....	CAP/51-A/BAS		
3-17.....	CAP/51-A/BAS		
3-18.....	CAP/51-A/BAS		
3-19.....	CAP/51-A/BAS		
3-20.....	CAP/51-A/BAS		
3-21.....	CAP/51-A/BAS		

STS 51-A CAP CUE CARDS

DAP Book Front Cover.....	6-4	CAP/51-A/O/BAS
UNIV PTG (Back of DAP Book Front Cover).....	6-4	CAP/51-A/O/BAS
DAP A TOC.....	6-5	CAP/51-A/O/BAS
DAP A1.....	6-5	CAP/51-A/O/BAS
A1.....	6-5	CAP/51-A/O/BAS
DAP A2.....	6-6	CAP/51-A/O/BAS
A2.....	6-6	CAP/51-A/O/BAS
DAP A3.....	6-6	CAP/51-A/O/BAS
A3.....	6-6	CAP/51-A/O/BAS
DAP A4.....	6-7	CAP/51-A/O/BAS
A4.....	6-7	CAP/51-A/O/BAS
DAP A5.....	6-7	CAP/51-A/O/BAS
A5.....	6-7	CAP/51-A/O/BAS
DAP A6.....	6-8	CAP/51-A/O/BAS
A6.....	6-8	CAP/51-A/O/BAS
DAP A7.....	6-8	CAP/51-A/O/BAS
A7.....	6-8	CAP/51-A/O/BAS
DAP A8.....	6-9	CAP/51-A/O/BAS
A8.....	6-9	CAP/51-A/O/BAS
DAP A9.....	6-9	CAP/51-A/O/BAS
A9.....	6-9	CAP/51-A/O/BAS
DAP A10.....	6-10	CAP/51-A/O/BAS
A10.....	6-10	CAP/51-A/O/BAS
DAP A11.....	6-10	CAP/51-A/O/BAS
A11.....	6-10	CAP/51-A/O/BAS
(B1a-k).....	6-11	CAP/51-A/O/BAS
DAP B TOC.....	6-11	CAP/51-A/O/BAS
CAP B1.....	6-11	CAP/51-A/O/BAS
B1.....	6-11	CAP/51-A/O/BAS
DAP B2.....	6-12	CAP/51-A/O/BAS
B2.....	6-12	CAP/51-A/O/BAS
DAP B3.....	6-12	CAP/51-A/O/BAS
B3.....	6-12	CAP/51-A/O/BAS
DAP B4.....	6-13	CAP/51-A/O/BAS
B4.....	6-13	CAP/51-A/O/BAS
DAP B5.....	6-13	CAP/51-A/O/BAS
B5.....	6-13	CAP/51-A/O/BAS
DAP B6.....	6-14	CAP/51-A/O/BAS
B6.....	6-14	CAP/51-A/O/BAS
DAP B7.....	6-14	CAP/51-A/O/BAS
B7.....	6-14	CAP/51-A/O/BAS
DAP B8.....	6-15	CAP/51-A/O/BAS
B8.....	6-15	CAP/51-A/O/BAS
DAP B9.....	6-15	CAP/51-A/O/BAS
B9.....	6-15	CAP/51-A/O/BAS
DAP B10.....	6-16	CAP/51-A/O/BAS
B10.....	6-16	CAP/51-A/O/BAS
(B1a-k).....	6-16	CAP/51-A/O/BAS
CAP Book (Back Cover).....	6-17	CAP/51-A/O/BAS

CONTENTSPAGE

INTRODUCTION.....	v
STS 51-A OVERVIEW.....	1-1
SUMMARY TIMELINE.....	2-1
DETAILED TIMELINE.....	3-1
FLT DAY 1.....	3-2
FLT DAY 2.....	3-6
FLT DAY 3.....	3-10
FLT DAY 4.....	3-15
FLT DAY 5.....	3-20
FLT DAY 6.....	3-24
FLT DAY 7.....	3-29
FLT DAY 8.....	3-34
FLT DAY 9.....	3-38
CONTINGENCY TIMELINES.....	4-1
HIGH PRIORITY MISSION (TBS).....	4A-1
CONSUMABLES CURVES (TBS).....	5-1
STS 51-A CAP BOOK.....	6-1
STS 51-A ATTITUDE TIMELINE (TBS).....	7-1

This Page Intentionally Blank

INTRODUCTION

The STS 51-A 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, Rendezvous, EVA, Deorbit Prep, and Entry checklists. The STS 51-A Rendezvous book contains all RMS procedures required until grapple of the HS376 spacecraft. The EVA checklist contains the detailed procedures required for HS376 berthing including MFR, RMS, and MMU operations. All other RMS procedures are in the PDRS OPS Checklist. For continuity, the entire flight is shown in the summary level timeline.

The section entitled 'Crew Activity Plan Notes (constraints and guidelines)', included in CAPs for previous flights, has been published as a generic document (not in individual CAPs).

This on-orbit timeline satisfies the objectives specified in the Flight Definition and Requirements Directive and the requirements of the STS 51-A Flight Requirements Document.

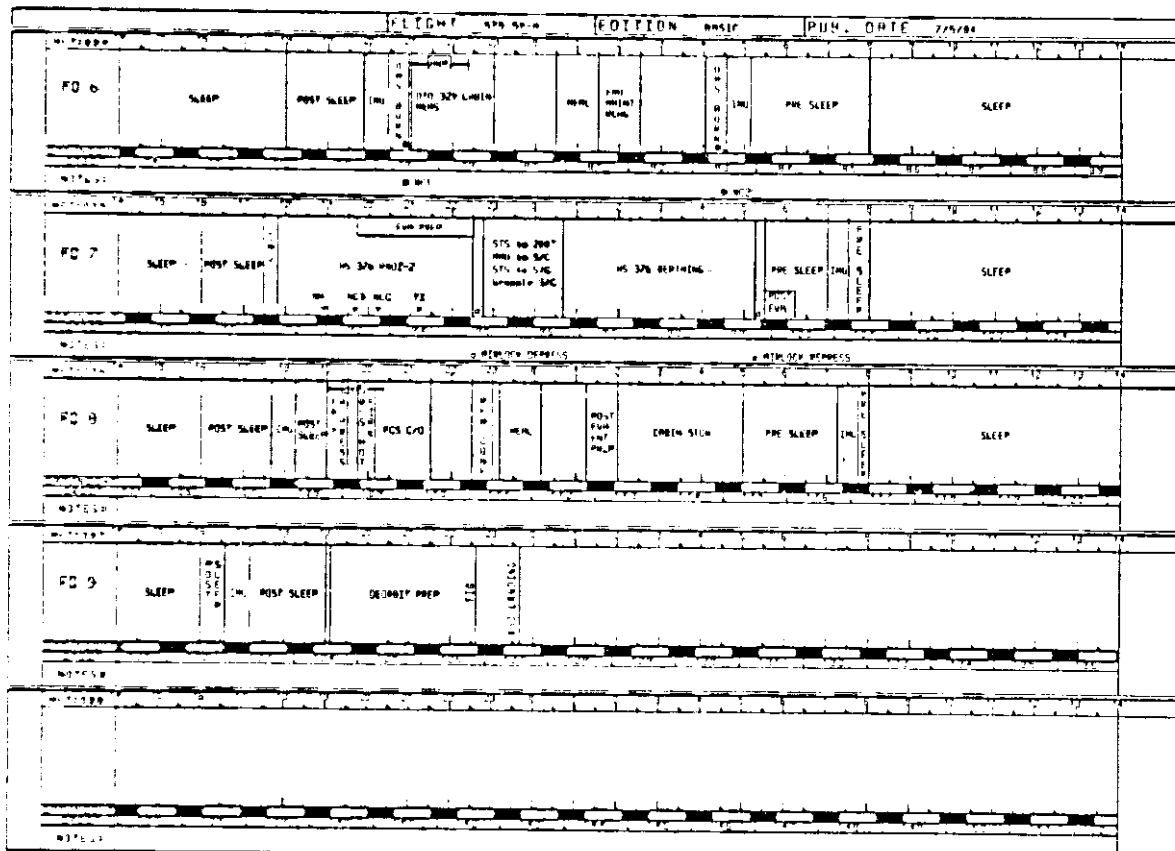
The flight profile (Cycle 2 trajectory data) used for this Crew Activity Plan is for a launch date of November 2, 1981, at 13:40 GMT. Orbiter inertial attitudes are expressed relative to Mean of 1950 (M50) reference frame.

This Page Intentionally Blank

SYS 51-A OVERVIEW

OVERVIEW

FLIGHT	RTS	EDITION	BRST	PUB. DATE	7/9/88
FD 1					
FD 2	SLEEP	POST SLEEP			
FD 3	SLEEP	POST SLEEP			
FD 4	SLEEP	POST SLEEP			
FD 5	SLEEP	POST SLEEP			



This Page Intentionally Blank

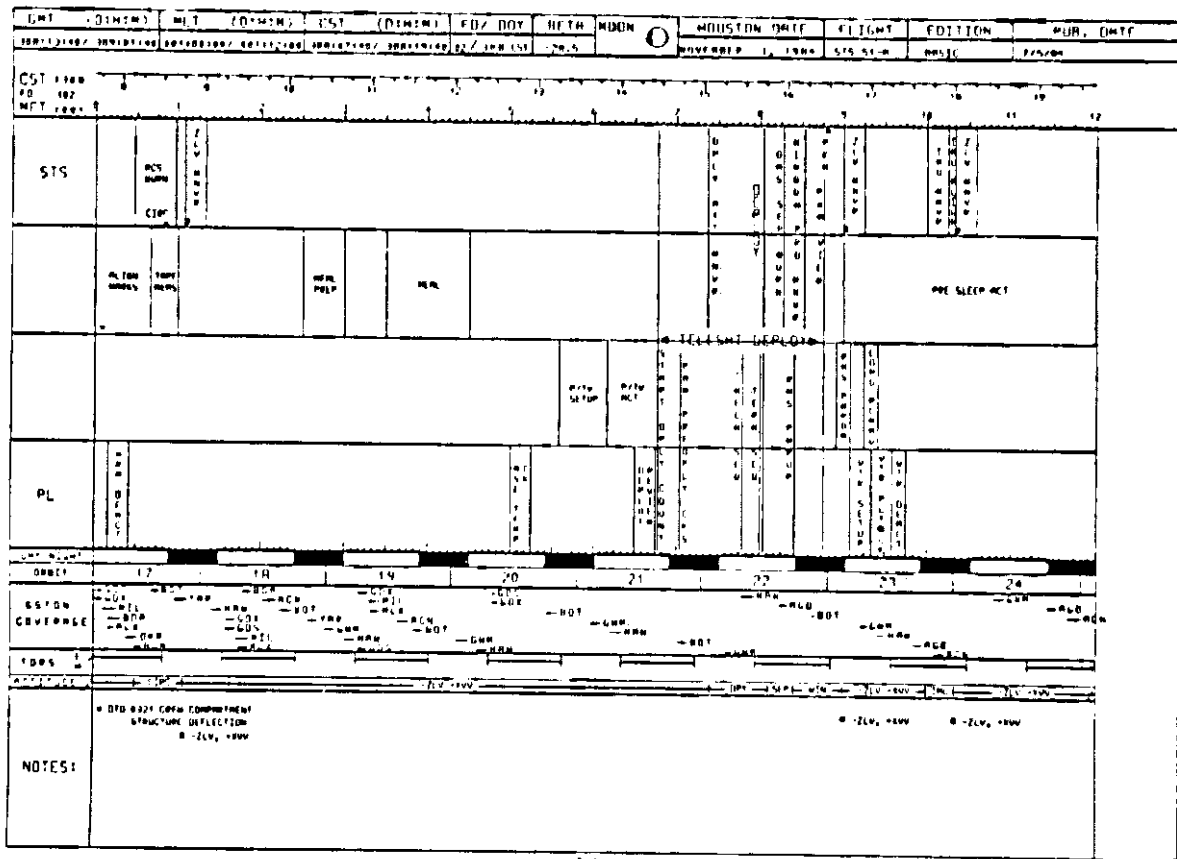
SUMMARY
TIMELINE

SUMMARY TIMELINE

SUMMARY TIMELINE

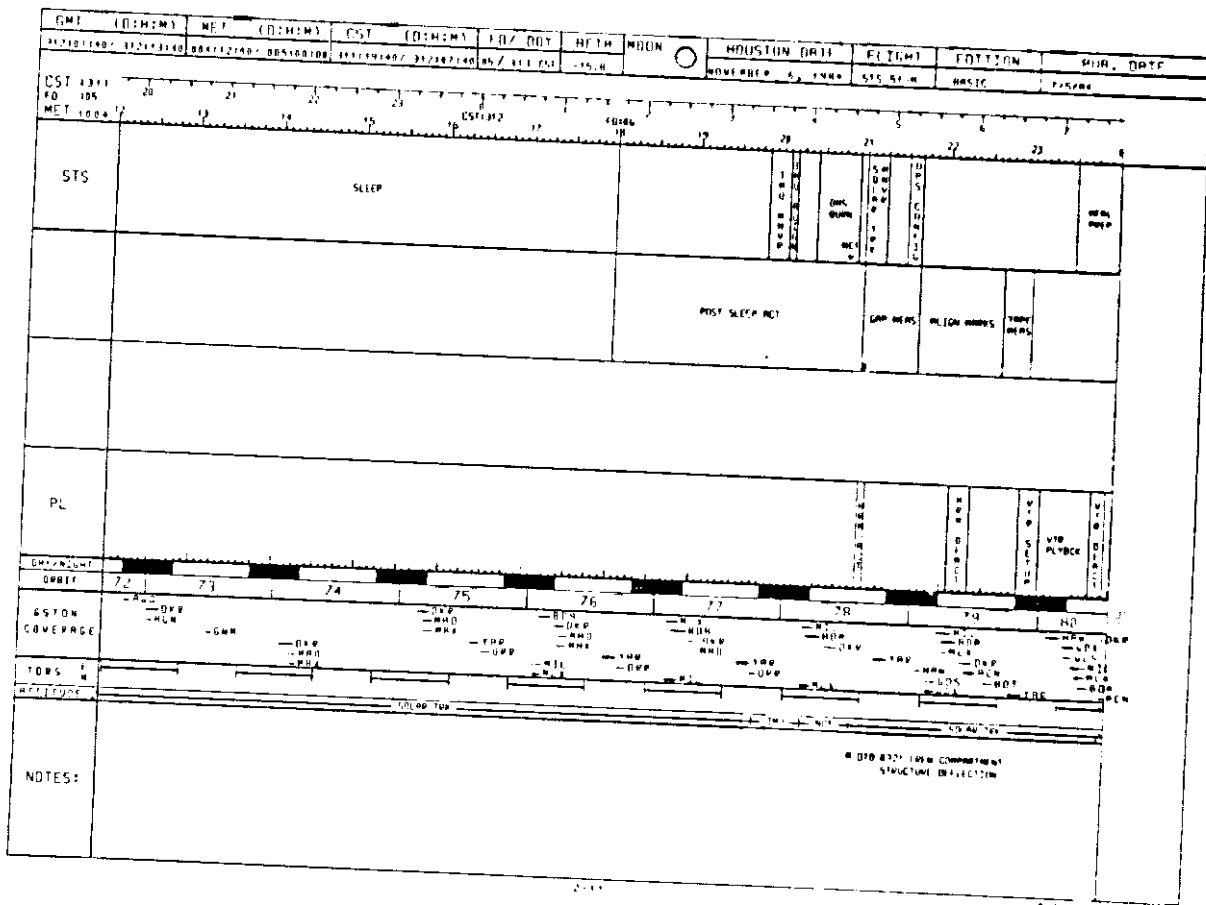
GMT	(DZMCH)	MCT	(DZMCH)	CST	(DZMCH)	FD/ DDT	REFN	MOON	MINUTON GMT	FLIGHT	FOOTON	PLW. DATE																										
									NOVEMBER 7, 1964	519 41-0	0451C	1/2/64																										
CST 1000																																						
STS	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">POST DESCRIPTION</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												POST DESCRIPTION	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
POST DESCRIPTION	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MCT</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MCT</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
PL	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MCT</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
STON	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MCT</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
COVERAGE	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">MCT</td> <td style="width: 10%;">0000-0015</td> <td style="width: 10%;">0015-0030</td> <td style="width: 10%;">0030-0045</td> <td style="width: 10%;">0045-0100</td> <td style="width: 10%;">0100-0115</td> <td style="width: 10%;">0115-0130</td> <td style="width: 10%;">0130-0145</td> <td style="width: 10%;">0145-0200</td> <td style="width: 10%;">0200-0215</td> <td style="width: 10%;">0215-0230</td> <td style="width: 10%;">0230-0245</td> <td style="width: 10%;">0245-0300</td> </tr> <tr> <td></td> <td>0000-0015</td> <td>0015-0030</td> <td>0030-0045</td> <td>0045-0100</td> <td>0100-0115</td> <td>0115-0130</td> <td>0130-0145</td> <td>0145-0200</td> <td>0200-0215</td> <td>0215-0230</td> <td>0230-0245</td> <td>0245-0300</td> </tr> </table>												MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300		0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300
MCT	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
	0000-0015	0015-0030	0030-0045	0045-0100	0100-0115	0115-0130	0130-0145	0145-0200	0200-0215	0215-0230	0230-0245	0245-0300																										
NOTES:	<p style="text-align: center;"> ○ MCT STOPPED ○ MCT INTO BEACT ○ MCT INTO RECEIPT ○ -2LW, MCT </p>																																					

LINE	(DIM:MM)	NO. 1	(DIM:MM)	CST	(DIM:MM)	FDZ DOZ	BTW	MIION	MOBILTON DATE	FLIGHT	EDITION	PLW. DATE
CST 1000		13		17		17		17		17		17
STS				SLEEP								
									POST SLEEP ACT			00 10 20 30 40 50
PL												00 10 20 30 40 50
<p>STATION CVERAGE</p> <p>100%</p>												
NOTES:												<p>0 000 000 000 000 000 000 000 000 000 000 000 000</p> <p>0 000 000</p>



GMT (D:M:S)	MET (D:M:S)	CST (D:M:S)	ED/DOY	HE/H	MOON	MISSION DATE	FLIGHT	EDITION	PUB. DATE			
195113145	11010144	02210100	03/17/68	00944400	03 / 17M EN1	0360	0	NOVEMBER 4, 1968	STA 51 R	ORSTC	7/5/68	
CST 1300	ED 101	MET 0000										
STS	D P L Y T Y P E O R S E P T E M B E R S E R V I C E M I N D U M P R A R K S 2 L I N E S R E V I S I O N S 	M E A L P R E P A R A T I O N S 	MEL	END OF			R E S T A N D B Y P E S 	Z I L I N E S R E V I S I O N S 	SLEEP			
SYNCHRON DEPLOY												
PL	S T A T U S C H E C K 	O R S E P T E M B E R S E R V I C E U N D E R S T A N D I N G S 	U N D E R S T A N D I N G S 									
ORBIT												
COVER												
FOR												
ATTITUDE												
NOTES:	0 -ZLV, +VV					0 -ZLV, +VV						

GMT	(D:MM)	MET	(D:MM)	CS	(D:MM)	1/2 DAY	DETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUR. DATE	
						14/210 CS	-21.0	☉	NOVEMBER 5, 1964	STS 41-A	BASIC	7/2/64	
CST	1914												
FD	006												
MET	1000												
STS		DAC BLN	Z V		RE. 2 H PAINS		REL BLN	Z V			SLEEP		
		REL PREP		REL						PM SLEEP ACT			
		P/TM SETUP		P/TM ACT									
PL				LEN PREBRIEF		FOR FOUR PULP	NO DUMB L DING						
DAY NIGHT													
ORBIT	49		50		51		52		53		54	55	56
CSION	HRN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN
COVERSE	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN	RCN
FOR S													
NOTES:													



GMT (01H:0M)	MJT (01H:0M)	CSY (01H:0M)	FBZ DDY	LCID	WHDN	HOUSTON DATE	FLTM*	EDITION	PIR. DR.†
HOUSTON	HOUSTON	HOUSTON	06/31/2	01	0	NOVEMBER 7, 1964	015 KLS	BASIC	7/2/64
CST 11:2 FO 106 MFT 1000									
STS	NRN	P Z T V S L T U P	P/TV ACT	W S R U N N C 2	1 R U M M V W	1 R U M M V W		WEEP	
						WEE SLEEP ACT			
PL		END MATN/END							
0001-0004	00	01	02	03	04	05	06	07	08
BOSTON COVERAGE	-BGT	-RCL	-REN	-RGT	-RHN	-RDN	-RGN	-RCD	-RDN
TDPS	-BGT	-RCL	-REN	-RGT	-RHN	-RDN	-RGN	-RCD	-RDN
NOTES:									

GMT (D/M/Y)	MET (D/M/Y)	CST (D/M/Y)	FD/DOY	RTN	MOIN	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
11/26/74 07:24:00	11/21/74 00:00:00	11/21/74 00:00:00	06/ 312 (5)	12.4		NOVEMBER 7, 1974	515 51-N	BPJG	7/4/74
CST 1312 FD 186 MET 1808									
STS	SLEEP				I M U N N V V	PENDING-2		W W W C C C T T T W W W	
			POST SLEEP ACT						
					PTU SETUP		PTU ACT		EXP SUPPORT
PL							EXP ACT		EXP-2
DAY/NIGHT									
ORBIT	AR	AR	90	91	92	93	94	95	96
COVERAGE	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR	-ORR -ORR -ORR
TOOLS									
ACTIVITY									
NOTES:									

GMT (D:M:H)	MET (D:M:H)	CST (D:M:H)	FD/DOY	BFTR	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE	
113413140	314101140	006000000	00-107100	313107/10/313310140	07/31.4.65	-10.3	NOVEMBER 8, 1964	STS 51-L	0051C	1/7/584
CST 1313	FD 107									
MET 1806										
STS						T I R U W P W R V W R	SLEEP			
						PRE SLEEP ACT				
						EVA SUPPORT (PHS/NEP OPS)				
						G I I R N N B W S S E P T T P L L L T E R A N S S R EVA-2 S J S P P / C T T C				
PL						T W O I C I I P O S T E V A				
ORBIT	96	97	98	99	100	101	102	103		
ESTDN										
COVERGE										
TOPS										
PHENOMENUS										
NOTES:										

GMT	UT (D:M:S)	NET (D:M:S)	CST (D:M:S)	LDZ DAY	HE TR	MOON	HOUSTON DATE	FLIGHT	EDITION	MUR. DATE	
31403340	31403340	00013200	007500100	311191407	31403340	07 / 13 EST	HLN	NOVEMBER 8, 1964	STS 81-R	HRSG	7/5/84
CST 1343	20 21 22 23 24 25 26 27 28 29 30										
FD 107	12 13 14 15 16 17 18 19 20 21 22 23										
NET 1006	11 12 13 14 15 16 17 18 19 20 21 22 23										
STS	SLEEP										
	POST SLEEP REC										
	EMU WASH/PACK										
	PREV SETUP										
	PREV REC										
	MR. PREP										
	MR.										
PL											
DAY/NIGHT	DAY										
ORBIT	104 105 106 107 108 109 110										
STATION COVERAGE	-WFO -WFO										
1005											
NOTES:	O RFD NEW REC PUS RECDING										

COMP	COMPONENT	NO. 1	NO. 2	NO. 3	NO. 4	NO. 5	NO. 6	NO. 7	NO. 8	NO. 9	NO. 10	NO. 11	NO. 12	NO. 13	NO. 14	NO. 15	NO. 16	NO. 17	NO. 18	NO. 19	NO. 20	NO. 21	NO. 22
POSITION: 100 NO. 100												MOON <input type="radio"/>		MOON PHASE NUMBER: 1		ALIGHT SIGN: 1		POSITION NAME:		PUB. DATE 1958			
SIS		MAY 100 END 100		CAREW 100				1 2 3 4 5 6 7 8 9 10 11 12		SLEEP													
										NOT SLEEP													
PL																							
112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200																							
NOTES:																							

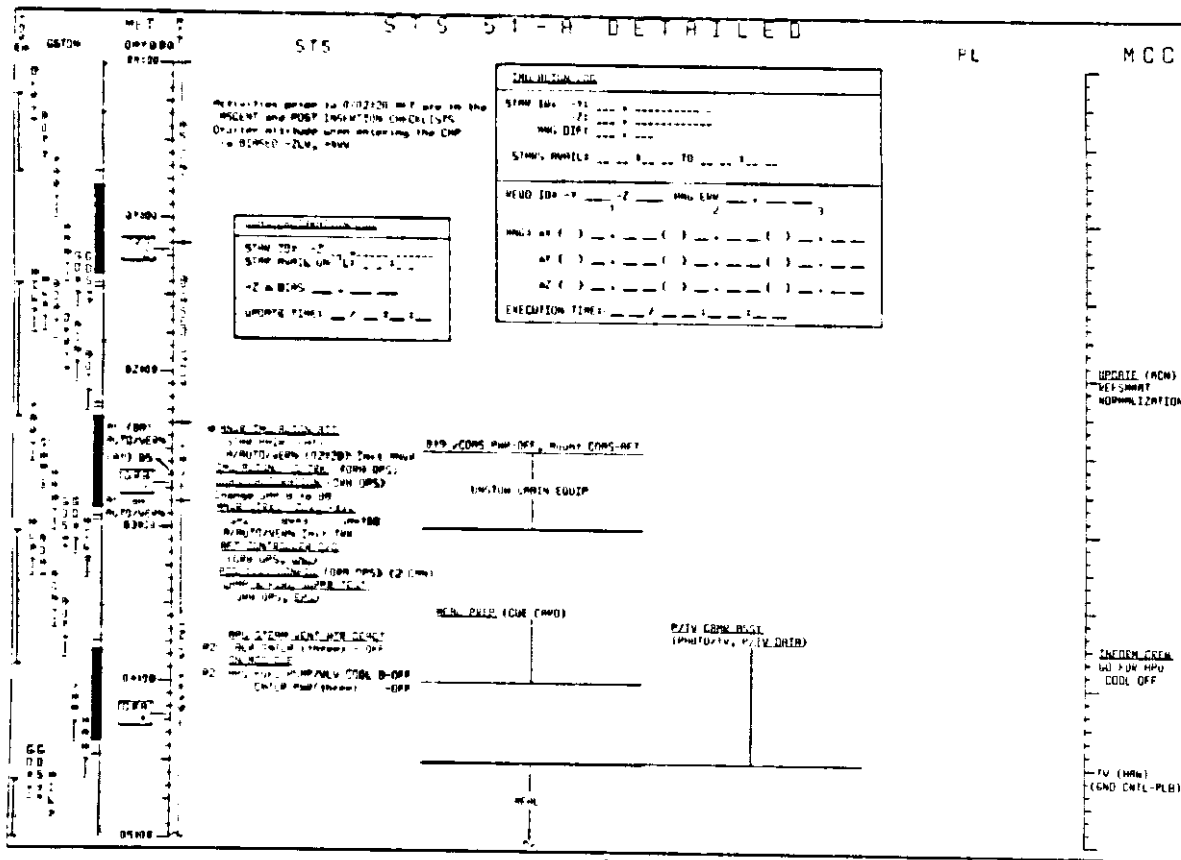
UNIT	DESIGNATION	NO. Y	DESIGNATION	POST	DESIGNATION	NO. / DOY	HT. IN	WEIGH	HOUSTON UNIT	FLIGHT	POSITION	PHR. DATE
1111111111	2222222222	3333333333	4444444444	5555555555	6666666666	77 / 111111	5.7		1111111111	2222222222	3333333333	4444444444
CST 1311	20	21	22	23	24	25	26	27	28	29	30	31
NO. 100	10	11	12	13	14	15	16	17	18	19	20	21
STS	SLEEP				POST SLEEP ACT				DEBRIEF PHOEN		RECEIPT GEN	
PL											ENTER IN JOURNAL ASC BRACING (7/23/37)	
<p>120 121 122 123 124 125 126</p> <p>COVERED</p> <p>100%</p>												
NOTES:	<p>W RE LOAD WPT 100</p> <p>W PEN UNIT 0414</p>											

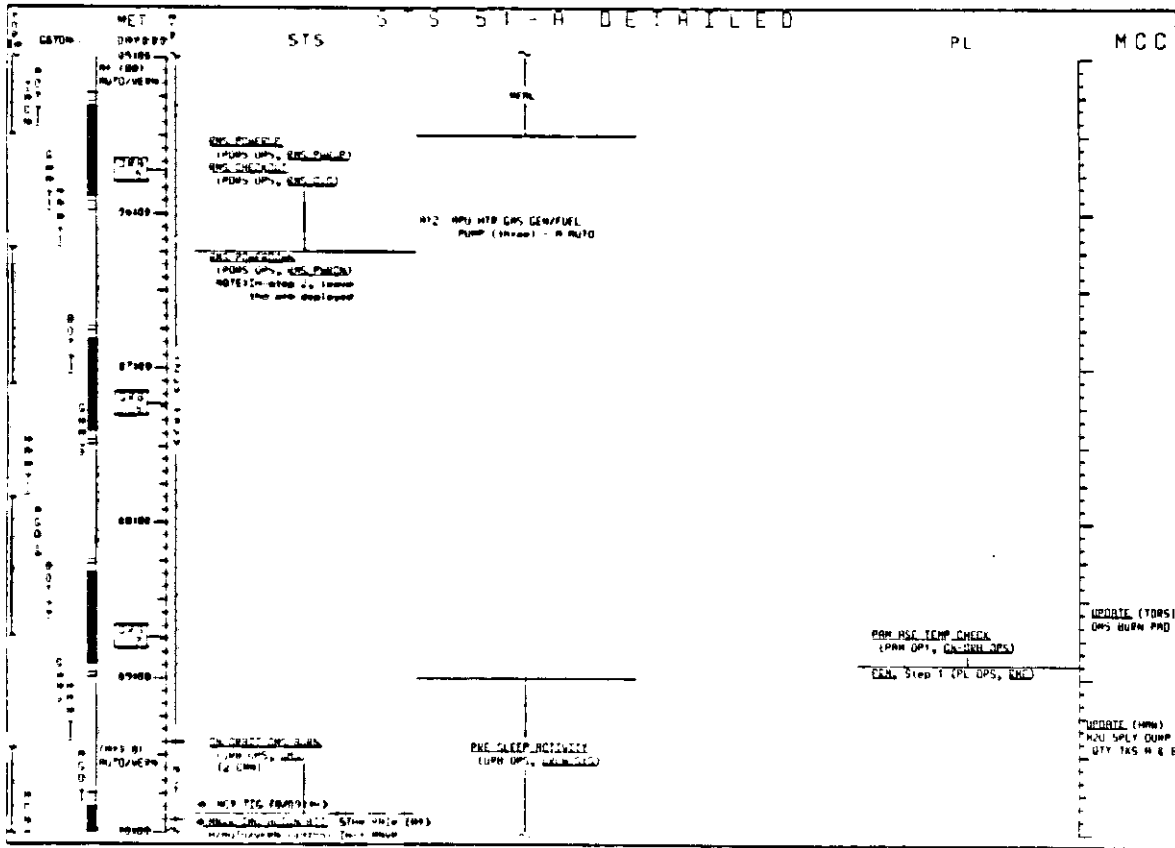
This Page Intentionally Blank

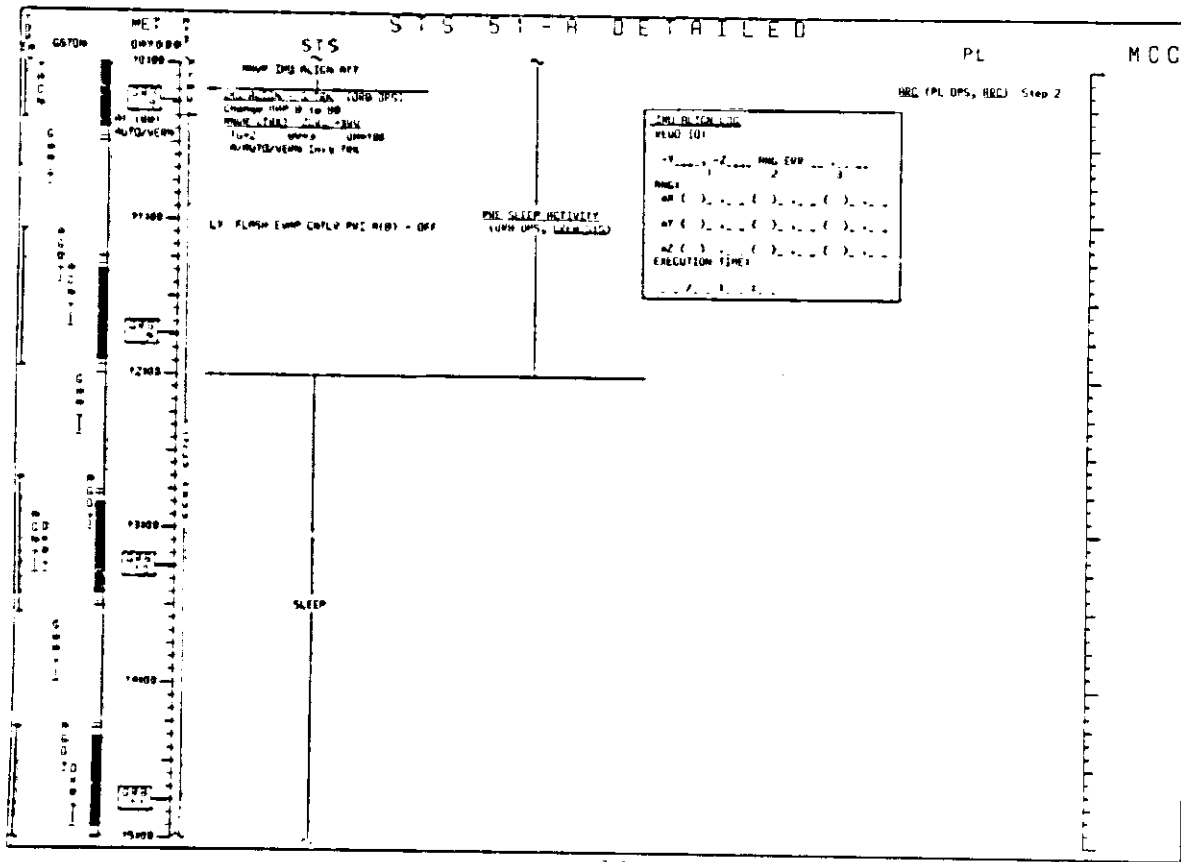
DETAILED TIMELINE

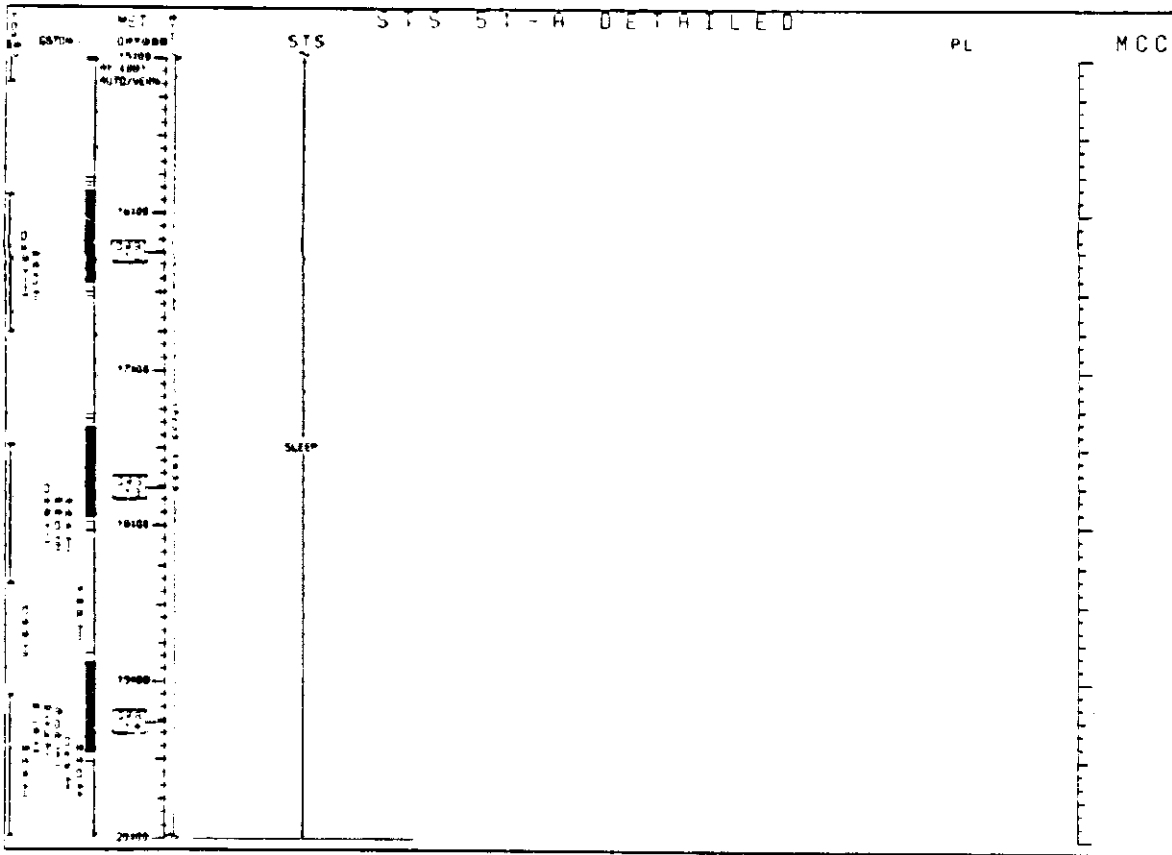
DETAILED
TIMELINE

DETAILED TIMELINE









STS

STS SYSTEM DETAILED

PL

MCC

UPDRLE (YAR)
MAXD SPLY DUMP
QTY TES W R B
DMS/PCS
ICOMMECT
COMFIG

```

CINL ALIGN LOG
NEWB ID:
-1.....2.....RMS EXP
RMS:
A1 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
A2 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
EXECUTION TIME:
  
```

DATA SHEET SUMMARY
(OPS OPS, LAMP, LAMP)

* PLM LAMP ALIGN LOG
 STP NO: 100
 R/W/D/V/OP: (2995) Data dump
 PL ALIGN - STS (OPS OPS)

 LAMP: 100
 R/W/D/V/OP: Data '00

LAMP Summary - 010 021
 LUP LAMP
 Perform LUP MEASUREMENTS
 (2 OPS)

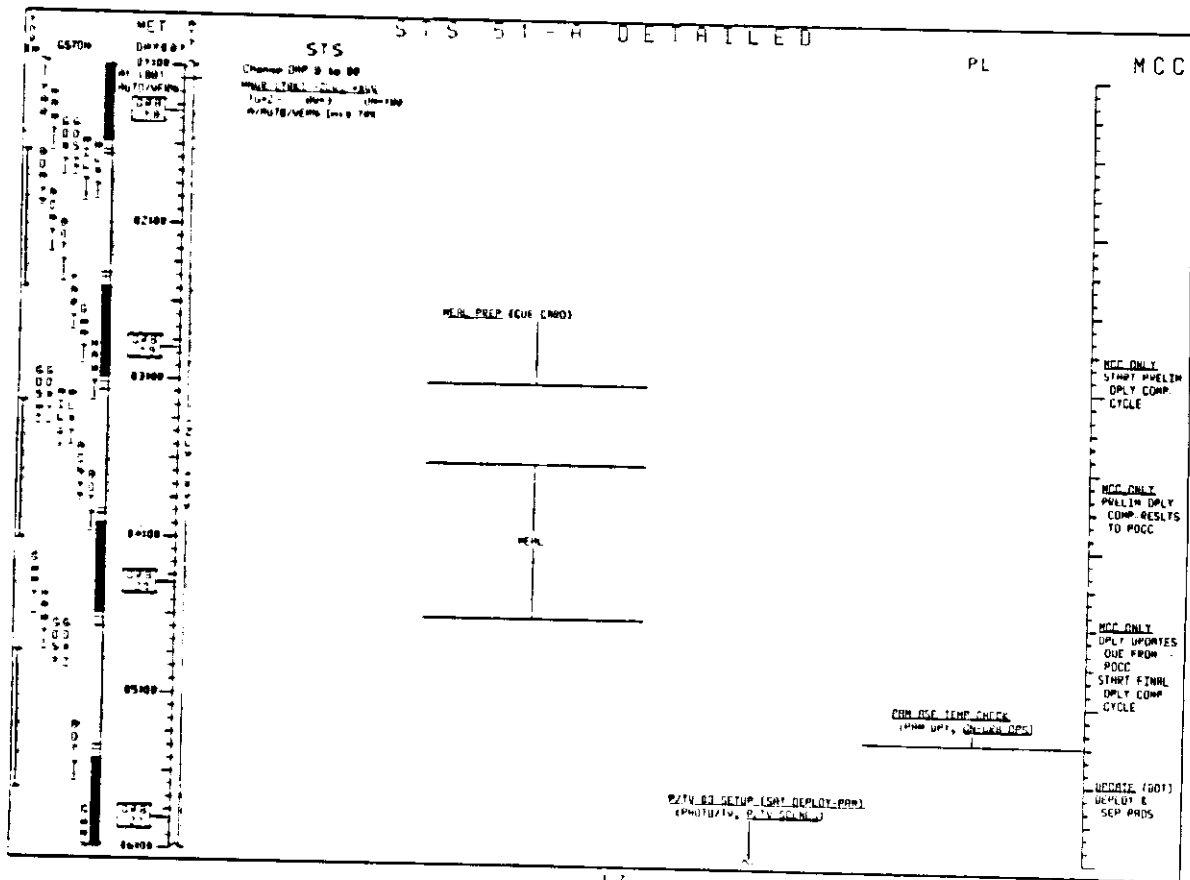
BRN Step 2 (PL OPS, RNE)
 BRN Step 1 (PL OPS, RNE)

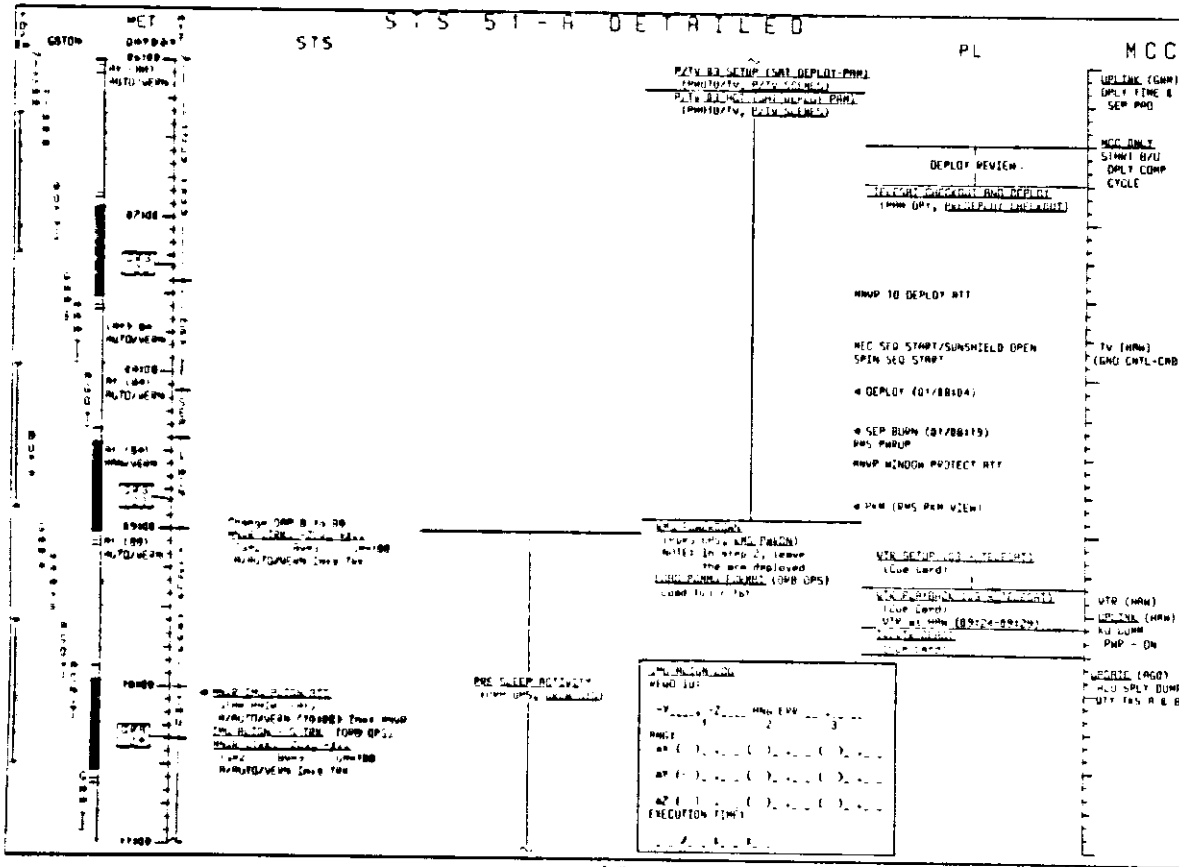
LAMP Summary - 010 021
 LUP LAMP
 Perform ALIGNMENT WORKS

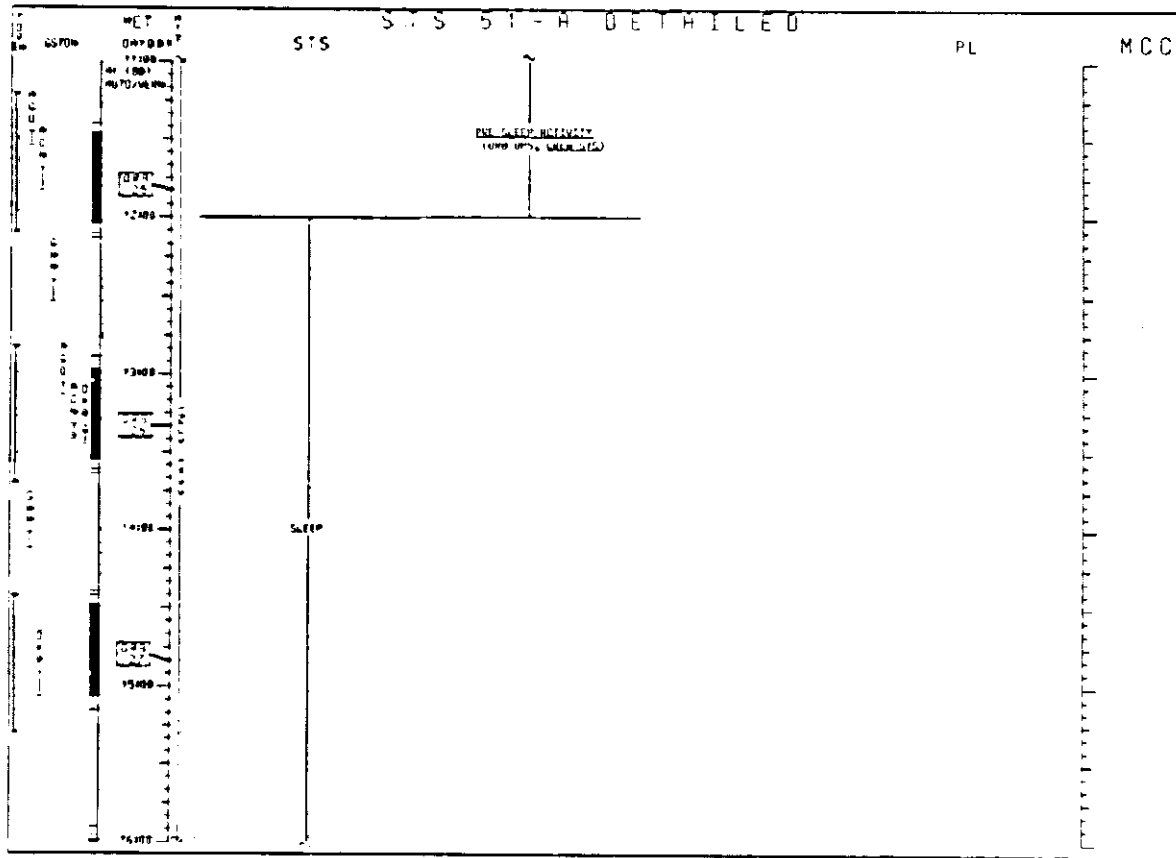
BRN Step 2
 (PL OPS, RNE)

LAMP Summary - 010 021
 LUP LAMP
 Perform DMS MEASUREMENTS

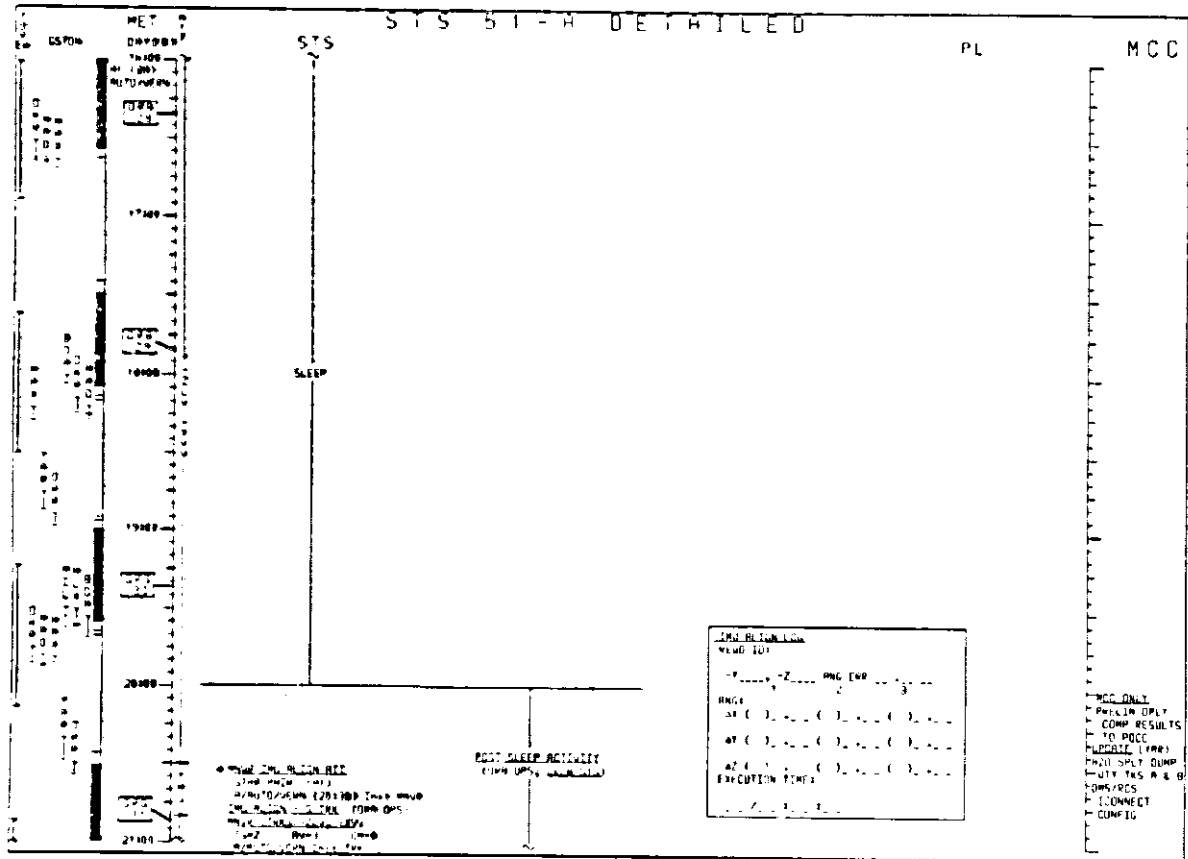
UPDRLE (M11)
 NEW BURN PRO

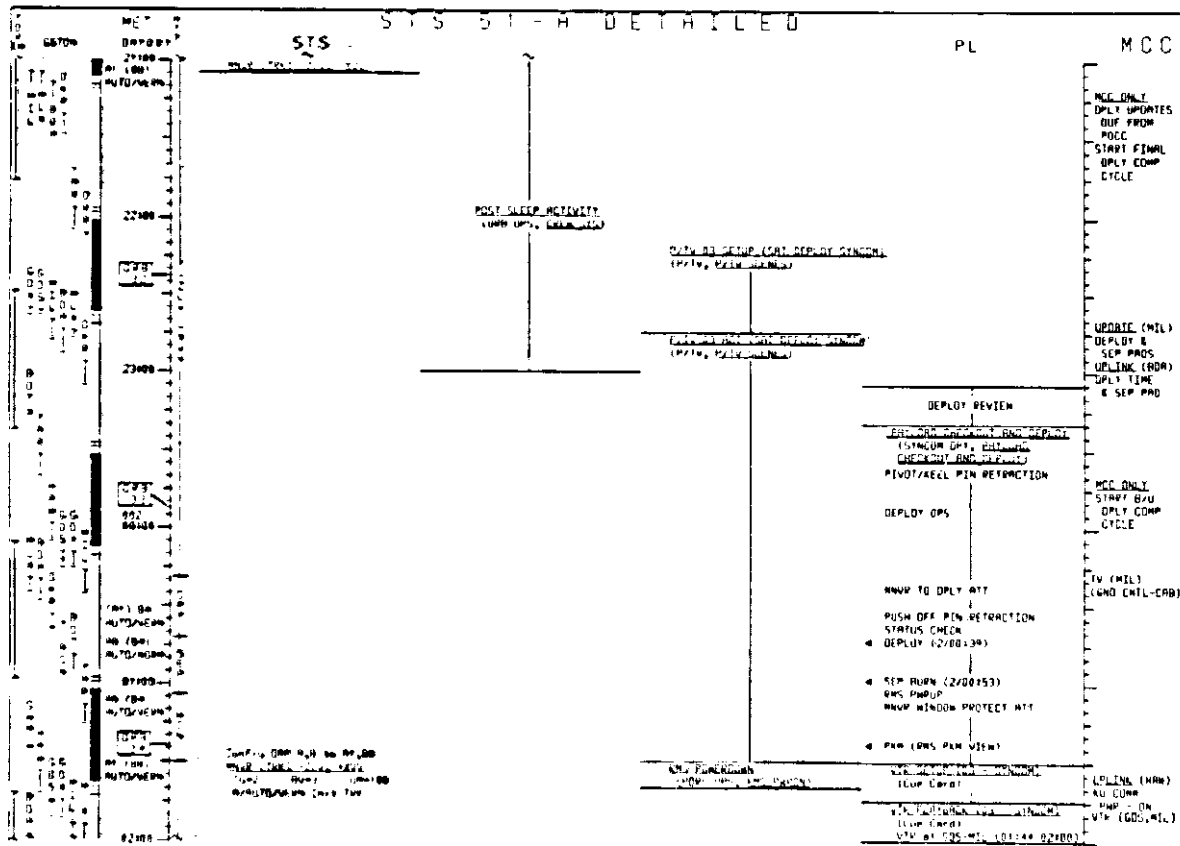


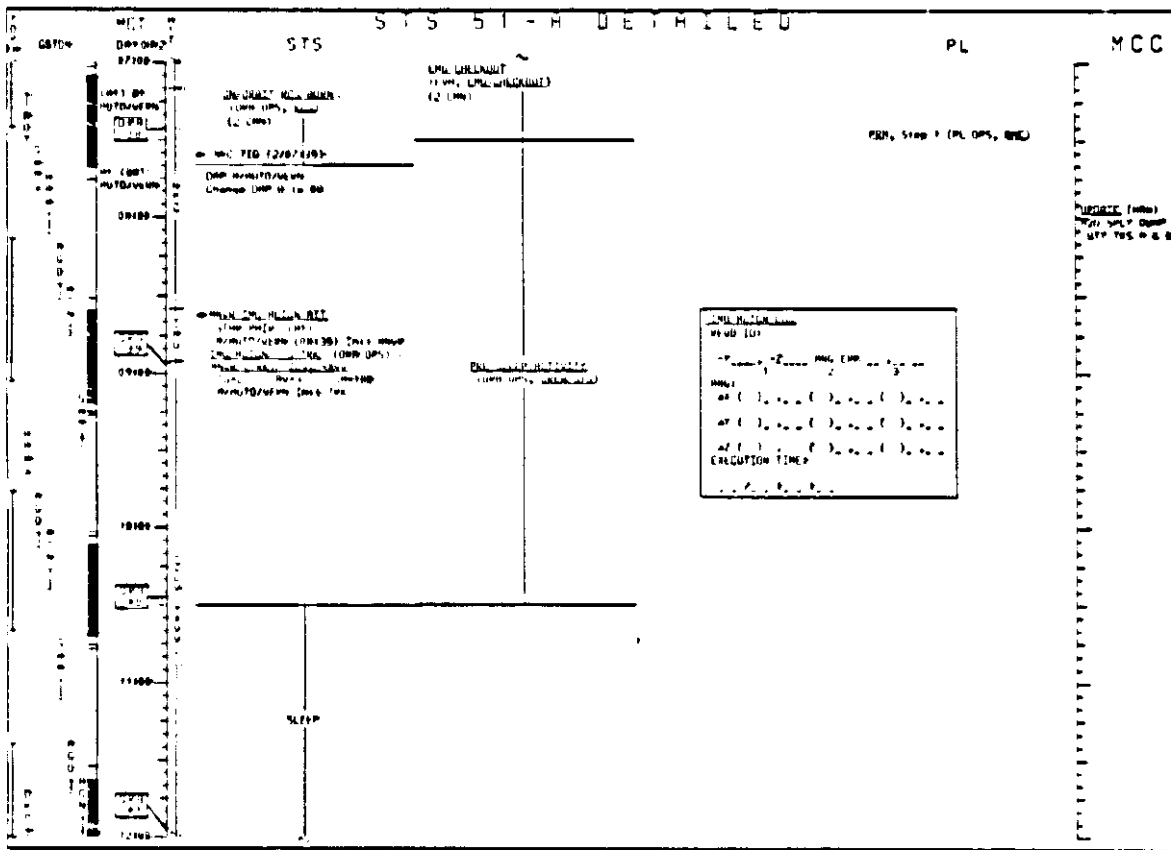




SYS 51-A DETAILED





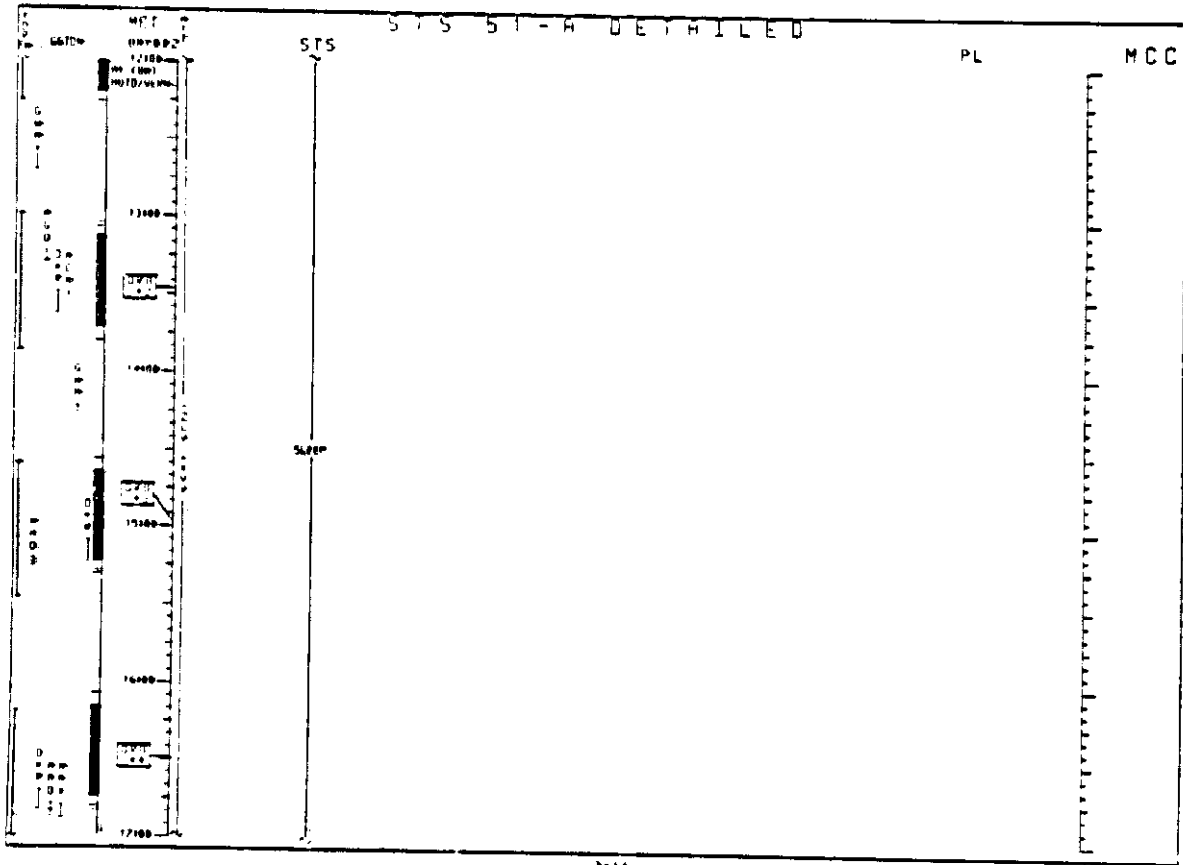


AC

SYS 51-A DETAILED

PL

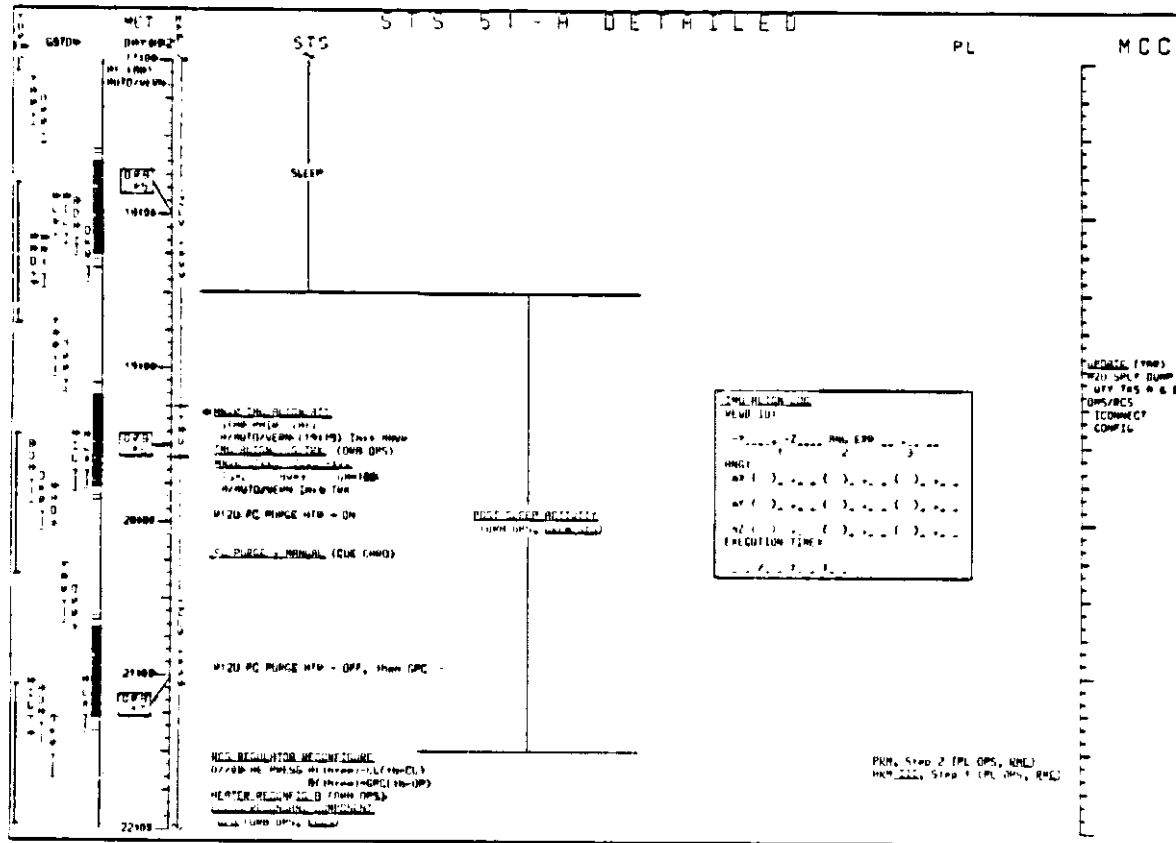
MCC

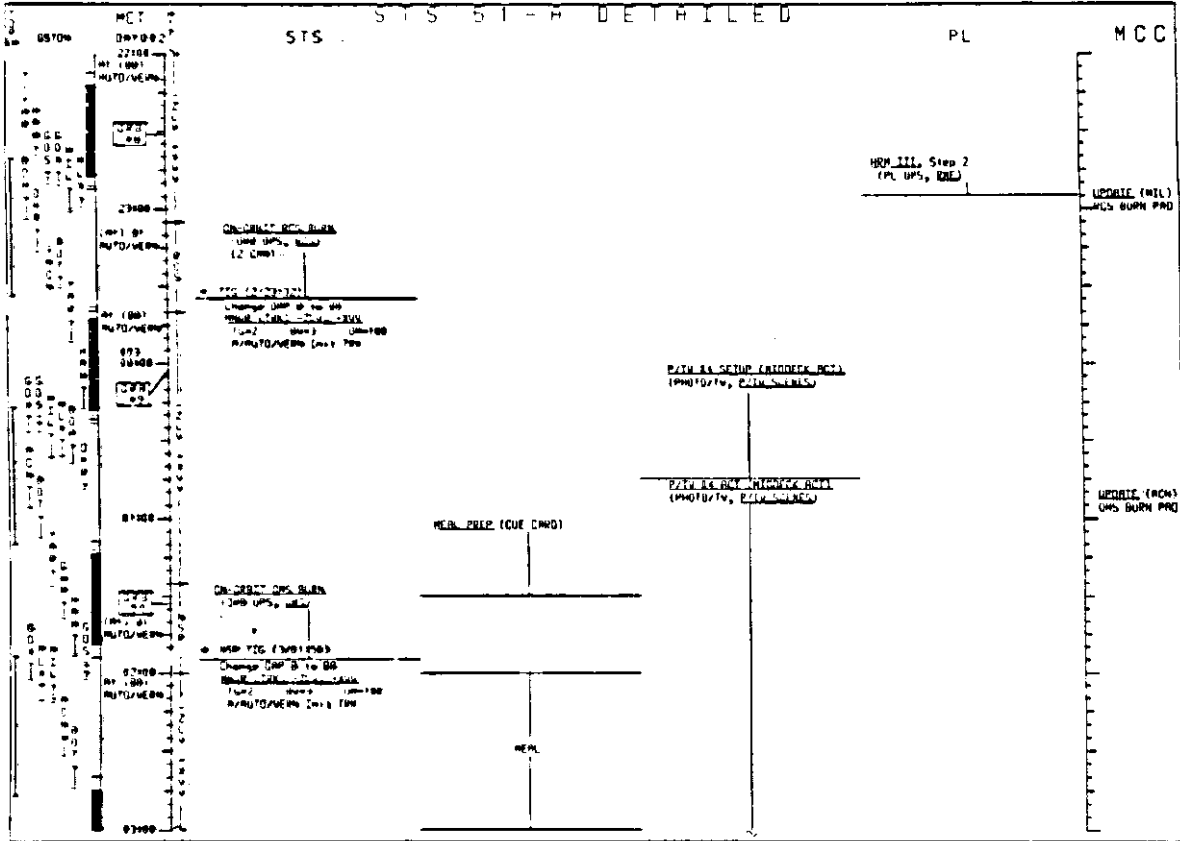


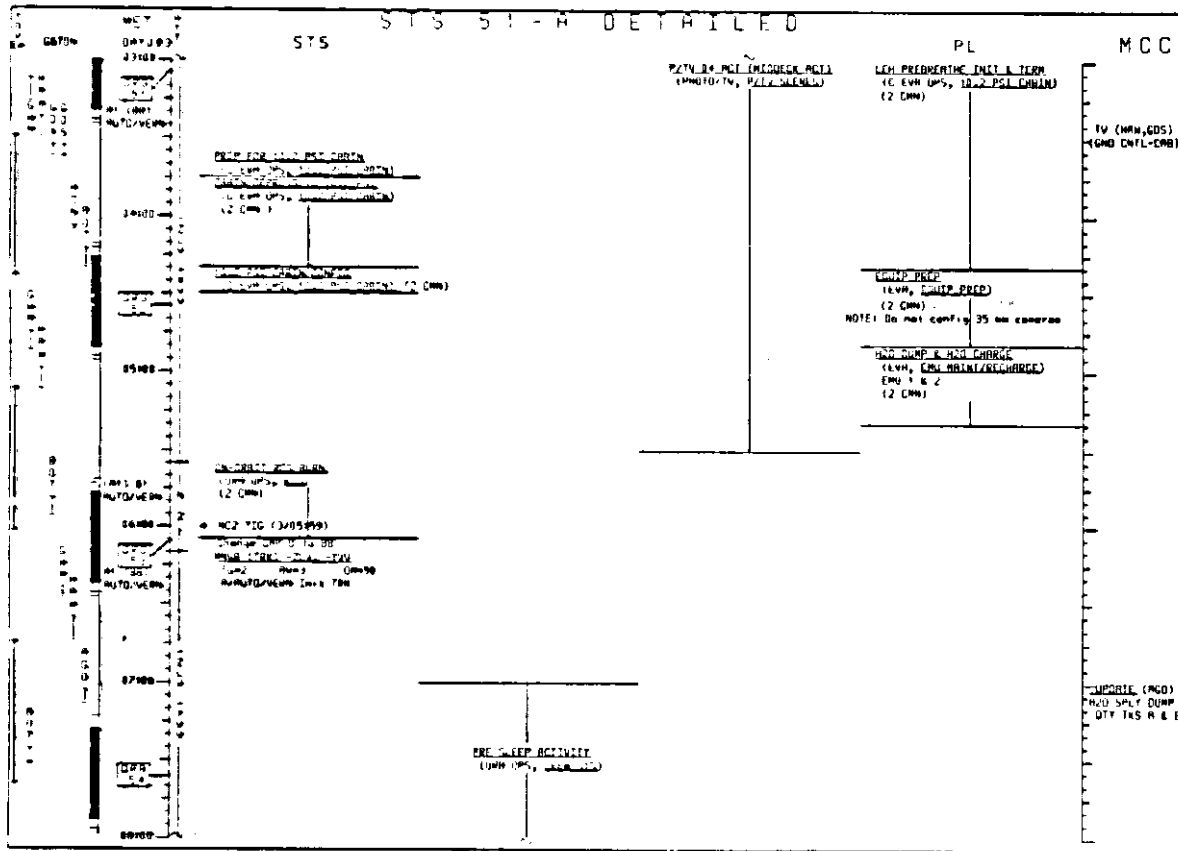
STS 51-LH DETAILED

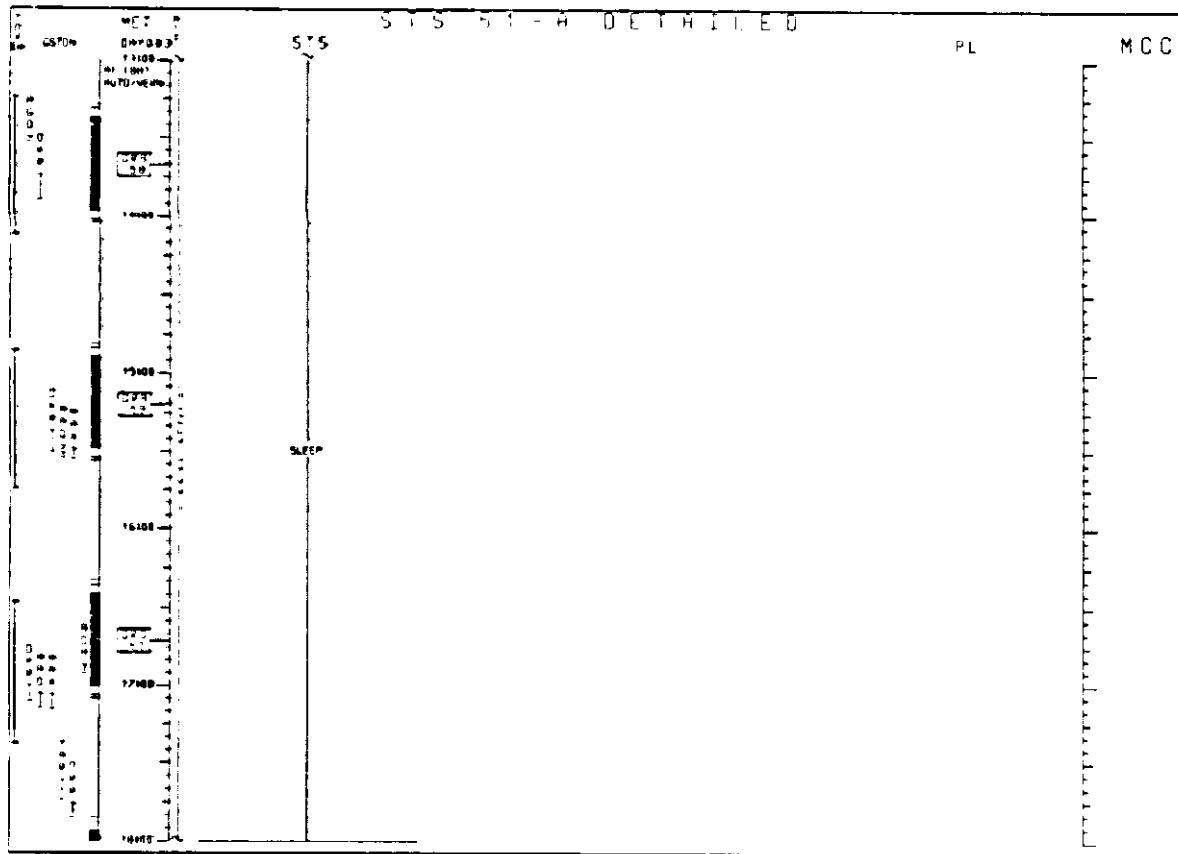
PL

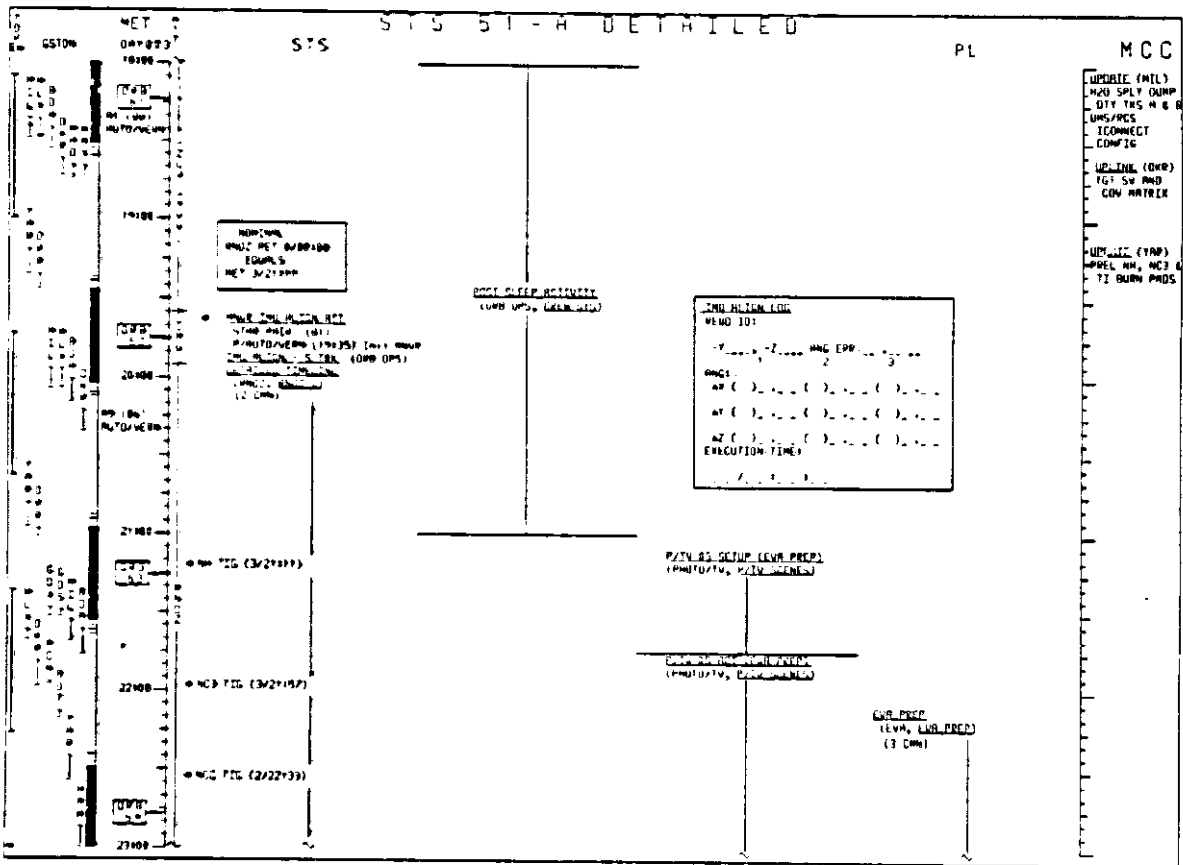
MCC

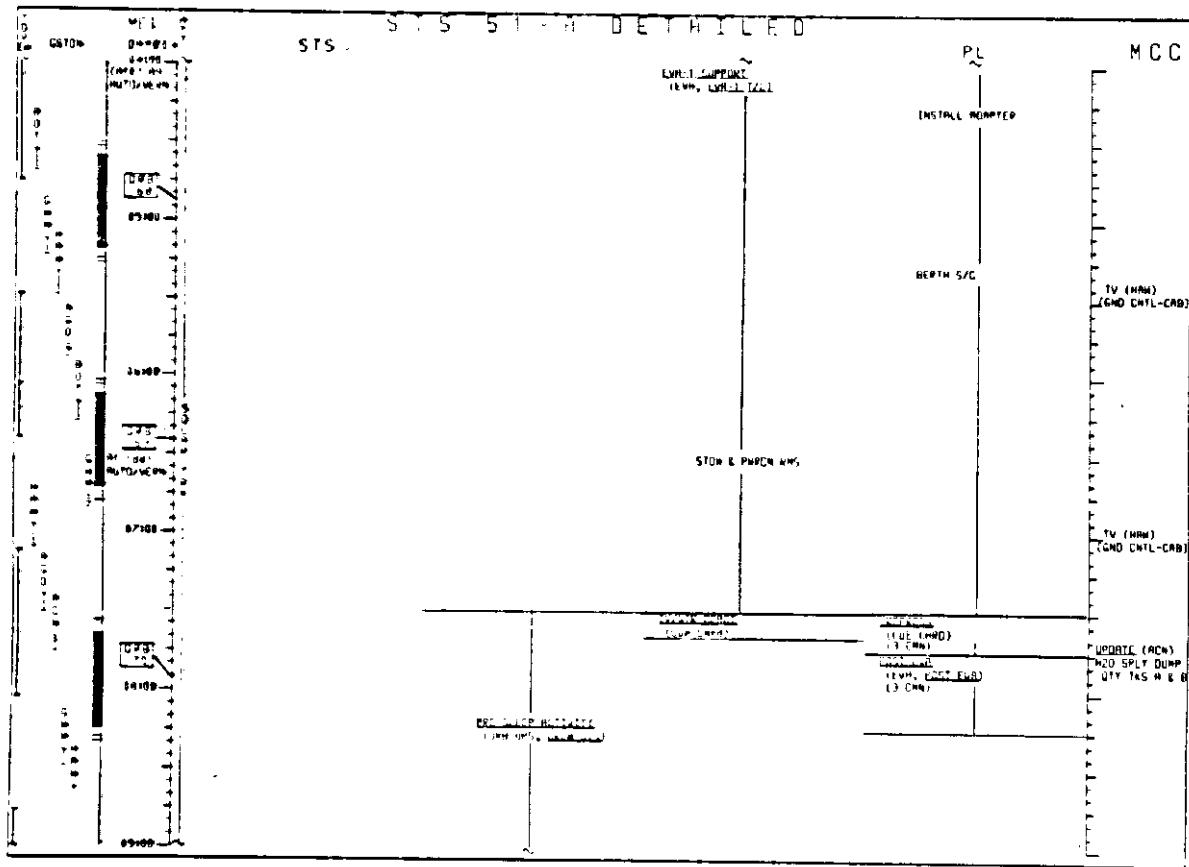




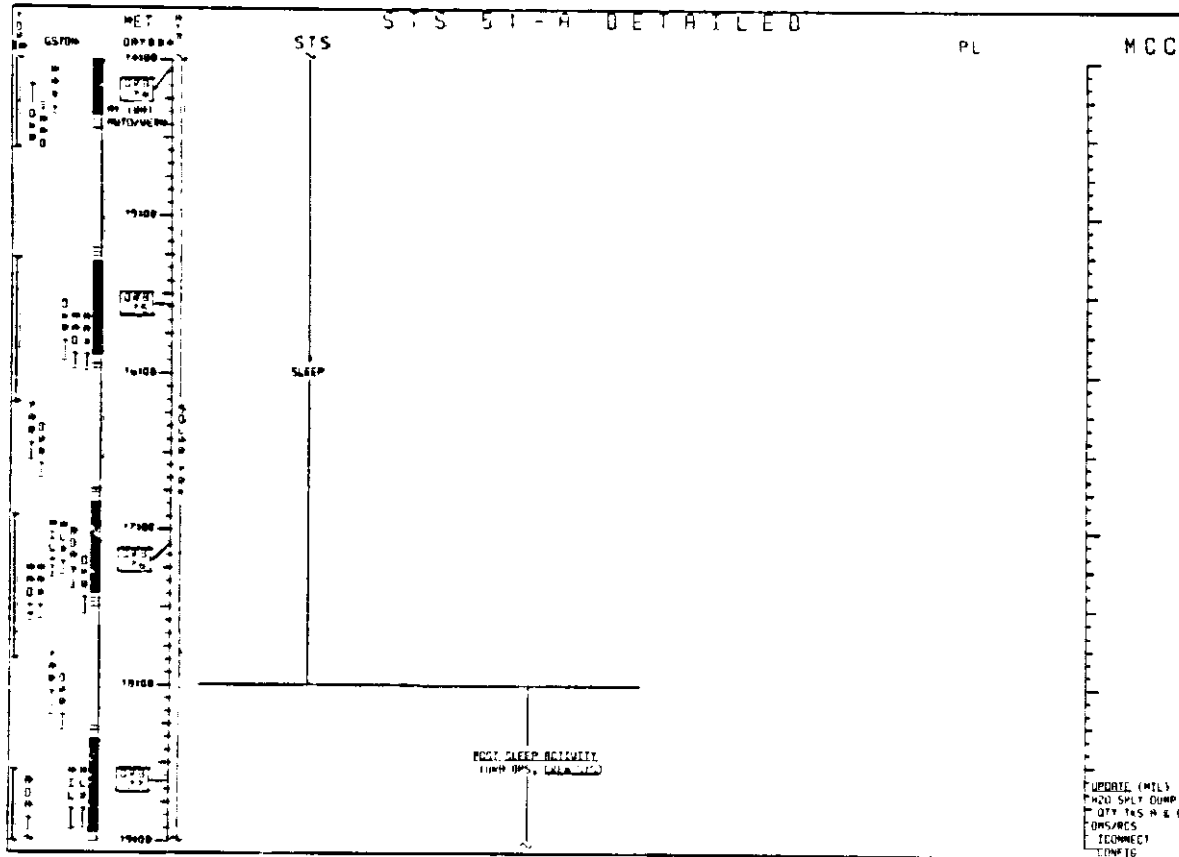




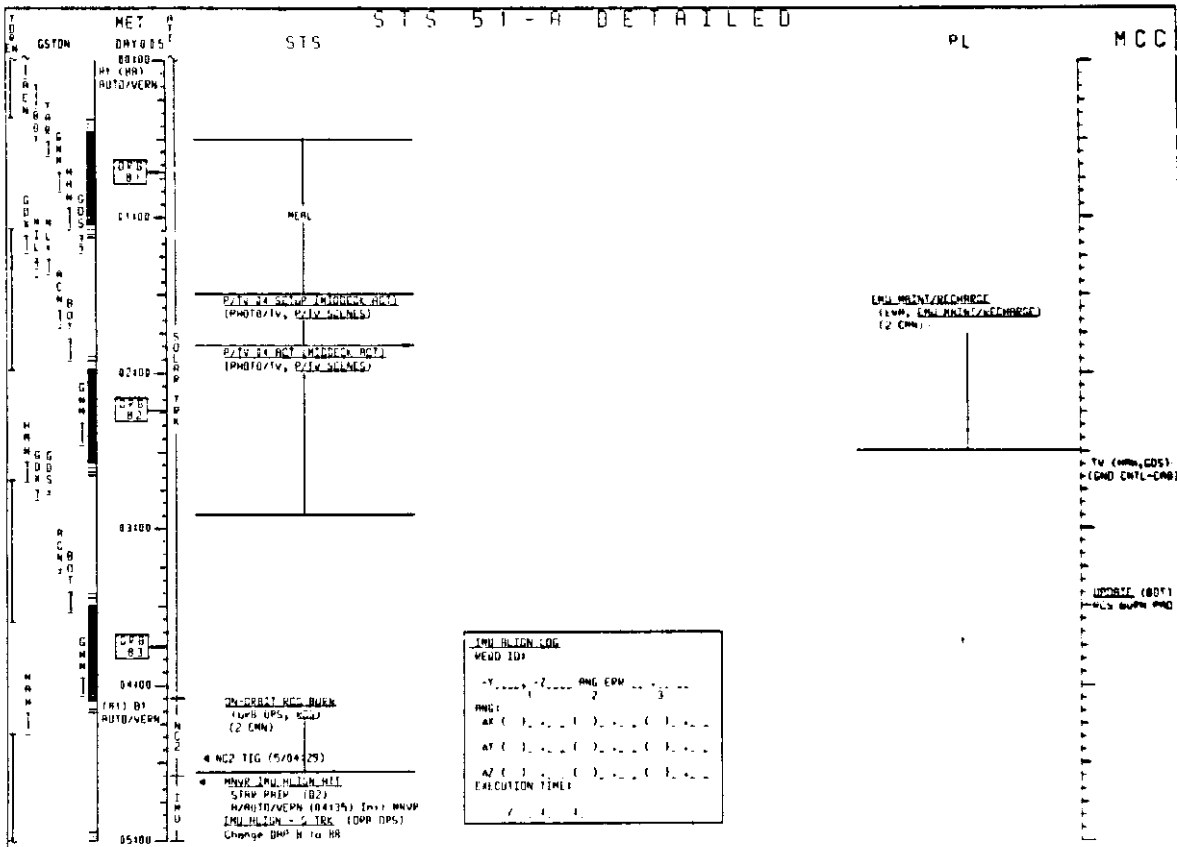




STS 51-A DETAILED



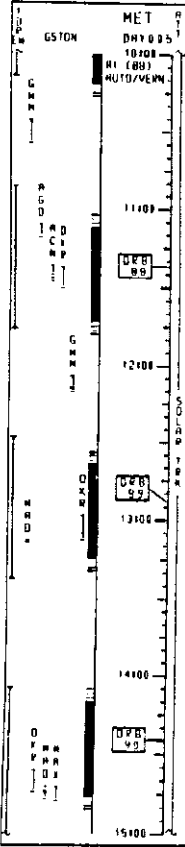
SYS 51-A DETAILED



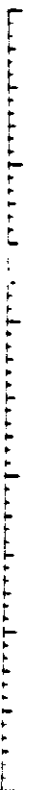
STS 51-A DETAILED

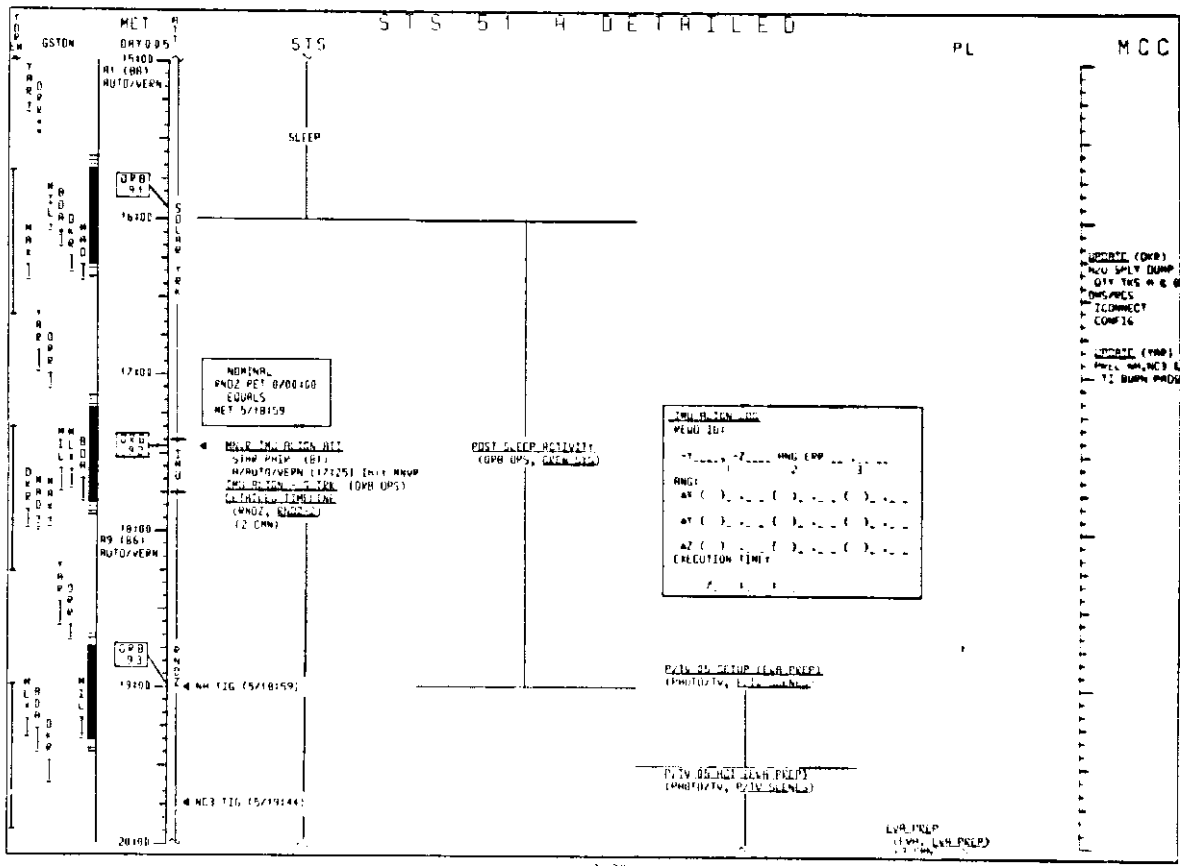
PL

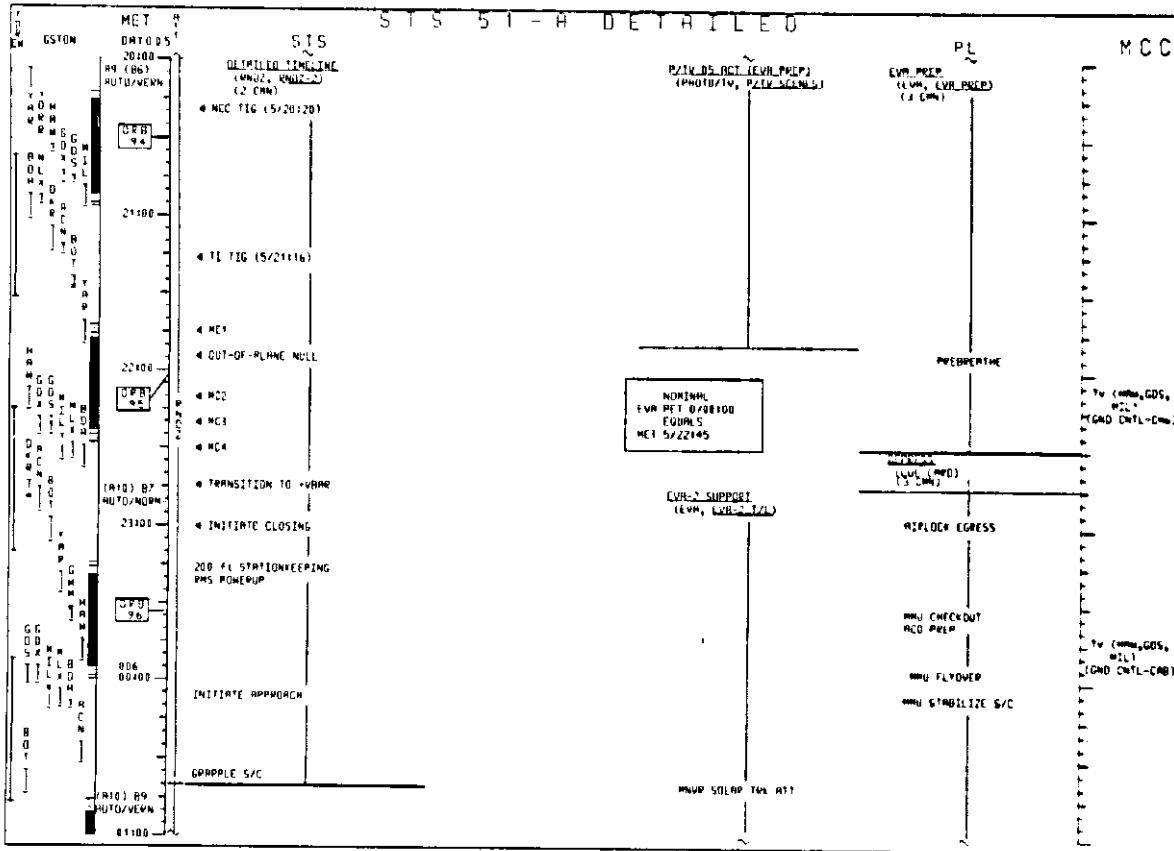
MCC



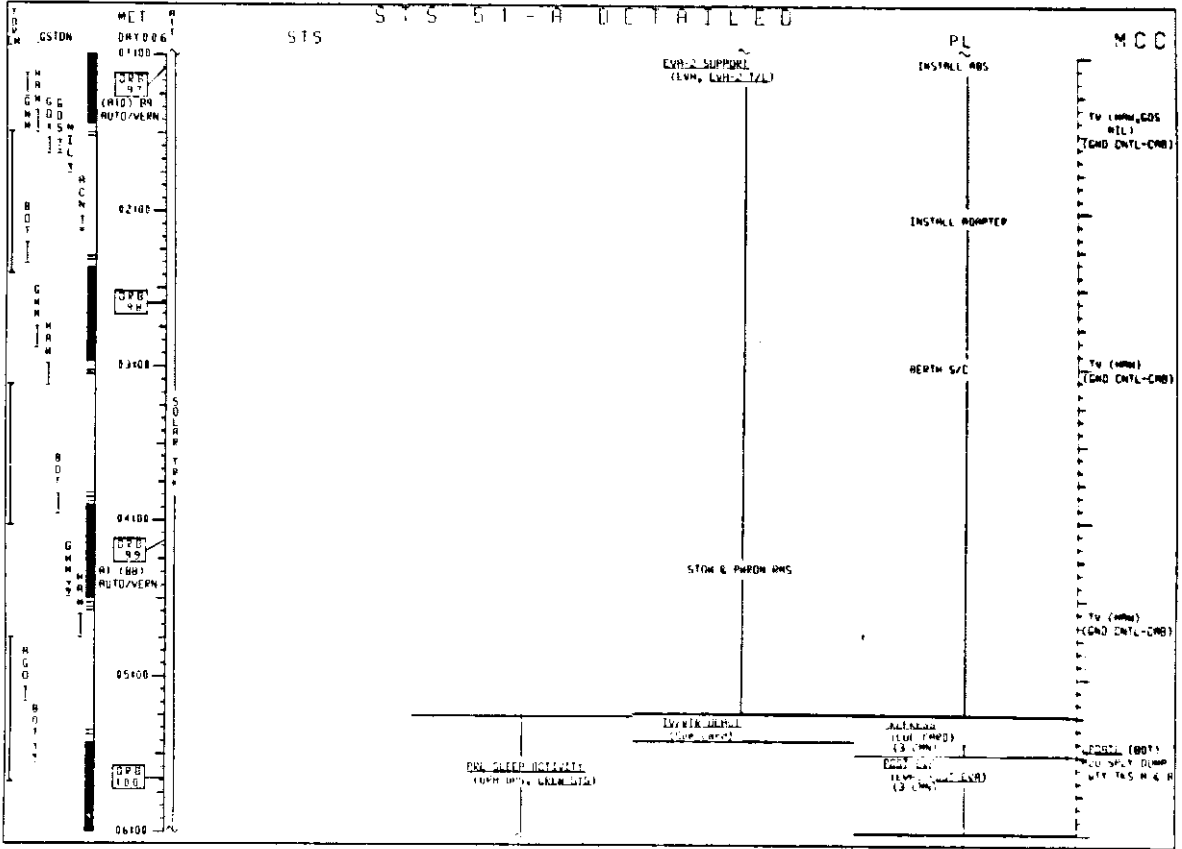
STS
SLEEP







SYS ST-A DETAILED

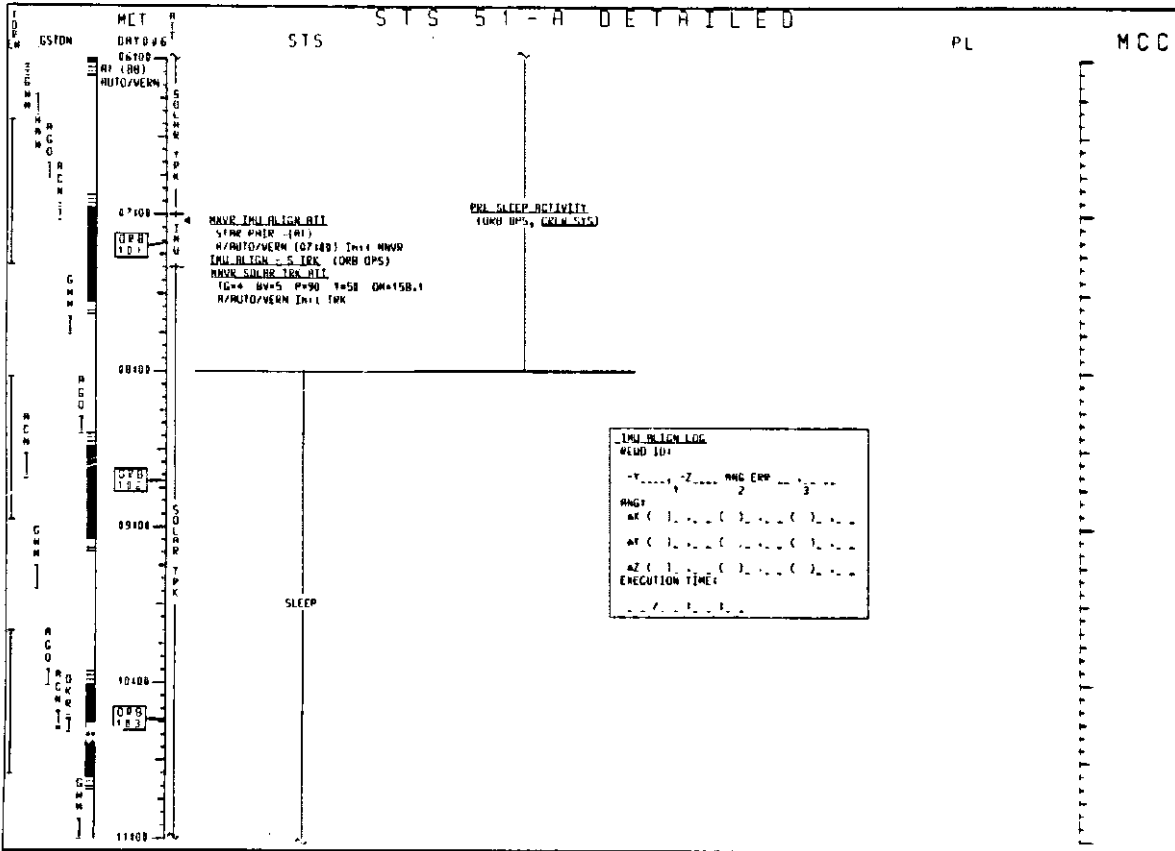


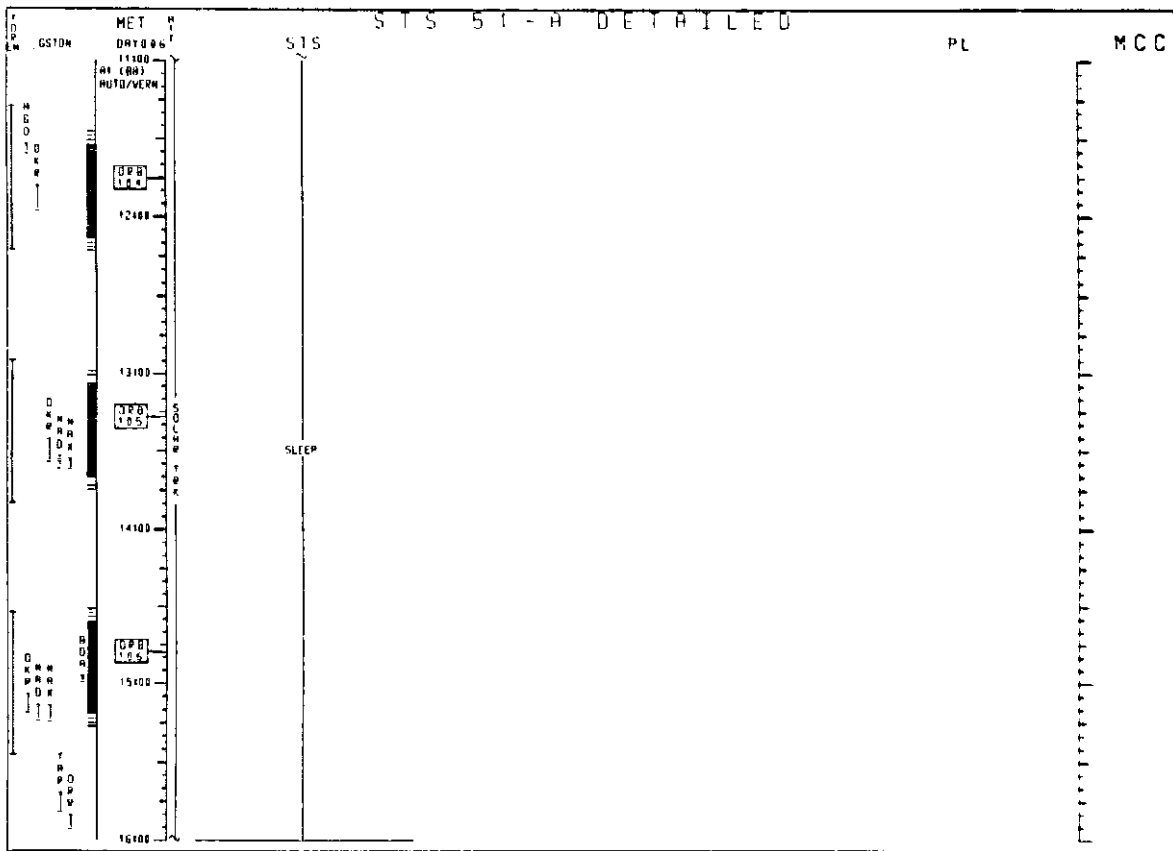
STS 51-A DETAILED

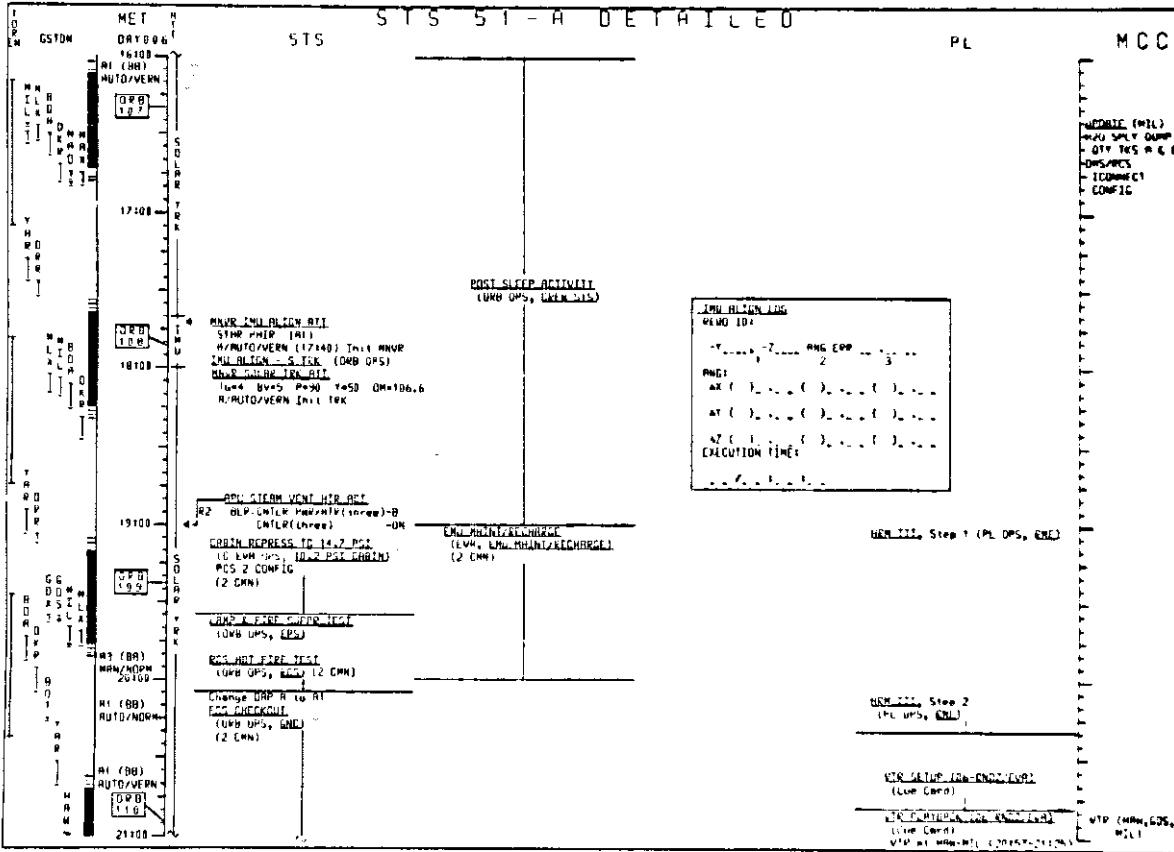
STS

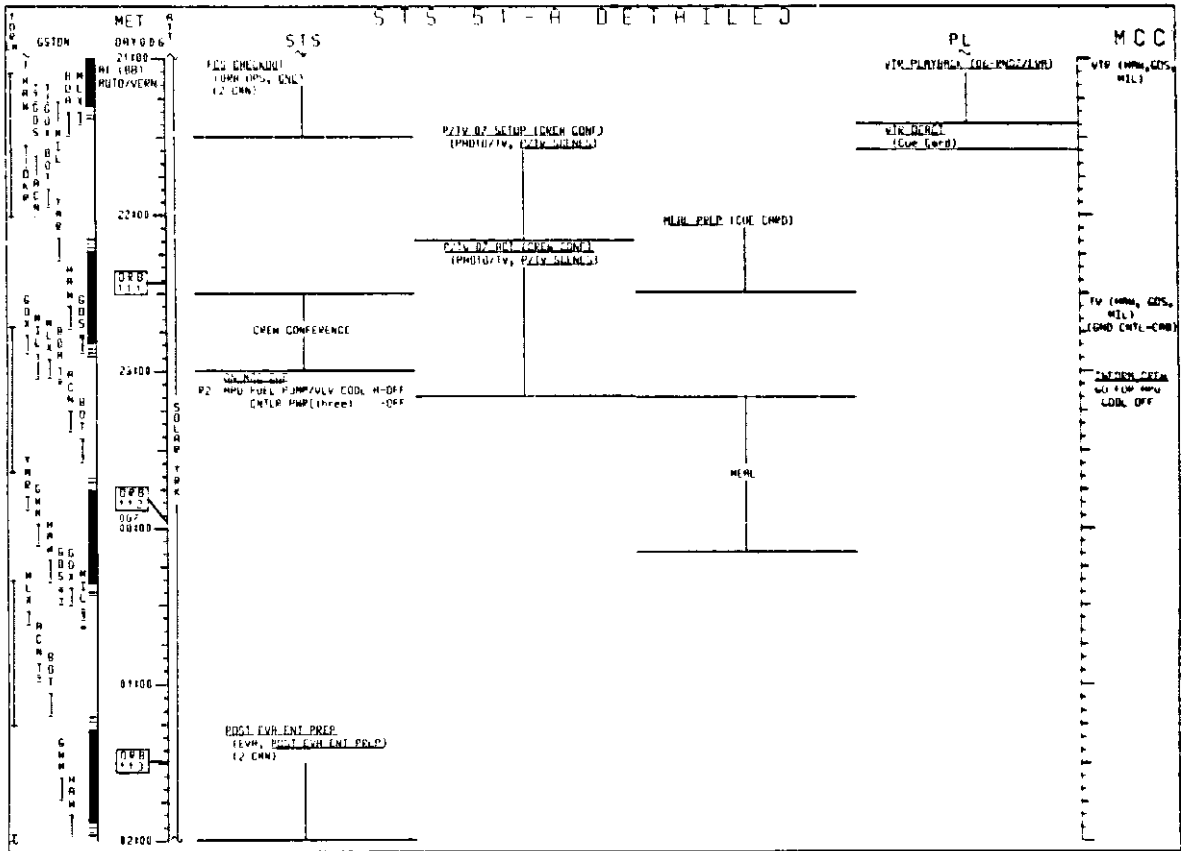
PL

MCC

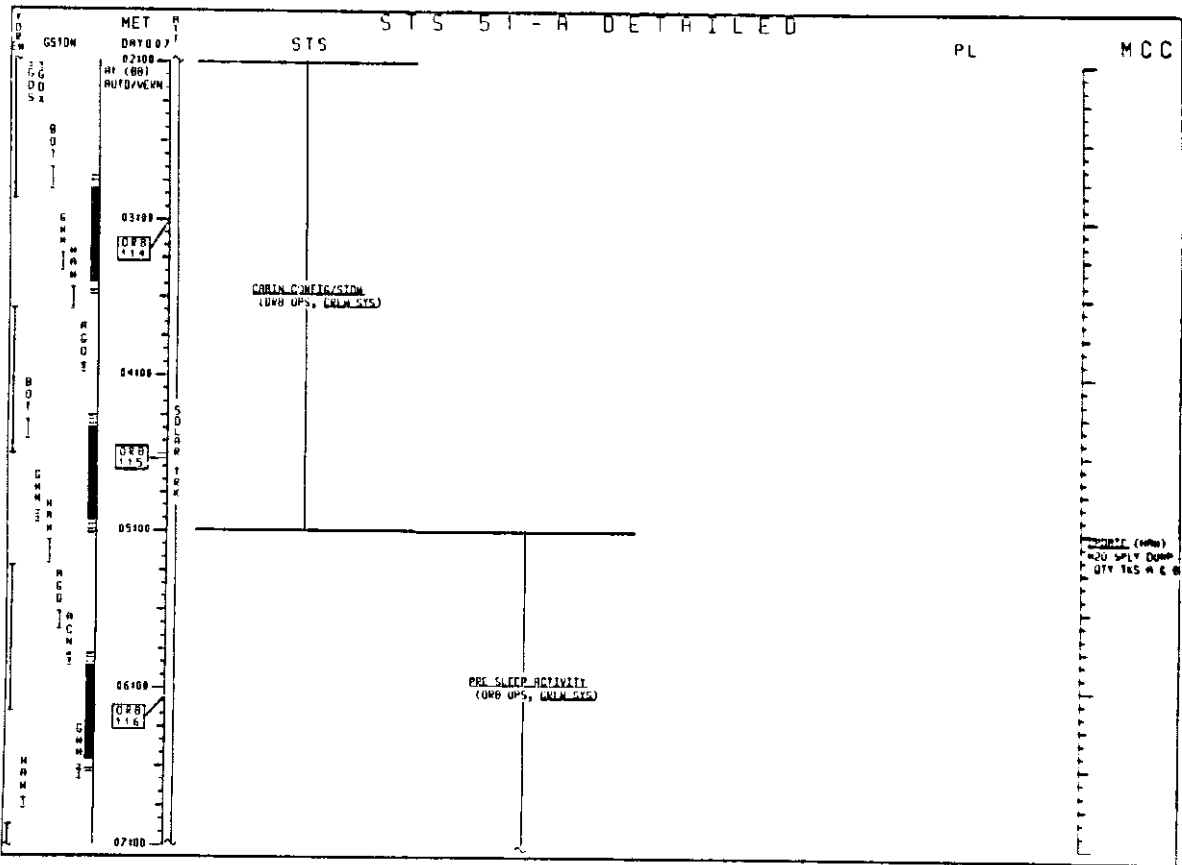


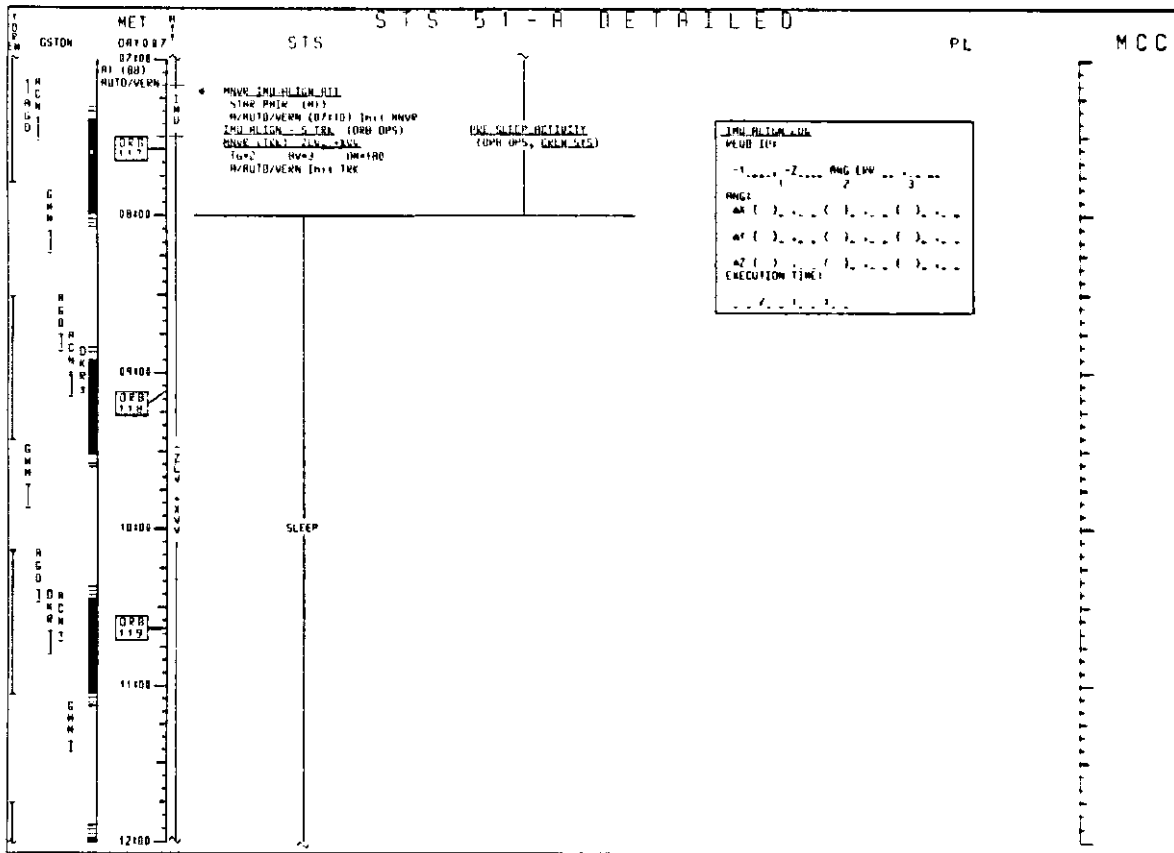


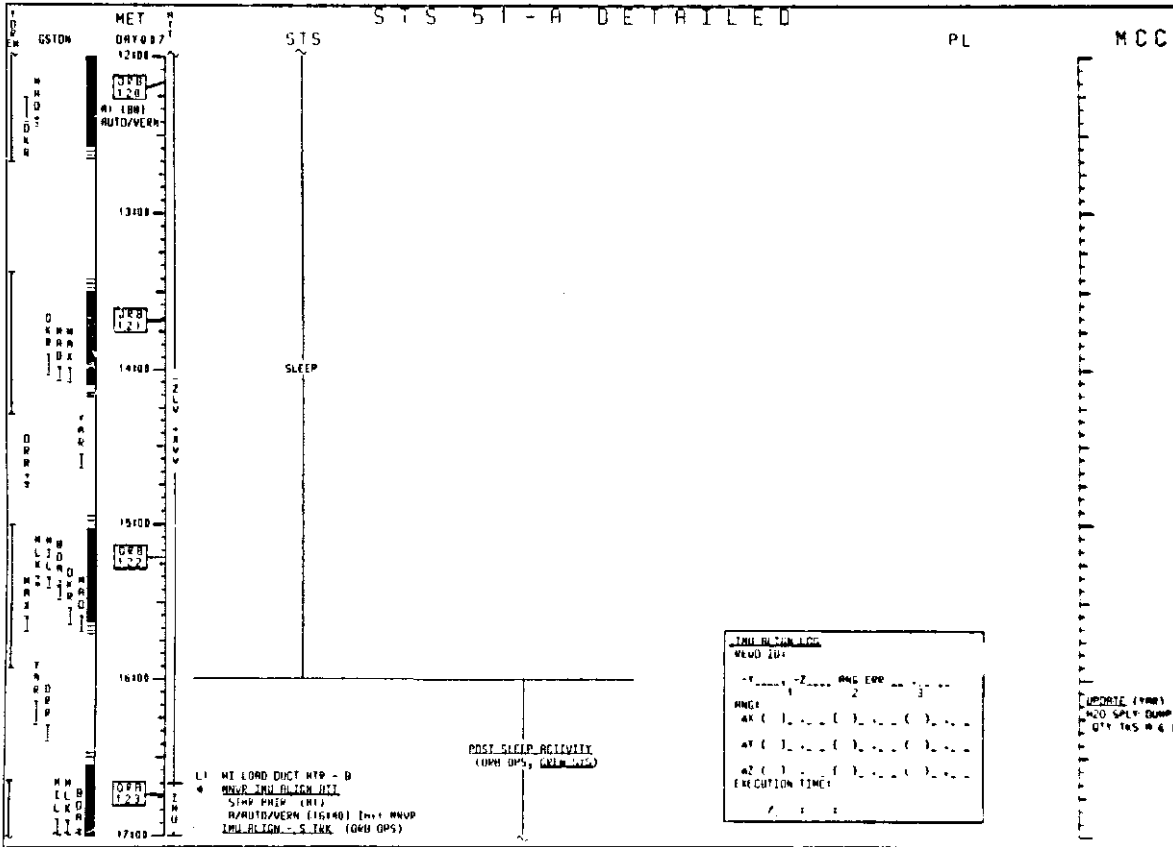




SYS 51 - A DETAILED







STS 51-A DETAILED

PL

MCC

MET
 DSTN
 0700
 1700
 HI (88)
 AUTO/VERN
 1800
 (07) 81
 AUTO/VERN
 1900
 2000
 (07) 81
 2100
 (07) 81
 2200

MAIN (TRK) - ASI ALL
 TG=4 BV=5 P=184 Y=0 DR=270
 N/AUTO/VERN (17100) [++1 TRK

END RIPS/SFETS CAP
 (LOW OPS, EUS)

Update: CRT TIMER SETUP PAD
 to NOMINAL DEORBIT PREP

POST SLEEP ACTIVELY
 (LOW OPS, CREW 1/2)

REEL MEDIA STORAGE
 (LOW OPS)

GO TO DEORBIT PREP AT 19:07 MET

FLUID LOADING PREP
 FILL 4 DRINK CONTAINERS WITH 8 OZ. WATER EACH (PER CREW MEMBER)
 INITIATE FLUID LOADING AT ET MINUS 90 MINUTES
 TAKE 2 SALT TABLETS PER EACH 8 OZ.

Update: (MCC)
 CRT TIMER
 SETUP PAD

This Page Intentionally Blank

CONTINGENCY TIMELINES

CONTINGENCY
TIMELINES

This Page Intentionally Blank

CONTINGENCY
TIMELINE

HIGH PRIORITY MISSION
(TBS)

This Page Intentionally Blank

CONSUMABLES CURVES
(TBS)

CONSUMABLES
CURVES

This Page Intentionally Blank

CONGRUABLES
CURVES

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

STS 51-A DAP BOOK

DAP A CONFIGURATIONS.....	6-2
DAP B CONFIGURATIONS.....	6-3
STS 51-A DAP BOOK.....	6-4

DAP BOOK

TABLE 6-1
DAP A CONFIGURATIONS

	A1*	A2	A3	A4	A5	A6	A7	A8	A9	A10
<u>TRANSLATION</u>										
PULSE ft/sec	0.10	0.10	0.10	0.10	0.10	0.10			0.10	0.05
<u>ROTATION</u>										
OSC RT	NORM $^{\circ}$ /sec	0.200	0.400	0.200	0.200	0.200			0.200	0.200
	VERN $^{\circ}$ /sec	0.200	0.400	0.200	0.008	0.200	0.200		0.200	0.200
PULSE	NORM $^{\circ}$ /sec	0.10	0.10	0.30	0.10	0.10	0.10		0.10	0.10
	VERN $^{\circ}$ /sec	0.010	0.010	0.010	0.010	0.050	0.010		0.010	0.010
COMP	NORM $^{\circ}$ /sec	.00	.00	.00	.00	.00	.00		.00	.00
	VERN $^{\circ}$ /sec	.000	.000	.000	.000	.000	.000		.000	.000
<u>DEADBAND</u>										
ATT	NORM (deg)	5.00	1.00	5.00	1.00	5.00	5.00		2.00	2.00
	VERN (deg)	1.000	1.000	1.000	0.070	1.000	1.000		1.000	1.000
RATE	NORM $^{\circ}$ /sec	0.20	0.20	0.20	0.20	0.20	0.20		0.20	0.20
	VERN $^{\circ}$ /sec	.020	.020	.020	.010	.020	.020		.020	.020
<u>NET OPT</u>										
P		1	1	3	1	1	3		1	1
Y		1	1	3	3	1	3		1	1
<u>CNTL ACCEL</u>										
	C	0	0	0	0	0			0	0

*I-LOADED OPS-2 DAP Configuration

TABLE 6-1 (Cont)
DAP B CONFIGURATIONS

	B1*	B2	B3	B4	B5	B6	B7	B8	B9	
<u>TRANSLATION</u>										
PULSE ft/sec	0.02	0.02	0.02	0.02	0.02	0.05	0.01	0.02	0.02	
<u>ROTATION</u>										
DSC RT	NORM $^{\circ}$ /sec	0.500	0.200	0.200	0.200	0.200	0.500	0.200	0.200	0.100
	VERN $^{\circ}$ /sec	0.200	0.200	0.200	0.008	0.016	0.200	0.200	0.200	0.150
PULSE	NORM $^{\circ}$ /sec	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	VERN $^{\circ}$ /sec	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
COMP	NORM $^{\circ}$ /sec	.00	.00	.00	.00	.00	.00	.00	.00	.00
	VERN $^{\circ}$ /sec	.000	.000	.000	.000	.000	.000	.000	.000	.000
<u>DEADBAND</u>										
ATT	NORM (deg)	3.00	3.00	3.00	0.30	3.00	2.00	2.00	10.00	10.00
	VERN (deg)	1.000	1.000	1.000	0.100	0.033	1.000	1.000	1.000	5.000
RATE	NORM $^{\circ}$ /sec	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	VERN $^{\circ}$ /sec	.020	.020	.020	.010	.020	.020	.020	.020	.200
<u>JET QP*</u>										
P		1	3	1	1	3	1	1	3	3
Y		1	3	1	3	3	1	1	3	3
<u>CNLS ACCEL</u>										
		0	0	0	0	0	0	0	0	0

*I-LOADED GPS-2 DAP Configuration

DAP BOOK

HOOK
VELCRO

CAP/S1-A/O/BAS

UNIV. PTC	
Y&F ID =	1 Orbiting Vehicle
	2 Earth ctr
	3 Earth tpe
	Input LAY (+90)
	LOM (+180, * = East)
	ALT (+59.99nm)
	4 Sun ctr
	5 Celestial tpe
	Input RA (0-359.99)
	DEC (+90)
	* LL-110 Max Stars
BODY VECT =	1 +x
	2 -x
	3 -z
	4 PTC (-2° below +x)*
	5 Cptional
	Input P (0-359.99)
	Y (270-329.99, 0-90)
* Input CM =	CM (0-359.99)
MCN PAIS =	1 +x
	2 -x

CAP/S1-A/O/BAS

620 DAP CLASSIC	
ENTL ACCEL =	0 Orbit/ctr alone
	1 TBD
	2 TBD
DET OFF =	1 Normal
	2 Nose only
	3 Tail only

TOP

DAP PURPOSE

- A1 - NOMINAL
 - ZLV
 - IMU ALIGN
 - TAIL ONLY CONTROL
 - BACKOUT
 - PRE/POST PAM DEPLOY
 - OMS BURN
 - TAIL-TO-SUN
 - LOSS OF VERN
- A2 - PTC
- A3 - RCS HOT FIRE
- A4 - GG
- A5 - IMU ROTATION
- A6 - LOSS OF VERN
 - (TAIL ONLY)
- A7 - (Blank)
- A8 - (Blank)
- A9 - RENDEZVOUS
- A10 - FROM OPS
- A11 - (Blank)

CAP/51-A/O/BAS

A1

TOP

DAPA1

PURPOSE:

- ZLV
- IMU ALIGN
- TAIL ONLY CONTROL
- BACKOUT
- PRE/POST PAM DEPLOY
- OMS BURN
- TAIL-TO-SUN
- LOSS OF VERN
 - (NOSE & TAIL)

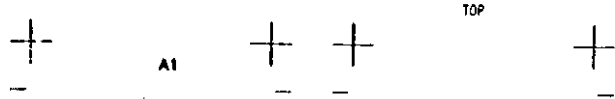
- | | | | |
|-----------|----|-------------|------|
| 0 1 0 | 1 | TRANSLATION | |
| | | PULSE | |
| | 2 | ROTATION | |
| 0 2 0 0 0 | | GSC RT | NORM |
| 0 1 0 0 0 | 3 | | VERN |
| 0 0 1 0 0 | 4 | PULSE | NORM |
| 0 0 0 1 0 | 5 | | VERN |
| 0 0 0 0 1 | 6 | COMP | NORM |
| 0 0 0 0 0 | 7 | | VERN |
| | | DEADBAND | |
| 1 0 0 0 0 | 8 | ATT | NORM |
| 0 1 0 0 0 | 9 | | VERN |
| 0 0 1 0 0 | 10 | RATE | NORM |
| 0 0 0 1 0 | 11 | | VERN |
| | 12 | JET OPT | P |
| | 13 | | V |
| | 14 | CNTL ACCEL | |

CAP/51-A/O/BAS

CAP/51 A/O/BAS

A2

TOP



A1
DAPA2
PURPOSE:
PTC

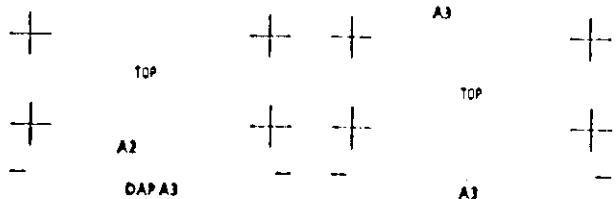
TOP

A2

0.1	0	1	TRANSLATION
			PULSE
0.4	0	2	ROTATION:
0.4	0	3	DSC RT NORM
0.1	0	4	VERN
0.1	0	5	PULSE NORM
0.1	0	6	VERN
0.1	0	7	COMP NORM
0.1	0		VERN
1.0	0	8	DEADBAND
1.2	0	9	ATT NORM
			VERN
0.2	0	10	FATE NORM
0.2	0	11	VERN
1		12	JET OPT P
1		13	Y
0		14	CNTL ACCEL

CAP/SI-A/O/RAC

CAP/SI-A/O/EAS



A2
DAPA3
PURPOSE:
RCS HOT PIPE

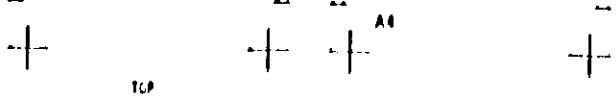
TOP

A3

0.1	0	1	TRANSLATION
			PULSE
0.4	0	2	ROTATION:
0.4	0	3	DSC RT NORM
0.1	0	4	VERN
0.1	0	5	PULSE NORM
0.1	0	6	VERN
0.1	0	7	COMP NORM
0.1	0		VERN
1.0	0	8	DEADBAND
1.2	0	9	ATT NORM
			VERN
0.2	0	10	FATE NORM
0.2	0	11	VERN
1		12	JET OPT P
1		13	Y
0		14	CNTL ACCEL

CAP/SI-A/O/BAS

CAP/SI-A/O/BAS



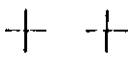
(reduced copy)



A3

DAP A4

PURPOSE:
GG



TOP



A4

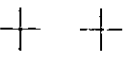
0.1 0	1	TRANSLATION	
		PULSE	
ROTATION			
0.2 0 0	2	DSC RT	NORM
0.2 0 0	3		VERN
0.1 0 0	4	PULSE	NORM
0.1 0 0	5		VERN
.0 0 0	6	COMP	NORM
.0 0 0	7		VERN
DEADBAND			
1.0 0	8	ATT	NORM
0.0 2 0	9		VERN
0.2 0	10	FATE	NORM
0.1 0	11		VERN
1	12	JET OPT	P
1	13		Y
0	14	CNTL ACCEL	

CAP/51-A/D/BAS

CAP/51-A/D/BAS



TCP



A5



DAP A5

PURPOSE:
IMU ROTATION

A4

A5

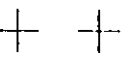
0.1 0	1	TRANSLATION	
		PULSE	
ROTATION			
0.2 0 0	2	DSC RT	NORM
0.2 0 0	3		VERN
0.1 0 0	4	PULSE	NORM
0.1 0 0	5		VERN
.0 0 0	6	COMP	NORM
.0 0 0	7		VERN
DEADBAND			
5.0 0	8	ATT	NORM
1.0 0 0	9		VERN
0.2 0	10	FATE	NORM
0.2 0	11		VERN
1	12	JET OPT	P
1	13		Y
0	14	CNTL ACCEL	

CAP/51-A/D/BAS

CAP/51-A/D/BAS



TOP



A6





A5

DAP A6

PURPOSE:

LOSS OF VERN
(TAIL ONLY)

TOP



A6

Q	1	TRANSLATION	
		PULSE	
		ROTATION	
Q	2	DSC RT	NORM
Q	3		VERN
Q	4	PULSE	NORM
Q	5		VERN
Q	6	COMP	NORM
Q	7		VERN
		DEADBAND	
Q	8	ATT	NORM
Q	9		VERN
Q	10	RATE	NORM
Q	11		VERN
	12	JET OPT	P
	13		Y
Q	14	CNTL ACCEL	

CAP/SI-A/O/BAS

CAP/SI A/O/BAS



A7



A6

DAP A7

PURPOSE: (Blank)



TOP



A7

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

CAP/SI-A/O/BAS

CAP/SI-A/O/BAS



TOP



A8

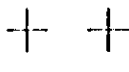




A7

DAP A8

PURPOSE: (Blank)



TOP



A8

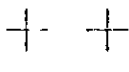
- 1 TRANSLATION PULSE
- 2 ROTATION
- 3 DSC RT NORM
- 4 PULSE VERN
- 5 COMP NORM
- 6 COMP VERN
- 7 DEADBAND
- 8 ATT NORM
- 9 ATT VERN
- 10 RATE NORM
- 11 RATE VERN
- 12 JET OPT P
- 13 JET OPT Y
- 14 CNTL ACCEL

CAP/S1-A/O/BAS

CAP/S1-A/C/EAS



TOP



A9



DAP A9

PURPOSE:

RENDEZVOUS

A8

TOP

A9

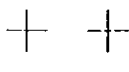
- 0.1 0 1 TRANSLATION PULSE
- 0.2 0 2 ROTATION
- 0.2 0 3 DSC RT NORM
- 0.2 0 4 PULSE VERN
- 0.0 0 5 COMP NORM
- 0.0 0 6 COMP VERN
- 0.0 0 7 DEADBAND
- 2.0 0 8 ATT NORM
- 1.0 0 9 ATT VERN
- 0.2 0 10 RATE NORM
- 0.2 0 11 RATE VERN
- 1 12 JET OPT P
- 1 13 JET OPT Y
- 0 14 CNTL ACCEL

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



TOP



A10





A9

DAPA10

PURPOSE:
PROX CPS
MMU RESCUE



TOP



A10

0.0	0	1	TRANSLATION	
0.0	0		PULSE	
ROTATION				
0.2	0	2	ESC. RT	NORM
0.2	0	3		VERN
0.2	0	4	PULSE	NORM
0.2	0	5		VERN
0.2	0	6	COMP	NORM
0.2	0	7		VERN
DEADBAND				
2.0	0	8	ATT	NORM
1.0	0	9		VERN
0.2	0	10	RATE	NORM
0.2	0	11		VERN
1		12	JET CPT	P
1		13		Y
0		14	CNTL ACCEL	

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



TOP



A11

TOP



A10

DAPA11

PURPOSE: (Blank)

A11

---	1	TRANSLATION	
---		PULSE	
ROTATION			
---	2	ESC RT	NORM
---	3		VERN
---	4	PULSE	NORM
---	5		VERN
---	6	COMP	NORM
---	7		VERN
DEADBAND			
---	8	ATT	NORM
---	9		VERN
---	10	RATE	NORM
---	11		VERN
---	12	JET OPT	P
---	13		Y
---	14	CNTL ACCEL	

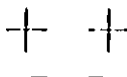
CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



TOP





TOP

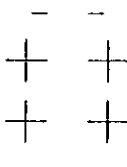


DSP PURPOSE

- B1 - NUMINAL
PRCS IMU ALIGN
TOP-TO-SUM
TAIL ONLY CONTROL
BACKOUT
OMS & RCS BURNS
- B2 - LOSS OF VERN
(TAIL ONLY)
- B3 - LOSS OF VERN;
GG MVR
- B4 - FAM DEPLY
FRISEE DEPLY
- B5 - CCAS CAL
- B6 - RENDEZVOUS
- B7 - PRCK OPS
- B8 - LOSS OF VERN (10 DB)
TAIL ONLY MVR
- B9 - MFA OPS
- B10 - (Blank)

CAP/S1-A/O/BAS

CAP/S1-A/O/BAS



TOP

B1



DAP B1

B1

PURPOSE:

- PRCS IMU ALIGN
- TOP-TO-SUM
- TAIL ONLY CONTROL
- BACKOUT
- OMS & RCS BURNS

TRANSLATION		
PULSE	15	0.0 Z
ROTATION		
DSC RT NORM	16	0.5 0 0
VERN	17	0.2 0 0 0
PULSE NORM	18	0.0 0 1
VERN	19	0.0 0 0 0
COMP NORM	20	0.0 0 0
VERN	21	0.0 0 0

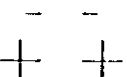
DEADBAND

ATT NORM	22	1.0 0
VERN	23	1.0 0 0
RATE NORM	24	0.2 0
VERN	25	0.2 0
JET OPT P	26	1
Y	27	1

CNTL ACCEL 28 0

CAP/S1-A/O/BAS

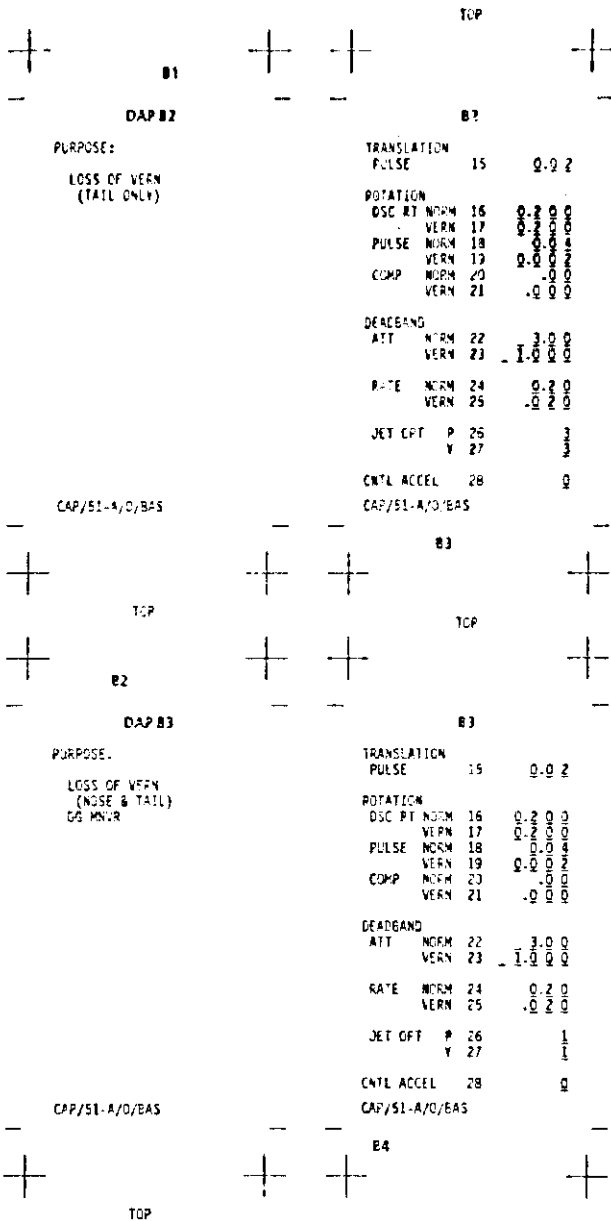
CAP/S1-A/O/BAS



B2



TOP



83

DAP 84

PURPOSE:
PAN DEPLOY
FRISBEE DEPLOY

CAP/S1-A/D/BAS

TOP

DAP 85

PURPOSE:
CCAS CAL

CAP/S1-A/D/BAS

TOP

TOP

(reduced copy)

84

TOP

B4

TRANSLATION				
PULSE	15	0.0	2	
ROTATION				
DSC RT	NORM 16	0.2	0	0
	VERN 17	0.0	1	0
PULSE	NORM 18	0.0	0	0
	VERN 19	0.0	0	0
COMP	NORM 20	0.0	0	0
	VERN 21	0.0	0	0
DEADBAND				
ATT	NORM 22	0.3	0	0
	VERN 23	0.1	0	0
RATE	NORM 24	0.2	0	0
	VERN 25	0.2	0	0
JET OPT	P 26		1	
	Y 27			
CNTL ACCEL	28		0	
CAP/S1-A/D/BAS				

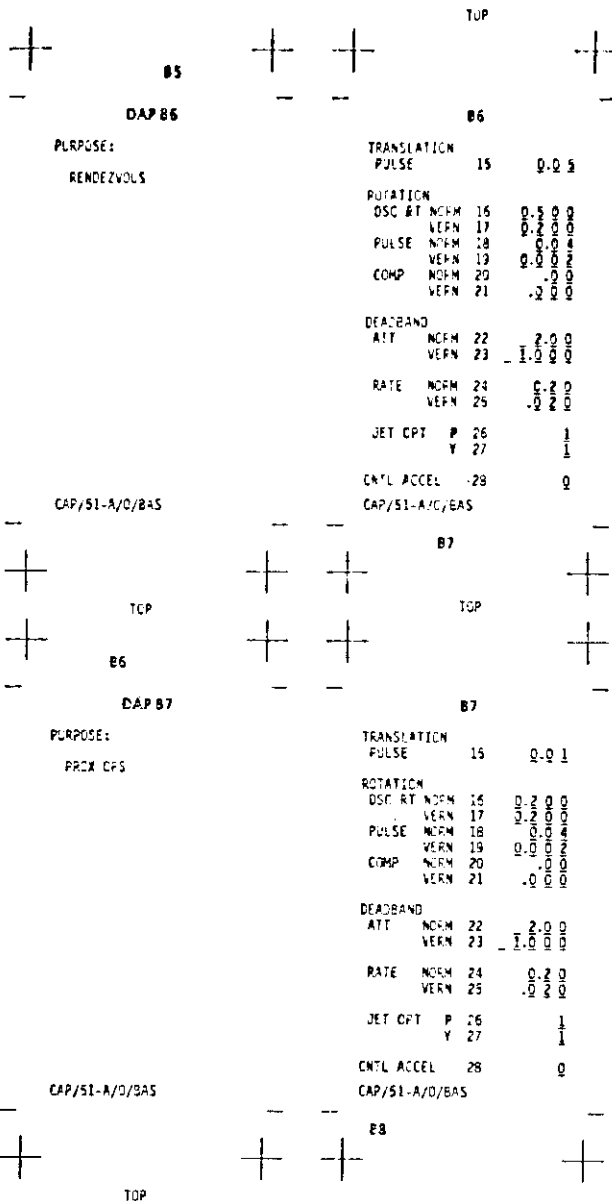
B4

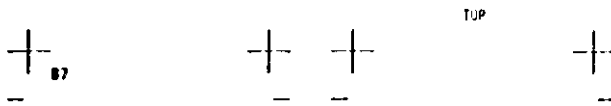
TOP

B5

TRANSLATION				
PULSE	15	0.0	2	
ROTATION				
DSC RT	NORM 16	0.2	0	0
	VERN 17	0.0	1	0
PULSE	NORM 18	0.0	0	0
	VERN 19	0.0	0	0
COMP	NORM 20	0.0	0	0
	VERN 21	0.0	0	0
DEADBAND				
ATT	NORM 22	0.3	0	0
	VERN 23	0.1	0	0
RATE	NORM 24	0.2	0	0
	VERN 25	0.2	0	0
JET OPT	P 26		1	
	Y 27			
CNTL ACCEL	28		0	
CAP/S1-A/D/BAS				

B6



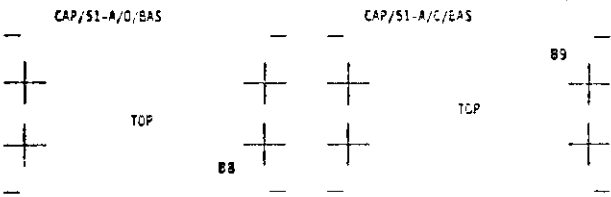


DAP 88

PURPOSE:

LOSS OF VERN (10' CB)
TAIL ONLY MWR

TRANSLATION					
PULSE	15	0.0	0.2		
ROTATION					
DSC RT	NORM 16	0.2	0.0	0.0	0.0
	VERN 17	0.2	0.0	0.0	0.0
PULSE	NORM 18	0.0	0.0	0.0	0.0
	VERN 19	0.0	0.0	0.0	0.0
COMP	NORM 20	0.0	0.0	0.0	0.0
	VERN 21	0.0	0.0	0.0	0.0
DEADBAND					
ATT	NORM 22	1.0	0.0	0.0	0.0
	VERN 23	1.0	0.0	0.0	0.0
RATE	NORM 24	0.2	0.0		
	VERN 25	0.2	0.0		
JET CPT	P 26			3	
	Y 27			3	
CNTL ACCEL	28			0	

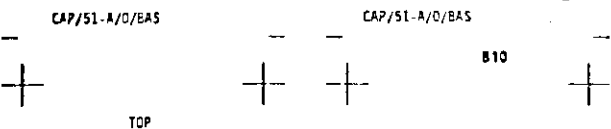


DAP 89

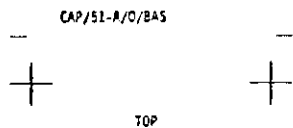
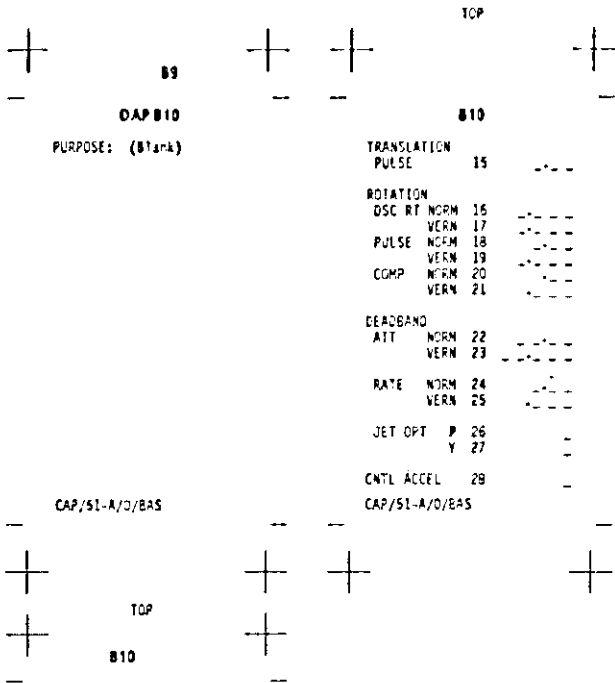
PURPOSE:

MFR OPS

TRANSLATION					
PULSE	15	0.0	0.2		
ROTATION					
DSC RT	NORM 16	0.1	0.0	0.0	0.0
	VERN 17	0.1	0.0	0.0	0.0
PULSE	NORM 18	0.0	0.0	0.0	0.0
	VERN 19	0.0	0.0	0.0	0.0
COMP	NORM 20	0.0	0.0	0.0	0.0
	VERN 21	0.0	0.0	0.0	0.0
DEADBAND					
ATT	NORM 22	1.0	0.0	0.0	0.0
	VERN 23	1.0	0.0	0.0	0.0
RATE	NORM 24	0.2	0.0		
	VERN 25	0.2	0.0		
JET OFT	P 26			3	
	Y 27			3	
CNTL ACCEL	28			0	



TOP



TOP
BACK COVER "DAP BOX.K"



HOOK
VELCRO

CAP/SI-A/C/BAS



This Page Intentionally Blank

ATTITUDE
TIMELINE

STS 51-A ATTITUDE TIMELINE
(TBS)

ATTITUDE
TIMELINE

This Page Intentionally Blank

Hennedy Space Center
CM-CO-2/W R. Fletcher
CM-CO-2/D Brandon
CM-7-CCAPS/D Maclean
CS-56D-32/AD Lina
NOPS/COPB C Adams
NOPS-Dr Repository (389)
LA-NSTR Buckley
SE-GDS-29/W Patrick
SE-GDS-22/P Puciner
SE-NPSD-21/L Votaw
SO-700/C Mershat
2K-25/McKee/W Tech Data (19)

NASA-NSC
CM-CO-2/B Otton

TRW - Houston
C. Cooper
L. Parnacek

TRW - Greenbelt
P. O. Box 385
Greenbelt, MD 20770
L. L. Champion (2)

Charles Draper Laboratory
555 Technology Square
Cambridge, MA 02139
J. J. Umbreit

Draper Rte Research Facility
Orlando, FL
Orlando, FL

NOAA-NASD
Chayenne Mtn Campus
CO 80914 (2)

Hammond Standard
Whisper Walk, CT 06096
TA204/R C. White
TA-2-7/R H. Greenwood (4)

Rockwell - Houston
2001 (1/2)

Rockwell International S75
12214 Lakeside Blvd
Downey, CA 90241
O-1-FAA/TW O. Ruffin (59)

McDonnell Douglas Astronautics
P. O. Box 576
St Louis, MO 63166
MS-10/L T. Ross

Marshall Space Flight Center
JAG1/R. E. VALENTINE

McDonnell Douglas Astronautics
CO22
5201 Nolana Ave
A01, Dept 236 Group AE30
Huntington Beach, CA 92647
12-36 Dalton
J. Timony
J. J. Webster (10)
R. Arnold

AFTTC - Edwards AFB
Air Force Flight Test Center
6510 Test Wing/TEG
Edwards AFB, CA 93523
236/R W. Moly

Ford Aerospace Communications
Corp.
3919 Fabian Way
Palo Alto, CA 94303
Galtner C. Hayes

Ford Aerospace - Houston
5501A/Tech Lib (13)
550208/R Marnett (2)
550306/C Cappel (2)

Marshall Space Flight Center
JAG1/L. Harguard*
JAG2/R McAnally*
R. Valentine
NA01/C Johnson
NA51/R M. Woodlens
MS10/L Chess

JPL
4800 Oak Grove Dr
Pasadena, CA 91109
D. J. Harris

SPAF Aerospace
845 Carleton Rd
Toronto, Canada M6B3R8
P. Chabreck

NO Space Command
AFSC/Capt J. P. Squarrito
Peterson, AF 880914

Hughes Communications Service
inc.

Reg. 532
P.O. Box 92919
Los Angeles, CA 90009
C371/C Rubin
P. Sangstad
R. E. Howard
M. Hafterman

TR-PSA1
33 River Rd
Orlando, Ontario, Canada
R1L 8B9
R. Gubby

NOAA-NEDIS
Dr. Michael R. Helfert (2)
NOAA Liaison Manager
Under SC2, NASA/JSC
Houston, TX 77058

Dr. Russell Koffler (1)
Director,
NOAA-NESDIS
FBI, Room 1069
Code:ESP
Sutland, MD 20233

ATTN: TECH LIBRARY MCGASD
3170 Miraloma Ave
Anaheim, CA 92801

National Research Council of
Canada
Space Technology Program
Office
Bldg. M-60, Room B-21
Montreal Road
Ottawa, Ontario, Canada
K1A 0R6

Dr. R. H. Duestch
9. A. Aikenhead

Barris Technology - Houston
D. A. Kusler
C. J. Mathis

Hughes Aircraft
P.O. Box 92919
Los Angeles, CA 90009
541-8329/Juraco
541-8333/A. Castellano

FLIGHT DATA FILE
COPE DISTRIBUTION
05/07/84

ISG
AP/ Director
AP/S Support (2)
Pub. Information (1)
C-Computer
CA/S Chief
DA/Asst/Chf (2)
JEC/Chief
DF2/Asst/Chf (4)
DF6/Asst/Chf
DG/Assistant
DG/Crew Sys. (2)
DQA/Ccomm & Attached Pkts (2)
Dns/DFR SIGR
FAD
FL
HF-Asst/Br (6)
Dns/Branch Off (3)
EL/C Chief
PC/S Support (4)

EM/S/Chief
Support
EM/2/Head
EM/3/Chief
EM/4/Chief
EM/5/Chief
Support
EM/6/Head
EM/6A/Head
EM/5/Support
EM/7/Support
EM/POF/CPCB/Rep
EM/2/Head
EM/2/Comm/Analysis Sect
EM/2/Comm/Run Sect (2)
EM/3/Comm/Run Sect
EM/2/Asst/Chf/Library (3)
EM/2/AC/DO/Pub/Comm
MCP/Manager
MCS/Support
MP/GE Project/Offic
Support (10)
MP/2/PCB/Rep
MS/Safety Div
MS/2/Surgeon
Support
MS/AS/DO/BD/MS (3)
ZM/AMPC/Library (2)
ZM/AS/MS Support (2)

Orlando Flight Research Facility
Oslo, N. Norw

Boeing
MS-04/D. BENNETT

NASA Headquarters
DC/NASA
DC/1/E A. West
DC/2/M D McConarty (2)

Wallops Space Center
W/Asst/Dir A. Thomas
W/Asst/Aeronaut/Officer (2)
W/2/Asst/Asst/ Tech Data
W/3/Sork Grenelle

Marshall Space Flight Center
MA/Asst A. Marmann
MPC/ORE H. Crumblit
Bldg 4708
MDS/CO Bldg 4666
JG/CL White
Sadt/R H. White

Goddard Space Flight Center
Asst. Dir. Martin

NASA SSPMO - Huntsville
M/RS. H. Frazier
PL/Asst. Asst/Asst

Wallops/Douglas - Houston
Asst. Comptroller
AS/G Verbalion
D/M/Pusher (2)
D/M/Stratell
R. DeVan

Charles Stark Draper Lab
MS/2/Asst. Carlson

IBM - Houston
MCS/1
A. J. Sawe
T&O Library
MCS/277/Reson/Reaction Library
MCS/186/Project/Office Library
MCS/251/Venus-LD

JSC/Head - Houston
A. M. Martin
B1/2/E M. Bams
C2/D. Welch

Singer Link - Houston
S/N/S Data/Library

Honeywell Inc - Aeronaut Division
13150 U.S. Highway 19
Clearwater, Fl. 33566
#918-5/1 R. Peterson

Martin Marietta Corp - Denver
LOCKHEED
C&E/Asst/Library
Gibby/J. Ferguson
L. Miller
G&A/Asst Barnes

Space Division
Wallops Bay Postal Center
P.O. Box 92980
LHR/Asst/Chf CA 90909
JCS/YODM/DF (5)
YOD/Date Mgr (5)
S&Y/US/Lehr
SCTM/Bangan

Space Communications Co.
P.O. Box 245
Los Cruces, NM 84001
ATM/G Harris

ASFC/MDS
P.O. Box 3410
Sunnyvale, CA 94086
Mal H. E. Hallatz (11)

Ray
Space Park
Rt.43 M2/Rm 2375
Redondo Beach CA 90278
J. M. Payne

SSS/Asst
Kennedy Space Center - FL
SP/AF/CO O'Connor

ARI/Houston
17629 E. Camino Real
Suite 208
Houston, TX 77058
L. Armstrong

Applied Research Inc
3930 Freedom Circle
Santa Clara, CA 95054
P. Howland

LAB For ATMOS & SPACE PHYS
5525 Central Ave
Boulder, CO 80301
ATTN: Alan Stern

51-A
CREW ACTIVITY PLAN
DELTA DISTRIBUTION
07/20/84

ISG
AC/P Associate Director
AP/Dep. Director
AP/S Support (3)
Pub. Info. (3)
HARR/Director
DA/Director (2)
D&R/ Tech (2)
DF2/Head
DF2A/Head
DF4/Chief
DF4/GNC (4)
Chief
DF7/Chief
Emson. Sect (2)
Elect. Sect. (2)
ILK/Chief
Dep. Chief
Tech. Asst.
DM/Chief
Cmm & Attached (5)
Crew Sys (10)
Orbiter Sys (4)
LK/Asst/Ent Sect (7)
Detached Payload Sect (6)
Orb-Computer Sect (8)
DH/Chief
USAB (6)
DH/2/Ele Dynamics (8)
DH/3/T&E Proc (1)
DH/4/Room Manager (50)
DH/6/Branch Office (12)
EC/Asst. Chief
Asst. for Payloads
Support (2)
rCh/Chief
EC/1/Support (2)
EE/USCA Support
FH/4/Support
FH/7/7LD RDR Mgr (2)
FHN/Support (2)
FH/2/Support
FHS/Asst Oper Branch
FH/3/Support (2)
FH/5/Support (2)
FL/5/Mission Analysis Div.
FL/3/Support (3)
FR/Asst (10)
ES/1/Chief
ES/2/Head
ES/3/Support (3)
ETS/Support (1)

ERT/Support (3)
FA/Director
Asst. Director
FE/Chief
FM/Chief
Asst. Chief
Payloads & Adv. Tech Mgr
FM1/Support
FM2/Chief
Support (16)
FM4/Chief
Support (5)
FMS/Chief (6)
FMC/Chief (5)
Support (6)
Intermetrics
FRAS/Support
FRAS/Documentation (3)
ILK/Chief (3)
JLTS/Support (6)
LA/P Program Mgr.
LA/J Manager
Tech. Asst (3)
LAS/Support
LAI/Manager
LDS/Support
LE/Support
LH/Support
LME J. Jung*
Z. K. Eubanas*
Manager
L/M Manager
Support (4)
LH/Support (2)
LQ/ACT. Mgr
L/M Manager
Support (5)
L/M Manager
Support (5)
L/M Manager (2)
MD/Manager (2)
MD/1/Chief (2)
ME/Manager (2)
ME/1/Manager (2)
ME/Manager (2)
ME/Support (2)
MP/2/PCB/Rep (2)
NS/2/Chief
SCS/Support
SCS/LC (3)
SD/3/Support
Mission Scientist
SM/Manager, SSEOP
SP/Asst. CFE Crew Provision (5)
SN/1/Support
VCS/Support
A. J. Callom*
ZR/Asst/TEC

Goddard Space Flight Center
470M F. Sedlasek
732D Butler
742H. Barrowman
804 At. M. Stevens
R. J. McConey
853 Z/R Morgan
872L Teles (3)

IBM - Houston
1179-C102/B. J. Graves

NASA GSFC
408/W. L. Woodruff*
J. J. Capollina*
W. N. Stewart*
D. E. Murray*
J. L. Jew*
754 AK L. Rosette*
800 3/T Roberts*
804 AK D. McDonald*
847/B. Tomardy (2)

NASA Headquarters
EM/ML/Dumas (2)
MC/VE. Harkleroad
LD/Director
LF/D-10/ W. McCulla
MC/7/M. Tucker
EB/MH. Bissstein

NASA Headquarters*
E2/B. R. McCulla*
O7I-60/ N. Turner*

McDonnell Douglas - Houston
A1P O'Neill
T. D. Bruchmiller
J. S. French
C2/B. Howard
C3/R. Corsun
CSH M. Ferrill (2)
D3/M. D. Piper (3)

MDS/CO - Houston*
A2/R. Robinson*
S. K. Stads*
P. B. Chu*
A. Mian*
A3/D. Allison*
D2/G. H. Barton*
H. T. Theobald*
DN/2E Taylor*

Singer Link - Houston
K. Nelson

ROOM COPY

END
DATE
FILMED

MAR 23

1987