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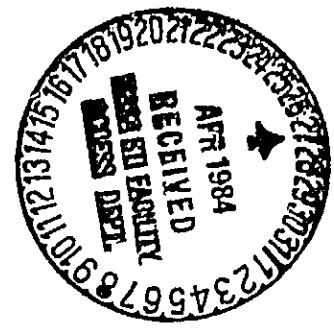
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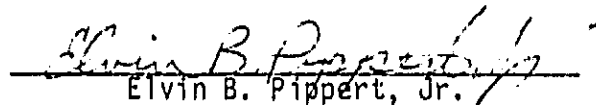
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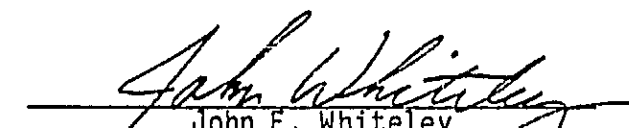
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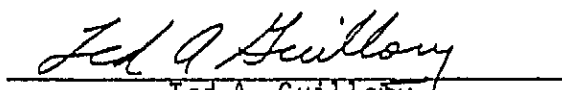
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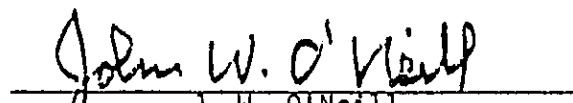
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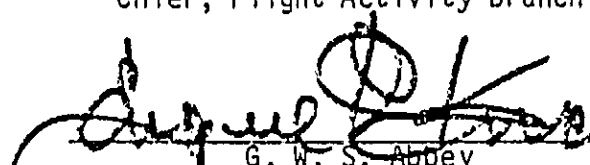

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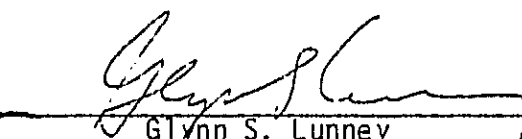
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CHANGE CONTROL RECORD

ORBITAL FLIGHT TEST: STS-4 Crew Activity Plan

CONTROL NO.	FDF EDITION INCORPORATED*		DISAPPROVED OR OTHER DISPOSITION
	TITLE	DATE	
CAP (4) -1	BASIC	03/13/82	WITHDRAWN
CAP (4) -2	FINAL	05/14/82	
CAP (4) -3	FINAL	05/14/82	
CAP (4) -4A	FINAL	05/14/82	
CAP (4) -5	FINAL	05/14/82	
CAP (4) -6	FINAL	05/14/82	
CAP (4) -7	FINAL	05/14/82	
CAP (4) -8	FINAL	05/14/82	
CAP (4) -9	FINAL	05/14/82	
CAP (4) -10	FINAL	05/14/82	
CAP (4) -11	FINAL	05/14/82	
CAP (4) -12	FINAL	05/14/82	
CAP (4) -13	FINAL	05/14/82	
CAP (4) -17	FINAL	05/14/82	

*482 changes incorporated into current edition only are identified by change bars.

STS-4 CREW ACTIVITY PLAN

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FINAL 05/14/82

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INTRODUCTION

The STS-4 Crew Activity Plan contains the on-orbit timeline, which is a flight data file article. It does not contain the detailed crew activities that will be covered in the STS-4 Ascent, Post Insertion, Deorbit Prep, or Entry checklists.

This on-orbit timeline satisfies the objectives specified in the STS-4 Flight Requirements Document (Final).

The flight profile (trajectory data) used for this Crew Activity Plan is from Ref. 2 which is for a June 27, 1982 launch date.

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TIMELINE FORMAT SYMBOL NOMENCLATURE

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BEIR MOON	HOUSTON DATE	FLIGHT EDITION	PUB. DATE		
157:15:00/ 158:03:00/ 002:00:00/ 002:12:00	157:10:00/ 157:22:00	7 157	20.6	MAY 14, 1982	ST5-4	ST5A/FIR			
GH T: 157 10	11	12	13	14	15	16	17		
FD	2	3	4	5	6	7	8		
MET: 007 0	1	2	3	4	5	6	7		
CDR	PLT							21	
DATE/FLIGHT	ORBIT	114	115	116	117	118	119	120	121
MOON/POOR	EARTH TRADE W/SAR	[Diagram showing Earth, trade winds, and coverage areas]							
CSTDN COVERAGE		-HAM	-HAM	-HAM	-HAM	-HAM	-HAM	-HAM	-HAM
SCLS COVERAGE		-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH
OPS DEORB TSC		-HTS	-HTS	-HTS	-HTS	-HTS	-HTS	-HTS	-HTS
EDN		-VIS	-VIS	-VIS	-VIS	-VIS	-VIS	-VIS	-VIS
PRELIEVERS		-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH
EXPRT CTS		-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH
MIR		-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH	-RCH
NOTES:	ORIGINAL PAGE 13 OF POOR QUALITY								

Figure 1-1

A. FORMAT SYMBOL NOMENCLATURE

1. Summary Level Timeline (12-Hr Timespan)

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

- a. **TIMESCALES** - Three time references are presented in this section of the summary timeline format. The time references used are TIG Minus Time (TIG), Greenwich Mean Time (GMT), and Mission Elapsed Time (MET). MET is referenced to liftoff beginning at 00/00:00:00 (days, hours, minutes and seconds). TIG is referenced to the deorbit ignition time and counts down to 0/00:00:00 at ignition on the CRT timer. TIG is only used on the deorbit preparations on entry day.
- b. **CREWMEN (CDR & PLT)** - This is the crewmen column of the format where titles of scheduled activities are shown for the commander (CDR) and pilot (PLT) at the appropriate times in the flight.
- c. **DAY/NIGHT, ORBIT, MOON UP/DOWN**
 - 1) **Day/Night** - The orbital day/night intervals are delineated with black bars indicating when the Orbiter is in darkness.
 - 2) **Orbit** - Indicates which orbit the spacecraft is in by numerical sequence. The beginning of an orbit occurs when the Orbiter crosses the Earth's equator going from the southern to the northern hemisphere (ascending node). The succession of orbits is numbered in this column starting with Orbit 1 for launch.
 - 3) **Moon Up/Down** - The moon up/down intervals are delineated with black bars indicating when the moon is down.
- d. **EARTH TRACE W/SAA** - This is a display of the groundtrack of the Orbiter and when it passes over the South Atlantic Anomaly (SAA) (indicated by a '|—|').
- e. **GSTDN and SGLS COVERAGE** - The GSTDN and SGLS communication coverage periods are indicated in this area with a horizontal line indicating when communication is available; the GSTDN and SGLS site is identified to the right of the line.
- f. **OPS** - The GPC software configuration in use during the flight is indicated in this area.
- g. **DEORBIT KSC/EDW** - Times are identified in this area when deorbit burn opportunities exist for Edwards AFB (EDW) and Kennedy Space Center (KSC).
- h. **ATTITUDE and MANEUVERS**
 - 1) **Attitude** - The current attitude of the vehicle is identified in this area, i.e., PTC, IMU, -ZLV X-POP, -XSI.

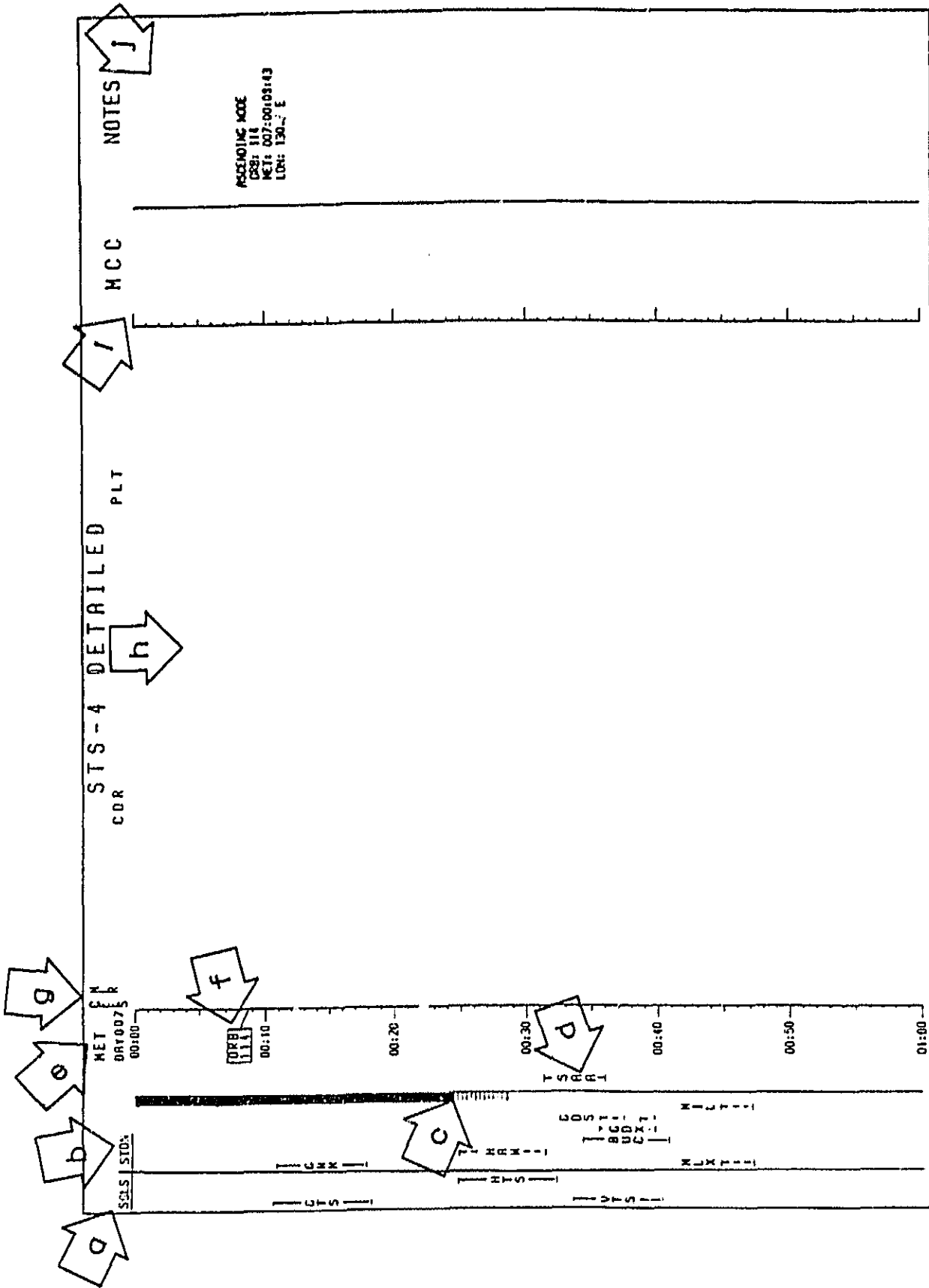


Figure 1-2
1-4

STS-4/FIN

2) Maneuvers - An '+' is placed at the time an attitude maneuver occurs if the duration in attitude is to be greater than 15 minutes.

- i. TV/VTR - Live TV or recorded TV (VTR) is indicated in this area with a '|—|'.
- j. CFES/MLR - Payload operating periods are indicated with a '|—xxx—|'.

2. Detailed Level Timeline (1-Hr Timespan)

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

- a. SGLS COVERAGE - In this column the SGLS sites and their acquisition periods are identified by a solid line. The sites are HTS, VTS, GTS, IOS, and NHS.
- b. GSTDN COVERAGE - In this column the GSTDN sites and their acquisition periods are identified. Each site acquisition period is annotated by a solid line, a dashed line or a dotted line. The different annotations indicate the following:
 - ┌ A site that has S-Band, UHF voice and TV capabilities (GDS, HAW, MIL, MLX, GDX)
 - ┌ A site with S-Band and UHF voice capabilities (BDA, GWM, ACN, BUC, DKR, MAD, MAX)
 - ⋮ A site with only S-Band (no UHF or TV) capabilities (AGO, ORR)
 - ⋮ A site with only UHF (no S-band or TV) capabilities (BOT, YAR, IOS)
- c. DAY/NIGHT CYCLE - In this column a solid bar indicates the period when the Orbiter and Earth are in darkness. A slashed line indicates when the Orbiter is in daylight but the Earth beneath the Orbiter is still in darkness (terminator).
- d. SOUTH ATLANTIC ANOMALY (SAA) - This bar defines those periods when the Orbiter passes through the SAA.
- e. MET TIMESCALE - This format is a one-hour format with minute tick marks on the vertical timescale referenced to Mission Elapsed Time (MET) with liftoff occurring at 0/00:00:00.
- f. ORBIT - Indicates which orbit the spacecraft is in by numerical sequence. Orbit 1 begins at liftoff with subsequent orbits starting when the Earth's equator is crossed (ascending node).

- g. ATTITUDE and PAYLOAD USER COLUMN (ATT/CFES/MLR) - Indicates Orbiter attitude and when CFES and MLR are in operation.
- h. CREWMAN COLUMNS - The activities for the CDR and PLT are scheduled in this area.
- i. MCC COLUMN - Any uplinks, commands or updates required are scheduled at the appropriate time in this column. A vertical line is also used to indicate TV coverage.
- j. NOTES - This area will be used for location of pads, times of star availability, time and longitude of the ascending node, TV and photography scenes, and any other supplemental information required.
- k. In the timescale a DAP A and DAP B CONFIG reference will be included. A number is associated with both DAPs A and B; each number indicates a particular DAP configuration for either DAP A or DAP B. The DAP reference without parentheses indicates the 'active' DAP for that time period on the page. Table 1-1 identifies the various configurations for DAP A and DAP B that are used in the STS-4 timeline.

DAP A CONFIGURATIONS

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16
<u>TRANSLATION</u>																
PULSE	ft/sec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.14	U.1	0.1	0.1	0.1	0.1
<u>ROTATION</u>																
DSC RT	NORM o/sec	0.2	2.0	0.2	1.0	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	VERN c/sec	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.007	0.2	0.2	0.2	0.2	0.2	0.2	0.2
PULSE	NORM o/sec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.28	0.6	1.0	0.1	0.3	0.1
	VERN o/sec	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
COMP	NORM o/sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	VERN o/sec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<u>DEADBAND</u>																
ATT	NORM°	5.0	1.0	5.0	5.0	3.0	3.0	5.0	5.0	1.0	5.0	5.0	5.0	5.0	5.0	0.1
	VERN°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5	1.0	3.0	1.0	5.0	0.07	1.0	1.0
RATE	NORM o/sec	0.2	0.02	0.2	0.2	0.2	0.2	0.2	0.02	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	VERN o/sec	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02
<u>JET OPTI</u>																
P		1	3	3	3	3	3	1	1	1	2	3	1	1	3	1
Y		1	3	3	3	3	3	1	1	3	1	3	1	1	3	1
<u>CNTL ACCEL</u>																
		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

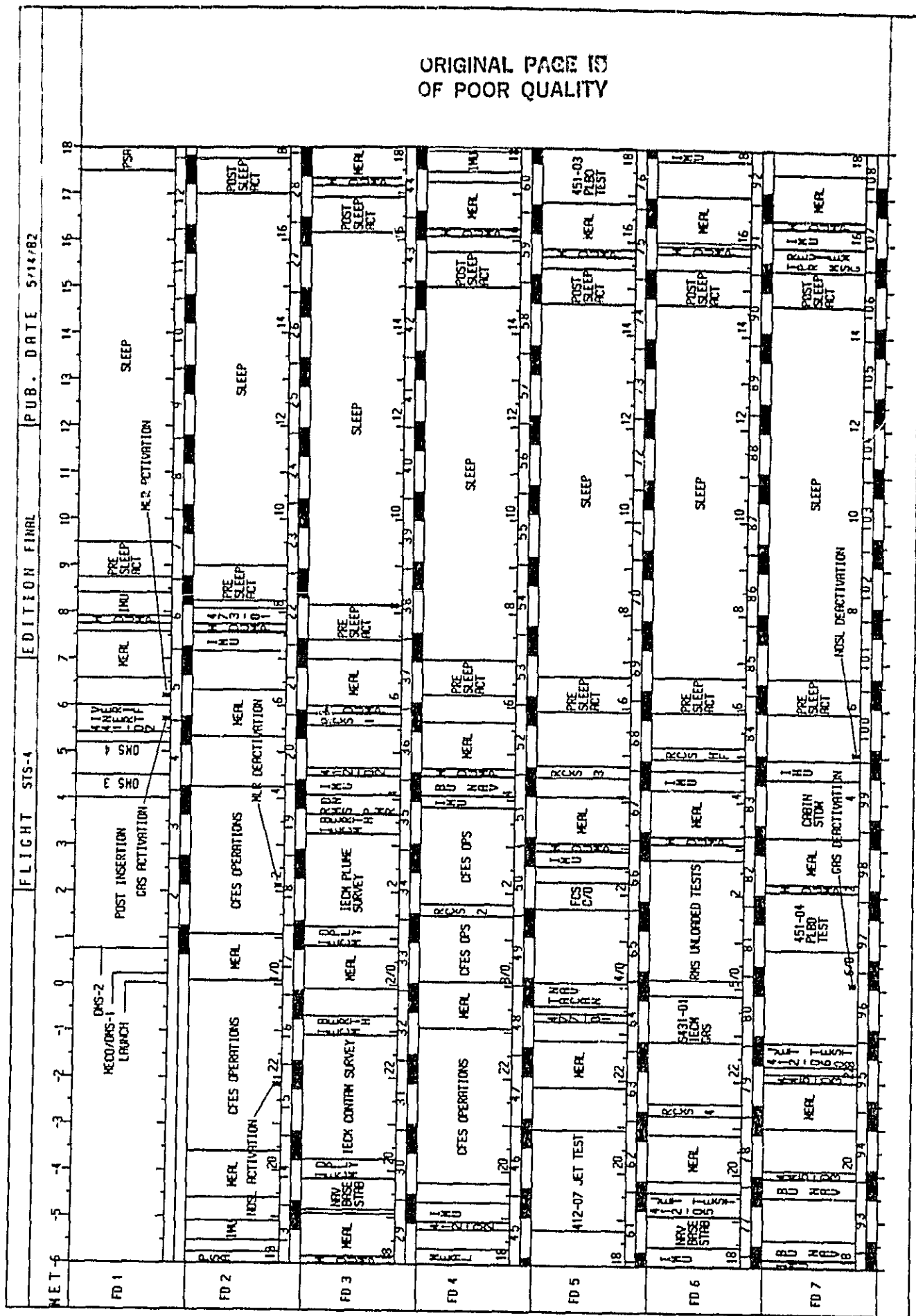
DAP B CONFIGURATIONS

	B1	B2	B3	B4	B5	B6
<u>TRANSLATION</u>						
PULSE ft/sec	0.02	0.02	0.02	0.02	0.02	0.1
<u>ROTATION</u>						
DSC RT						
NORM o/sec	0.5	0.5	0.5	0.2	0.5	0.5
VERN o/sec	0.2	0.2	0.2	0.2	0.2	0.3
PULSE						
NORM o/sec	0.04	0.04	0.04	0.04	0.28	0.04
VERN o/sec	0.002	0.002	0.002	0.002	0.002	0.001
COMP						
NORM o/sec	0.0	0.0	0.0	0.0	0.0	0.0
VERN o/sec	0.0	0.0	0.003	0.0	0.0	0.0
<u>DEADBAND</u>						
ATT						
NORM°	3.0	3.0	3.0	3.0	3.0	3.0
VERN°	1.0	0.1	1.0	1.0	1.0	3.0
RATE						
NORM o/sec	0.2	0.2	0.2	0.2	0.2	0.2
VERN o/sec	0.02	0.02	0.02	0.02	0.02	0.02
<u>JET OPT</u>						
P	1	1	1	3	3	1
Y	1	1	1	3	1	1
<u>CNTL ACCEL</u>						
	0	0	0	0	0	0

STS-4 OVERVIEW

OVERVIEW

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ORIGINAL PAGE NO
OF POOR QUALITY

FLIGHT STS-4

EDITION FINAL

PUB. DATE 5/14/82

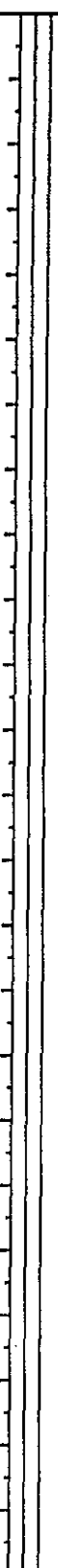
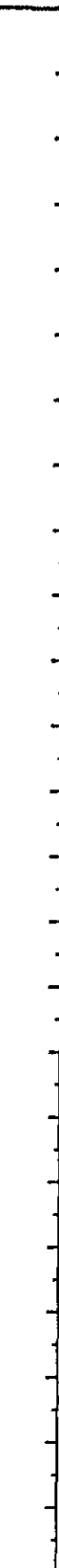
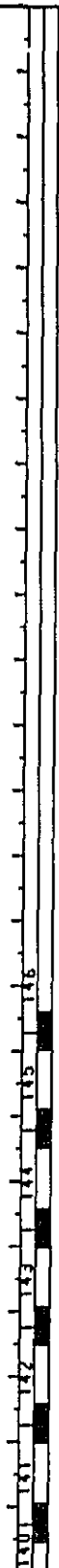
DEORBIT IGNITION (6/22:41:23)
- ENTRY INTERFACE
- LANDING (EDWARDS)

BURN
PREP

SOI
DOWN

TIME

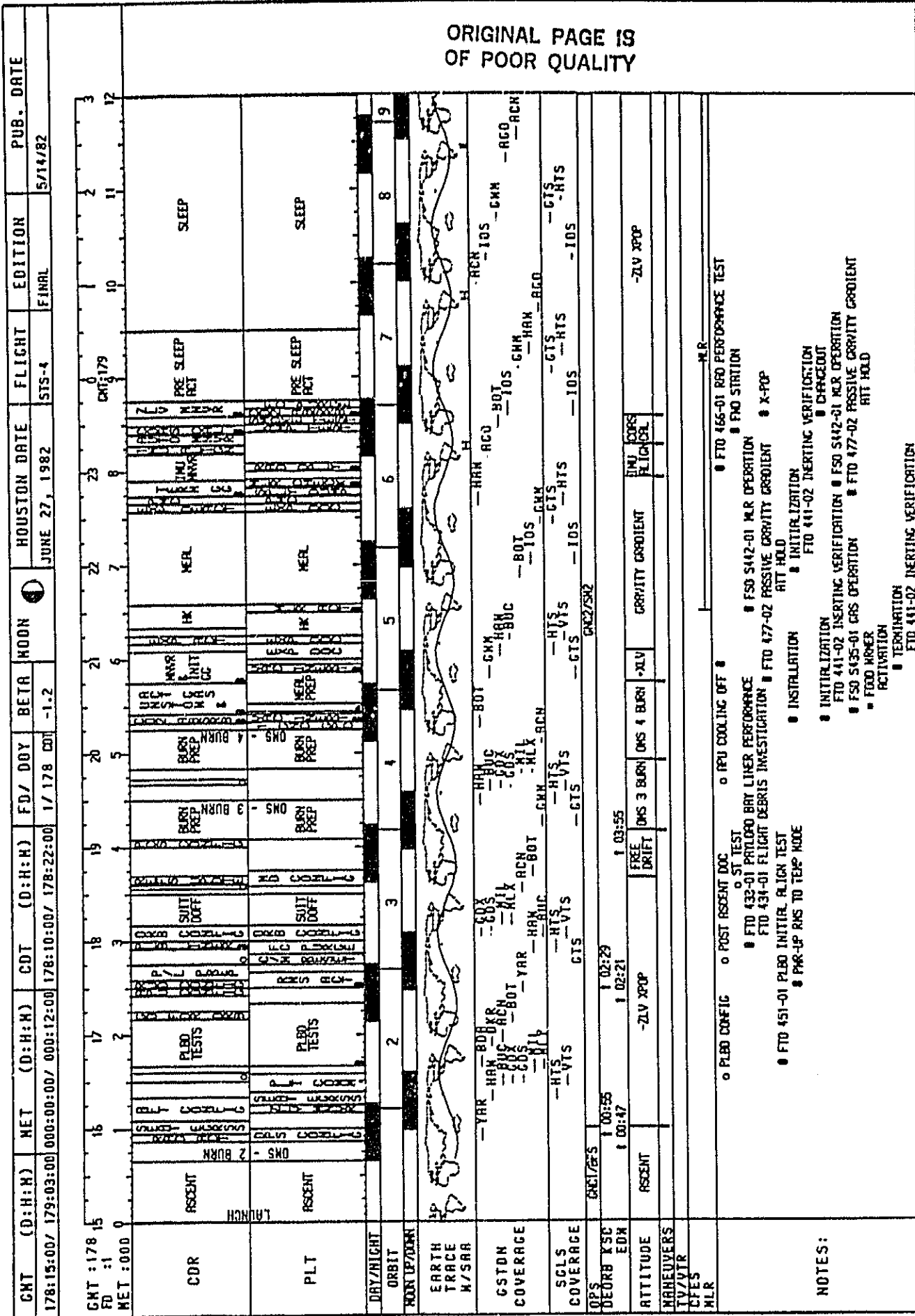
FD 8



SUMMARY TIMELINE

SUMMARY
TIMELINE

**SUMMARY
TIMELINE**



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GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
179:15:00/ 180:03:00	001:00:00/ 001:12:00	179:10:00/ 179:22:00	2/ 179	3.9		JUNE 28, 1982	SFS-4	FINAL	5/14/82
GMT : 179 15									
FD : 2									
MET : 001									
CDR									
PLT									
DAY/NIGHT									
ORBIT									
WAKE UP/DOWN									
EARTH TRACE N/SAR									
CSGN COVERAGE									
SCLS COVERAGE									
DEORB RSC EDM									
ATTITUDE									
MANEUVERS									
TV/ATR									
CPES									
MLR									
NOTES:									

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CMT (D:H:M)		NET (D:H:M)	CDT (D:H:M)	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
180:03:00/ 180:15:00		001:12:00/ 002:00:00	179:22:00/ 180:10:00	3 / 179	CDT 2-1			JUNE 29, 1982	STS-4	FINAL	5/14/82		
CMT : 180 3		4	5	6	7	8	9	10	11	12	13	14	15
FD : 2		13	14	15	16	17	18	19	20	21	22	23	24
MET : 001 12													
CDR	SLEEP	POST SLEEP ACT	MEAL	TECH CONTR SURVEY	MEAL PREP	TV ACT							
PLT	SLEEP	POST SLEEP ACT	MEAL	TECH CONTR SURVEY	MEAL PREP	TV ACT							
DAY/NIGHT	25	26	27	28	29	30	31	32					
ORBIT													
NON UP/DOWN													
EARTH TRACE K/SRA													
GSTDN COVERAGE	-CNR	-ACD -DKR	-DKR	-CNR	-DKR	-GTS	-GTS	-GTS	-CNR	-DKR	-IOS	-NHS	-IOS
SGLS COVERAGE	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS	-GTS
OPS DEORB KSC EDM	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49	18:49
ATTITUDE													
MAREIVERS													
TV/VTR													
CFES													
HLR													
NOTES:	<ul style="list-style-type: none"> FTO 467-02 LONG TERM APC FREEZE TEMPERATURE STABILITY FTO 412-01 ATT HOLD THERMAL RESPONSE FTO 469-01 RAD PERFORMANCE TEST DMS/RCS FTO 474-01 NAV BASE STABILITY FTO 453-01 COMMUNICATION MAPPING 												

CMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
180:15:00/	181:03:00/	002:00:00/ 002:12:00/	180:10:00/ 180:22:00/	3 / 18C	CDT 3-5	JUNE 29 592	STS-4	1 ENR.	5/14/82
CMT : 180 15 FD : 3 MET : 002 0 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									
CDR-	MEAL	TECH PLUME SURVEY	EXERCISE	MEAL	MEAL	MEAL	PRE SLEEP ACT	SLEEP	
PLT	MEAL	TECH PLUME SURVEY	EXERCISE	MEAL	MEAL	MEAL	PRE SLEEP ACT	SLEEP	
DAY/NIGHT									
ORBIT									
FOR UP/DOWN									
EARTH TRACE W/SRR									
CSTDR COVERAGE									
SCLS COVERAGE									
OPS									
DEORB KSC EDH									
ATTITUDE									
MANEUVERS									
TV/ATR									
CFES									
MLR									
NOTES:	ORIGINAL DRAWING OF POOR QUALITY 0 STAR TRACKERS OFF 0 FTD 412-02 START/STOP COLD/DRK 0 FTD 412-01 ATT HOLD THERMAL RESPONSE 0 FTD 454-01 RCS PLUME FLOW FIELD MEASUREMENT 0 FTD 454-01 RCS PLUME FLOW FIELD MEASUREMENT 0 FTD 412-01 ATT HOLD THERMAL RESPONSE 0 DNS/RCS								

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5714782 SIS/71IN

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FO/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
181:03:00 / 181:15:00		002:12:00 / 003:00:00		180:22:00 / 181:10:00		4 / 180		4-9		☉		JUNE 30, 1982		STS-4		FINAL		5/14/82	
CDR		SLEEP		POST SLEEP ACT		MERL		EXERCISE		MERL		MERL		MERL		MERL		MERL	
PLT		SLEEP		POST SLEEP ACT		MERL		EXP DOC		ACT/ SAMPLE PHOTO PREP		S		F.L.H. DOC		S		S	
DRY/NIGHT		41		42		43		44		45		46		47		48		49	
ORBIT		-CHR -RGO -DKR -RGN		-DKR -MAX		-YAR -ORR		-ORR -ORR		-MIL -MIL -BOR -BOR		-MIL -BOR -BOR		-MIL -BOR -BOR		-MIL -BOR -BOR		-MIL -BOR -BOR	
GSTDN COVERAGE		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
SGLS COVERAGE		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
OPS DEARB KSC EDN		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
ATTITUDE		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN		TRAIL TO SUN	
MANEUVERS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
TV/VTR		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
CFES		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
MLR		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS		-GTS	
NOTES:		FSD 5436-01 CFES (SEQUENCE 11)		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES	
		FSD 412-02 STRATROCKER COLDSOAK		FSD 412-01 RIT HOLD THERMAL RESPONSE		FSD 466-01 RAD PERFORMANCE TEST		FSD 479-01 - ON ORBIT TROCH NAV		FSD 466-01 RAD PERFORMANCE TEST		FSD 5436-01 CFES (SAMPLE 4 SEPARATION & COLLECTION)		FSD 5436-01 CFES		FSD 5436-01 CFES		FSD 5436-01 CFES	

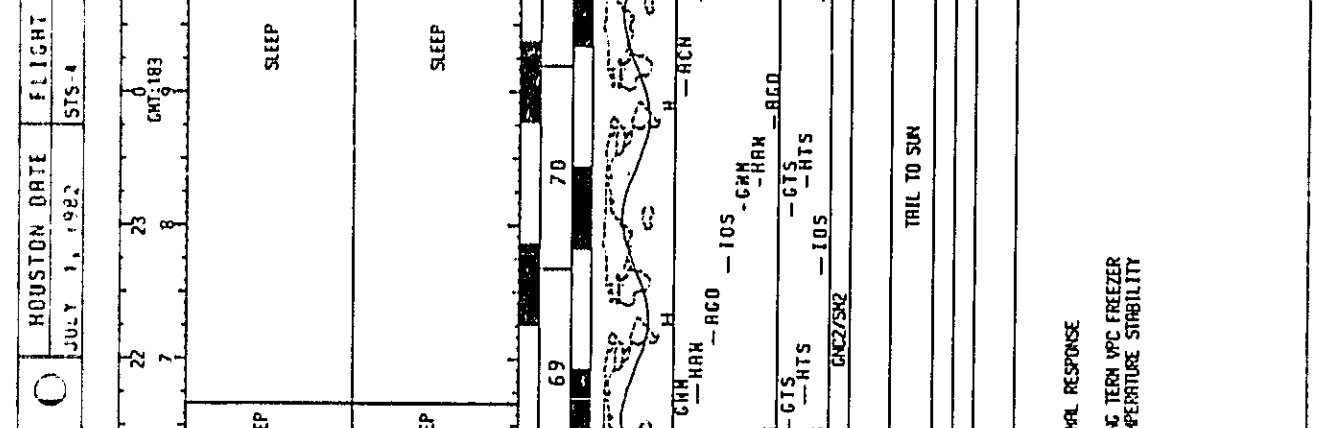
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GMT (D:H:M)	NET (D:H:M)	CDT (D:H:M)	(D:H:M)	FD/DOY	BETA	MOON	FLIGHT	EDITION	PAGE	DATE
181:15:00 / 182:03:00	003:00:00 / 003:12:00	181:10:00 / 181:22:00	4 / 181	CDT 6.4			575 2		5	18 8
HOUSTON DATE	JUNE 30, 55									
GMT : 181 15	16	17	18	19	20	21	22	23	24	25
FD : 4	0	1	2	3	4	5	6	7	8	9
MET : 003	0	1	2	3	4	5	6	7	8	9
CDR	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP
PLT	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP	TV SLEEP
DAY/NIGHT	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY
ORBIT	49	50	51	52	53	54	55	56		
EARTH TRACE	[Graph showing Earth Trace M/SRA with various annotations like H, H, H, H, H, H, H, H, H, H, H]									
CSIDN COVERAGE	HAH - DASH	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR	BOC - YAR
SCLS COVERAGE	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS	HTS - VTS
OPS	68/52	68/52	68/52	68/52	68/52	68/52	68/52	68/52	68/52	68/52
DEORB FSC	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22	1 01:22
EDM	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13	1 01:13
ATTITUDE	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN	TRAIL TO SUN
MANEUVERS	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN	RS 2 BURN
TV/VIR	TV	TV	TV	TV	TV	TV	TV	TV	TV	TV
CFES	CFES	CFES	CFES	CFES	CFES	CFES	CFES	CFES	CFES	CFES
MLR	MLR	MLR	MLR	MLR	MLR	MLR	MLR	MLR	MLR	MLR
NOTES:	<ul style="list-style-type: none"> o SAMPLE CHANGEOUT o FSO 5436-01 CFES o (SAMPLE 5 SEPARATION & COLLECTION) o FSO 5436-01 CFES o FSO 5436-01 CFES o FTO 467-02 LONG TERM VPC FREEZER TEMPERATURE STABILITY o (SAMPLE 6 SEPARATION & COLLECTION) o FSO 5436-01 CFES o FTO 412-01 ATT HOLD THERMAL RESPONSE o PAR DMN TRC o FTO 479-01 - ON ORBIT TROOP NAV o FTO 476-01 BU ORBITAL NAV o CHANGEOUT o FSO 5436-01 CFES o FSO 5436-01 CFES (SEQUENCE II) o OMS/RCS o FTO 412-01 ATT HOLD THERMAL RESPONSE 									

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GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD / DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
182:15:00 / 183:03:00	004:00:00 / 004:12:00	182:10:00 / 182:22:00	5 / 182 CDT	9.7		JULY 1, 1982	STS-4	FINAL	5/14 82



GSTDN COVERAGE: HAW-BUC -RCH -BOT -YAP -CMK -ALX -ACN -BOT -HAW -BUC -HAW -BUC -HAW -BUC -HAW -BUC -HAW -BUC -HAW -BUC
 SGLS COVERAGE: HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS -HTS -VTS
 ATTITUDE: TRAIL TO SUN

NOTES:
 FROM TRACKING FT0 479-01 ON ORBIT FROM NV
 FROM TRACKING FT0 412-01 ATT HOLD THERMAL RESPONSE
 FROM TRACKING FT0 479-01 ON ORBIT FROM NV
 FROM TRACKING FT0 412-01 ATT HOLD THERMAL RESPONSE
 FROM TRACKING FT0 479-01 ON ORBIT FROM NV
 FROM TRACKING FT0 412-01 ATT HOLD THERMAL RESPONSE

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OF POOR QUALITY

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE			
183:03:00 / 183:15:00		004:12:00 / 005:00:00		182:22:00 / 193:10:00		6 / 182		11.4		0		JULY 2, 1982		STS-4		FINAL		5/14/82			
CDR		SLEEP		POST SLEEP PCT		MEAL		PLBO CYCLE TEST		TV MNR		MEAL		BURN PREP		EXERCISE		TECH CRS RELEASE			
PLT		SLEEP		POST SLEEP PCT		MEAL		PLBO CYCLE TEST		TV MNR		MEAL		BURN PREP		EXERCISE		TECH CRS RELEASE			
DAY/NIGHT		73		74		75		76		77		78		79		80					
ORBIT		73		74		75		76		77		78		79		80					
EARTH TRACE M/SAA		73		74		75		76		77		78		79		80					
CSTDN COVERAGE		-DNR -RDL		-DNR -MAD		-DNR -YAR -DNR		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD			
SCLS COVERAGE		-CTS		-DNR -MAD		-DNR -YAR -DNR		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD		-DNR -MAD -DNR -YAR -DNR -MAD			
OPS DEORB KSC EDW		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43			
ATTITUDE		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43			
TRAINEOVERS TV/VTR GFES MLR		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43		17:43			
NOTES:		FTO 412-05 FRCS THERMAL SOWBACK, ONE FNO ENGINE o HI LOAD DUCT HTR		FTO 474-01 NAV BASE STABILITY		FTO 412-01 ATT HOLD THERMAL RESPONSE		FTO 451-03 PLBO COLD CASE PERFORMANCE FTO 451-03 PLBO COLD CASE PERFORMANCE 30 SEC F/F BURN FTO 412-05 FRCS THERMAL SOWBACK, ONE FNO ENGINE		FTO 412-01 ATT HOLD THERMAL RESPONSE		FTO 474-01 NAV BASE STABILITY		FTO 412-01 ATT HOLD THERMAL RESPONSE		FTO 451-03 PLBO COLD CASE PERFORMANCE FTO 451-03 PLBO COLD CASE PERFORMANCE 30 SEC F/F BURN FTO 412-05 FRCS THERMAL SOWBACK, ONE FNO ENGINE		FTO 412-01 ATT HOLD THERMAL RESPONSE		FTO 474-01 NAV BASE STABILITY	

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ORIGINAL PAGE 1
OF POOR QUALITY.

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GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	FLIGHT	EDITION	PUB. DATE
183:15:00/184-03:00	005:00:00/005:12:00	183:10:00/183:22:00	6/183	13.2		STS-4	FINAL	5/14/82
GMT: 183 15 DOY: 6 MET: 005 0								
CDR	PRO SURF INSPECT	RMS/PRCS INTERACT	RMS SINGULARITY	MERL	PRE SLEEP ACT	SLEEP		
PLT	PRO SURF INSPECT	RMS/PRCS INTERACT	RMS SINGULARITY	MERL	PRE SLEEP ACT	SLEEP		
DAY/NIGHT	[Timeline from 15 to 17:30]							
ORBIT	[Timeline from 18:00 to 18:30]							
EARTH TRACE M/SAR	[Timeline from 19:00 to 19:30]							
CSTDN COVERAGE	[Timeline from 20:00 to 20:30]							
SCLS COVERAGE	[Timeline from 21:00 to 21:30]							
OPS DEORB KSC EDH	[Timeline from 22:00 to 22:30]							
ATTITUDE	[Timeline from 23:00 to 23:30]							
MANEUVERS TV/VTR MLR	[Timeline from 24:00 to 24:30]							
NOTES:	<ul style="list-style-type: none"> FTD 412-01 ATT HOLD THERMAL RESPONSE FTD 412-02 SINGULARITY MANAGEMENT FTD 462-01 PRO SURFACE INSPECT FTD 467-02 LONG TERM VPC FREEZER TEMPERATURE STABILITY FTD 452-03 UNLOADED ARM RESPONSE TO PRCS FTD 452-02 SINGULARITY MANAGEMENT FTD 412-01 ATT HOLD THERMAL RESPONSE FTD 467-02 LONG TERM VPC FREEZER TEMPERATURE STABILITY FTD 452-02 SINGULARITY MANAGEMENT 							

ORIGINAL PAGE OF POOR QUALITY

GMT (D:H:M)	MET (D:H:M)	EDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE		FLIGHT	EDITOR	PUB. DATE
						JULY 3, 1982	STS-4			
194:03:00 / 184:15:00	005:12:00 / 184:10:00	183:22:00 / 006:00:00	7 / 183	15.0	○			STS-4	FINAL	5/14/82
<p>GMT : 184 3 4 5 6 7 8 9 10 11 12 13 14 15</p> <p>FD : 6 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p>MET : 005 12 13 14 15 16 17 18 19 20 21 22 23 24 25</p>										
CDR	SLEEP	POST SLEEP ACT	MEAL	EXERCISE	TV ACT	TV ACT	BU NAV	MEAL	MEAL	MEAL
PLT	SLEEP	POST SLEEP ACT	MEAL	EXERCISE	TV ACT	TV ACT	BU NAV	MEAL	MEAL	MEAL
DRY/NIGHT	89	90	91	92	93	94	95	96		
ORBIT										
ORBIT UP/DOWN										
EARTH TRACE										
M/SAR										
GSTDN COVERAGE	-RCD -DKR	-DKR -MAX	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR	-MAX -YAR -ORR
SGLS COVERAGE										
OPS										
DEORB KSC										
EDM										
ATTITUDE										
RAHEUVERS										
TV/VTR										
CPES										
HLR										
NOTES:	<p>FTD 412-06,08 RCS THERMAL SORBACK, TWO FTD & ONE L ARCS ENGINE * RCS DEACT PREP FSO 5435-01 GAS OPERATION</p> <p>FTD 412-01 ATT HOLD THERMAL RESPONSE * DMS/RCS</p> <p>FTD 412-01 ATT HOLD THERMAL RESPONSE - 15% LEVEL * FTD 476-01 BU ORBITAL NAV</p> <p>FTD 412-01 ATT HOLD THERMAL RESPONSE * DMS/RCS * FTD 467-02 LDRG TERR WPC * FREEZER TEMPERATURE * STABILITY</p> <p>FTD 412-01 ATT HOLD THERMAL RESPONSE * DMS/RCS * FTD 412-01 ATT HOLD THERMAL RESPONSE * 2 FMO BURN (30 SEC) & 1 RT * BURN (100 SEC) * FTD 412-06,08 RCS THERMAL * SORBACK, FMO & ONE L ARCS * ENACTIVE * FTD 412-01 ATT HOLD THERMAL * RESPONSE</p>									

ORIGINAL PAGE
OF POOR QUALITY

GMT (D:H:M)	HET (D:H:M)	CDT (D:H:M)	(D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
184:15:00/ 185:03:00	006:00:00/ 006:12:00	184:10:00/ 184:22:00		7 / 184	16.9	☉	JULY 3, 1982	SYS-4	FINAL	5-14-82
GMT : 184 15	16	17	18	19	20	21	22	23	24	25
FD : 7	0	1	2	3	4	5	6	7	8	9
NET : 006 0										
CDR	PLBDO CYCLE TEST	NERL	CDRBN STON	CDRBN STON	CDRBN STON	PRE SLEEP ACT	PRE SLEEP ACT	SLEEP	SLEEP	SLEEP
PLT	NERL PREP	PLBDO CYCLE TEST	NERL	CDRBN STON	CDRBN STON	S-BO RNT TEST	S-BO RNT TEST	SLEEP	SLEEP	SLEEP
DAY/NIGHT										
ORBIT	96	97	98	99	100	101	102	103	104	
NRN UP/DWN										
EARTH TRACE W/SRA										
CSTDN COVERAGE	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS	-YAR -CHM -HAM -RCH -BOT -GTS -HIS -VLS
SCLS COVERAGE	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS	-GTS -HIS -VLS
OPS DEORB KSC EDM	1 00:07									
ATTITUDE	BOTTOM TO SUN									
MANEUVERS										
LFES										
MLR										
NOTES:	<ul style="list-style-type: none"> • FSD 5435-01 GAS OPERATION • FSD 5435-01 GAS OPERATION • HI L880 DUCT HTR • FTO 451-04 PLBDO THERMAL GRADIENT PERFORMANCE • FTO 451-04 PLBDO THERMAL GRADIENT PERFORMANCE • FSD 5435-01 GAS OPERATION • FSD 5435-01 GAS OPERATION • HI L880 DUCT HTR • FTO 412-06,08 ACS THERMAL SORBOCK, TMO FRO & ONE L BRCS ENGINE • FTO 412-01 RIT HOLD THERMAL RESPONSE • FSD 5441-01 NOSL OPERATIONS • PL DEORBIT PREP • CHANGEOUT • FTO 471-01 S-BRD & UFF RNT PATTERNS • FSD 8 CD/NO GO 									

5714782 SIS471N

3-14

ORIGINAL PAGE
OF POOR QUALITY

GMT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
185:03:00 / 185:15:00		006:12:00 / 007:00:00		184:22:00 / 185:10:00		8 / 184		18.8		0		JULY 4, 1982		STS-4		FINAL		5/14/82	
TTC																			
CDR		SLEEP		POST SLEEP ITR MSG REVIEW		MERL		SUIT DOWN		SUIT DOWN		PLOSING		SRRCK		SRRCK		SRRCK	
PLT		SLEEP		POST SLEEP ITR MSG REVIEW		MERL		SUIT DOWN		SUIT DOWN		PLOSING		SRRCK		SRRCK		SRRCK	
DAY/NIGHT		104		105		106		107		108		109		110		111		112	
ORBIT		104		105		106		107		108		109		110		111		112	
EARTH TRACE W/SRA		104		105		106		107		108		109		110		111		112	
GSTDN COVERAGE		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR	
SGLS COVERAGE		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR		-DKR	
GPS DEORB KSC EDM		16:27		16:27		16:27		16:27		16:27		16:27		16:27		16:27		16:27	
ATTITUDE		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP	
MANEUVERS		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP	
TV/VTR		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP	
CEFS		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP	
MLR		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP		PTC XPOP	
NOTES:																			

ENTRY CONFIC NO SH LIST/VER
 ENTRY CONFIC NO SH LIST/VER
 LAST MERL CLEANUP
 FT0 412-01 ATT HOLD THERMAL RESPONSE

DETAILED TIMELINE

FLT DAY 1

STS-4 DETAILED

PLT

CDR

Activities from 0700:00 to 0704:00 are in the ASCENT C/L (ORBIT OPS C/L, ECLS) and the POST INSERTION

REC'D (12) ON-ORBIT ACT/RECORDING

Reconf'g for STS 1

ON-ORBIT OPS BURN (OMS-3) (ORBIT OPS C/L, OMS) (2 ENG BURN)

AUTO HWVR TO BURN ATT

OMS - 3 BURN (0704:29:12)

√DFI RCORS PCM ~ LO SAMP NO ASN ~ STBY (tb-bp)

ON MCC DIE PPU FUEL PUMP/VALV COOL B - OFF CHTLR PRR (three) - OFF

ON-ORBIT OPS BURN (OMS-4) (ORBIT OPS C/L, OMS) (2 ENG BURN)

AUTO HWVR TO BURN ATT

NOTES

Orbiter ATT at transition from POST INSERTION to CRP is FREE DRIFT (-ZLV, XPOP, -Yby Forward)

ASCENDING MODE
ORB: 4
MET: 000:04:10:44
LDN: 129.1 E

UPLINK
ORBITER S.V.
UPDATE
OMS 3
BURN PRO
LINE ORAL CSER
RELOAD TGTS

UPDATE
OMS 4
BURN PRO

ORIGINAL PAGE 13
OF POOR QUALITY

STS-4 DETAILED PLT

NOTES

MCC

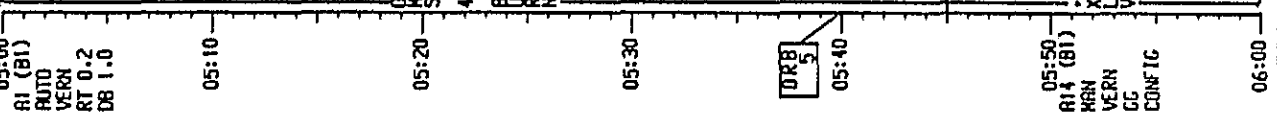
ORIGINAL PAGE 13
OF POOR QUALITY

ASCENDING NODE
ORB: 5
MET: 000:05:39:54
LON: 106.3 E

MET CENTER

CDR

SOLE STIM



TPR
BLOCK DATA
WEATHER PRO
8- 1/3-6

UPLINK
ORBITER S V

DMS - 4 BURN (0705:14:12)

SINGLE C2 PER OPS
(ORBIT OPS C/L, OPS)

RES VACUUM INERT
(FTO 441-02)

IF VACUUM INERT started, after 5 min:
- JDFI RCDRS PCM - HI SAMP
EODD_HARBOR_BCI (Cue Card)

RES VACUUM INERT
(FTO 441-02)

Step 1 - Initialization

RES VACUUM INERT
(FTO 441-02)

Step 2 - Termination

C3 JDFI RCDRS PCM - LO SAMP
MB MSN - STBY (tb-bp)

CO2 ABSORBER INSTALLATION
(1 into A, 2 into B)

This is the initial
installation of
CO2 ABSORBERS

INSIDE GAS EXCHANGER & GAS
ACTIVATION (Cue Card)

(FSD 5435-01)

GRAVITY GRADIENT FREE DRIET, OPS 2
(ORBIT OPS C/L, RCS)

(05:47) Perform Step 1:
(AUTO HWVR TO ATTITUDE)

VERN Jets: ATT ID: A

Perform Step 2:
(ESTABLISH FREE DRIET)

VERN Jets: ATT ID: A

C3 JDFI RCDRS PCM - LO SAMP

ORIGINAL PAGE IS
OF POOR QUALITY

5711782 SISA/TIN

STS-4 DETAILED

CDR

PLT

NET
DAY 000
06:00

RIA (BT)
MMN
VERN
CC
CONFIC

GRAVITY GRADIENT FREE DRIFT, OPS 2

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB, PLV)

EXPERIMENT ACTIVATION
(OPERATIONS C/L, IBB, B)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB, PLV/03)

HOUSEKEEPING

HOUSEKEEPING

EXPERIMENT ACTIVATION (Decal)
(FSD 5442-01)

Record Time:

MEAL

MEAL

06:10

06:20

06:30

06:40

06:50

07:00

SGS/ SIDN

T
H
R
A
K
B
U
C
T
V
T
S
I

T
B
D
I

4-4

STS-4 DETAILED

PLT

MCC

CDR

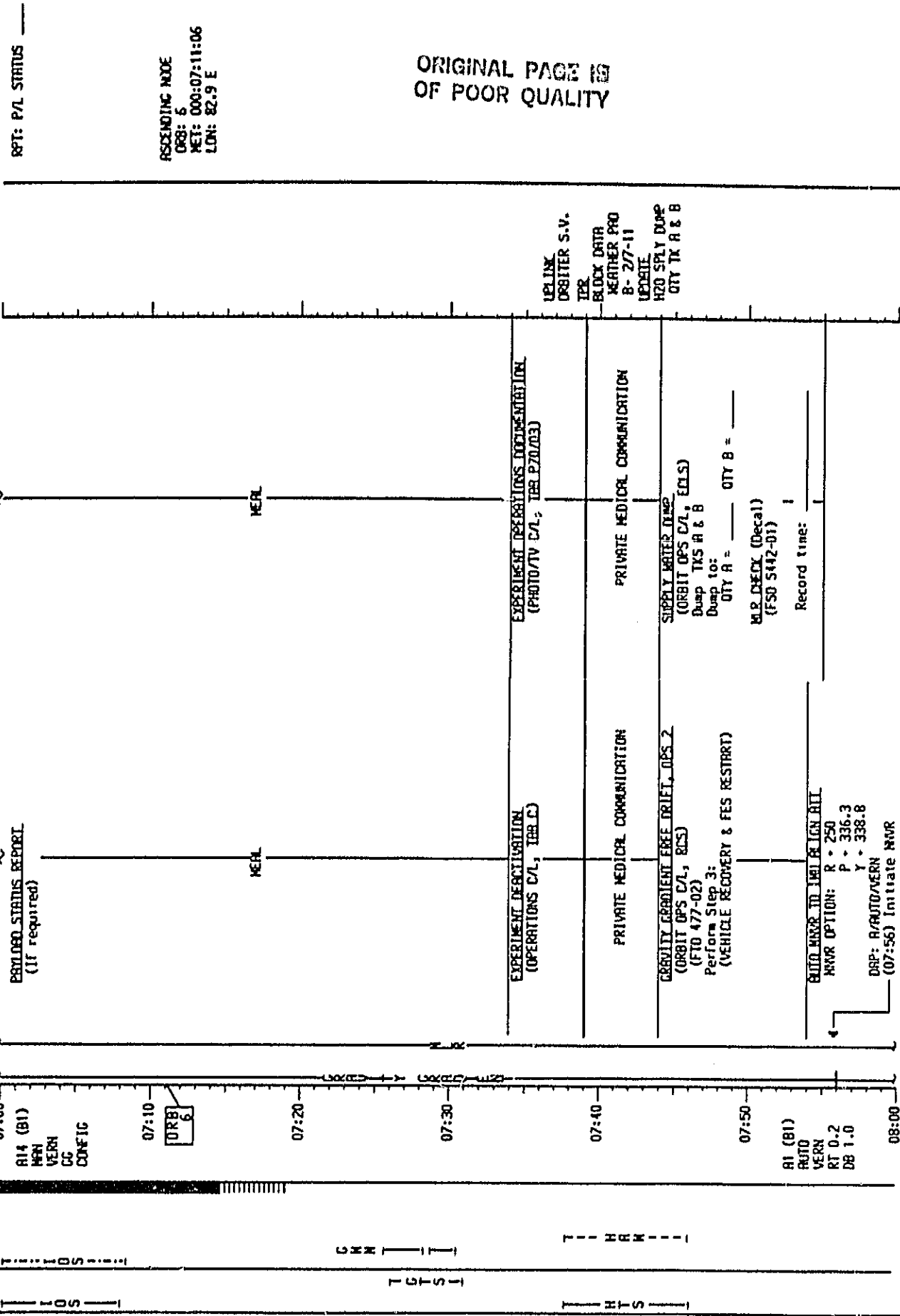
PLT

CDR

PLT

CDR

PLT



RPT: P/L STATUS

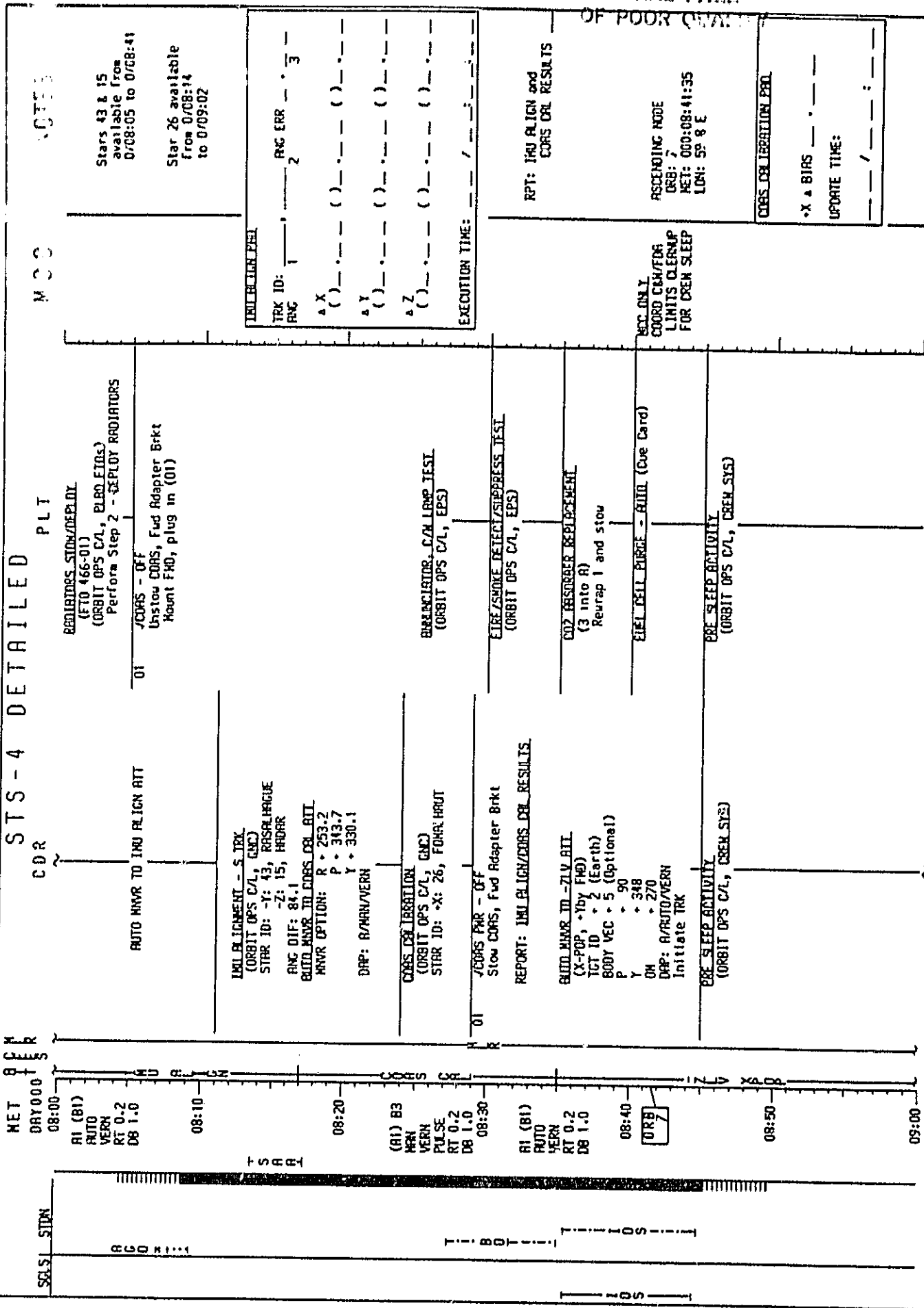
ORIGINAL PAGE 10
 OF POOR QUALITY

5714782 315027M

4-5

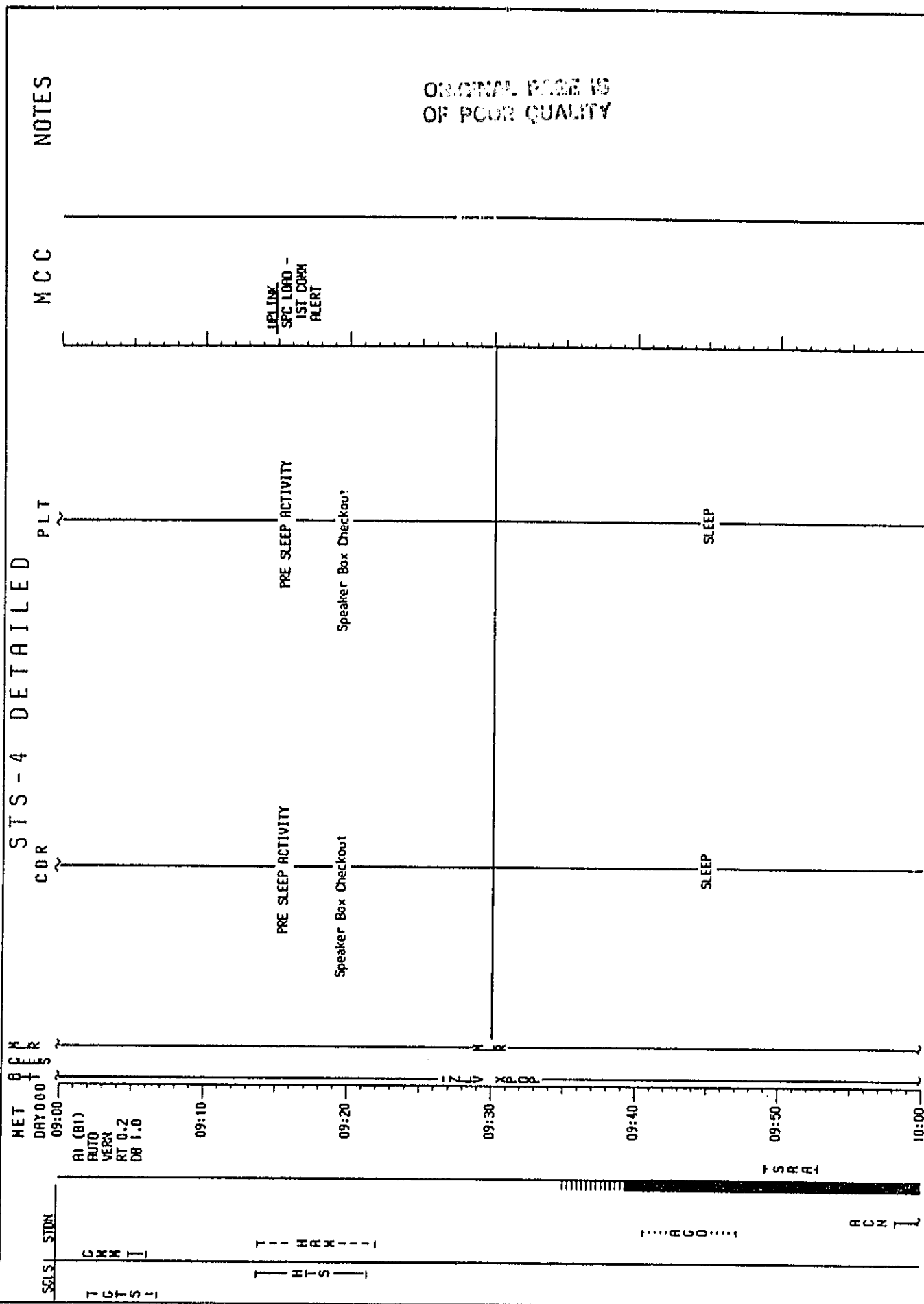
STS-4 DETAILED

ORIGINAL PAGE
OF POOR QUALITY



5711782 515477H

STS-4 DETAILED



ORIGINAL PAGE IS
OF POOR QUALITY

5714782 515471R

4-7

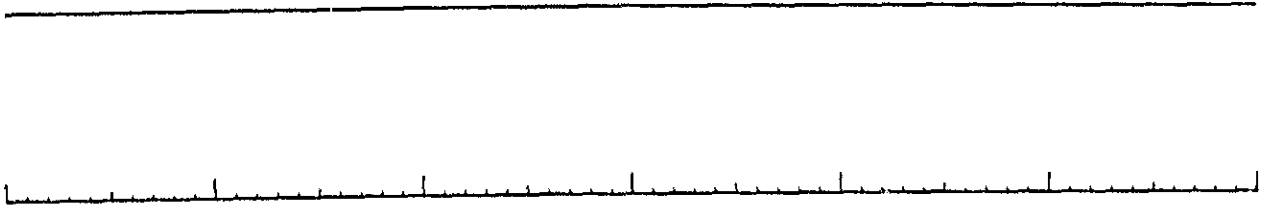
STS-4 DETAILED

NOTES

ASCENDING NODE
DRB: 8
MET: 000:10:12:04
LOR: 36.6 E

ORIGINAL PAGE IS
OF POOR QUALITY

MCC



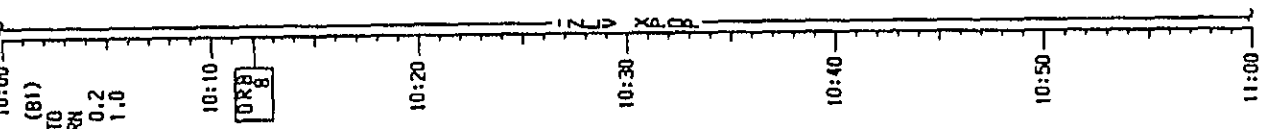
PLT

SLEEP

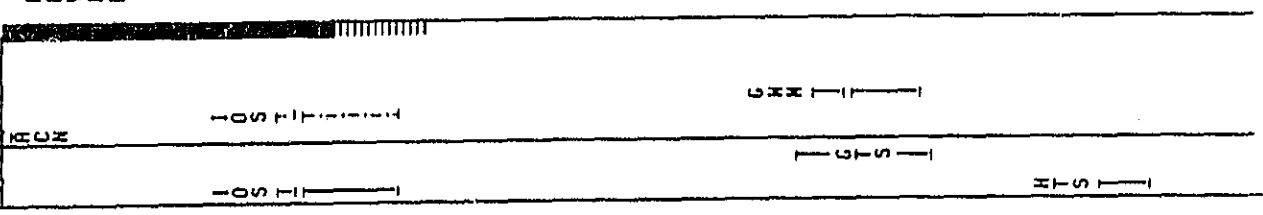
CDR

SLEEP

MET
DRY 000 1 5



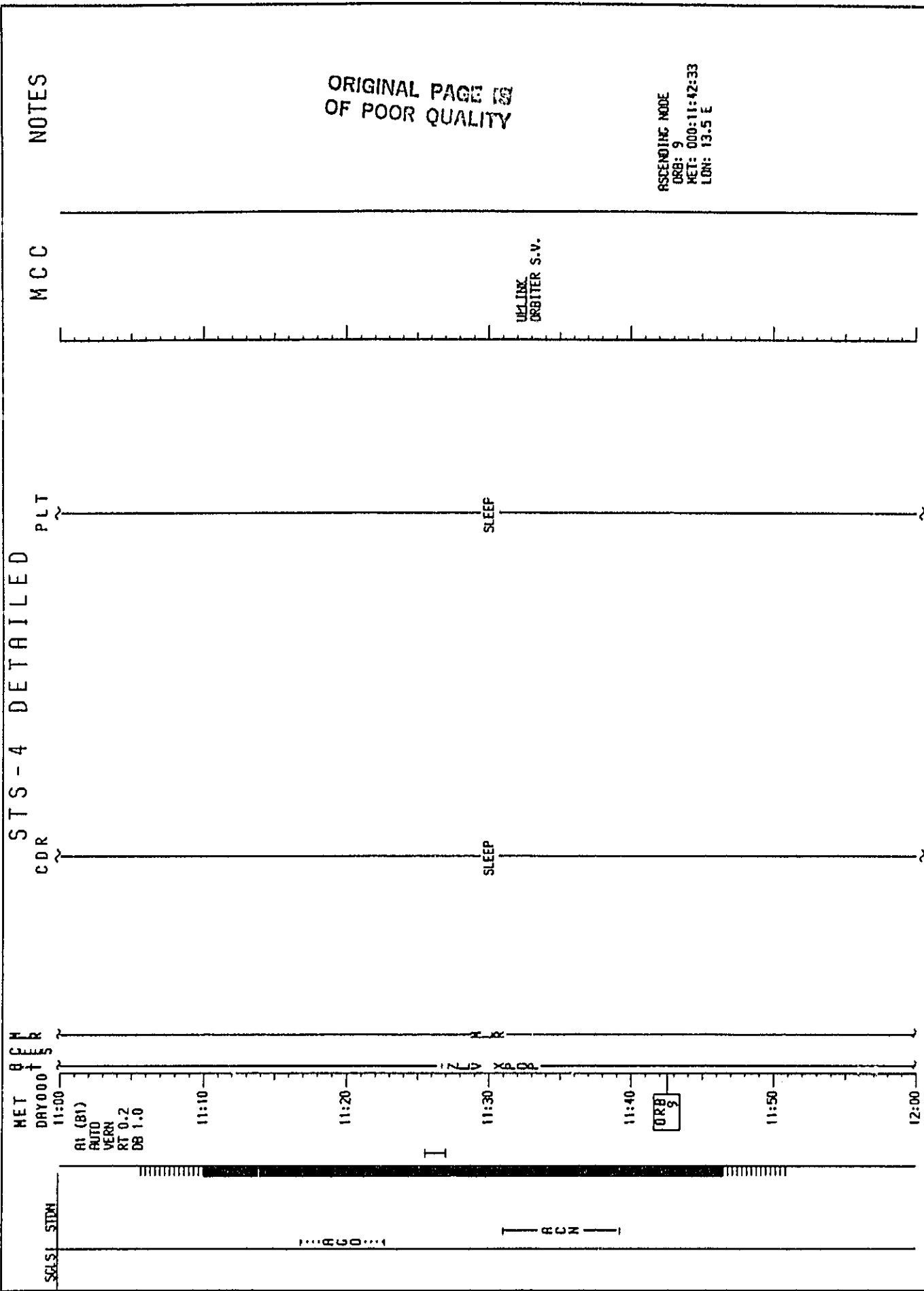
SGLS
ACN



5714782 STS47FIN

L-8

STS-4 DETAILED



ORIGINAL PAGE 10
OF POOR QUALITY

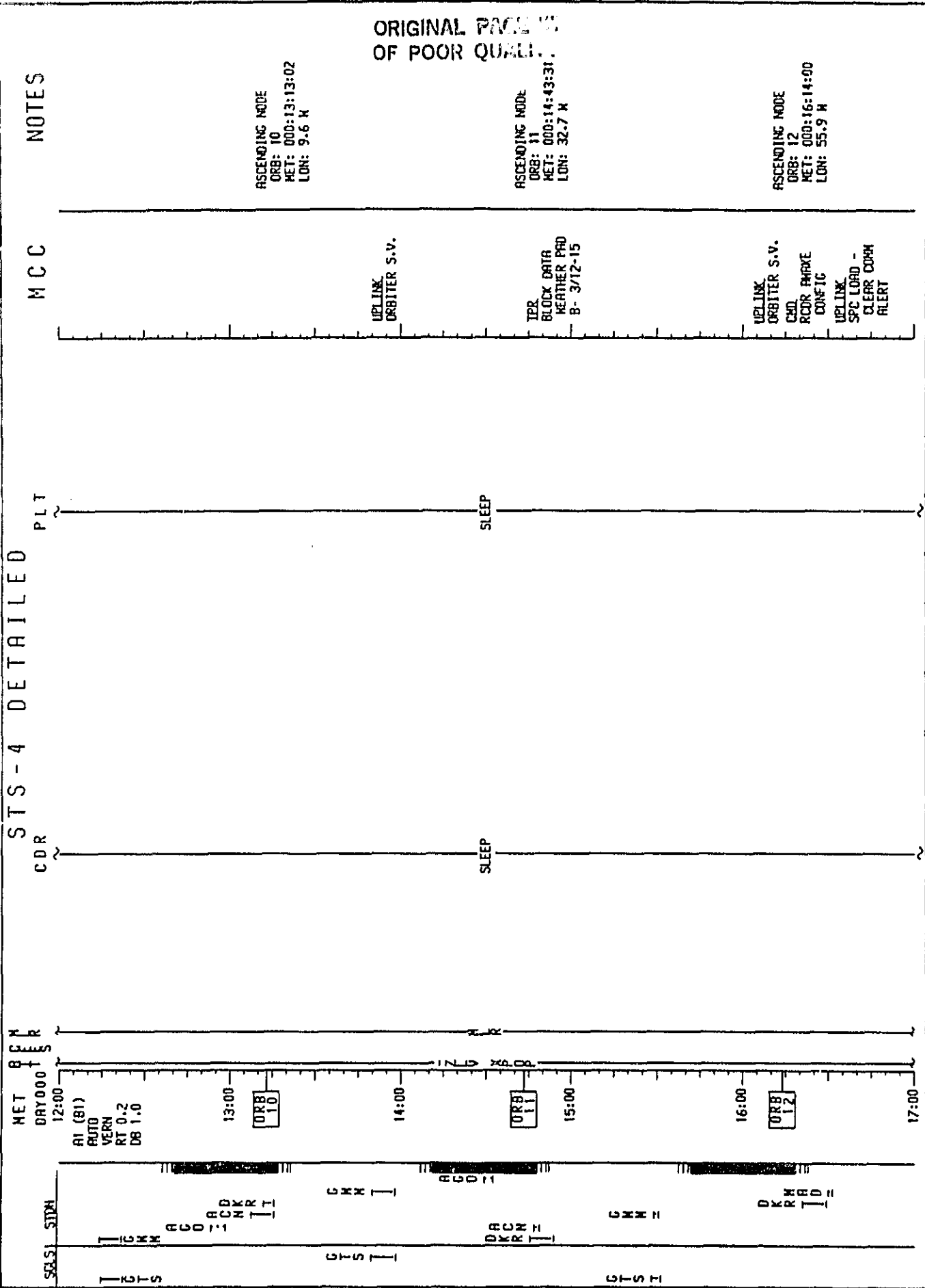
ASCENDING NODE
DSB: 9
MET: 000:11:42:33
LON: 13.5 E

5/11/82 STS4/TIN

4-9

FLT DAY 2

STS-4 DETAILED



STS-4 DETAILED

NOTES

MCC

PLT

CDR

CM

MET DAY 000

SOLS STIM

17:00
R1 (B1)
R010
VERN
RT 0.2
DB 1.0

17:10

17:20

17:30

17:40

ORBIT 13

17:50

18:00

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TXS A & B
Dump 10:
QTY A = _____ QTY B = _____

UPDATE
H2O SPLY DUMP
QTY TK A & B

ASCENDING NODE
ORB: 13
MET: 000:17:44:29
LON: 79.0 W

STS-4 DETAILED

MET DAY 000
18:00

AI (B1)
AUTO
VERN
RT 0.2
DB 1.0

SELSI - STIM
D K K I
T H A X I
T X I
M B D

CDR PLT

POST SLEEP ACTIVITY

POST SLEEP ACTIVITY

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

BLOOD MONITOR TO IMU ALIGN ON BIT
HMWR OPTION: P - 16.2
 Y - 172.5
 Y - 13.3
DAP: R/AUTO/VERN
(18:32) Initiate HMWR

BLEED CELL PURGE - BHM (Use Card)

HEATER BECOME I.C.
(ORBIT OPS C/L, EPS)
Config B

EPS I(2) AIR-CELL ACT/REC'D I.C.
(ORBIT OPS C/L, ECLS)
Re-config for SYS 2

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
IMU ALIGNMENT - S. TRK (IN DARKNESS)
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 15, HADAR
 -Z: 43, RASALHAGUE
RNC DIF: 84.1
GRAVITY GRADIENT FREE ORBIT, OPS 2
(FTO 477-02)
(ORBIT OPS C/L, RCS)
(18:57) Perform Step 1:
(AUTO HMWR TO ATTITUDE)
VERN Jets: ATT ID: Per TPR message

HYD THERMAL CONDITIONING ENABLE
(ORBIT OPS C/L, RED/HAID)

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

Stars 15 & 43
available from
0718:39 to 0719:15

MCC

LINE ORAL PREP.
SM CKPT -
REDD/NOT REDD

TELEPRINTER PHIL

TRK ID:	1	RNC ERR	2	3
A X	()	()	()	()
A Y	()	()	()	()
A Z	()	()	()	()
EXECUTION TIME: / /				

STS-4 DETAILED

PLT

MCC

CDR

PER

STDR

MET

DAY

19:00

19:10

19:20

19:30

19:40

19:50

20:00

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

GRAVITY GRADIENT FREE DRIFT, OPS 2
Perform Step 2:
(ESTABLISH FREE DRIFT)
VERN Jets; ATT ID: Per TPR message

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.PV01)

EXPERIMENT ACTIVATION
(OPERATIONS C/L, IBB.A)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P20/A3)

REPORT: IMU ALIGN RESULTS

PAYLOAD STATUS REPORT
(if required)

ASCENDING MODE
ORB: 14
MET: 000:19:14:57
LDN: 102.2 N

RPT: P/L STATUS —

RPT: IMU ALIGN RESULTS —

ORIGINAL REPORT
OF POOR QUALITY

HEAL

HEAL

STS-4 DETAILED

MET OPER

SESL. STDM
TDS

DAY 000
20:00

R14 (BT)
MAN
VERN
CC
CONFIC

20:10

20:20

20:30

20:40

ORB 15

20:50

21:00

T T B
M M D R
I L R
L X T
L X T

CDR

MEAL

PLT

MEAL

DEFS ACTIVATION/CONF. SYS. ZERO LOCK
(Cue Card)
(FSO 5436-01)
Sequence 1 - Samples 1, 2 & 3

Changeout wireless
headset battery pack

MCC

NOTES

ORIGINAL PARTIAL
OF POOR QUALITY

ASCENDING MODE
ORB: 15
MET: 000:20:45:26
LON: 125.3 W

TPP
BLOCK DATA
WEATHER PAD
8-4716-19

STS-4 DETAILED

PLT

NOTES

ORIGINAL PAGES
OF POOR QUALITY

MCC

CDR

CM

NET
DRY000
21:00

CRAIN TV SETUP (C/M-I-C/E/S TRAY DES.)
(PHOTO/TV C/L, IV SCENES)

R14 (B1)
MKN
VERN
GC
CONFIC

21:10

21:20

21:30

21:40

21:50

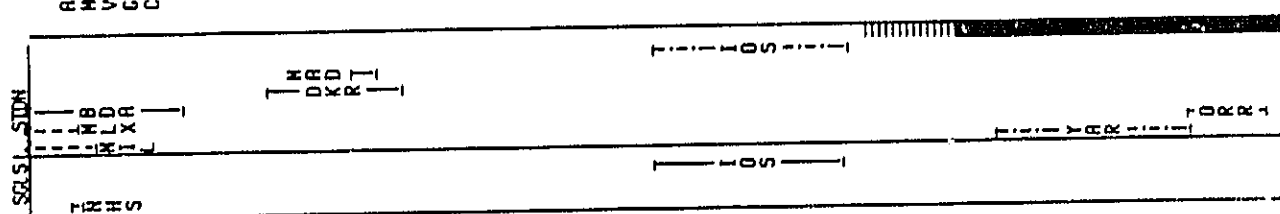
22:00

CONT. SAMPLE FLOW/CONT. SEP. RUN -
PART 1 (Cue Card)
(FSO 5436-01) Sample 1
Operator Call (Approx. 21:15)
Display - CONT. SAMPLE FLOW

Operator Call (Approx. 21:28)
Display - PHOTO

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IRR P/2/04)

WDSI ACTIVATION (Cue Card)
(FSO 5441-01)



STS-4 DETAILED

PLT

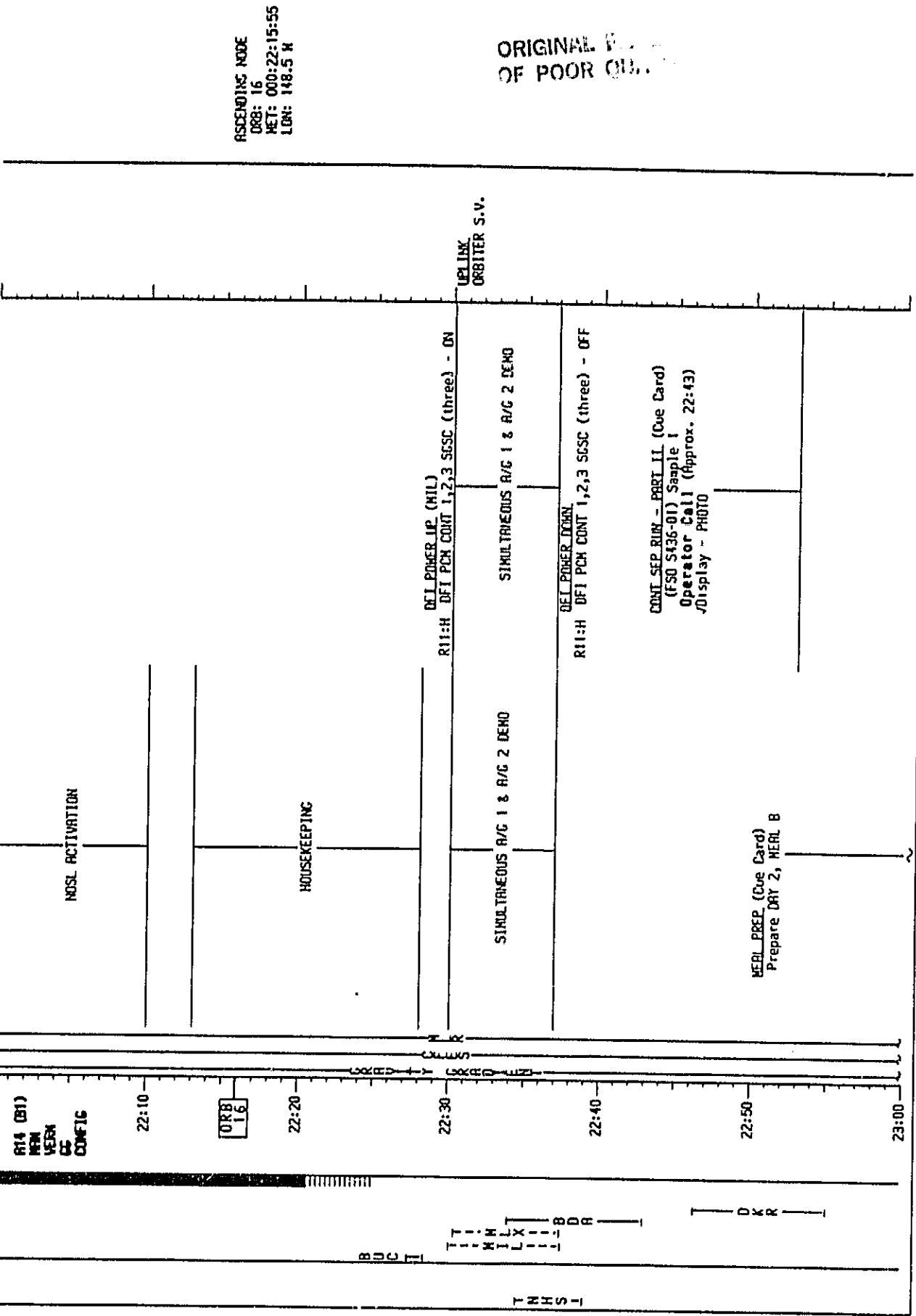
MCC

CDR

PER

MEI DAY 000

SCSI STIX



ASCENDING NODE
ORB: 16
MET: 000:22:15:55
LGN: 148.5 N

ORIGINAL OF POOR QUALITY

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MEM

DAY 000

23:00

23:10

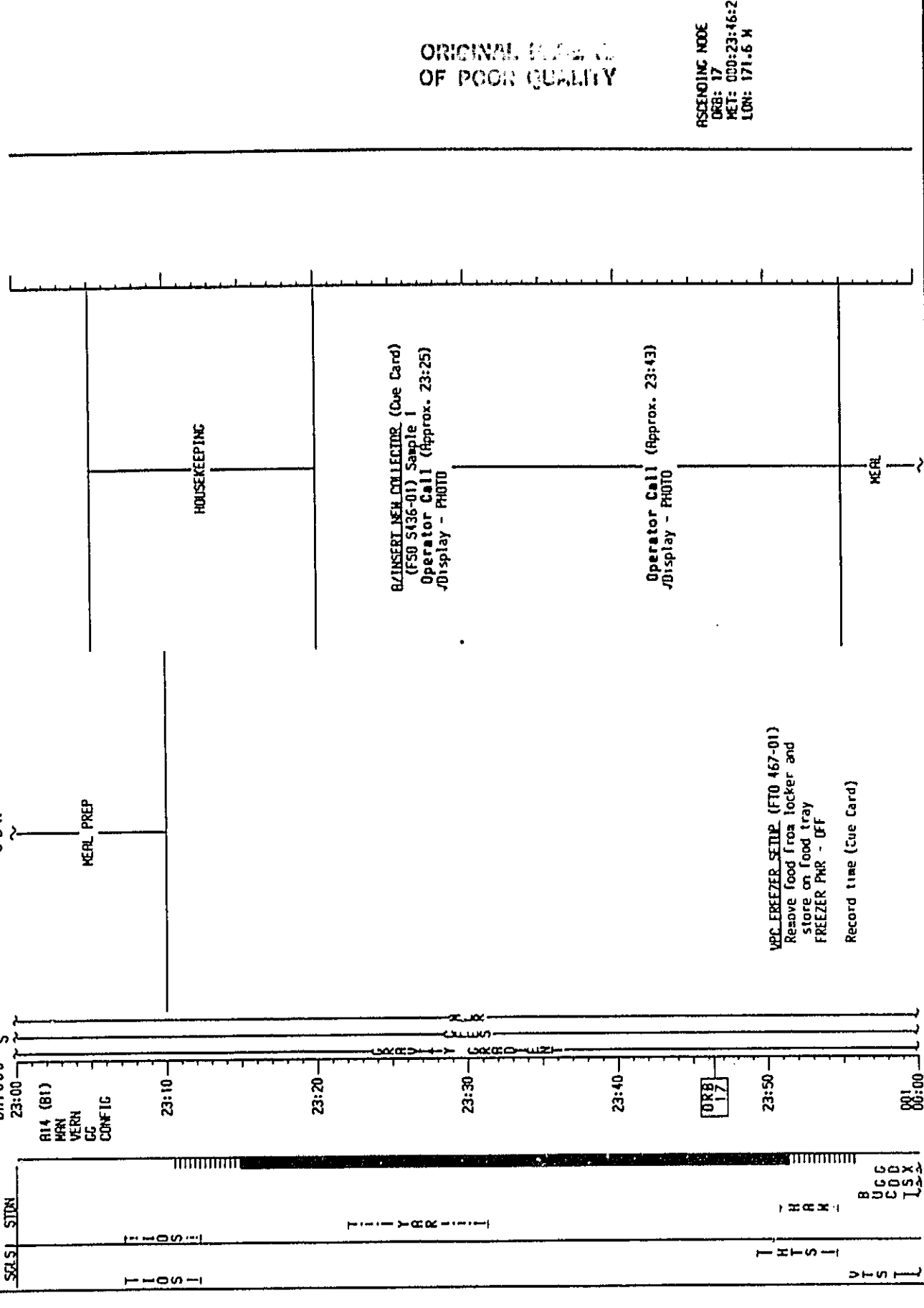
23:20

23:30

23:40

23:50

00:00



ORIGINAL COPY
OF POOR QUALITY

ASCENDING NODE
DEB: 17
MET: 000:23:46:24
LON: 171.6 H

STS-4 DETAILED

NOTES

MCC

PLT

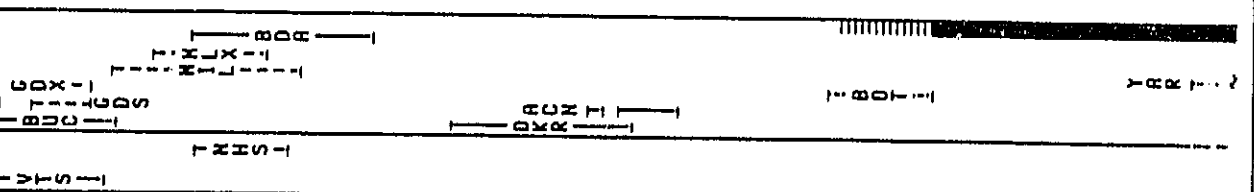
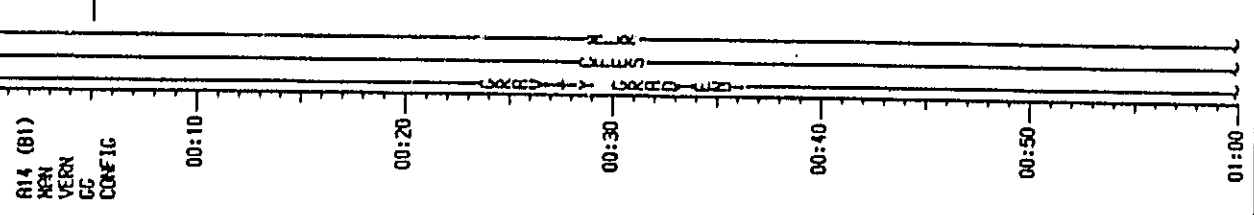
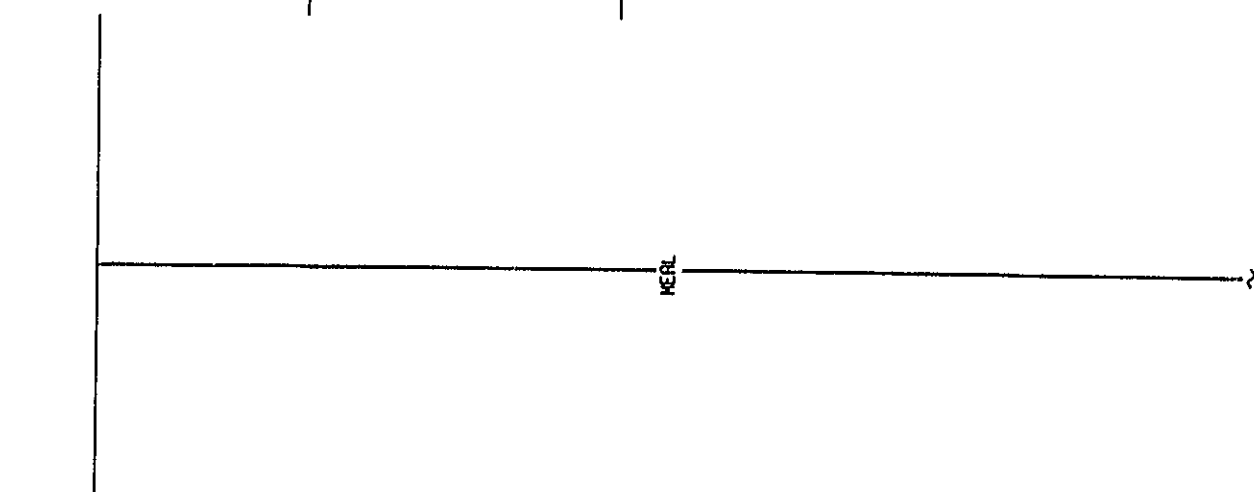
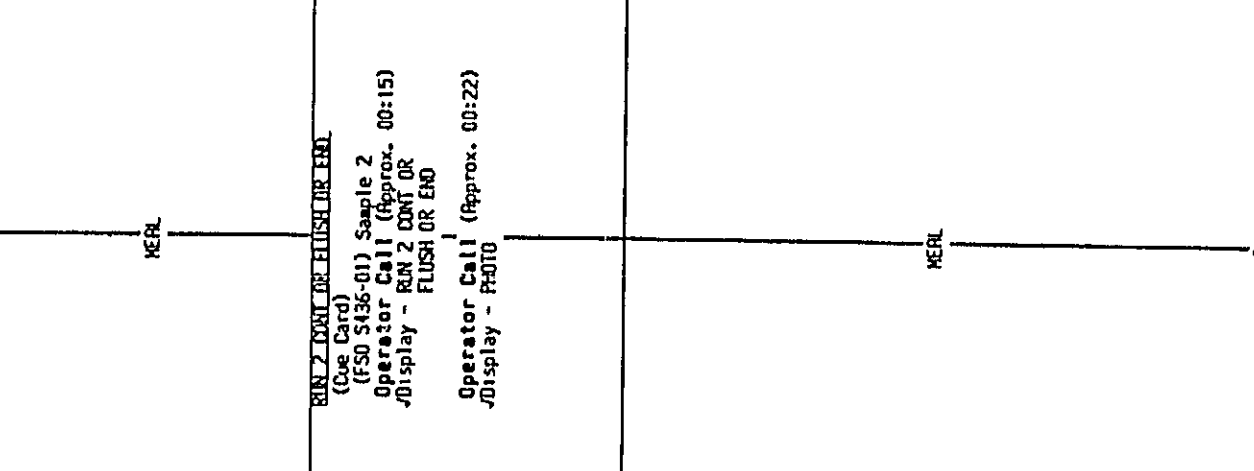
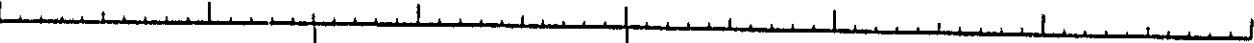
CDR

ACE

NET DRY001

STDN

ORIGINAL IMAGE OF POOR QUALITY



RUN 2 CONT OR FLUSH OR END
(Cue Card)
Operator Call (Approx. 00:15)
Display - RUN 2 CONT OR FLUSH OR END
Operator Call (Approx. 00:22)
Display - PHOTO

00:00
A14 (01)
MEN
VERN
CC
CONFIC

00:10

00:20

00:30

00:40

00:50

01:00

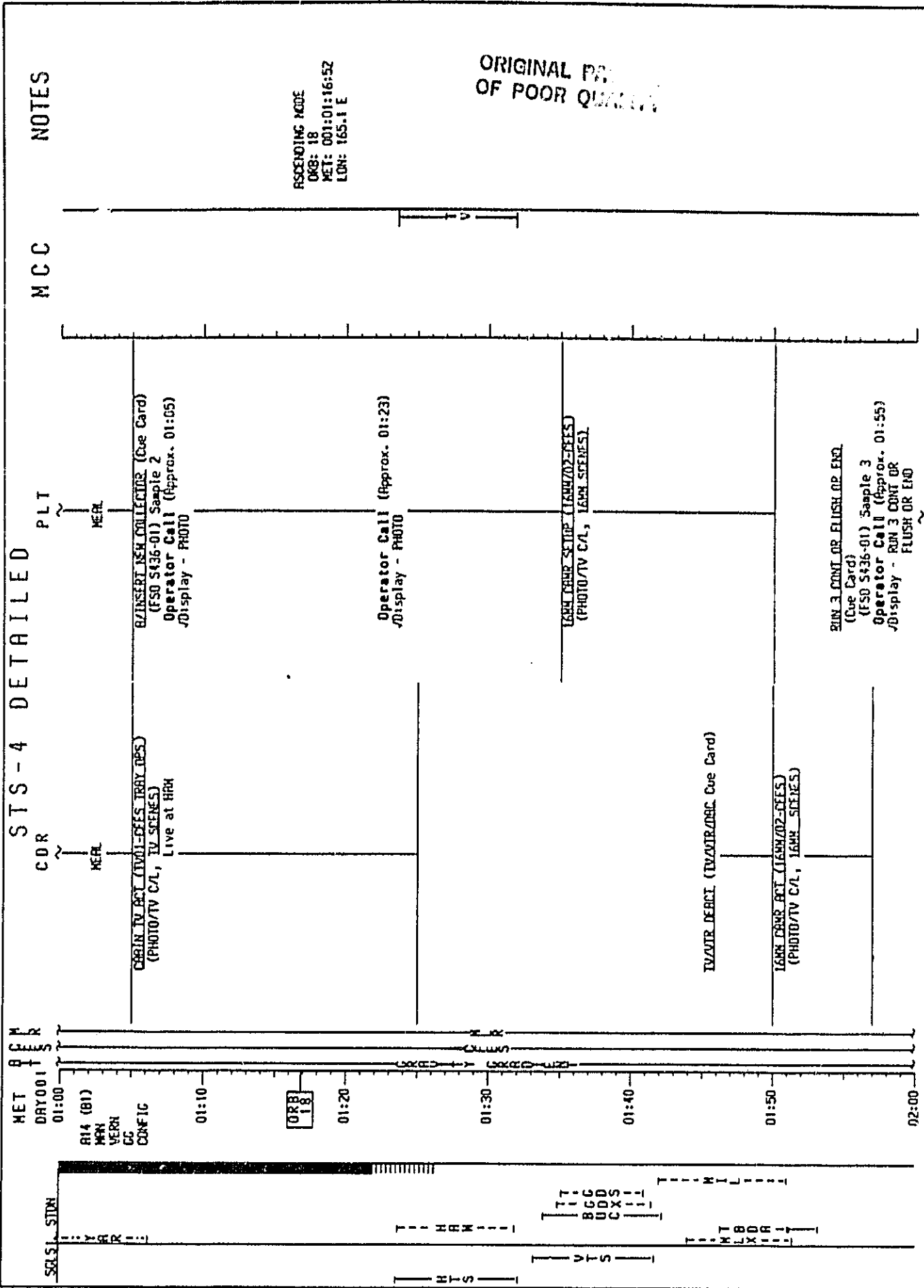
STDN
G
BTDX
UC
IG
S
T
T
HM
ILX
L
BDR

DR
KRN

BOT

YRR

STS-4 DETAILED



STS-4 DETAILED

CDR

PLT

NOTES

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 19
MET: 001:02:47:21
LON: 143.0 E

TPR
BLOCK DATA
WEATHER PRO
8- 5/20-23

RUN 3 CONT OR FLUSH OR END
Operator Call (Approx. 02:02)
/Display - PHOTO

BLR DEACTIVATION (Decal)
(FSO 442-01)

Record Time: _____

RAZINENT NEW SCALING (Use Card)
(FSO 5425-01) Sample 3
Operator Call (Approx. 02:45)
/Display - PHOTO

MET DAY001
02:00

RI4 (81)
MEN
VERN
CC
CONFIC

02:10

02:20

02:30

02:40

ORB
19

02:50

03:00

STS-4 DETAILED

NOTES

MCC

PLT

ORIGINAL PAGE IS OF POOR QUALITY

CDR

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CDR

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IRR/PZD/08)

R/INSERT NEW COLLECTOR
Operator Call (Approx. 03:03)
/Display - PHOTO

← R11 OEX PWR - ON (Before MIL ROS)
DFI HB MSN PWR - ON

OCIP QUIESCENT ON-ORBIT DATA
(FSO 5433-02)

ON-HOLD CUE (MIL)
DFI RCDRS HB MSN - CONT RCD

Halt 30 sec
DFI RCDRS HB MSN - STBY

ON-HOLD CUE
OEX PWR - OFF
DFI HB MSN PWR - OFF

CMD
OEX RCDR - ON

INSTRUMENTAL
DFI HB -
CONT RCD

CMD
OEX RCDR - OFF

INSTRUMENTAL
PWR OFF RCDRS

UPLINK
ORBITER S.V.

RUN 4 CONT OR FLUSH OR EMO -
PART 1 (Cue Card)
(FSO 5436-01)
Operator Call (Approx. 03:35)
/Display - RUN 4 CONT OR
FLUSH OR EMO

03:00

03:10

03:20

03:30

03:40

03:50

04:00

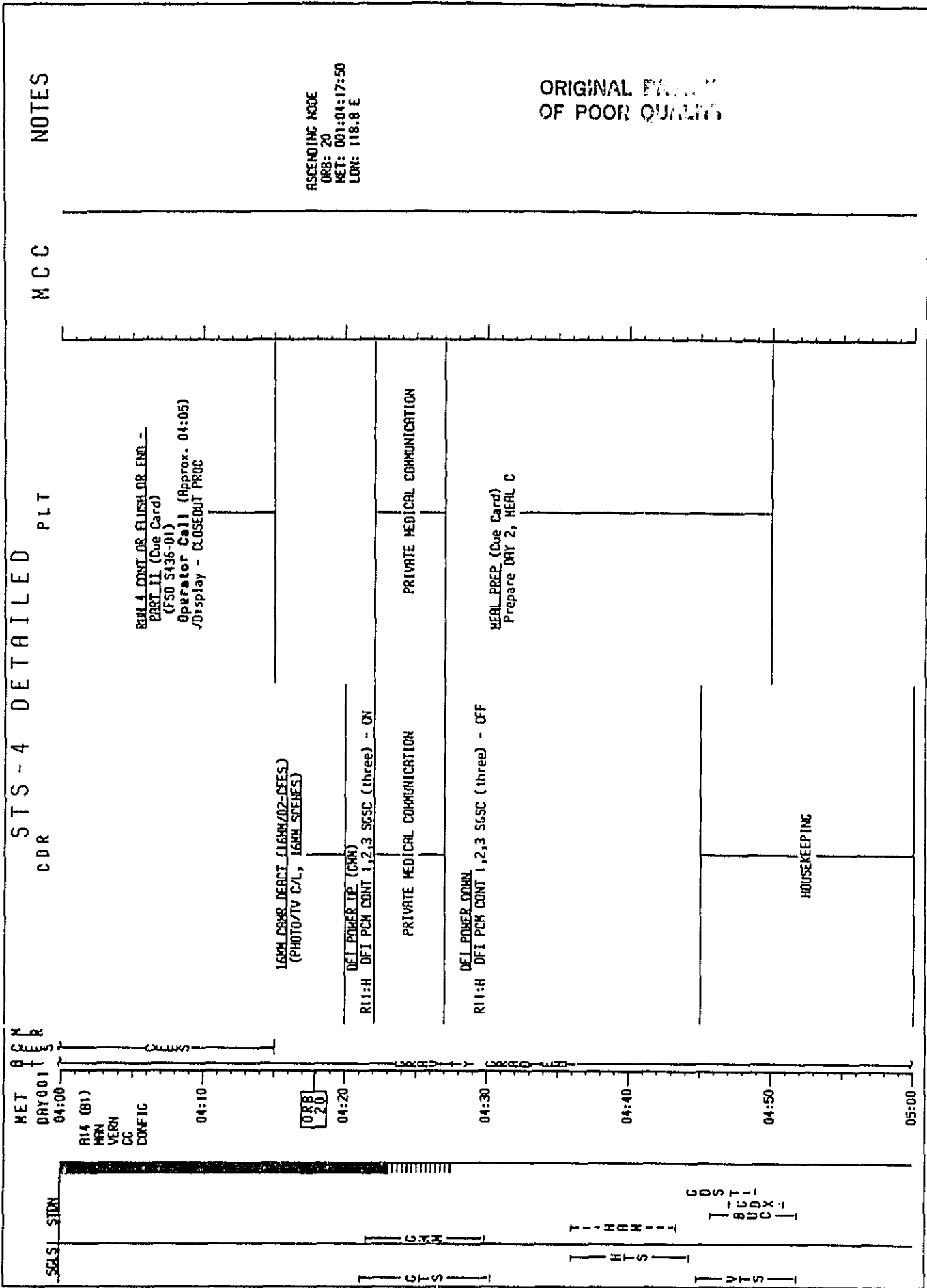
R14 (B1)
MFR
VERN
CC
CONFIC

GDS
TT
TIC
BUD
UTX
TTT

TT
MIL
LLX
TTT

ACN

TT
BOT
TTT



NOTES

MCC

STS-4 DETAILED

PLT

CDR

ASCENDING NODE
 ORB: 20
 MET: 001:04:17:50
 LON: 118.8 E

ORIGINAL PHOTO
 OF POOR QUALITY

STS-4 DETAILED

NOTES

MCC

PLT

16MM CORR SETUP (16MM/05-CORTRM MAPPING)
(PHOTO/TV C/L, 16MM SIDENES)

CDR

PER

ASCENDING NODE
ORB: 21
MET: 001:05:48:18
LON: 95.7 E

HET
DRY001
05:00

R14 (B1)
MRN
VERN
GC
CONFIC

05:10

05:20

05:30

05:40

ORB
21
05:50

06:00

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

NOTES

MCC

PLT

CDR

ORIGINAL PAGE 15
OF POOR QUALITY

MET
DAY 001
06:00

R14 (B1)
MAN
VERN
CC
CONFIG

06:10

T H A W
H T S

CABIN TV SETUP (TWO 2-10M/PILINE)
(PHOTO/TV C/L, TV SCENES)

06:20

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TAB P70/04)
Record 15 min

06:30

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TAB P70/04)

EXPERIMENT DOCUMENTATION
(OPERATIONS C/L, TAB D)

GRAVITY GRADIENT FREE BRIEF, OPS 2
(ORBIT OPS C/L, RCS)
(FTO 477-02)
Perform Step 3:
(VEHICLE RECOVERY & FES RESTART)

06:40

AUTO MISOR TO IMB ALIGN ATT
MNR OPTION: R = 212.5
P = 77.9
Y = 44.4
DAP: A/AUTO/VERN
(06:52) Initiate MNR

I

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

07:00

RADIATORS STOP/DEPLOY
(FTO 466-01)
(ORBIT OPS C/L, PLBD E103)
Perform Step 1 - STOP RADIATORS

STS-4 DETAILED

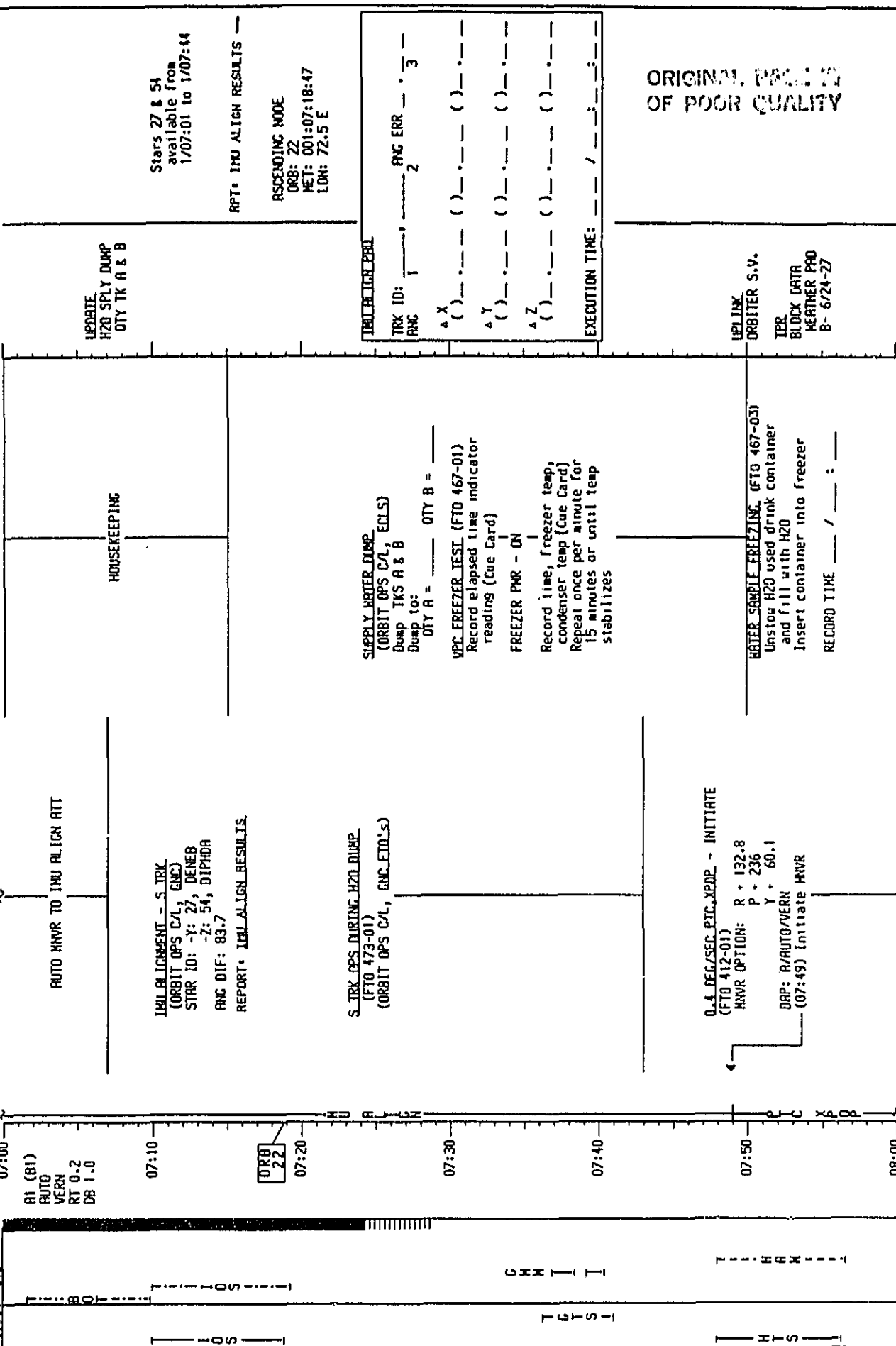
PLT

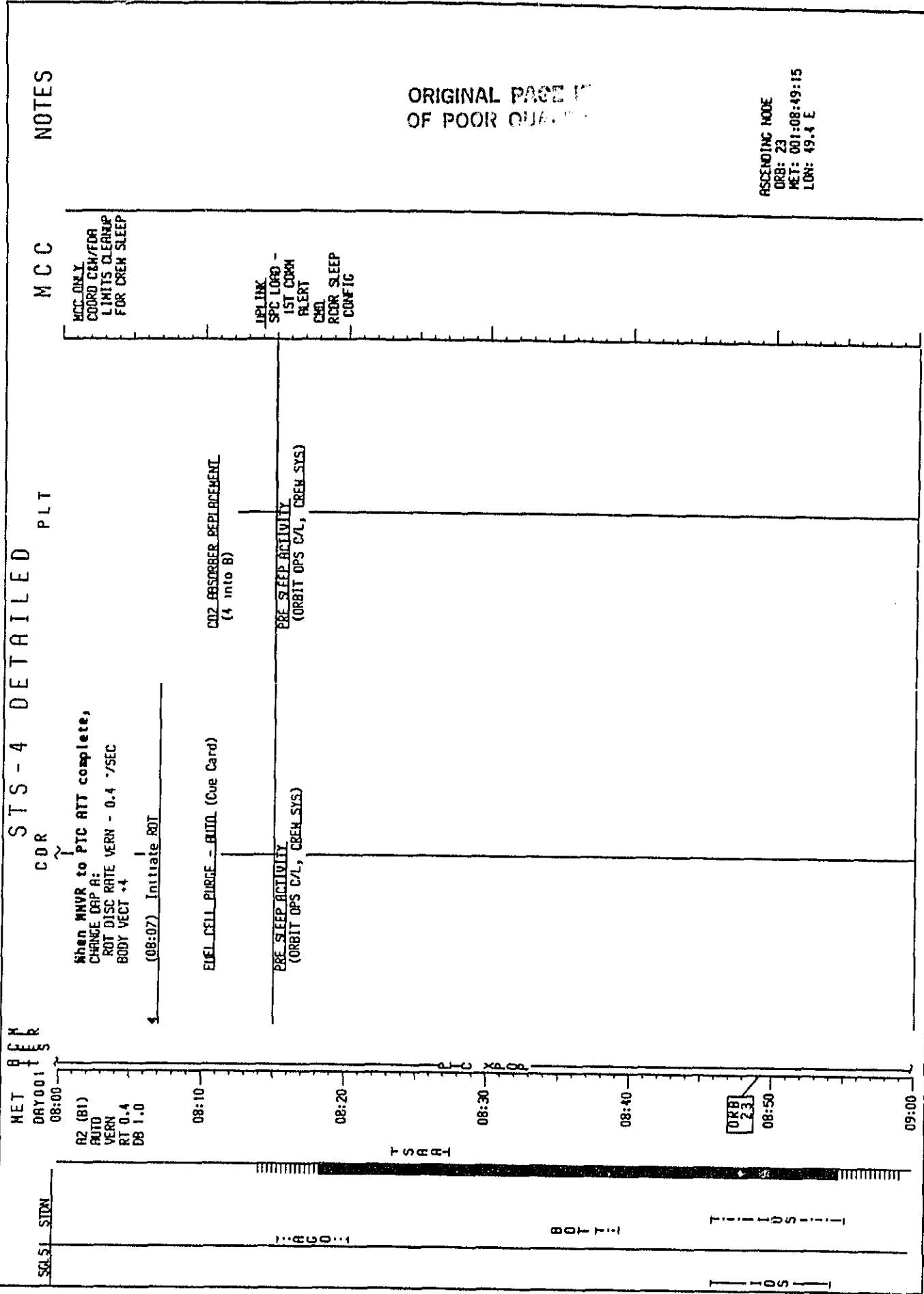
MCC

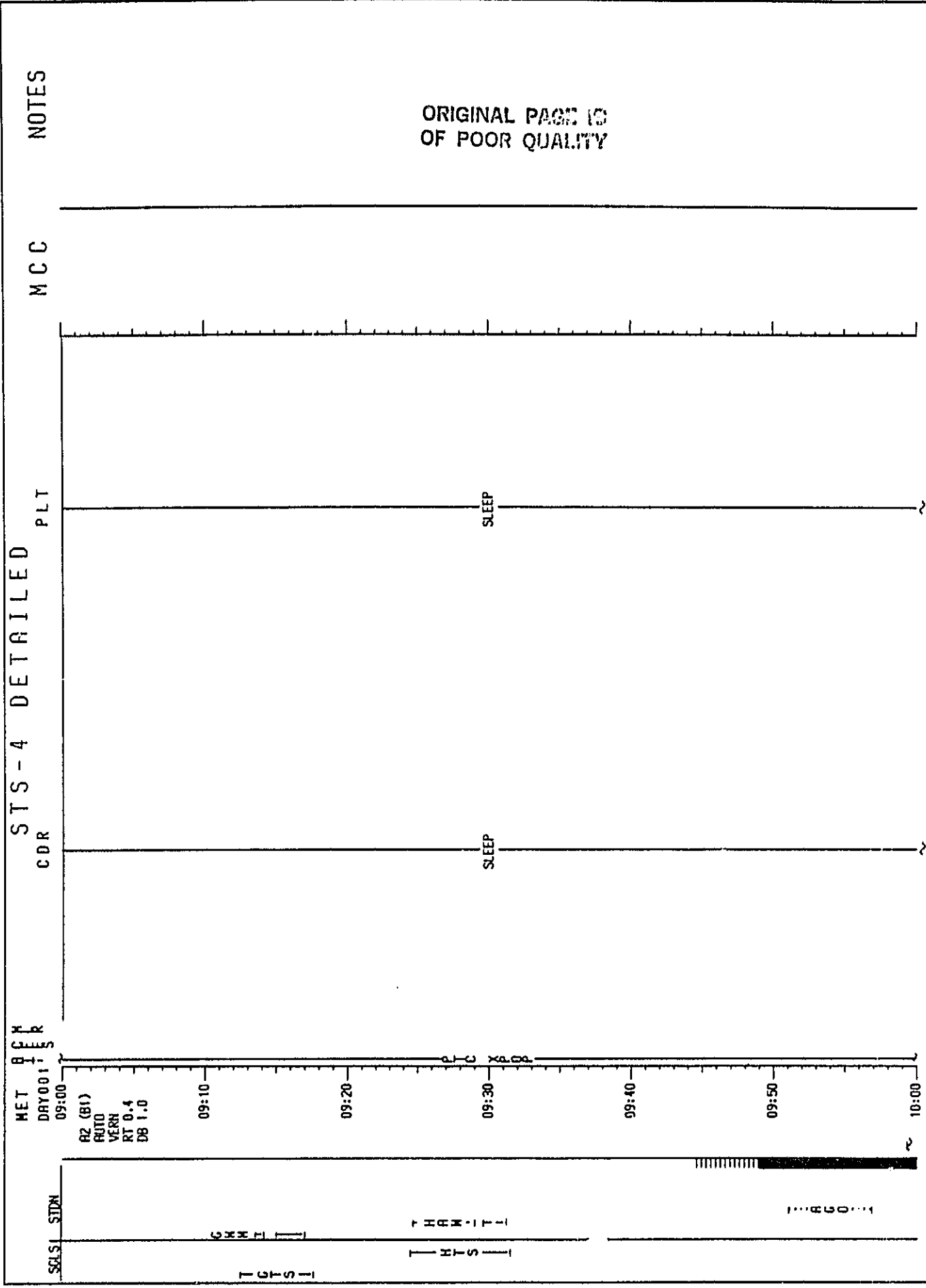
NOTES

CDR

PLT

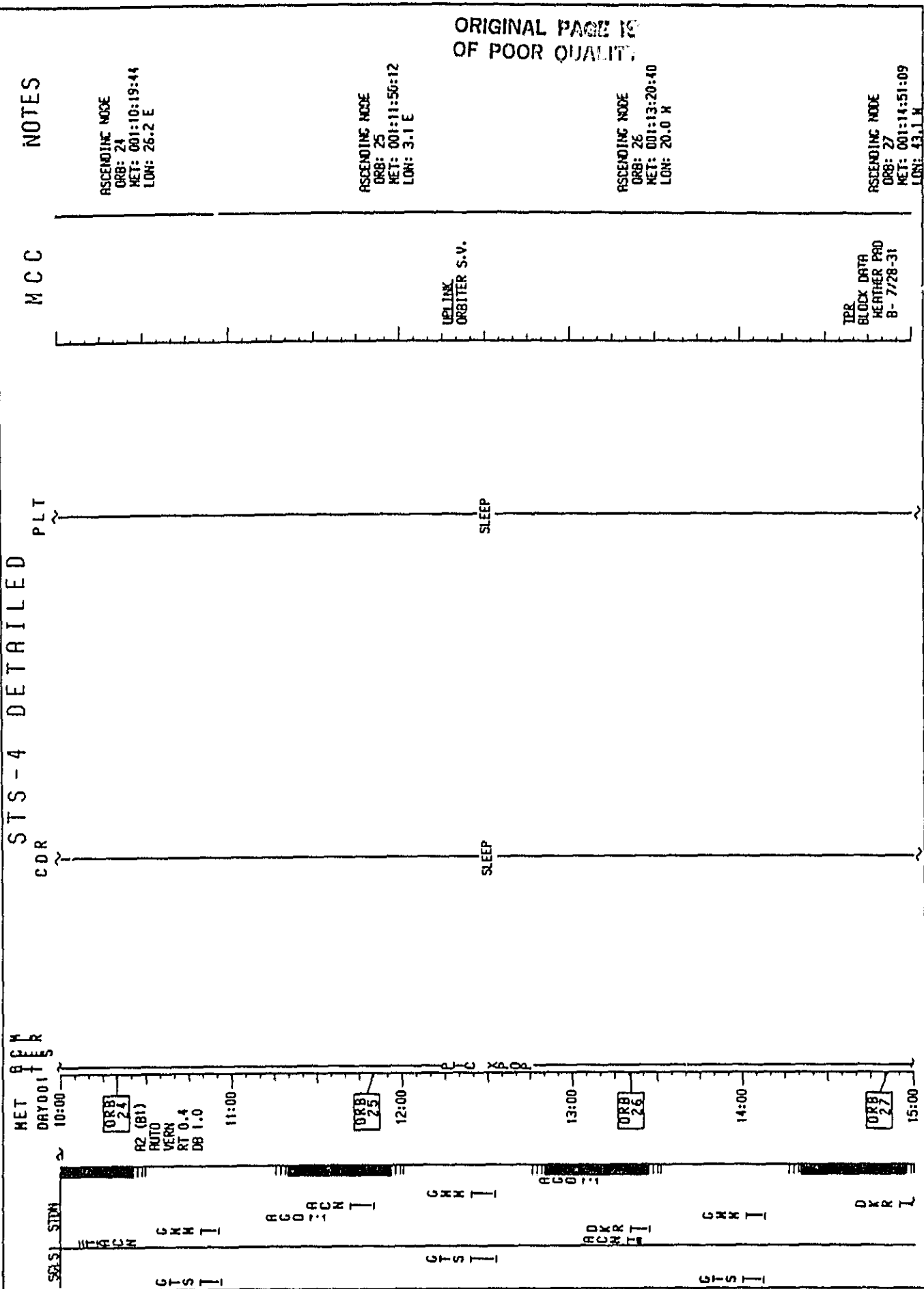






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STS-4 DETAILED



5/14/82 STS4/FIN

STS-4 DETAILED

HET
DAY 001
15:00

R2 (B1)
AUTO
VERB
RT 0.4
DB 1.0

SCSL STDN

D K R

CDR

SLEEP

PLT

SLEEP

MCC

NOTES

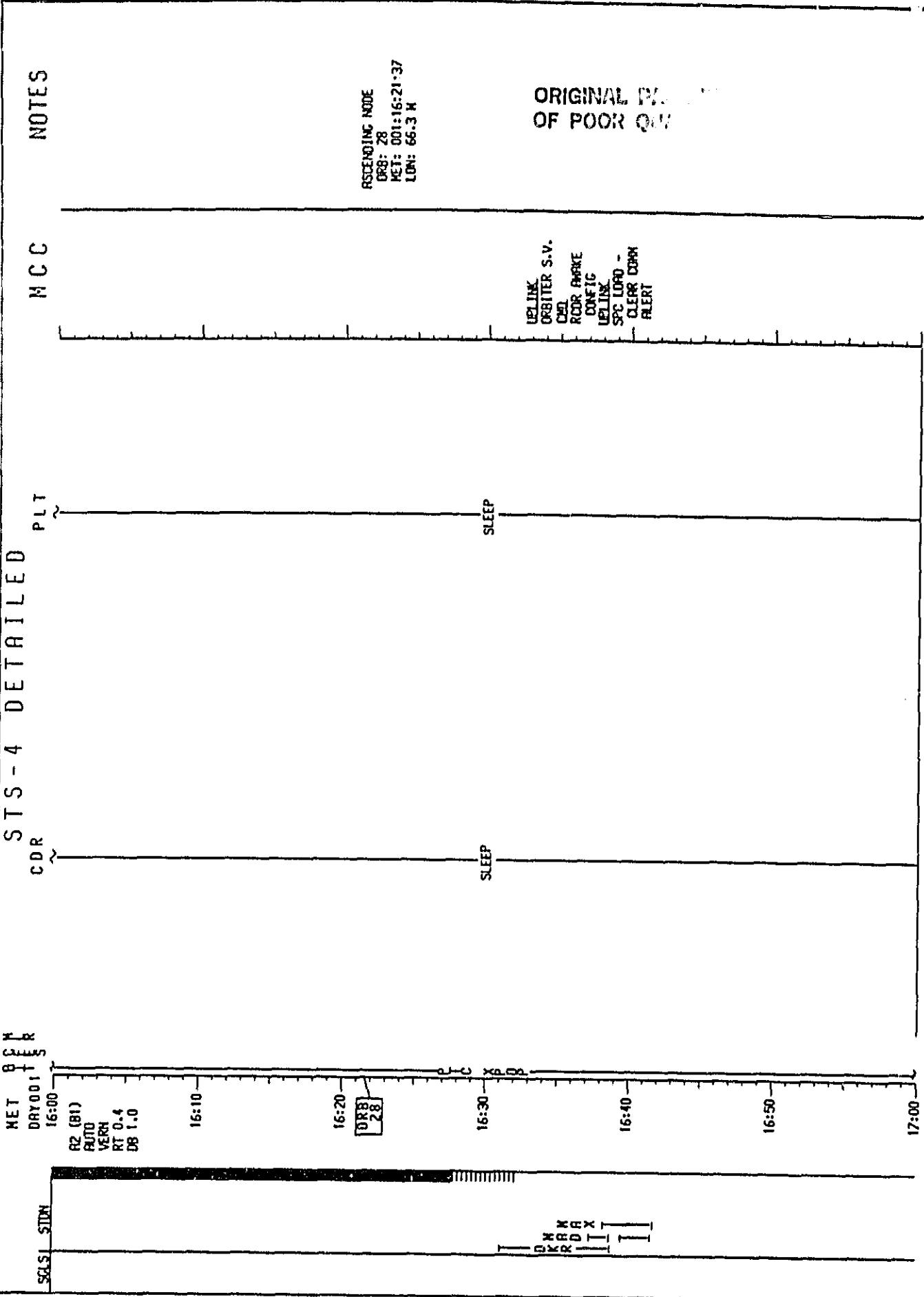
ORIGINAL PAGE IS
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4-29

5714782 SIS4771N

FLT DAY 3

STS-4 DETAILED



STS-4 DETAILED

NOTES

MCC

PLT

CDR

MEM

DRY-001

SGLSI STDN

POST-SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST-SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

RZ (B1)
AUTO
VERN
RT 0.4
DB 1.0



ORIGINAL PATH IS
OF POOR QUALITY

ASCENDING NODE
GRB: 29
MET: 001:17:52:05
LON: 89.4 W

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

URB
29

ORIGINAL PAGE IS
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NOTES

MCC

PLT

STS-4 DETAILED

CDR

CM
MET
DAY 001

UPDATE
H2O SFLY DUMP
QTY TK A & B
LINE DRY LOCK
SN EXPT -
REDD/MOT REOD

UPDATE
OPS/PLS
IDCONNECT
CONFIC

SUPPLY WATER DUSE
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = _____
QTY B = _____

FUEL CELL PIRGE - AUTO. (Cue Card)

NERL

NERL

18:00
R2 (BT)
AUTO
VERN
RT 0.4
DB 1.0

18:10

18:20

18:30

18:40

18:50

19:00

SOLS

B D A

T M
D R
K D
R I
I M
A X
I X
I

T I O S I

T I I Y A R I I I

T I O R K I I

T I O S I

STS-4 DETAILED

NOTES

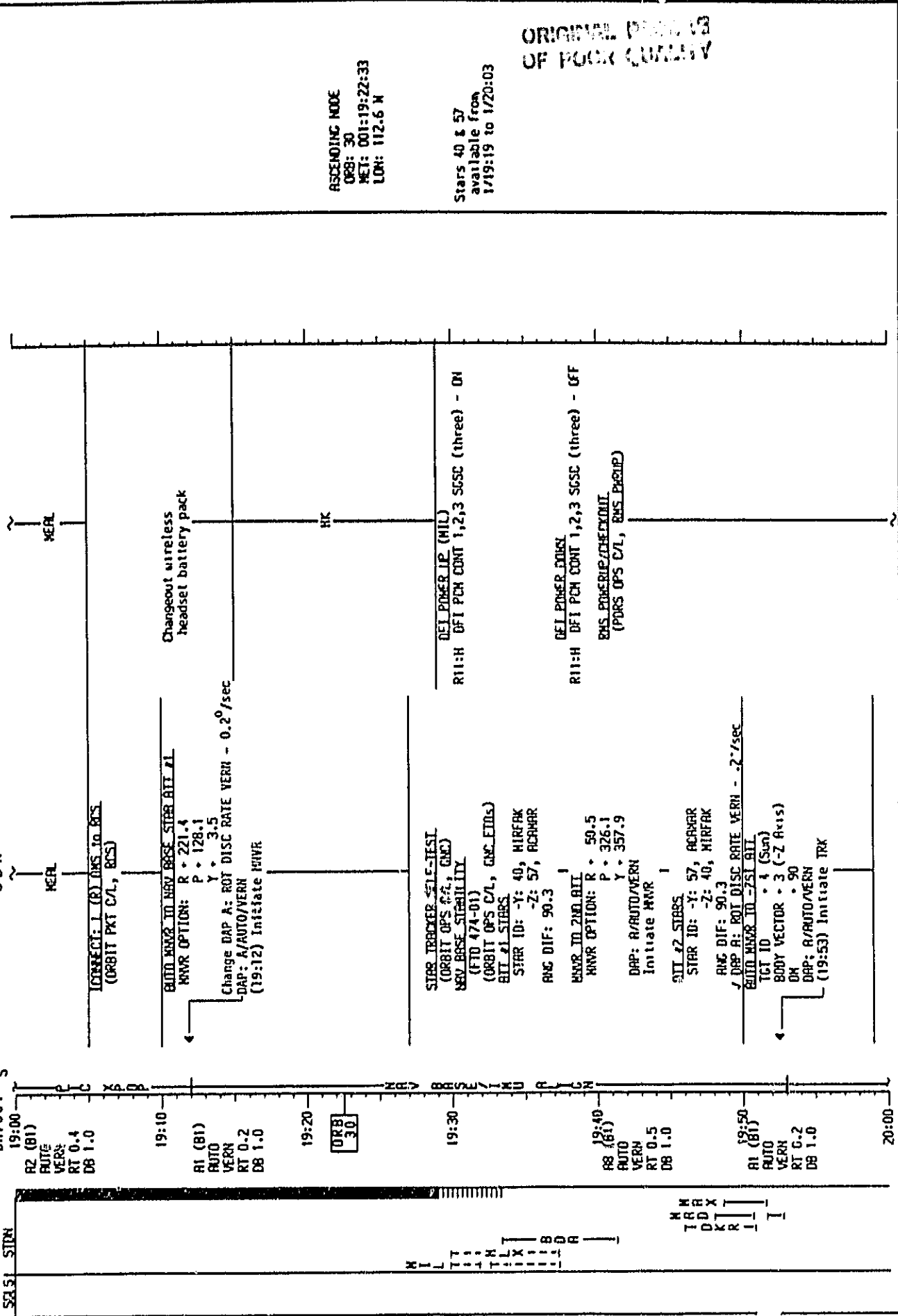
MCC

PLT

CDR

CFR

SELS STDR



ASCENDING NODE
 ORB: 30
 MET: 001:19:22:33
 LDH: 112.6 M

Stars 40 & 57
 available from
 1719:19 to 1720:03

ORIGINAL PRINTING
 OF POOR QUALITY

STS-4 DETAILED

NET
DAY001

20:00

A1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

20:10

20:20

20:30

20:40

20:50

21:00

(A1) B6
CONTRAH
SURVEY

20:10

20:20

20:30

20:40

20:50

21:00

IECM CONTINUATION SURVEY
(FTO 453-01)
(PDRS OPS C/L, CONTRAH SURVEY)

IECM CONTINUATION SURVEY
(FTO 453-01)
(PDRS OPS C/L, CONTRAH SURVEY)

IECM IMBERTH
(PDRS OPS C/L, IECM IMBERTH)

RMS POWERUP/CHECKOUT

CDR

PLT

MCC

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 31
MET: 001:20:53:02
LON: 135.7 X

4-34

5/14/82 STS4/FIR

STS-4 DETAILED

NOTES

MCC

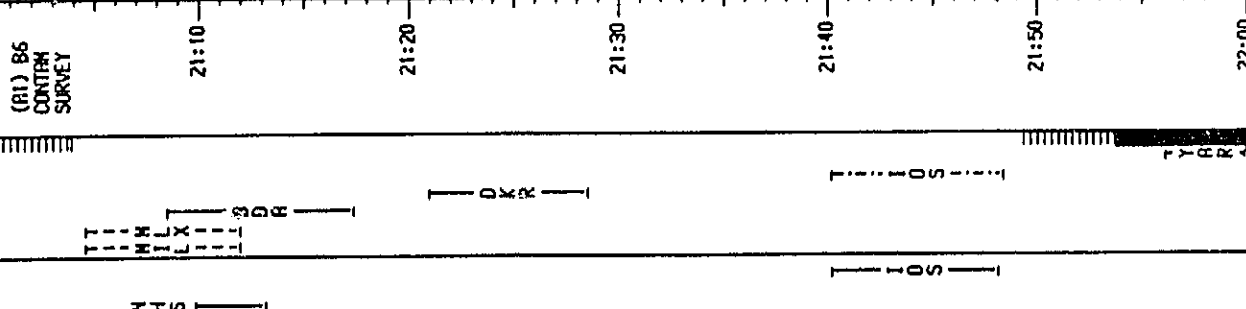
PLT

CDR

BER

MET DAY001

SGLS STDN



UPLINK ORBITER S.V.
TPR
BLOCK DATA
WEATHER PAD
B- 8/32-35

ORIGINAL PAGE IS
OF POOR QUALITY

TECH CONTINUATION SURVEY
(FTO 453-01)

TECH CONTINUATION SURVEY
(FTO 453-01)

STS-4 DETAILED

NET
DAY 001
22:00

NOTES

MCC

PLT

CDR

CM
PER
SUN

(R1) B6
CONTRM
SURVEY

ASCENDING NODE
ORB: 32
MET: 001:22:23:30
LON: 158.9 W

ORIGINAL PAGE 17
OF POOR QUALITY

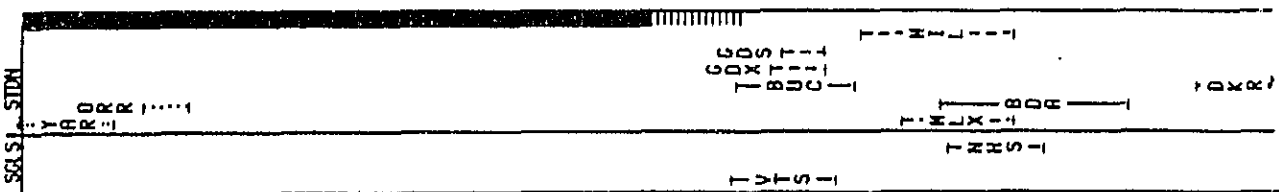
IECK CONTAMINATION SURVEY
(FTO 453-01)

IECK CONTAMINATION SURVEY
(FTO 453-01)

IECK BERTH
(PDORS OPS C/L, IECK BERTH)
Steps 1 & 2 only

C3 JDFI RCDRS PCH - LO SRMP

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0



STS-4 DETAILED

NOTES

MCC

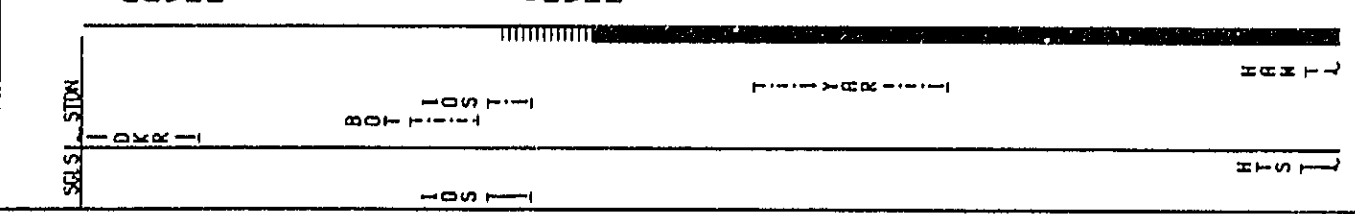
PLT

CDR

CM

ORIGINAL NAME OF POOR QUALITY

ASCENDING NODE
ORB: 33
MET: 001:23:53:58
LON: 177.9 E



IECK BERTH	Change DAP B: DR RIT VERN - 0.1'DB AUTO MNR ID - XSL RIT (FTO 412-01) MNR OPTION: R * 192 P * 278.9 Y * 336.8 DAP: B/AUTO/VERN (23:18) Initiate MNR
MERC PREP (Cue Card) Prepare DAY 3, MERL B	RADIATORS SIGN/DEPLOY FTO 466-01 (ORBIT OPS C/L. ELBD EIOJ) Perform Step 2 - DEPLOY RADIATORS
PRIVATE MEDICAL COMMUNICATION	PRIVATE MEDICAL COMMUNICATION
VCC FREEZER TEMP READINGS (FTO 467-02) Record time, freezer temp, condenser temp (Cue Card)	CABIN TV ACT (TV02-IECK/PLUMB) (PHOTO/TV C/L, TV STERES) VTR

STS-4 DETAILED

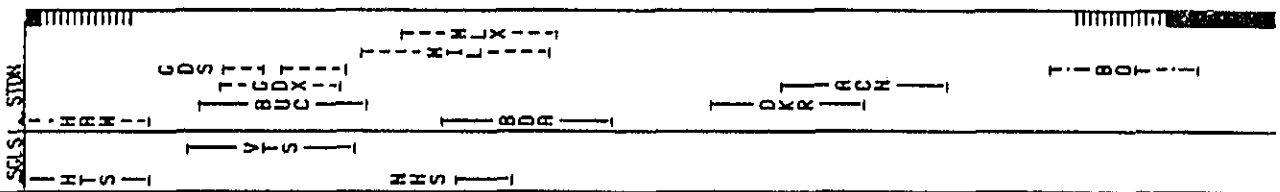
MET
DAY 002
00:00

NOTES

MCC

PLT

CDR



(R1) BZ
 AUTO
 VERN
 RT 0.2
 DB 0.1

00:10 00:20 00:30 00:40 00:50 01:00

ORIGINAL PAGE 18
OF POOR QUALITY

STS-4 DETAILED PLT

NOTES

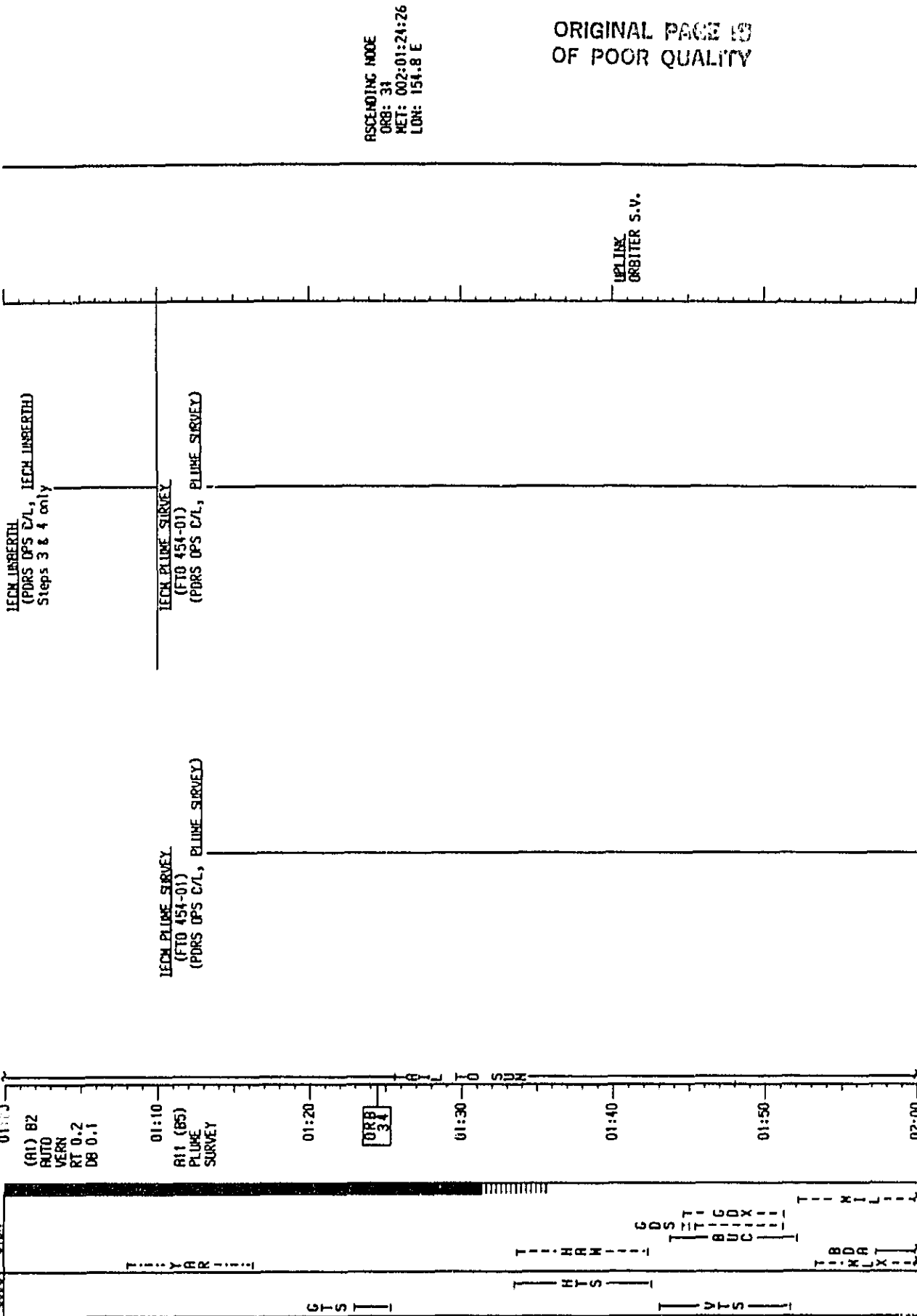
MCC

PLT

CDR

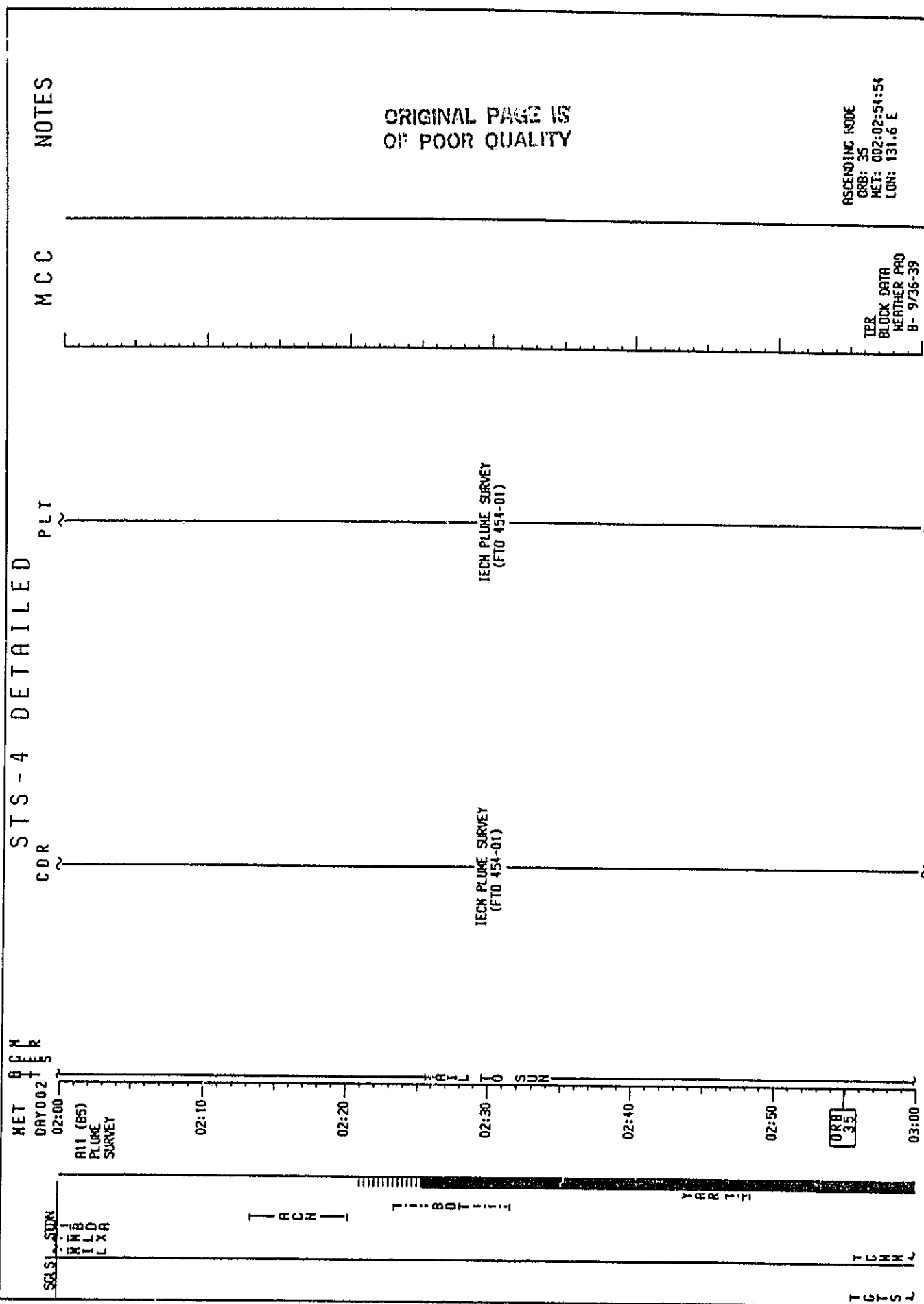
CCP

MET DRY002 01:00



ASCENDING NODE
 ORB: 31
 MET: 002:01:24:26
 LON: 154.8 E

ORIGINAL PAGE 13
 OF POOR QUALITY



NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 35
MET: 002:02:54:54
LON: 131.6 E

MCC

TPR
BLOCK DATA
WEATHER PRO
B- 9/36-39

PLT

TECH PLUME SURVEY
(FTO 454-01)

CDR

TECH PLUME SURVEY
(FTO 454-01)

MET
DAY002
02:00

R11 (B5)
PLUME
SURVEY

02:10

02:20

02:30

02:40

02:50

ORB
35

03:00

SCALE: 1000
WMB
ILD
LXR

ACCN

BOT

YART

TGMW

TGT5

STS-4 DETAILED

NOTES

MCC

PLT

CDR

NET OPER

DAY 002

03:00

A11 (B5)
PLUME
SURVEY

IECH PLUME SURVEY
(FTO 454-01)

IECH PLUME SURVEY
(FTO 454-01)

03:10
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

IECH_BERTH
(PORS OPS C/L, IECH_BERTH)

03:20

03:30

RMS_PHEROMNA
(PORS OPS C/L, RMS_PHEROM)

EXERCISE

03:40

03:50

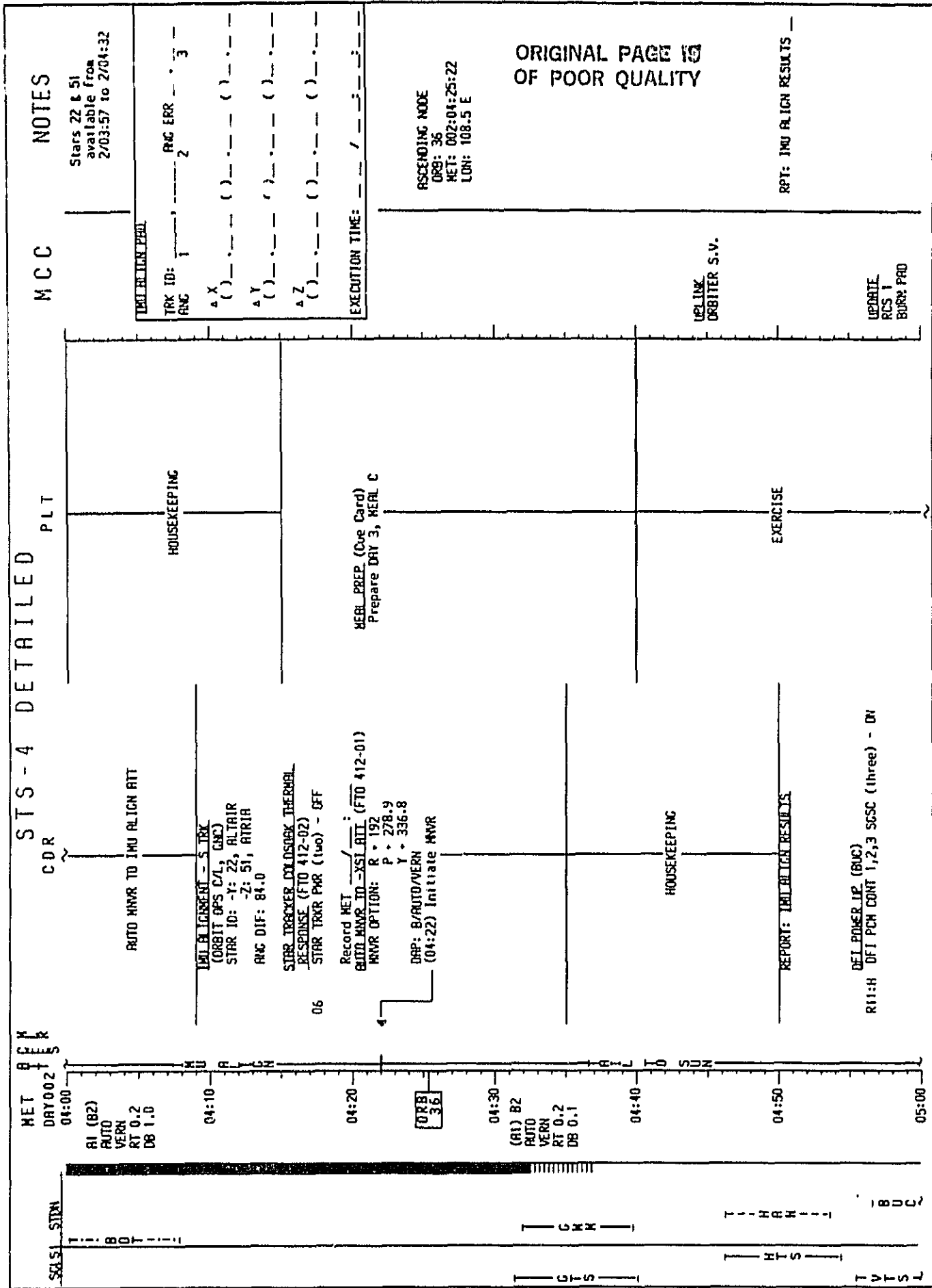
A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

AUTO_HMR TO LAG_ALIGN_ATT
HMR OPTION: R - 256.2
P - 13.7
Y - 345.8
DAP: R/AUTO/VERN
(03:56) Initiate HMR

04:00

ORIGINAL PAGE 19
OF POOR QUALITY

STS-4 DETAILED



STARS 22 & 51 available from 2/03:57 to 2/04:32

MCC

PLT

CDR

MET

DAY 002

04:00

04:10

04:20

04:30

04:40

04:50

05:00

AI (B2)
AUTO
VERN
RT 0.2
DB 1.0

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

AUTO MNR TO IMU ALIGN ATT

IMU ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 22, ALTAIR
-Z: 51, ATRIA
RNG DIF: 84.0

STAR TRACKER CALDSACK THERMAL
RESPONSE (FTO 412-02)
STAR TRKR PWR (two) - OFF

Record MET
AUTO MNR TO -XSL ATT (FTO 412-01)
MNR OPTION: R * 192
P * 278.9
Y * 336.8
DAP: B/AUTO/VERN
(04:22) Initiate MNR

HEAL PREP (Cue Card)
Prepare DAY 3, HEAL C

ORB 36

HOUSEKEEPING

REPORT: IMU ALIGN RESULTS

DEL POWER UP (GNC)
R11:H OFI PCH CONT 1,2,3 SCSC (three) - ON

HOUSEKEEPING

EXERCISE

ASCENDING NODE
ORB: 36
MET: 002:04:25:22
LON: 108.5 E

ORIGINAL PAGE 19
OF POOR QUALITY

LELINK
ORBITER S.V.

RPT: IMU ALIGN RESULTS

UPDATE
RCS 1
BURN PAD

STS-4 DETAILED

NOTES

MCC

PLT

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE
ORB: 37
MET: 002:05:55:50
LON: 85.3 E

NET OPER
DAY 002

CDR

DEL POWER DOWN
R11:H DFT PCK CONT 1,2,3 SCSC (three) - OFF

05:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

05:10

EXERCISE

05:20

ON-ORBIT RCS BURN (RCS 1)
(ORBIT OPS C/L, RCS)
(MN 202 BURN)

AUTO MNVR TO BURN ATT

05:30

(A1) (B2)
AUTO
VERN
RT 0.2
DB 1.0

RCS 1 BURN

05:40

(A1) B2
MAN
DISC
NORM
RT 0.5
DB 3.0

RCS 1 (2/05:45:00)

BUILD MNVR TO -351 AIL (FTO 412-01)

MNVR OPTION: P = 192
P = 278.9
Y = 336.8

DAP: 8/AUTO/VERN
(05:47) Initiate MNVR

014:F, Primary RJD DRIVER (eight) - OFF
015:F,
016:F

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =
SINGLE C2 CPC OPS
(ORBIT OPS C/L, DES)

CONNECT RETURN (OPS 2.3)
(ORBIT PKT C/L, RCS)

05:50

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

06:00

4-43

5714782 SIS4/FIN

STS-4 DETAILED

MET
DRY002
06:00

(R1) B2
AUTO
VERB
RT 0.2
DB 0.1

STS-4
GWH
HTS
T-HRW
80011

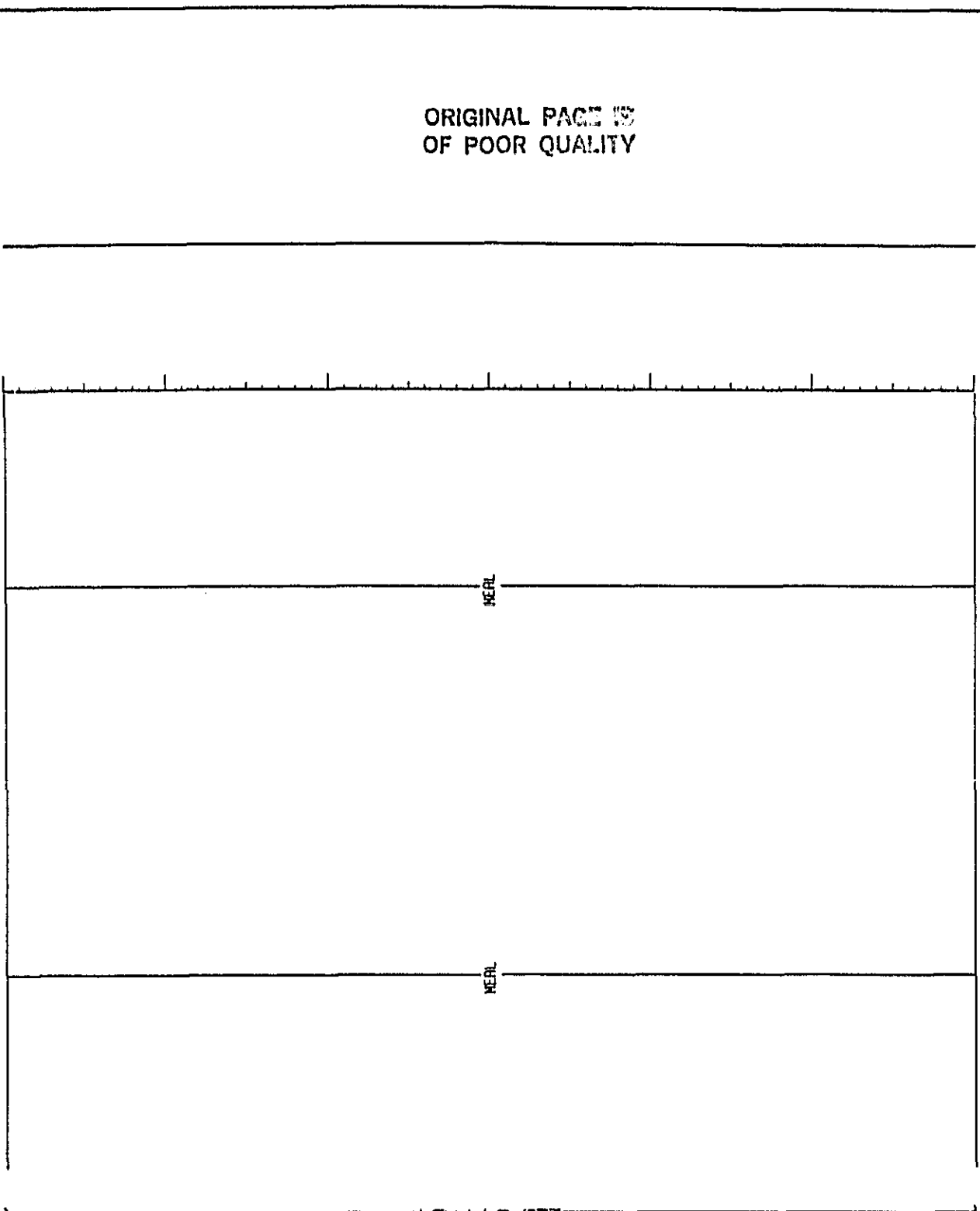
CDR

PLT

MCC

NOTES

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5/11/82 STS/PLN

4-44

STS-4 DETAILED

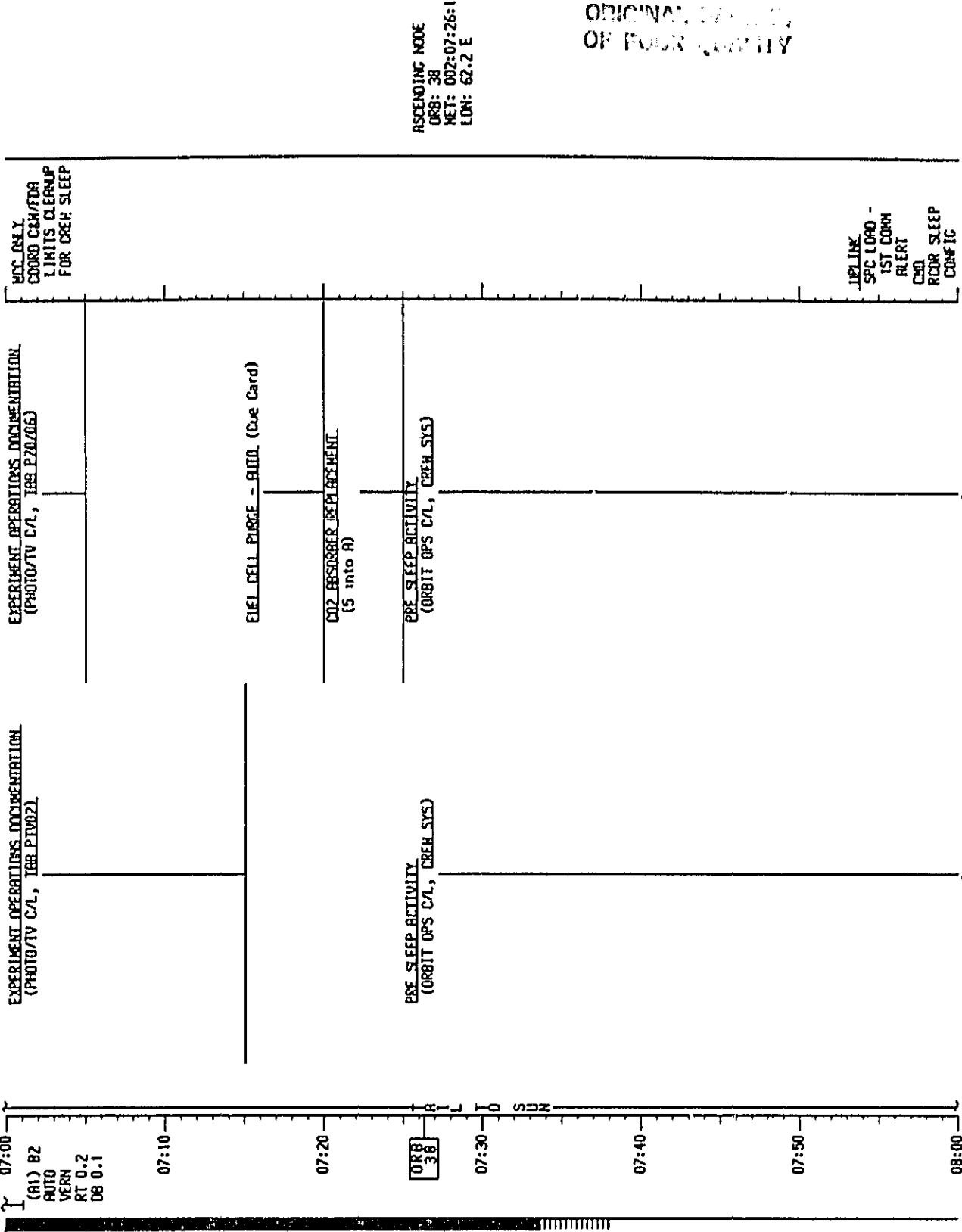
MET 07:00
DAY 002

NOTES

MCC

PLT

CDR



5711782 SISTR/FIN

1-15

STS-4 DETAILED

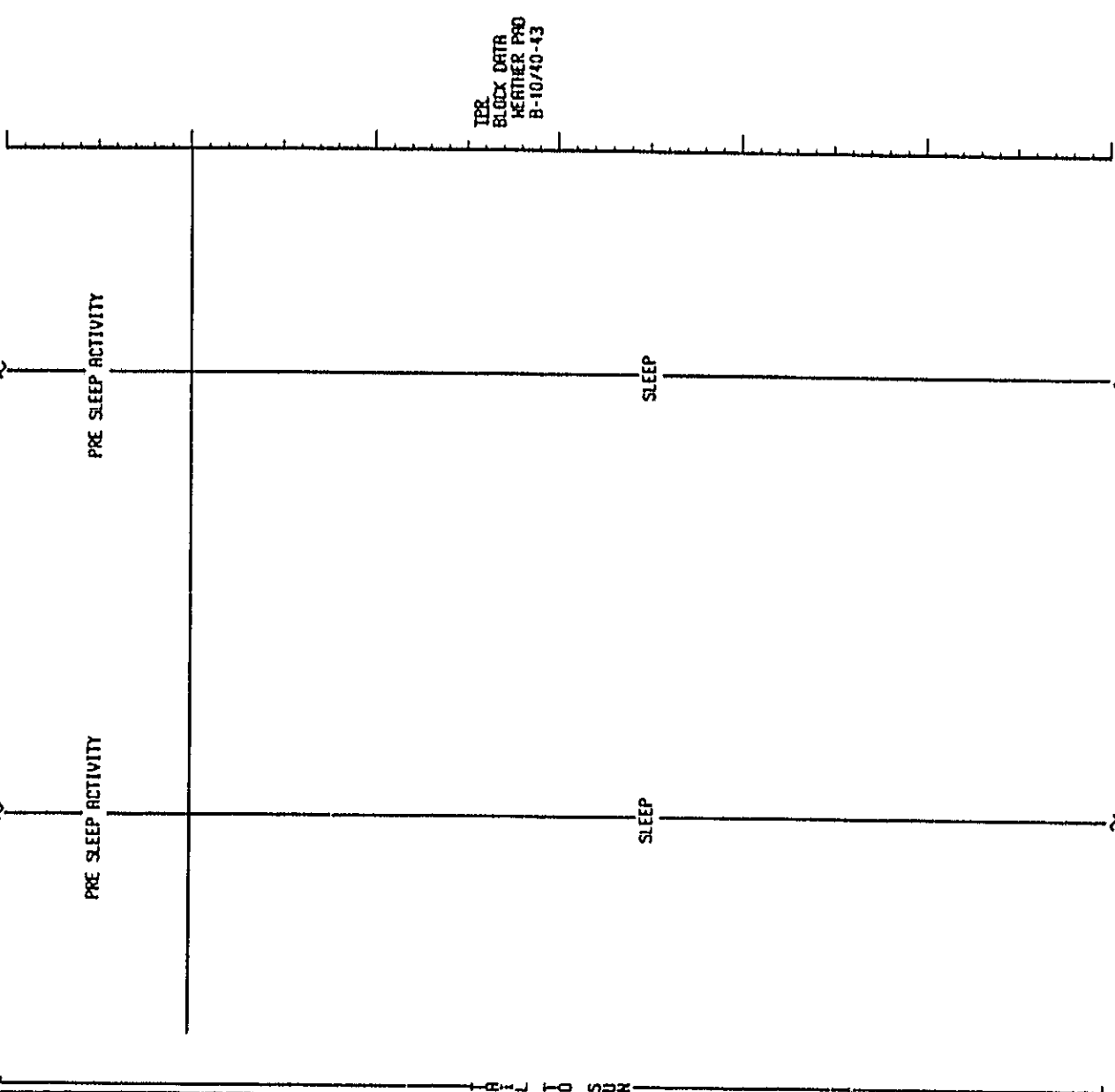
MET B CDR

NOTES

MCC

PLT

CDR



ORIGINAL PAGE IS OF POOR QUALITY

ASCENDING NODE
ORB: 39
MET: 002:08:56:46
LON: 39.0 E

TEMP. BLOCK DATA
WEATHER PRO
B-10/40-43

HTS I
SGLS
SIDN
MET B CDR
DAY 002 I S
08:00
(R1) BZ
AUTO
VERB
RT 0.2
DB 0.1
08:10
08:20
08:30
08:40
08:50
09:00
TSR R
RCH F
I O S
I O S

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET

DRY002

09:50

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ORIGINAL PAGE #1
OF POOR QUALITY

UPLINK
ORBITER S.V.

SLEEP

SLEEP

SLEEP

SLEEP

SLEEP

SLEEP

SLEEP

STS-4 DETAILED

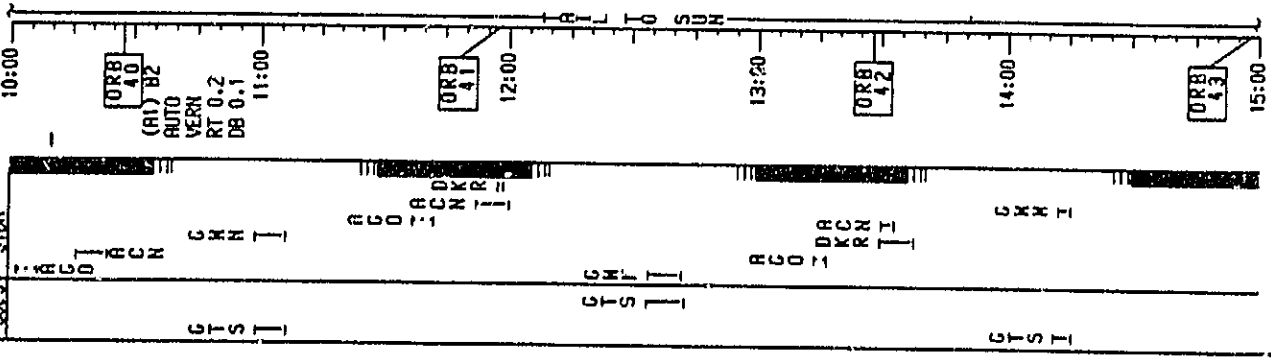
CDR

PLT

MCC

NOTES

MET 0900
DAY002



ORIGINAL PAGE NO. OF BOOK 1000000000

ASCENDING NODE
ORB: 40
MET: 002:10:27:14
LON: 15.9 E

ASCENDING NODE
ORB: 41
MET: 002:11:57:48
LON: 7.2 W

ASCENDING NODE
ORB: 42
MET: 002:13:28:09
LON: 30.3 W

ASCENDING NODE
ORB: 43
MET: 002:14:58:51
LON: 53.4 W

UPLINK
ORBITER S.V.

TE3
BLOCK DATA
HEATHER PRD
2-11/44-47

SLEEP

SLEEP

STS-4 DETAILED

MET
DAY 002

15:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

15:10

15:20

15:30

15:40

15:50

16:00

SLS1 STDA

DRKR M A D T

ORIGINAL DATE IS
OF POOR QUALITY

NOTES

MCC

PLT

CDR

SLEEP

SLEEP

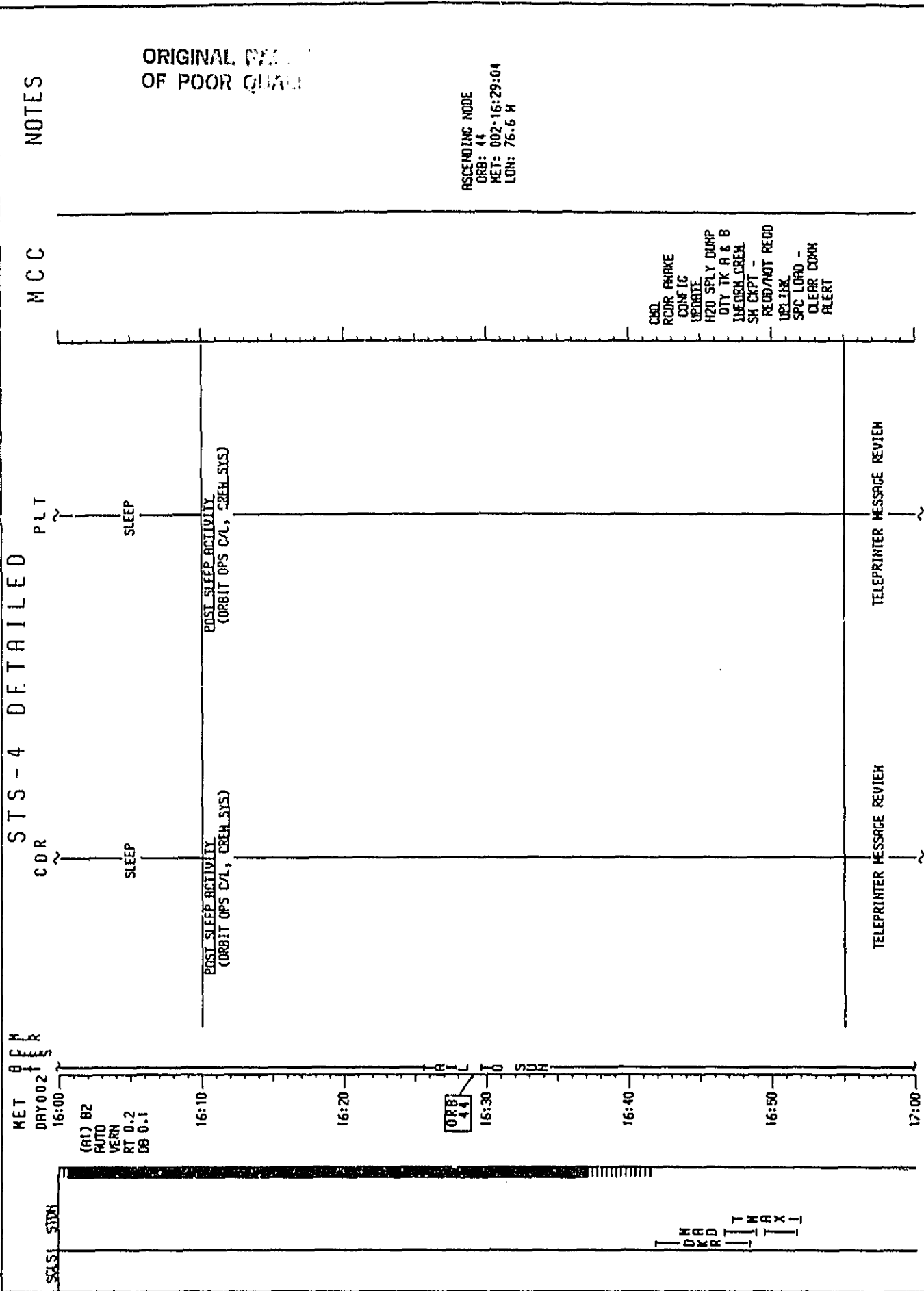
TALL TO SUN

1-49

5/14/82 SIS4/IN

FLT DAY 4

STS-4 DETAILED



STS-4 DETAILED

NOTES

MCC

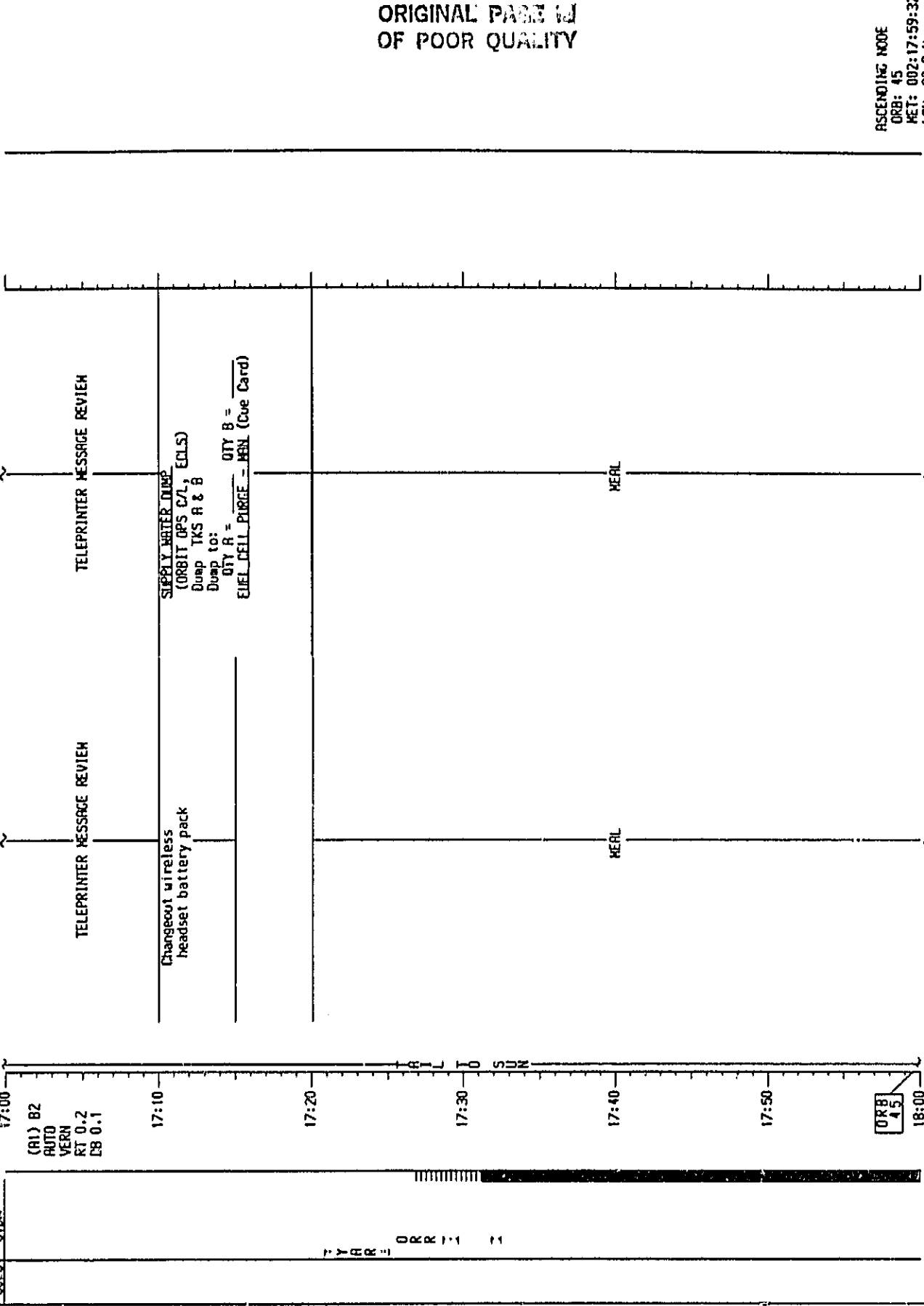
PLT

CDR

CM

MET DRY002

SELS STDR



ORIGINAL PAGE 14 OF POOR QUALITY

ASCENDING MODE
ORB: 45
MET: 002:17:59:32
LON: 99.8 K

ORB 45

ORR 11 11

STS-4 DETAILED

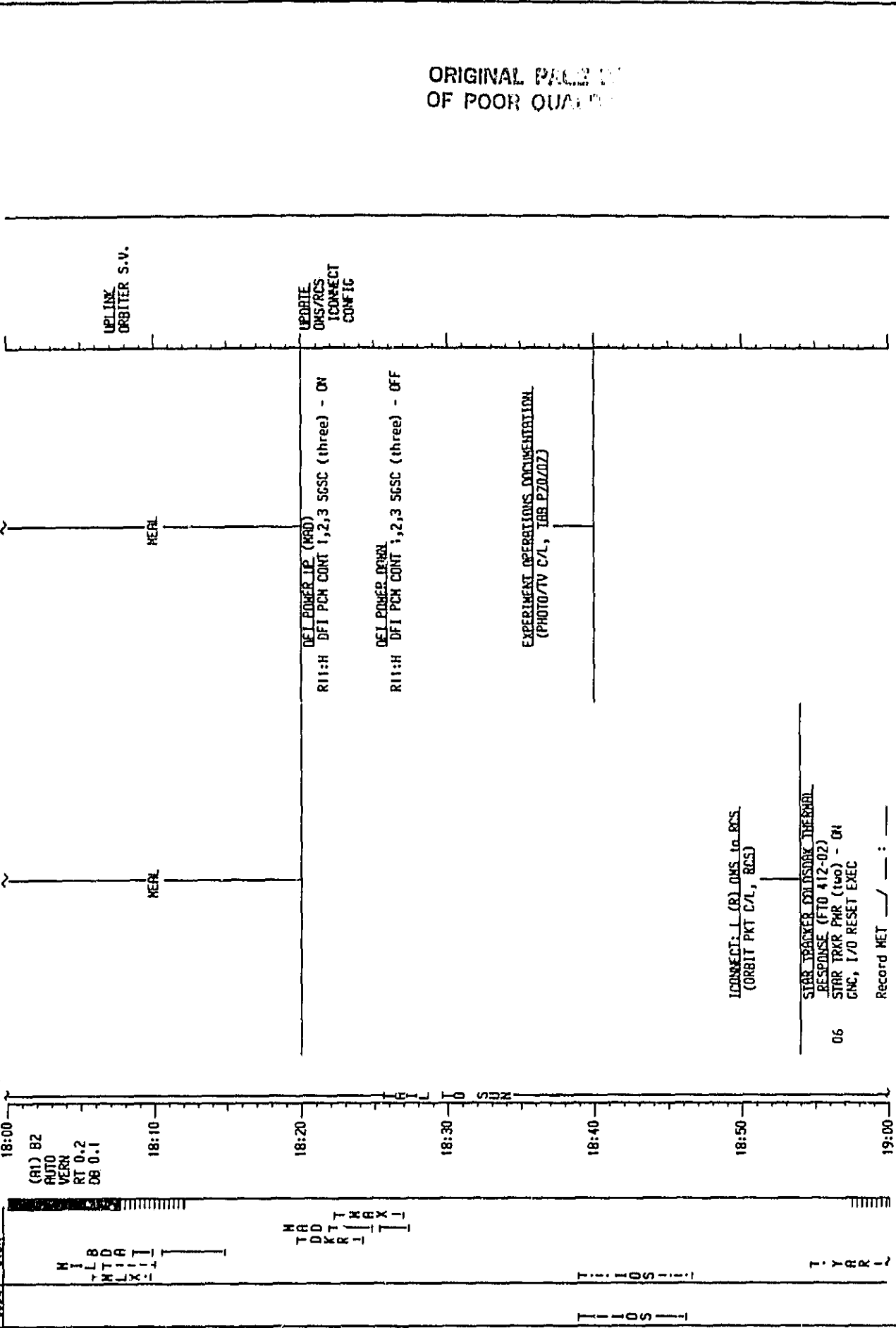
NOTES

MCC

PLT

CDR

MET OPER
DRY002



ORIGINAL PAGE OF POOR QUALITY

SIS-4 DETAILED

PLT

NOTES

MCC

NOTES

NET

CDR

SELS

AUTO MVR TO IMPLIGH NET
 MVR OPTION: R * 61
 P * 240.3
 Y * 318.3
DAP: B/AUTO/VERN
 (19:02) Initiate MVR

STAR TRACKER SELF-TEST
 (ORBIT OPS C/L, GNC)
 IMPLIGNMENT - S TRK
 (ORBIT OPS C/L, GNC)
 STAR ID: -Y: 26, FOH/HAUT
 -Z: 14, VEGA
 RNG DIF: 91.4

AUTO MVR TO -YSL ATL (FTO 412-01)
 MVR OPTION: R * 192
 P * 278.9
 Y * 336.8
DAP: B/AUTO/VERN
 (19:27) Initiate MVR

G2 TO GB TRANSITION
 (ORBIT OPS C/L, DES)

EXPERIMENT OPERATIONS IDENTIFICATION
 (PHOTO/TV C/L, TAB P20/05 & P20/09)

ECLSS REMINORANT COMPONENT C/D
 (ORBIT OPS C/L, ECLS)

CABIN HEAT EXCHANGER/SUPPER
 EREC R20 INSPECTION

1. Open vent duct access door (outboard of cabin heat exchanger) and loosen lower vent cap clamp (3/8 in deep socket)
2. Remove vent cap and inspect for free water
3. No water - reinstall cap/secure water

Water Reserved - advise MCC

POBER IP - ECLSS (FTO 479-01)
 TACAN (three) MODE - T/R
 CH 1 X
 CH 2 X
 CH 3 X
 (:) Channels are for

CEFS ACTIVATION/CONT SYS ZERO CK
 (Cue Card)
 (FSO S436-01)
 Sequence 11 - Samples 4,5 and 6

Stars 26 & 14 available from 2/19:06 to 2/19:49

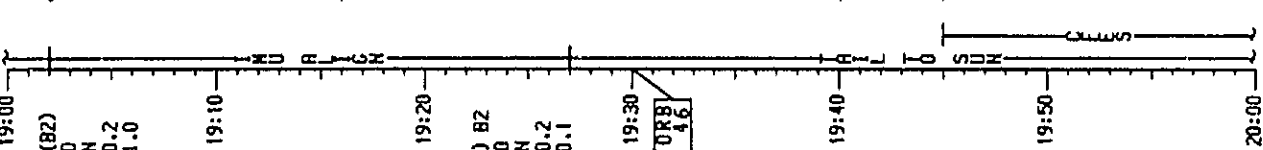
TIME/HEIGHT PPH

TRK ID: 1, RNG ERC: 2, 3
 A X () () ()
 A Y () () ()
 A Z () () ()

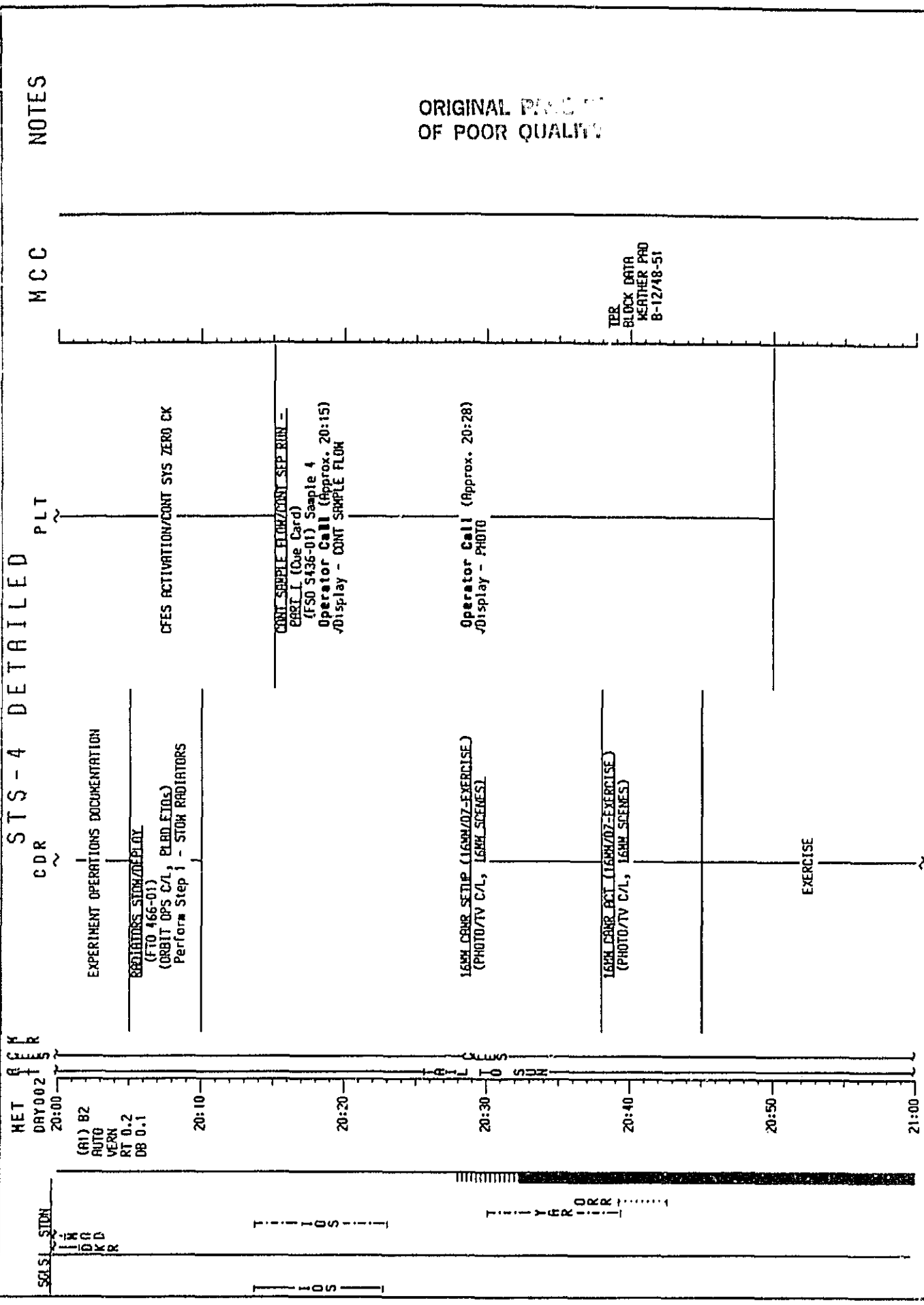
EXECUTION TIME: / /

ASCENDING NODE
 DRB: 46
 MET: 002:19:30:00
 LON: 122.9 W

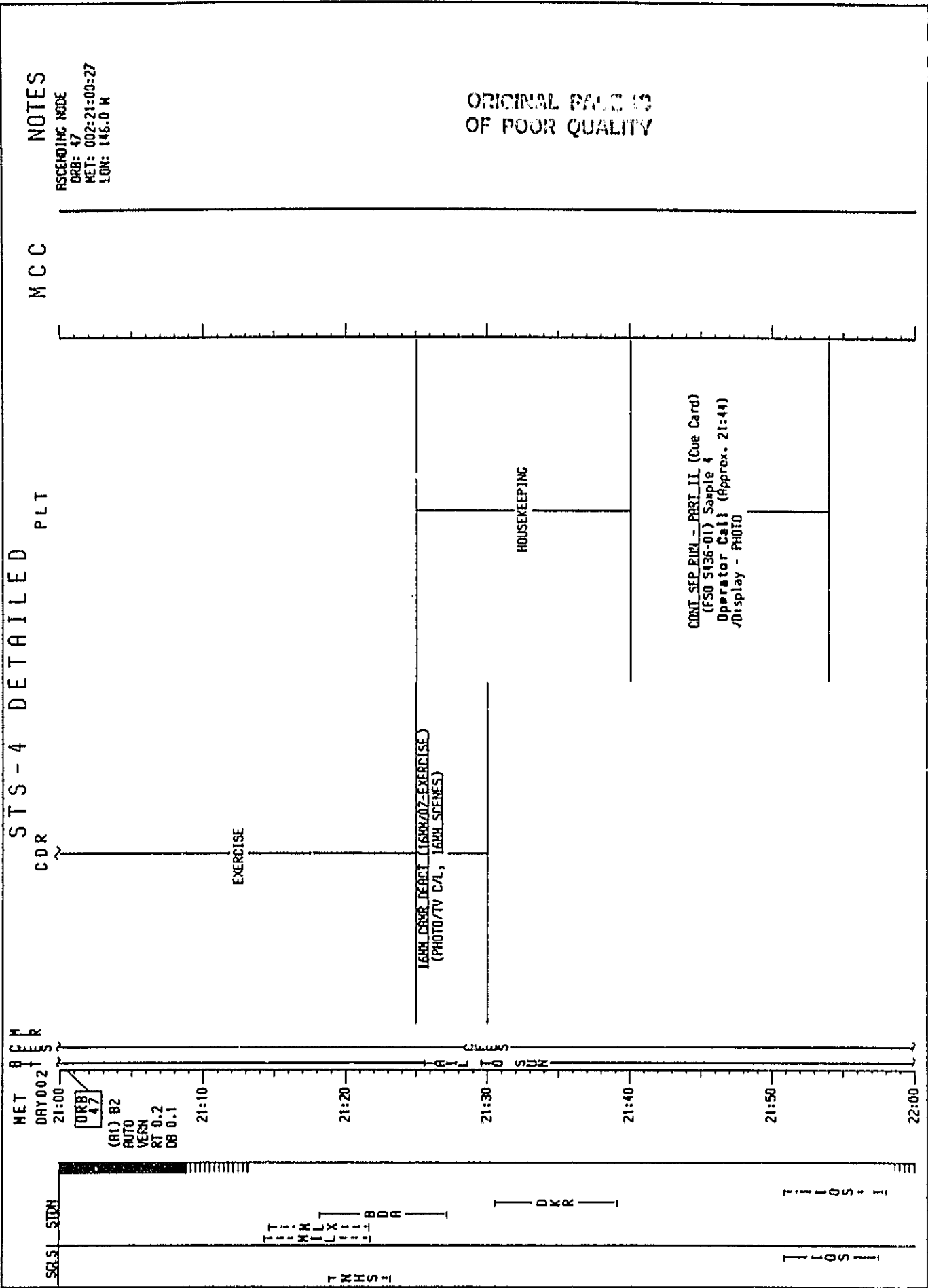
ORIGINAL... OF POOR QUALITY



STS-4 DETAILED



ORIGINAL PRINT OF POOR QUALITY



STS-4 DETAILED

PLT

CDR

CEM

MET DAY002 22:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

MERL_PREP. (Cue Card)
Prepare DAY 4, MERL B

REINSERT MEN COLLECTOR. (Cue Card)
(FSO 5436-01) Sample 4
Operator Call (Approx. 22:31)
Display - PHOTO

UPLINK
ORBITER S-V.

Operator Call (Approx. 22:56)
Display - PHOTO

RADIATORS STOW/DEPLOY
(FTO 466-01)
(ORBIT OPS C/L, PLED ETDs)
Perform Step 2 - DEPLOY RADIATORS

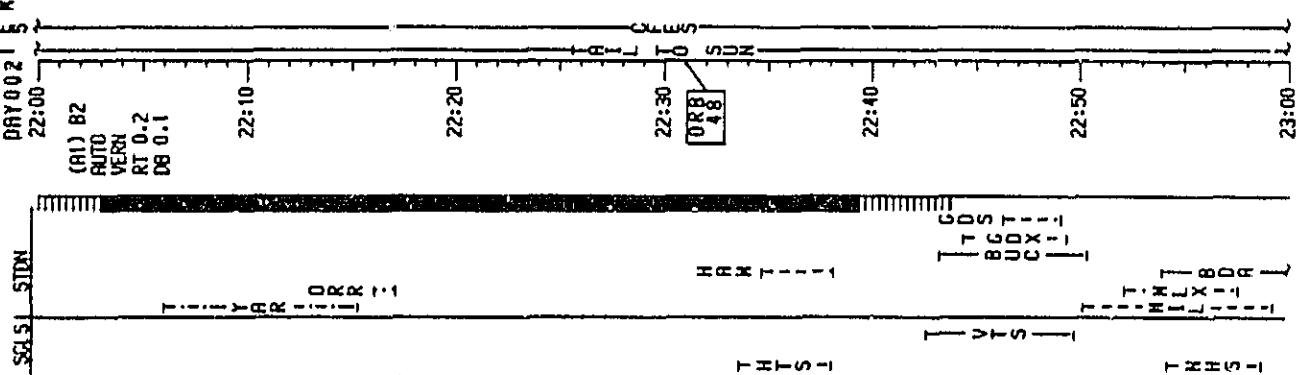
HOUSEKEEPING

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 48
MET: 002:22:30:55
LUN: 169.2 N

MCC



STS-4 DETAILED

NOTES

MCC

PLT

CDR

CM

MET
DRY002

SOLS STION

(R1) B2
RUITO
VERN
RT 0.2
D8 0.1

R/INSERT MEK COLLECTOR

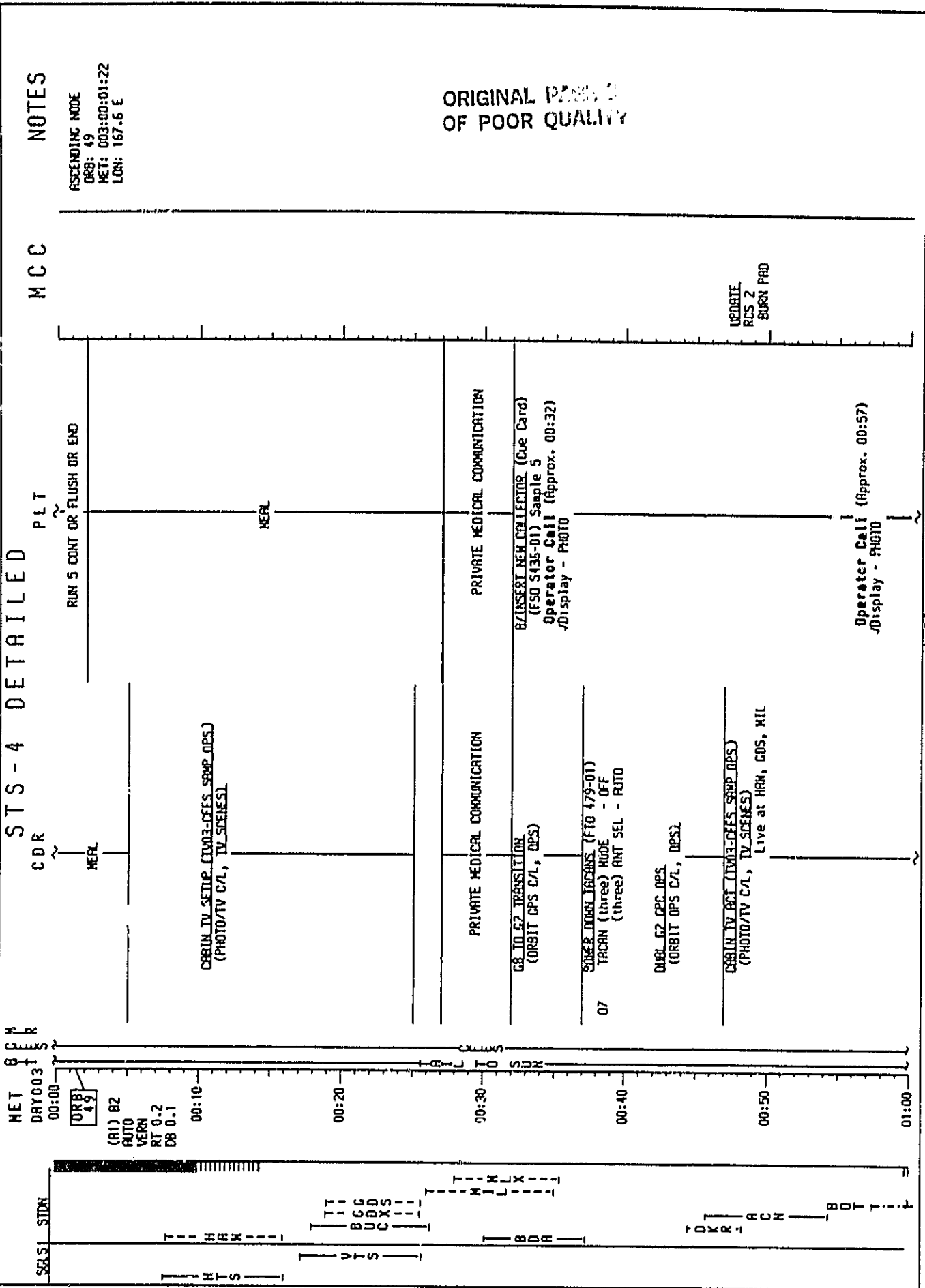
MERL

MERL

RUN 5 COUNT OR FLUSH OR ENL
(Cue Card)
(FSO 5436-01) Sample 5
Operator Call (Approx. 23:42)
/Display - RUN 5 COUNT OR
FLUSH OR ENL
Operator Call (Approx. 23:49)
/Display - PHOTO

CRITICAL
OR PAUSE

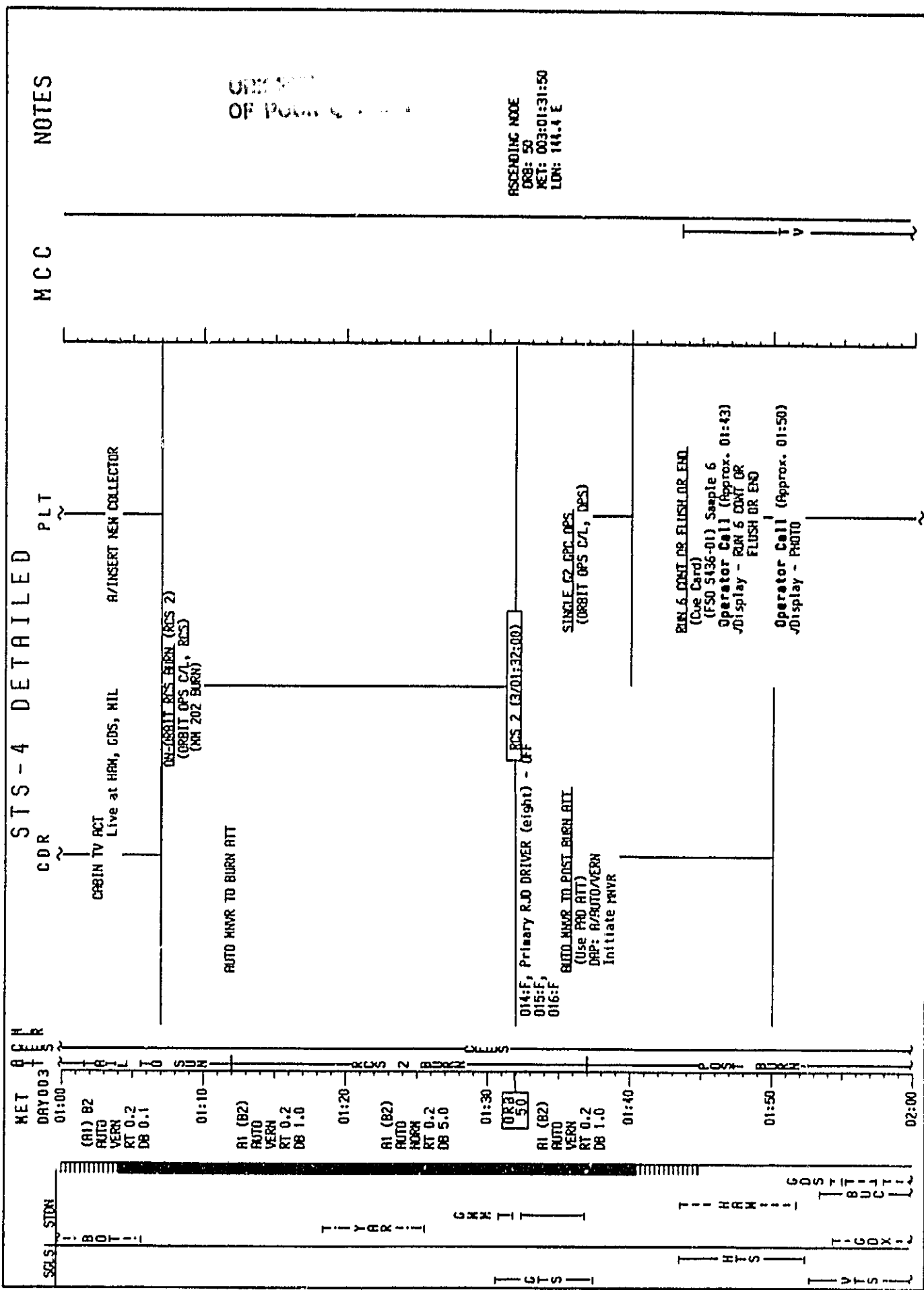
STS-4 DETAILED



NOTES

ASCENDING NODE
 ORB: 49
 MET: 003:00:01:22
 LON: 167.6 E

ORIGINAL PARTIAL
 OF POOR QUALITY



STS-4 DETAILED

CDR

PLT

NOTES

MET
DAY 003
02:00

SCSI SUN
VVTS
BDDTT
UXXM
C
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

RUN 6 CONT OR FLUSH OR END

BUDD MWR ID - XSLAIL (FTO 412-01)
MWR OPTION: R - 192
P - 278.9
Y - 336.8
DPP: B/AUTO/VERN
(02:07) Initiate MWR

VEC FREEZER TEMP. READING
(FTO 467-02)
Record time, freezer temp,
condenser temp (Doe Card)

IVZUR DEBEL (IVZUR/DEBL Doe Card)

DEL POWER UP (RCH)
R11:H DEL PCH CONT 1,2,3 SGSC (three) - ON

DEL POWER DOWN
R11:H DEL PCH CONT 1,2,3 SGSC (three) - OFF

RESET MWR COLLECTOR (Doe Card)
(FSO 5435-01) Sample 6
Operator Call (Approx. 02:33)
Display - PNC2

Operator Call (Approx. 02:58)
Display - PNC2

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

MET DAY03 03:00

SOLS: SIDM

PLT

CDR

NOTES

ORR 51
 (R1) B2
 AUTO
 VERN
 RT 0.2
 DB 0.1

SENDING MODE
 ORR: 51
 MET: 03:03:02:17
 LCN: 121.3 E

IER
 BLOCK DATA
 HEATER PAD
 3-13/52-55

A/INSERT NEW COLLECTOR

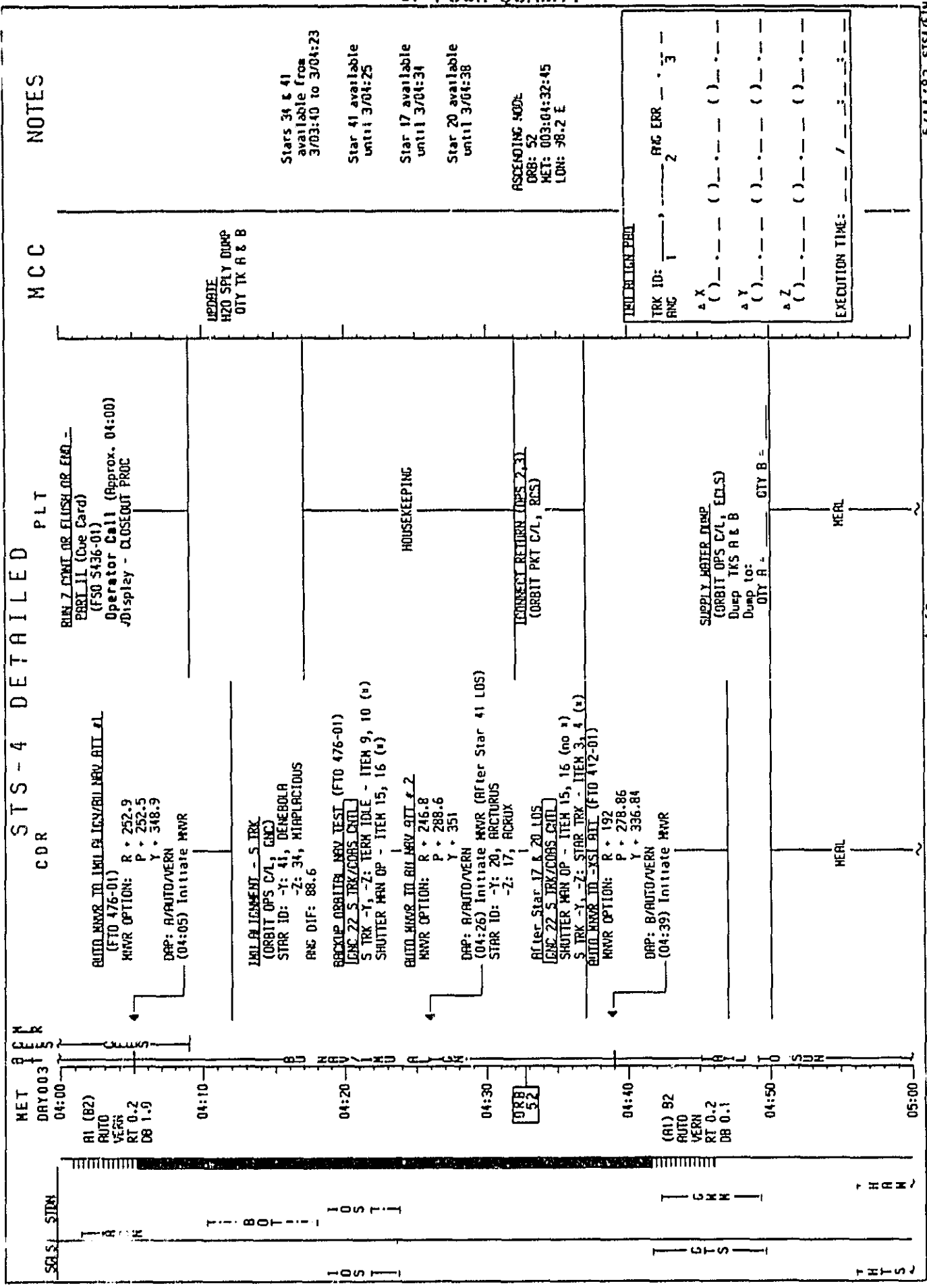
HOUSEKEEPING

BEEL PREP (Cue Card)
 Prepare DR1 A, MEAL C

EXERCISE

RIN 7 CONT OR FLUSH OR END
 PARI 1 (Cue Card)
 (FSD 5436-01)
 Operator Cell (Approx. 03:44)
 /Display - RIN 7 CONT OR
 FLUSH OR END

ORIGINAL PRINTING
 OF POOR QUALITY



5/14/82 SIS/AFN

4-62

C-2

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET
DAY003
05:00

(RT) B2
AUTO
VERN
RT 0.2
DB 0.1

05:10

05:20

05:30

05:40

05:50

06:00

ORIGINAL PAGE IS
OF POOR QUALITY

RPT: INU PLCN RESULTS

EXPERIMENT DEVIATIONS DOCUMENTATION
(PHOTO/TV C/L, TAB P702/ID)

REPORT: INFLIGHT RESULTS
COMMUNICATOR C/A LAMP TEST
(ORBIT OPS C/L, EPS)

5714782 STS47FIN

STS-4 DETAILED

PLT

CDR

NET 0303
DAY 003

EIRE/SNDRK DETECT/SUPPRESS TEST
(ORBIT OPS C/L, EES)

CRZ PASSENGER REPLACEMENT
(6 into 8)

FUEL CELL PURGE - AUTO (Cue Card)

UPR 53
(AT) 82
AUTO
VERB
RT 0.2
DB 0.1

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

NOTES

ASCENDING NODE
ORB: 53
MET: 003:06:03:12
LON: 75.0 E

MCC

MCC ONLY
CDR/PLT C/N/E/D/A
LIMITS CLEARUP
FOR DCREW SLEEP

ORIGINAL PAGE 13
OF POOR QUALITY

UPLINK
SPEC LOAD -
1ST COMM
ALERT
CNDL
RCOR SLEEP
CONFIC

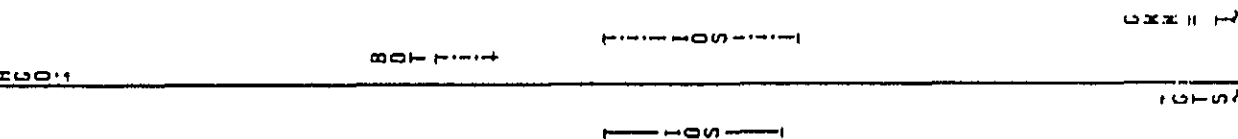
STS-4 DETAILED

NET
DRY003
07:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

T S C H

SOL S IDN



PLT

MCC

NOTES

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE
ORB: 54
MET: 003:07:33:39
LON: 51.9 E

SLEEP

SLEEP

ORB
54

UPLINK
ORBITER S.V.

STS-4 DETAILED

HET
DRY003

PLT

NOTES

MCC

PLT

CDR

PER

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

09:00

10:00

11:00

12:00

13:00

ORB
55

ORB
56

ORB
57

ASCENDING NODE
ORB: 55
MET: 003:09:04:07
LON: 28.7 E

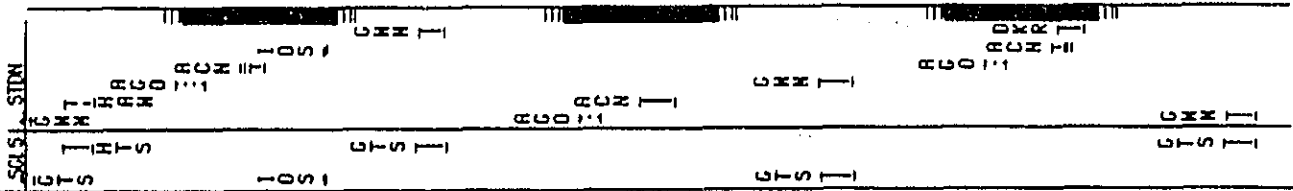
ASCENDING NODE
ORB: 56
MET: 003:10:34:34
LON: 5.6 E

ASCENDING NODE
ORB: 57
MET: 003:12:05:01
LON: 17.5 W

TPR
BLOCK DATA
HEATHER PAD
B-14/56-59

SLEEP

SLEEP



STS-4 DETAILED

MET
DRY.003
13:00

(R1) B2
AUTO
VERI
RT 0.2
DB 0.1

SELSI SITM

ALCO

DRY

PLT TO SUN

ORB
58

13:40

13:50

14:00

PLT

SLEEP

CDR

SLEEP

NOTES

MCC

ORIGINAL RECORD
OF FOOD CONSUMPTION

ASCENDING MODE
ORB: 58
MET: 003:13:35:26
LCS: 40.6 M

UPLINK
DRBITTER S.V.

4-67

5/14/82 STS/R/IN

FLT DAY 5

STS-4 DETAILED

MET
DRY 0.03
14:00

(R1) B2
AUTO
VCRN
RT 0.2
DB 0.1

14:10

14:20

14:30

14:40

14:50

15:00

NOTES

MCC

PLT

CDR

ORIGINAL PAGE #
OF POOR QUALITY

SLEEP

SLEEP

STS-4 DETAILED

SCS1 STDM

MET 0 CM
DRY 003

CDR

PLT

NOTES

MET 15:20
DRY 003
(S1) 59
AUTO
VERT
RT 0-2
DS 0-1
ORRB
59

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ASCENDING NODE
ORB: 59
MET: 003:15:05:55
LUN: 63.8 M

- CMO
- RCOR ABAKE
- CONETIC
- UPLINK
- SPC LOAD -
- CLEAR COMX
- ALERT
- LINEAR USEN
- SH CAPT -
- READ/NOI: REOD
- UPDATE
- H2O SPLY DUMP
- QTY TK A & B
- TER
- BLOCK DATA
- WEATHER PAD
- B-15/60-63

DM
KAM
RDA
IX

ALL TO SUN

ORBITAL
OF STS-4

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

STS-4 DETAILED

PLT
CDR

NOTES

ERCS THERMAL SHOCKBACK
(PULSE MODE - FT0 412-07)
(ORBIT OPS C/L; RCS ETO.S)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

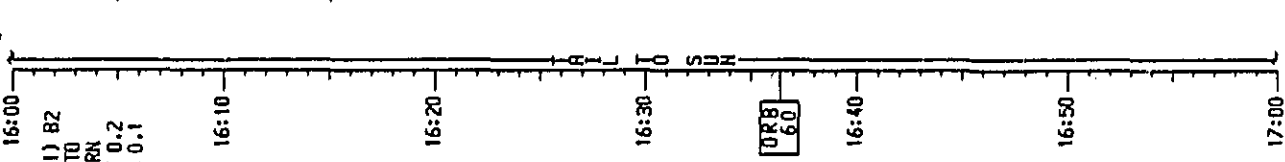
Changeout wireless
headset battery pack

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS R & B
Qty to: QTY A = QTY B =
FUEL CELL PURGE - 800L (Cue Card)

ORIGINAL PARTIAL
OF POOR QUALITY

ASCENDING NODE
ORB: 60
MET: 003:16:36:22
LON: 86.9 N

MCC



SCS1 ST01

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

16:10

16:20

16:30

ORB 60

16:40

16:50

17:00

MEAL

MEAL

IM
OR
KD
R
I
MAX

STS-4 DETAILED

NOTES

MCC

PLT

CDR

PLT

CDR

MET DAY 003 17:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

17:10

17:20

17:30

17:40

R1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

17:50

18:00

SCLS...STIM

HR
HR
X

I O S T I I

T I Y A R I I

I O R R . . .

UPDATE
OMG/PCS
ICONNECT
CONFIC

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P/RA/D)

ICONNECT: 1 (R) OMG TO RES
(ORBIT PKT C/L, RES)

AUTO MNR TO IML ALIGN AIT
MNR OPTION: R - 241.7
P - 307.6
Y - 353.1
DAP: A/AUTO/VERN
(17:37) Initiate MNR

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GMC)
IML ALIGNMENT - S TRK
(ORBIT OPS C/L, GMC)
STAR ID: -Y: 42, ALPHA ECR
 -Z: 15, HDARR
RNG DIF: 89.1

ORIGINAL PHOTODUPLICATION
OF POOR QUALITY

Stars 42 & 15
available from
3/17:30 to 3/18:10

IML ALIGNMENT

TRK ID: 1 --- RNG ERR --- 3

Δ X --- --- 2

Δ Y --- --- () --- ---

Δ Z --- --- () --- ---

EXECUTION TIME: --- / ---

STS-4 DETAILED PLT

MET 8 PM
DAY 003

CDR

AUTO WAKE UP - XSLATE (FTO 412-01)
MNR OPTION: R - 192
P - 278.9
Y - 336.8
DAP: B/AUTO/VERN
(18:02) Initiate MNR

18:00

ORBIT 6.1

18:10

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

18:20

M H A
T R A
D D X
K T I
P I I
I I

18:30

18:40

A1 (B2)
AUTO
MNR
RT 0.2
DB 5.0

18:50

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

19:00

ASCENDING NODE
ORG: 61
MET: 003:18:06:49
LEN: 110.1 M

RPT: 1MU ALIGN RESULTS

ORIGINAL PICTURE
OF POOR QUALITY

MCC

NOTES

DEL BASELINE (MIL)
R11:H DFT PCM CONT 1,2,3 SCSC (three) - ON

DEL POWER DUAL
R11:H DFT PCM CONT 1,2,3 SCSC (three) - OFF

DUAL G2 REC OPS
(ORBIT OPS C/L, DESI)

CABIN TV SETUP (VIDS-PCS PULSE)
(PHOTO/TV C/L, TV SCENES)

CABIN TV REC (VIDS-PCS PULSE)
(PHOTO/TV C/L, TV SCENES)
VTR

ERCS THERMAL SARKBACK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RES ETO's)
Perform Step 2 & 3 (PERFORM
PRE BURN CONFIG & TRANSLATION)
(18:50) -X TRANS (30 sec)

C3 JDFT RECORDS MB MSN - STBY (16-5P)

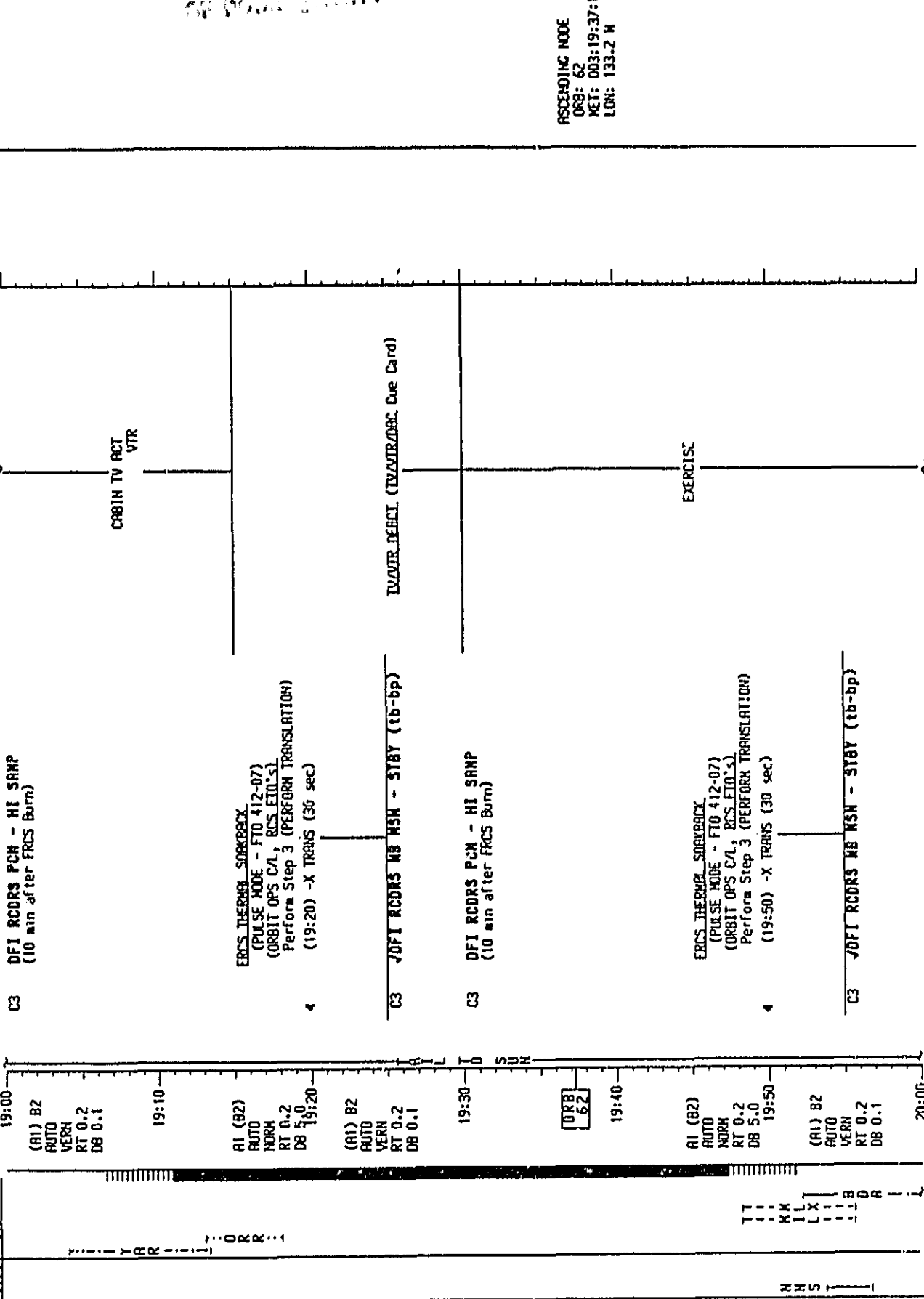
STS-4 DETAILED

NET OPER
DAY003

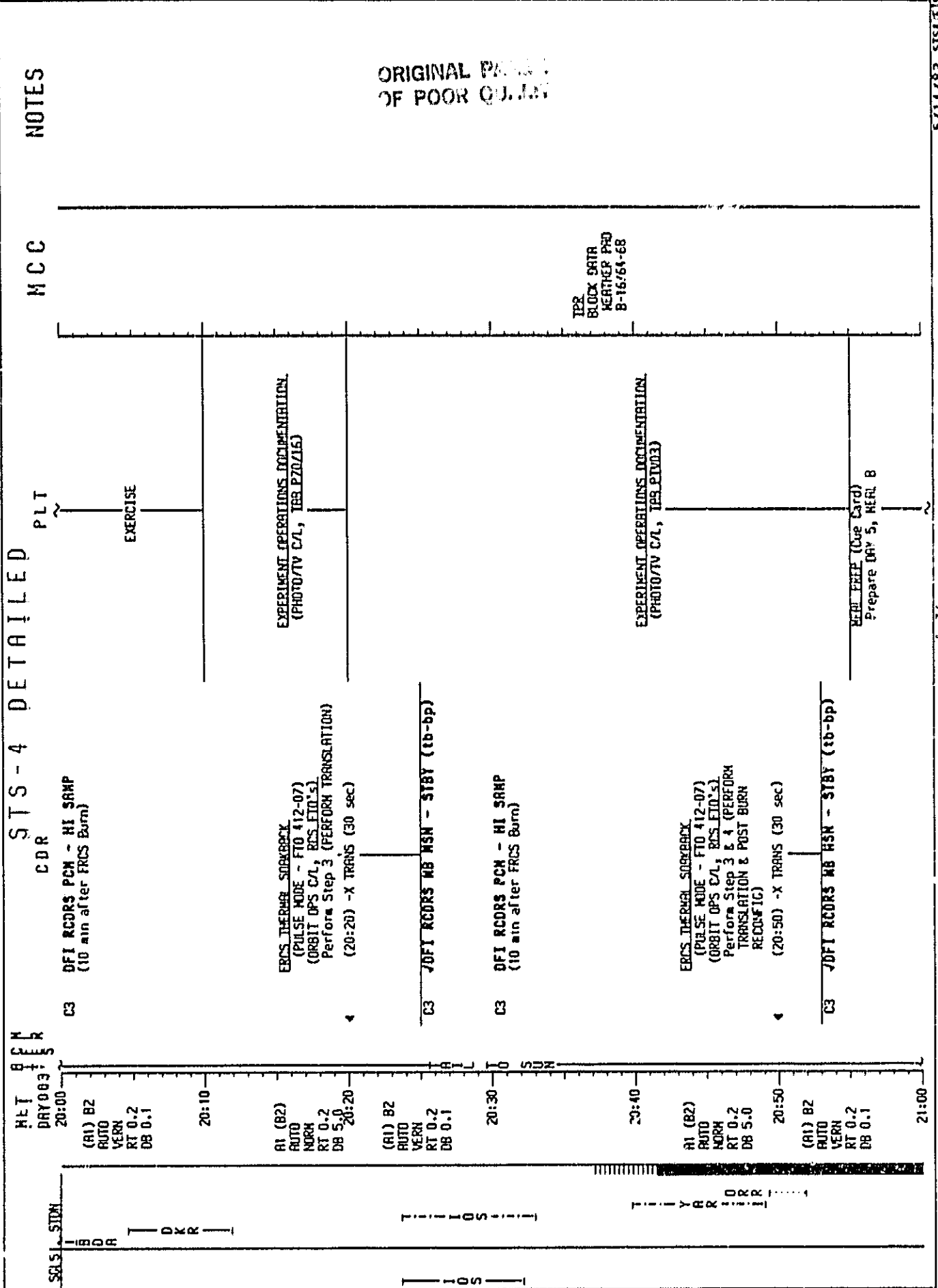
CDR
C3

PLT

NOTES



STS-4 DETAILED



NOTES

MCC

PLT

ORIGINAL PART OF POOR QUALITY

BLOCK DATA WEATHER PNO B-16/64-68

EXERCISE

EXERCISE OPERATIONS DOCUMENTATION (PHOTO/TV C/L, ITR PIV03)

EXERCISE OPERATIONS DOCUMENTATION (PHOTO/TV C/L, ITR PIV03)

STS-4 DETAILED

PLT

MCC

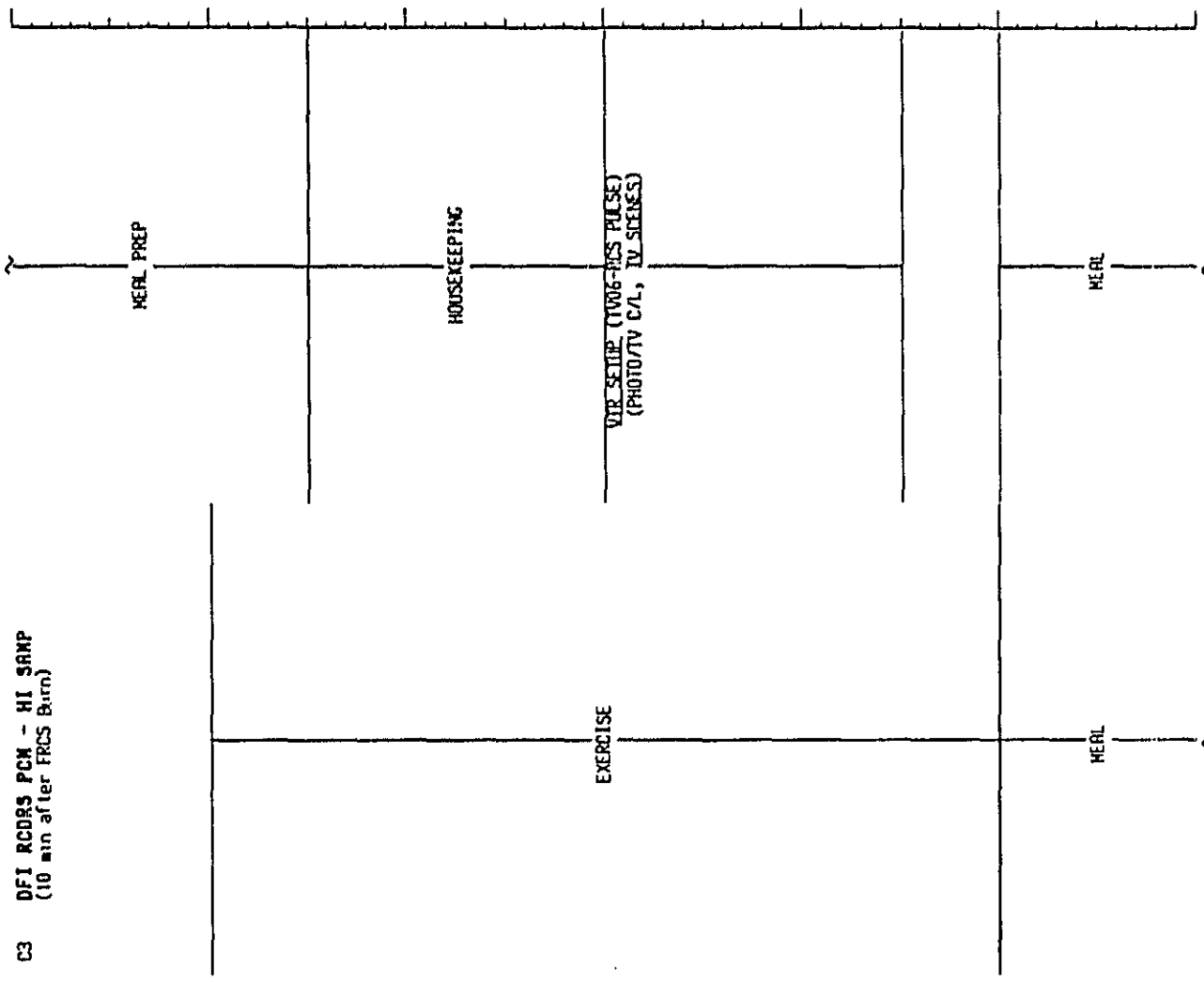
NOTES

CDR
 DF1 RCDRS PCM - HI SAMP
 (10 min after FRCS Burn)

ASCENDING MODE
 DRB: 63
 MET: 003:21:07:46
 LON: 156.4 N

ORIGINAL WORK
 OF POOR QUALITY

ASCENDING MODE
 DRB: 63
 MET: 003:21:07:46
 LON: 156.4 N

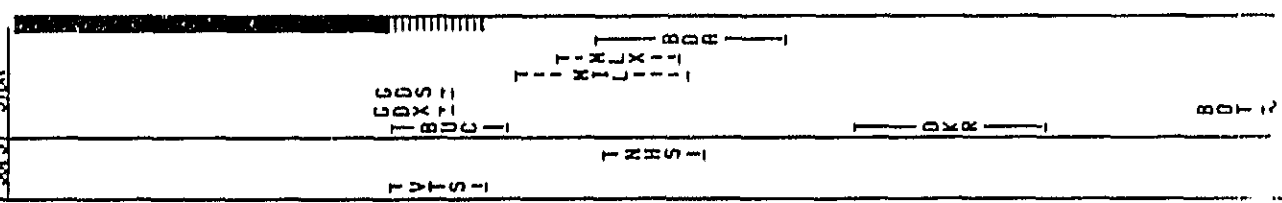


ASCENDING MODE
 DRB: 63
 MET: 003:21:07:46
 LON: 156.4 N

5/11/82 STS4/FIN

4-75

ASCENDING MODE
 DRB: 63
 MET: 003:21:07:46
 LON: 156.4 N



STS-4 DETAILED

HET B C M
DAY 003
22:00

(R1) BZ
AUTO
VERN
RT 0.2
DB 0.1

PLT

CDR

MERL

MERL

MCC

UPLINK
ORBITER S.V.

VIR PLAYBACK (TV06-RCS PULSE)
(PHOTO/TV C/L, TV SERIES)
VIR at MIL
(23:00-23:09)

HOUSEKEEPING

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 64
MET: 003:22:38:13
LON: 179.5 W

1-76

5/11782 STS4/FTH

SGLS

TOS

T T Y A R I I I

H T S

G O S T T W
T O S
B C D X
U C I I

T B C D X
U C I I

SCALE

ORB
64

22:40

22:50

23:00

22:10

22:20

22:30

STS-4 DETAILED

CDR

MET
DRY003
23:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

23:10

PROG. BKT. HOLD TEST (ACH)
(FTO 477-01)
(ORBIT OPS C/L, GNC ETD.5)

23:29
R16 (B2)
AUTO
NORM
RT 0.2
DB 0.1

23:30
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

23:40

R1 (B2)
AUTO
NORM
RT 0.2
DB 5.0

23:50

16894 CHR. SETUP (16894/DB-AUTO MINVR)
(PHOTO/TV C/L, 16894 SCENE5)

004
00:00

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

MCC

PLT

VTR PLAYBACK
VTR at MIL

TV/VTR DEACT. (TV/VTR/ABC Cue Card)

16894E
TACAN DATA

TACAN TRACKING
(FTO 479-01)
(ORBIT OPS C/L, GNC ETD.5)

C2 TO C8 TRANSITION

TRACK TACAN SITE

B
U
C
T
M
H
L
L
X
B
D
R

D
K
R
A
C
N

T
B
O
T

T
Y
A
R

N
R
S

STS-4 DETAILED

CDR

PLT

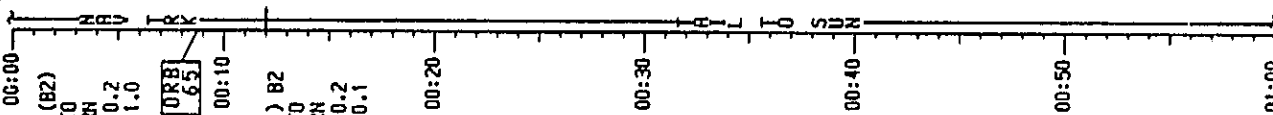
NOTES

MCC

ASCENDING NODE
ORB: 65
MFI: 004:00:08:43
OR: 157.3 E

ORIGINAL DRAWING
OF POOR QUALITY

HET
DAY 004



TRACK TRACKING

16MM CARB ACT (16MM/08-AUTO MNR)
(PHOTO/TV C/L, 16MM SCENES)

G8 TO G2 TRANSITION

AUTO MNR TO XS ATT (FTO 412-01)

MNR OPTION: R - 192
P - 278.9
Y - 336.8

DAP: B/AUTO/VERN
(00:12) Initiate MNR

16MM CARB DEACT (16MM/08-AUTO MNR)
(PHOTO/TV C/L, 16MM SCENES)

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

16MM CARB SETUP (16MM/10-ECS C/D)
(PHOTO/TV C/L, 16MM SCENES)

07 POWER UP TRACKERS (FTO 479-01)
TRACK (three) MODE T/R
(three) ANT SEL

CH 1 X
CH 2 X
CH 3 X

(:) Channels are for

STS-4 DETAILED P L T

NOTES

MCC

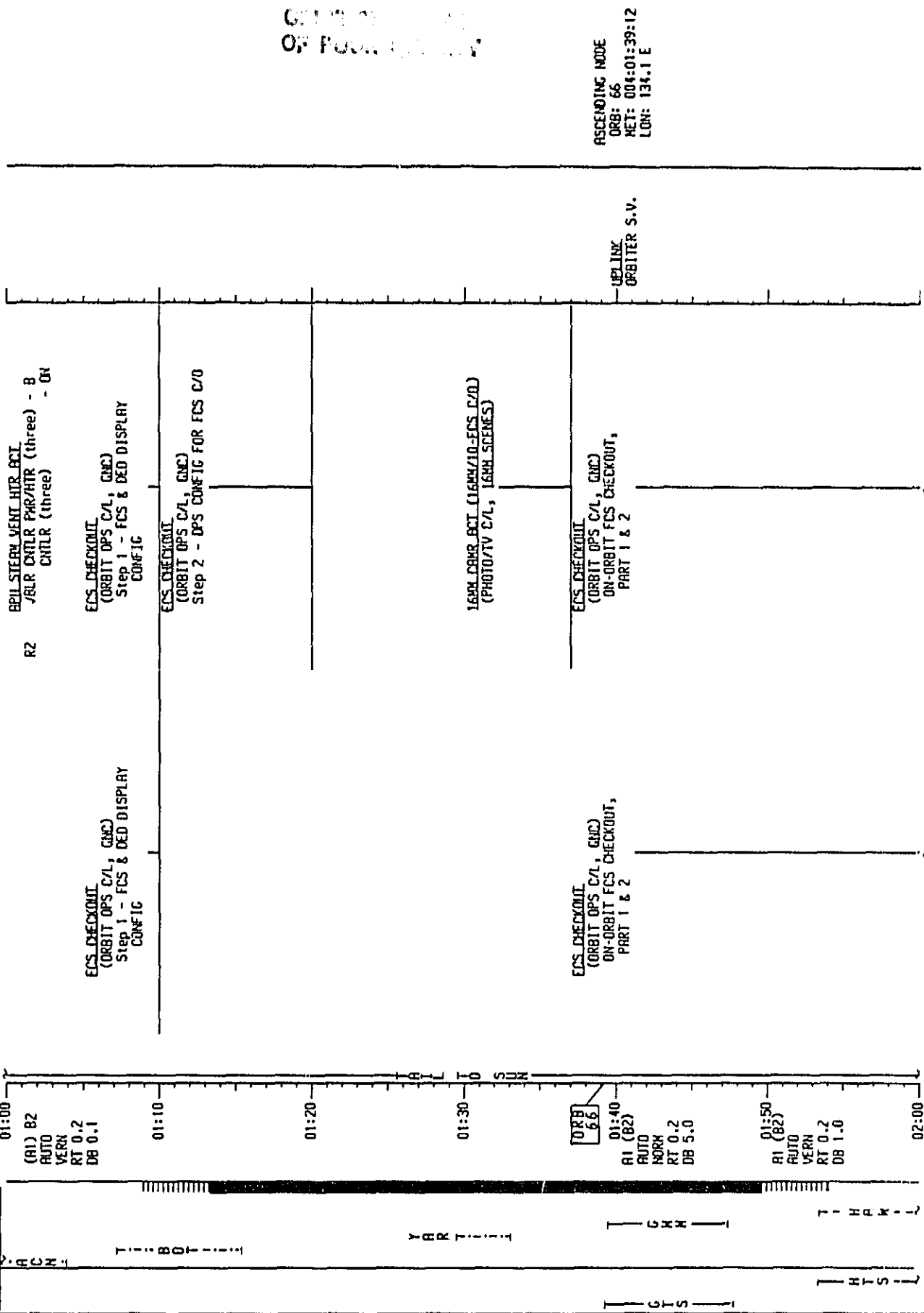
PLT

CDR

PER

NET DAY004

STON



GET W...
OF P... ..

STS-4 DETAILED

RET
DRY004
02:00

CDR
PLT

NOTES

MCC

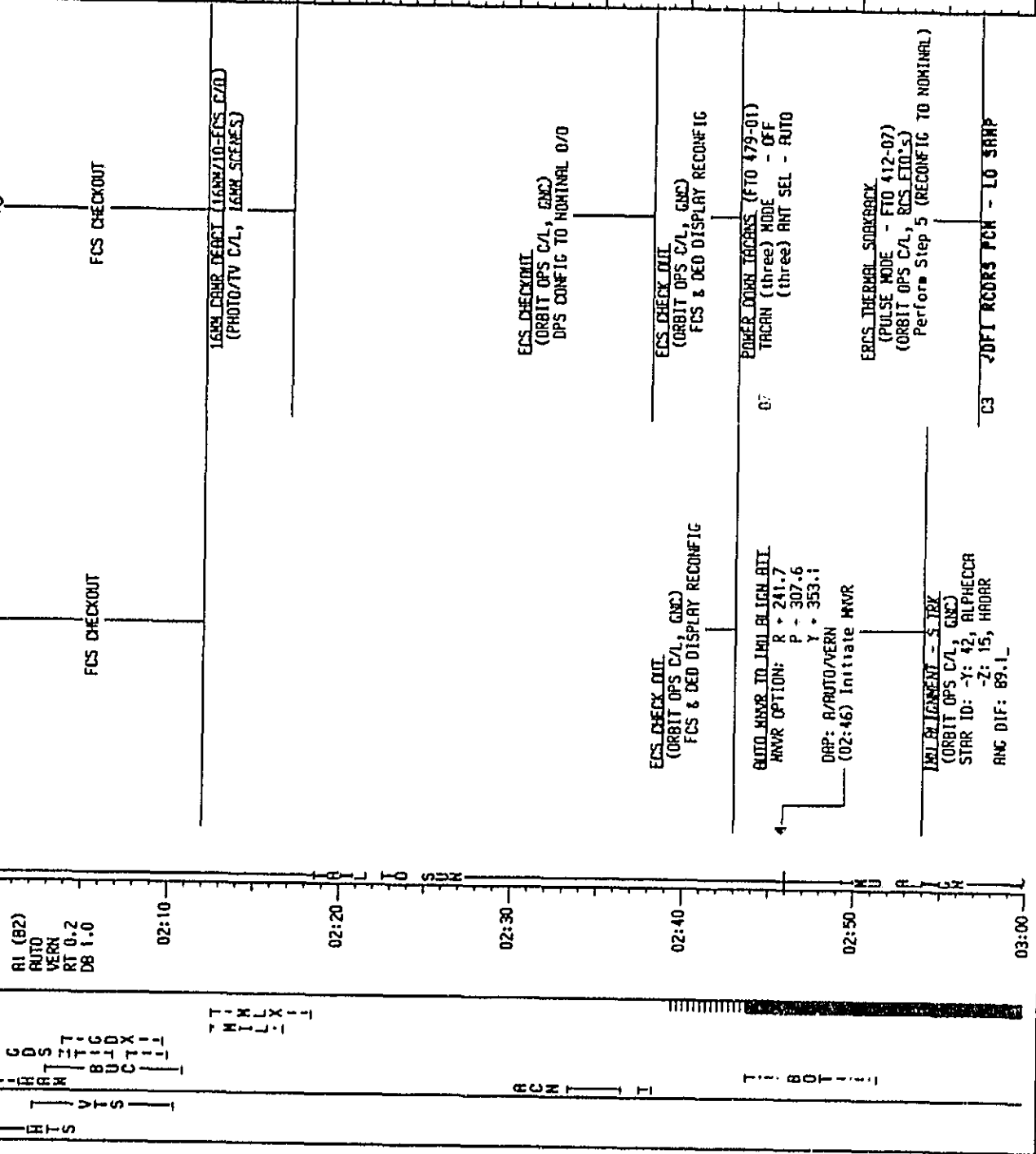
ORIGINAL PAGE 15
OF POOR QUALITY

Stars 42 & 15
available from
4/02:22 to 4/03:09

UPDATE
HZO SPLY DUMP
QTY TK A & B

UNRECORDED

TRX ID:	1	ANG ERR	3
ANG		2	
Δ X	()	()	()
Δ Y	()	()	()
Δ Z	()	()	()
EXECUTION TIME: / /			



4-80

5714782 STS4/IN

STS-4 DETAILED

PLT

CDR

MET STN
DAY 004
03:00

AUTO MWR TO -YSL ATZ (FTO 412-01)

MWR OPTION: R * 192
P * 278.9
Y * 336.8

DAP: B/AUTO/VERN
(03:02) Initiate MWR

(A1) 82
AUTO
VERN
RT 0.2
DB 0.1

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Qty A = Qty B =

ASCENDING HOGE
ORB: 67
MET: 004:03:09:41
LON: 111.0 E

MCC

TPR
BLOCK DATA
WEATHER PRO
B-17769-72

ORIGINAL PART #7
OF POOR QUALITY

NOTES

MEAL

MEAL

ALL TO SUN

SCS1 STON

STS

HTS

HTS

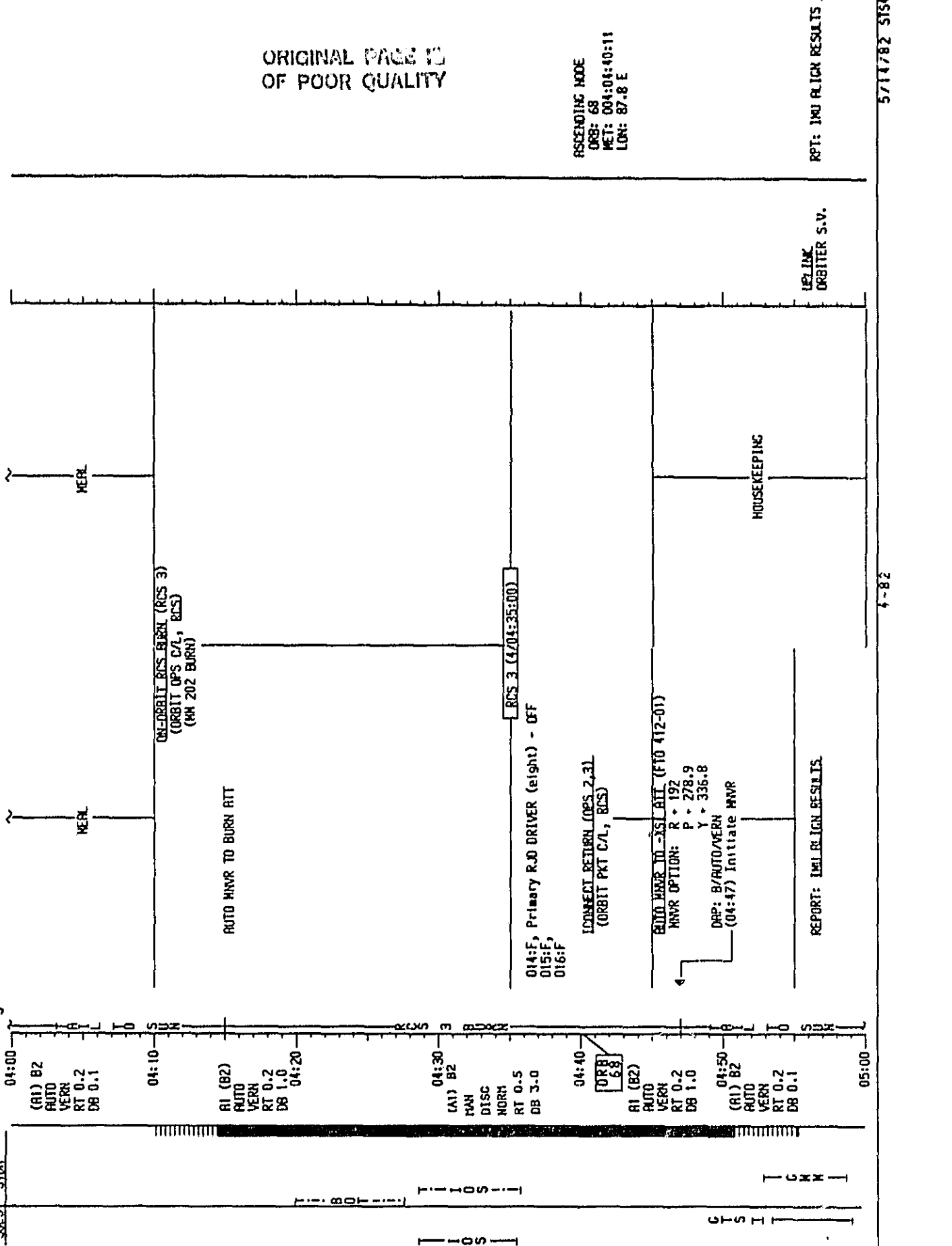
T BUC I

STS-4 DETAILED

NET
DAY 04
04:00

PLT
MCC

NOTES



ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 68
MET: 004:04:40:11
LON: 87.8 E

RPT: IMU ALIGN RESULTS —

LEJLAK
ORBITER S.V.

STS-4 DETAILED

MET PER

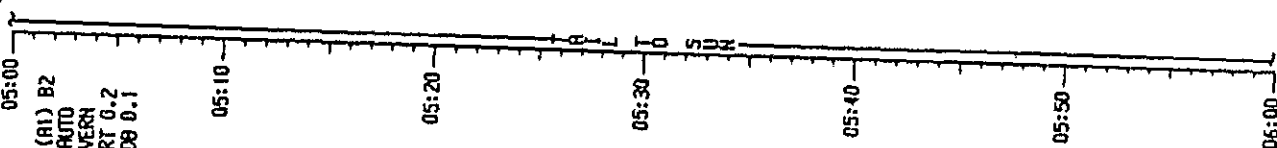
SCSI SIDN

CDR
SINGLE IZ REC OPS
(ORBIT OPS C/L, DPS)

PLT

MCC

NOTES



(A1) B2 AUTO VERN RT 0.2 DB 0.1	DEL POWER UP (AWA) R11:H DF1 PCH CONT 1,2,3 SCSC (three) - ON	HOUSEKEEPING	DEL POWER DOWN R11:H DF1 PCH CONT 1,2,3 SCSC (three) - OFF	SINGLE IZ REC OPS (ORBIT OPS C/L, DPS)	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB P70/05)	VEC FREEZER TEMP READING (FTO 467-02) Record time, freezer temp, condenser temp (Cue Card)	CO2 RESORBER REFERENCE (7 into 8)	IASB CDR SETUP (16ANN/09-PLD CYCLE TEST) (PHOTO/TV C/L, IASB SERIES)	EDEL DILL PURGE - RUM (Cue Card)	REC ONLY COORD CEN/FDR LIMITS CLEARUP FOR CREW SLEEP
MET PER DAY 004	DEL POWER UP (AWA) R11:H DF1 PCH CONT 1,2,3 SCSC (three) - ON	HOUSEKEEPING	DEL POWER DOWN R11:H DF1 PCH CONT 1,2,3 SCSC (three) - OFF	SINGLE IZ REC OPS (ORBIT OPS C/L, DPS)	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB P70/05)	VEC FREEZER TEMP READING (FTO 467-02) Record time, freezer temp, condenser temp (Cue Card)	CO2 RESORBER REFERENCE (7 into 8)	IASB CDR SETUP (16ANN/09-PLD CYCLE TEST) (PHOTO/TV C/L, IASB SERIES)	EDEL DILL PURGE - RUM (Cue Card)	REC ONLY COORD CEN/FDR LIMITS CLEARUP FOR CREW SLEEP
(A1) B2 AUTO VERN RT 0.2 DB 0.1	DEL POWER UP (AWA) R11:H DF1 PCH CONT 1,2,3 SCSC (three) - ON	HOUSEKEEPING	DEL POWER DOWN R11:H DF1 PCH CONT 1,2,3 SCSC (three) - OFF	SINGLE IZ REC OPS (ORBIT OPS C/L, DPS)	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB P70/05)	VEC FREEZER TEMP READING (FTO 467-02) Record time, freezer temp, condenser temp (Cue Card)	CO2 RESORBER REFERENCE (7 into 8)	IASB CDR SETUP (16ANN/09-PLD CYCLE TEST) (PHOTO/TV C/L, IASB SERIES)	EDEL DILL PURGE - RUM (Cue Card)	REC ONLY COORD CEN/FDR LIMITS CLEARUP FOR CREW SLEEP
MET PER DAY 004	DEL POWER UP (AWA) R11:H DF1 PCH CONT 1,2,3 SCSC (three) - ON	HOUSEKEEPING	DEL POWER DOWN R11:H DF1 PCH CONT 1,2,3 SCSC (three) - OFF	SINGLE IZ REC OPS (ORBIT OPS C/L, DPS)	EXPERIMENT OPERATIONS DOCUMENTATION (PHOTO/TV C/L, IBB P70/05)	VEC FREEZER TEMP READING (FTO 467-02) Record time, freezer temp, condenser temp (Cue Card)	CO2 RESORBER REFERENCE (7 into 8)	IASB CDR SETUP (16ANN/09-PLD CYCLE TEST) (PHOTO/TV C/L, IASB SERIES)	EDEL DILL PURGE - RUM (Cue Card)	REC ONLY COORD CEN/FDR LIMITS CLEARUP FOR CREW SLEEP

C3 DF1 RCORS PCH - HI SAMP
 (Last 10 Hrs of TRIL TO SUN)

PRE SLEEP ACTIVITY
 (ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
 (ORBIT OPS C/L, CREW SYS)

Except: Leave DF1 RCORS PCH - HI SAMP

ORIGINAL PAGE 17
OF POOR QUALITY

STS-4 DETAILED

NET
DRY004
06:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

06:10

DRY
69

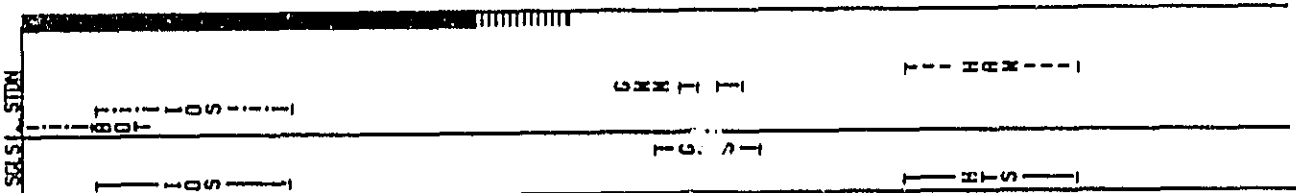
06:20

06:30

06:40

06:50

07:00



NOTES

ASCENDING NODE
ORB: 69
MET: 004:06:10:40
LDN: 64.7 E

ORIGINAL PAGE IS
OF POOR QUALITY

MCC

UPLINK
SPC LOAD -
1ST COMM
ALERT
CNO
RCOR SLEEP
CONFIC

PLT

PRE SLEEP ACTIVITY

SLEEP

CDR

PRE SLEEP ACTIVITY

SLEEP

5/14/82 STS4/IN

1-8

STS-4 DETAILED

MET
DAY 004

07:00

(R1) 82
AUTO
VERN
RT 0.2
DB 0.1

07:10

07:20

07:30

07:40

URB
70

07:50

08:00

SGLS STON

CDR

PLT

NOTES

MCC

ORIGINAL RECORDS
OF POOR QUALITY

ASCENDING NODE
ORB: 70
MET: 004:07:41:09
LON: 41.5 E

SLEEP

SLEEP

STS-4 DETAILED

MET 8 PM
DRY004

08:00
(R1) B2
AUTO
VERB
RT 0.2
DB 0.1

09:00

ORB 71

10:00

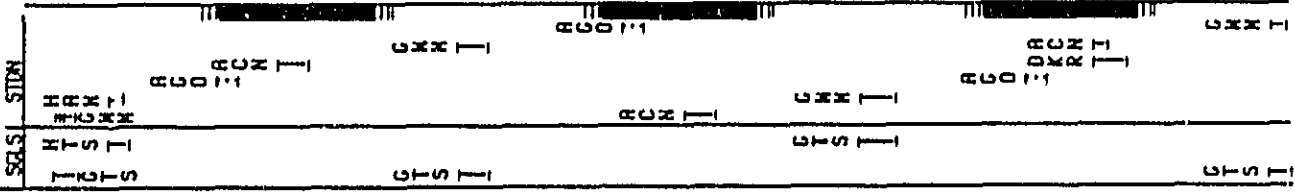
ORB 72

11:00

12:00

ORB 73

13:00



PLT

SLEEP

CDR

SLEEP

NOTES

ASCENDING NODE
ORB: 71
MET: 004:09:11:38
LON: 18.4 E

ASCENDING NODE
ORB: 72
MET: 004:10:42:07
LON: 4.7 W

ASCENDING NODE
ORB: 73
MET: 004:12:12:36
LON: 27.8 W

MCC

TPR
BLOCK DATA
WEATHER PFD
8-18/73-76

UPLINK
ORBITER S...

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

NOTES

MCC

PLT

CDR

MET
DAY004
13:00

SG-51 STIN

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

13:10

13:20

13:30

13:40

13:50

14:00

D K R M R D I

ORIGINAL PAGE 11
OF POOR QUALITY

ASCENDING NODE
ORB: 74
MET: 004:13:43:05
LON: 51.0 N

UPLINK
ORBITER S-V.
CMD
RCR ENGINE
CONFIG
UPLINK
SPC LOFD -
CLEAR COMM
PLERT

SLEEP

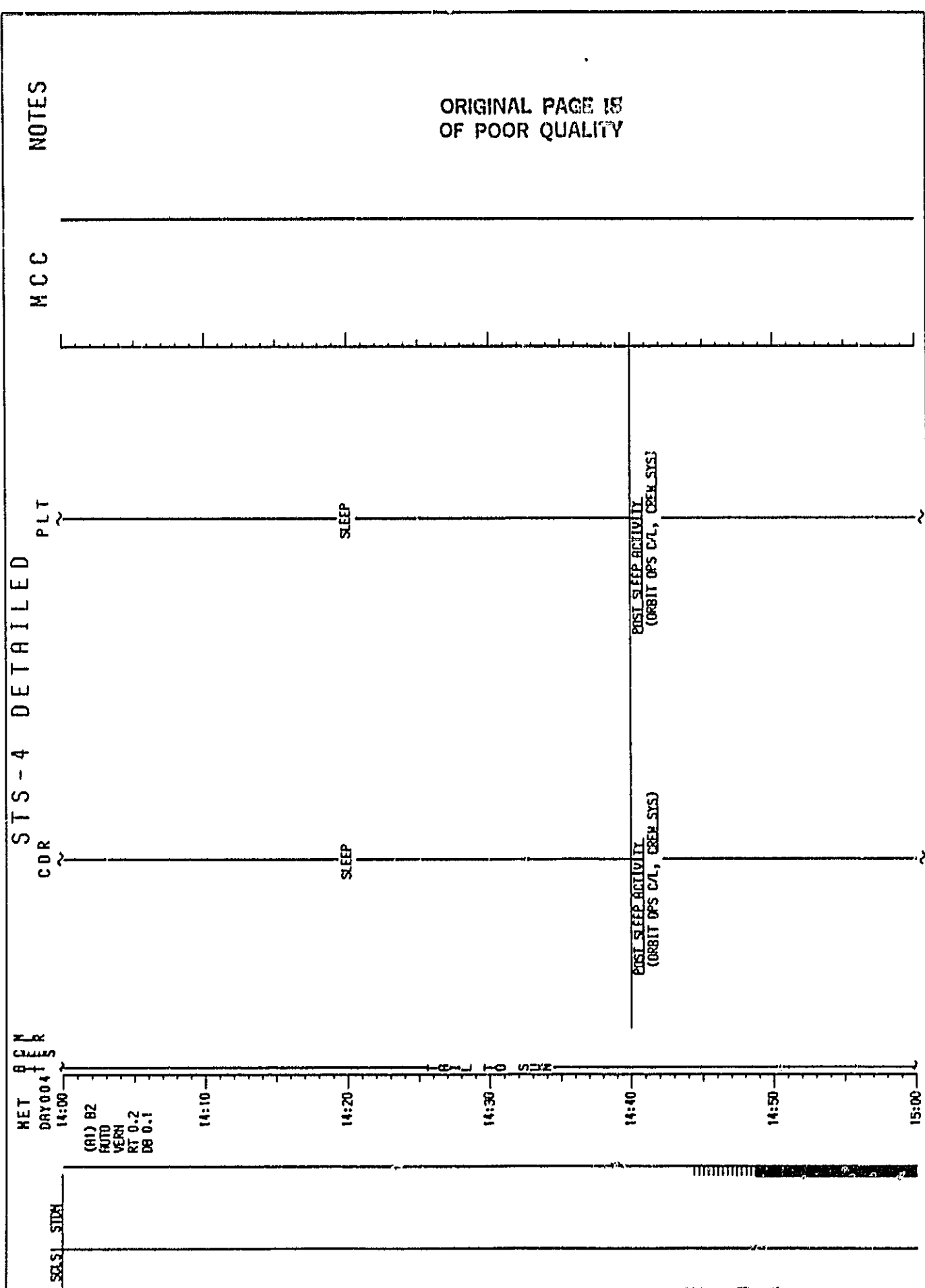
SLEEP

5714782 SIS471R

4-87

FLT DAY 6

STS-4 DETAILED



NET 0 C M
DAY 004

SCS1 STDY

(R1) B2
AUTO
VERB
RT 0.2
DB 0.1

POST SLEEP ACTIVITY

POST SLEEP ACTIVITY

ASCENDING NODE
ORB: 75
MET: 004:15:13:34
LON: 74.1 M

DM
DKA
RD
T M
T X
I

VAL T O S U N

STS-4 DETAILED

CDR

PLT

NOTES

MCC

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

IPR
BLOCK DATA
WEATHER PRO
8-19/77-80
UNDESK CREW
SN EXPT -
REDD/NOT REOD

ENDS THERMAL SORBOBODY
(ONE FWD ENGINE - FTO 412-05)
(ORBIT OPS C/L, RCS LEI0's)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

LI - HI LOAD DUCT HTR - R
(S88 THERMAL EVAP)
(30 min prior to FES ENABLE
for PLBD OPS)

LI - HI CELL PURGE - F1111 (Cue Card)

MEAL

MEAL

ORIGINAL PAGE 11
OF POOR QUALITY

STS-4 DETAILED

MET
DAY 004

SCS1 STDA
YARRTTTTT
DRR 11

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

16:10

16:20

16:30

16:40

ORB
76

16:50

17:00

MW
LI
XLB
TTTT
TTTT
TTTT

CDR

MEAL

PLT

MEAL

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 76
MET: 004:16:44:03
LON: 97.3 H

MCC

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD.FIDLS)
Theodolite sightings
during PLBD operations

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD.FIDLS)
Theodolite sightings
during PLBD operations

4-90

5714782 STS4/FIN

STIS-4 DETAILED

NET
DRY004
17:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

17:10

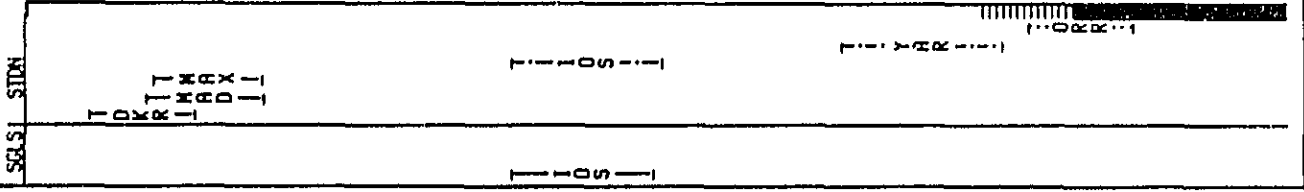
17:20

17:30

17:40

17:50

18:00



NOTES

MCC

PLT

CDR

ORIGINAL PAGE 18
OF POOR QUALITY

STS-4 DETAILED

NET OPER
DAY004
18:00

CDR

PLT

MCC

NOTES

ORIGINAL PERFORMANCE
OF POOR QUALITY

PLBD COLD CASE PERFORMANCE
(FTO 451-03)

PLBD COLD CASE PERFORMANCE
(FTO 451-03)

Changeout wireless
headset battery pack

OVER #2 OPS OPS
(ORBIT OPS C/L, OPS)

ORB
77

AUTO MNR TO IMLB LIGN BIT
MNR OPTION: R * 165.6
 Y * 157.2
 P * 4.3
DAP: A/AUTO/VERN
(18:18) Initiate MNR

DEL POWER UP (MIL)
R11:H OFI PCM CONT 1,2,3 S6SC (three) - ON

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GMC)
MNR BASE STABILITY
(FTO 474-01)
ORBIT OPS C/L, GMC (FTO 5)
BIT #1 STARS
STAR ID: -1: 49, KOCHAB
 -2: 32, ALDEBARAN
 ANG DIF: 87.8

DEL POWER DOWN
R11:H OFI PCM CONT 1,2,3 S6SC (three) - OFF

MNR TO 2ND BIT
MNR OPTION: R * 104.9
 P * 346.1
 Y * 11.1
DAP: A/AUTO/VERN
Initiate MNR

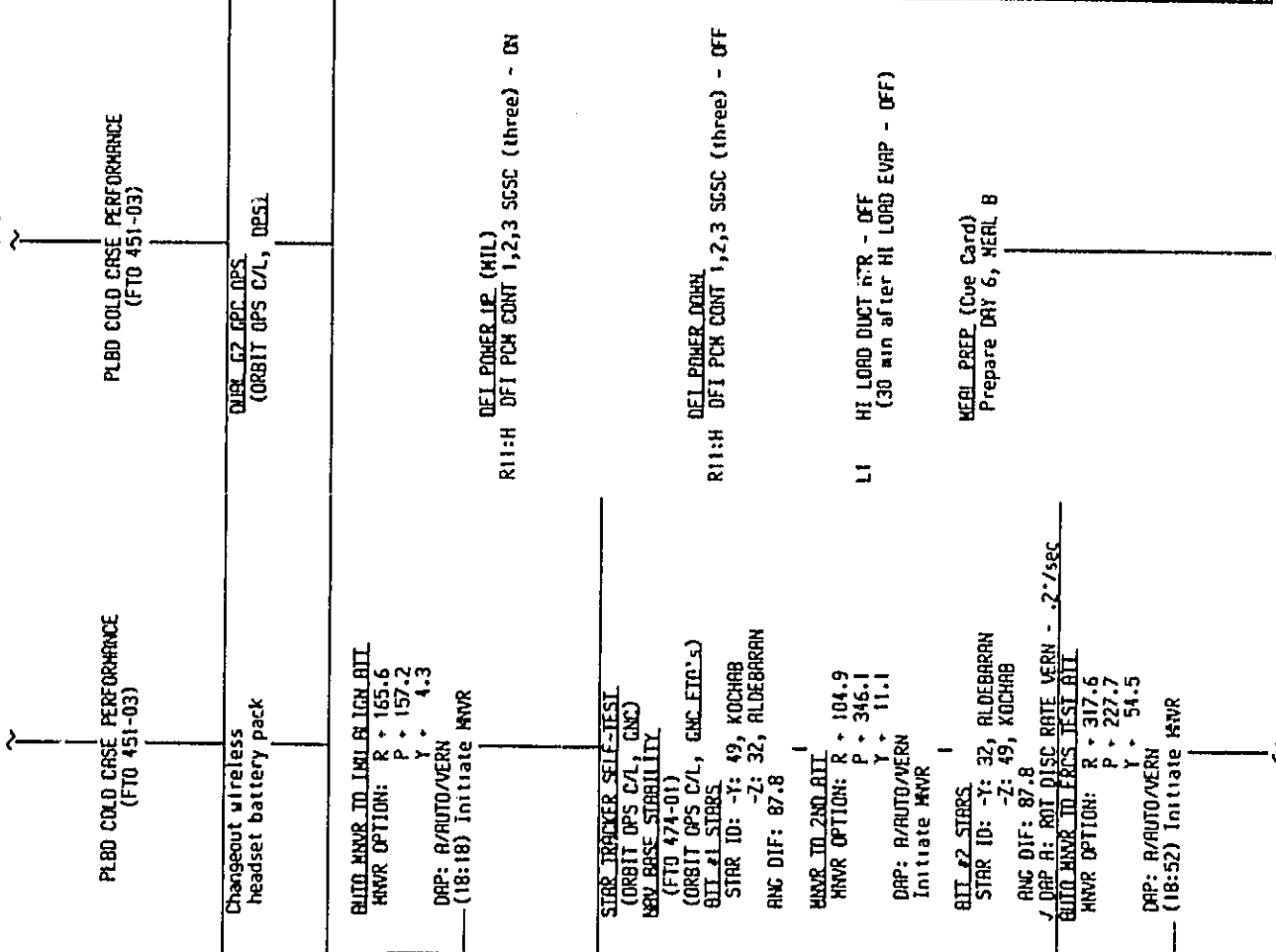
LI HI LOAD DUCT RTR - OFF
(30 min after HI LOAD EVAP - OFF)

BIT #2 STARS
STAR ID: -Y: 32, ALDEBARAN
 -Z: 49, KOCHAB
 ANG DIF: 87.8
DAP A: ROT DISC RATE VERN - 2.7/sec

AUTO MNR TO OPS TEST BIT
MNR OPTION: R * 317.6
 P * 227.7
 Y * 54.5
DAP: A/AUTO/VERN
(18:52) Initiate MNR

MEAL PREP (Cue Card)
Prepare DAY 6, MEAL B

ASCENDING NODE ORB: 77 NET: 004:18:14:32 LON: 120.5 X	Stars 49 & 32 available from 4/18:21 to 4/18:52
WEBSITE H2O SPPLY DUMP QTY TX R & B	
DELIVER MNR PERL	
TRK ID: ANG	ANG ERR - 3
A X ()	()
A Y ()	()
A Z ()	()
EXECUTION TIME:	/ - / -



STS-4 DETAILED

NOTES

MCC

PLT

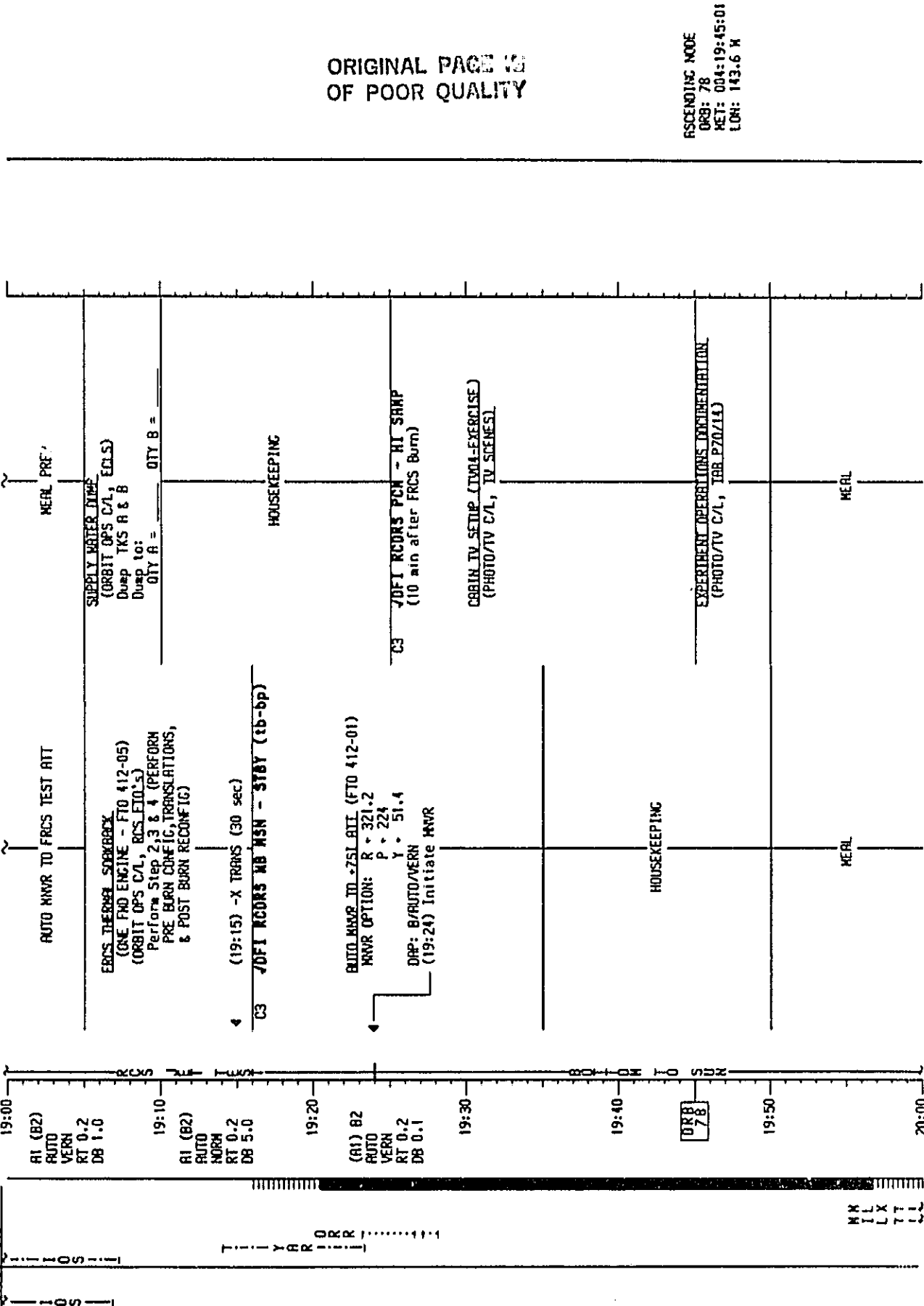
CDR

OPM

NET

SELS

STDR



ORIGINAL PAGE IS OF POOR QUALITY

ASCENDING NODE
ORB: 78
MET: 004:19:45:01
LOH: 143.6 M

STS-4 DETAILED

ORIGINAL PAGE IS
OF POOR QUALITY

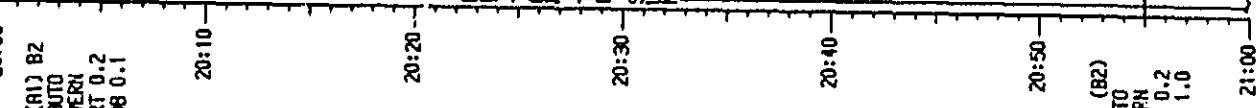
NOTES

MCC

PLT

CDR

MET
DAY 004



ON ORBIT RCS BURN (RCS 4)
(ORBIT OF 5 CAL, RCS)
(MH 202 BURN)

AUTO MMR TO BURN ATT

5/11/782 515177IN

L-91

STS-4 DETAILED PLT

NOTES

MCC

PLT

CDR

CM

NET DRY004
21:00

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

(A1) 21B20
MAN
NORM
RT 0.5
DB 1.0

A1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

RCS 4 (4/21:15:00)

014:E, Primary RJD DRIVER (eight) - OFF
015:E,
016:F

AUTO MMR TO POST BURN BIT
(Use PRO ATT)
DAP: R/AUTO/VERN
Initiate MMR

SINGLE OR DEC OPS.
(ORBIT OPS C/L, DES)

AUTO MMR TO 7SL BIT (FTO 412-01)
MMR OPTION: R * 321.2
P * 224
Y * 51.4
DAP: R/AUTO/VERN
(21:52) Initiate MMR

ASCENDING NODE
308: 79
MET: 004:21:15:30
LOH: 166.7 M

TER
BLOCK DATA
WEATHER PRO
B-20/81-84

ORIGINAL PAGE NO
OF POOR QUALITY

SCS1 STIM

IO
R R

H A K T I I

H T S I
T D
R C T
U X I
C I I

T M L X I B D R

D K R A
C C H

STS-4 DETAILED

MET 004
DAY 004
22:00

SGS STIN
ACN

HTS

PLT

CDR

MCC

NOTES

AUTO MNVR TO +ZSI ATT
CABIN TV BEL (EMAL-EXERCISE)
(PHOTO/TV C/L, TV SCENES)
Live at HAH

EXERCISE

PRIVATE MEDICAL COMMUNICATION

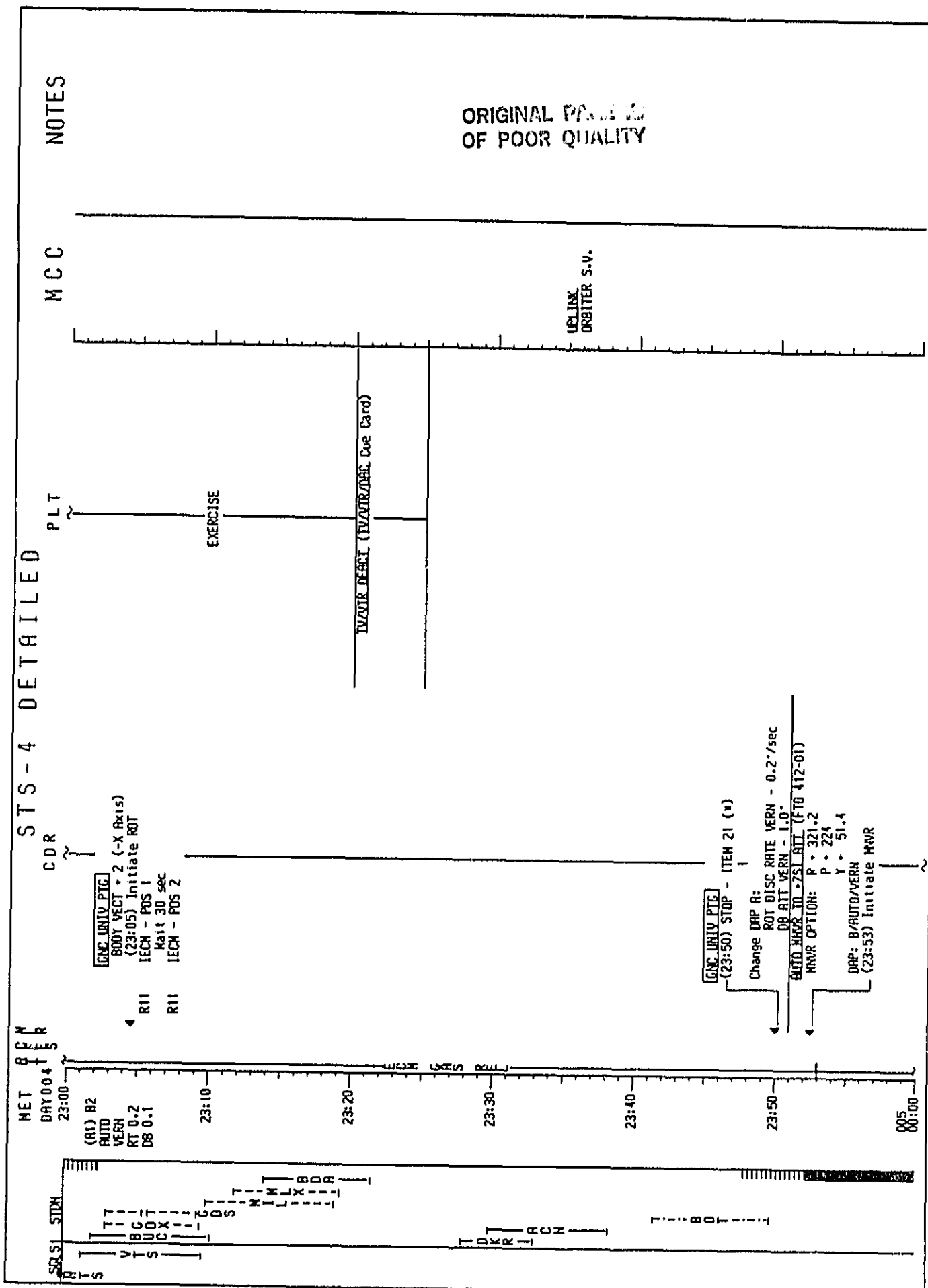
PRIVATE MEDICAL COMMUNICATION

BLTD MNVR TO IECH GAS RELEASE
TGT TO +2
BODY VECTOR +5
P 0
Y 270
DM +90
DAP: A/AUTO/VERN
(22:30) Initiate TRK

IECH GAS RELEASE (FSD S431-01)
√Attitude mnvr complete
Change DAP A:
ROT DISC RATE VERN - .007"/sec
DB ATT VERN - 0.5
DAP: A/AUTO/VERN

ASCENDING NODE
DRG: 80
MET: 004:22:45:59
LON: 170.0 E

STS-4 DETAILED



ORIGINAL PARTIAL
OF POOR QUALITY

URLINK
ORBITER S-V.

STS-4 DETAILED

MET OPER
DRY005
00:00

SCALS
STDM

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

AUTO HNR TO ZSI ATT (FTO 412-01)

OVER G2 CEC OPS
(ORBIT OPS C/L, OPS)

PRESS THE ORBIT SORBACK
(ONE FWD ENGINE - FTO 412-05)
(ORBIT OPS C/L, RCS FWD's)
Perform Step 5 (RECONFIG TO NOMINAL)

CS JDFI RCDRS PCM - LO SRMP

ORBIT
\$1

RMS POWERUP/CHECKOUT
(PDRS OPS C/L, RMS PRGRUP)

RADIATOR SURVEY (FTO 462-01)
(PDRS OPS C/L RAD SURVEY)

RADIATOR SURVEY (FTO 462-01)
(PDRS OPS C/L RAD SURVEY)

NOTES

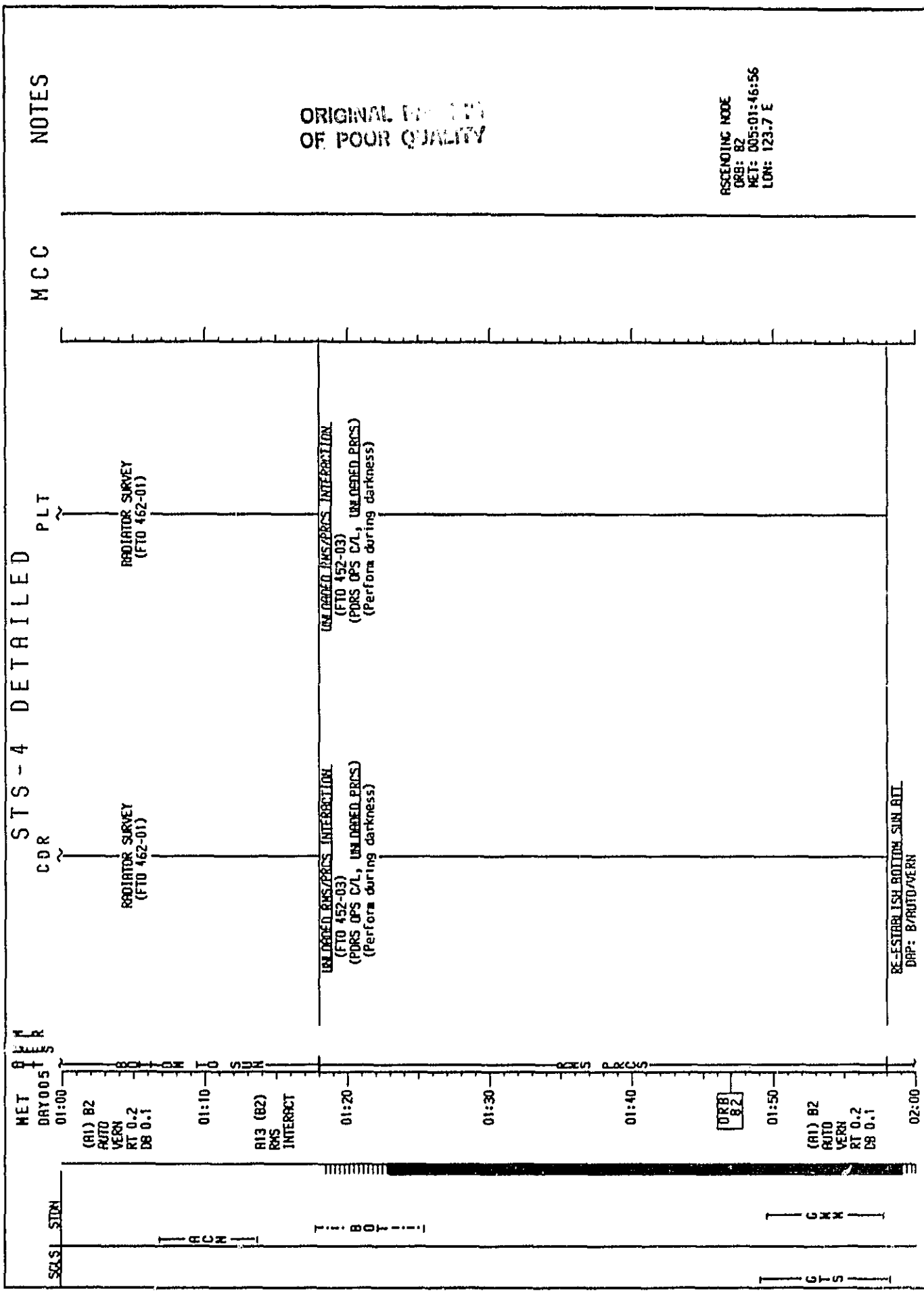
MCC

PLT

ASCENDING NODE
ORB: B1
MET: 005:00:16:27
LON: 116.9 E

ORIGINAL PAGE #
OF POOR QUALITY

STS-4 DETAILED



NOTES

MCC

ORIGINAL PRINTING
 OF POOR QUALITY

ASCENDING NODE
 DRB: B2
 MET: 005:01:46:56
 LON: 123.7 E

STS-4 DETAILED

MET
DAY 005
02:00

(A1) 82
AUTO
VERN
RT 0.2
DB 0.1

CDR

SINGULARITY HANDLING - MENDEL
(FTO 452-02)
(PDOS OPS C/L, SINGULAR HANDLING)

PLT

SINGULARITY HANDLING - MENDEL
(FTO 452-02)
(PDOS OPS C/L, SINGULAR HANDLING)

MCC

TP2
BLOCK DATA
WEATHER PNO
8-21/85-88
UELINK
ORBITER S.V.

ORIGINAL PAGE IS
OF POOR QUALITY

RMS PREP (Ove Card)
Prepare DAY 6, MENL C

RMS PROFESSIONAL
(PDOS OPS C/L, RMS PERSON)

A7L
Op PDOS DPC (six) - OP
(Post RMS Activities)

SINGLE ORBIT OPS
(ORBIT OPS C/L, OPS)

SEAS: SUN

HTS

VIS
TT
8C1
UCX
I

CCN

T
B
O
T

CDR STS-4 DETAILED PLT NOTES

MET
DAY 005
03:00

SELSI - STDN
1 0 S F
1 0 S F

(R1) 82
AUTO
VERN
RT 0.2
DB 0.1

03:10

03:20

ORB 83

03:30

03:40

03:50

04:00

BU L ON TO SUN

UPDATE
H2O SPLY DUMP
QTY TK R & B

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TBS P2/15)

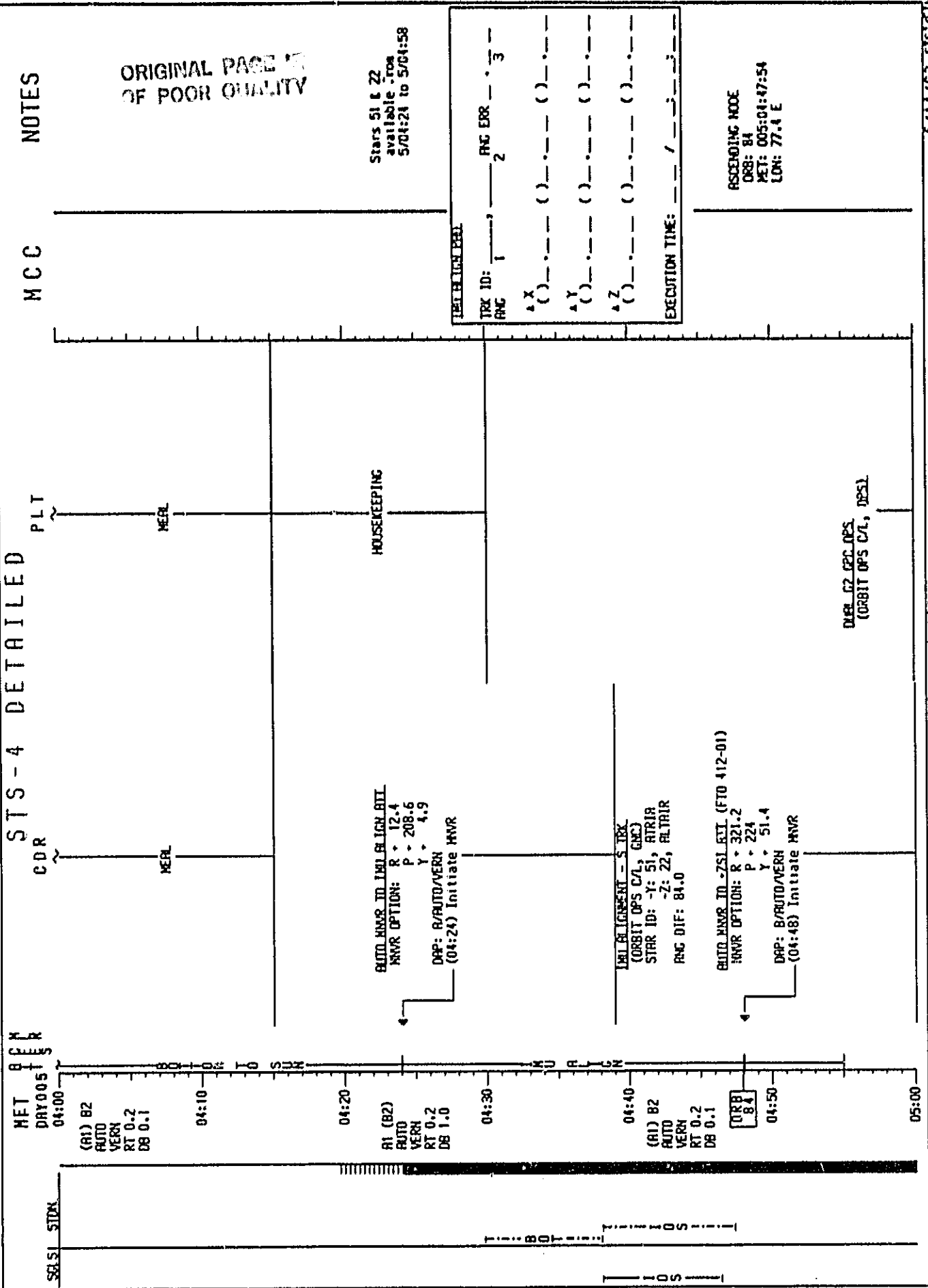
SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS R & B
Dump to:
QTY A = QTY B =

ASCENDING NODE
DB: 83
MET: 005:03:17:25
LON: 100.6 E

ORIGINAL PAGE 1
OF POOR QUALITY

MCC

STS-4 DETAILED



ORIGINAL PAGE IS OF POOR QUALITY

Stars 51 & 22 available from 5/04:24 to 5/04:58

STS-4 DETAILED

PLT

MCC

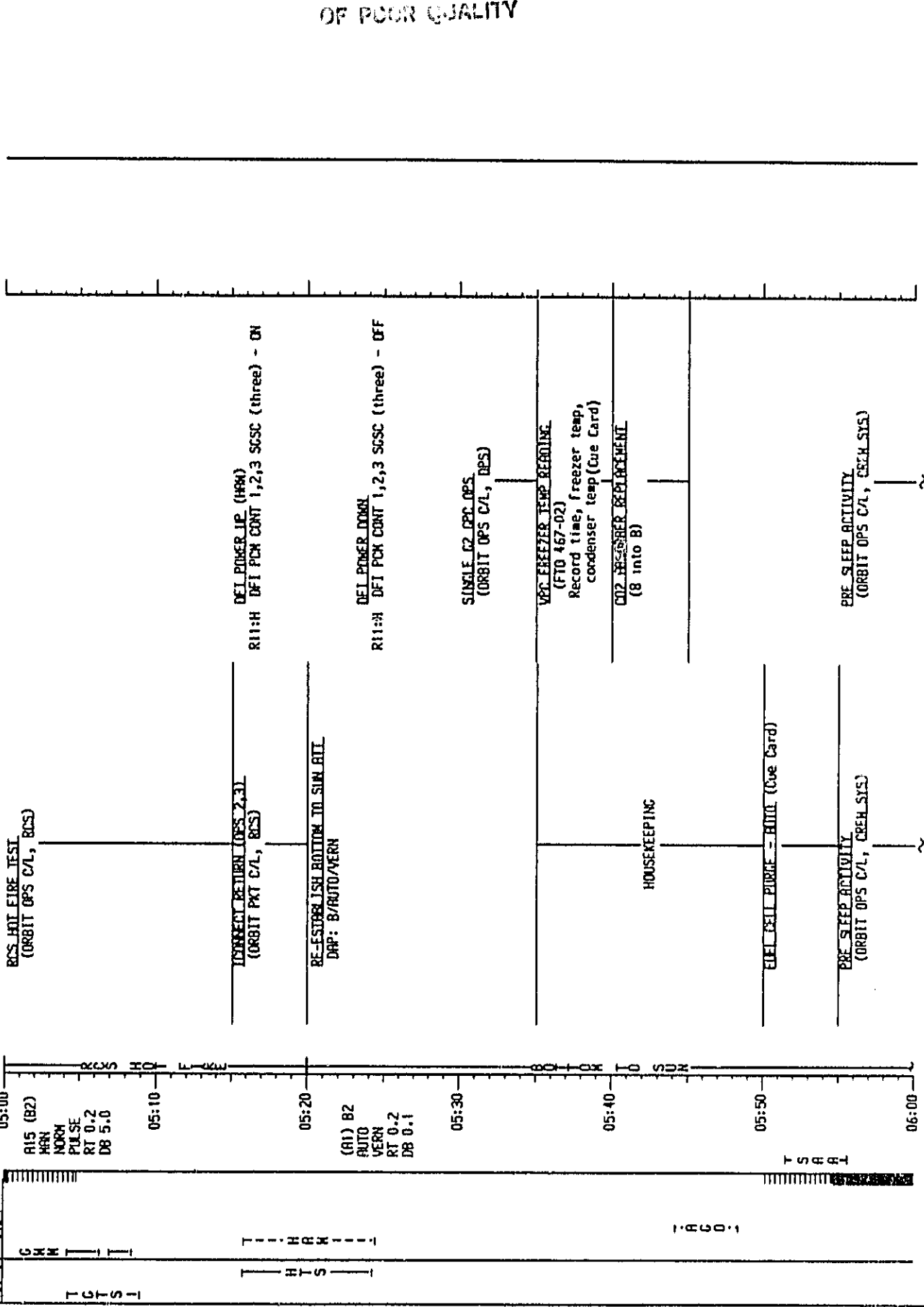
NOTES

CDR

CM

NET B C M
DAY 005 T S

05:00
05:10
05:20
05:30
05:40
05:50
06:00



ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

MET
DRY005
06:00

(R1) B2
AUTO
VERN
RT 0.2
DG 0.1

06:20
06:25

06:30

06:40

06:50

07:00

CDR

PRE SLEEP ACTIVITY

SLEEP

PLT

PRE SLEEP ACTIVITY

SLEEP

NOTES

MCC

MCC ONLY
COORD CSM/EDA
LIMITS CLEANUP
FOR DREN SLEEP

ASCENDING NOTE
DRE: 25
MET: 335:06:18:22
LON: 51.3 E

ORIGINAL PAGE 1
OF POOR QUALITY

LINK
SPC LOBO -
1ST CORR
ALERT
DSEL
RODR SLEEP
CONFIC

4-104

5/14/82 STS4/FIR

SGLS

B

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STS-4 DETAILED

NET
DRY005
07:00

(RT) B2
AUTO
VERN
RT 0.2
DB 0.1

SCLS1 STDN

CDR

PLT

NOTES

MCC

UPLINK
DREBITTER S.V.

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 86
MET: 005:07:48:51
LON: 31.1 E

SLEEP

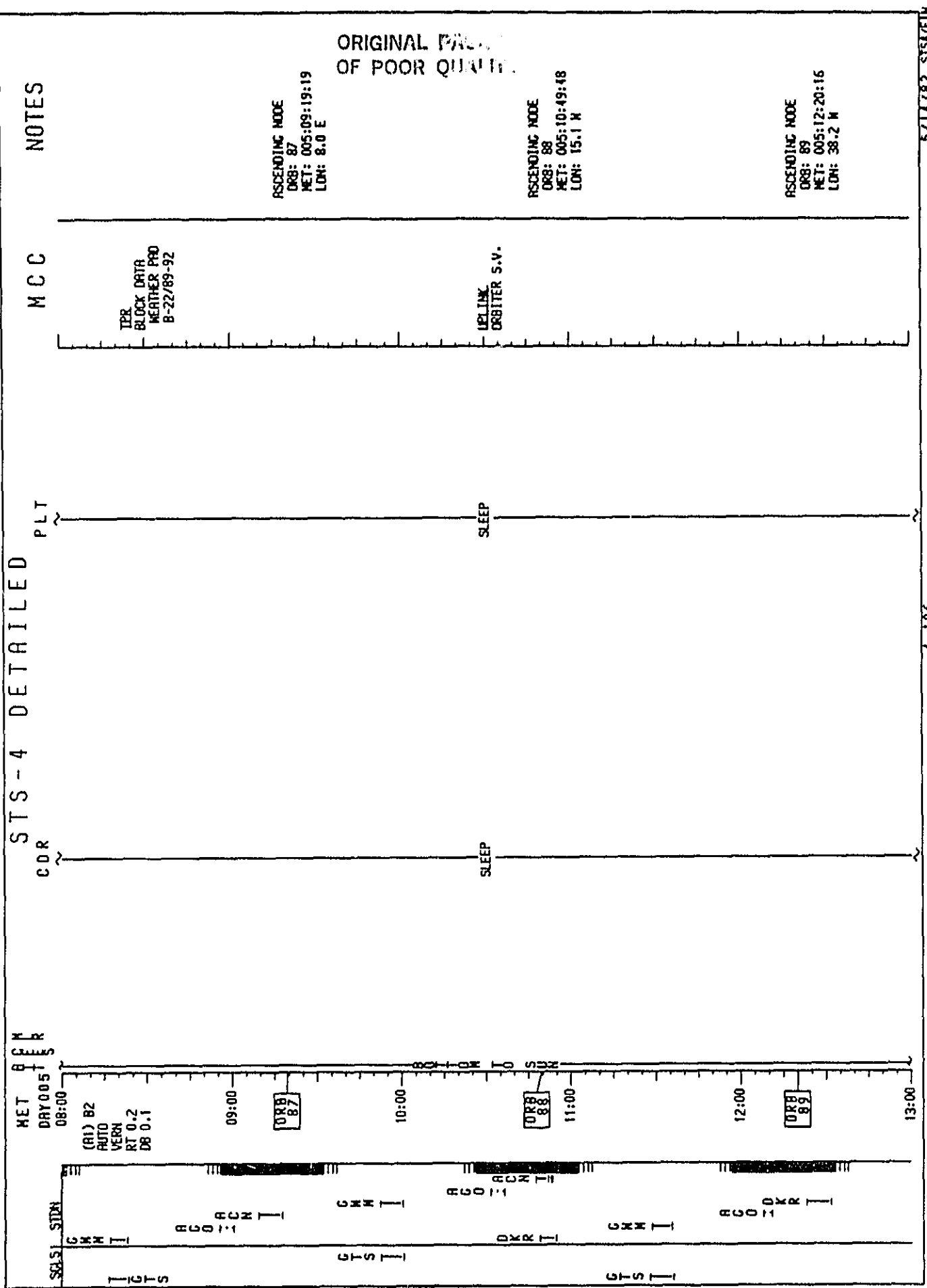
SLEEP

80% DOWN TO SUN

SARR

ORB
86

STS-4 DETAILED



571782 SISAFIN

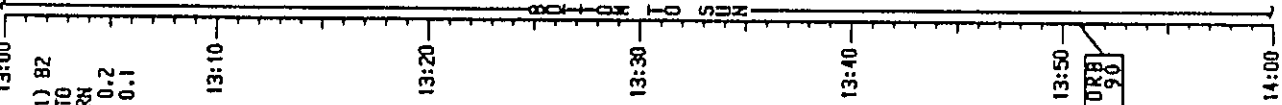
4-106

STS-4 DETAILED

HET 8 PM
DAY005
13:00

(RU) B2
AUTO
VERN
RT 0.2
DB 0.1

SOLS STDN



CDR

SLEEP

PLT

SLEEP

MCC

NOTES

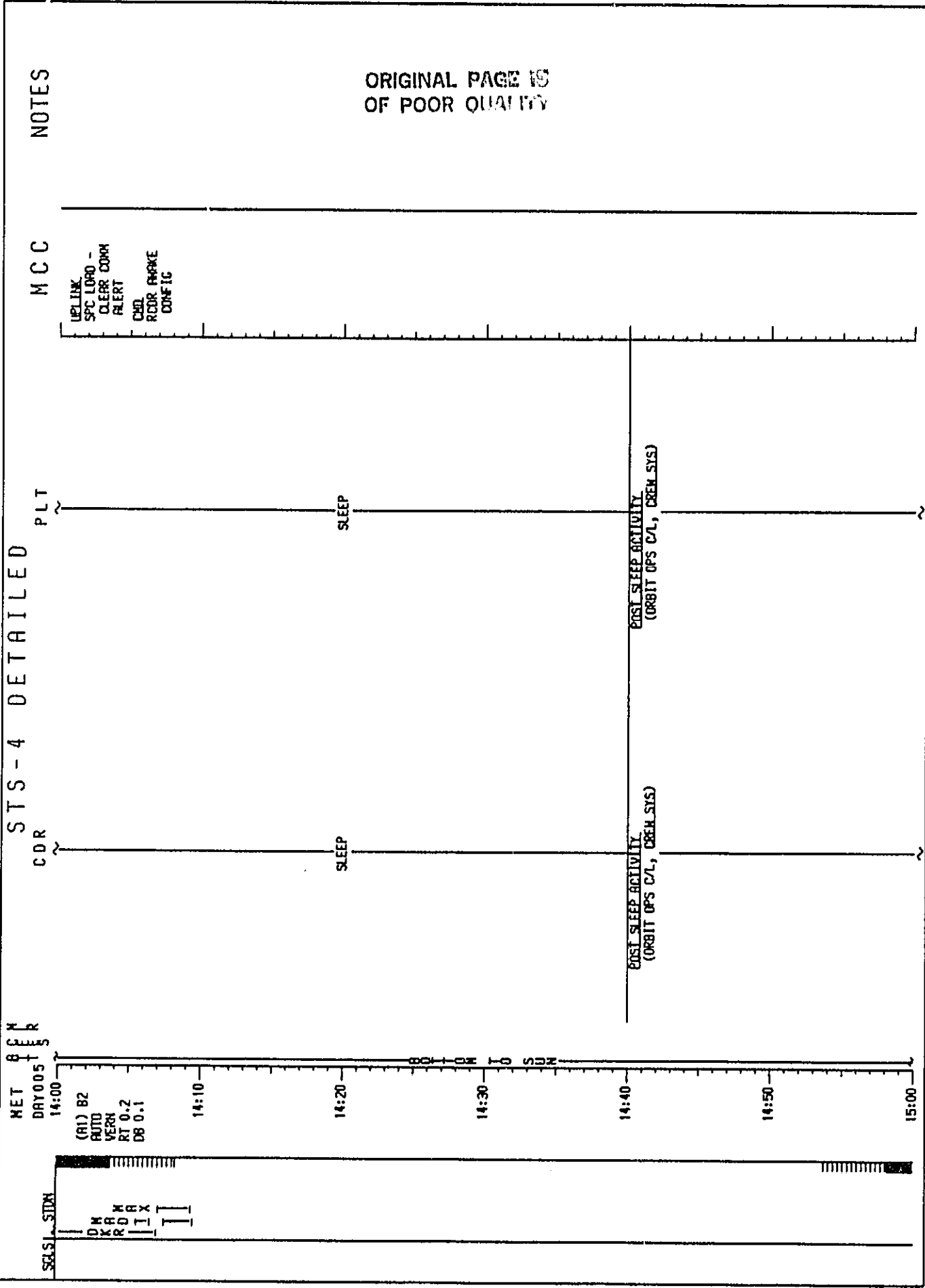
ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 90
MET: 005:13:50:45
LDN: 61.4 K

4-107

5714782 SISATFIN

STS-4 DETAILED



STS-4 DETAILED

MET
DAY005
15:00

SELSI SIDM

MCC NOTES

PLT

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

CDR

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

PRSD PERFORMANCE PREP ①
CRYO O2 TK1, 2, 3, 4 HTRS (ALL) - OFF
CRYO H2 TK1, 2, 3, 4 HTRS (ALL) - OFF
until 02 PRESS = 700 PSIA
or H2 PRESS = 180 PSIA
or PRSD PERFORMANCE on p9 4-113

Crew may reset SH alert limits to
annunciate end of depressurization,
if desired

PARAMETER NAME	574 ID	SH ALERT LOM
CRYO O2 P TK1	0451100	700
H2 P TK1	0452100	180

ASCENDING NODE
ORB: 91
MET: 005:15:21:13
LOM: 84.5 W

ORIGINAL PAGE 13
OF POOR QUALITY

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

T M
D R
K D
R I
T M A X I

ERGZARDS THERMAL SINKBACK
(2 FWD/1 AFT RCS ENG - FTO 412-06,08)
(ORBIT OPS C/L, RCS FTO'S)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

Changeout wireless
headset battery pack

FUEL CELL PURGE - AUTO (Due Card)

GAS DEACTIVATION PREP (Due Card)
(FSO 5435-01)

PRSD PERFORMANCE PREP ①

ORBIT OPS C/L, OPS1
(ORBIT OPS C/L, OPS1)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBA PZ012)

SUPPLY WATER TUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Qty to: _____
Qty A = _____ Qty B = _____

UPDATE
H2O SPAY DUMP
QTY TK A & B

STS-4 DETAILED

ACM

PLT

CDR

MCC

NOTES

PLT

CDR

MCC

NOTES

PLT

CDR

NET DRY005 16:00 16:10 16:20 16:30 16:40 16:50 17:00

RA (B2) AUTO NURH RT 0.2 DB 5.0

80 BOTTOM TO SUN

MEAL MEAL

ORIGINAL PAGE IS OF POOR QUALITY

ASCENDING NODE
ORB: 92
MET: 005:16:51:41
LDN: 107.7 H

5711782 SISN771H

4-110

SER 51 STDH

TILE AIR OR 1

MW
LI
XL
TI

STKS-4 DETAILED

PLT

CDR

ELBE/SMOKE DETECT/SUPPRESS TEST
(ORBIT OPS C/L, EPS)

ORBITATOR, C/M LAMP TEST
(ORBIT OPS C/L, EPS)

DEL POWER UP (BDA)
R11:H DFI PCH CONT 1,2,3 SCSC (three) - ON

DEL POWER DOWN
R11:H DFI PCH CONT 1,2,3 SCSC (three) - OFF

CABIN HEAT EXCHANGER/SLIPPER
FREE RD INSPECTION

1. Open vent duct access door (outboard of cabin heat exchanger) and loosen lower vent cap clamp (3/8 in deep socket)

2. Remove vent cap and inspect for free water

3. No water - reinstall cap/secure

Water observed - advise MCC

CONNECT: I (R) DMS to RCS
(ORBIT PKT C/L, ECS)

CHANGE TRAP #1: DB ATT WORK - 3*

SUICIDAL MNR TO IMH RA ICH/BU NEW ATT #1
MNR OPTION: R - 252.9
P - 252.5
Y - 348.9

DAP: A/AUTO/NDRM
(17:57) Initiate MNR

NOTES

MCC

UPDATE
DMS/RCS
ICCONNECT
CONFIC

ORIGINAL PAGE IS
OF POOR QUALITY

HET
DAY 005
17:00
A4 (B2)
AUTO
NDRM
RT 0.2
DB 5.0

17:10

17:20

17:30

17:40

17:50

18:00

A5 (B2)
AUTO
NDRM
RT 0.2
DB 3.0

SOLS

MM
LI
XL
B
D
A

TR
DD
KT
R
L
I
MAX

TI
LOS

TI
YAR

ORBIT

SUN

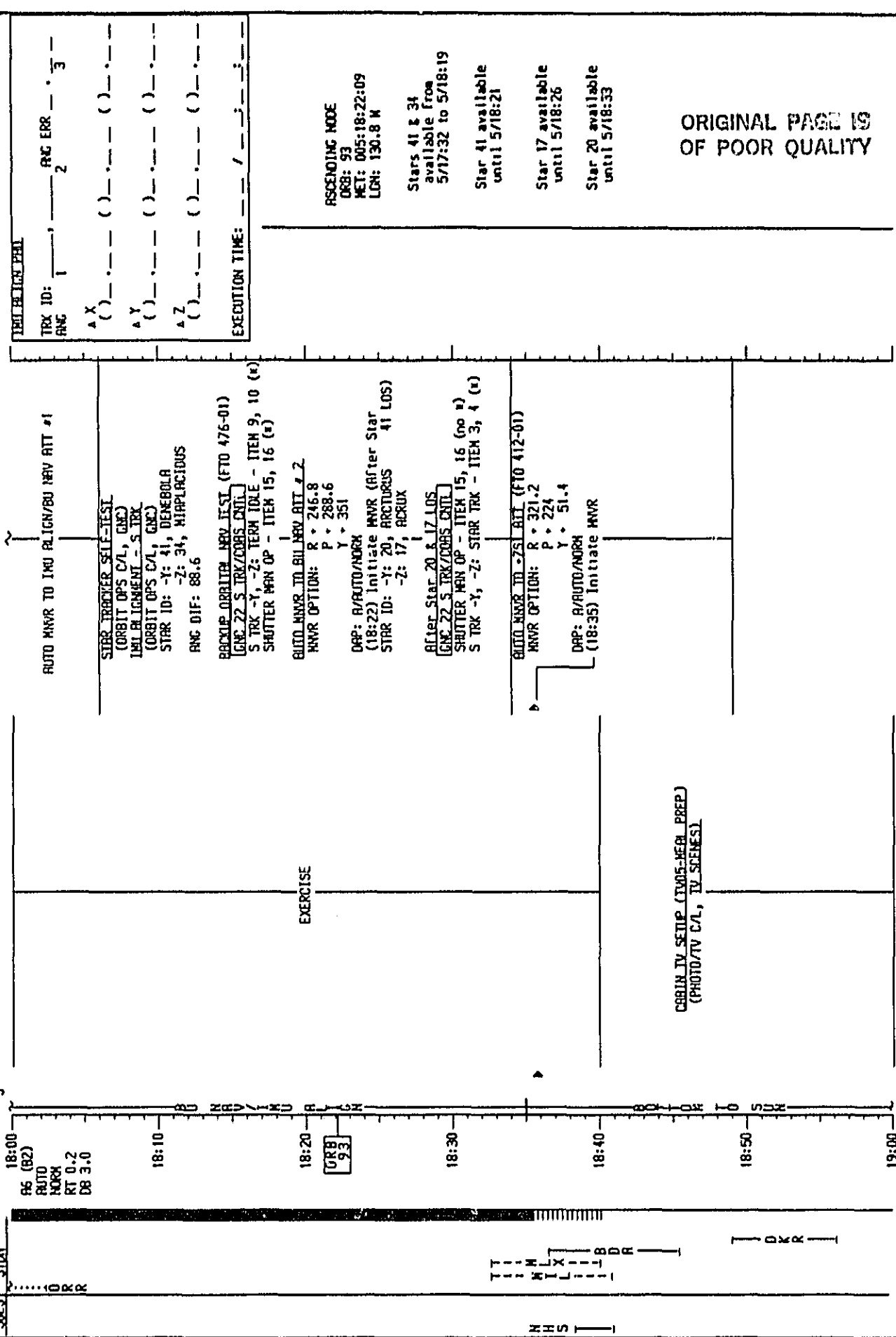
STS-4 DETAILED

CDR

PLT

MCC NOTES

NET DAY 005



TRX ID: 1
 RNC: 2
 A X () () () () () ()
 A Y () () () () () ()
 A Z () () () () () ()

EXECUTION TIME: / /

ASCENDING NODE
 OSB: 93
 MET: 005:18:22:09
 LON: 130.8 M

Stars 41 & 34 available from 5/17:32 to 5/18:19

Star 41 available until 5/18:21

Star 17 available until 5/18:26

Star 20 available until 5/18:33

ORIGINAL PAGE IS OF POOR QUALITY

STS-4 DETAILED

PLT

MCC

CDR

NET
DRY005
19:00

CABIN TV BET (TV05-NEAR PREP)
(PHOTO/TV C/L, TV SCENES)
Live at MIL

R5 (B2)
AUTO
NORH
RT 0.2
DB 3.0

19:10

19:20

19:30

19:40

19:50

20:00

BACKUP ORBITAL NAV TEST (FTO 476-01)
CME 22 S TRK/CORR ENTL
S TRK -Y, -Z: TERM IDLE - ITEM 9, 10 (*)
SHUTTER MAN OP - ITEM 15, 16 (*)
STAR ID: -Y: 41, DENEbola

BACKUP ORBITAL NAV TEST (FTO 476-01)
CME 22 S TRK/CORR ENTL
S TRK -Y, -Z: TERM IDLE - ITEM 9, 10 (*)
SHUTTER MAN OP - ITEM 15, 16 (*)
STAR ID: -Y: 41, DENEbola

BACKUP ORBITAL NAV TEST (FTO 476-01)
CME 22 S TRK/CORR ENTL
S TRK -Y, -Z: TERM IDLE - ITEM 9, 10 (*)
SHUTTER MAN OP - ITEM 15, 16 (*)
STAR ID: -Y: 41, DENEbola

CRYO 02 H2 TX 4 HTRS R (two) - AUTO
(Before PRSD PERFORMANCE)
PRSD PERFORMANCE
(15K LEVEL - FTO 445-03)
(ORBIT OPS C/L, EPS LTD)
Perform Step 1 - POWERUP

ORIGINAL PAGE IS
OF POOR QUALITY

Star 41 available
until 5/19:51

Star 17 available
until 5/19:57

Star 20 available
until 5/20:04

ASCENDING NODE
ORB: 94
MET: 005:19:52:38
LON: 154.0 N

STS-4 DETAILED

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

MCC

PLT

NET
DAY 005
20:00

C DR

20:10

20:20

20:30

20:40

20:50

21:00

RLter Star 20 & 17 LOS
[CNC 22 S TRK/CORS ENIT]
SHUTTER MEN OP - ITEM 15, 16 (no x)
S TRK -Y, -Z: STAR TRK - ITEM 3, 4 (x)
CHANGE DEP A: DB ATT NORM -5.0' DB
BLIND MANVR TO 751 AIL (FTO 412-01)
MVR OPTION: R * 321.2
P * 224
Y * 51.4
DAP: R/AUTO/NORM
(20:07) Initiate MVR

PRSD PERFORMANCE

REG PREP (Owe Card)
Prepare DAY 7, MEAL B

REGULATORS STOP/REPLY

(FTO 466-01)
(ORBIT OPS C/L, ELBOLDS)
Perform Step 1 - STOP REGULATORS

WATER DECI (WATERUSE Due Card)

HOUSEKEEPING

HOUSEKEEPING

TPR
BLACK DATA
HEATHER PRO
B-21/97-100
LEBLINK
ORBITTER S.V.

REG

PLT

MCC

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

5/11/78 215177IN

8-114

STS-4 DETAILED

NET
DRY005
21:00

R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

21:10

21:20

ORB
95

21:30

21:40

21:50

22:00

NOTES

MCC

PLT

CDR

ACM
R
S

ASCENDING NODE
ORB: 95
MET: 005:21:23:05
LDN: 177.1 W

ORIGINAL FILED
OF POON G... ..

5-11-82 SISI/FFIN

4-115

SELS
STDA

YAR

HARM

GOSS
TTT
86DT
UDT
CXI

M L X B D R

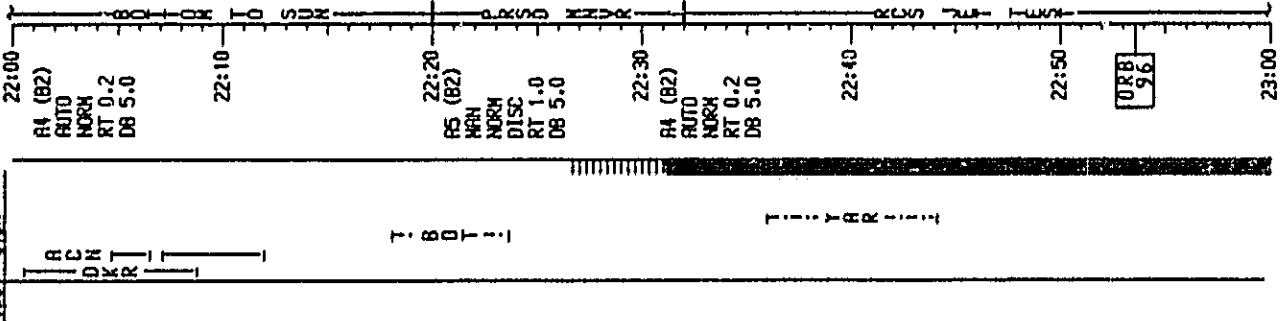
HPS

NHS

8 0 1 0 W T O S U W

STS-4 DETAILED PLT

NET
DRY005
22:00



SGSI STDN

ACDN
KVR
T: B O T I I
T: Y A R I I I

ICCONNECT: J (R) OMS to RCS
(ORBIT PKT C/L, RCS)

PRESD PERFORMANCE
(15% LEVEL - FTO 445-03)
(ORBIT OPS C/L, EDS ETD)
Perform Steps 2 and 3
(PERFORM MVR & POWERDOWN)

NOTE: Do not config for
VERN DRP

AUTO MVR TO RUSH ALTITUDE
MVR OPTION R= 315.3
P= 226.9
Y= 53.2
DRP: R/AUTO/NORM
(22:32) Initiate MVR

POST PRSD PERFORMANCE ①

ERCS/RCS TRIMMING SINKBACK
(2 FWD/1 AFT RCS ENG - FTO 412-06,08)
(ORBIT OPS C/L, RCS ETD's)
Perform Step 2 (PERFORM TRANSLATIONS)
(22:46) -X TRANS (30 sec)
-X TRANS (30 sec)

C3 JDFI RCORS WB HSH - STBY (16-bp)
ICCONNECT RETURN (OPS 2.3)
(ORBIT PKT C/L, RCS)

C3 JDFI RCORS PCM - HI SRMP
(10 min after FRCS/FRCS Test)

ICE FREEZER TRIP READING
(FTO 467-02)
Record trise, freezer temp,
condenser temp (Cue Card)

4-116

5/14/82 SIS/77M

NOTES

MCC

ORIGINAL PAGE 10
OF POOR QUALITY

LEDBATE
DMS/FRCS
ICCONNECT
CONFIG

POST PRSD PERFORMANCE ①
CRYO 02 TX1 & 2 HRS A (two) - AUTO
02 TX1 & 2 HRS A,B (four) - AUTO
02, H2 TX3 HRS A (two) - AUTO
02, H2 TX4 H.35 A (two) - OFF

If crew sets SY alert limits to
annunciate end of depressurization

PARAMETER NAME	S/A ID	SY ALERT LON
CRYO 02 TX P TX1	0451100	575
H2 TX P TX1	0452100	165

ASCENDING NODE
ORB: 96
MET: 005:22:53:34
LON: 159.7 E

STS-4 DETAILED

PLT

MCC

NOTES

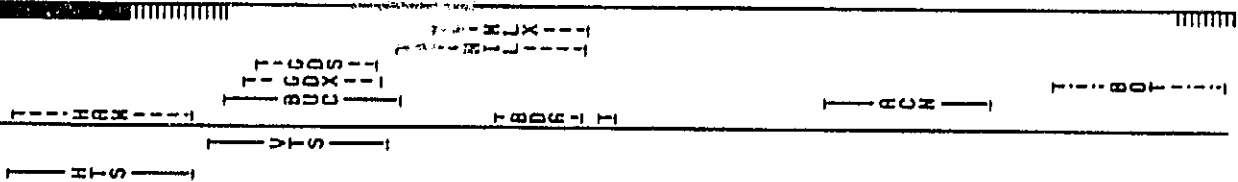
ORIGINAL PAGE IS
OF POOR QUALITY

MET
DRY005
23:00

PLATO MWR TO ZSL RIL (FTO 412-01)
MWR OPTION: R * 321.2
 P * 224
 Y * 51.4
DAP: R/AUTO/NORM
(23:02) Initiate MWR

RA (B2)
AUTO
NORM
RT 0.2
DB 5.0

SCLS
SIDN



23:10

PRIVATE MEDICAL COMMUNICATION

PRIVATE MEDICAL COMMUNICATION

23:20

23:30

23:40

23:50

00:00

STS-4 DETAILED

CDR

PLT

NOTES

MET
DAY 006
00:00

SGLS

STDN

R4 (R2)
AUTO
NORM
RT 0.2
DB 5.0

00:10

00:20

00:30

00:40

00:50

01:00

00:27

DEL POWER UP (OMH)
R11:H DFI PCH CONT 1,2,3 SCS (three) - ON

DEL POWER DOWN
R11:H DFI PCH CONT 1,2,3 SCS (three) - OFF

PLBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)
(ORBIT OPS C/L, PLBD ETO L's)
Theodolite sightings
during PLBD operations

PLBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)
(ORBIT OPS C/L, PLBD ETO L's)
Theodolite sightings
during PLBD operations

CBS DEACTIVATION (Cue Card)
(FSO S135-01)

STOCK CBS ENVELOPE (Cue Card)

LI RT LOU DUCT HTR - H
(S88 THERMAL EVAP)
(30 min prior to FES ENABLE
for PLBD OPS)

FD 8 GO/NO GO

REAL PREP (Cue Card)
Prepare DRY 7, MERL C

INFORM CREW
FD 8 GO/NO GO

ASCENDING NODE
ORB: 97
MET: 006:00:24:04
LON: 135.6 E

ORIGINAL PAGE IS
OF POOR QUALITY

4-118

5714782 SIS4/FIN

STS-4 DETAILED

MET
DAY 006

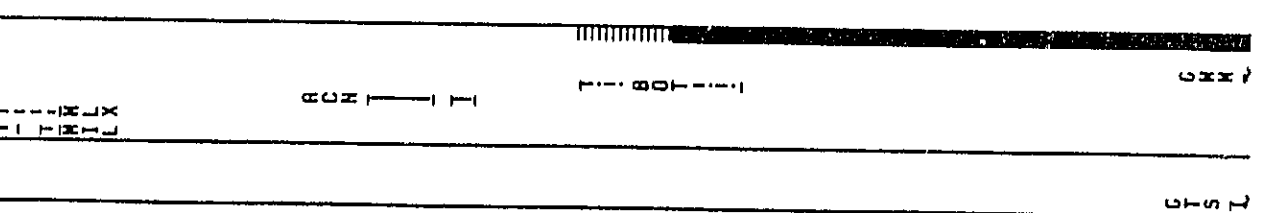
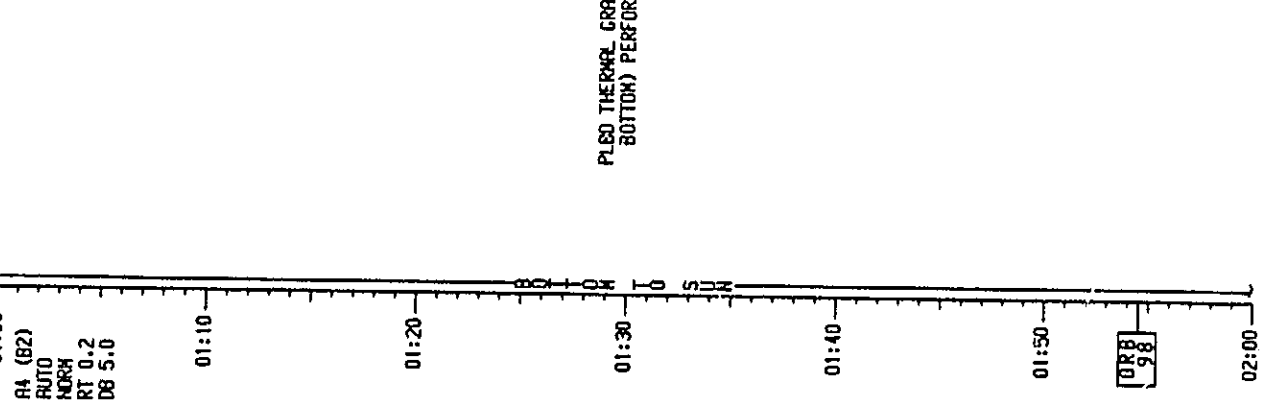
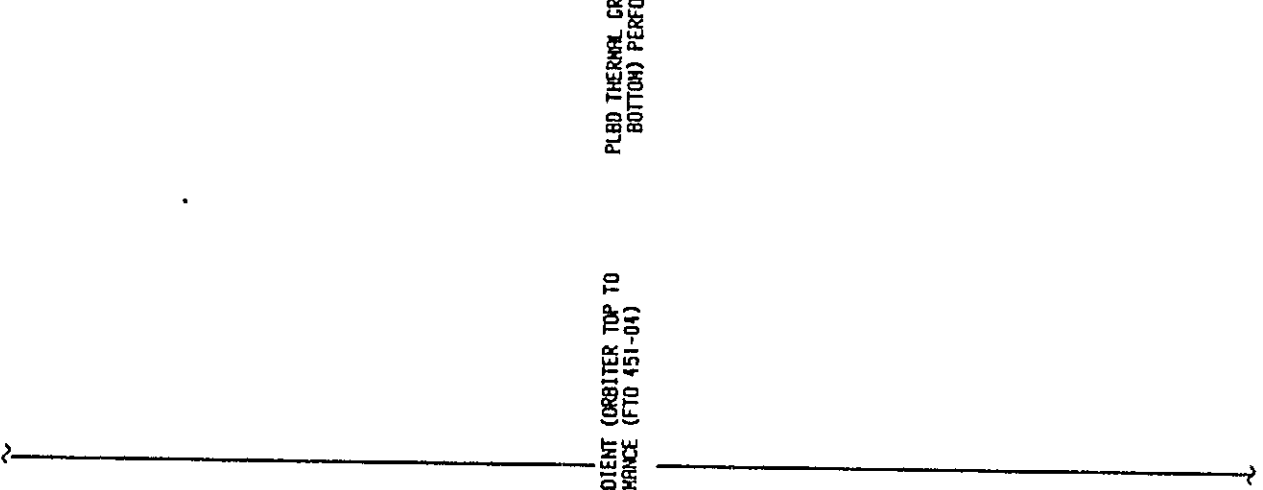
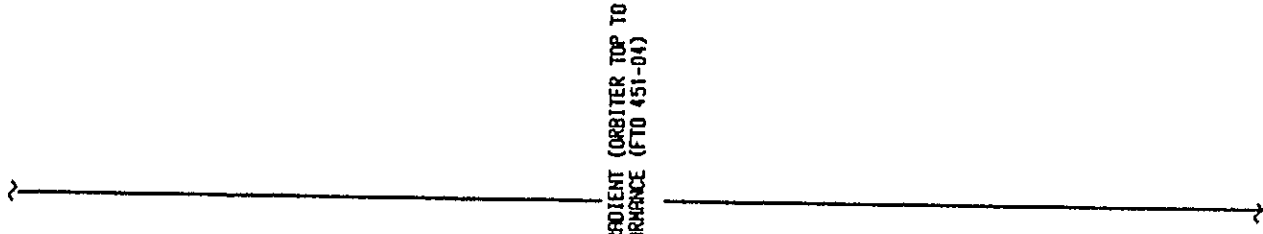
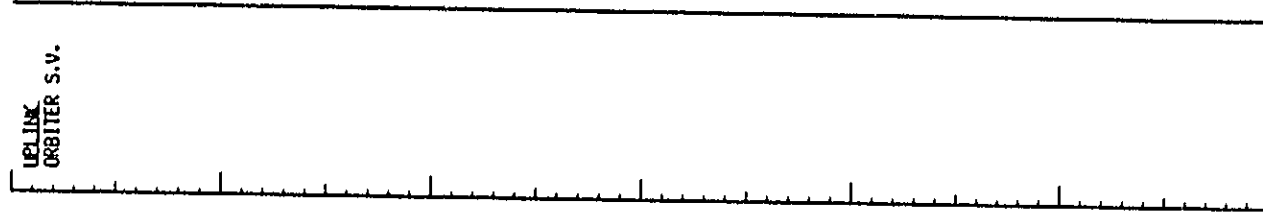
SCS
STBY

NOTES

MCC

PLT

CDR



ORIGINAL PAGE IS OF POOR QUALITY

ASCENDING NODE
DB: 98
MET: 006:01:54:32
LUN: 113.5 E

ORIGINAL PAGE 15
OF POOR QUALITY

NOTES

MCC

TPR
BLOCK DATA
WEATHER PRO
B-25/101-104
UPDATE
H2O SPLY DAMP
QTY TR A & B

STS-4 DETAILED

MET OPER

DRY006
02:00
R4 (B2)
AUTO
NORR
RT 0.2
DB 5.0
02:10
02:20
02:30
02:40
02:50
03:00

CDR

PL80 THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

PLT

PL80 THERMAL GRADIENT (ORBITER TOP TO
BOTTOM) PERFORMANCE (FTO 451-04)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ENLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

NERL

NERL

ST S
G M
T H A K
N T S
V T S
G G
T D D S
B U T
C I

STS-4 DETAILED

MET
DRY006
03:00

R4 (B2)
AUTO
MORN
RT 0.2
DB 5.0

SCLS STIM

CDR

PLT

NOTES

MCC

MERL

MERL

LT HI LOAD DUCT HTR - OFF
(30 min after HI LOAD EVAP - OFF)

CERIN STIM
(ORBIT OPS C/L, CREW SYS)

CERIN STIM
(ORBIT OPS C/L, CREW SYS)

ORB
99

ASCENDING NODE
ORB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

MET
DAY 006
04:00

A1 (B2)
AUTO
NORH
RT 0.2
DB 5.0

04:10

04:20

A1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

04:40

04:50

ORB
100

05:00

SCS1 STDM

CDR

PLT

MCC

NOTES

CABIN STDM

CABIN STDM

ENG/OPS THE ORB SOURCE
(2 FWD/1 AFT RCS ENG - FTO 412-06.08)
(ORBIT OPS C/L, RCS ETO's)
Perform Step 3 (RECONFIG TO NOMINAL)

CHANGE DRP B: DB RTI VERN - 1° DB
AUTO MVR TO JML ALIGN RAIL

MVR OPTION: R * 261
Y * 39

DAP: A/AUTO/VERN
(04:32) Initiate MVR

JML ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 43, RSRALHAGUE
-Z: 28, RL NR'IR
ANG DIF: 85.0

Q.4 DEL/SEC PTC XPOP - INITIATE
(FTO 412-01)

MVR OPTION: R * 8.6
P * 226.8
Y * 53

DAP: A/AUTO/VERN
(04:52) Initiate MVR

HYD THERMAL CONDITIONING TERMINATE
(ORBIT OPS C/L, BPU/AVD)

PAYLOAD DEACTIVATION
(OPERATIONS C/L, IRR.E)

PAST OPERATIONS DISCONTINUATION
(OPERATIONS C/L, IRR P70/11 R P70/15)

ORIGINAL PAGE IS
OF POOR QUALITY

Stars 43 & 28
available from
6/04:31 to 6/05:13

TRX ID: 1

ANG ERR 2 3

A X () () () () () ()

A Y () () () () () ()

A () () () () () ()

EXECUTION TIME: / /

ASCENDING NODE

ORB: 100

HEI: 006:04:55:28

LOH: 67.2 E

STS-4 DETAILED

NET B C H
DAY006 T S
05:00

PLT

MCC

CDR

05:10

05:20

05:30

05:40

05:50

06:00

When MNR to PTC ATT complete,
CHANGE DPP A:
ROT DISC RATE VERN - 0.4 7/SEC
BODY VECT .4
Initiate ROT
MISL DEACTIVATION (Cue Card)
(FSO 5441-01)

POST OPERATIONS DOCUMENTATION
PAYLOAD DEORBIT PREPARATION
(OPERATIONS C/L, TABLE)

S-BAND ANTENNA PATTERN
(FTO 471-01)
(ORBIT OPS C/L, CREW ETO)

Configure for MAN
ADS: 6/05:26
LOS: 6/05:34

UPLINK
ORBITER S.V.

CABIN TV STOW
MF57E/ Stow both cameras
MF57G

CO2 ABSORBER REPLACEMENT
(9 into A)

SINGLE G2 OPS OPS
(ORBIT OPS C/L, OPS)

EIEI CELL PURGE - AUTO (Cue Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORBITER S.V.
OF POOR QUALITY

STS-4 DETAILED

MET OFF
DRY 006

NOTES

MCC

PLT

CDR

ASCENDING NODE
ORB: 101
MET: 006:06:25:56
LOW: 44.0 E

ORIGINAL PAGE 10
OF POOR QUALITY

MCC ONLY
COORD CDR/FDR
LIMITS CLEARUP
FOR CREW SLEEP

UNLINK
SPC LOAD -
1ST COMM
ALERT
CMD
ROCK SLEEP
CONFIC

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

06:00

06:10

06:20

06:30

06:40

06:50

07:00

RZ (B1)
S AUTO
A VERN
RT 0.4
D8 1.0

ORB
101

SOLS STDN

T I I O S I I I

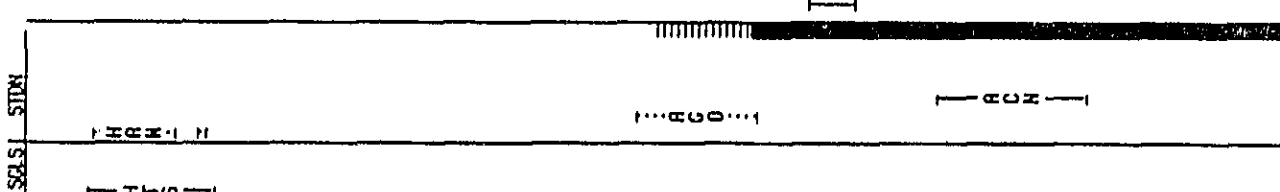
S W H I I I

T I C T S I

STS-4 DETAILED

MET ACM
DRY006

07:00
R2 (81)
AUTO
VERN
RT 0.4
DB 1.0



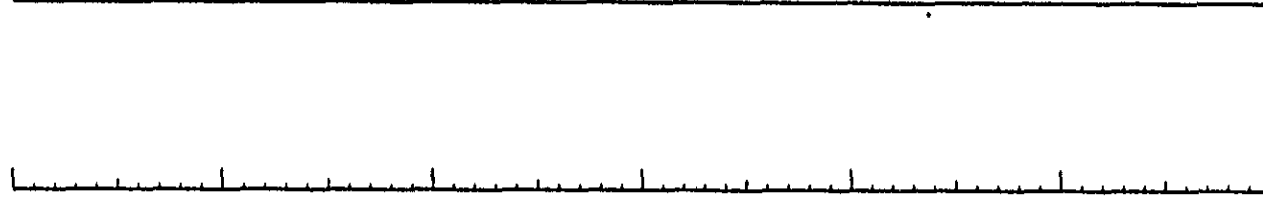
CDR

SLEEP

PLT

SLEEP

MCC



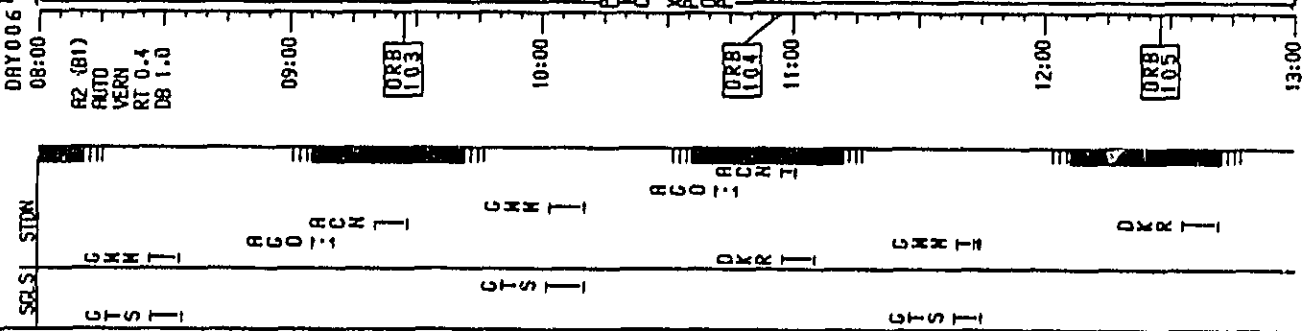
NOTES

ORIGINAL PARTIAL
OF POOR QUALITY

ASCENDING NODE
ORB: 102
MET: 006:07:56:24
LON: 20.9 E

STS-4 DETAILED

CDR
PLT



ORIGINAL PAGE IS
OF POOR QUALITY

NOTES

ASCENDING NODE
ORB: 103
MET: 006:09:26:52
LCN: 2.2 N

ASCENDING NODE
ORB: 104
MET: 006:10:57:20
LCN: 25.3 N

ASCENDING NODE
ORB: 105
MET: 006:12:27:48
LCN: 48.5 N

MCC

TER
BLOCK DATA
HEATHER PRO
8-26/105-108

UP LINK
ORBITER S.V.

STS-4 DETAILED

MET
DAY006

CDR

PLT

MCC

NOTES

SCLS STDN

13:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

13:10

13:20

13:30

13:40

13:50

14:00
DB 1.06

SLEEP

SLEEP

ORIGINAL PLOT
OF POOR QUALITY

ASCENDING MODE
DB: 105
MET: 005:13:58:15
LOR: 71.6 N
5714782 STS4/FIN

4-127

FLT DAY 8

STS-4 DETAILED

NET
DRY006
14:00

B2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

SCALE SIDE

MAX
MIN

Y A R T I

CDR

SLEEP

PLT

SLEEP

MCC

UPLINK
ORBITER S.V.
UPLINK
SPC LOAD -
CLEAR COMM
ALERT

LINEUP CREW
SH DRPT -
REC'D/NOT REC'D

ORIGINAL REAS. OF
OF POOR CHARACT.

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

STS-4 DETAILED

CDR

PLT

NOTES

MCC

SCLSI STDM

MET DRY 006

RZ (61)
AUTO
VERN
RT 0.4
ER 1.0

15:10

15:20

15:30

15:40

15:50

16:00

DRB 107

POST SLEEP ACTIVITY

POST SLEEP ACTIVITY

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

Changeout wireless headset battery pack

ASCENDING NODE
DRB: 107
MET: 006:15:28:43
LON: 94.3 W

PER
BLOCK DATA
WEATHER PRO
B-277109-112

006:15:28:43
09:20:00

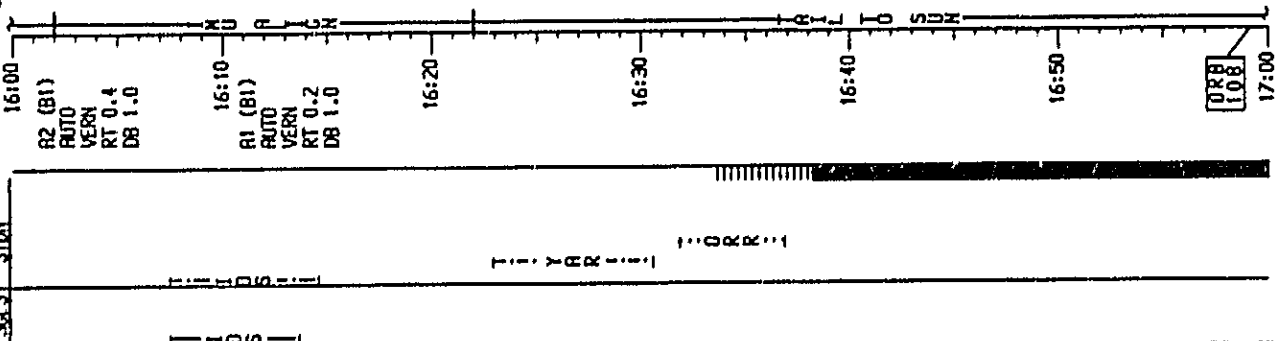
T D X R T T
I I M N
I I A A
I I D X
I I I I

T B D R :

STS-4 DETAILED

PLT

NET OPER
DAY 006



AUTO MWR TO IMULIGN BIT
MWR OPTION: R * 248.2
P * 218.9
Y * 339.4

Change DPP R: ROT DISC RATE VERN - 0.2
DAP: R/AUTO/VERN
(16:02) Initiate MWR

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
IMULIGNMENT - S TRX
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 41, DENEbola
-Z: 50, RVIOR
RNG DIF: 65.0

AUTO MWR TO -XSL BIT
MWR OPTION: R * 252.6
P * 284.1
Y * 341

DAP: R/AUTO/VERN
(16:22) Initiate MWR

MS/D6 Unstow DEORBIT POP (2)

EUEL CELL PIECE - RMTL (One Card)

SUPPLY WATER TAMP
(ORBIT OPS C/L, ECLS)
Dump to:
QTY A = QTY B =

MCC

NOTES

LEDSITE
H2O SPAY DUMP
QTY TR A & B

Stars 41 & 50
available from
6/16:10 to 6/16:54

TRX ID: _____
RNG _____ 2 _____ 3

A X () _____ () _____ () _____

A Y () _____ () _____ () _____

A Z () _____ () _____ () _____

EXECUTION TIME: _____ / _____

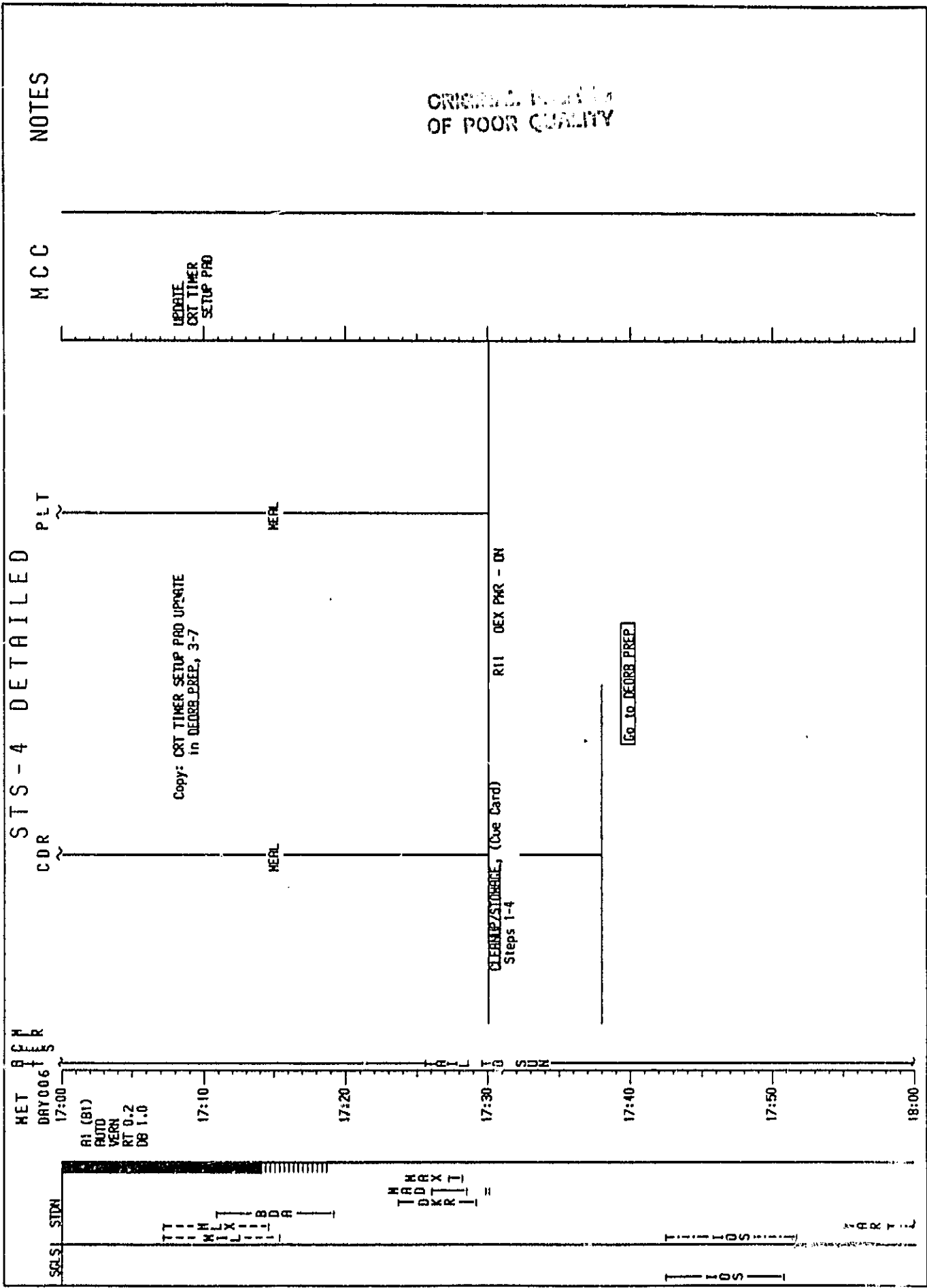
REPORT: IMULIGN RESULTS

RPT: IMULIGN RESULTS

ORIGINAL PAGE NO
OF POOR QUALITY

ASCENDING NODE
ORB: 108
NET: 006:15:59:11
LON: 117.9 M

STS-4 DETAILED



CONTINGENCY TIMELINES

HIGH PRIORITY MISSION..... 5-3
ONE-DAY EXTENSION..... 5-55
24 HOURS AFTER EXTENSION DAY..... 5-93

HIGH PRIORITY
MISSION

HIGH PRIORITY MISSION

The High Priority Mission (HPM) is designed as a 74.3 hour flight lasting 3.5 flight days (FD). To enter HPM, complete the nominal FD 1 through 0/17:30. Begin HPM at 0/17:30.

HPM ACTIVITIES

FLIGHT DAY 1 - NOMINAL CAP FD 1 THROUGH SLEEP TO 0/17:30.

FLIGHT DAY 2 - BEGIN HPM SECTION AT 0/17:30. ACTIVITIES ARE SIMILAR TO NOMINAL CAP UNTIL 1/00:15 WHEN CFES SAMPLE 6 IS RUN.

- o ATTITUDES
 - o GRAVITY GRADIENT (8 HRS vs 12 HRS)
 - o BOTTOM SUN (26 HRS vs 33 HRS)
- o IECM CONTAMINATION SURVEY (1 HR) SCHEDULED WITH TOP SUN FOR WARM THERMAL ENVIRONMENT
- o IECM PLUME SURVEY (1 HR) IN BOTTOM SUN
- o HOT FIRE TEST
- o MLR DEACTIVATION (19.5 HRS)

FLIGHT DAY 3 -

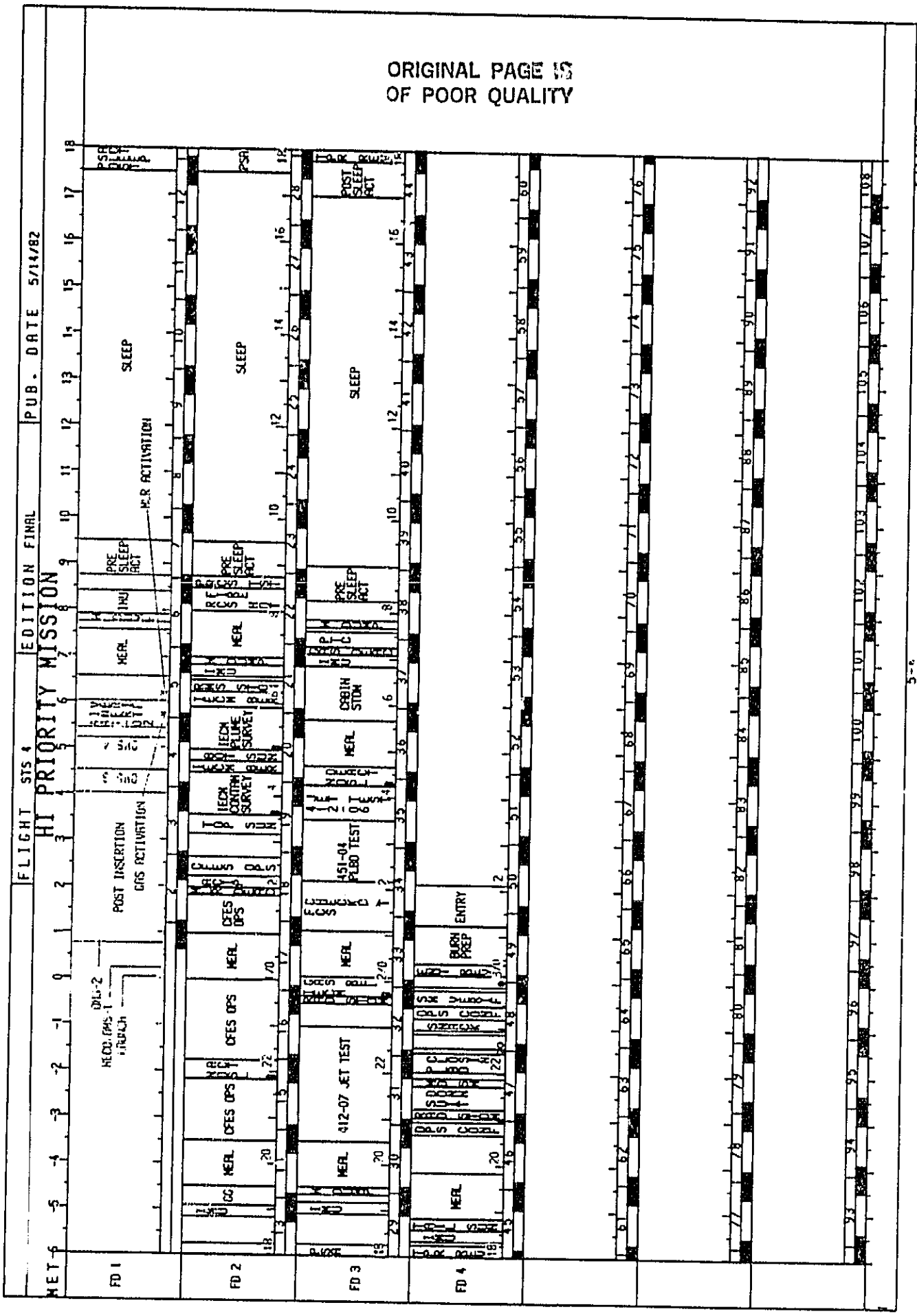
- o FRCS THERMAL SOAKBACK, PULSE MODE - F3F
- o IECM GAS RELEASE
- o FRCS THERMAL SOAKBACK, TWO FORWARD ENGINES - F2F, F3F
- o FCS CHECKOUT, PART 1 AND 2. STAY ON TAIL ONLY JETS SO NO PRCS FIRINGS IN FORWARD POD. (REQUIREMENT OF FRCS THERMAL SOAKBACK TESTS)
- o RADIATOR PERFORMANCE TEST. STOW RADIATORS 3 HRS PRIOR TO PLBD CYCLE TEST, THEN DEPLOY AFTER PLBDs OPENED
- o PLBD CYCLE TEST AT THE END OF BOTTOM SUN THERMAL TEST
- o PTC FOR SLEEP

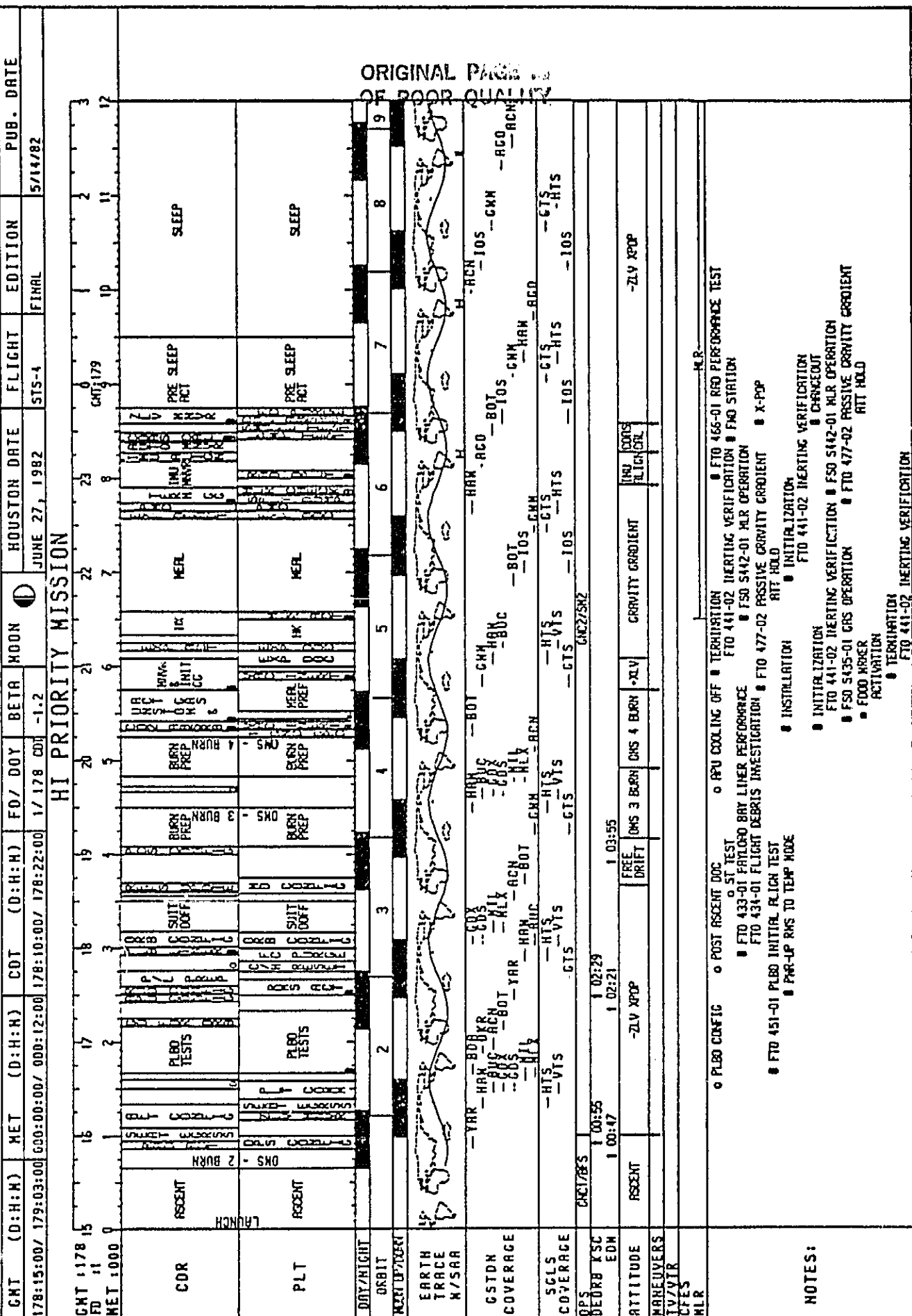
FLIGHT DAY 4 -

- o TAIL SUN AFTER MORNING IMU ALIGN
- o NOMINAL DEORBIT PREP (5 HRS)

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571472 515671M

5-5

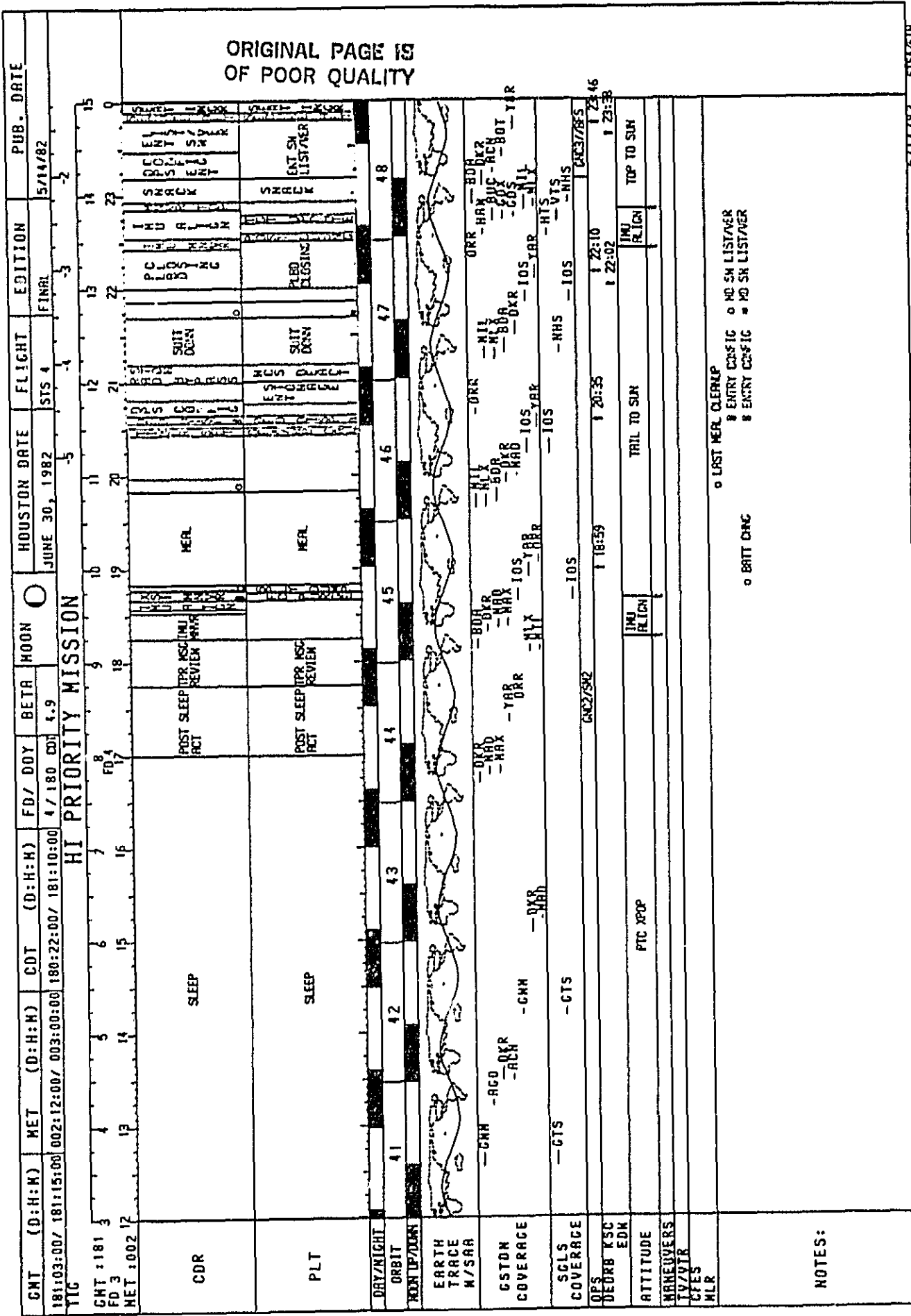
GHT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		(D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE			
180:03:00 / 180:15:00		001:12:00 / 002:00:00		179:22:00 / 180:10:00				2 / 179		2.1				JUNE 29, 1982		STS 4		FINAL		5/14/82			
HI PRIORITY MISSION																							
GHT : 180 3		13		4		5		6		7		8		9		10		11		12		13	
FD 2		13		14		15		16		17		18		19		20		21		22		23	
MET : 001 12		13		14		15		16		17		18		19		20		21		22		23	
0 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0																							
CDR		SLEEP		SLEEP		SLEEP		POST SLEEP ACT		POST SLEEP ACT		POST SLEEP ACT		POST SLEEP ACT		MERL		MERL		MERL		MERL	
PLT		SLEEP		SLEEP		SLEEP		POST SLEEP ACT		POST SLEEP ACT		POST SLEEP ACT		POST SLEEP ACT		MERL		MERL		MERL		MERL	
DRY/NIGHT		25		26		27		28		29		30		31		32							
ORBIT		25		26		27		28		29		30		31		32							
EARTH TRACE W/SAR		25		26		27		28		29		30		31		32							
GSTDN COVERAGE		25		26		27		28		29		30		31		32							
SCLS COVERAGE		25		26		27		28		29		30		31		32							
DEGRD RSC EDM		25		26		27		28		29		30		31		32							
ATTITUDE		25		26		27		28		29		30		31		32							
MANEUVERS		25		26		27		28		29		30		31		32							
EYES		25		26		27		28		29		30		31		32							
MLR		25		26		27		28		29		30		31		32							
NOTES:																							

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- FTO 412-07 FRCS THERMAL SORBACK, PULSE MODE
- FTO 412-01 ATT HOLD THERMAL RESPONSE
- FTO 467-01 VPC FREEZER HEAT EXCHANGE DYNAMICS
- FTO 412-07 FRCS THERMAL SORBACK, PULSE MODE
- FTO 467-02 WATER SAMPLE FREEZING
- FTO 412-07 FRCS THERMAL SORBACK, PULSE MODE
- FTO 412-07 FRCS THERMAL SORBACK, PULSE MODE
- FTO 5431-01 TECH

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
180:15:00/181:03:00	002:00:00/002:12:00	180:10:00/180:22:00	3/180	CDI 3.5	☉	JUNE 29, 1982	STS 4	FINAL	5/14/82
HI PRIORITY MISSION									
GMT: 180 15	16	17	18	19	20	21	22	23	24
FD 3	0	1	2	3	4	5	6	7	8
MET: 002	0	1	2	3	4	5	6	7	8
CDR	MERL	FCS CHECKOUT	FCS PERIOD	PLBO CYCLE TEST	MERL	CABIN STON	PRE SLEEP	PRE SLEEP	SLEEP
PLT	MERL	FCS PERIOD	FCS PERIOD	PLBO CYCLE TEST	MERL	CABIN STON	PRE SLEEP	PRE SLEEP	SLEEP
DAY/NIGHT									
ORBIT									
REU/D/DMM	33	34	35	36	37	38	39	40	
EARTH TRACE									
M/SRA									
CSTON COVERAGE	HAR - DCR	YAR - BOT	YAR - BOT	YAR - BOT	YAR - BOT	YAR - BOT	YAR - BOT	YAR - BOT	YAR - BOT
SCLS COVERAGE	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS	HTS - HTS
OPS DEORB KSC EDM	01:12	01:03	02:39						
ATTITUDE	TECH GAS RELEASE	BOTTOM TO SUN	JET	BOTTOM TO SUN	JET	BOTTOM TO SUN	JET	PTC XPOP	
MANEUVERS									
TV/VTR									
CFES									
MLR									
NOTES:	<ul style="list-style-type: none"> TECH GAS REL FSD 5431-01 IECH TECH GAS REL FSD 5431-01 IECH FTO 412-01 ATT HOLD THERMAL RESPONSE HI LOAD HTR-A HI LOAD HTR-B FTO 451-04 PLBO THERMAL GRADIENT PERFORMANCE FSD 5441-01 MSSL OPERATIONS 2 FMO BURN (30 SEC) (FTO 412-06) HI LOAD HTR-OFF CHARGEOUT PL DEORBIT PREP FSD 5435-01 GAS OPERATION FTO 412-01 ATT HOLD THERMAL RESPONSE FSD 5435-01 GAS OPERATION CIRC PUMPS TO OFF 								

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5-10

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5154711

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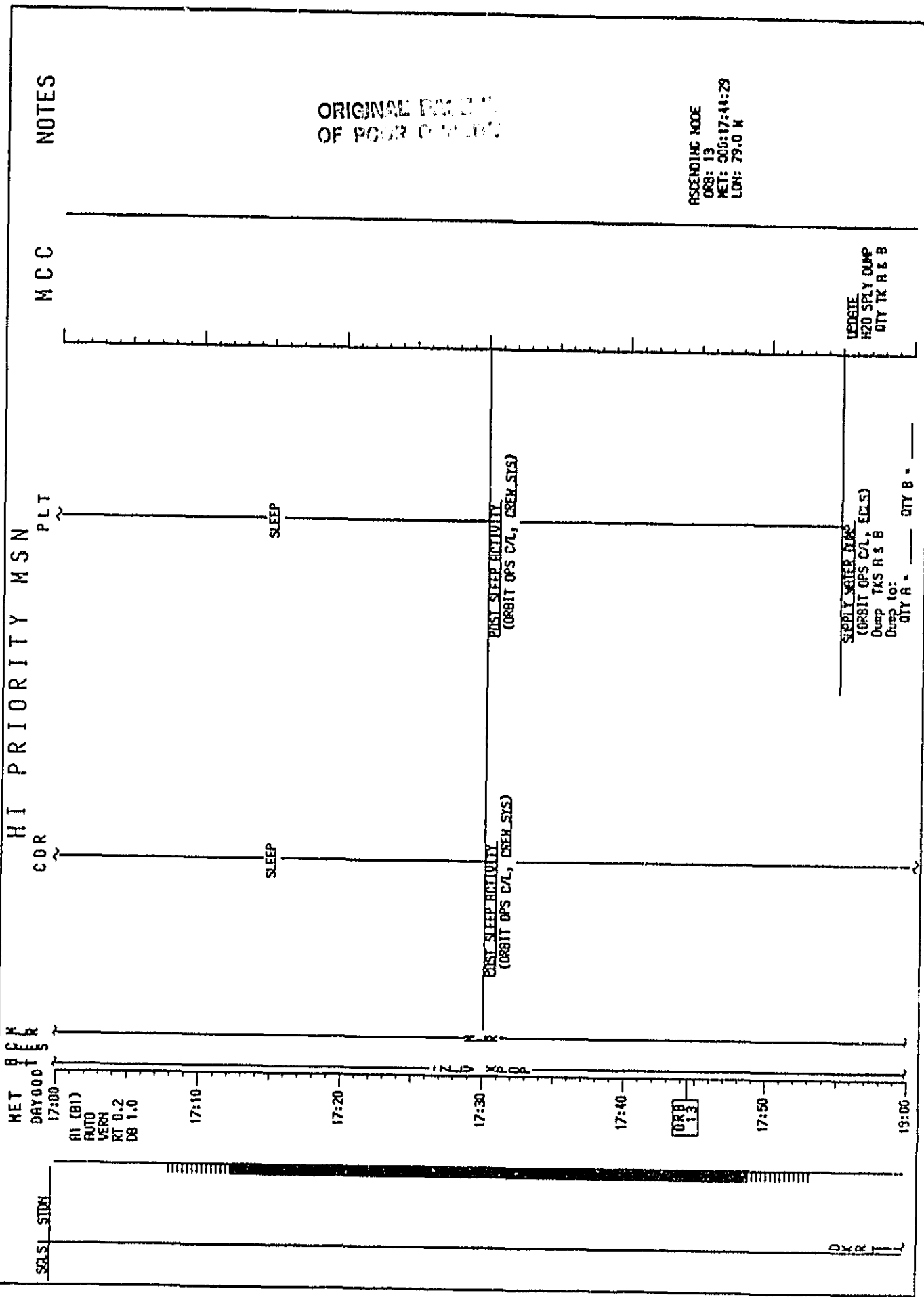
GMT (D:H:M)		NET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE	
179:15:00 / 180:03:00		001:00:00 / 001:12:00	179:10:00 / 179:22:00	2 / 179	0.9	☉	JUNE 28, 1982	STS 4	FINAL	5/14/82	
HI PRIORITY MISSION											
GMT: 179 15	17	18	19	20	21	22	23	24	25	26	
FD 2	0	1	2	3	4	5	6	7	8	9	
NET: 001 0	0	1	2	3	4	5	6	7	8	9	
CDR	MEAL	TV ACT	MEAL	TECH CONTR SURVEY	TECH PLUME SURVEY	TECH CONTR SURVEY	TECH PLUME SURVEY	MEAL	MEAL	PRE SLEEP RCT	SLEEP
	MEAL	TV ACT	MEAL	TECH CONTR SURVEY	TECH PLUME SURVEY	TECH CONTR SURVEY	TECH PLUME SURVEY	MEAL	MEAL	PRE SLEEP RCT	SLEEP
PLT	MEAL	TV ACT	MEAL	TECH CONTR SURVEY	TECH PLUME SURVEY	TECH CONTR SURVEY	TECH PLUME SURVEY	MEAL	MEAL	PRE SLEEP RCT	SLEEP
	MEAL	TV ACT	MEAL	TECH CONTR SURVEY	TECH PLUME SURVEY	TECH CONTR SURVEY	TECH PLUME SURVEY	MEAL	MEAL	PRE SLEEP RCT	SLEEP
ORBIT	17	18	19	20	21	22	23	24	25	26	
ORBIT	17	18	19	20	21	22	23	24	25	26	
EARTH TRACE W/SAR	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
GSTDN COVERAGE	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
SCLS COVERAGE	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
OPS DEORB KSC EDN	17	18	19	20	21	22	23	24	25	26	
ATTITUDE	17	18	19	20	21	22	23	24	25	26	
TURN/VECS	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
CFES	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
MLR	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	
NOTES:	17	18	19	20	21	22	23	24	25	26	
	17	18	19	20	21	22	23	24	25	26	

CMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	(D:H:M)	FD/ DQY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE	
181:15:00/ 182:03:00	003:00:00/ 003:12:00	181:10:00/ 181:22:00	4 / 181 CDT	6.4			JUNE 30, 1982	STS 4	FINAL	5/14/82	
HI PRIORITY MISSION											
CMT : 181 15	17	18	19	20	21	22	23	24	25	26	
FD 4	2	3	4	5	6	7	8	9	10	11	
MET : 003 0	35	3	1	1	2	3	4	5	6	7	
CDR											
BURN PREP	ENTRY										
PLT											
BURN PREP	ENTRY										
DRY/NIGHT											
ORBIT	49	50	51	52	53	54	55	56			
NON LP/DISK											
EARTH TRACE W/SAA											
GSTON COVERAGE	HAN	DCH	ARC	BOC	BCX	ACX	BOC	BCX	CDX	CDX	
SCLS COVERAGE	-HTS	-VTS	-GTS	-GMS	-HTS	-VTS	-GTS	-GMS	-HTS	-VTS	
OPS DEORB PSC EDM	OPS 378'S 1 01:22										
ATTITUDE TO SUN	1 01:13										
MANEUVERS	DEORB	ET-5	ENTRY								
TV/VTR											
CFES											
MLR											
NOTES:											

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OF POOR QUALITY

5714782 51515710

5-11



NOTES

ORIGINAL RECORD
OF POWER OPERATIONS

ASCENDING NODE
ORB: 13
MET: 00G:17:44:29
LOW: 79.0 N

MCC

VEHICLE
H2O SPLY DUMP
QTY TR A & B

PLT

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

SUPPLY WATER TIME
(ORBIT OPS C/L, EDLS)
Dump TKS R & B
Dump to:
QTY A * QTY B * _____

CDR

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

CDR

MET DAY:00
17:00

AI (BT)
AUTO
VERR
RT 0.2
DB 1.0

17:10

17:20

17:30

17:40

ORB 13

17:50

19:00

SCASI STDN

OK R T

5/14/82 SIS47JR

5-12

HI PRIORITY MSN

CDR PLT
 POST SLEEP ACTIVITY
 (ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
 (ORBIT OPS C/L, CREW SYS)

18:00	18:10	18:20	18:30	18:40	18:50	19:00		
MET 0800 DRY 000 RI (B1) AUTO VERN RT 0.2 DB 1.0			ADD HWR TO INTRIGRILL HWR OPTION: R * 16.2 P * 172.5 Y * 13.5 DEP: A/AUTO/VERN (18:32) Initiate HWR	TELEPRINTER MESSAGE REVIEW	TELEPRINTER MESSAGE REVIEW	TELEPRINTER MESSAGE REVIEW	TELEPRINTER MESSAGE REVIEW	
			FILE OUT HERE - 3001 (One Card)	BETER DEGREE (ORBIT OPS C/L, EPS) Config B	OPS 1(2) ON-ORBIT ACT/RECONFIG (ORBIT OPS C/L, EDS) Reconfig for SYS 2	OPS 1(2) ON-ORBIT ACT/RECONFIG (ORBIT OPS C/L, EDS) Reconfig for SYS 2	STD TROOPER SELECT (ORBIT OPS C/L, GNC) INT ALIGNMENT - 5 TRK (ORBIT OPS C/L, GNC) STAR ID: -Y: 15, HADAR -Z: 43, RASALHAGUE ANG DIF: 84.1 GEOMETRY PRESENT ERG. ORBIT OPS 2. (FTD 477-02) (ORBIT OPS C/L, RCS) (18:57) Perform step 1: (AUTO HWR TO ATTITUDE) VERN Jets: ATT ID: Per TPR message	STD TROOPER SELECT (ORBIT OPS C/L, GNC) INT ALIGNMENT - 5 TRK (ORBIT OPS C/L, GNC) STAR ID: -Y: 15, HADAR -Z: 43, RASALHAGUE ANG DIF: 84.1 GEOMETRY PRESENT ERG. ORBIT OPS 2. (FTD 477-02) (ORBIT OPS C/L, RCS) (18:57) Perform step 1: (AUTO HWR TO ATTITUDE) VERN Jets: ATT ID: Per TPR message

MCC

INHEREN CREW
 SM CRPT -
 REQ/NOT REQ

NOTES

ORIGINAL COPY IN
 OF POOR QUALITY

Stars 15 & 43
 available from
 0/18:39 to 0/19:15

INTEGRATED PER

TRX ID	1	RNG ERR	2
FXC			
A X	()	()	()
A Y	()	()	()
A Z	()	()	()
EXECUTION TIME: / /			

HI PRIORITY MSN PLT

CDR

MEM

BC

RES

NET DAY000

19:00

A14 (BT)

AUTO

VERB

RT 0.2

DB 1.0

19:10

URP

19:20

A14 (BT)

MAN

VERB

CC

CONFIC

19:30

19:40

19:50

20:00

NOTES

MCC

ERRY [illegible] AL FREE DRIET, OPS 2
 Perf [illegible] Z:
 (E, [illegible] FREE DRIET)
 VERN Jct, ATT ID: Per IPR message

EXPERIMENT RELATIONS
 (OPERATIONS C/L, IRR, P)
 EXPERIMENT OPERATIONS DOCUMENTATION
 (PHOTO/TV C/L, IRR, P/VA)

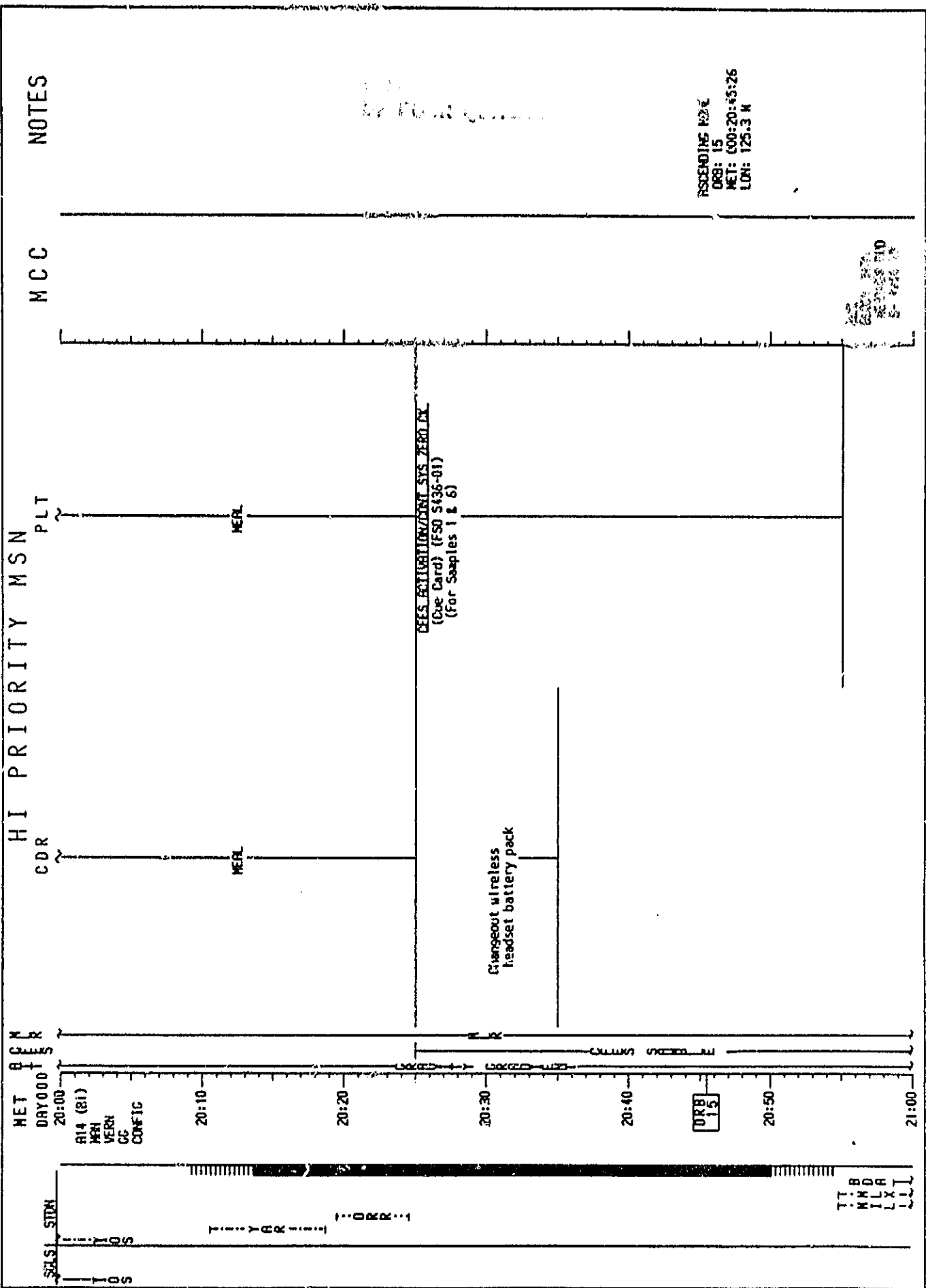
ASCENDING MODE
 DSB: 14
 MET: 000:19:14:57
 LON: 102.2 M

EXPERIMENT STATUS REPORT
 (if reqd)

REPORT: IMB LIGN RESULTS

RPT: P/L STATUS
 RPT: IMU LIGN RESULTS

ORIGINAL PAGE 19
 OF POOR QUALITY



HI PRIORITY MSN

NOTES

MCC

PLT

CDR

MET OPER

STDA

DAY000
20:00
R14 (R1)
MERN
VERN
CC
CONFIC

20:10

20:20

20:30

20:40

20:50

21:00

TORB
15

...ORR...

T.T.B
M.M.D.R
L.L.Y
L.L.L

ASCENDING 1200
CRG: 15
MET: 000:20:45:26
LOH: 125.3 M

CHECK RETURNING/INT SYS ZERO IN
(Due Card) (FSD 5436-01)
(for Samples 1 & 6)

Chargeout wireless
headset battery pack

MCC 15
20:45:26

HI PRIORITY MSN
PLT

NOTES

MCC

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CDR

CERIN TV SETUP (TUNING-CEES TRAY DES)
(PHOTO/TV C/L, IV S411-01)

CONT SAMPLE FLOW/CONT SEP RUN -
PART I (Cue Card)
(FSO 5436-01) Sample 1
Operator Call (Approx. 21:15)
Display - CONT SAMPLE FLOW

Operator Call (Approx. 21:28)
Display - PHOTO

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, TRB P70704)

MSN ACTIVATION (Cue Card)
(FSO S441-01)

CM

PLT

MET

DRY 000

21:00

R14 (B1)

VERH

CC

CONFIC

21:10

21:20

21:30

21:40

21:50

22:00

SELS

STON

IN

DA

KD

RT

IN

DA

KD

RT

IN

DA

KD

RT

IN

DA

KD

RT

IN

DA

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RT

NOTES

ASCENDING NODE
ORB: 16
MET: 000:22:15:55
LON: 148.5 W

ORIGINAL PAGE 13
OF POOR QUALITY

MCC

HI PRIORITY MSN PLT
CDR

MSL_ACTIVATION (Cue Card)
(FSD S441-01)

HOUSEKEEPING

DEL_POWER_UP (MIL)

R11:H DFI PICK CONT 1,2,3 SCSC (three) - ON

SIMULTANEOUS R/G 1 & R/G 2 DEMO

SIMULTANEOUS R/G 1 & R/G 2 DEMO

DEL_POWER_DOWN

R11:H DFI PICK CONT 1,2,3 SCSC (three) - OFF

CONL_SEP_RUN - PART II (Cue Card)
(FSD S436-01) Sample 1
Operator Call (Approx.22:43)
Display - PHOTO

MEAL_PREP (Cue Card)
Prepare DRY 2, MEAL B

LELINK
ORBITER S.V.

MET DAY 000
22:00

R14 (B1)
MHN
VERN
GC
CONFIC

22:10

ORB 16

22:20

22:30

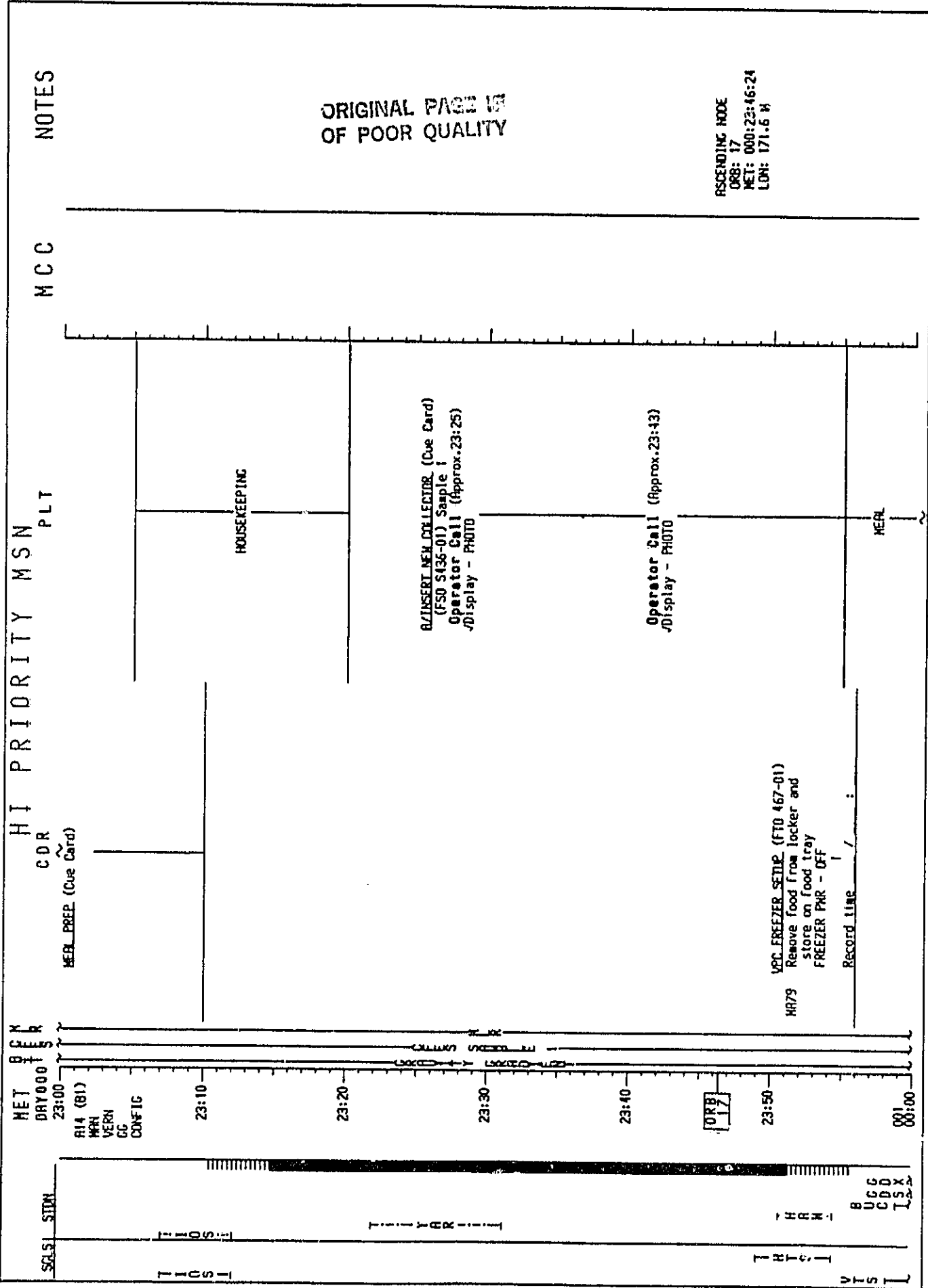
22:40

22:50

23:00

5714782 STS47E1A

-17



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OF POOR QUALITY

ASCENDING NODE
ORB: 17
MET: 000:23:46:24
LON: 171.6 W

5/11/82 STS/VIR

5-18

HI PRIORITY MSN
PLT

CDR
MEAL PREP (Cue Card)

HOUSEKEEPING

REINSERT MEAL COLLECTOR (Cue Card)
(FSD 5436-01) Sample 1
Operator Call (Approx. 23:25)
Display - PHOTO

Operator Call (Approx. 23:43)
Display - PHOTO

MR79
VPC FREEZER SETUP (FTO 467-01)
Remove food from locker and
store on food tray
FREEZER PHR - OFF
Record time

MEAL

MET
DRY000

R14 (81)
MRR
VERN
CC
CONFIG

23:10

23:20

23:30

23:40

ORB 17

23:50

00:00

B
U
C
C
D
D
O
O
L
S
X
A

H
R
A
M
I

T
H
T
I

V
I
S
I

NOTES

MCC

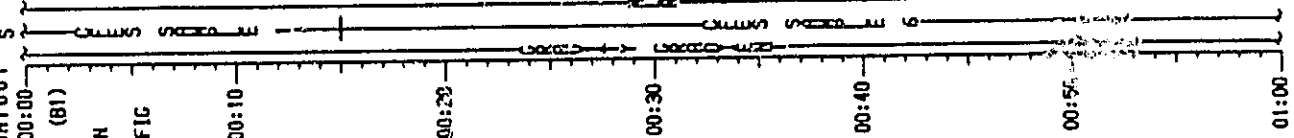
HI PRIORITY MSN PLT
CDR

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5/14/82 SIS/AIN

5-19

MET DAY 00:00



R14 (B1)
MHN
VERN
CC
CONFIG

Operator Cell (Approx. 00:15)
√Display - RMI X CONT DK
FLUSH OR END

Operator Cell (Approx. 00:22)
√Display - PHOTO

PLT

MERL

MERL

MERL

HI PRIORITY MSN

PLT

MCC

CDR

NET

01:00

01:10

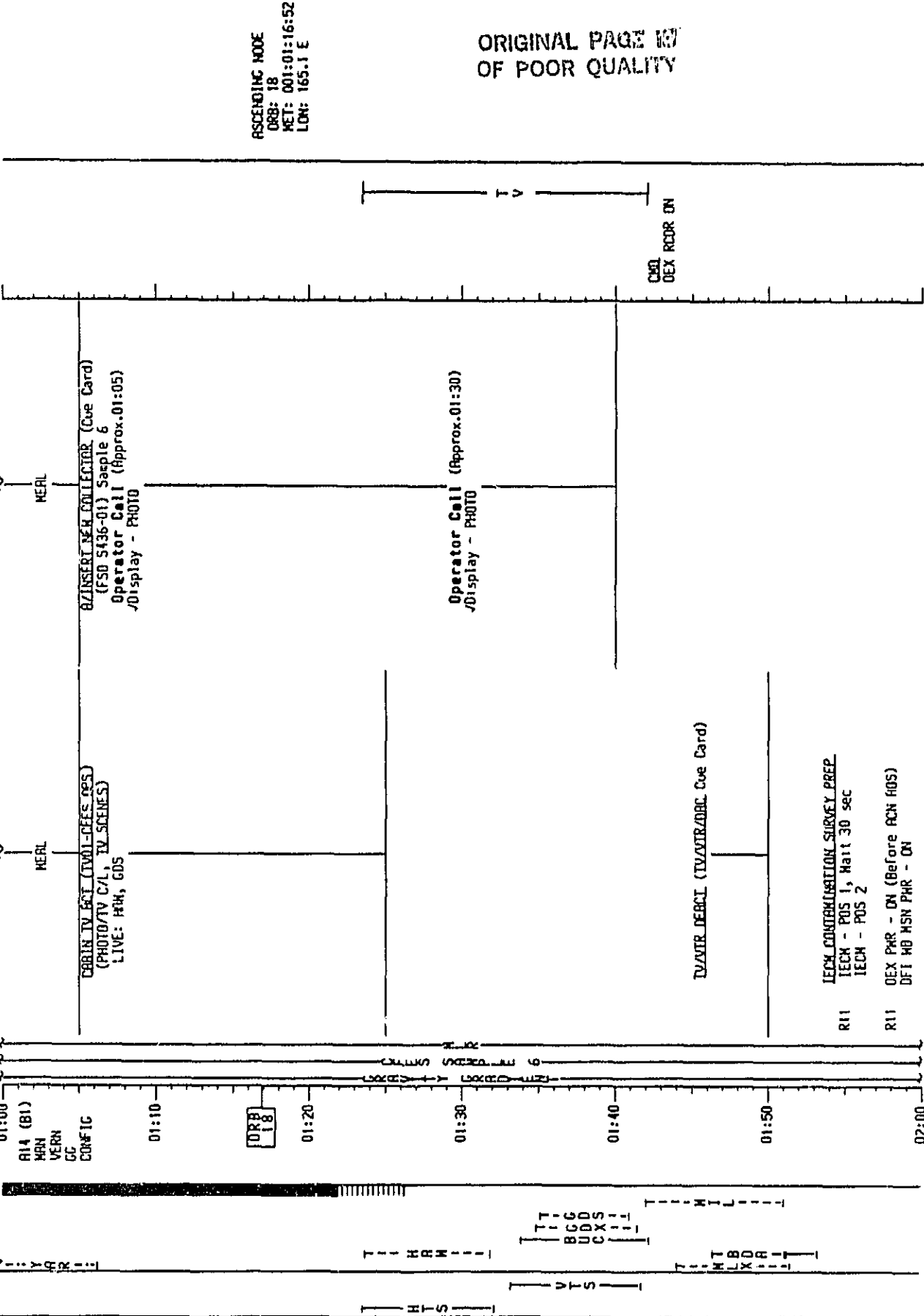
01:20

01:30

01:40

01:50

02:00



ASCENDING NODE
ORB: 18
NET: 001:01:16:52
LON: 165.1 E

ORIGINAL PAGE 17
OF POOR QUALITY

CDR
DEX
RCDR
ON

TV/VTR DEBCL (TV/VTR/DBCL Cue Card)

TECH CONTINUATION SURVEY PREP
TECH - POS 1, Wait 30 sec
TECH - POS 2
R11 OEX PAR - ON (Before RCN HOS)
DFI HD MSN PHR - ON

NET
01:00
R14 (B1)
MRN
VERN
CC
CONFIC

NET
01:20
ORB
18

NET
01:30
Operator Call (Approx. 01:30)
/Display - PHOTO

NET
01:40
Operator Call (Approx. 01:05)
/Display - PHOTO

NET
01:50
TV/VTR DEBCL (TV/VTR/DBCL Cue Card)

NET
02:00

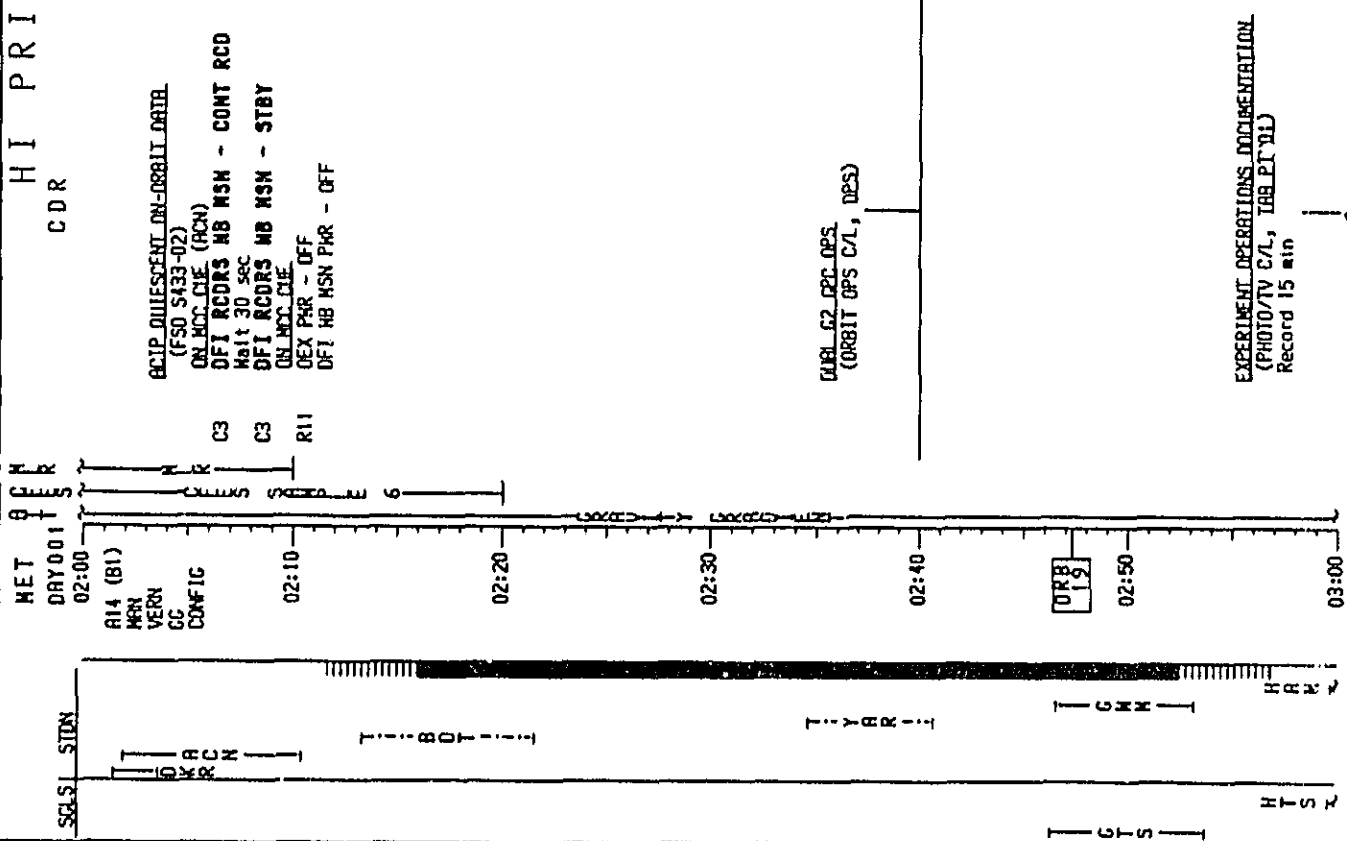
HI PRIORITY MSN P LT

NOTES

MCC

PLT

CDR



HI PRIORITY MSN

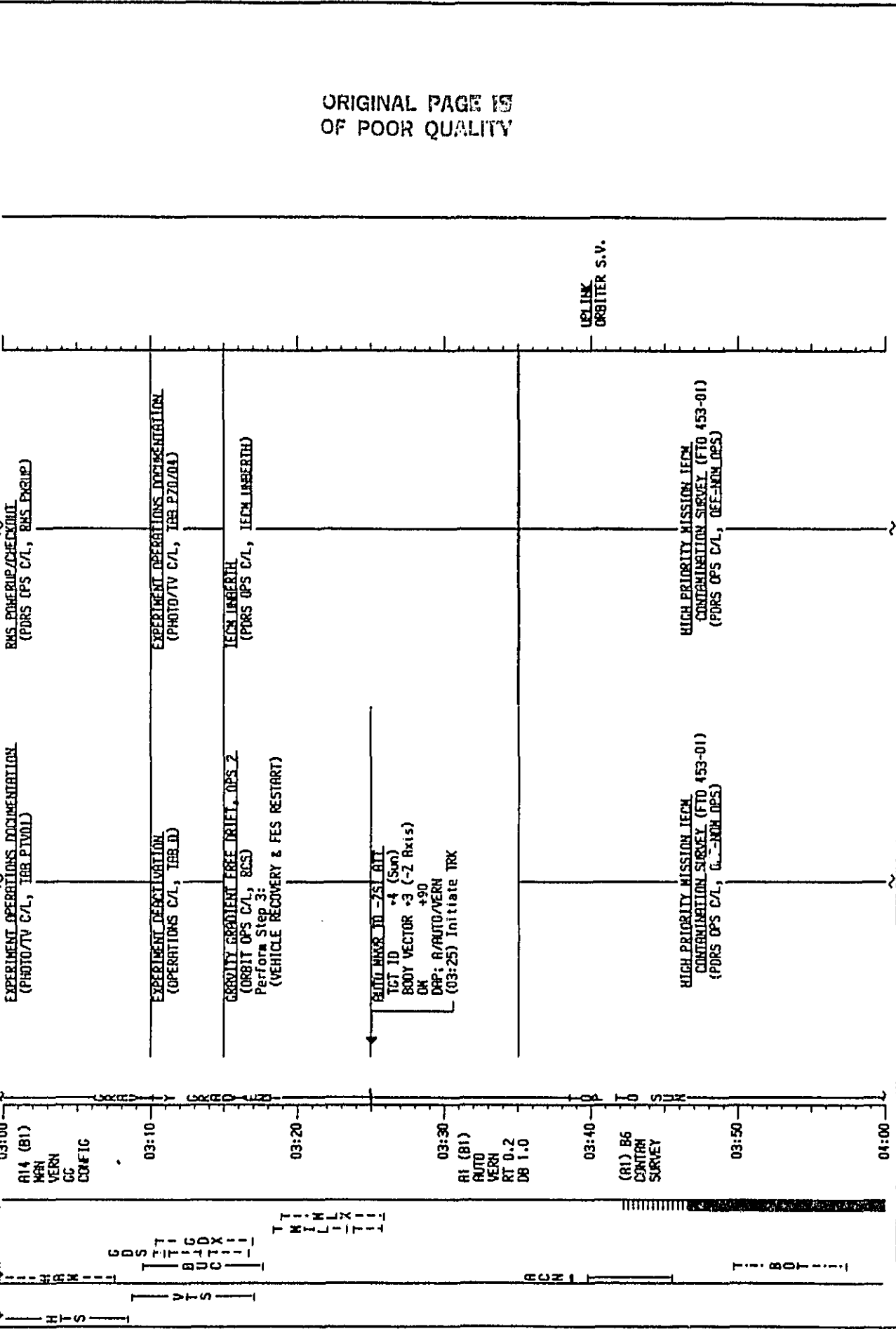
PLT

MCC

CDR

CEM

NET OPER



EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P/2/0/0)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P/2/0/0)

EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P/2/0/0)

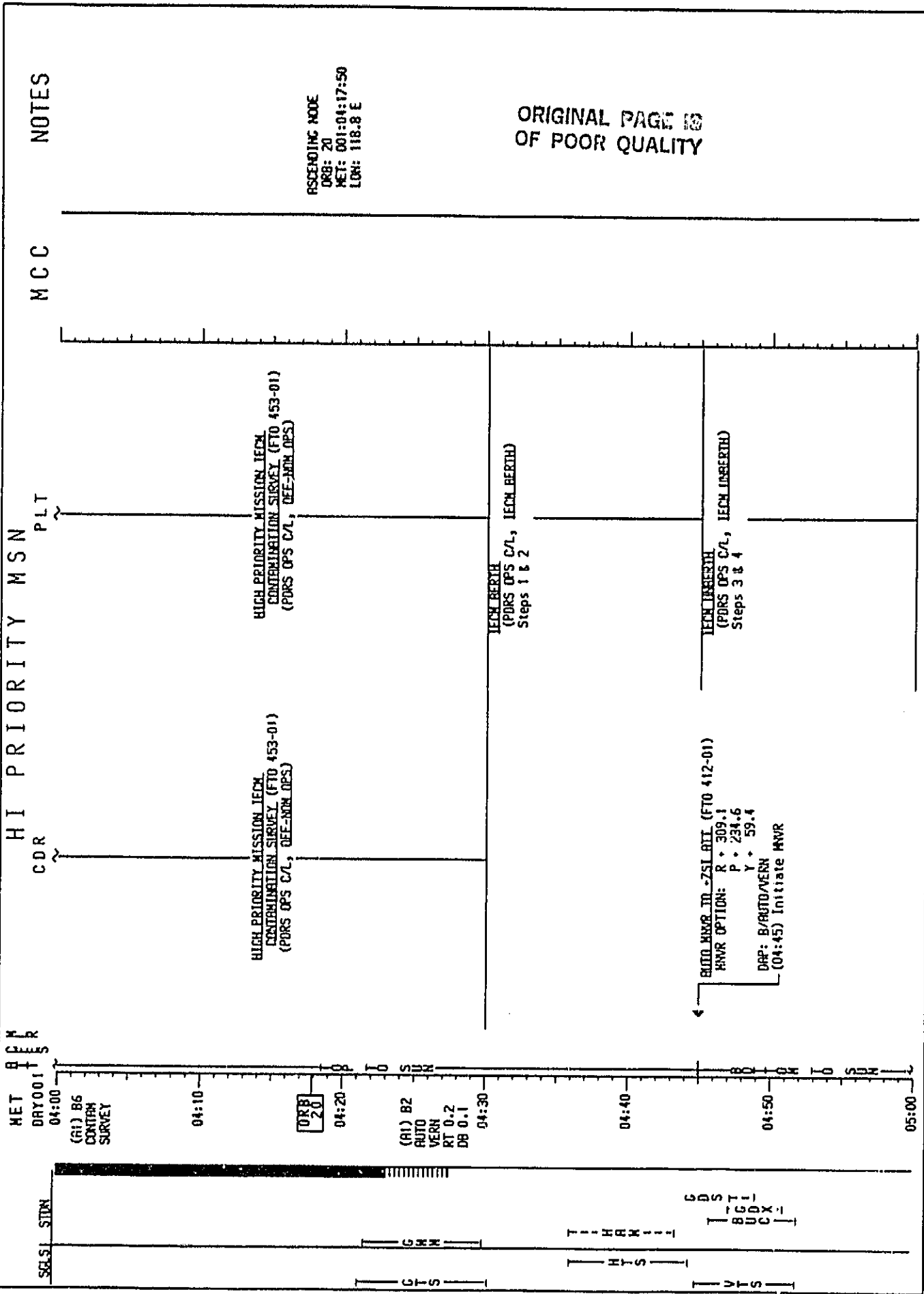
EXPERIMENT OPERATIONS DOCUMENTATION
(PHOTO/TV C/L, IBB.P/2/0/0)

ORIGINAL PAGE IS
OF POOR QUALITY

UPLINK
ORBITER S.V.

HIGH PRIORITY MISSION IECM
CONTINUATION SURVEY (FTO 453-01)
(PORS OPS C/L, DEF-NON OPS)

HIGH PRIORITY MISSION IECM
CONTINUATION SURVEY (FTO 453-01)
(PORS OPS C/L, DEF-NON OPS)



RET
DAY 001
05:00

HI PRIORITY MSN
CDR

NOTES

05:10
05:20
05:30
05:40
05:50
06:00

R11 (B5)
PLUME
SURVEY

TECH PLUME SURVEY
(FTO 454-01)
(POBS OPS C/L, PLUME SURVEY)

TECH PLUME SURVEY
(FTO 454-01)
(POBS OPS C/L, PLUME SURVEY)

DRG 21
(R1) B2
AUTO
VERN
RT 0.2
DR 0.1

TECH BERTH
(POBS OPS C/L, IECH_BERTH)

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 21
MET: 001:05:48:18
LON: 96.7 E

MCC

PLT

SELSI SITDN

5714782 STS/VFIR

5-24

HI PRIORITY MSN

PLT

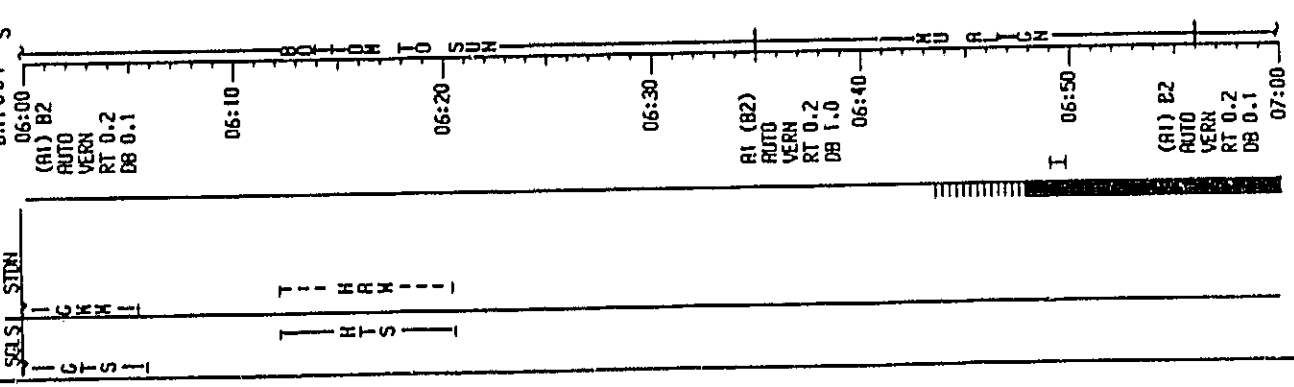
NOTES

CDR

MCC

NOTES

MET
DAY 001
06:00
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1



TECH BERTH
(PODS OPS C/L, TECH BERTH)

BMS PROBING
(PODS OPS C/L, BMS PROBING)

HOUSEKEEPING

HEAT PREP (Cue Card)
Prepare DRY 2, HEAL C

INITIALISEMENT - S TRK
(ORBIT OPS C/L, CMC)
STAR ID: -X: 42, ALPHECCA
-Z: 15, HADOR
RNC DIF: 89.1

INITIALISEMENT - S TRK
(ORBIT OPS C/L, CMC)
STAR ID: -X: 42, ALPHECCA
-Z: 15, HADOR
RNC DIF: 89.1
AUTO MNR ID: ZSI-ALL (FTD 412-01)
MNR OPTION: R - 309.1
P - 234.6
Y - 59.4
DAP: B/AUTO+VERN
(06:55) Initiate MNR

LEORITE
HZO SPLY DUMP
QTY TX R & B

ORIGINAL PAGE 10
OF POOR QUALITY

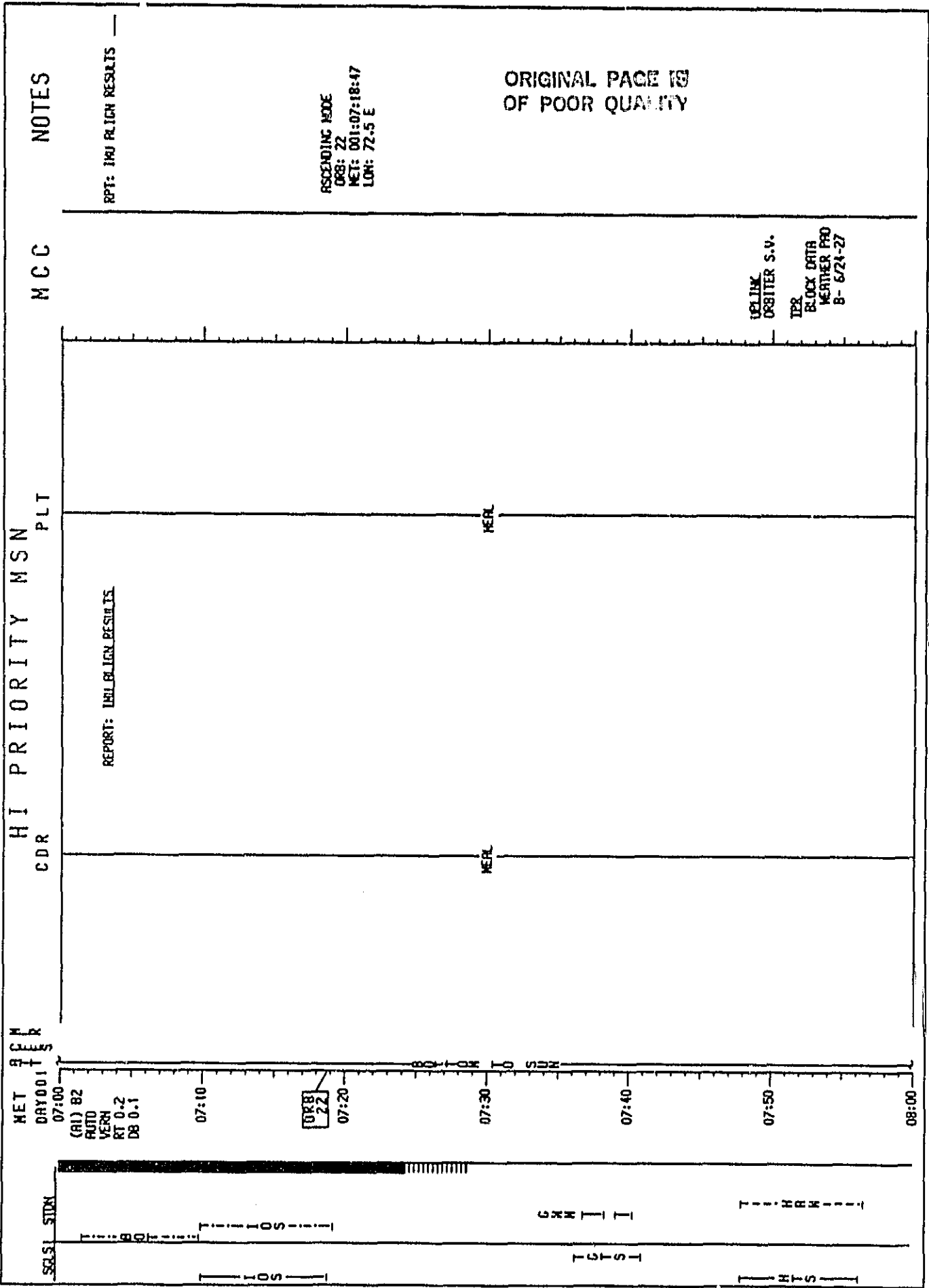
Stars 42 & 15
available from
1/06:34 to 1/07:20

MIL ALIGN PAD

TRK ID	1	2	3
RNC			
A X	()	()	()
A Y	()	()	()
A Z	()	()	()
EXECUTION TIME	/	/	/

5/14/82 SIS/AFIR

5-25



5/14782 SISAT/IN

5-26

NOTES

MCC

PLT

HI PRIORITY MSN

CDR

CDR

RPT: IMU ALIGN RESULTS

ASCENDING MODE
ORB: 22
MET: 001:07:18:47
LON: 72.5 E

ORIGINAL PAGE IS
OF POOR QUALITY

UCLINK
ORBITTER S.V.
IPR
BLOCK DATA
WEATHER PRO
8-6/24-27

REPORT: IMU ALIGN RESULTS

MERL

MERL

MET DAY 001
07:00

(R1) 82
ALT 0.2
VERN 0.1
DB 0.1

ORR 22
07:20

07:10

07:30

07:40

07:50

08:00

BOTTOM TO TOP

50,000 FT

10,000 FT

5,000 FT

1,000 FT

0 FT

GRN

THR

NOTES

MCC

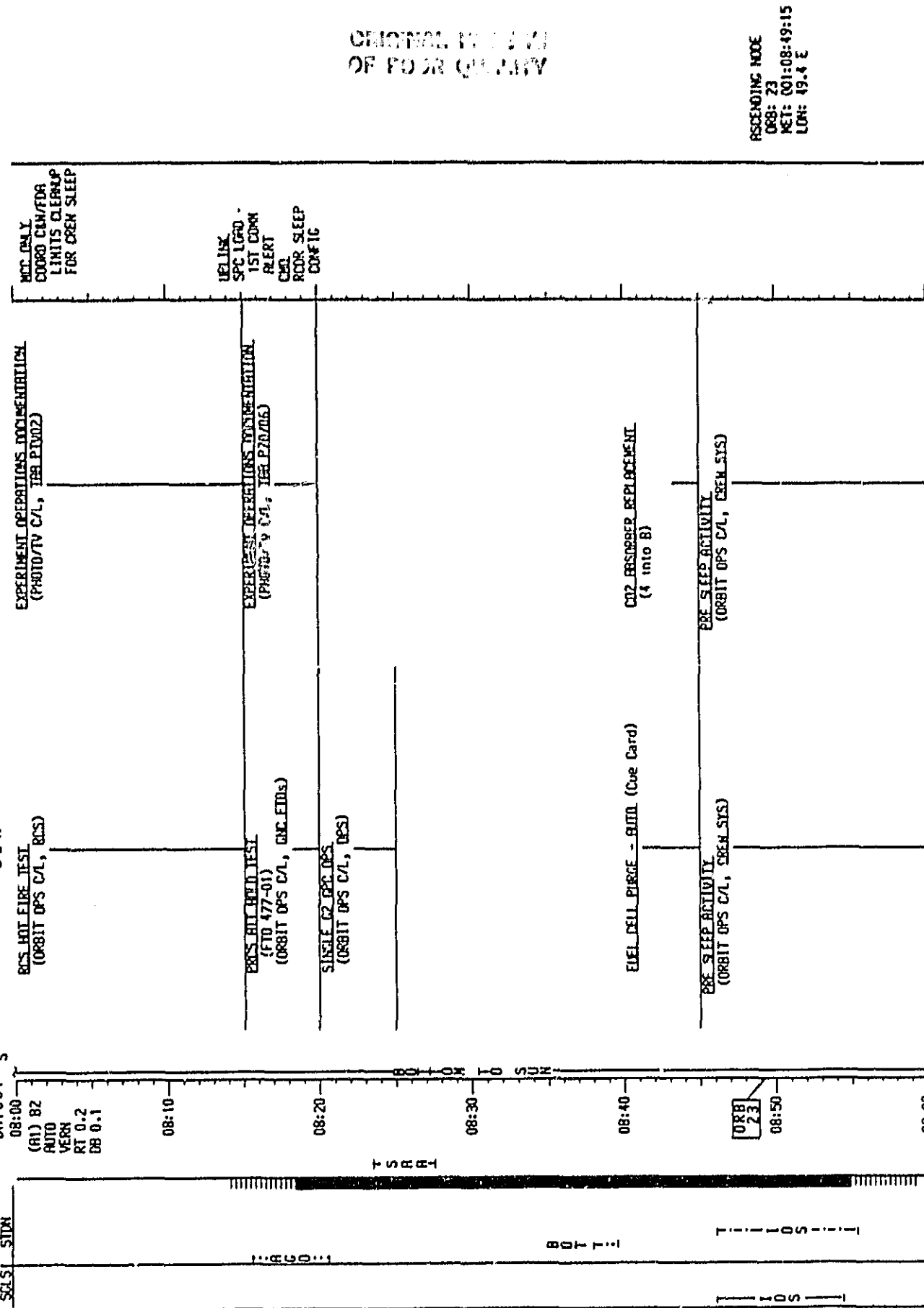
HI PRIORITY MSN PLT

CDR

RCM

NET

DAY001



MET
09:00
09:10
09:20
09:30
09:40
09:50
10:00

09:00
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

BOTTOM TO SUN

CDR
EYE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PLT
EYE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

NOTES

MCC

ORIGINAL PAGE
OF POOR QUALITY

SLEEP

SLEEP

5/14/82 SISV/FIN

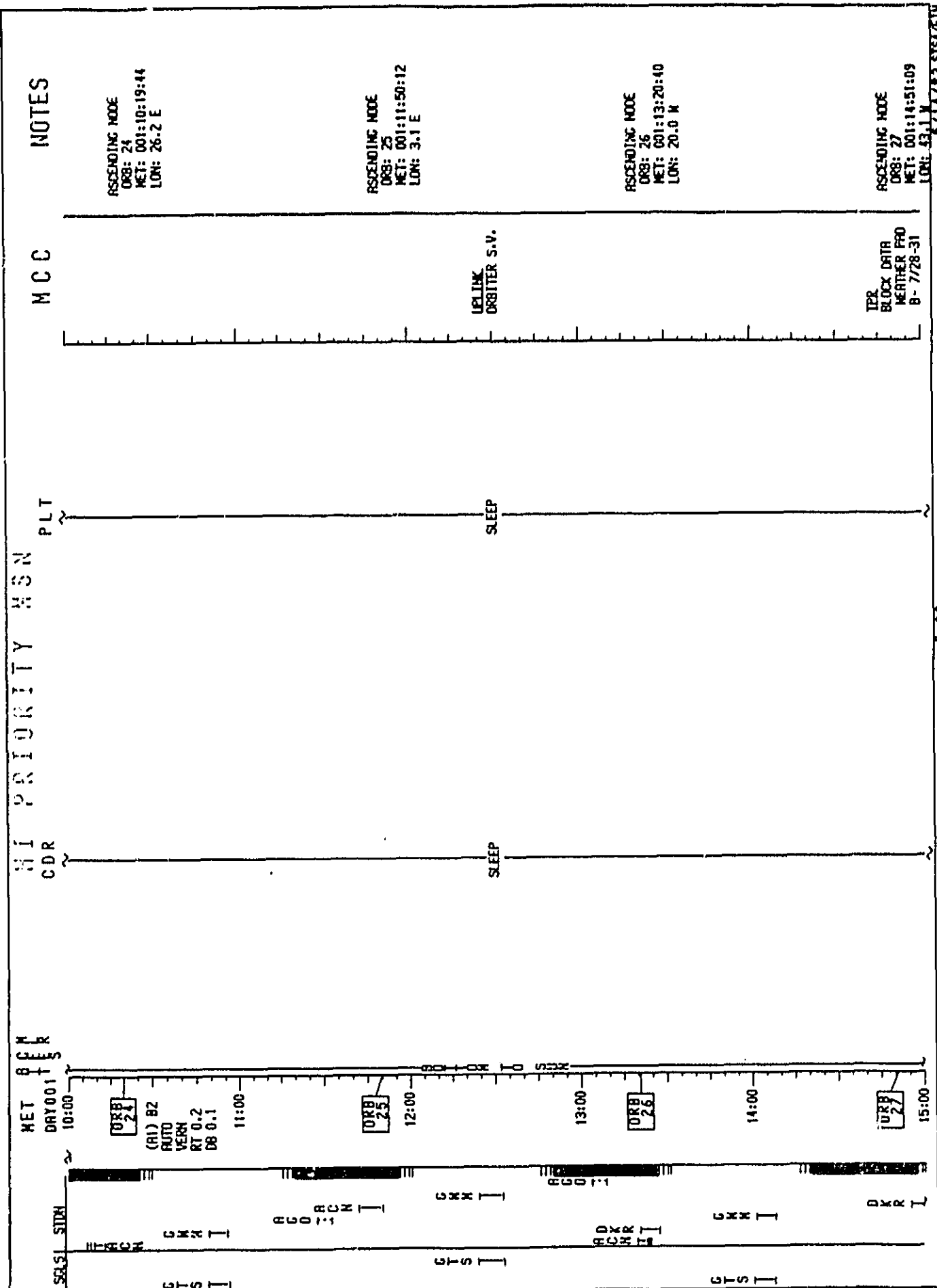
5-28

S&S: STM

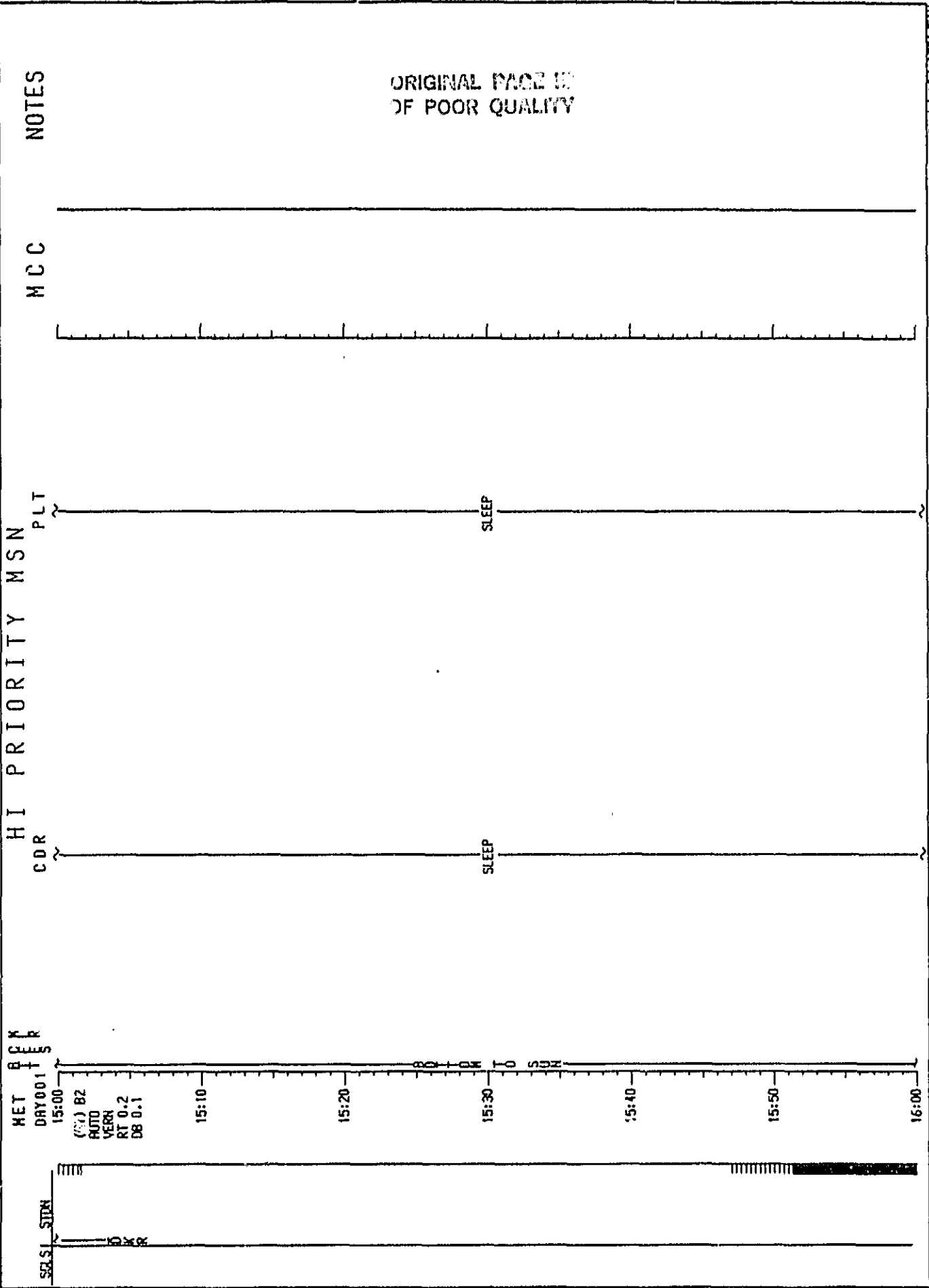
TGS-1

THRM-TI

1000000

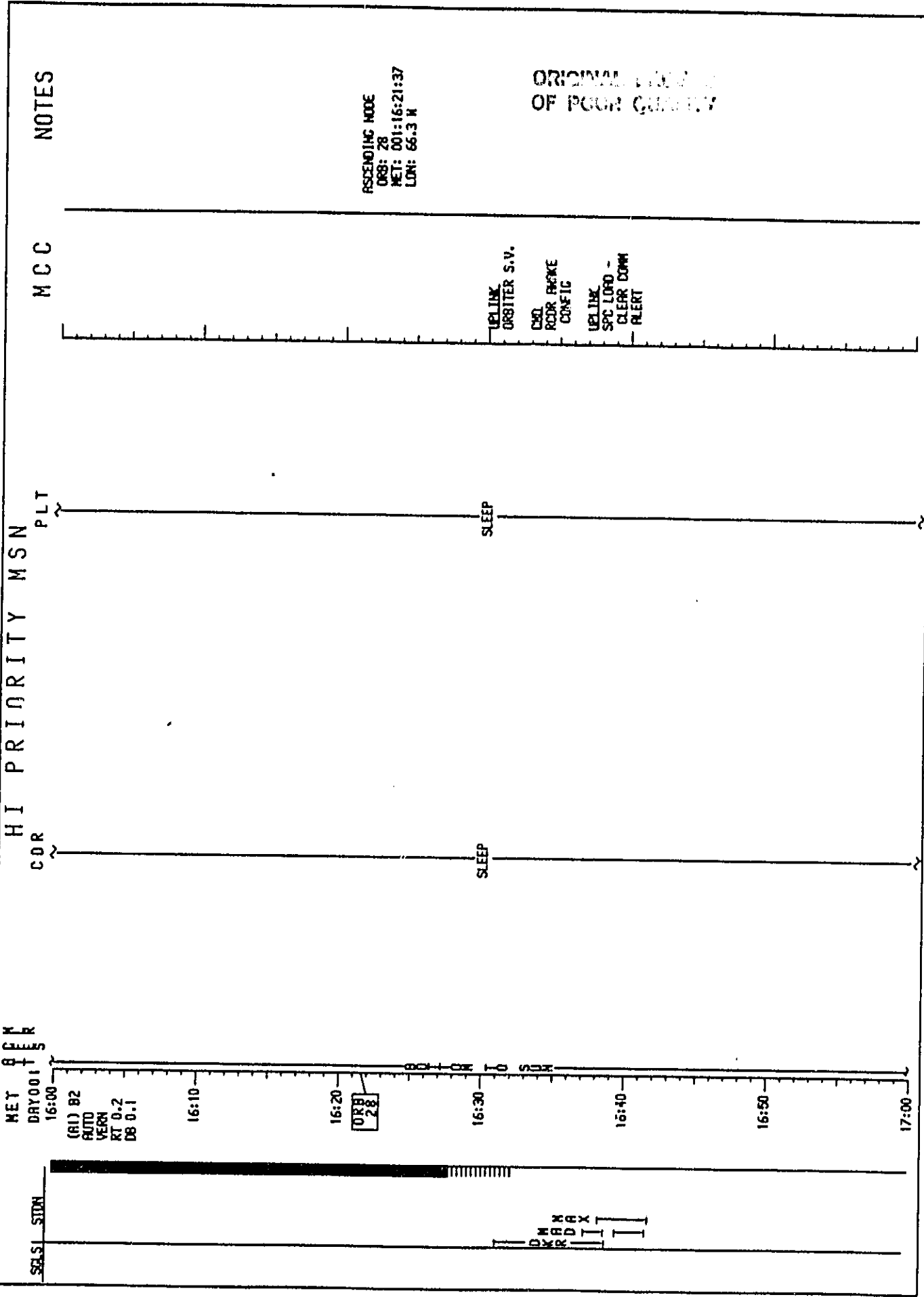


C-3



5711782 SIS/AFR

5-30



ASCENDING NODE
 ORB: 28
 MET: 001:16:21:37
 LDR: 66.3 H

ORIGINAL SOURCE
 OF POOR QUALITY

5/14/82 STS/FFIN

5-31

HI PRIORITY MSN

NOTES

MCC

PLT

COR

ACK

MEY DAY001

SELSI STDN

DM
 VER
 DAX
 I I

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 29
MET: 001:17:52:05
LOH: 89.4 X

MCC

HI PRIORITY MSN
PLT
CDR

SLEEP

BUSY SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

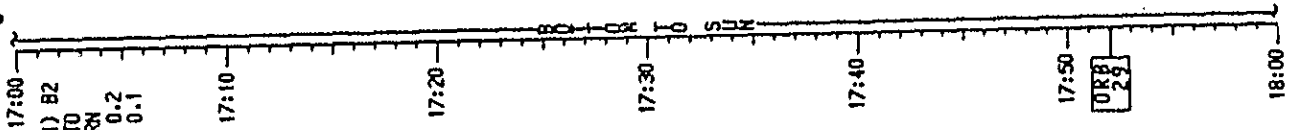
SLEEP

BUSY SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

HET
DRY001

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

SCLS1 SIDN



5/11/82 SIS:CFR

5-32

NOTES

MCC

PLT

HI PRIORITY MSN

CDR

CM
MET
DAY 091

UPDATE
H2O SPLY DUMP
QTY TK A & B
LINEGRD CREW
SM EXPT -
RECD/NOT RECD

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

DUAL G2 CPC OPS
(ORBIT OPS C/L, DES)

EVES TELETYPE SOURCEBOOK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, BUS ETO'S)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)

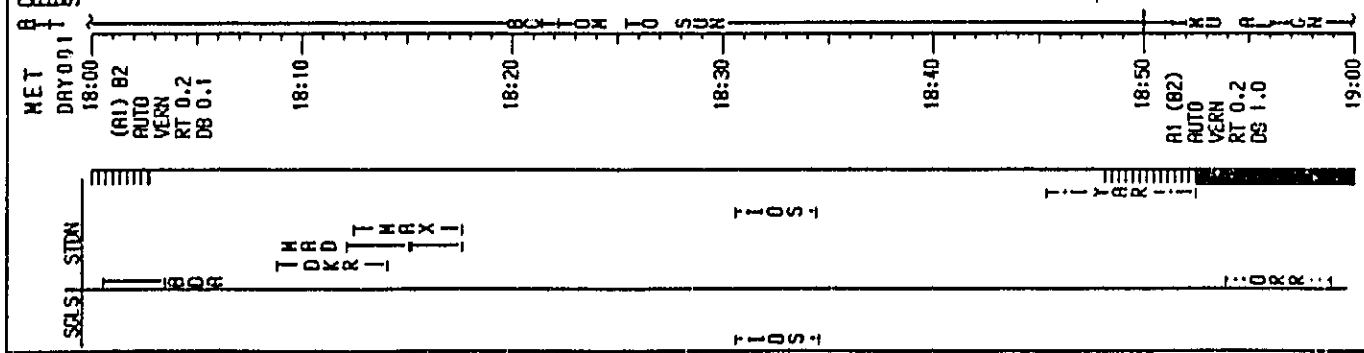
VPC FREEZER TEST (FTO 467-01)
Record elapsed time indicator
reading

FREEZER PAR - ON
Record time, freezer temp,
condenser temp
Repeat once per minute for
15 minutes or until temp
stabilizes

DAP: R/AUTO/VERN
(18:50) Initiate MWR

A1 (B2)
AUTO
VERN
RT 0.2
DS 1.0

Stars 51 & 22
available from
1/18:52 to 1/19:29



HI PRIORITY MSN PLT

CDR

MCC NOTES

IMU ALIGN PRO.
 TRK ID _____, ANG _____, ANG ERR _____ 3
 ANG 1 _____ 2 _____
 Δ X () _____ () _____ () _____
 Δ Y () _____ () _____ () _____
 Δ Z () _____ () _____ () _____
 EXECUTION TIME: _____ / _____

WPC FREEZER TEST (FTO 467-01)
 WATER SAMPLE FREEZING
 Unstow H2O sample container and fill with H2O
 Insert container into freezer,
 Record time _____ / _____ : _____
 Changeout wireless headset battery pack

STAR TRIGGER SELF-TEST (ORBIT OPS C/L, QMC)
 IMU ALIGNMENT - S TRK (ORBIT OPS C/L, QMC)
 STAR ID: -Y: 51, ATRIA
 -Z: 22, ALTAIR
 ANG DIF: 34.0
 AUTO MWR TO ZSL ATT (FTO 412-01)
 MWR OPTION: R * 309.1
 P * 234.6
 Y * 59.4
 DAP: B/AUTO/VERN
 (19:10) Initiate MWR

SUPPLY WATER DUMP (ORBIT OPS C/L, ECLS)
 Dump TKS A & B
 Dump to: _____
 QTY A = _____ QTY B = _____

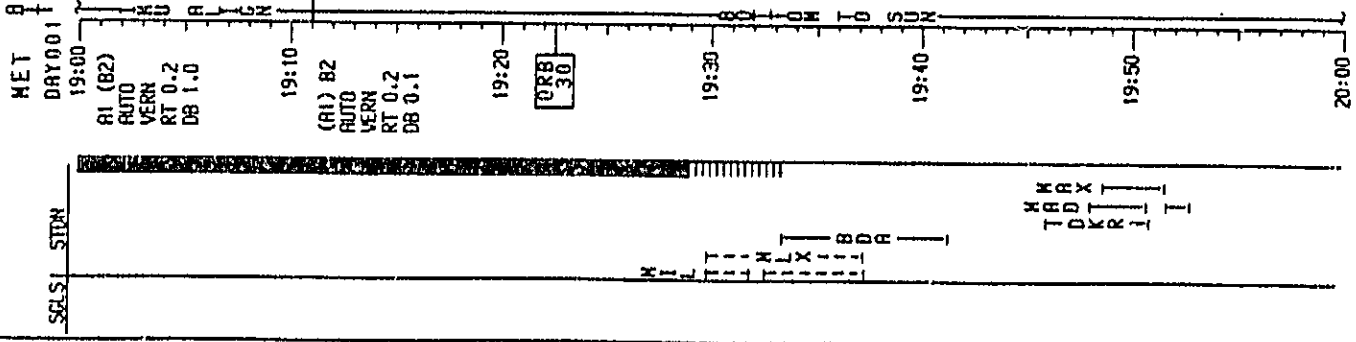
EC PURGE - MEAL (Cue Card)

REPORT: IMU ALIGN RESULTS

ASCENDING MODE
 ORS: 30
 NET: 001:19:22:33
 LON: 112.6 N

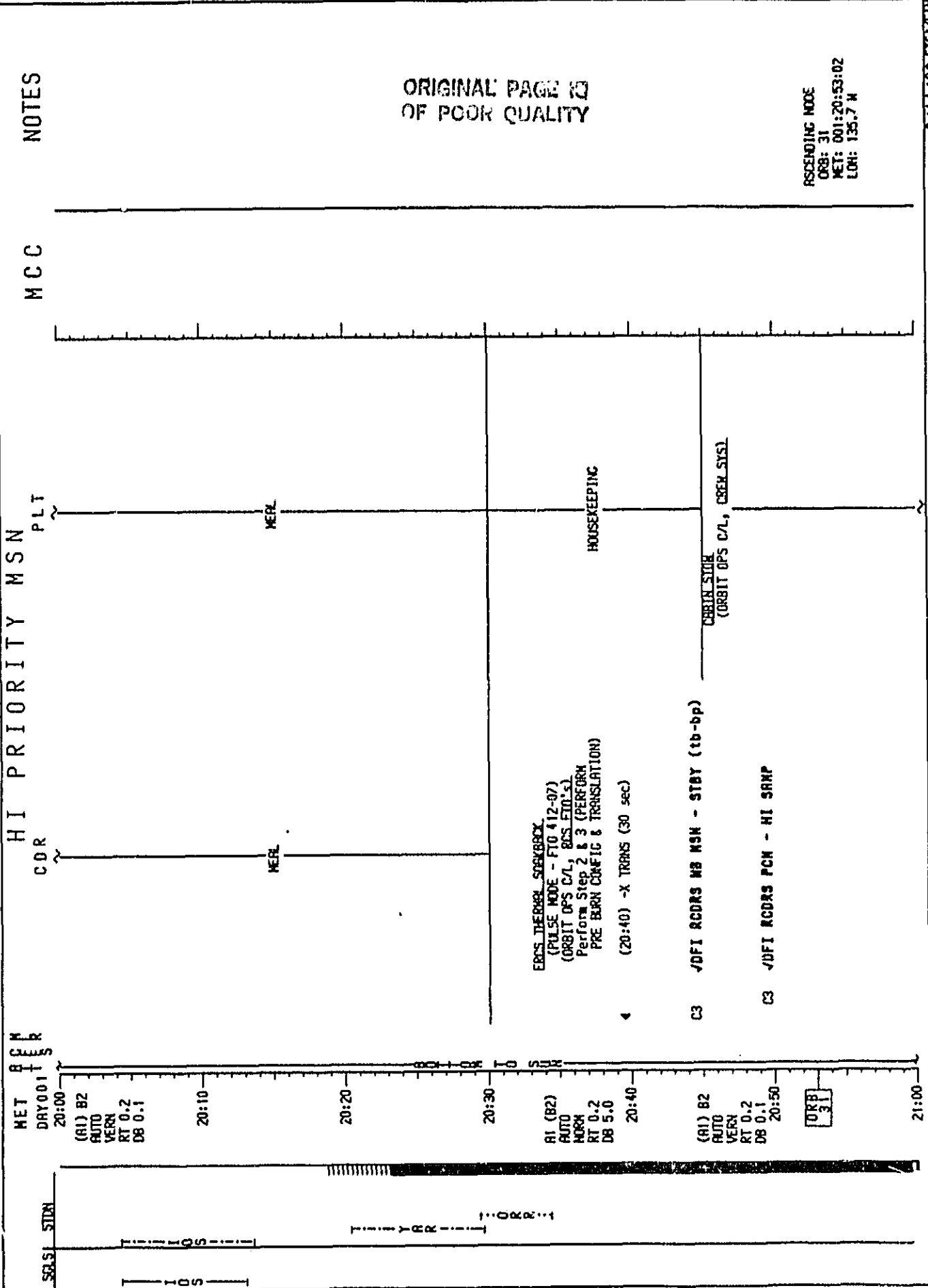
RPT: IMU ALIGN RESULTS

ORIGINAL PAGE OF POOR QUALITY



5714782 5151771R

5-36



5711782 51557FIR

5-35

HI PRIORITY MSN

NOTES

MCC

ORIGINAL PAGE IS OF POOR QUALITY

HET 8 PM
DRY 001

CDR

PLT

ERCS THERMAL SINKBACK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETD-5)
Perform Step 3 (PERFORM TRANSLATION)

CABIN STOW

UPLINK
ORBITER S.V.
IPP
BLOCK DATA
WEATHER PRO
B- 8/32-35

(21:10) -X TRANS (30 sec)

√DFI RCORS NB MSN - STBY (tb-bp)

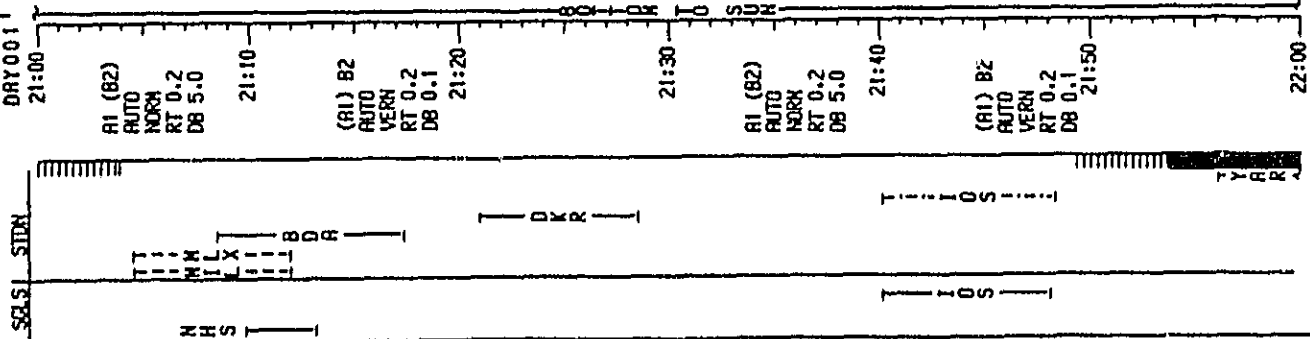
√DFI RCORS PCM - HI SAMP

ERCS THERMAL SINKBACK
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETD-5)
Perform Step 3 (PERFORM TRANSLATION)

(21:40) -X TRANS (30 sec)

√DFI RCORS NB MSN - STBY (tb-bp)

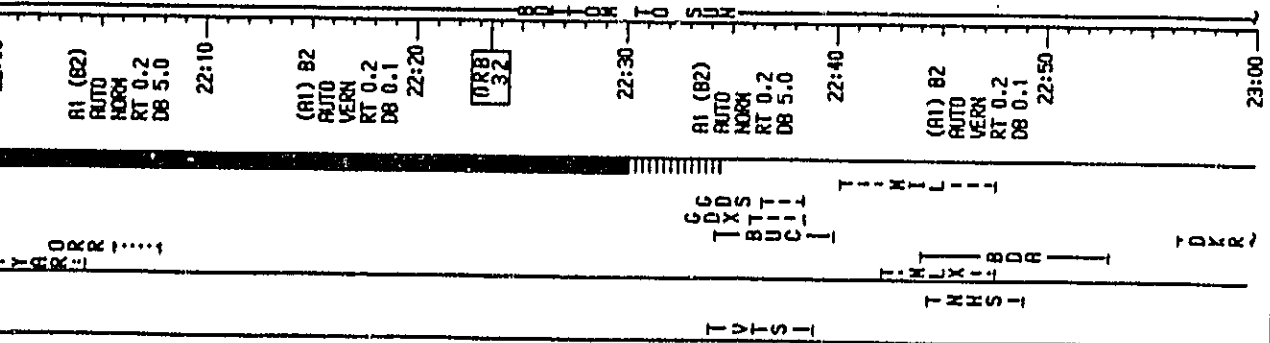
√DFI RCORS PCM - HI SAMP



HI PRIORITY MSN PLT
 CDR

NET
 ORY001
 22:00

SELSI STUN



ERCS THERMAL SUBCRACK
 (PULSE MODE - FTO 412-07)
 (ORBIT OPS C/L, RCS FID-5)
 Perform Step 3 (PERFORM TRANSLATION)

4 (22:10) -X TRANS (30 sec)

C3 JDFI RCORS MB MSN - STBY (tb-bp)

C3 JDFI RCORS PCN - HI SAMP

ERCS THERMAL SUBCRACK
 (PULSE MODE - FTO 412-07)
 (ORBIT OPS C/L, RCS FID-5)
 Perform Step 3 & 4 (PERFORM
 TRANSLATION & POST BURN RECONFIC)

4 (22:40) -X TRANS (30 sec)

C3 JDFI RCORS MB MSN - STBY (tb-bp)

C3 JDFI RCORS PCN - HI SAMP

DEL POWER LP (MIL)
 R11:H DFI PCN CNT 1,2,3 SCSC (three) - ON

DEL POWER DDMAL
 R11:H DFI PCN CNT 1,2,3 SCSC (three) - OFF

ASCENDING NODE
 ORB: 32
 MET: 001:22:23:30
 LDH: 158.9 H

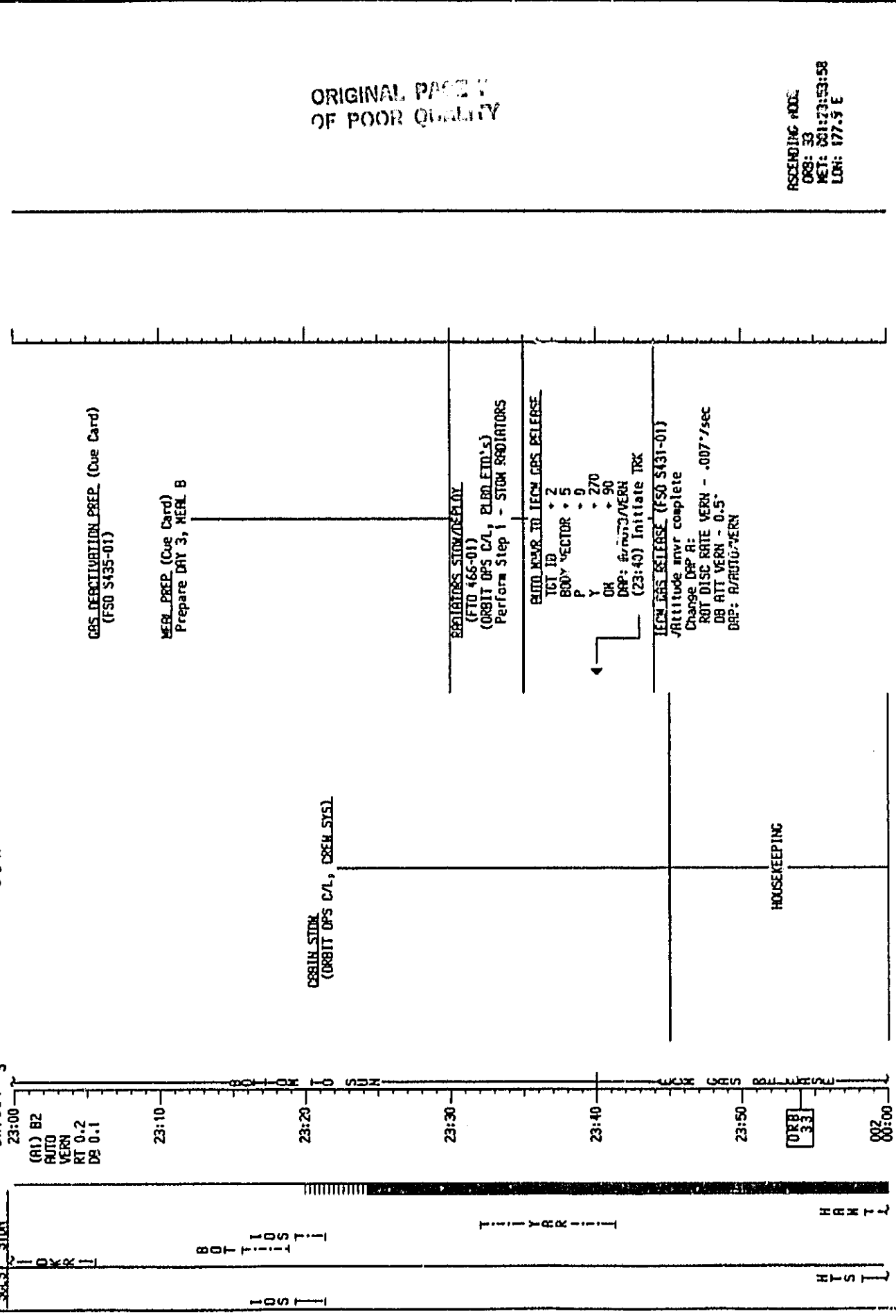
ORIGINAL PRINT
 OF POOR QUALITY

MCC

NOTES

HI PRIORITY MSN PLT
CDR

MET
DAY 001
23:00

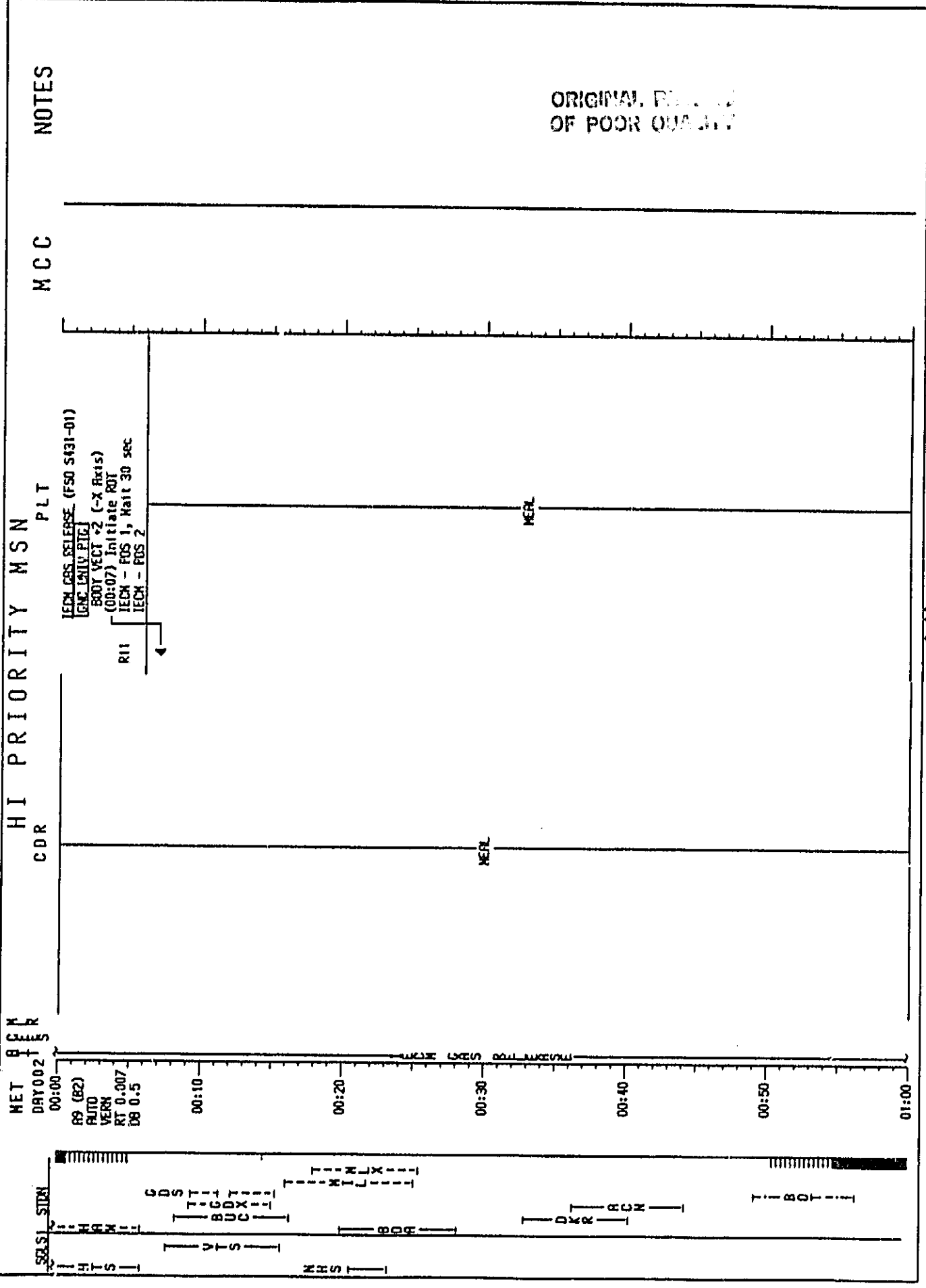


NOTES

MCC

ORIGINAL PAGE
OF POOR QUALITY

ASCENDING NODE
ORB: 33
MET: 001:23:53:58
LON: 177.5 E



NOTES

MCC

HI PRIORITY MSN

PLT

CDR

CM

NET DAY002 00:00

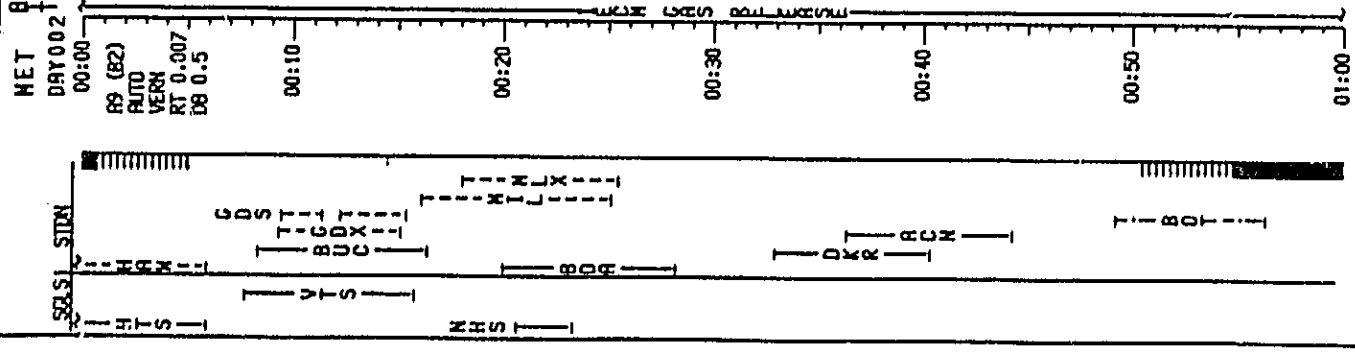
IECH CRS. RELEASE (FSD 5431-01)
 GENC INTRV. PTC
 BODY VECT *2 (-X Axis)
 (00:07) Initiate ROT
 IECH - FDS 1, Maint 30 sec
 IECH - FDS 2

R11

MEPL

MERL

ORIGINAL RECORD
 OF POOR QUALITY



HI PRIORITY MSN

PLT

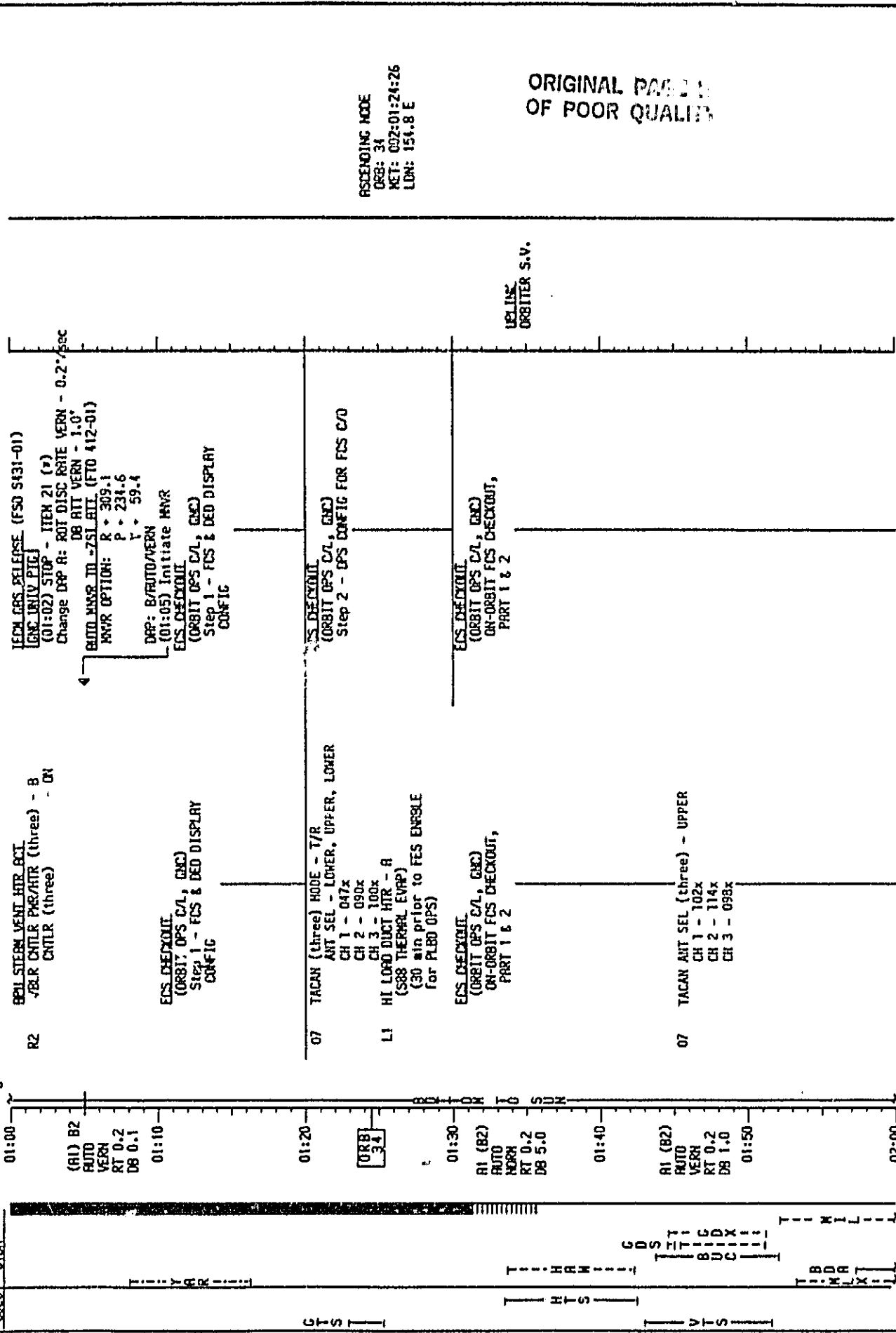
MCC

CDR

ARM

NET

SQSI STDN



TECH OPS RELEASE (FSO 5431-01)
 (01:02) STOP - ITEM 21 (*)
 Change DRP R: DB ATT VERN - 1.0'
 AUTO MNR ID - ZSL ATT. (FTO 412-01)
 MNR OPTION: P - 309.1
 V - 59.4
 DRP: B/AUTO/VERN
 (01:05) Initiate MNR
 ECS CHECKOUT
 (ORBIT OPS C/L, GNC)
 Step 1 - FCS & DED DISPLAY
 CONFIG

ECS CHECKOUT
 (ORBIT OPS C/L, GNC)
 Step 2 - OPS CONFIG FOR FCS C/O

ECS CHECKOUT
 (ORBIT OPS C/L, GNC)
 ON-ORBIT FCS CHECKOUT,
 PART 1 & 2

DELINK
 ORBITER S.V.

ASCENDING NODE
 OSB: 34
 RET: 002:01:24:26
 LON: 151.8 E

ORIGINAL PAGE
 OF POOR QUALITY

5/14/82 51547R

5-10

NET OPER
DAY 002

HI PRIORITY MSN PLT

NOTES

03:00
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

ELSO PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

ELSO PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

03:10

03:20

03:30

03:40

03:50
A1 (B2)
AUTO
NORH
RT 0.2
DB 5.6

04:00

ORIGINAL PAGE
OF POOR QUALITY

REAL PREP (Cue Card)
Prepare DAY 3, NEAL C

(CNC 23 RIS)
JET DES FZF - ITEM 23 EXEC (no #)
PRIMARY RJD DRIVER (eight) - DN
ECS THERMAL SORBACKY (FTO 412-06)
(DRBIT OPS C/L, BLS FID'S)
Perform Step 2 (PERFORM TRANSLATIONS)
Unit THC -X
(03:50) -X TRANS (30 sec)

C3 /DFI RCORS MB MSN - STBY (tb-bp)

GAP: B/AUTO/VERN
PRIMARY RJD DRIVER (eight) - OFF
C3 /DFI RCORS PCN - HI SRMP

5/11/82 SJS/FR

5-42

HI PRIORITY MSN

NOTES

MCC

CDR
SINGLE C/L OPS
(ORBIT OPS C/L, DES)

PLT
MERL PREP

MSN DESTRUCTION (Due Card)
(FSO 5141-01)

ASCENDING NODE
ORB: 36
MET: 002:04:25:22
LDN: 108.5 E

ORIGINAL ...
OF POOR QUALITY

LI HI LOAD DUCT HTR - OFF
(30 min after HI LOAD EVAP - OFF)

PRIVATE MEDICAL COMMUNICATION
(If Required)

PRIVATE MEDICAL COMMUNICATION
(If Required)

MERL
ORBITER: S.V.

04:00
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

04:10

04:20

04:30

04:40

04:50

05:00

ORB 36

5/14/82 STS07A

5-43

SCS SIDN

CHM

HTS

BUC

TOTAL

HI PRIORITY MSN

MET 0800
DRY002

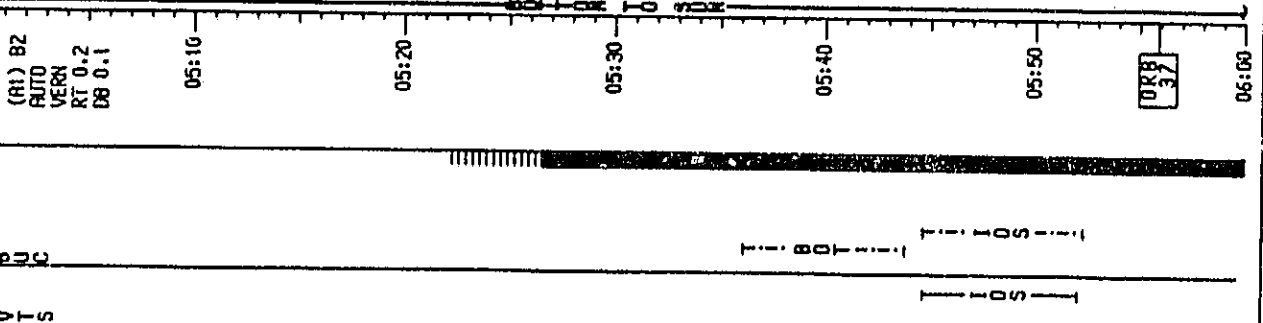
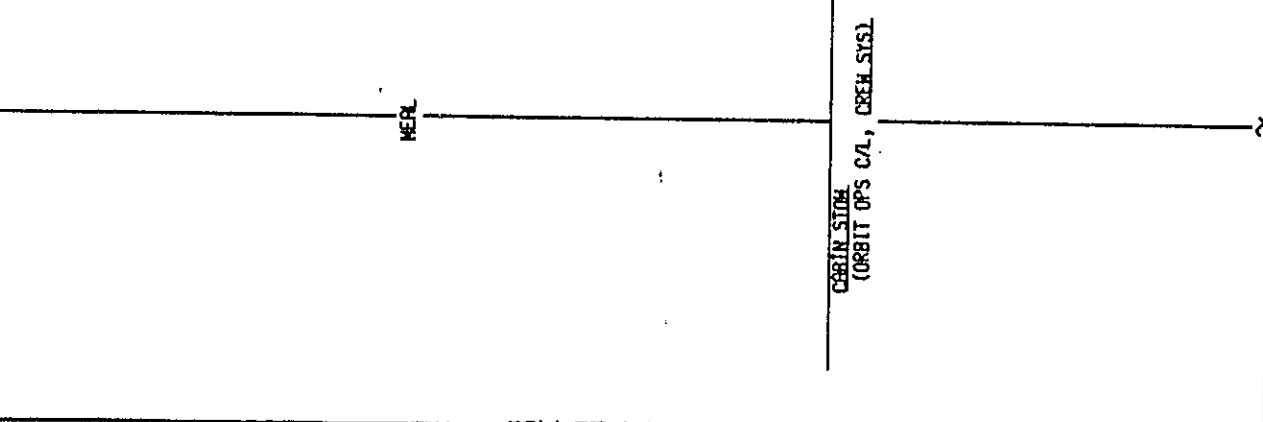
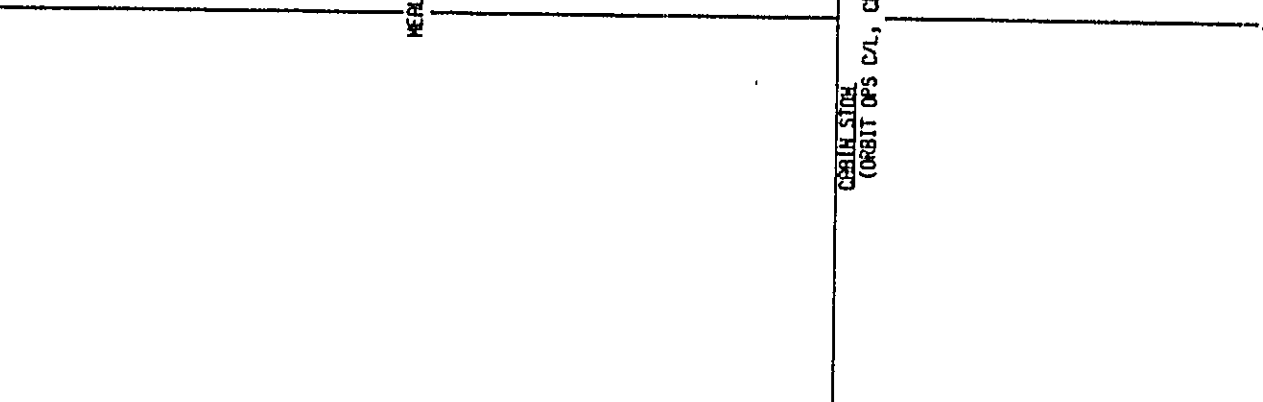
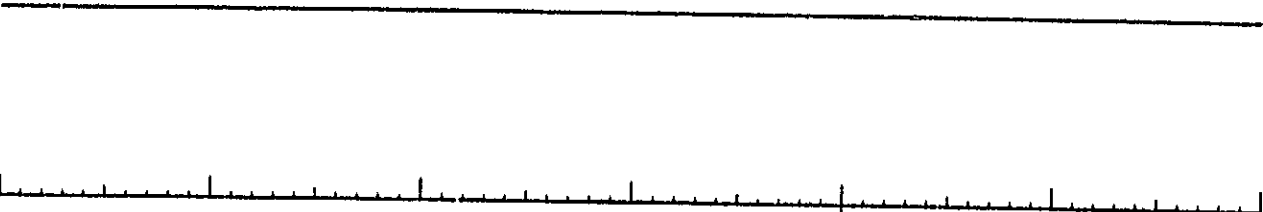
NOTES

MCC

PLT

CDR

SLSL STDN
-VTS



ORIGINAL PAGE 15
OF POOR QUALITY

ASCENDING NODE
DPS: 37
MET: 002:05:55:50
LON: 85.3 E

CERIN STDN
(ORBIT OPS C/L, CREH SYS)

CERIN STDN
(ORBIT OPS C/L, CREH SYS)

ORB
37

5/14/82 SIS4/FIN

5-11

NOTES

MCC

HI PRIORITY MSN

PLT

CDR

NET
DAY002
06:00

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

06:10

06:20

06:30

06:40

06:50

R1 (B2)
AUTO
VERN
RT 0.2
DB 1.0

07:00

CRBN STDN
(ORBIT OPS C/L, CREW SYS)

CRBN STDN
(ORBIT OPS C/L, CREW SYS)

HYD THERM COND YIELDING TERMINATE
(ORBIT OPS C/L, BELUKO)

AUTO WARR TO IMI ALIGN ATT
MWR OPTION: R = 261.0
P = 349.6
Y = 39.0
DAP: R/AUTO/VERN
(00:50) Initiate MWR

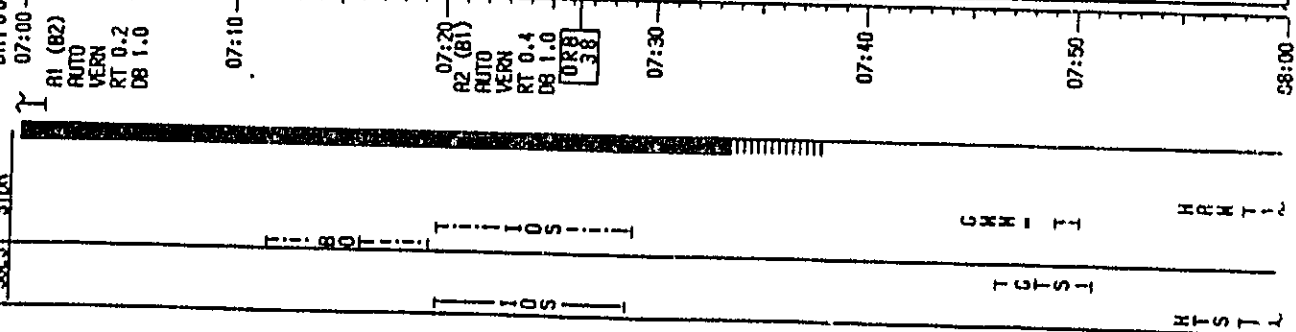
ORIGINAL...
OF POC...

Stars 43 & 76
available from
2/06:57 to 2/07:36

HI PRIORITY MSN PLT

CDR ~

NET OPER
DAY 002



M C C NOTES

TRX ID	RNC	1	2	3
A X	()	()	()	()
A Y	()	()	()	()
A Z	()	()	()	()

EXECUTION TIME: / /

REPORT: IMU ALIGN RESULTS

UPDATE
R20 SPLY DUMP
QTY TK A & B

ASCENDING NODE
ORB: 38
MET: 002:07:26:18
LON: 62.2 E

ORIGINAL PAGE 10
OF POOR QUALITY

REC ONLY
COORD CBM/DBA
LIMITS CLEANUP
FOR CREW
SLEEP

UPLINK
SPL LOAD -
1ST COMM
ALERT
CSD
RDR SLEEP
CONFIC

CHILDRO DEACTIVATION
(OPERATIONS C/L, IABLE)

GAS DEACTIVATION (Cue Card)
(FSO S135-01)

SHD GAS ENCODER (Cue Card)

POST OPERATIONS DOCUMENTATION
(OPERATIONS C/L, IABLE/DIA & PZALIS)

CHILDRO DEACTIVATION
(OPERATIONS C/L, IABLE)

IMU ALIGNMENT - S TRK
(ORBIT OPS C/L, GMS)
STAR ID: -Y: 43, RASALHAGUE
-Z: 28, AL NA'IR
RNC DIF: 85.0
REPORT: LABELIGN RESULTS
(FTO 412-01)
MNRV OPTION: R: 165.8
P: 232.6
Y: 58.3
DAP: R/AUTO/VERN
(07:10) Initiate MNRV

When MNRV to PTC ATT complete,
CHANGE DAP A:
ROT DISC RATE VERN - 0.4 °/SEC
CHANGE DAP B:
DB ATT VERN - 1.0°
BODY VECT *4
(07:30) Initiate ROT

ERS/RECS THE REEL SUBRECK (FTO 412-06)
(ORBIT OPS C/L, RCS.FTO'S)
Perform Step 3 (RECONFIC TO NOMINRL)

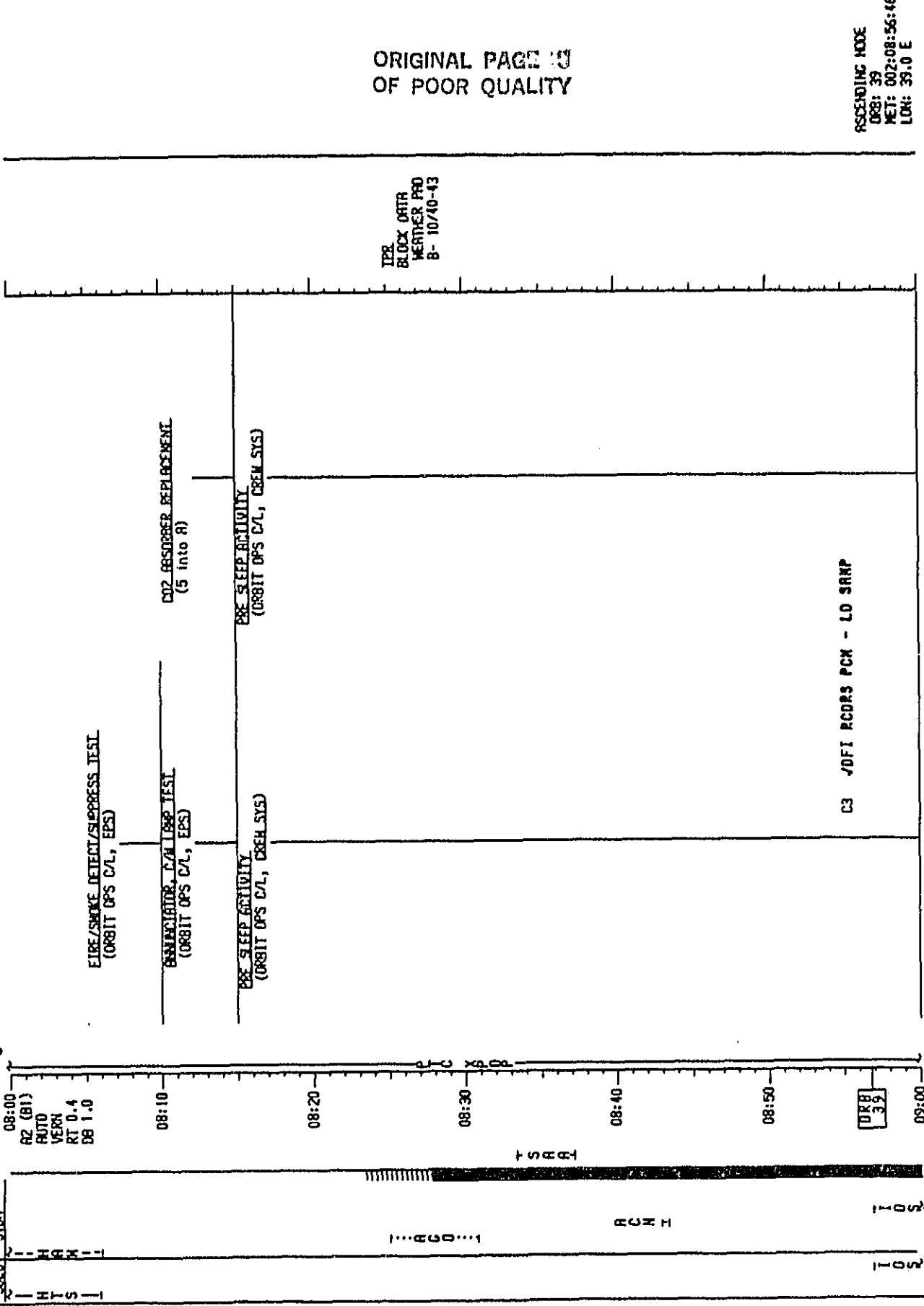
SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
CITY A = _____ CITY B = _____
ELEC CELL PURGE - AUTO (Cue Card)

CABIN TV STOW
MF57E/ Stow both cameras
MF57C

HI PRIORITY MSN PLT
CDR

MET DAY002
08:00
AZ (BT)
AUTO
VERB
RT 0.4
DB 1.0

SELS STDM
HTSI



MCC

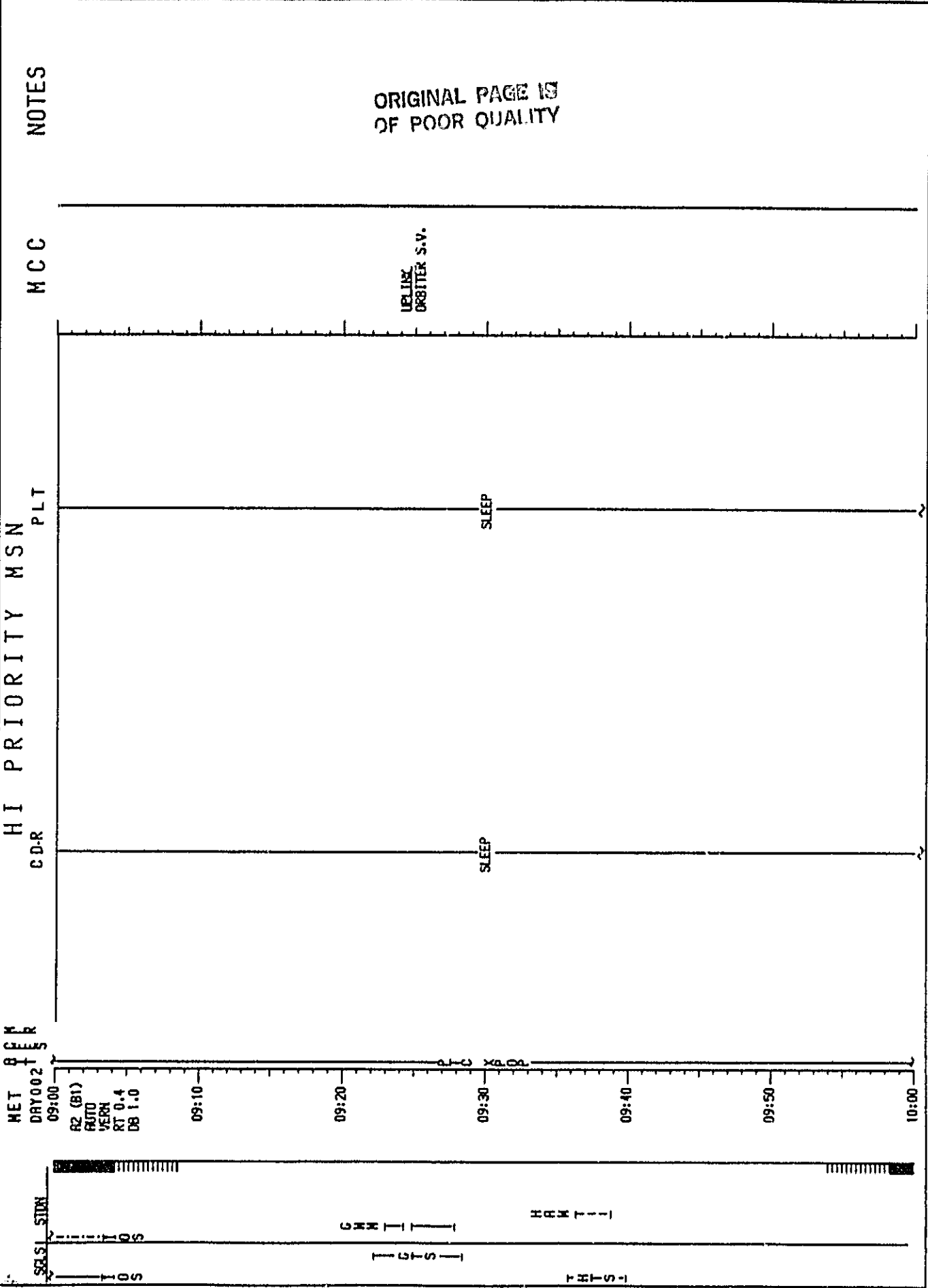
ORIGINAL PAGE 10
OF POOR QUALITY

TPR
BLOCK ORTR
WEATHER PRO
B-10/40-43

ASCENDING MODE
ORB: 39
MET: 002:08:56:46
LON: 39.0 E

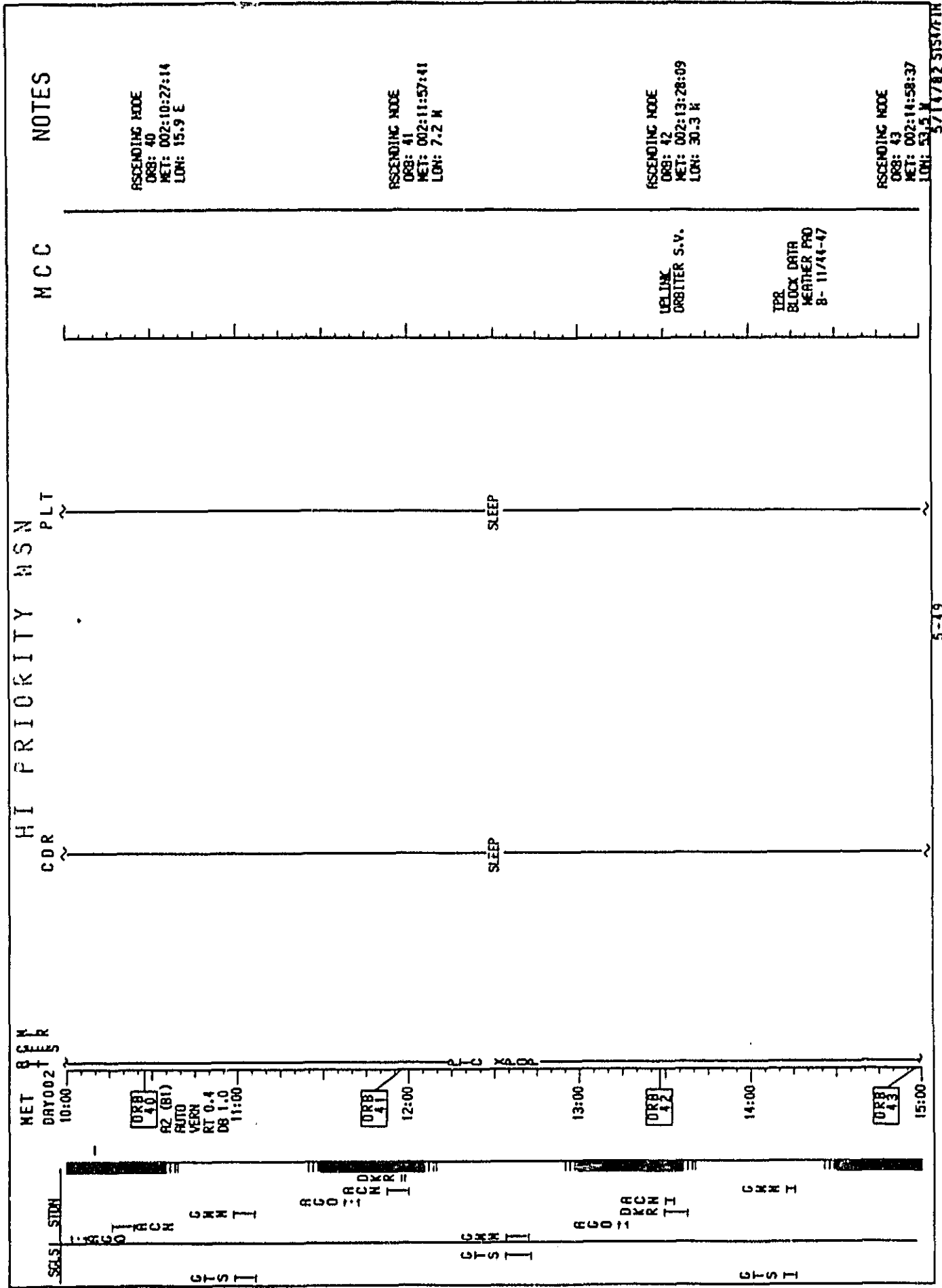
5/14/82 515377R

5-47



5714782 SIS071R

5-48



NOTES

ORIGINAL PAGE 13
OF PCOR QUALITY

MCC

HI PRIORITY MSN
PLT
CDR

NET
DRY002
15:00

82 (81)
AUTO
VERN
RT 0.4
DB 1.0

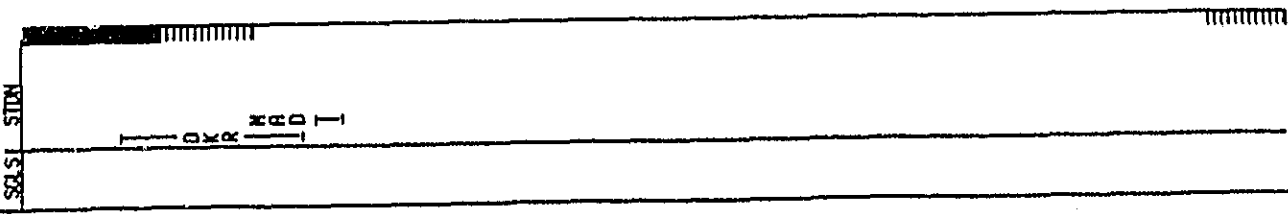
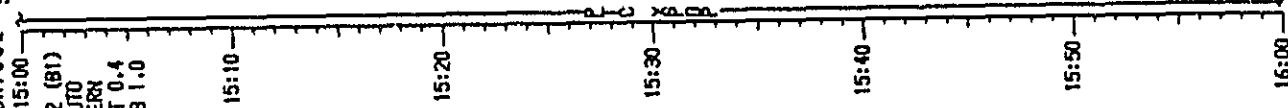
DKR
MAD I

SLEEP

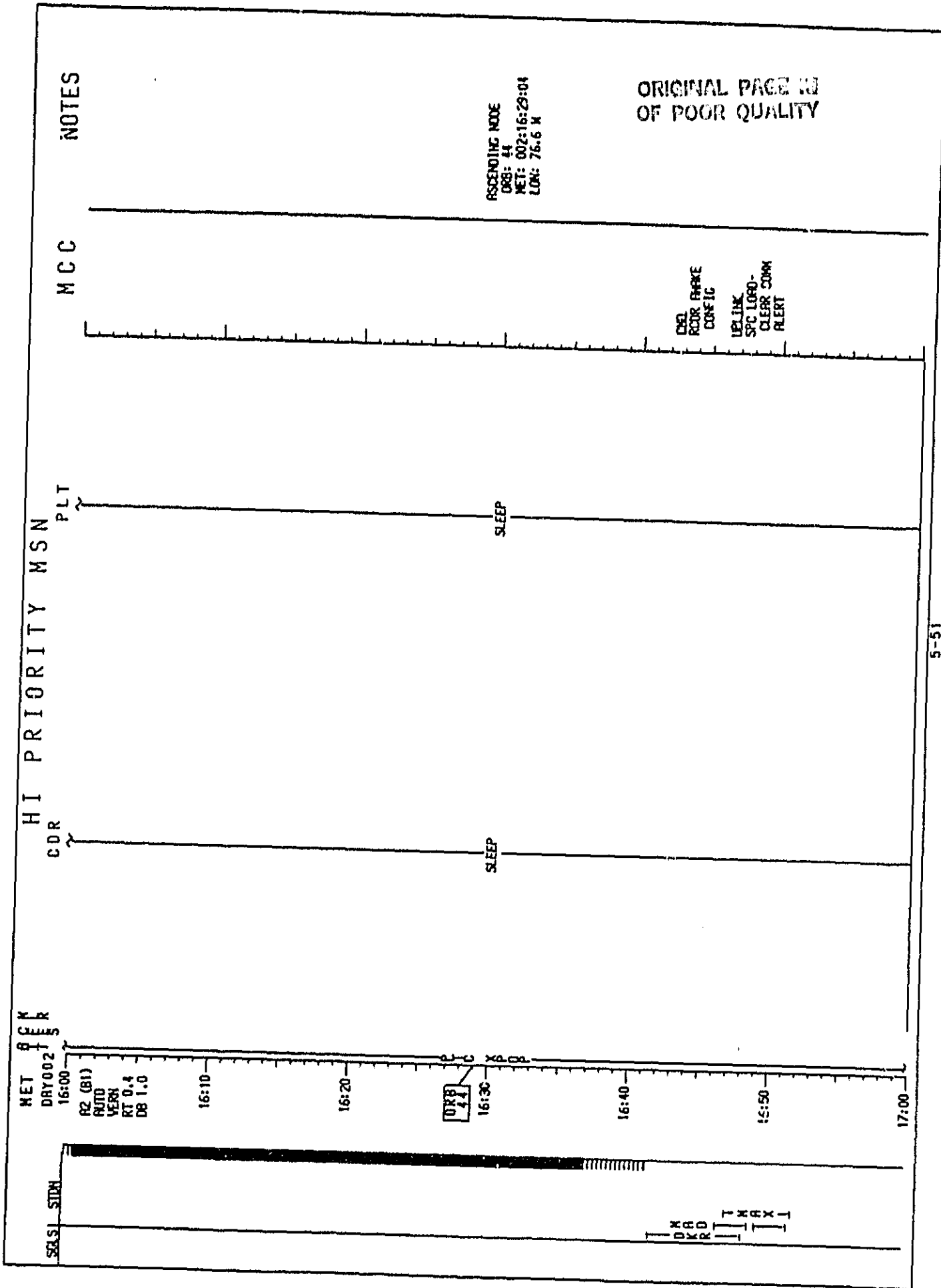
SLEEP

5711782 SIS/PIR

5-50



D



5/11/82 SIS177R

5-51

HI PRIORITY MSN
PLT

CDR
POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

CPM
MET 0002
DRY002

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

NOTES

MCC

16001E
H2O SPLY DUMP
QTY TK A & B
INFEREN DCEK
SK CKPT -
REQD/NOT REQD

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING MODE
CRS: 45
MET: 002:17:59:32
LOR: 57.8 N
5714782 S1S4/FIR

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

50151 S1M1

TY R R = 0 R R 1 1 1 1

ORA
45
18:00

HI PRIORITY MSN

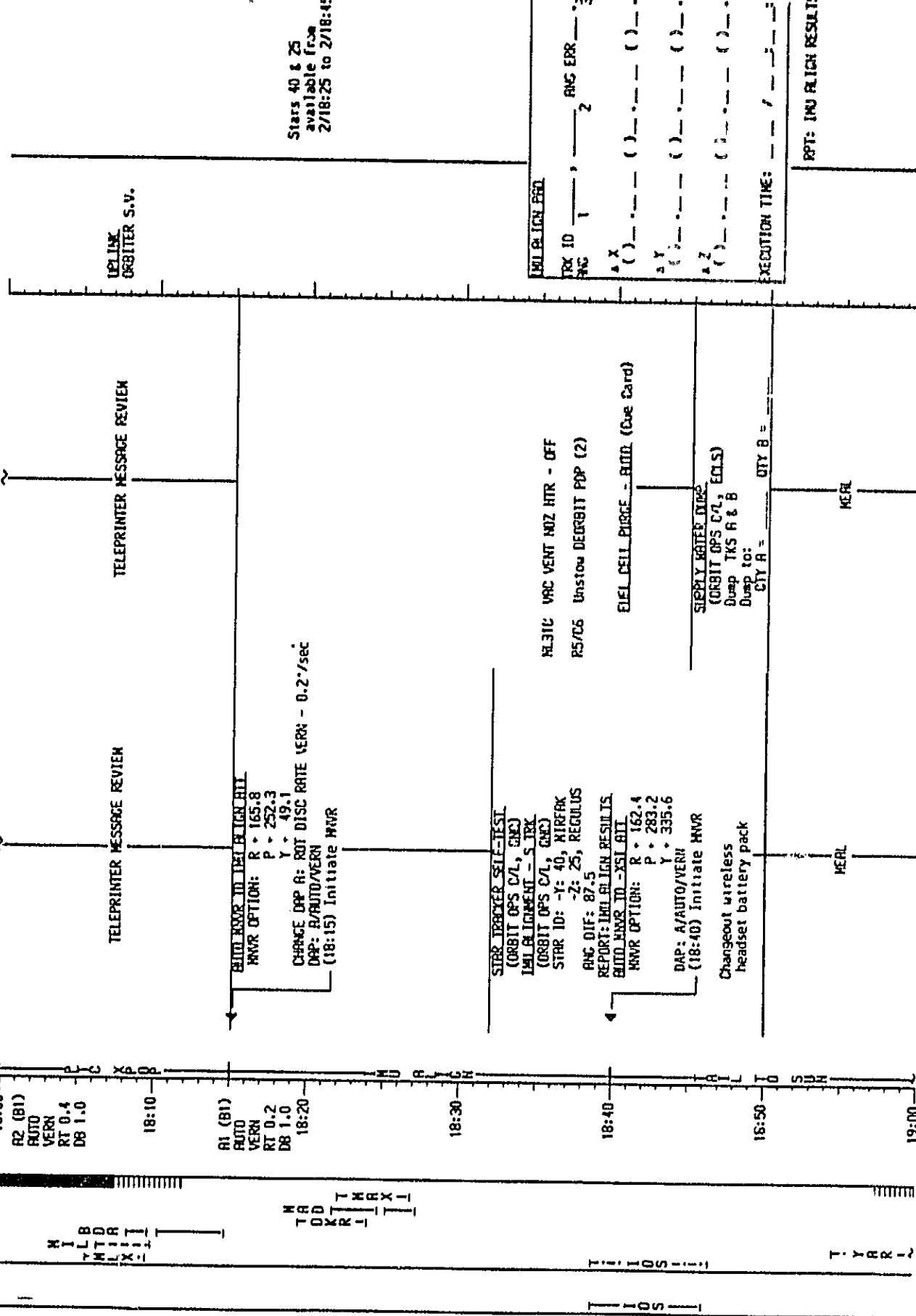
CDR PLT

NOTES

MCC

MET DAY002
18:00

18:10
18:20
18:30
18:40
18:50
19:00



IMU FLICN BIT
ORBITER S.V.

Stars 40 & 25
available from
2/18:25 to 2/18:45

IMU FLICN BIT

TRK ID	1	2	3
ANG	()	()	()
A X	()	()	()
A Y	()	()	()
A Z	()	()	()

EXECUTION TIME: / /

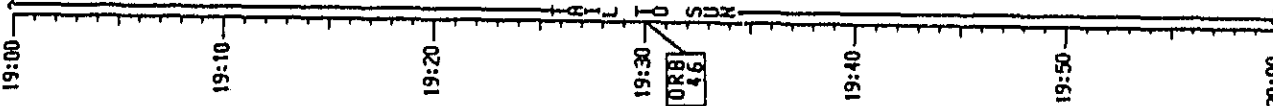
RPT: IMU FLICN RESULTS

HI PRIORITY MSN

NET
DRY002
19:00

CDR

PLT



NETL

NETL

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 46
MET: 002:19:30:00
LON: 122.9 N

MCC

TIP
BLOCK DATA
HEATHER PRO
8- 12/48-51

LEBBIE
CRT TIMER
SETUP PRO

ONE-DAY EXTENSION

The STS-4 Extension Timeline is designed to follow a nominal flight up to the decision point for the 24 hour extension. This GO/NO GO decision point occurs at MET 6/00:25, prior to any mission-related activities for the nominal flight.

Also, this timeline may be used after the D/O PREP BACKOUT has been executed on FD 8.

24 HOUR EXTENSION CASE:

- o Execute detailed timeline pages from 6/00:00 to Deorbit Prep on FD 9
- o A period of time with no scheduled activities is provided immediately following the GO/NO GO to allow preparations for the extension of the flight.

AFTER DEORBIT PREP BACKOUT CASE:

Begin timeline at 7/00:30 with the following changes:

- o CDR - MCC will modify PTC to -ZLV as required (5-83); omit CABIN TV STOW at 7/04:15 MET
- o PLT - Omit all activities between MET 7/02:10 and 7/04:20 (i.e., P/L DEACT, CABIN STOW, CO₂ ABSORBER REPLACEMENT)

ORIGINAL PAGE 11
OF POOR QUALITY

GMT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE		
185:03:00 / 185:15:00	006:12:00 / 007:00:00	184:22:00 / 185:10:00	7 / 184	18.8	○	JULY 4, 1982	STS-4	FINAL	05/14/82		
GMT : 185 3											
FD 7											
MET : 006 12											
CDR	SLEEP	POST SLEEP ACT	MERL	PUBO CYCLE TEST	UNU NNS MER INIT PREP FITC	MERL	EQUIP PREP	EVA PREP	EMU/ AIRLOCK EVAL	EVA LOH CART REPLACE	POST EVA PREP
PLT	SLEEP	POST SLEEP ACT	MERL	PUBO CYCLE TEST	TV SETUP	MERL	ES SUPPORT	S-BO ANT TEST		EVA SUPPORT	
DAY/NIGHT											
ORBIT	104	105	106	107	108	109	110	111	112		
ROCK (P/DOOR)											
EARTH TRACE											
W/SAR											
GSTDN COVERAGE	-DRK	-DVR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR	-YAR -YAR -YAR
SCLS COVERAGE											
OPS											
DEORB KSC											
EDM											
ATTITUDE											
MANEUVERS											
TV/AVIR											
CFES											
MLR											
NOTES:	<p>8 FTD 451-03 PLBO COLD CASE PERFORMANCE 8 FTD 412-01 ATT HOLD THERMAL RESPONSE 8 FTD 471-01 S-BRO & UFF ANT PATTERNS 8 FTD 471-01 S-BRO & UFF ANT PATTERNS</p>										

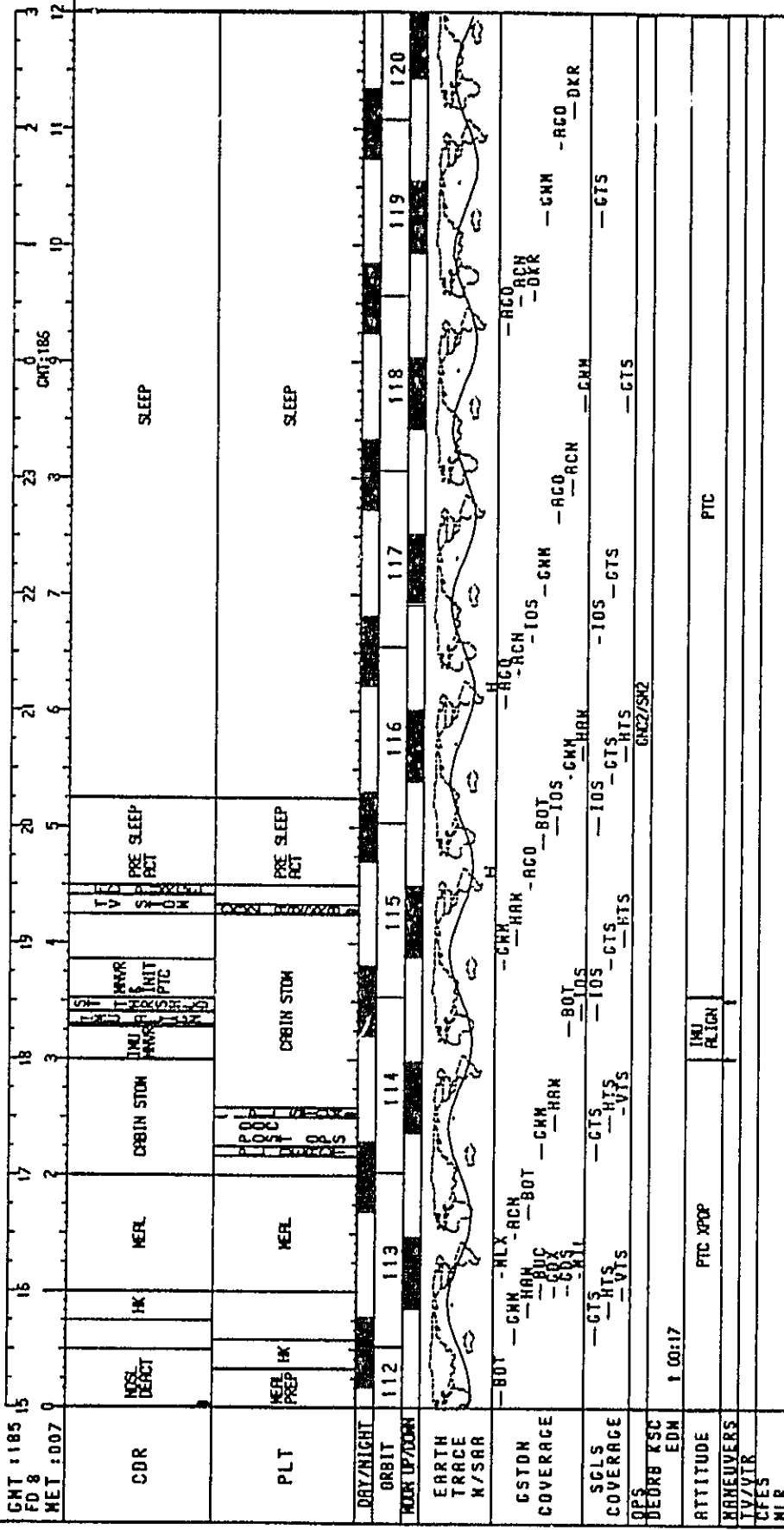
ORIGINAL PAGE IS
OF POOR QUALITY

CNT	(D:H:M)	MET	(D:H:M)	CDT	(D:H:M)	FD/DOY	BEAT	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
185115:00/	186:03:00	007:00:00/	007:12:00	185:10:00/	185:22:00	/ 185	CDT	20.7	JULY 4, 1982	STS-4	FINAL	05/14/82
GMT	185	15	16	17	18	19	20	21	22	23	24	25
FD 8												
MET	:007	0	1	2	3	4	5	6	7	8	9	10
CDR												
PLT												
DRY/NIGHT												
ORBIT	112	113	114	115	116	117	118	119	120			
HOURLY/DOWN												
EARTH TRACE N/SAR												
GSTDN COVERAGE												
SCLS COVERAGE												
OPS DEORB KSC EDM												
ATTITUDE												
MANEUVERS												
TV/ATR												
CPES												
MLR												
NOTES:												

05711782 SISAFIN

5-58

FSD S441-01 HSSL OPERATIONS
 ● PL DEORBIT PREP ● CHARGEOUT



GMT (D:H:M)	HET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
186:03:00 / 186:15:00	007:12:00 / 008:00:00	185:22:00 / 186:10:00	8 / 185	CDT 22.7	○	JULY 5, 1982	SIS-4	FINAL	05/14/82
TTC									
GMT: 186 3	FD 9	13	6	5	4	3	2	1	0
NET: 007 12	13	14	15	16	17	18	19	20	21
CDR	SLEEP	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT
PLT	SLEEP	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT	POST SLEEP TRK MSC/IMU RCT
DRY/NIGHT	120	121	122	123	124	125	126	127	128
ORBIT	120	121	122	123	124	125	126	127	128
NON UP/DOWN	120	121	122	123	124	125	126	127	128
EARTH TRACE W/SRA	120	121	122	123	124	125	126	127	128
GSTDN COVERAGE	120	121	122	123	124	125	126	127	128
SGLS COVERAGE	120	121	122	123	124	125	126	127	128
OPS	120	121	122	123	124	125	126	127	128
DEDRB KSC EDH	120	121	122	123	124	125	126	127	128
ATTITUDE	120	121	122	123	124	125	126	127	128
MANEUVERS	120	121	122	123	124	125	126	127	128
TV/VTR	120	121	122	123	124	125	126	127	128
CFES	120	121	122	123	124	125	126	127	128
MLR	120	121	122	123	124	125	126	127	128
NOTES:	<p>ORIGINAL PAGE IS OF POOR QUALITY</p> <p>○ STRIKER SELF TEST ○ ENTRY CONFIC ○ NO SH LIST VER ○ LAST MERL CLEANUP ○ PLBD CLOSING ○ POST CLOSING</p>								

05/14/82 SIS071K

5-59

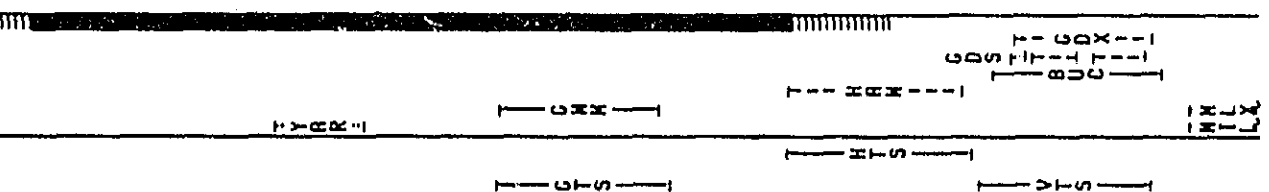
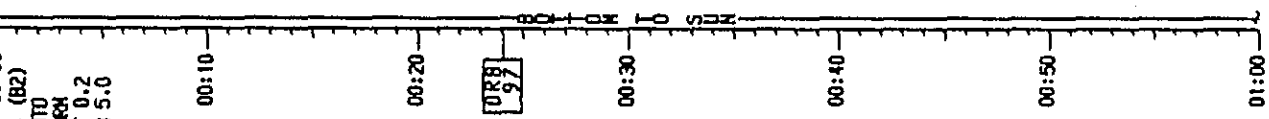
STS-4 DETAILED

CDR

PLT

MET 00:00
DRY006
R4 (B2)
RUTO
NORR
RT 0.2
DB 5.0

SELS STON



NOTES

MCC

ASCENDING NODE
ORB: 97
MET: 006:00:24:04
LON: 136.6 E

INDEGR. DSEN
FD 8 GO /NO GO

FD 8 GO/NO GO

ORIGINAL...
OF POOR...

STS-4 DETAILED PLT

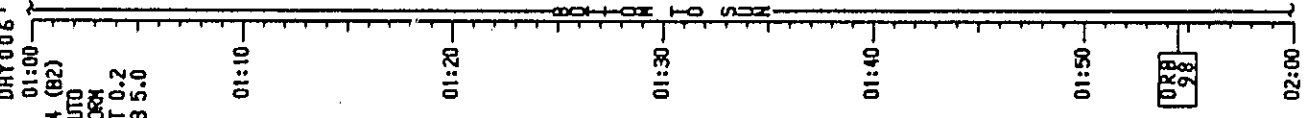
OPER
MET DRY006

NOTES

MCC

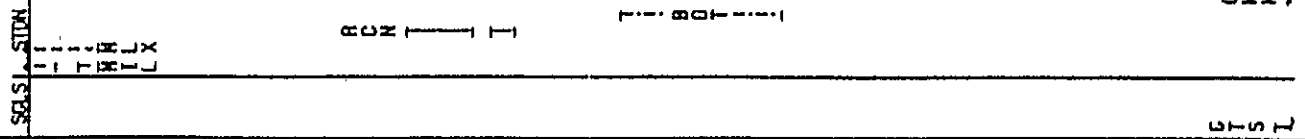
PLT

CDR



01:00
R4 (B2)
AUTO
NORM
RT 0.2
DB 5.0

URB
98



01:30
01:40

ASCENDING MODE
ORB: 98
MET: 006:01:54:32
LON: 113.5 E

STS-4 DETAILED PLT

CDR
MET
DRY006

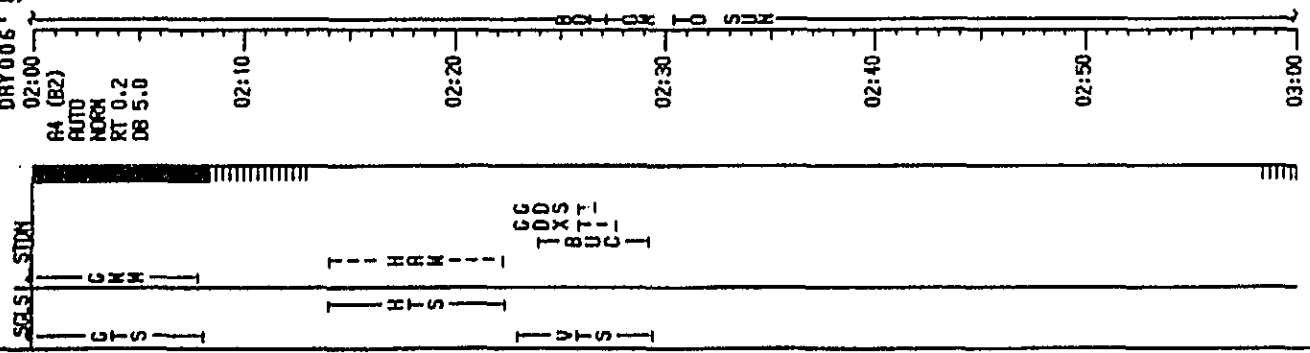
NOTES

MCC

TR
BLOCK DATA
WEATHER PRO
B-25/101-104

ORIGINAL FORM
OF POOR QUALITY

MEAL PREP. (Cue Card)
Prepare DRY 7, MEAL C



STS-4 DETAILED

CDR

PLT

NOTES

MET
DRY 006
03:00

A4 (B2)
AUTO
NDRN
RT 0.2
DB 5.0

03:10

03:20

CRB
99

03:30

03:40

03:50

04:00

SELSI STDN

HTS

HTS

HTS

HTS

HTS

HTS

HTS

LEDBATE
H2O SPLY DUMP
QTY TK A & B

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

ASCENDING NODE
OSB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL TRAINING
OF POOR QUALITY

NEEL

NEEL

STS-4 DETAILED

MET CENTER
 DAY 006
 04:00

RA (82)
 AUTO
 NORM
 RT 0.2
 DB 5.0

04:10
 04:20
 04:30
 04:40
 04:50
 05:00

04:10
 04:20
 04:30
 04:40
 04:50
 05:00

PLT

CDR

MCC

NOTES

ORIGINAL PAGE NO.
 OF POOR QUALITY

Stars 28 & 43
 available from
 6/01:33 to 6/05:13

ERCS/REPS THERM SENSOR
 (2 FWD/1 AFT RCS ENG - FTO 412-06.08)
 (ORBIT OPS C/L, RCS ETO.5)
 Perform Step 3 (RECONFIG TO NORMAL)

BUILD MNRV TO IMI ALIGN ATT
 MNRV OPTION: R +261.0
 P +349.6
 Y - 39.0
 DAP: B/AUTO/VERN
 (04:32) Initiate MNRV

IMBALANCEMENT - S DRC
 (ORBIT OPS C/L, CMC)
 STAR ID: -Y: 43, RASALHAGUE
 -Z: 28, AL NY'IR
 RNC DIF: 85.0

BUILD MNRV ID -751 ATT (FTO 412-01)
 MNRV OPTION: R + 321.2
 P + 224.0
 Y + 51.4
 DAP: B/AUTO/VERN
 (04:52) Initiate MNRV

TRX ID	REC	ANG	ERR
1	2	3	
X	()	()	()
Y	()	()	()
Z	()	()	()

EXECUTION TIME: / /
 ASCENDING MAX
 OSB: 100
 MET: 006:01:55:28
 LON: 67.2 E

NOTES

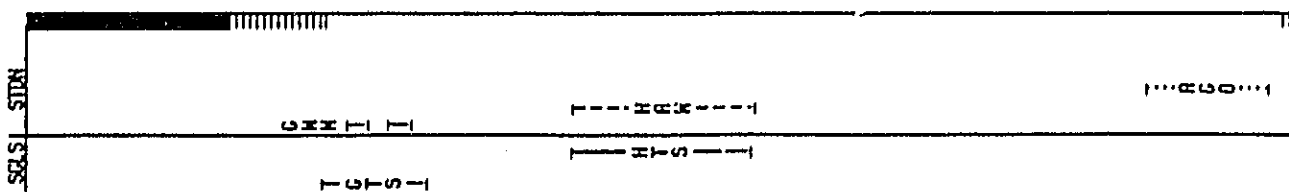
MCC

PLT

STS-4 DETAILED

CDR

MET
DAY 006
05:00
(R1) B2
AUTO
VERB
RT 0.2
DB 0.1



AUTO MWR TO 75L AIT

SINGLE C2 CPC DES
(ORBIT OPS C/L, OPS)

DELINQ
ORBITER S.V.

CO2 ABSORBER REPLACEMENT
(9 into A)

EDEL CELL PURGE - RIDD (Cue Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

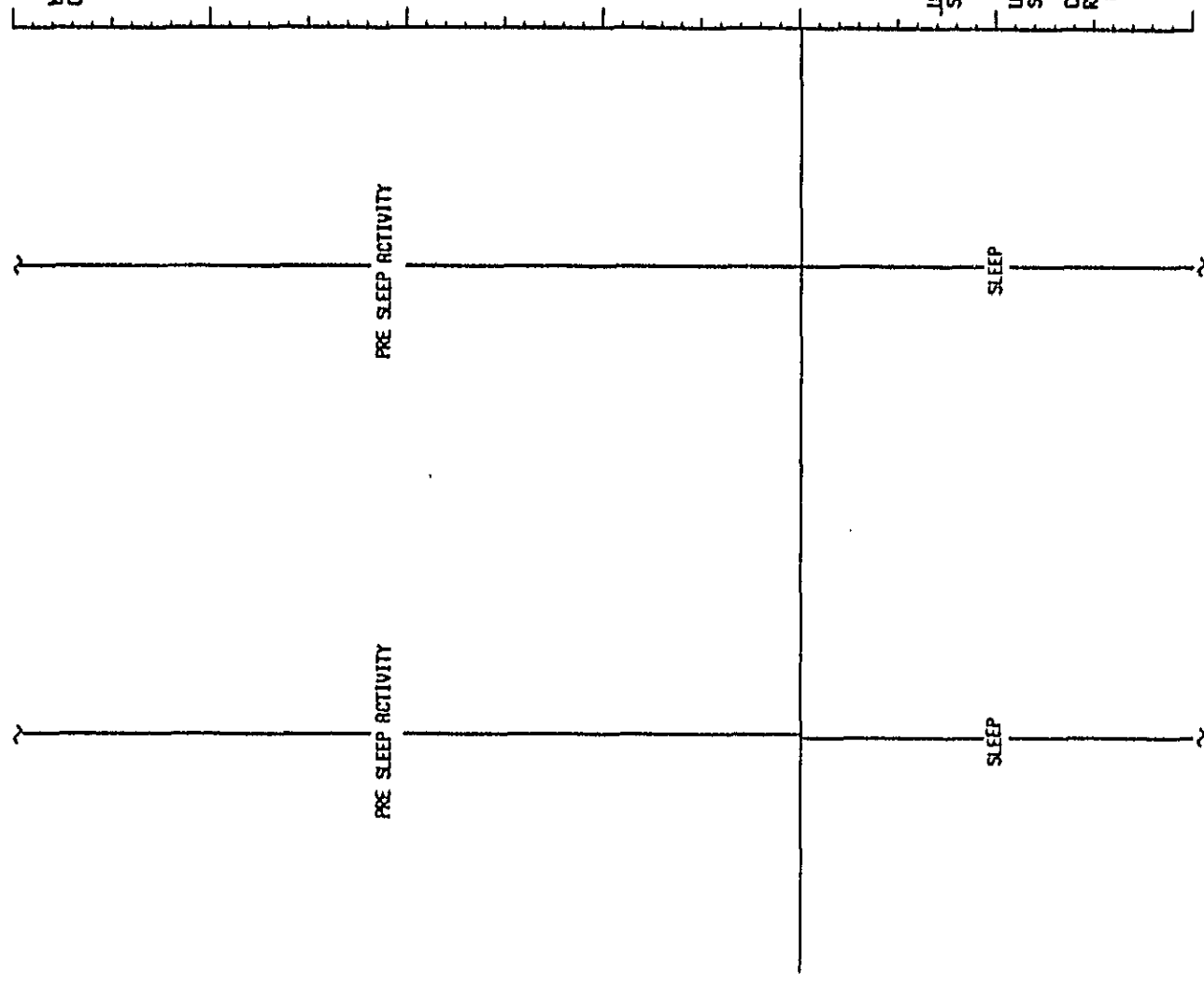
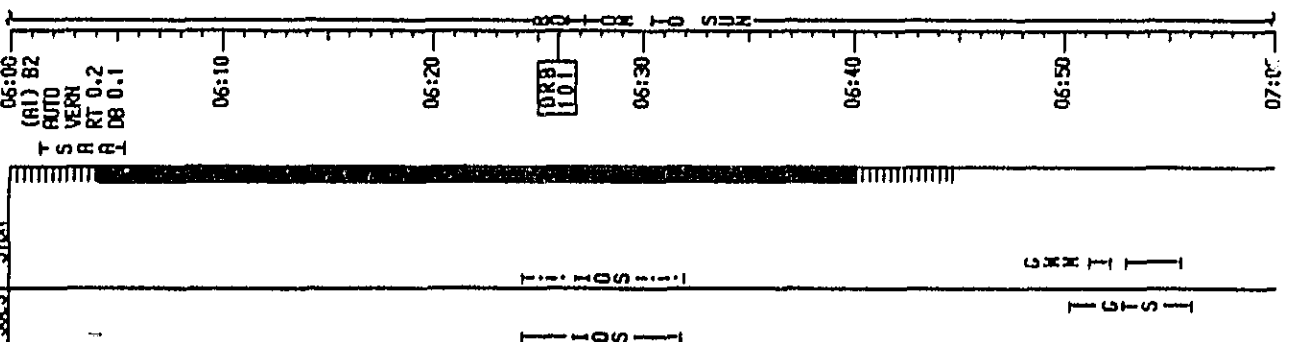
ORIGINAL RECORD
OF POOR QUALITY

STS-4 DETAILED

MET
DRY006
(AI) B2
T S VERN
R A RT 0.2
A R DB 0.1

CDR
PLT

SCS1 STDN



NOTES

MCC

MCC DAILY
COORD CDM/FDR
LIMITS CLEANUP
FOR CREW SLEEP

ASCENDING NODE
DBS: 101
NET: 006:56:25:56
LON: 41.0 E

ORIGINATOR:
OF PGM

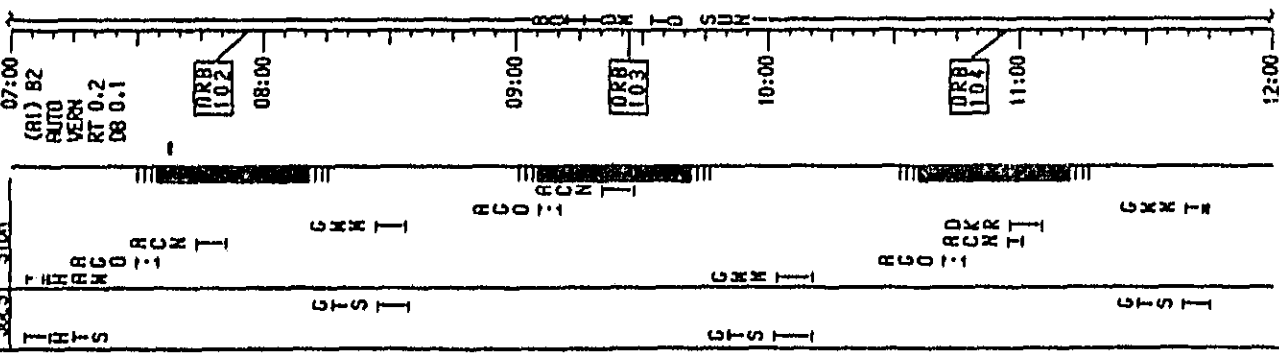
LELINK
SPC LOFD -
1ST DOWN
ALERT
LELINK
SPC LOFD -
10S DOWN
CM1
RCOR SLEEP
CONFIC

05711782 STS4PH

5-66

STS-4 DETAILED

MET AERK
DRY006
07:00



CDR

PLT

NOTES

NCC

ASCENDING NODE
ORB: 102
MET: 006:07:56:24
LON: 20.9 E

TIPS
BLOCK DATA
WEATHER PAD
8-26/105-108

ASCENDING NODE
ORB: 103
MET: 005:09:26:52
LON: 2.2 W

ASCENDING NODE
ORB: 104
MET: 006:10:57:20
LON: 25.3 W

DELTA
ORBITER S.V.

SLEEP

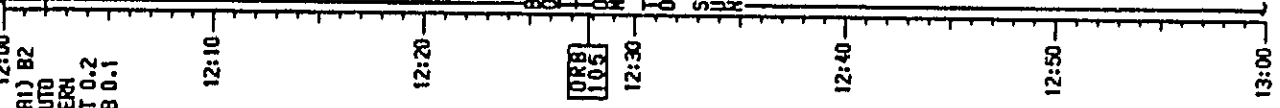
SLEEP

STS-4 DETAILED

MET
DRY006

(R1) B2
AUTO
VERA
RT 0.2
DB 0.1

SELSI STON



CDR

SLEEP

PLT

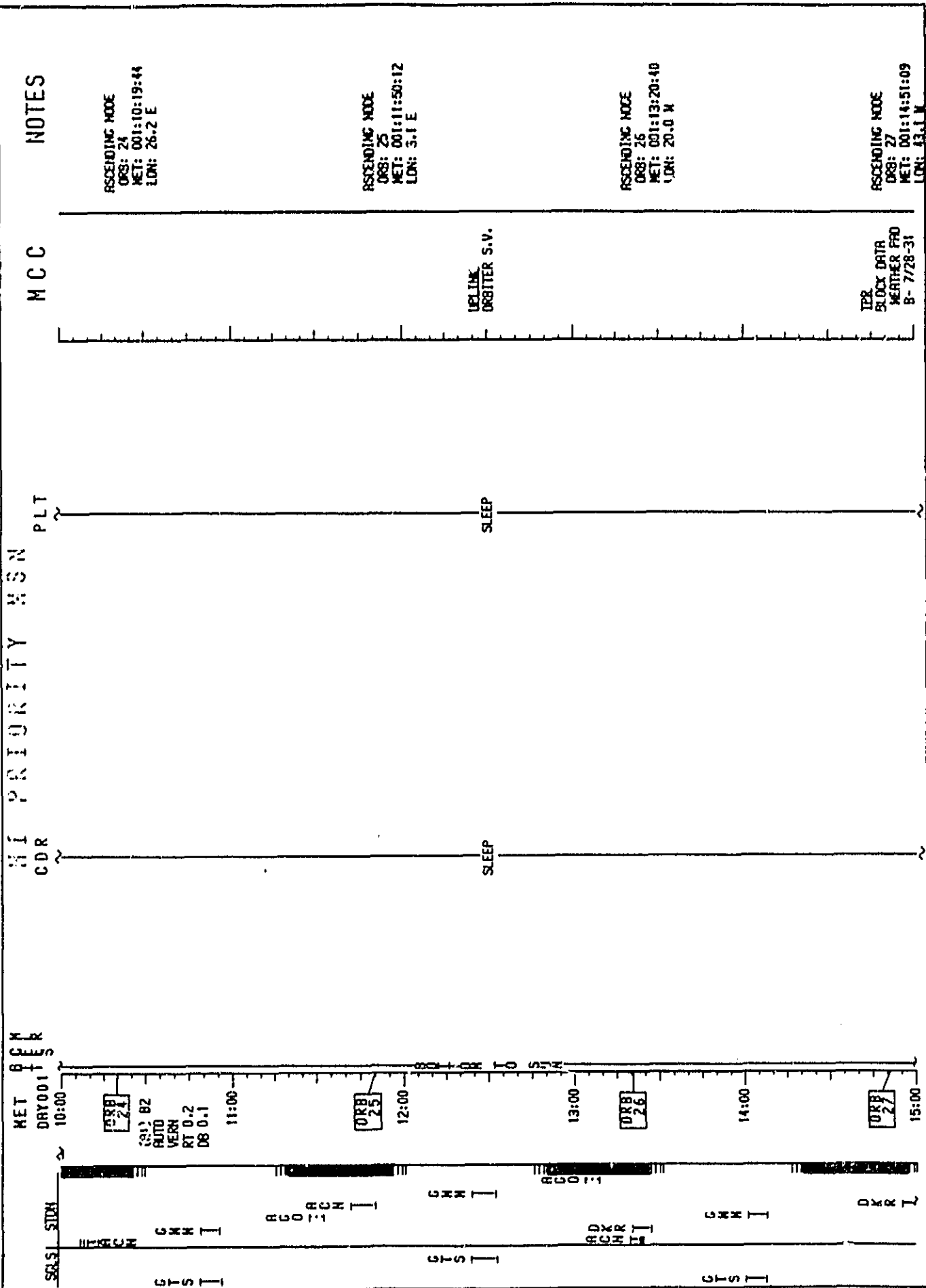
SLEEP

MCC

NOTES

ASCENDING MODE
DRB: 105
MET: 006:12:27:48
LDN: 48.5 K

ORIGINAL PRINT
OF POOR QUALITY



NOTES

ASCENDING NODE
ORB: 24
MET: 001:10:19:44
LDN: 26.2 E

ASCENDING NODE
ORB: 25
MET: 001:11:50:12
LDN: 3.1 E

ASCENDING NODE
ORB: 26
MET: 001:13:20:40
LDN: 20.0 W

ASCENDING NODE
ORB: 27
MET: 001:14:51:09
LDN: 33.1 W

MCC

UPLINK
ORBITER S.V.

IPR
BLOCK DATA
WEATHER PFD
B-7728-31

PLT

SLEEP

CDR

SLEEP

MISSION PRIORITY MSN

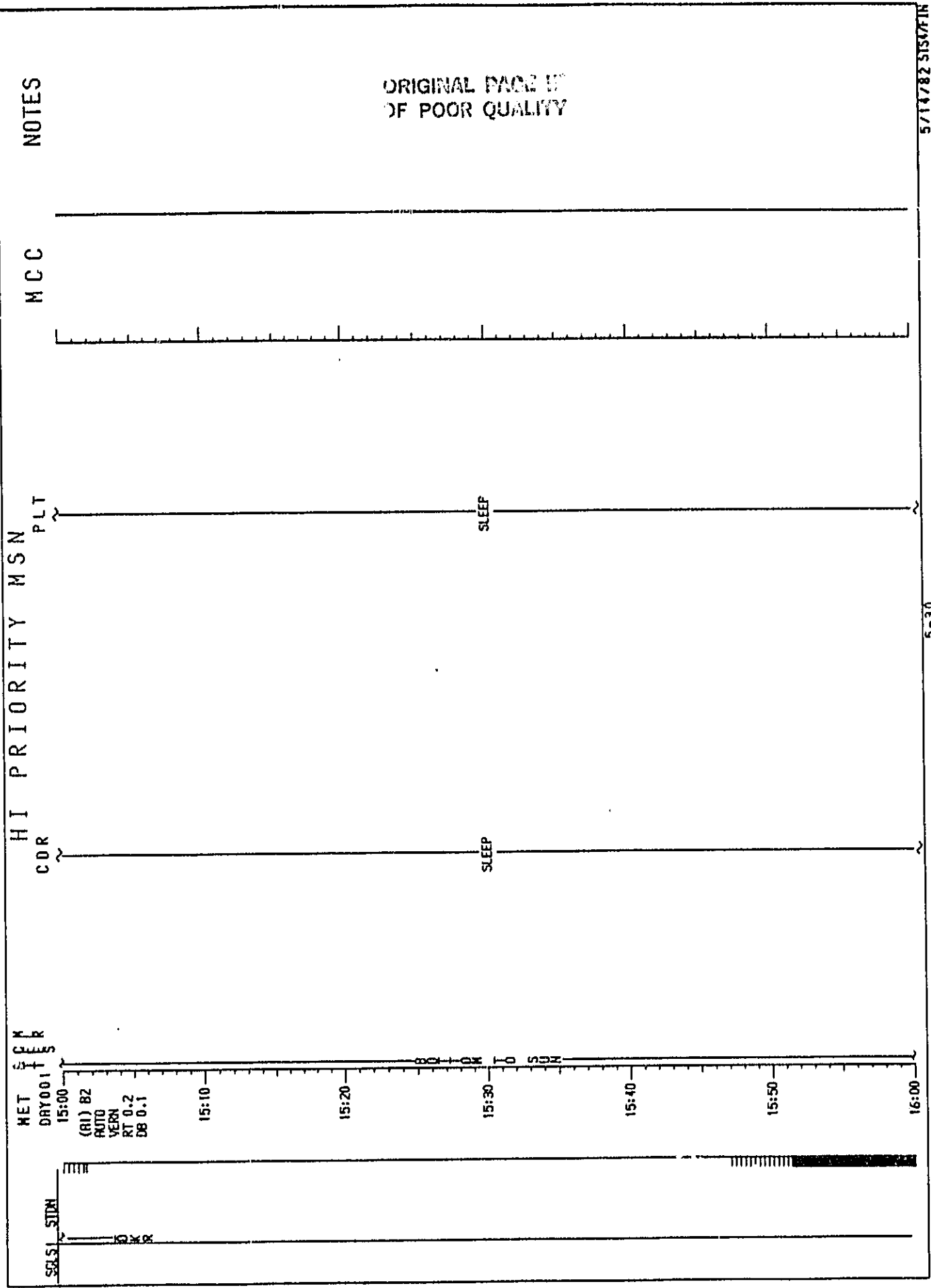
MET
ORB 24
ORB 25
ORB 26
ORB 27

10:00 11:00 12:00 13:00 14:00 15:00

GWSI GWRN GWRN GWRN GWRN GWRN GWRN
ADCK ADCK DCKR DCKR
GWRN DCKR

C-3

5-25 37178Z SYSAFIN



NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

MCC

PLT

HI PRIORITY MSN

CDR

CDR

MET DRY001

(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

15:10

15:20

15:30

15:40

15:50

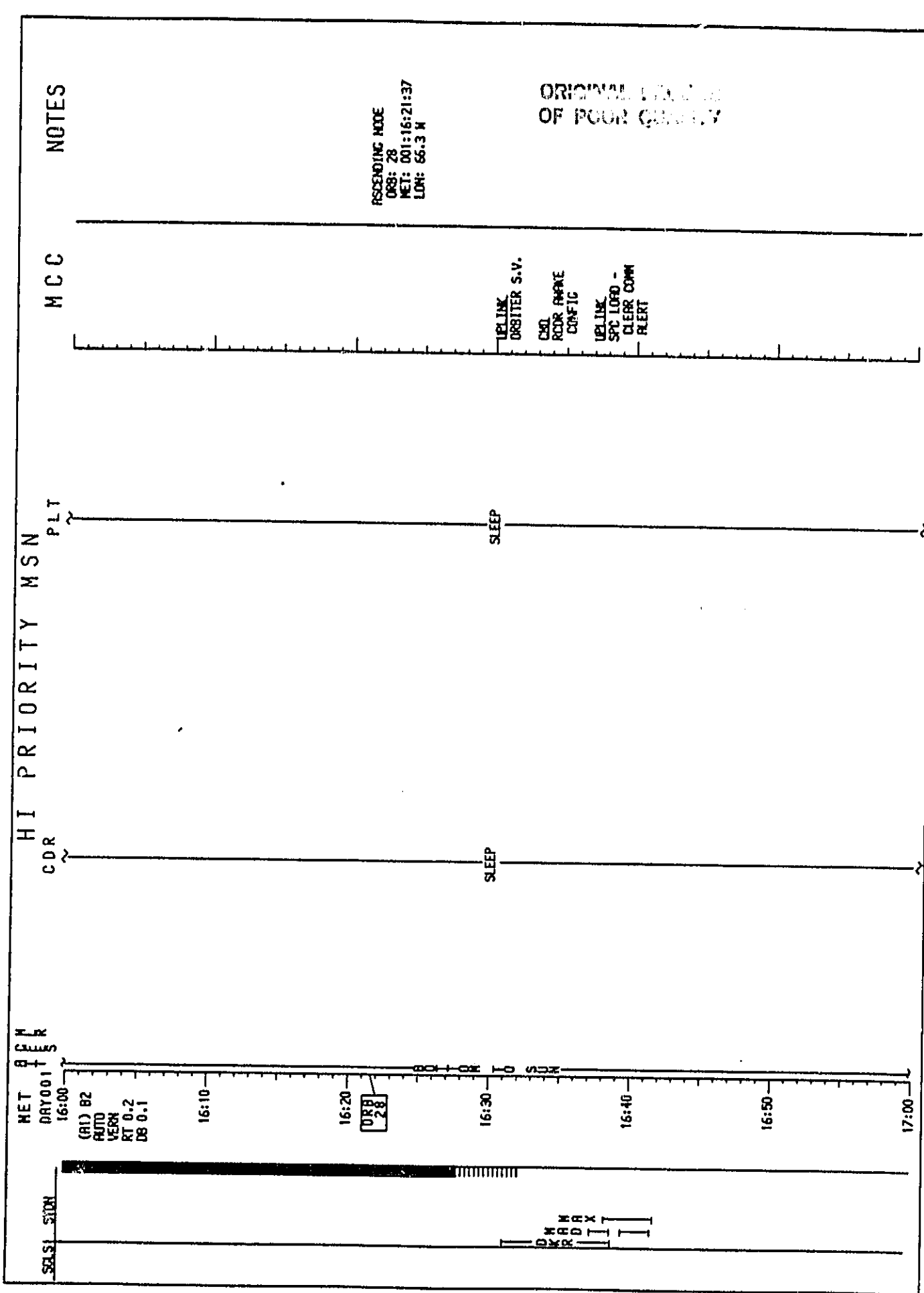
16:00

SCS1 STDR

CDR

5714782 SISV/TIN

5-30



ASCENDING NODE
ORB: 28
MET: 001:16:21:37
LON: 66.3 W

ORIGINAL DESIGN
OF POOR QUALITY

NOTES

MCC

PLT

HI PRIORITY MSN

CDR

NET OPER

RAY001

16:00
(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

16:10

16:20

ORB
28

BOTTOM TO SUN

16:30

16:40

16:50

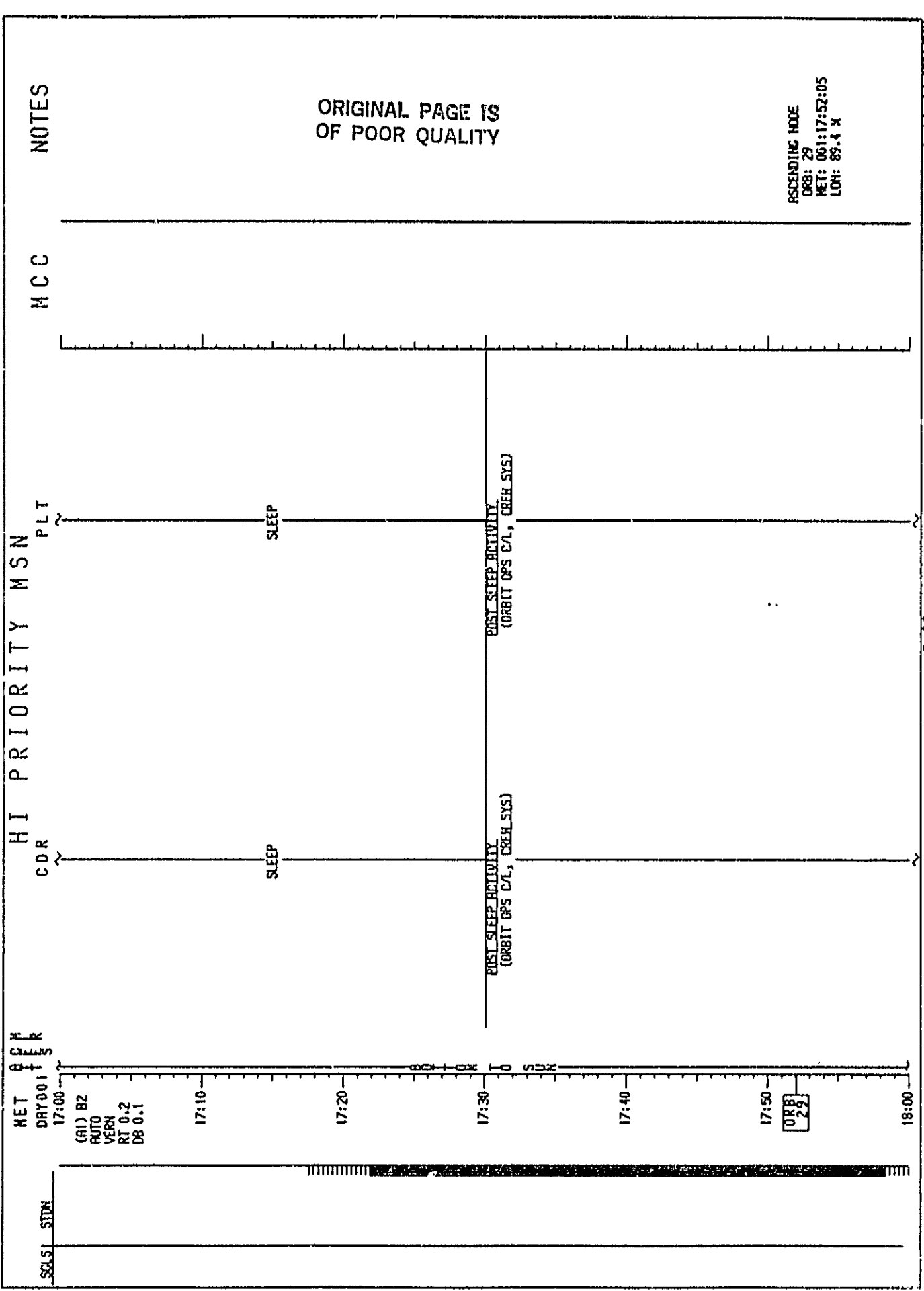
17:00

SEALS STOR

DM M
KRA
RDX

5/14/82 SIS471R

5-31



ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
DB: 29
MET: 001:17:52:05
LON: 89.4 X

5/11/82 2151ZTR

5-32

HI PRIORITY MSN

CM
PLT

NOTES

MCC

SELSI SIDN

MET DAY001

18:00
(A1) B2
AUTO
VERN
RT 0.2
DS 0.1

T M
D O
K R
I I
T M
A X
I I

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

UPDATE
H2O SPLY DUMP
QTY TX A & B
INFORM CREW
SM CKPT -
READ/NOT RECD

TELEPRINTER MESSAGE REVIEW

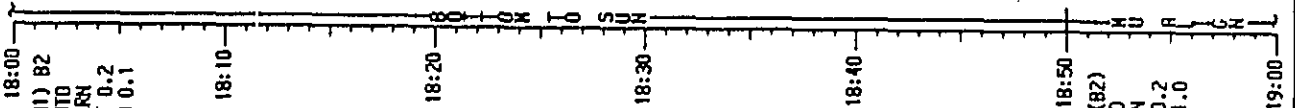
TELEPRINTER MESSAGE REVIEW

QUEL C2 ETC OPS.
(ORBIT OPS C/L, OPS)

ERCS THERMAL SURVEY
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETO'S)
Perform Step 1 (CONFIGURE FOR
TRANSLATION)
BLDG HNR TO LML ALIGN ATT
MNR OPTION: R - 12.4
P - 208.6
Y - 4.9
DAP: R/AUTO/VERN
(18:50) Initiate MNR

VPC FREEZER TEST (FTO 467-01)
Record elapsed time indicator
reading
FREEZER PHR - ON
Record time, freezer temp,
Condenser temp
Repeat once per minute for
15 minutes or until temp
stabilizes

Stars 51 & 22
available from
1/18:52 to 1/19:29



ORIGINAL
OF...

HI PRIORITY MSN PLT
 CDR
 MNR

STAR TRACKER SELF-TEST
 (ORBIT OPS C/L, GNC)
 IMU ALIGNMENT - S TBX
 (ORBIT OPS C/L, GNC)
 STRK ID: -Y: 51, ATRIA
 -Z: 22, ALTAIR
 RNC DIF: 84.0

WPC FREEZER TEST (FTO 467-01)

BATER SAMPLE FREEZING
 Mxxx
 Unstow H2O sample container
 and fill with H2O
 Insert container into freezer,
 Record time / :
 Changeout wireless
 headset battery pack

AUTO MNR ID -Z/SI BIT (FTO 412-01)
 MNR OPTION: R * 309.1
 P * 234.6
 Y * 59.4
 DRP: B/AUTO/MNR
 (19:10) initiate MNR

EC PURGE - MEMPL (Cue Card)

SUPPLY WATER DUMP
 (ORBIT OPS C/L, ECLS)
 Dump TKS A & B
 Qty to:
 QTY A = _____ QTY B = _____

REPORT: IMU ALIGN RESULTS

REPORT: IMU ALIGN RESULTS

ASCENDING NODE
 ORG: 30
 MET: 001:19:22:33
 LON: 112.6 K

ORIGINAL PAGE NO
 OF POOR QUALITY

MCC NOTES

IMU ALIGN PRO

TRK ID _____, RNC ERR: _____ 3

Δ X () _____ () _____ () _____

Δ Y () _____ () _____ () _____

Δ Z () _____ () _____ () _____

EXECUTION TIME: _____ / _____

5-34 5/11/82 STS1/FTN

HI PRIORITY MSN

NOTES

MCC

ORIGINAL PAGE 13
OF POOR QUALITY

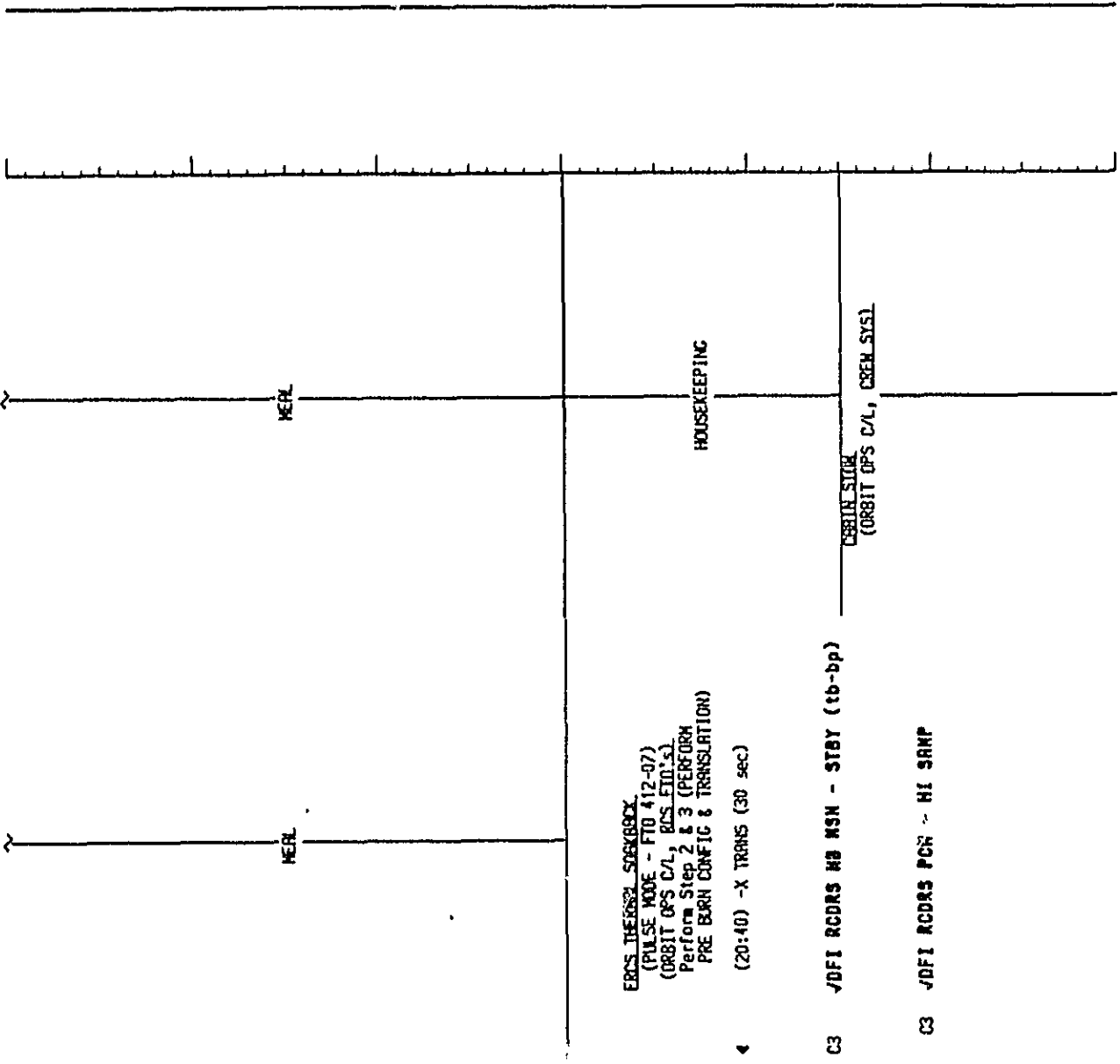
ASCENDING NODE
ORB: 31
MET: 001:20:53:02
LOH: 135.7 H

PLT

CDR

BECH

MET
DRY001



5711782 SFS/FR

5-35

HI PRIORITY MSN

NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

MCC

UPLINK
ORBITER S.V.
TYPE
BLOCK DATA
WEATHER PRO
B- 8/32-35

PLT

CABIN STDM

CDR

ERCS_THERMAL_SIDEBOOK
(PULSE MODE - FTD 412-07)
(ORBIT OPS C/L, RCS_EIO's)
Perform Step 3 (PERFORM TRANSLATION)

21:10 -X TRANS (30 sec)

C3 ✓DFI RCDRS MB MSN - STBY (tb-bp)

C3 ✓DFI RCDRS PCN - HI SRAP

ERCS_THERMAL_SIDEBOOK
(PULSE MODE - FTD 412-07)
(ORBIT OPS C/L, RCS_EIO's)
Perform Step 3 (PERFORM TRANSLATION)

21:40 -X TRANS (30 sec)

C3 ✓DFI RCDRS MB MSN - STBY (tb-bp)

C3 ✓DFI RCDRS PCN - HI SRAP

MET
DAY001
21:00

A1 (B2)
AUTO
NORX
RT 0.2
DB 5.0

21:10

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

21:20

21:30

A1 (B2)
AUTO
NORX
RT 0.2
DB 5.0

21:40

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

21:50

22:00

HI PRIORITY MSN PLT
CDR

MET DAY 001
22:00

NOTES

MCC

ERCS THERMAL SINKBOX
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETO's)
Perform Step 3 (PERFORM TRANSLATION)

(22:10) -X TRANS (30 sec)

C3 -JDFI RCORS MB MSN - STBY (tb-bp)

C3 -JDSI RCORS PCH - HI SRAP

ASCENDING NODE
ORB: 32
MET: 001:22:23:30
LON: 158.9 W

ORIGINAL PAGE
OF POOR QUALITY

ERCS THERMAL SINKBOX
(PULSE MODE - FTO 412-07)
(ORBIT OPS C/L, RCS ETO's)
Perform Step 3 & 4 (PERFORM
TRANSLATION & POST BURN RECONFIC)

(22:40) -X TRANS (30 sec)

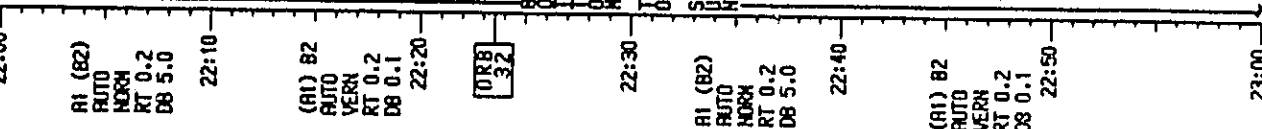
DEL POWER UP (MIL)
R11:H DFI PCH CNT 1,2,3 SCSC (three) - ON

C3 -JDFI RCORS MB MSN - STBY (tb-bp)

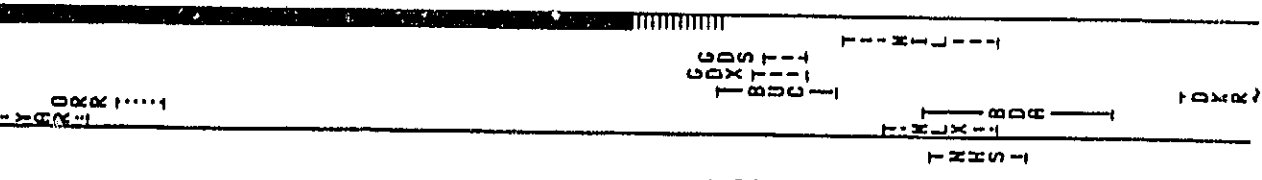
C3 -JDFI RCORS PCH - HI SRAP

DEL POWER DOWN
R11:H DFI PCH CNT 1,2,3 SCSC (three) - OFF

SO.SI STBY



TY AD
PR
ER



TUVTS I



HI PRIORITY MSN
PLT
CDR

NOTES

MCC

ORIGINAL PAGE 1
OF POOR QUALITY

ASCENDING NODE
ORB: 33
MET: 001:23:53:58
LON: 177.9 E

CBS_DEACTIVATION_PREP. (Due Card)
(FSO S435-01)

MEBL_PREP (Due Card)
Prepare DAY 3, MERL B

CBSIN_STDM
(ORBIT OPS C/L, CBSL SYS)

REPAIRORS STDM/REPLY
(ETO 466-01)
(ORBIT OPS C/L, ELBO. EIM's)
Perform Step 1 - STDM RADIATORS

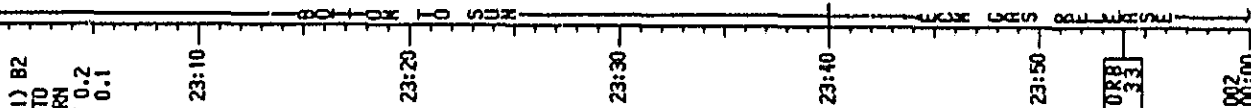
ELBO_MWRW_TO_TECH_CBS_RELEASE
TGT ID + 2
BODY VECTOR + 5
Y + 0
ON + 270
OR + 90
DAP: R/AUTO/VERH
(23:40) Initiate TRK

TECH_CBS_RELEASE (FSO S431-01)

Altitude invr complete
Change DAP R:
RGT DISC RATE VERN - .007"/sec
DB ATT VERN - 0.5"
DAP: R/AUTO:VERN

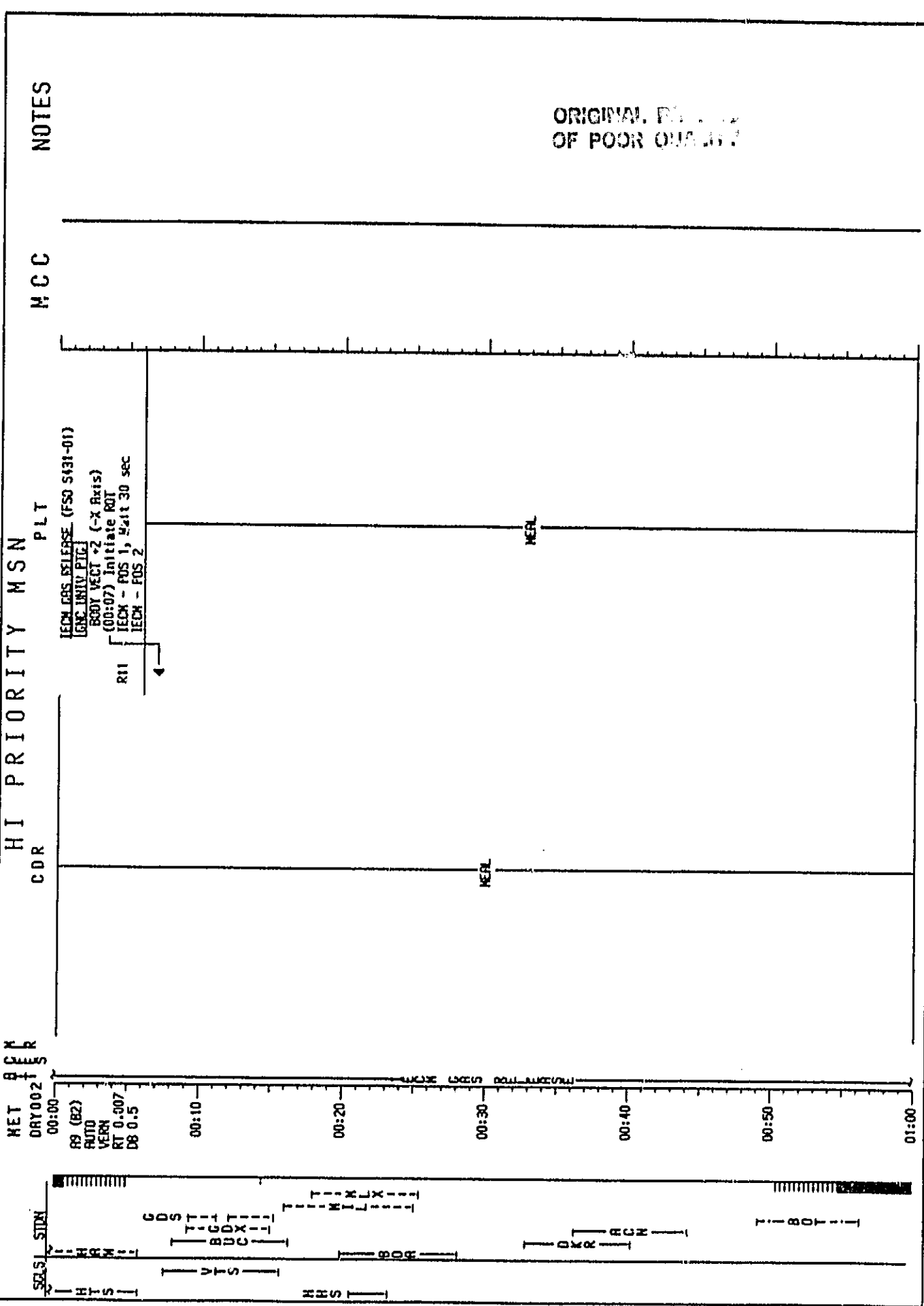
HOUSEKEEPING

NET PER
DAY 001 1 5



5/14/82 SIS/AFR

5-38



HI PRIORITY MSN

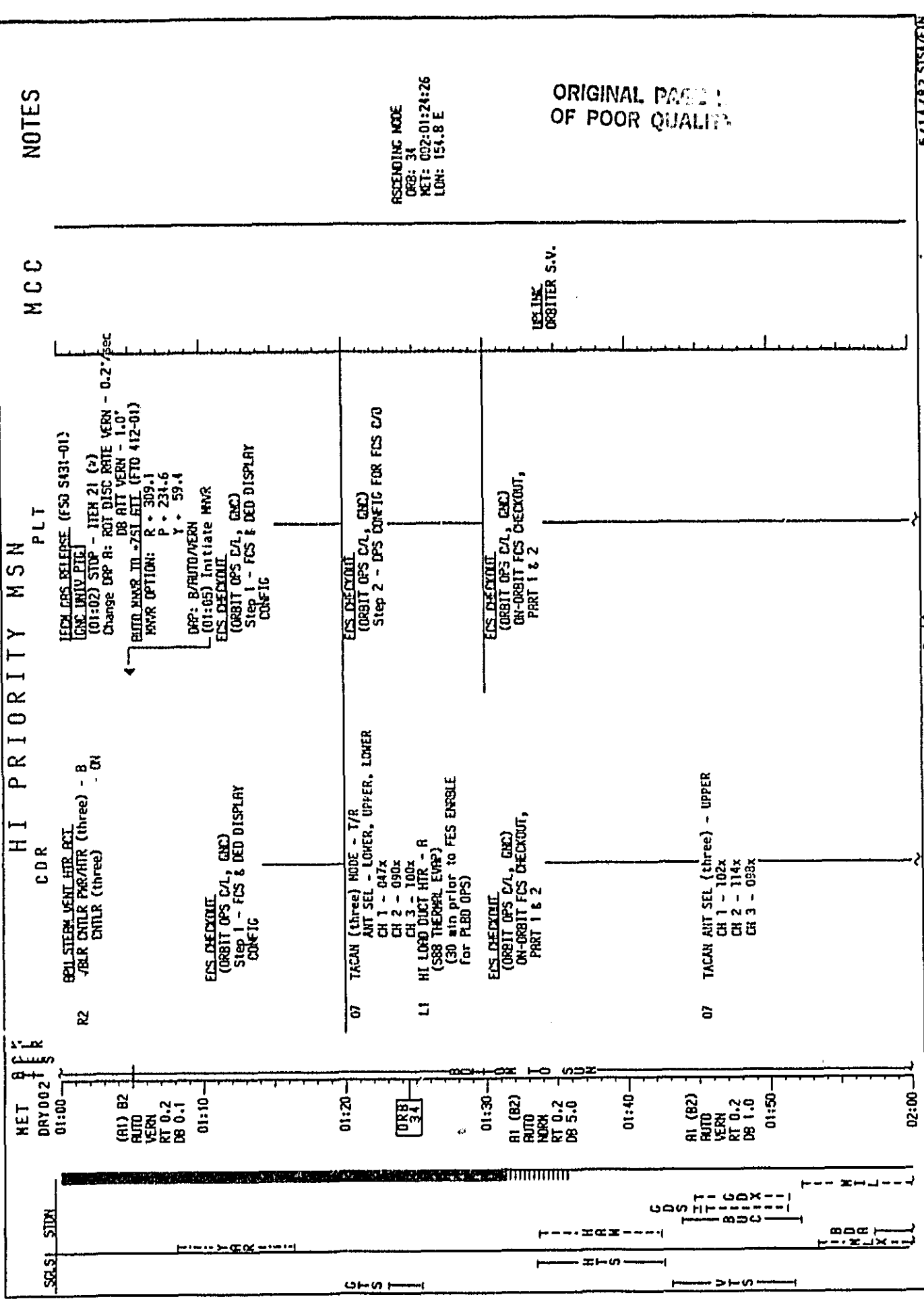
PLT

MCC

NOTES

ORIGINAL PAGE
OF POOR QUALITY

5/14/82 SIS4771R



HI PRIORITY MSN
 CDR ~
 PLT ~
 MET 02:00
 DRY002
 RT 0.2
 VERN
 DB 1.0
 02:10
 (R1) B2
 AUTO
 VERN
 RT 0.2
 DB 0.1
 02:20
 02:30
 02:40
 02:50
 03:00

EIS CHECKOUT
 (ORBIT OPS C/L, GMC)
 EIS CHECKOUT
 (ORBIT OPS C/L, GMC)
 OPS CONFIG TO NOMINAL O/D
 DAF: B/AUTO/VERN
 EIS CHECKOUT
 (ORBIT OPS C/L, GMC)
 FCS & DED DISPLAY RECONFIG
 ELSO PERFORMANCE
 (THERMAL GRADIENT - FTO 451-04)
 (ORBIT OPS C/L, ELSO FTO'S)
 Theodolite sightings
 during PLEBO operations
 ELSO PERFORMANCE
 (THERMAL GRADIENT - FTO 451-04)
 (ORBIT OPS C/L, ELSO FTO'S)
 Theodolite sightings
 during PLEBO operations

SCS
 STIM
 A C N
 B O P
 Y A R T F I
 T G W M L
 T G T S L

ORIGINAL RECORD
 OF POOR QUALITY

M C C
 TPR
 BLOCK DATA
 WEATHER PFD
 8- 9/36-39

NOTES
 ASCENDING NODE
 ORB: 35
 MET: 002:02:54:54
 LON: 131.6 E

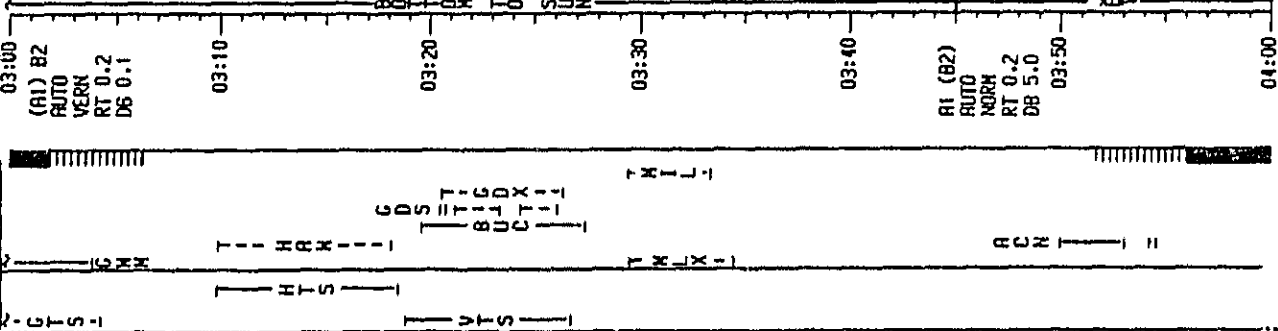
5-41
 5/14782 SIS/2/11

MET
DAY 002
03:00

HI PRIORITY MSN
PLT
CDR
ELBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

MCC
NG.ES

ORIGINAL PARTIAL
OF POOR QUALITY



ELBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

ELBD PERFORMANCE
(THERMAL GRADIENT - FTO 451-04)

AT (02)
AUTO
NORM
RT 0.2
DB 5.0
03:50

ITEM 23 EXEC

ITEM 23 EXEC (no *)
PRIMARY RJD DRIVER (eight) - ON

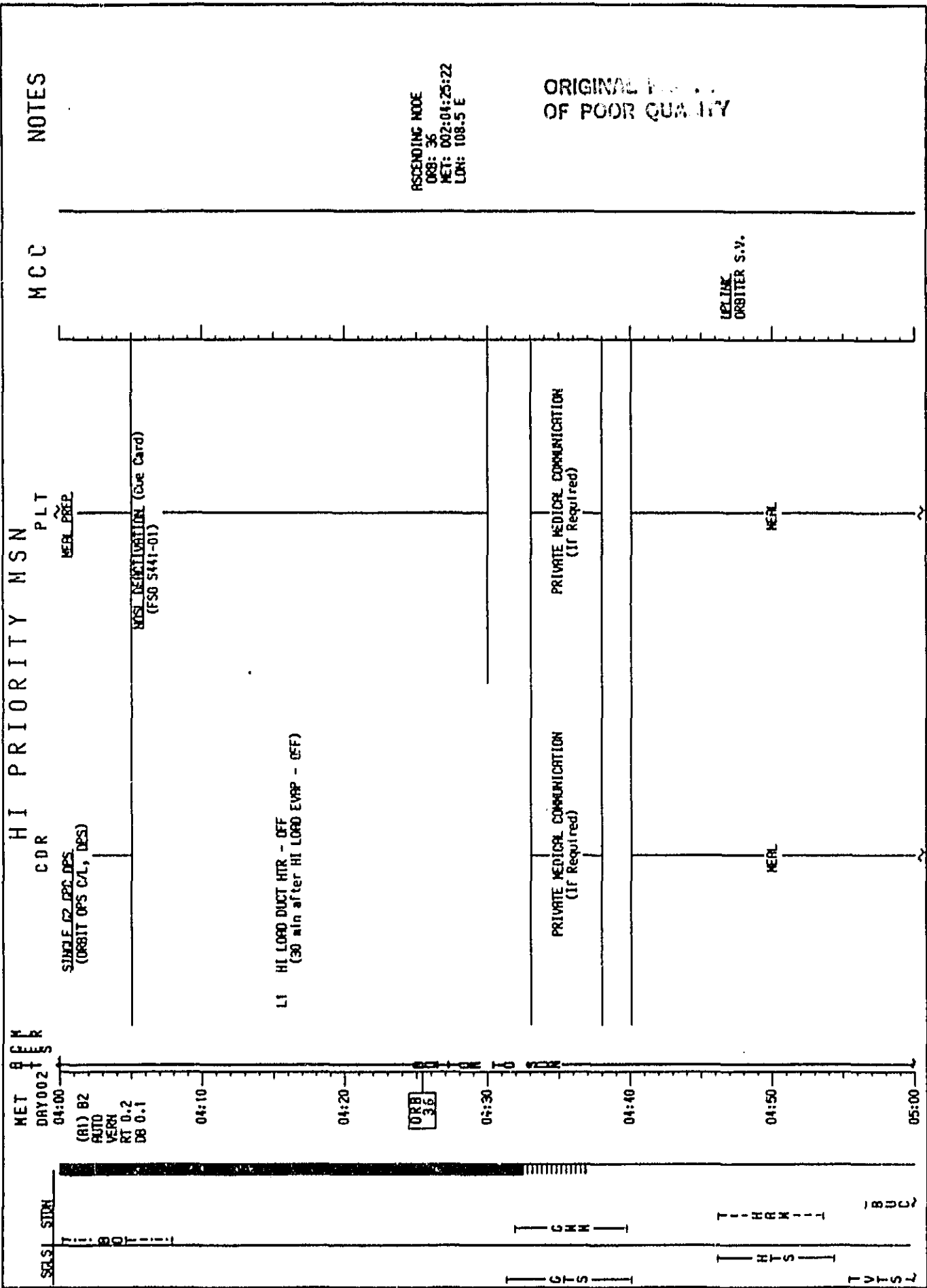
ERCS THERMAL SOAKBACKY (FTO 412-06)
(ORBIT OPS C/L, RES.EID's)

Perform Step 2 (PERFORM TRANSLATIONS)
Limit THC *X
(03:50) -X TRANS (30 sec)

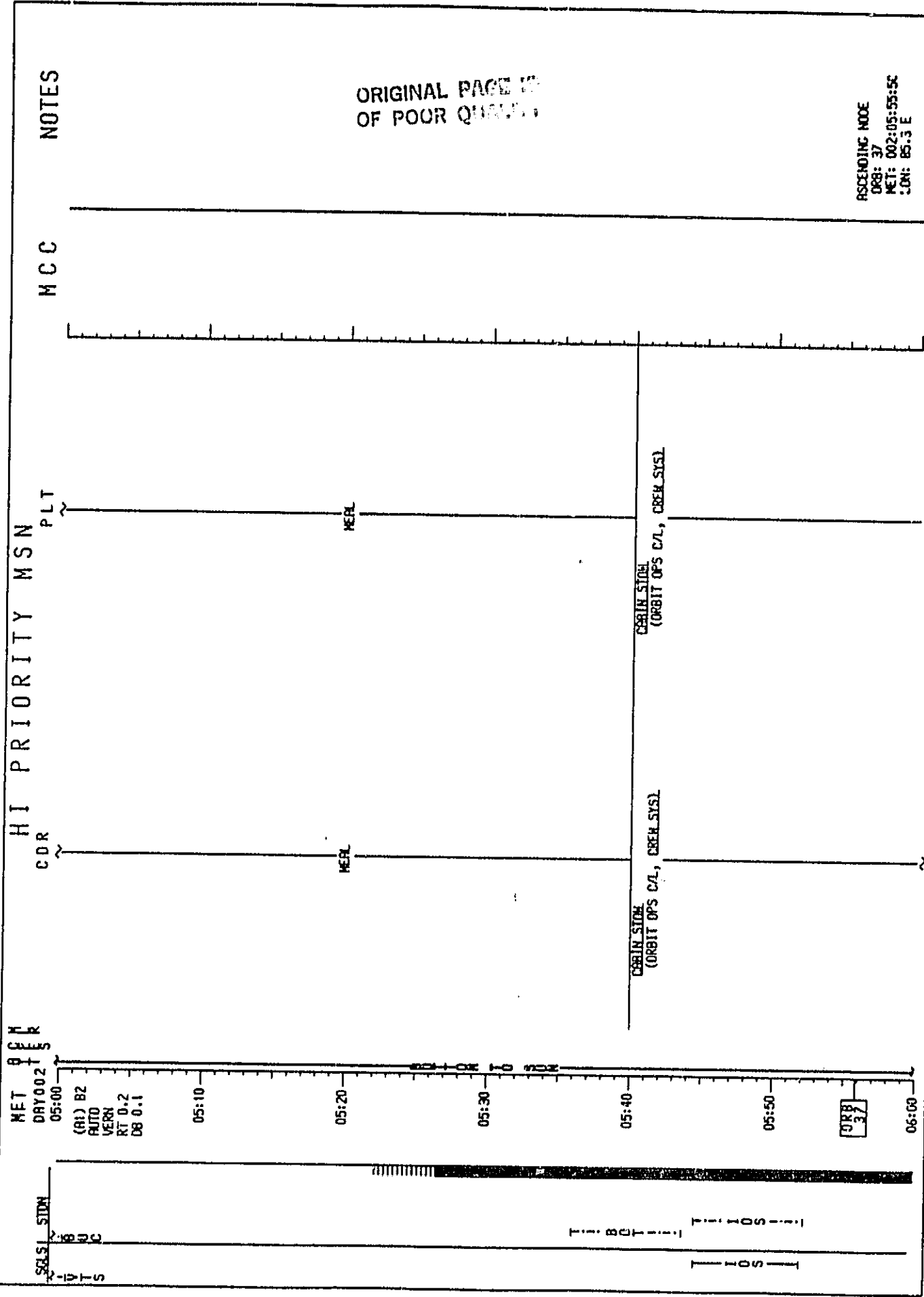
REAR PREP (Cue Card)
Prepare Day 3, HEAL C

C3 /DFI RCDRS NB MSN - STBY (tb-bp)

GAP: B/AUTO/VERN
PRIMARY RJD DRIVER (eight) - OFF
C3 /DFI RCDRS PCN - HI SAMP



5714782 SIS47FIN



ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 37
MET: 002:05:55:56
LON: 85.3 E

5/14/82 SIS47/FIN

5-14

HI PRIORITY MSN

NOTES

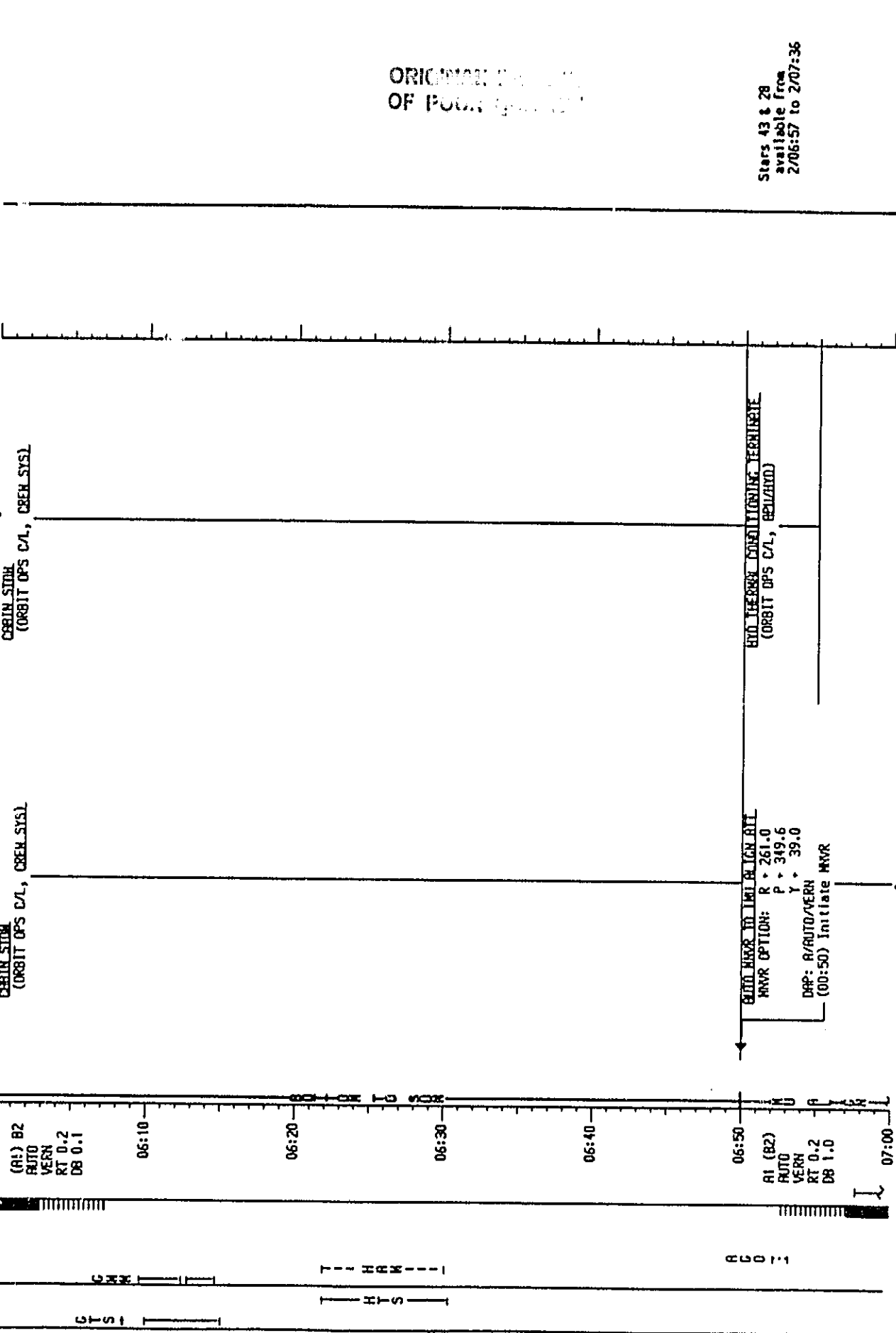
MCC

PLT

CDR

RCM

SCS STDN



ORIGINAL... OF POU...

Stars 43 & 28 available from 2/06:57 to 2/07:36

HI PRIORITY MSN PLT

MET CDR

MCC NOTES

TRK ID	RNC	RNC ERR
A X	()	()
A Y	()	()
A Z	()	()

EXECUTION TIME: / /

LEADIE
H2O SPPLY DUMP
QTY TR A & B

ASCENDING NODE
ORB: 38
MET: 002:07:26:18
LCN: 62.2 E

ORIGINAL PAGE 10
OF POOR QUALITY

5/14/82 STS/77IN

EMERGENCY DEACTIVATION
(OPERATIONS C/L, IRRLE)

GAS DEACTIVATION (Cue Card)
(FSD 5435-01)

STOP GAS FEEDER (Cue Card)

POST OPERATIONS DOCUMENTATION
(OPERATIONS C/L, IRR P2011 R P2015)

NOT ONLY
COORD CUM/FOR
LIMITS CLEANUP
FOR CREW
SLEEP

UPLINE
SPC LOGO -
1ST DOWN
ALERT
CND
RODR SLEEP
CONFIC

INITIALISEMENT - 5 TRX
(ORBIT OPS C/L, GNC)
STRK ID: -Y: 43, RRSALHAGUE
-Z: 28, AL NA'IR
RNC DIF: 85.0
REPORT: INITIALISE RESULTS
0.4 DEL/SEC PID XPR - INITIATE
(FTO 412-01)
MNR OPTION: R: 165.8
P: 232.6
Y: 58.3
DAP: A/AUTO/VERN
(07:10) Initiate MNR

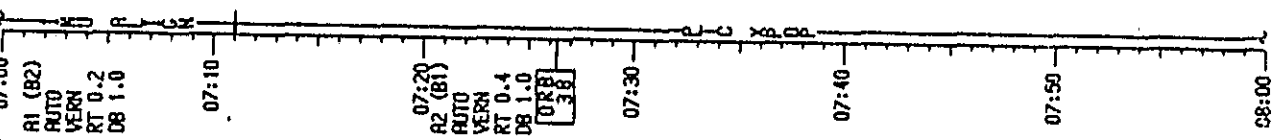
When MNR to PTC ATT complete,
CHANGE DAP A:
ROT DISC RATE VERN - 0.4 /SEC
CHANGE DAP B:
DB ATT VERN - 1.0
BODY VECT +4
(07:30) Initiate ROT

ERS/GRES, VERBA, SVERBA (PTO 412-86)
(ORBIT OPS C/L, RCS FID's)
Perform Step 3 (RECONFIG TO NOMINAL)

SUPPLY WATER DUMP
(ORBIT OPS C/L, ECLS)
Dump TRS A & B
Dump to:
QTY A = QTY B =
EIEL CELL PURGE - FLOOD (Cue Card)

CABIN TV STOR
MF57E/ Stow both cameras
MF57C

DAY 002



SALS STOR

C N M I

H R A M T L

T C T S I

H T S I L

NOTES

MCC

ORIGINAL PAGE 03
OF POOR QUALITY

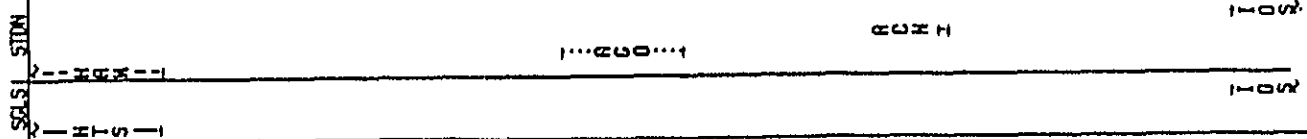
ASCENDING NODE
ORB: 39
MET: 002:08:56:46
LON: 39.0 E

571178Z STS471H

5-17

HI PRIORITY MSN
PLT
CDR

MET
DAY002
08:00
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0



EYE/SMOKE DETENT/SUPPRESS TEST
(ORBIT OPS C/L, EES)

EMULATOR, C/L FIRE TEST
(ORBIT OPS C/L, EES)

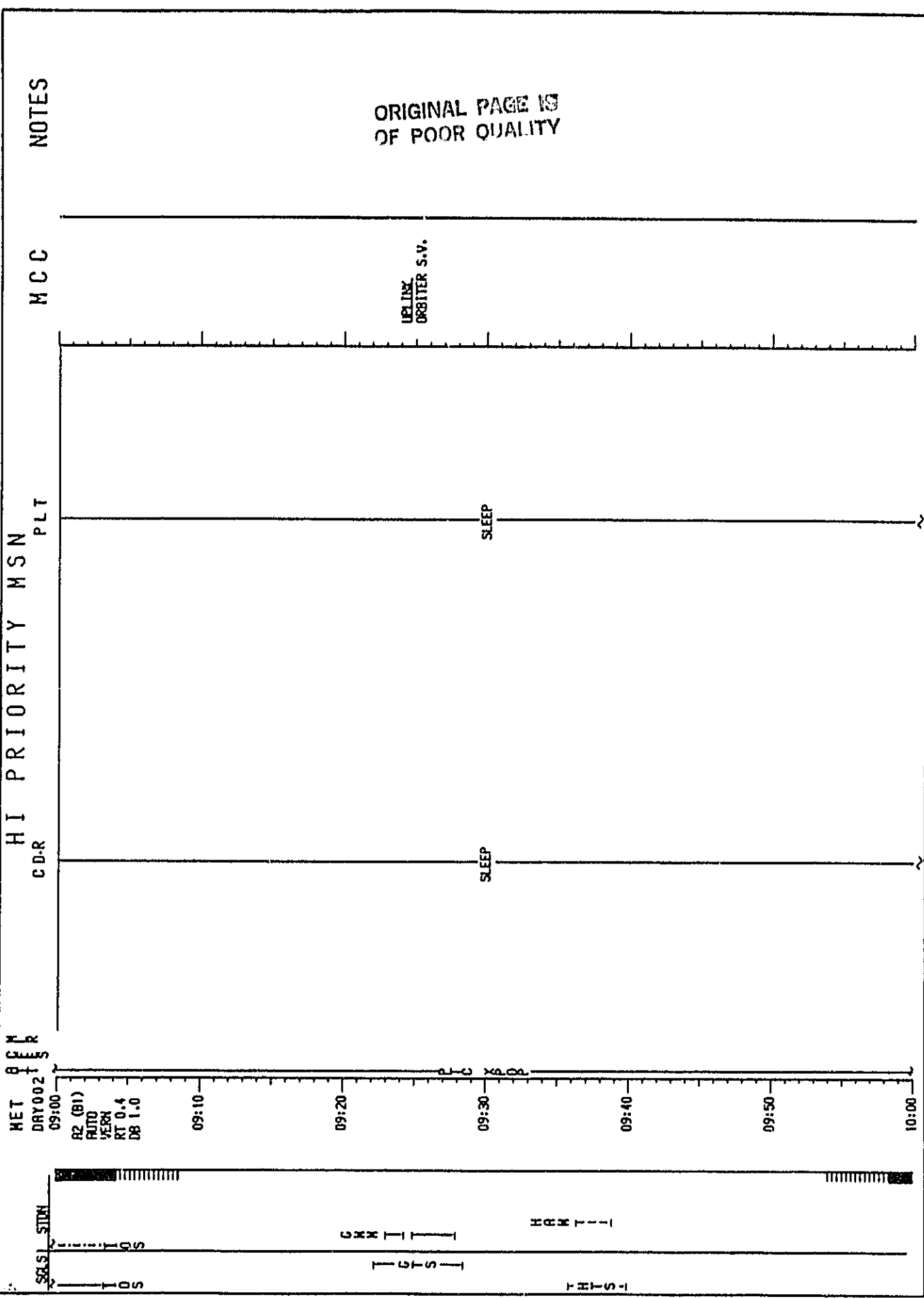
C02 PASSENGER REPLACEMENT
(5 into 8)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

TPR
BLOCK DATA
WEATHER PRO
B- 10/40-43

C3 JDFI RCORS PCK - LO SRMP



ORIGINAL PAGE IS
OF POOR QUALITY

NOTES

MCC

PLT

HI PRIORITY MSN

CDR

HET
GEM
DRY002
09:00

RZ (B1)
AUTO
VERN
RT 0.4
DB 1.0

09:10

09:20

09:30

09:40

09:50

10:00

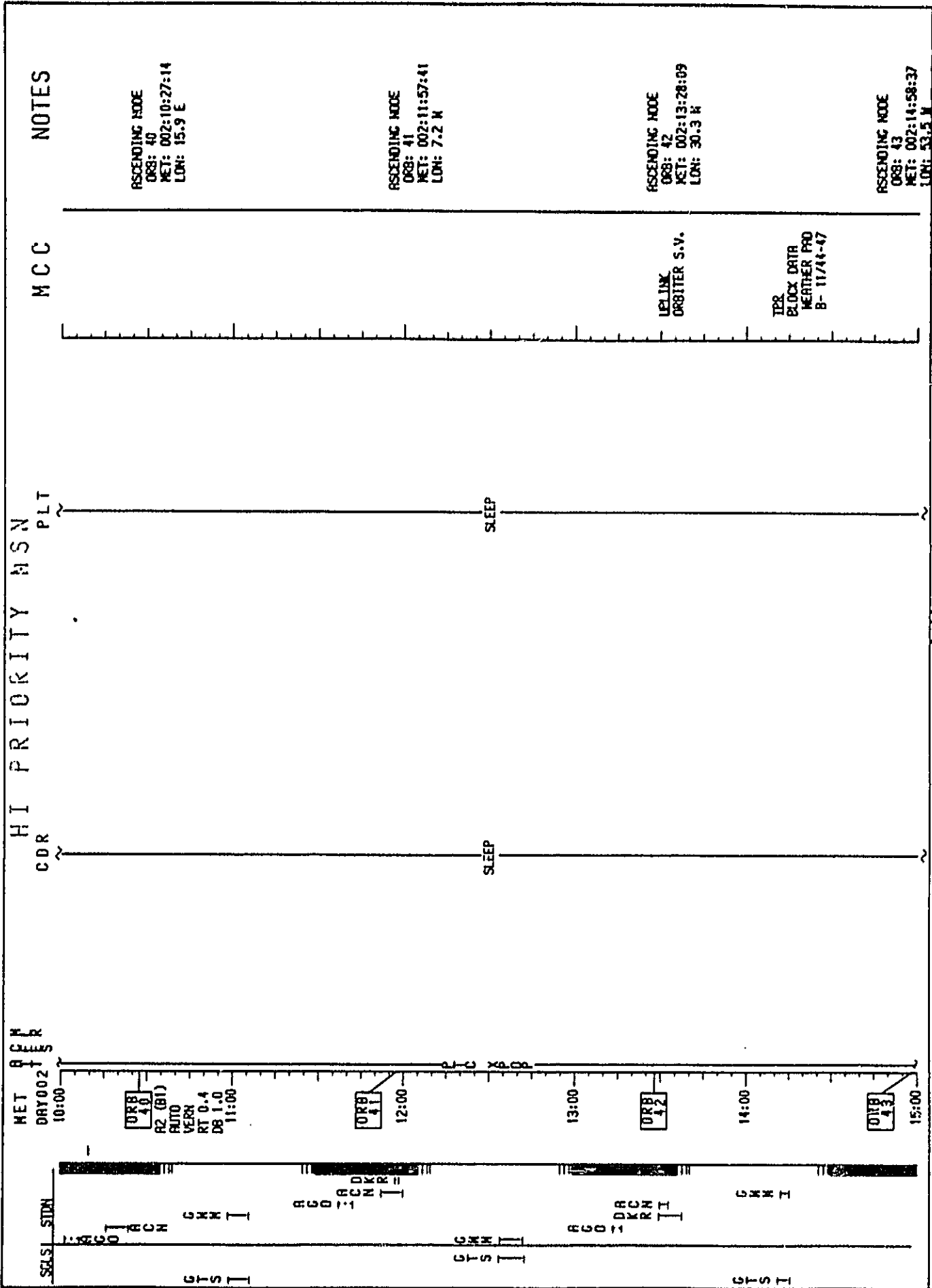
SLEEP

SLEEP

UPLINK
ORBITER S.V.

5-48

5711782 S15K7FIR



ORIGINAL PAGE IS
OF POOR QUALITY

5/14/82 S154/F1R

NOTES

MCC

HI PRIORITY MSN PLT
CDR

MET
DRY 002
15:00

RZ (B1)
RUTO
VERN
RT 0.4
DB 1.0

15:10

15:20

15:30

15:40

15:50

16:00

SCALE SUM

OKR HARD I

SLEEP

SLEEP

PLC X 6.00

5-50

HI PRIORITY MSN
CDR
PLT

NOTES

MCC

ASCENDING MODE
DRB: 44
MET: 002:16:29:04
LON: 76.6 N

ORIGINAL PAGE 13
OF POOR QUALITY

CMO
RDR PARVE
CON TIC
UPLINK
SPC LOAD-
CLEAR COM
ALERT

SLEEP

SLEEP

MET 0 C M
DRY002
16:00
RZ (BI)
AUTO
VERN
RT 0.4
DB 1.0

SLSI STDN

M
DRD
R
T
M
R
X
I

DRB 44

HI PRIORITY MSN

CDR

PLT

MET
DRY002
17:00

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

NOTES

MCC

URGENT
H2O SPLY DUMP
QTY TK A & B
UNDECK CREW
SM CRPT -
REQD/NOT REQD

ORIGINAL PAGE 19
OF POOR QUALITY

ASCENDING NODE
ORB: 45
MET: 002:17:59:32
LDR: S9A H
57147825154714

SQSI STDN

RZ (B1)
AUTO
VERN
RT 0.4
DB 1.0

17:10

17:20

17:30

17:40

17:50

18:00

ORB
45

HI PRIORITY MSN

PLT

CDR

MET OPER

SQSL STDR

NOTES

MCC

TELEPRINTER MESSAGE REVIEW

TELEPRINTER MESSAGE REVIEW

UPLINK ORBITER S-V.

Stars 40 & 25 available from 2/18:25 to 2/18:45

AUTO MODE TO IMU ALIGN BIT
MNR OPTION: R * 165.8
 P * 252.3
 Y * 49.1
CHANGE DPP R: ROT DISC RATE VERN - 0.2/sec
DAP: A/AUTO/VERN
(18:15) Initiate MNR

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
IMU ALIGNMENT - S.TRX
(ORBIT OPS C/L, GNC)
STAR ID: -1: 40, MTRFK
 -2: 25, REGULUS
RNC DIF: 87.5
REPORT: IMU ALIGN RESIDUIS
BLIND MNR ID - XSL BIT
MNR OPTION: R * 162.4
 Y * 283.2
 Y * 335.6
DAP: A/AUTO/VERN
(18:40) Initiate MNR

AL31C WSC VENT NOZ HTR - OFF
RS/C6 Unstow DEGRBIT PDP (2)

EUEL CELL PURGE - RUID (Cue Card)

SWEEP RATE DIBZ
(ORBIT OPS C/L, EELS)
Dump TKS R & B
Dump to:
QTY R = QTY B =

Changeout wireless headset battery pack

RPT: IMU ALIGN RESULTS

IMU ALIGN EFD

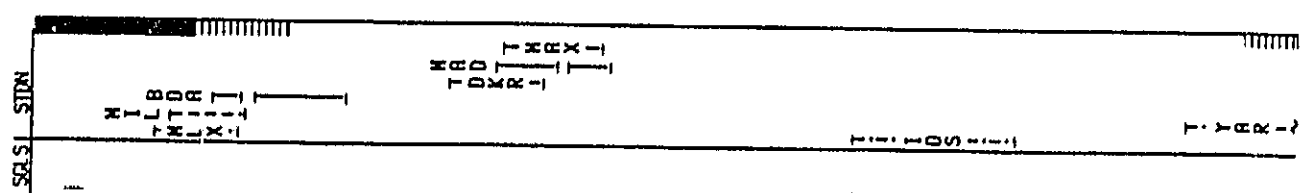
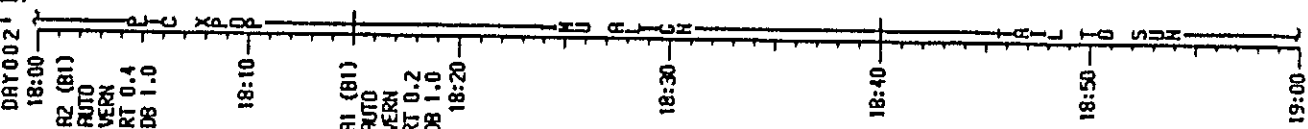
TRX ID 1 RNC EPR 3
RNC 1 RNC EPR 2

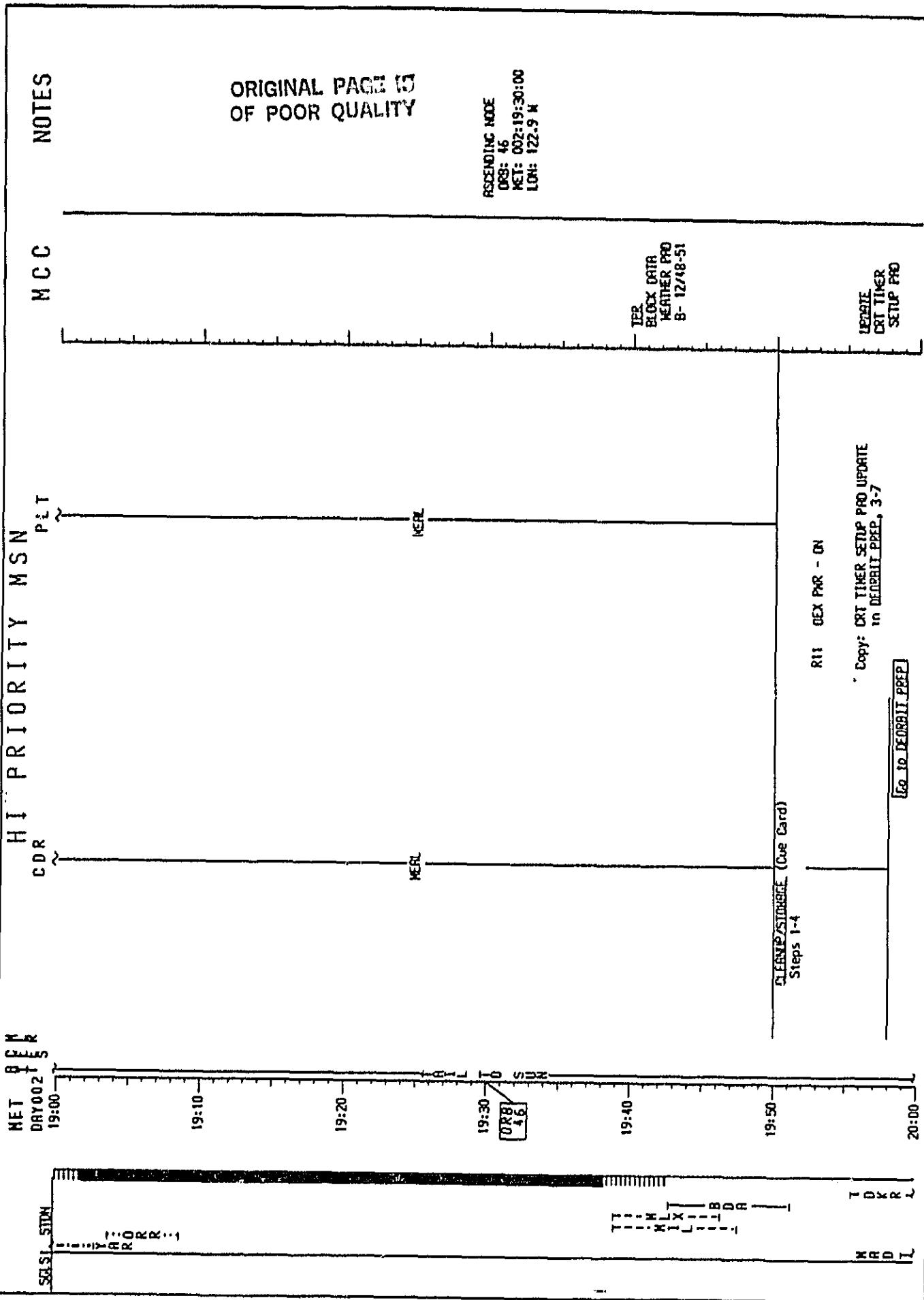
A X () ()

A Y () ()

A Z () ()

EXECUTION TIME: / -





571178231507IN

ONE-DAY EXTENSION

The STS-4 Extension Timeline is designed to follow a nominal flight up to the decision point for the 24 hour extension. This GO/NO GO decision point occurs at MET 6/00:25, prior to entry-related activities for the nominal flight.

Also, this timeline may be used after the D/O PREP BACKOUT has been executed on FD 8.

24 HOUR EXTENSION CASE:

- o Execute detailed timeline pages from 6/00:00 to Deorbit Prep on FD 9
- o A period of time with no scheduled activities is provided immediately following the GO/NO GO to allow preparations for the extension of the flight.

AFTER DEORBIT PREP BACKOUT CASE:

Begin timeline at 7/00:30 with the following changes:

- o CDR - MCC will modify PTC to -ZLV as required (5-83); omit CABIN TV STOW at 7/04:15 MET
- o PLT - Omit all activities between MET 7/02:10 and 7/04:20 (i.e., P/L DEACT, CABIN STOW, CO₂ ABSORBER REPLACEMENT)

ONE-DAY
EXTENSION

ORIGINAL PAGE NO
OF POOR QUALITY

GHT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE		FLIGHT	EDITION	PUB. DATE
						(D:H:M)	(D:H:M)			
185:03:00	006:12:00	007:00:00	7/184	18.8		JULY 4, 1982	STS-4	FINAL		05/14/82
<p>GHT : 185 FD 7 MET : 006 17</p>										
<p>CDR</p>										
<p>PLT</p>										
<p>DAY/NIGHT</p>										
<p>ORBIT</p>										
<p>EARTH TRACE W/SRA</p>										
<p>CSTDN COVERAGE</p>										
<p>SGLS COVERAGE</p>										
<p>OPS</p>										
<p>DEORB KSC EDM</p>										
<p>ATTITUDE</p>										
<p>MANEUVERS</p>										
<p>TV/VTR</p>										
<p>CFES</p>										
<p>MLR</p>										
<p>NOTES:</p>										

0 FTD 451-03 PL80 COLD CASE PERFORMANCE
 0 FTD 412-01 ATT HOLD THERMAL RESPONSE
 0 STRKR SELF TEST
 0 FTD 471-01 S-BRO & UFF RAT PATTERNS

ORIGINAL PAGE IS
OF POOR QUALITY

GHT (D:H:M)	MET (D:H:M)	CDT (D:H:M)	FD/DOY	BEHA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE											
186:03:00 / 186:15:00	007:12:00 / 008:00:00	185:22:00 / 186:10:00	8 / 185	CDT 22.7		JULY 5, 1982	STS-4	FINAL	05/14/82											
TIC																				
GHT: 186	FD 9	13	5	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
MET: 007	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
CDR	SLEEP	POST SLEEP (TR MSC) REVIEW	POST SLEEP (TR MSC) REVIEW	MERL	MERL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING
PLT	SLEEP	POST SLEEP (TR MSC) REVIEW	POST SLEEP (TR MSC) REVIEW	MERL	MERL	SUIT DOWN	SUIT DOWN	SUIT DOWN	SUIT DOWN	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING	PLBD CLOSING
DRY/NIGHT																				
ORBIT	120	121	122	123	124	125	126	127	128											
HOOR UP/DOWN																				
EARTH TRACE W/SAR																				
GSTON COVERAGE																				
SGLS COVERAGE																				
OPS																				
DEORB XSC EDH																				
ATTITUDE																				
MANEUVERS																				
LV/VTR																				
MLR																				
NOTES:	<ul style="list-style-type: none"> o STRGR SELF TEST o LAST MERL CLEARUP o ENTRY CONFIG o NO SW LIST VER o POST CLOSING o LAST MERL CLEARUP o PLBD CLOSING o POST CLOSING 																			

STS-4 DETAILED

CDR

PLT

NOTES

NET RCM
DRY006
PLT

00:00

00:10

00:20

00:30

00:40

00:50

01:00

R4 (B2)

R400

NURH

RT 0.2

D8 5.0

ORB
97

BOTTOM TO SENS

SCALE STDN

MARK

CHM

HRM

GDS
TTT
BIGXII
BUTXII
TII

TH
LL
LX

CTS

HTS

VTS

MCC

INDEGR CREW
FD 8 CO /NO GO

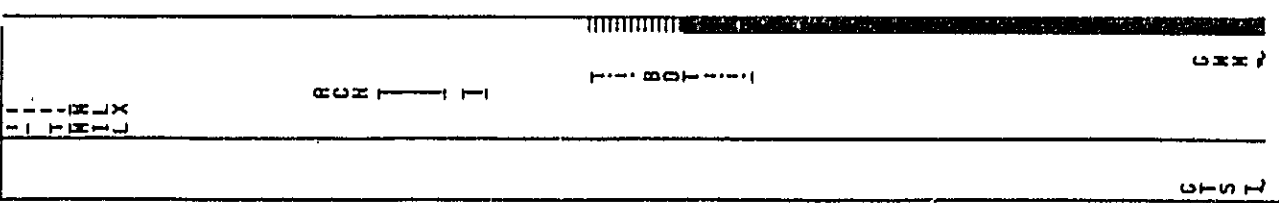
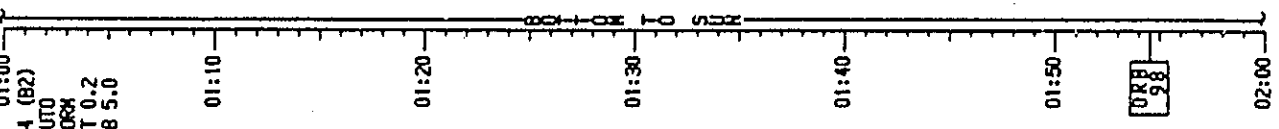
FD 8 CO/NO GO

ASCENDING NODE
ORB: 97
MET: 006:00:24:04
LON: 136.6 E

ORIGINAL SOURCE
OF POOR CONTROL

STS-4 DETAILED PLT

CDR
MET
DRY006
01:00



NOTES

MCC

ASCENDING MODE
D88: 98
MET: 005:01:54:32
LON: 113.5 E

STIS

CDR STS-4 DETAILED PLT

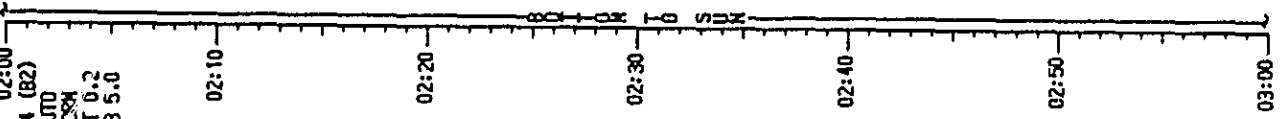
NOTES

ORIGINAL TABLE
OF POOR QUALITY

MCC

TPR
BLOCK DATA
WEATHER PRO
B-25/101-104

NET PER
DRY006



SGS1 STDN

ST S

H T S

V T S

H R A K

CG
TAXS
RTT
G I

NERL PREP (Cue Card)
Prepare DAT 7, NERL C

STS-4 DETAILED

CDR

PLT

NOTES

MCC

CM

DRY006

03:00

R4 (B2)

AUTO

NRCH

RT 0.2

DB 5.0

03:10

03:20

03:30

03:40

03:50

04:00

03:29

SUPPLY WATER JUMP
(ORBIT OPS C/L, ECLS)
Dump TKS A & B
Dump to:
QTY A = QTY B =

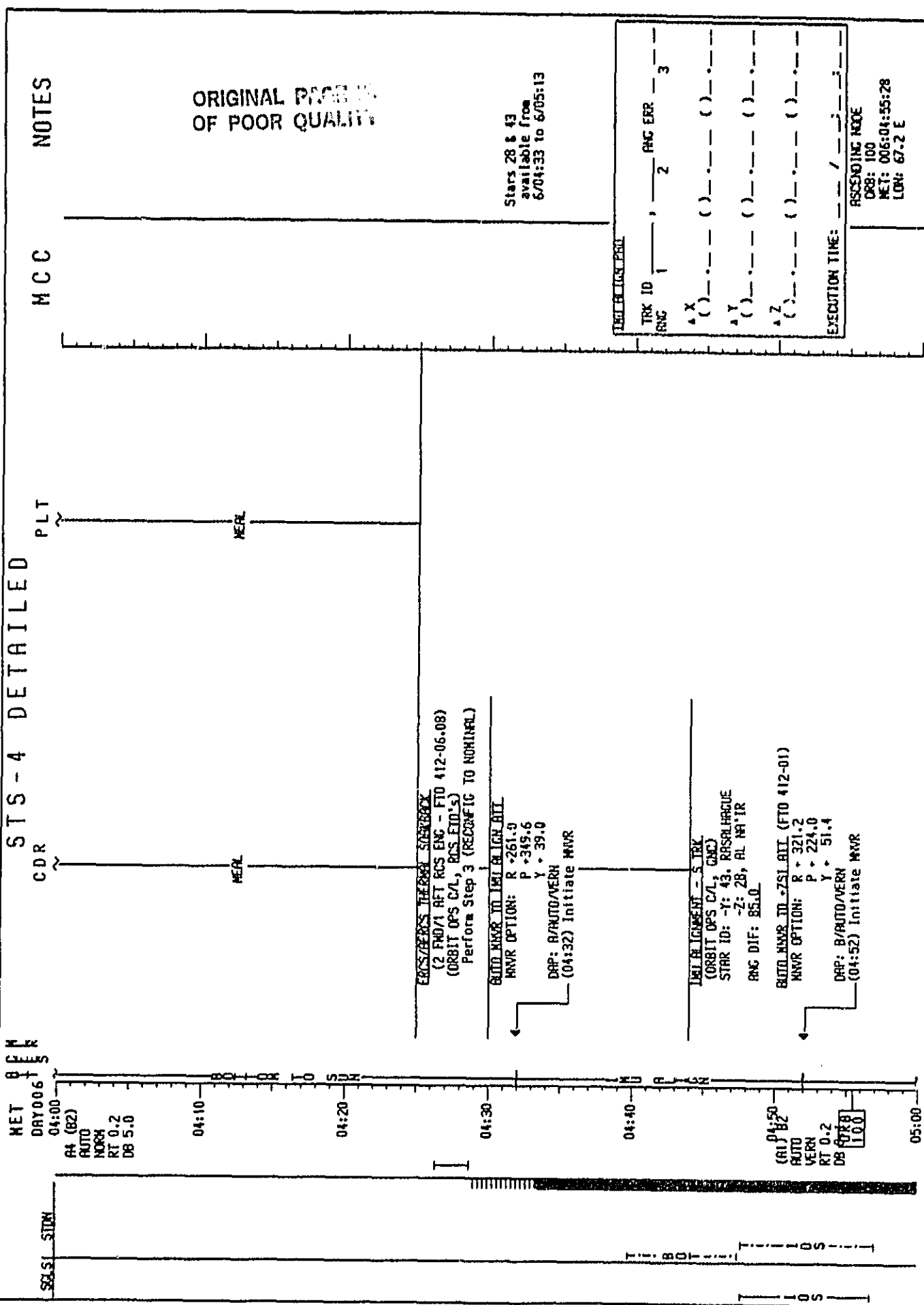
UPDATE
H2O SPLY DUMP
QTY TKS A & B

ASCENDING NODE
ORB: 99
MET: 006:03:25:00
LON: 90.3 E

ORIGINAL PRINT
OF POOR QUALITY

MERL

MERL



STS-4 DETAILED

MET OPS CENTER

NOTES

MCC

PLT

CDR

SELSI STDA

05:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

AUTO MANR TO 751 BIT

SINGLE G2 OPT OPS
(ORBIT OPS C/L, DES)

05:10

05:20

05:30

05:40

05:50

06:00

UPLINK
ORBITER S.V.

CO2 ABSORBER REPLACEMENT
(9 Into R)

ELEI CELL PURGE - FLOOD (Cue Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL PAGE
OF POOR QUALITY

STS-4 DETAILED

MET
DAY 006
06:00
(A1) B2
AUTO
TS VERN
A RT 0.2
A D8 0.1

SGLS
STDN
T I I O S I I I
G M H I I I
T I I S I I

CDR

PLT

NOTES

MCC

MCC ONLY
COORD CSM/FDA
LIMITS CLEANUP
FOR CREW SLEEP

PRE SLEEP ACTIVITY

PRE SLEEP ACTIVITY

SLEEP

SLEEP

ASCENDING NODE
DRS: 101
MET: 006:56:25:56
LON: 41.0 E

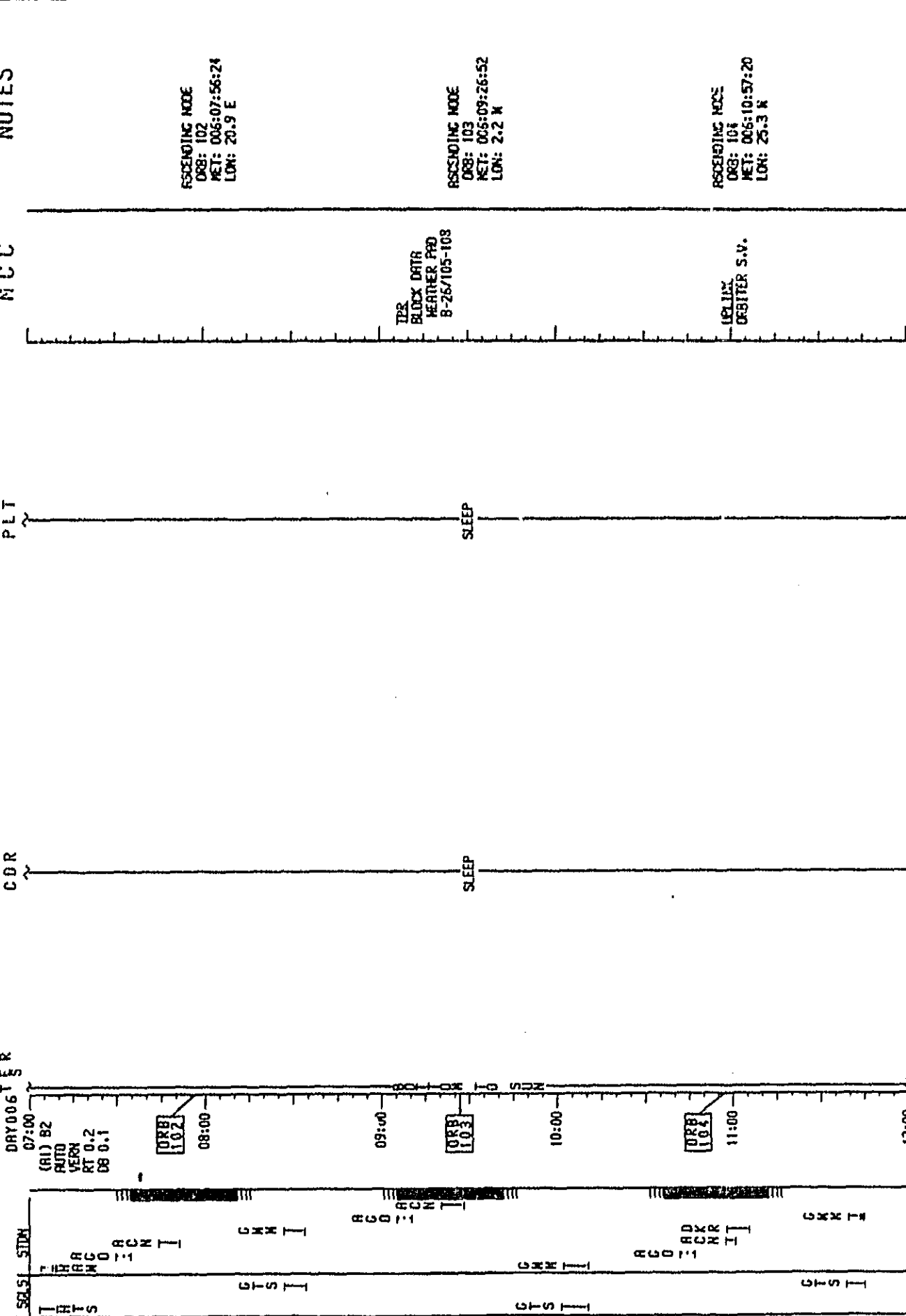
ORIGINAL TIME
OF POS: 0000

UPLINK
SPC LDRD -
1ST COMM
ALERT
UPLINK
SPC LDRD -
10S COMM
CSEL
RCOR SLEEP
CONFIC

STS-4 DETAILED

MET
DRY006
07:00
(RI) 82
AUTO
VERM
RT 0.2
DB 0.1

SCS1 STDN
T H R C
W O
A C N I
G M N I
G S I I



NOTES

MCC

PLT

CDR

ASCENDING NODE
ORB: 102
MET: 006:07:56:24
LON: 20.9 E

ASCENDING NODE
ORB: 103
MET: 006:09:26:52
LON: 2.2 N

ASCENDING NODE
ORB: 104
MET: 006:10:57:20
LON: 25.3 N

TPR
BLOCK DATA
WEATHER PAD
8-25/105-108

UPLINK
ORBITER S.V.

SLEEP

SLEEP

ORB
102

ORB
103

ORB
104

ASCENDING NODE

ASCENDING NODE

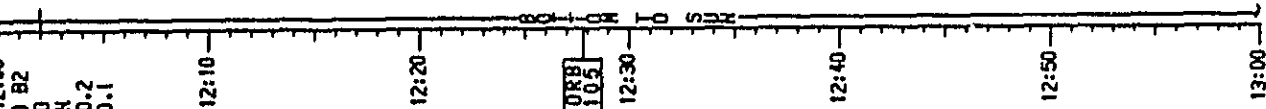
ASCENDING NODE

ASCENDING NODE

STS-4 DETAILED

MET
DRY006
12:00
(R1) B2
AUTO
VERA
RT 0.2
DB 0.1

SCS1 STDN



DB 0.2
RT 0.2

CDR

SLEEP

PLT

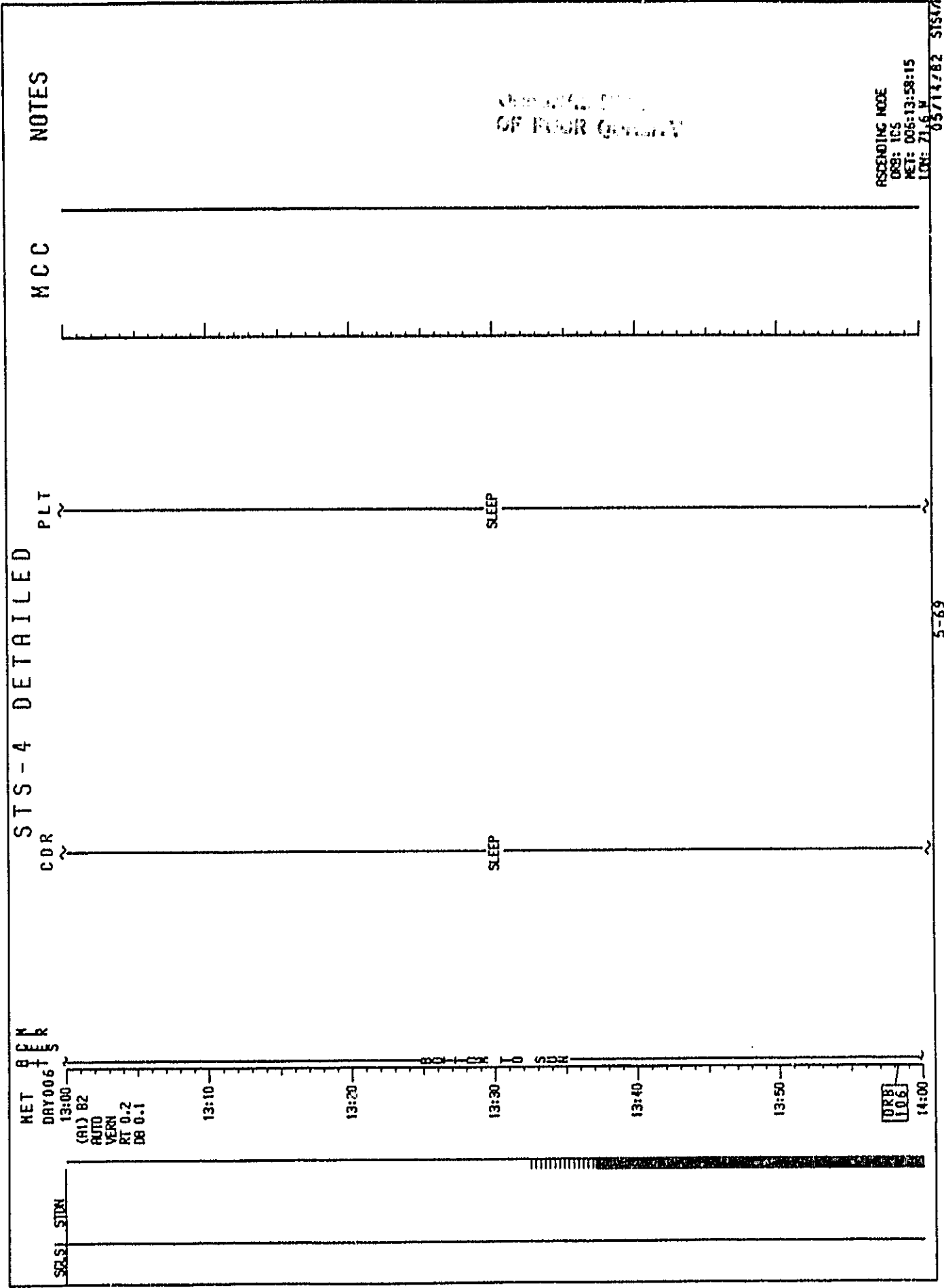
SLEEP

NOTES

ASCENDING MODE
DB: 1.05
MET: 006:12:27:48
LON: 48.5 N

ORIGINAL PRINT
OF POOR QUALITY

MCC



NOTES

MCC

OF FOUR GENERATION

ASCENDING NODE
 OSB: 1CS
 MET: 006:13:58:15
 LON: 71.6 W

STS-4 DETAILED

NOTES

MCC

PLT

CDR

CMR

ORIGINAL FRAME
OF POOR QUALITY

UNLINK
SPC LOAD -
CLEAR DOWN
ALERT
CMD
RCOR. PWAKE
CONFIC

LINEORL CREW
SR CKPT -
REDO/NOT REDO

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

MET
DAY006

14:00
(R1) 82
AUTO
VERN
RT 0.2
DB 0.1

14:10

14:20

14:30

14:40

14:50

15:00

SCALE STDN

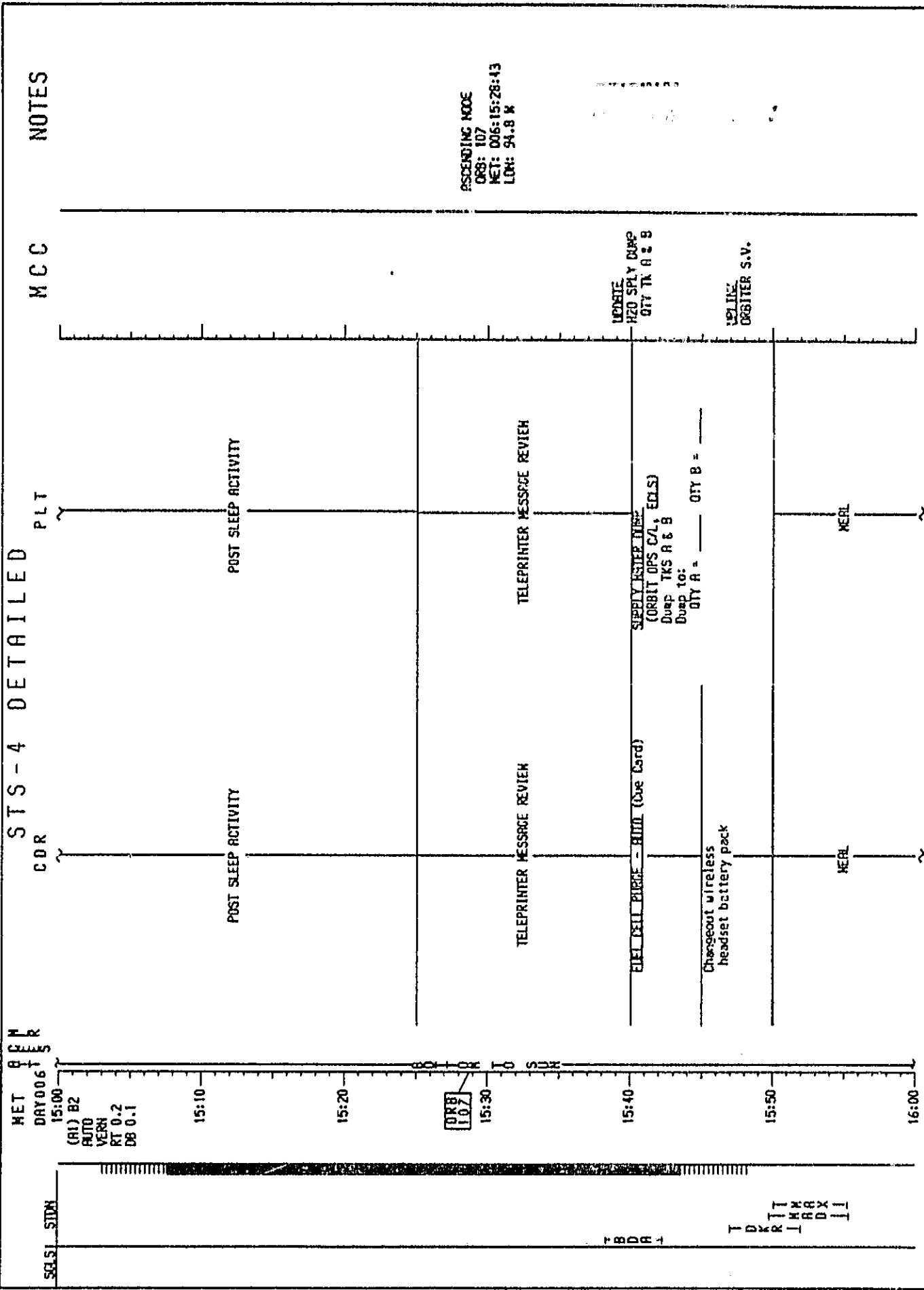
OH
KARD
T MAX I

Y A R T T

05714782 SIS4/FIN

5-70

STS-4 DETAILED



NET 15:00
DAY 006
(R1) B2
AUTO
VERN
RT 0.2
DB 0.1

SOLS STDN

CDR

PLT

NOTES

MCC

ORIG 107

F B D A

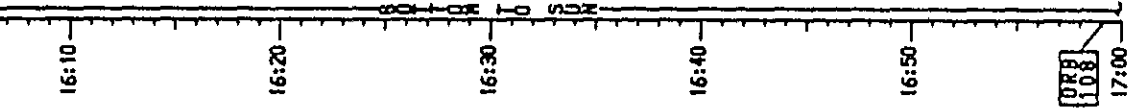
T D K R I
M H A R
A X
D X
I I

STS-4 DETAILED

MET
DAY 006
16:00

(AU) B2
AUTO
VERN
RT 0.2
DB 0.1

SELSI STDM



CDR

MEAL

PLT

MEAL

MCC

NOTES

ORIGINAL PAGE 1/3
OF POOR QUALITY

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD EIO's)
Theodolite sightings
during PLBD operations

PLBD PERFORMANCE
(PLBD COLD CASE - FTO 451-03)
(ORBIT OPS C/L, PLBD EIO's)
Theodolite sightings
during PLBD operations

ORR
108

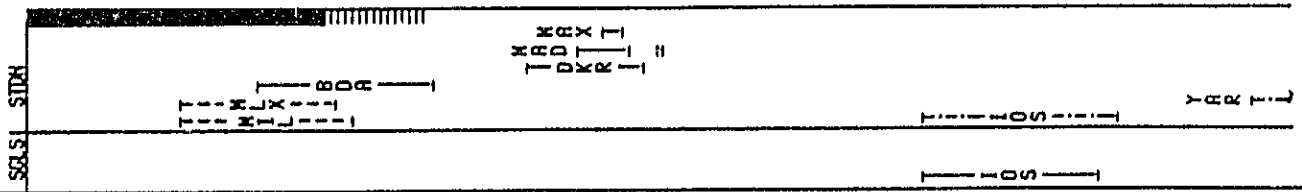
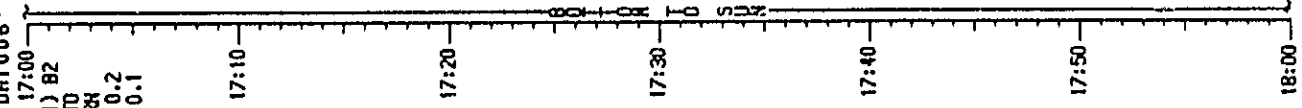
ASCENDING NODE
ORB: 108
MET: 006:16:59:11

LOM: 117.9 N
05/14/82 SIS/FIN

STS-4 DETAILED

MET 8 5 4 M
 CLEAR
 DAY06

17:00
 (A1) BZ
 AUTO
 VERA
 RT 0.2
 D8 0.1



CDR

PLBD PERFORMANCE
 (FTO 451-03)

PLT

PLBD PERFORMANCE
 (FTO 451-03)

MCC

TPR
 BLOCK DATA
 WEATHER PRO
 B-27/109-112

NOTES

ORIGINAL DRAWING
 OF POOR QUALITY

STS-4 DETAILED

NET
DAY 006
18:00

(A1) B2
AUTO
VERN
RT 0.2
DB 0.1

18:10
A1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

18:30
ORB
10.9

18:40

18:50
R2 (B1)
AUTO
VERN
RT 0.4
DB 1.0

19:00

CDR

PLBO PERFORMANCE
(FTO 451-03)

AUTO MVR TO PLR IN BIT
MVR OPTION: R + 252.9
P - 252.5
Y + 348.9
CHANGE DAP B: DB ATT VERN -1.0
DAP: A/AUTO/VERN
(18:12) Initiate MVR

STAR TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
ALIGNMENT - S TRK
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 41, DENEBOUR
-Z: 34, HIPPLACIOUS
RNC DIF: 88.6

S TRK THRESHOLD VERIFICATION (FTO 473-02)
ORBIT OPS C/L, GNC
STAR ID: -Z: 34, HIPPLACIOUS -Y: 41, DENEBOUR
THOLD - 3(2,1,0)
✓ 5 TRK THOLD -Z, -Y, -O
0.4 DEG/SEC PTC XPRP - INITIATE
(FTO 412-01)
MVR OPTION: R + 289.4
P + 226.8
Y + 52.5
DAP: A/AUTO/VERN
(18:42) Initiate MVR

When MVR to PTC ATT complete,
CHANGE DAP A:
ROT DISC RATE VERN - 0.4 /SEC
BODY VECT +4
Initiate ROT

PLT

PLBO PERFORMANCE
(FTO 451-03)

EXERCISE

CABIN TV SETUP (TWOZ-EVA DEMO)
(PHOTO/TV C/L, IV SCENES)

MCC NOTES

Stars 41 & 34
available from
6/16:09 to 6/16:58

TIME/BLK/PAL

TRK ID 1 _____ RNC ERR 3
RNC _____ 2 _____
A X _____ () _____ () _____
A Y _____ () _____ () _____
A Z _____ () _____ () _____

EXECUTION TIME: _____ / _____

ASCENDING MODE
ORB: 109
MET: 08:18:29:39
LON: 141.1 W

S TRK THRESHOLD PRO

S TRK _____ STAR ID _____

RNC THOLD _____
MET _____
(D:HH:MM) : : _____

S TRK THRESHOLD PAD

S TRK _____ STAR ID _____

ASD THOLD _____
MET _____
ID:INITIATED _____

ORIGINAL PAGE NO.
OF 7005 QUALITY

05/14/82 SISV/EN

5-74

SELS STDR

T M H S :

T T
I I
M M
L X
I I
I I
B B
A A
D D
K K
R R

STS-4 DETAILED

CDR

PLT

NOTES

MCC

MET OPER

DRY006

MEN PREP (Due Card)

19:00
RZ (B1)
AUTO
VERH
RT 0.4
DB 1.0

19:10

CABIN TV SETUP

19:20

PRIVATE MEDICAL COMMUNICATION
(If Required)

PRIVATE MEDICAL COMMUNICATION
(If Required)

AIRLOCK HATCH OPERING

1688 CABIN SETUP (1688/12-EVR DEMO)
(PHOTO/TV C/L, 1688 SCENES)

19:30
MIDDECK FLOODS AIRLOCK 2 - ON/OFF
EQUAL VLV CAPS (two) - Remove, stow
EQUAL VLV (two) - OFF
Open and stow HATCH
Rotate VERT DUCT into airstock
LTG FLOOD 1,3,4 - ON
EMU's Remove lower torso restraint

CABIN TV PREP (1688/12-EVR DEMO)
(PHOTO/TV C/L, TV SCENES)
VTR

19:40

HOUSEKEEPING

19:50

20:00

ORIGINAL RECORDING
OF PODCAST

STS-4 DETAILED

MET PCM
DRY006
20:00

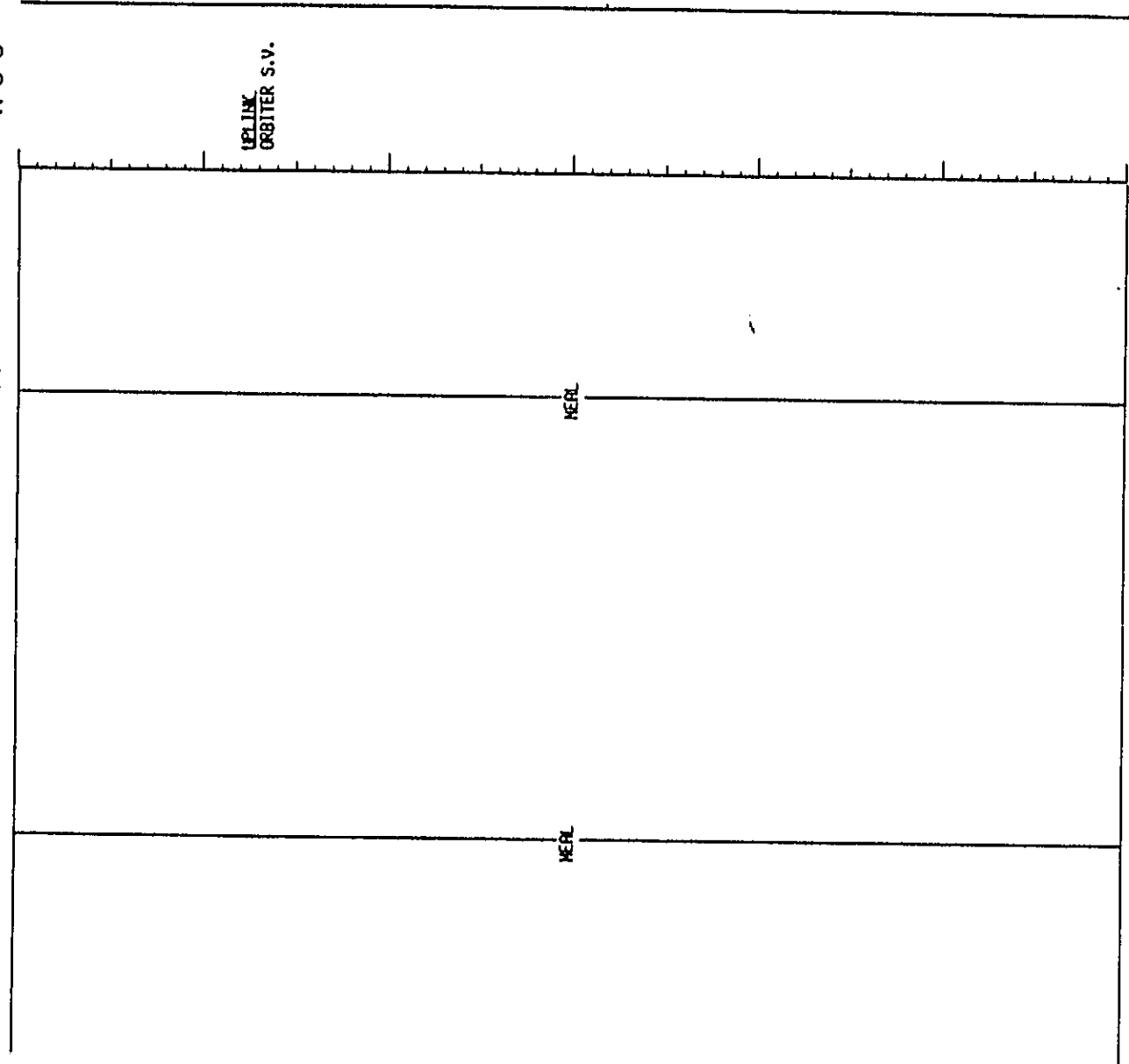
CDR

PLT

MCC

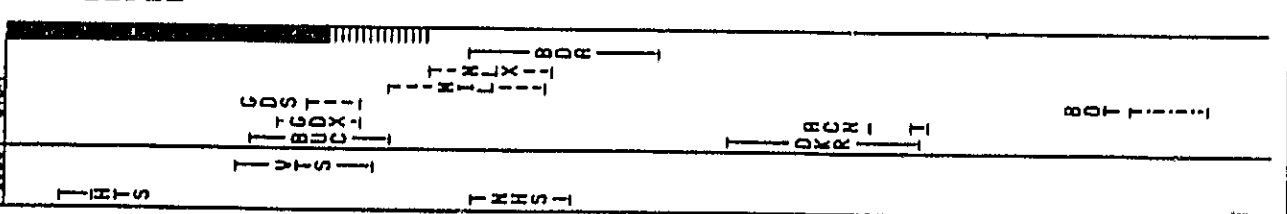
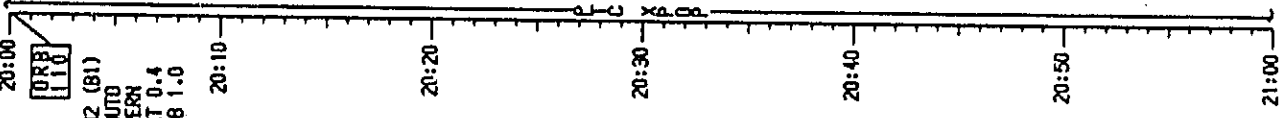
NOTES

ASCENDING NODE
ORB: 110
MET: 006:20:00:06
LON: 164.2 N



LELINK
ORBITER S.V.

ORIGINAL PAGE IS
OF POOR QUALITY



STS-4 DETAILED

MET
DRY006
21:00
RZ (B1)
AUTO
VERN
RT 0.4
DB 1.0

SEL-1 STDN

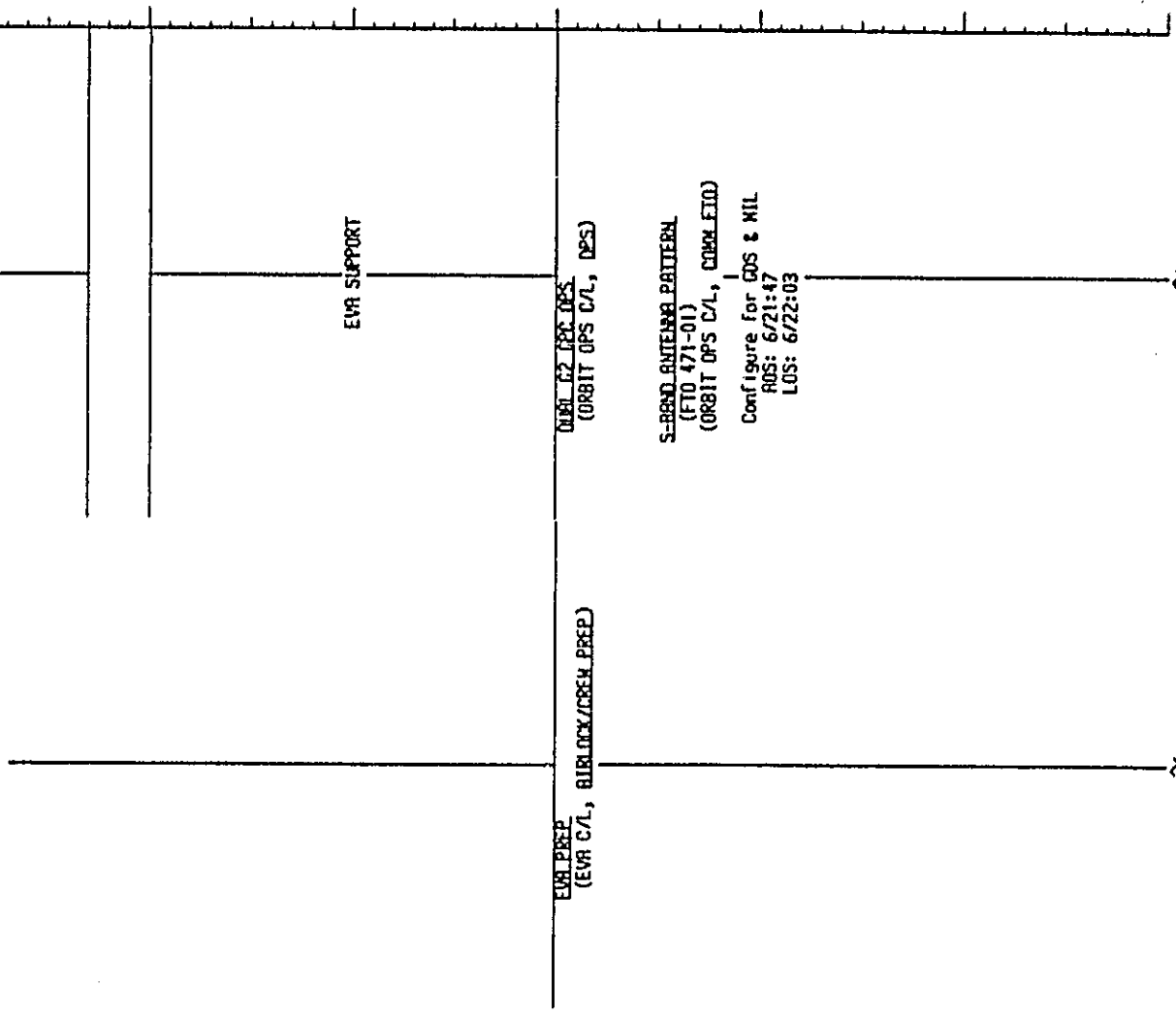
NOTES

MCC

PLT

EMU DEMO
(EVA C/L, EQUIP PREP)

16MM DEMO RCT (16MM/12-EVA DEMO)
(PHOTO/TV C/L, 16MM SCENES)



21:10

21:20

21:30

21:40

21:50

22:00

SEL-1 STDN

SEL-2 STDN

SEL-3 STDN

SEL-4 STDN

SEL-5 STDN

SEL-6 STDN

SEL-7 STDN

SEL-8 STDN

SEL-9 STDN

SEL-10 STDN

SEL-11 STDN

SEL-12 STDN

SEL-13 STDN

SEL-14 STDN

SEL-15 STDN

SEL-16 STDN

SEL-17 STDN

SEL-18 STDN

SEL-19 STDN

SEL-20 STDN

SEL-21 STDN

SEL-22 STDN

SEL-23 STDN

SEL-24 STDN

SEL-25 STDN

SEL-26 STDN

SEL-27 STDN

SEL-28 STDN

SEL-29 STDN

SEL-30 STDN

SEL-31 STDN

SEL-32 STDN

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SEL-77 STDN

SEL-78 STDN

SEL-79 STDN

SEL-80 STDN

SEL-81 STDN

SEL-82 STDN

SEL-83 STDN

SEL-84 STDN

SEL-85 STDN

SEL-86 STDN

SEL-87 STDN

SEL-88 STDN

SEL-89 STDN

SEL-90 STDN

SEL-91 STDN

SEL-92 STDN

SEL-93 STDN

SEL-94 STDN

SEL-95 STDN

SEL-96 STDN

SEL-97 STDN

SEL-98 STDN

SEL-99 STDN

SEL-100 STDN

ASCENDING NODE
ORB: 111
MET: 006:21:30:34
LON: 172.6 E

ORIGINAL PARTIAL
OF POOR QUALITY

STS-4 DETAILED

ORIGINAL PAGE IS
OF POOR QUALITY

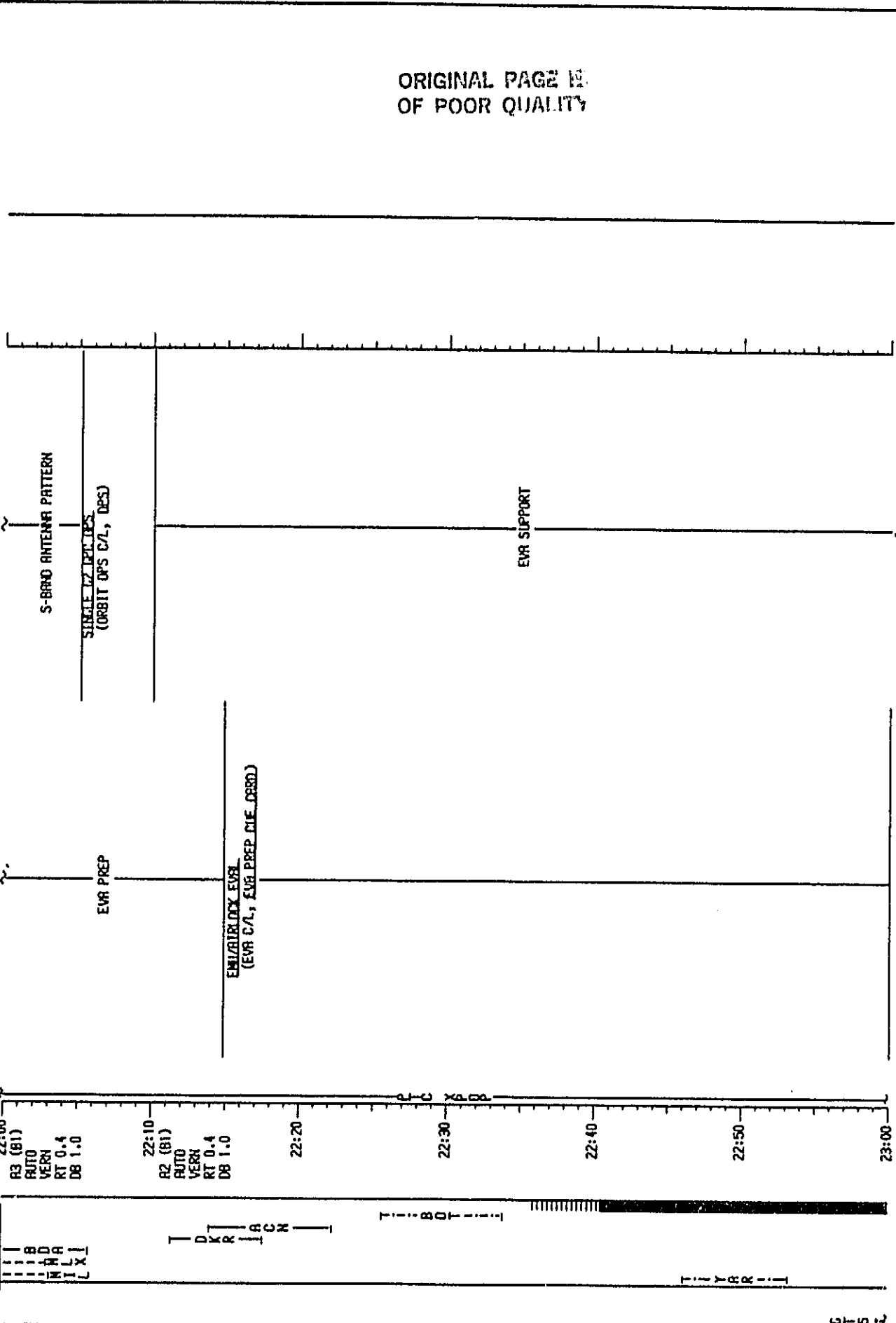
NOTES

MCC

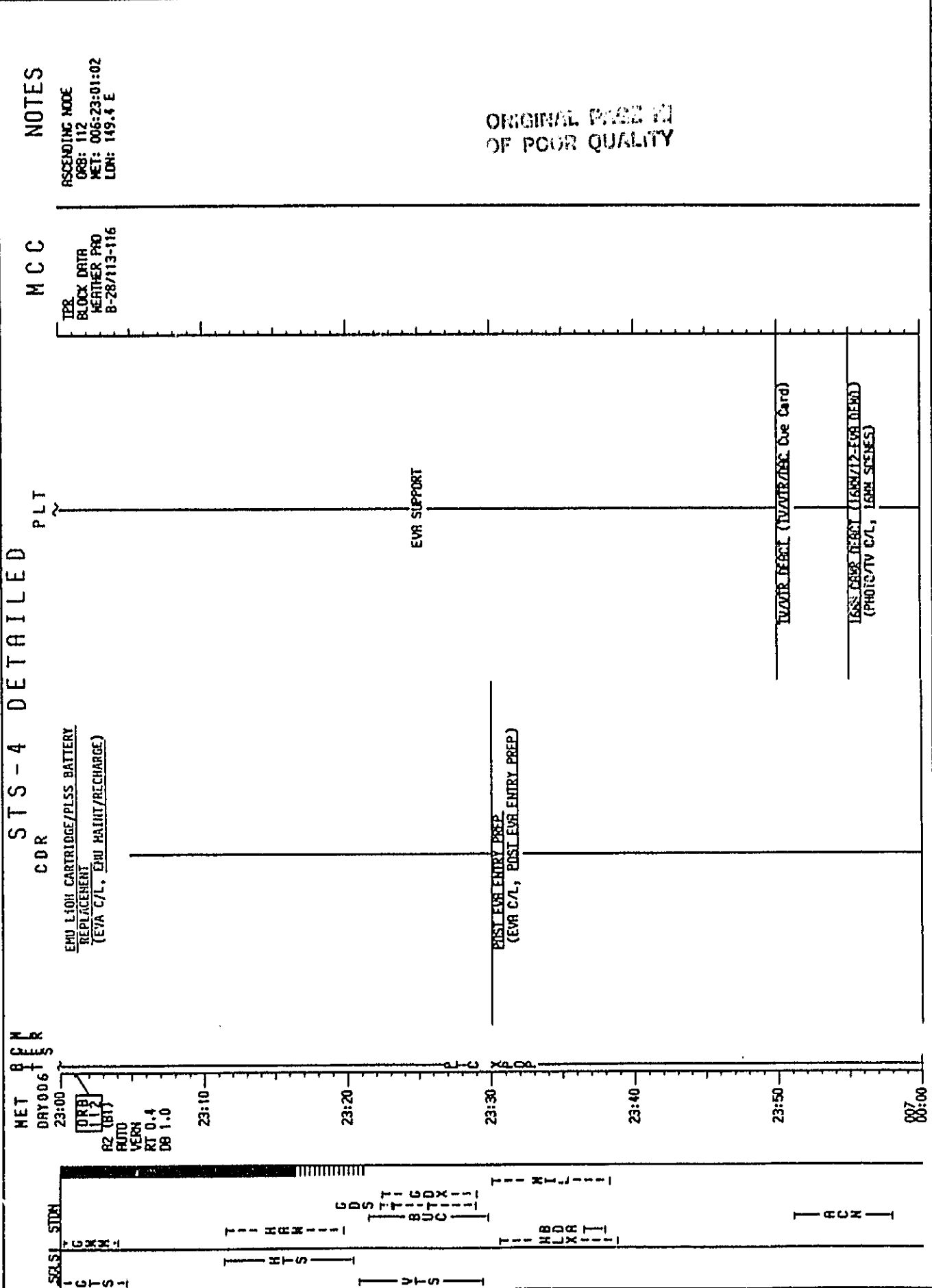
PLT

CDR

MET
DAY006



STS-4 DETAILED



NOTES

ASCENDING NODE
 ORG: 112
 MET: 006:23:01:02
 LON: 149.4 E

MCC

TPR
 BLOCK DRTR
 HEATHER PRO
 B-28/113-116

ORIGINAL PAGE 11
 OF POOR QUALITY

05714787 STS4/FIN

5-79

STS-4 DETAILED

NET 007
DRY007

NET 007
DRY007

NOTES

MCC

PLT

CDR

CM

MDSL DEACTIVATION (Cue Card)
(FSD 5441-01)

MEBL_PREP (Cue Card)

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING MODE
DB: 113
MET: 007:00:31:29
LON: 126.3 E

HOUSEKEEPING

UPLINK
ORBITER S.V.

HOUSEKEEPING

SELSI SITON

00:00
RZ (B1)
AUTO
VERH
RT 0.4
DB 1.0

00:10
(RZ) B1
AUTO
VERH
RT 0.2
DB 1.0

00:20

00:30
DRB
113

00:40

00:50
RZ (B1)
AUTO
VERH
RT 0.4
DB 1.0

01:00

--- BOT ---

--- GMM ---

--- HTS ---

--- HARK ---
--- BUCG ---
--- CDD ---
--- XSS ---
--- TTT ---

PTS

STS-4 DETAILED

NOTES

MCC

PLT

CDR

RCM

MET DAY007
01:00
R2 (81)
AUTO
VERN
RT 0.4
DB 1.0

SCS1-SPM
VT S-I
T T T
B U I T
U G G
X S
D D M N
L L L X
T T T T
T T T T

RCM

PLC X6.00

MEAL

MEAL

ORIGINAL PAGE 1ST
OF POOR QUALITY

DATE 1 20 00 00 00

STS-4 DETAILED PLT

MET PCM
DAY 007
02:00

CDR

DEBUN STIM
(ORBIT OPS C/L, CSEM SYSTEMS)

NOTES

ASCENDING NODE
ORB: 114
MET: 007:02:01:57
LON: 103.1 E

MCC

ORIGINAL PAGE IS
OF POOR QUALITY

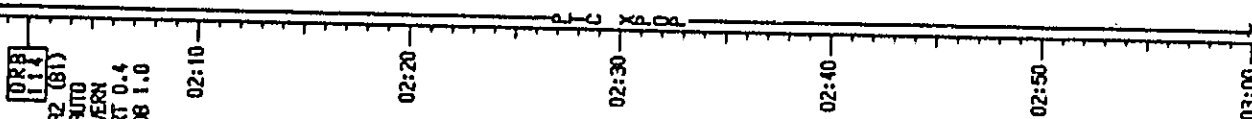
PRELQD REACTIVATION
(OPERATIONS C/L, IERLE)

POST OPERATIONS DOWNSERTATION
(OPERATIONS C/L, IER P70/11 R P70/15)

PHILDED DEBIBIT PREPERSITION
(OPERATIONS C/L, IERLE)

DEBUN STIM
(ORBIT OPS C/L, CSEM SYSTEMS)

SELSI STIM



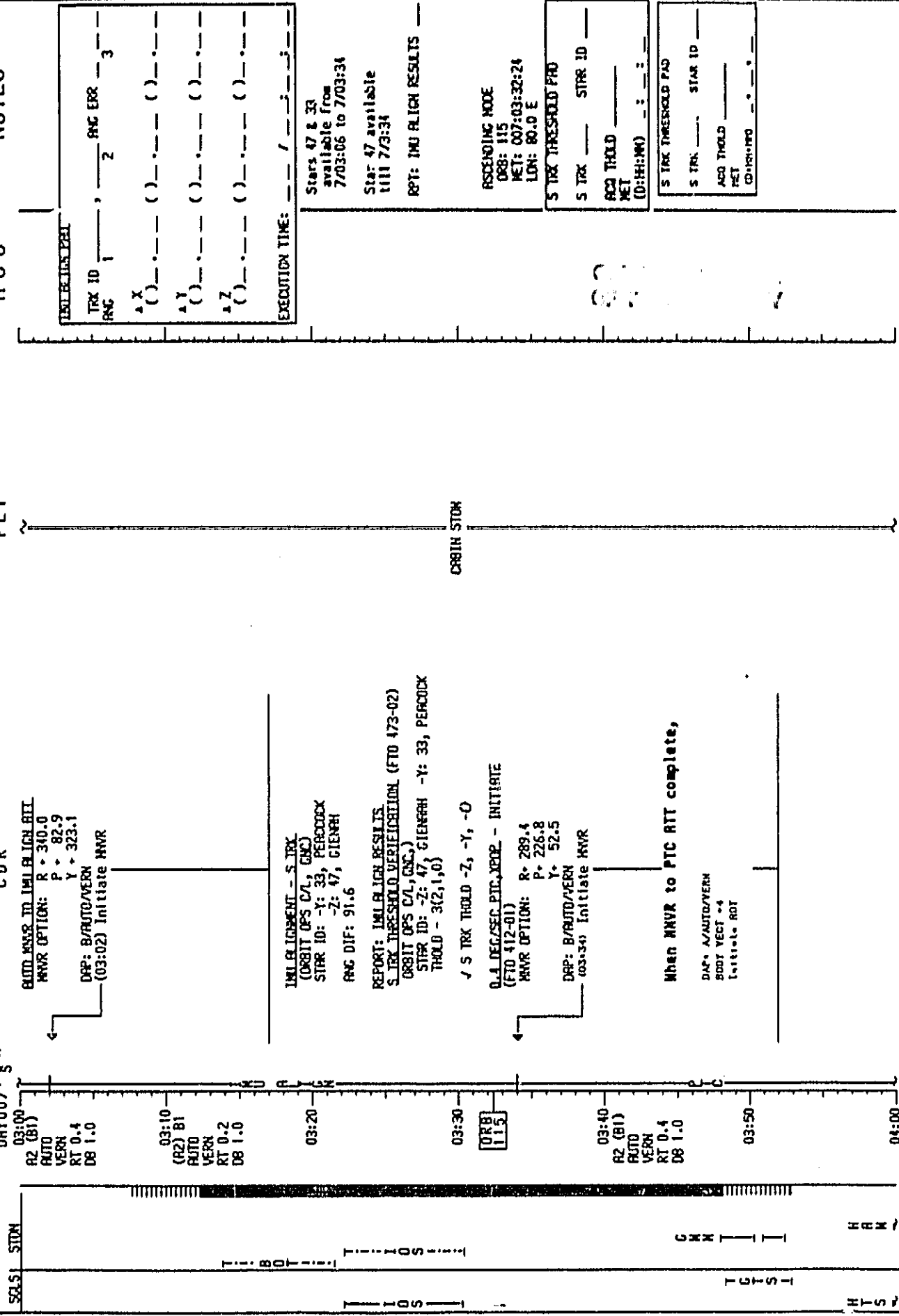
CTS
VTS
HTS
HRN

STS-4 DETAILED

MCC NOTES

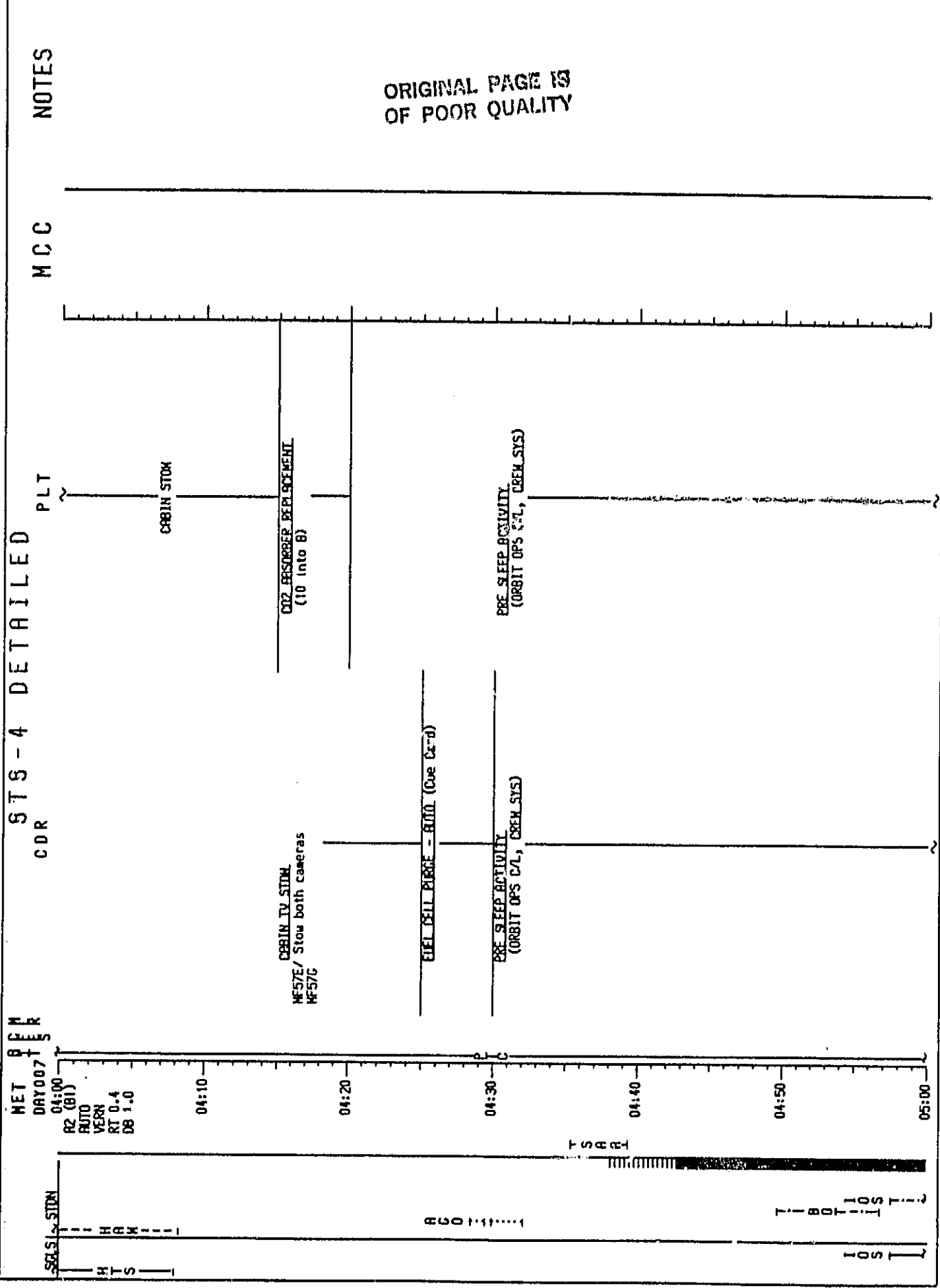
PLT

MET PER



STS-4 DETAILED CDR

HET CDR

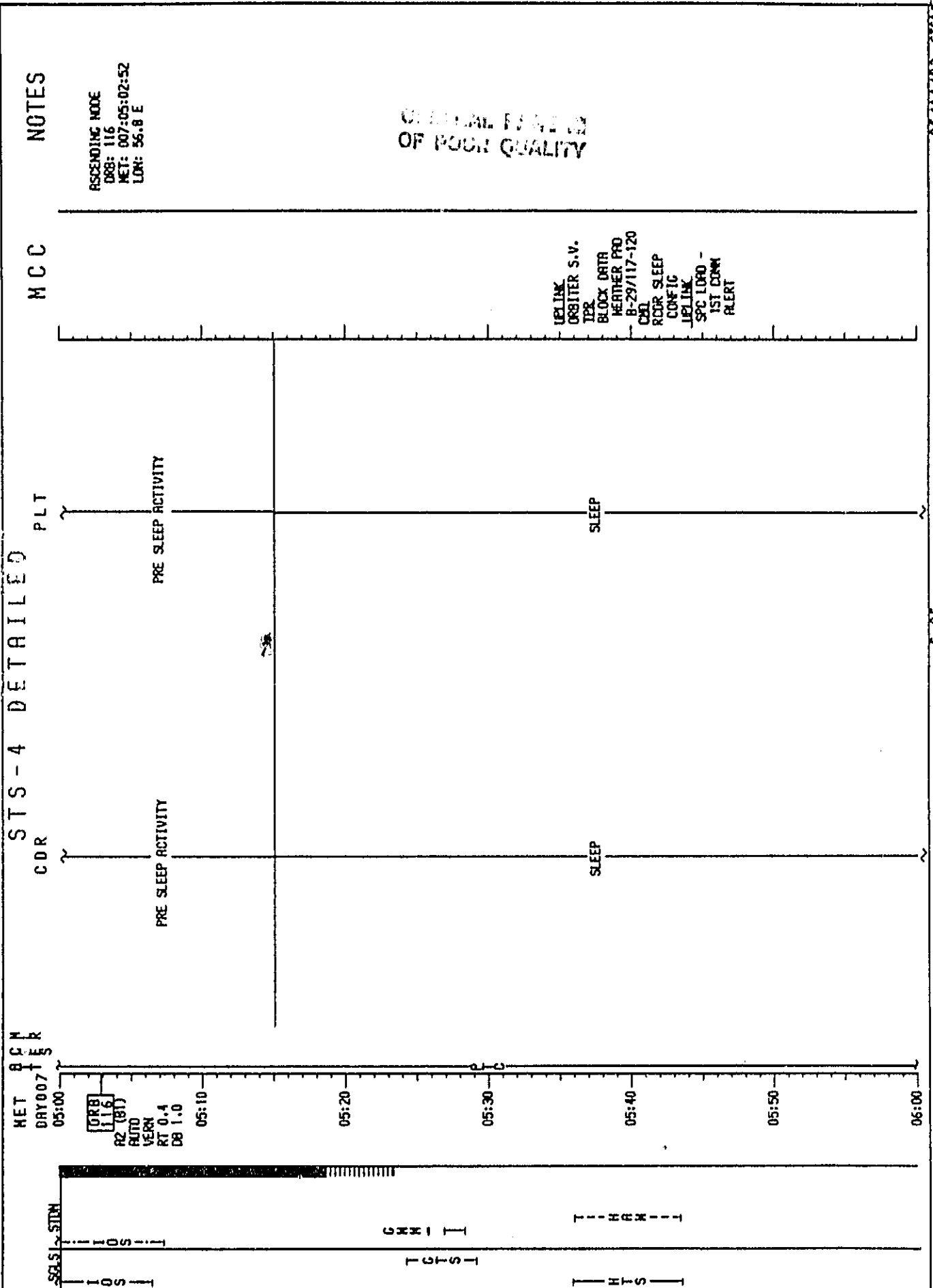


ORIGINAL PAGE IS OF POOR QUALITY

05714782 S154711N

5-81

STS-4 DETAILED

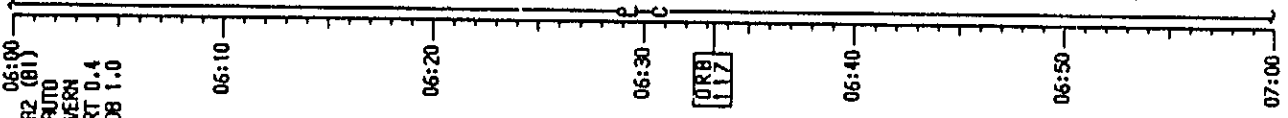


05/17/82 21516FIN

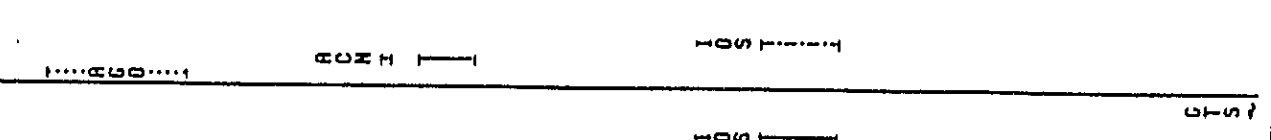
5-85

STS-4 DETAILED

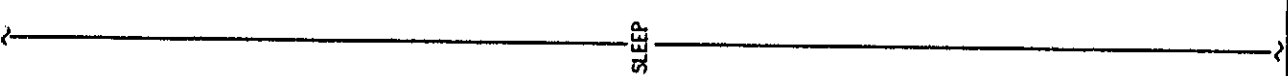
MET
DAY007
06:00



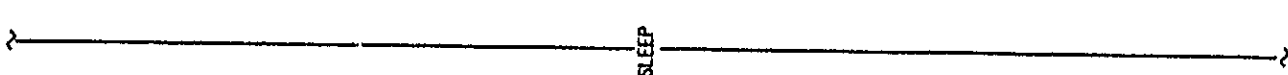
SCS1 STBY



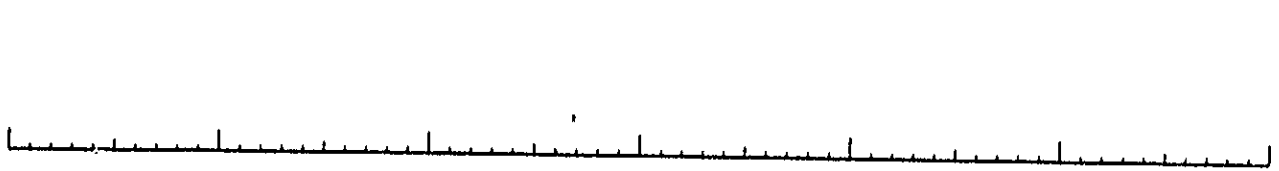
CDR



PLT



MCC



NOTES

ORIGINAL PAGE IS
OF POOR QUALITY

ASCENDING NODE
ORB: 117
MET: 007:06:33:19
LON: 33.7 E

STS-4 DETAILED

MET
DRY007

07:00
R2 (BT)
AUTO
VERN
RT 0.4
DB 1.0

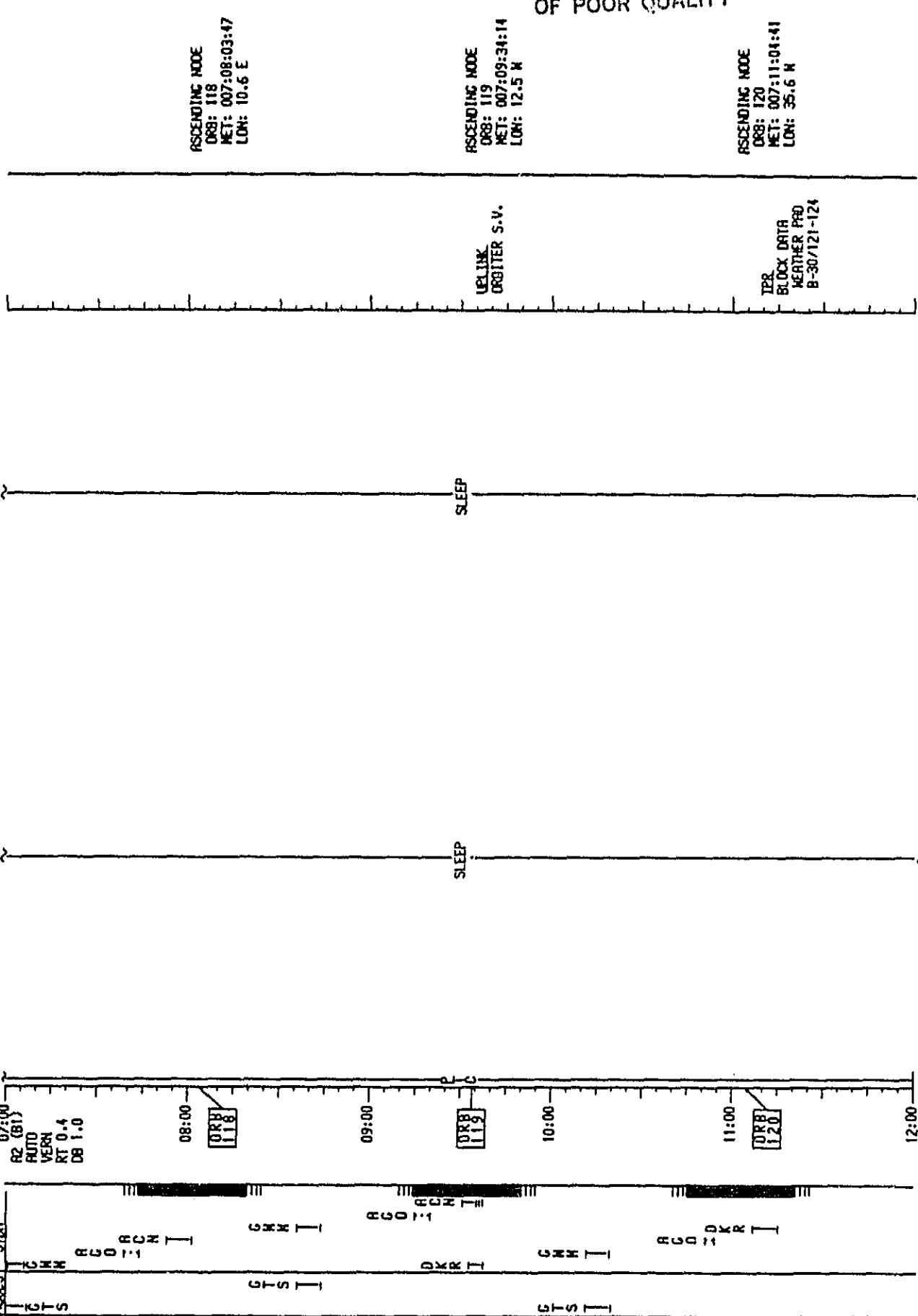
SCSI STON
STS

CDR

PLT

NOTES

MCC



ASCENDING MODE
ORB: 118
MET: 007:08:03:47
LON: 10.6 E

ASCENDING MODE
ORB: 119
MET: 007:09:34:14
LON: 12.5 W

ASCENDING MODE
ORB: 120
MET: 007:11:04:41
LON: 35.6 W

ORIGINAL PAGE IS
OF POOR QUALITY

STS-4 DETAILED

MET PCM
DAY 007

SELS STIM

12:00
R2 (81)
AUTO
VERN
RT 0.4
DB 1.0

12:10

12:20

12:30

12:40

12:50

13:00

ORB 121

DKW RAD II

CDR

SLEEP

PLT

SLEEP

MCC

NOTES

ORIGINAL PAGE #2
OF POOR QUALITY

ASCENDING NODE
ORB: 121
MET: 007:12:35:08
LON: 58.8 W

5-88

05/14/82 SIS/7JH

STS-4 DETAILED

MET
DRY007
13:00

RZ (BI)
AUTO
VERN
RT 0.4
DB 1.0

SLSI STDN

CDR

PLT

MCC

NOTES

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

ORIGINAL PAGE 13
OF POOR QUALITY

STS-4 DETAILED

MET 0 CM
DAY007 1 S

SELSI SIDM

NOTES

MCC

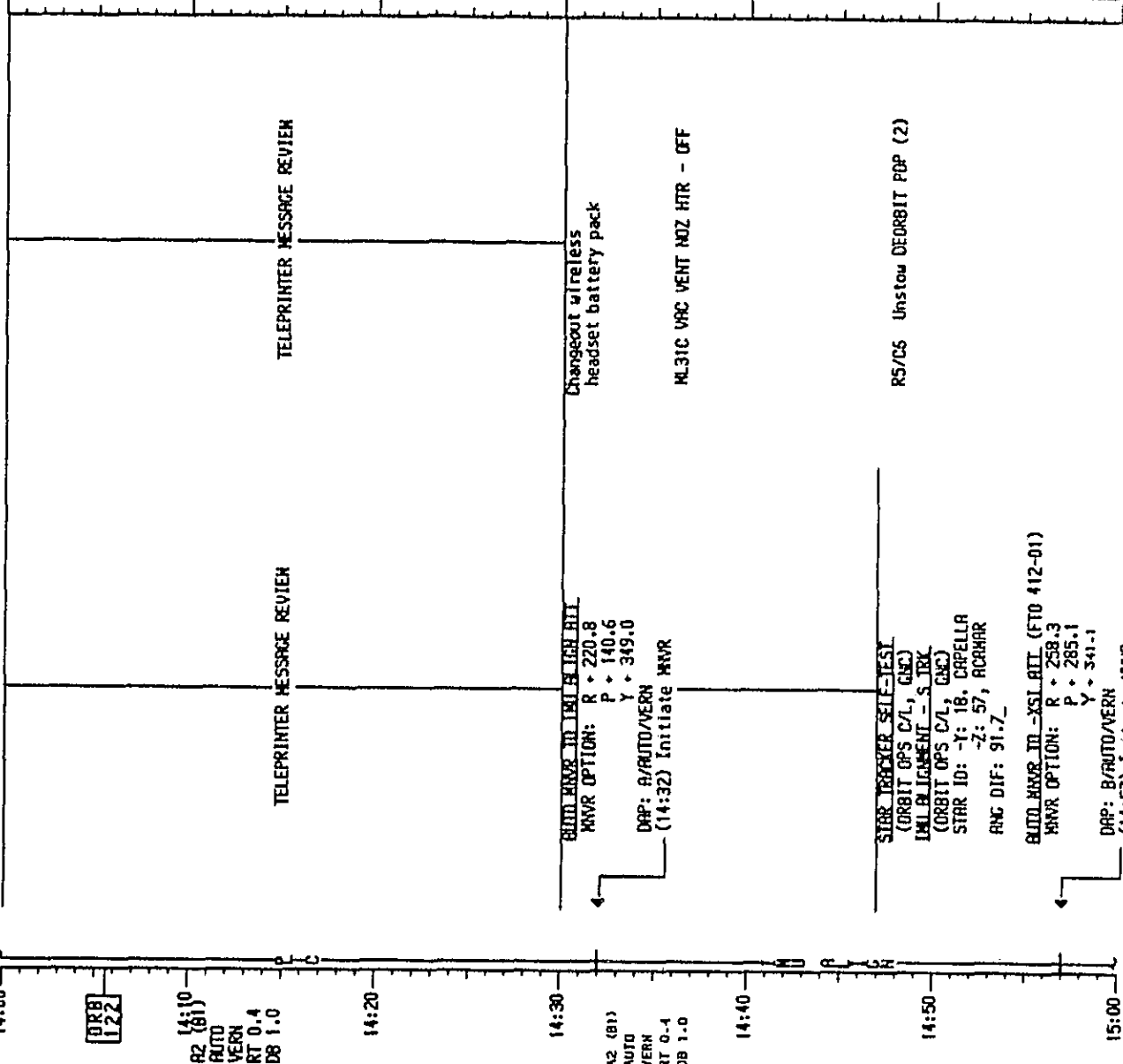
PLT

CDR

ASCENDING NODE
ORB: 122
MET: 007:14:05:36
LDN: 81.9 M

ORIGINAL PAGE 10
OF POOR QUALITY

Stars 57 & 18
available from
7/14:22 to 7/15:02



TIME INDEX (PHI)

TRX ID	1	2	3
ANG	()	()	()
A X	()	()	()
A Y	()	()	()
A Z	()	()	()
EXECUTION TIME: / /			

STS-4 DETAILED

NET OPER S

DAY 007
15:00
RI (B1)
AUTO
VERN
RT 0.2
DB 1.0

NOTES

MCC

PLT

CDR

CM

RPT: IMU ALIGN RESULTS

UPDATE
H2O SPLY DUMP
QTY TK A & B

EVEL CELL PURGE - RUDL (Doe Card)
SUPPLY WATER DUMP
(ORBIT OPS C/L, ECL5)
Dump TKS A & B
Dump to:
QTY A = _____ QTY B = _____

AUTO MNCVR ID -XSLAITL
REPORT: IMU ALIGN RESULTS

ORIGINAL PAGE 10
OF POOR QUALITY

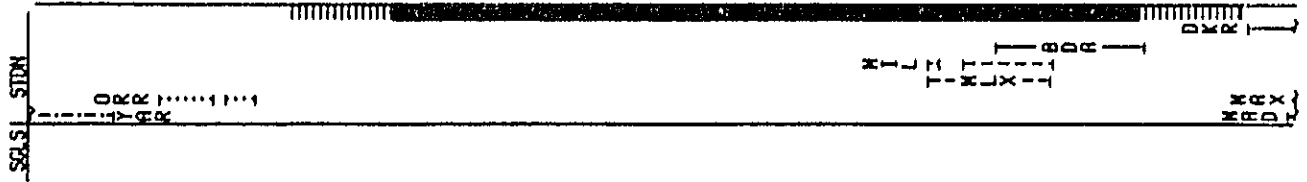
ASCENDING NODE
ORB: 123
MET: 007:15:36:03
LON: 105.1 M

UPDATE
CRT TIMER
SETUP PRO

Copy: CRT TIMER SETUP PRO UPDATE
In REMOTE DEBRUIT ERE, 3-7

MERL

MERL



STS-4 DETAILED

NOTES

MCC

ORIGINAL PAGE 13
OF POOR QUALITY

CM
PER

NET
DRY007

PLT

CDR

16:00
R1 (BI)
PAUD
VERN
RT 0.2
DB 1.0

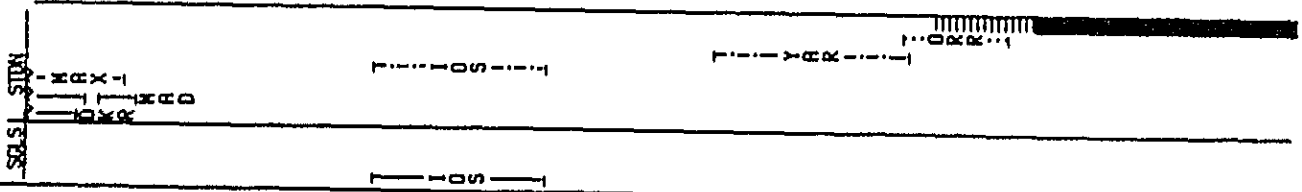
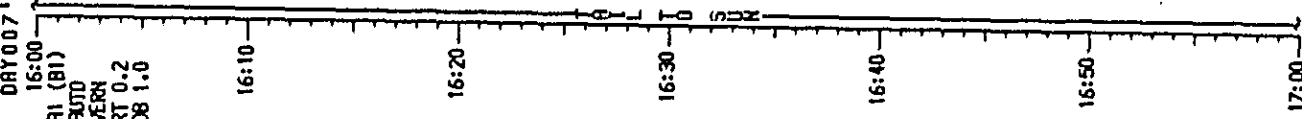
HERL

HERL

CLEMP/STORAGE (Que Card)
Steps 1-4

R11 DEX PHR - ON

Go to DEORBIT PREP



24 HOURS AFTER EXTENSION DAY

The 24 Hours After Extension Day Timeline is designed to follow a Deorbit Prep Backout on Flight Day 9. It therefore assumes that the nominal timeline plus an extra day have already been accomplished.

Detailed timeline pages are provided from MET 7/22:00 until time for the Deorbit Prep.

To compute the MET time at which this timeline is entered, take the Deorbit Burn TIG time and add ~1 hr 50 min for Deorbit Prep Backout. Note that no activities are scheduled for the first hour and 15 minutes to allow extra time for reconfiguration or troubleshooting.

24 HRS AFTER
EXTENSION DAY

24 HRS AFTER
EXTENSION DAY

ORIGINAL PAGE 13
OF POOR QUALITY

GMT (D:H:M)	MET (D:H:M)	CDI (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
186:03:00 / 186:15:00	007:12:00 / 008:00:00	185:22:00 / 186:00:00	185	22.7	☉	JULY 5, 1982	STS-4	FINAL	5/14/82
GMT +186 FD 18 MET +007 12									
CDR	EXT MSH CAP								
PLT	EXT MSH CAP								
DAY/NIGHT									
ORBIT									
MOON UP/DOWN									
EARTH TRACE V/SA									
STDM COVERAGE									
SOLS COVERAGE									
DEORB KSC EDV									
ATTITUDE									
MANEUVERS									
T/T/VT									
HLR									
NOTES:									

- ENTRY CONFIG • NO SV LIST/VER
- ENTRY CONFIG • NO SV LIST/VER
- RAO ACT • PCS CONFIG
- KTD C/FILES
- COMF CONFIG • FDC

ORIGINAL PAGE NO
OF POOR QUALITY

GHT (D:H:M)		MET (D:H:M)		CDT (D:H:M)		FD/DOY		BETA		MOON		HOUSTON DATE		FLIGHT		EDITION		PUB. DATE	
186:17:00/ 187:05:00		008:00:00/ 008:00:00		186:12:00/ 186:12:00		9 / 186		11.0		0		JULY 5, 1982		STS-4		FINAL		5/14/82	
GHT : 186 17		18		20		22		23		23		0		2		3		4	
FD : 9		19		21		23		24		24		0		2		3		4	
NET : 008 0		20		22		24		25		25		0		2		3		4	
CDR		EXERCISE		MERL		PRE SLEEP ACT		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
PLT		EXERCISE		MERL		PRE SLEEP ACT		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP		SLEEP	
DAY/NIGHT		128		129		130		131		132		133		134		135		136	
ORBIT		128		129		130		131		132		133		134		135		136	
EARTH TRACE K/SRA		128		129		130		131		132		133		134		135		136	
GSTDN COVERAGE		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS		-BOT -GNW -HRM -RCN -SGLS -GTS -HTS	
SGLS COVERAGE		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS	
DEORB XSC EDM		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS		-GTS -HTS	
ATTITUDE		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
MANEUVERS		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
TV/VTR		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
CFES		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
MLR		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP		-ZLV Y-POP	
NOTES:		Y-POP (NOISE FREQ)		DNS/RCS - IF READ															

GMT (D:H:M)	MEI (D:H:M)	COT (D:H:M)	FD/DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
187:05:00	187:17:00	187:00:00	187:12:00	12.7	○	JULY 6, 1982	SIS-4	FINAL	5/14/82

ORIGINAL PAGE OF POOR QUALITY

GMT	FD	13	14	15	16	17	18	19	20	21	22	23	24
187:05	13	14	15	16	17	18	19	20	21	22	23	24	0
FD: 09	13	14	15	16	17	18	19	20	21	22	23	24	0
NET: 008	13	14	15	16	17	18	19	20	21	22	23	24	0

DAY/NIGHT	ORBIT	136	137	138	139	140	141	142	143	144
CDR	SLEEP		POST SLEEP (PR MSG) REVIEW		NERL					
PLT	SLEEP		POST SLEEP (PR MSG) REVIEW		NERL				ORBIT PREP	ORBIT PREP
EARTH TRACE W/SAR										
CSTDN COVERAGE										
SGLS COVERAGE										
OPS DEGRB KSC EDM										
ATTITUDE										
MANEUVERS										
TV/VTR										
MLR										
NOTES:										

○ ENTRY CONFIC ○ NO SK LIST/VER
 ● ENTRY CONFIC ● NO SK LIST/VER
 * LAST MERL CLEANUP

STS-4 DETAILED
CDR

NOTES

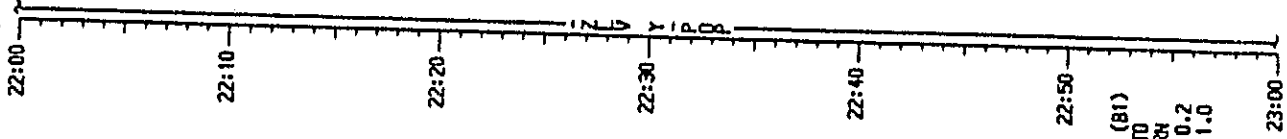
MCC

PLT

ORIGINAL PRINTING
OF POOR QUALITY

For Activities from TIC to TIC + 1HR 50 MIN,
See DEORB PREP, DZL PREP, BACKMIT

MET OPER
DAY 007



VT S
BUC
BXS
GCT
T
MNT
LXB
LXDR
L

6CH

180T

YARR

RT 0.2
DB 1.0

RT 0.2
DB 1.0

STS-4 DETAILED

MET ARM
DAY007

PLT

CDR

NOTES

MCC

23:00 23:10 23:20 23:30 23:40 23:50 00:00

RI (B1)
AUTO
VERN
RT 0.2
DB 1.0

DRB
128

↑ V A R

↑ G M N

↑ H R M

↑ H T S

↑ V T S

G D S
T T T
B I C D
U T X

T T W
J L X
T T

ASCENDING NODE
ORB: 128
MET: 007:23:08:11
LON: 139 1 E

ORIGINAL PAGE 18
OF POOR QUALITY

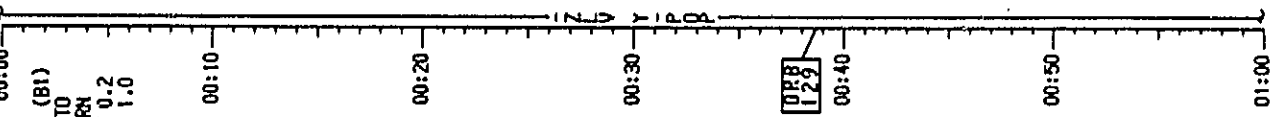
TPR
BLOCK DATA
WEATHER PAD
B-32/129-132
UPLINK
ORBITER S.V.

MET 00:00
DRY 008

CDR STS-4 DETAILED PLT

NOTES

MCC



AI (BI)
AUTO
VERA
RT 0.2
DB 1.0

TRACK

TIME

STS

SKN

HRN

HTS

ORIGINAL PAGE 14
OF FOUR QUALITY

ASCENDING NODE
ORB: 129
MET: 008:00:38:38
LON: 116.0 E

EXERCISE

STS-4 DETAILED

NET
DAY008
01:00

NOTES

MCC

PLT

CDR

AI (BT)
AUTO
VERB
RT 0.2
DB 1.0

PRIVATE MEDICAL COMMUNICATION
(If Required)

PRIVATE MEDICAL COMMUNICATION
(If Required)

EXERCISE

MEBL PREP. (Cue Card)

ORIGINAL PAGE IS
OF POOR QUALITY

If 1 REV LRTE followed
by DEBBIT PREP BACKOUT,
would enter these pro-
cedures at approx 1:50

STS-4 DETAILED

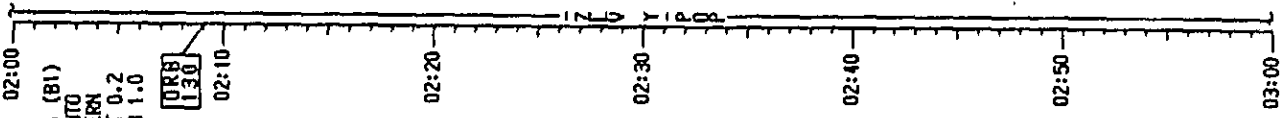
CDR

PLT

NOTES

MCC

MET
DAY008
02:00



RI (B1)
AUTO
VERN
RT 0.2
DB 1.0

ORB
130

↑ I O S
↑ I O S

↑ G T S
↑ G T S

↑ H T S
↑ H T S
↑ H R W
↑ H R W

ASCENDING NODE
ORB: 130
MET: 038:02:09:05
LON: 92.9 E

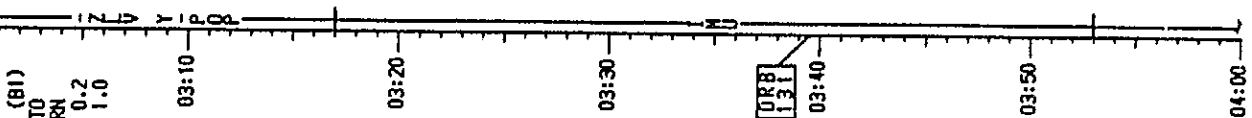
ORIGINAL BASIS
OF POOR QUALITY

MERL

MERL

STS-4 DETAILED

MET 03:00
 DAY 008



CDR → MEAL
 PLT → MEAL

INITIATE MNR TO IMB LIGN HTL
 MNR OPTION: R * 254 .7
 P * 296 .7
 Y * 12 .7
 DAP: R/AUTO/VERN
 (03:17) Initiate MNR

IMB LIGNMENT - S TRK
 (ORBIT OPS C/L, GNC)
 STAR ID: -Y: 20 ARCTURUS
 -Z: 51 ATRIA
 RNC DIF: 92.4

AUTO MNR TO -ZLV HTL
 (Y-POP, NOISE FND)
 TGT ID *2
 BODY VECT *3
 DN *180
 DAP: R/AUTO/VERN
 Initiate TRK

CONNECT RETURN OPS 2,3,1 - IF RECD
 (ORBIT PKT C/L, RCS)

REPORT: IMB LIGN RESULTS

ORBIT STOR
 (ORBIT OPS C/L, CREW SYS)

MCC

ORIGINAL PAGE 13
 OF POOR QUALITY

Stars 20 & 51
 available from
 8/03:06 to 8/03:53

IMB LIGN PRI

RECD ID: -Y	-Z	RNC ERR	3
Δ X	()	()	()
Δ Y	()	()	()
Δ Z	()	()	()
EXECUTION TIME: / /			

ASCENDING NODE
 ORB: 131
 MET: 008:03:39:32
 LON: 69.7 E

IMB LIGN
 ORBITER S.V.

RPT: IMB LIGN RESULTS
 5/14/82 STS4/FIR

STS-4 DETAILED

NET OPER
DRY000
04:00

CDR

PLT

NOTES

A1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

FIRE/SMOKE DETECT/SUPPRESS TEST
(ORBIT OPS C/L, EES)

ANNUNCIATOR C/A TIME TEST
(ORBIT OPS C/L, EES)

MCC
MCC ONLY
COORD C/M/ORA
LIMITS CLEANUP
FOR DREN SLEEP

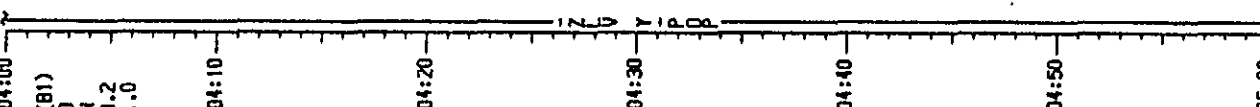
TPR
BLOCK DATA
WEATHER PRO
B-33/133-136

EUEL CELL PIERCE - BIRD (Cue Card)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

PRE SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

ORIGINAL VALUE
OF POOR QUALITY



T S M
T H S

T S M

.....60.....

STS-4 DETAILED

KEY
DRY008
05:00

AI (BI)
AUTO
VERA
RT 0.2
DB 1.0

DRB
132
05:10

05:20

05:30

05:40

05:50

06:00

CDR

PRE SLEEP ACTIVITY

SLEEP

PLT

PRE SLEEP ACTIVITY

SLEEP

MCC

JPLINK
SPC LOAD -
1ST DOWN
ALERT
CSO
RCOR SLEEP
CONFIG

NOTES

ASCENDING NODE
ORB: 132
MET: 008:05:09:59
LON: 46.6 E

ORIGINAL PAGE 13
OF POOR QUALITY

5-104

5/14/82 STS4/FIN

LOS

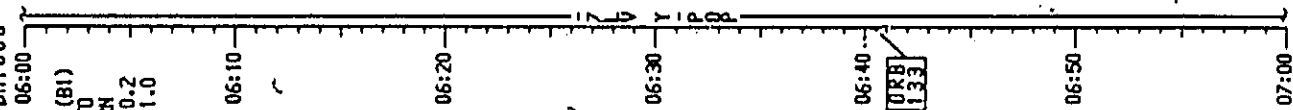
GMT

THRM

HTS

STS-4 DETAILED

NET
DAY 08



CDR

SLEEP

PLT

SLEEP

MCC

NOTES

ORIGINAL PAGE 10
OF POOR QUALITY

ASCENDING NODE
ORB: 133
NET: 008:06:40:25
LON: 23.4 E

STS-4 DETAILED

MET
DRY008
07:00

RI (B1)
AUTO
VERN
RT 0.2
DB 1.0

08:00

ORB 134

09:00

08:00

ORB 135

10:00

11:00

ORB 136

12:00

IGTS

ICM

STS

CH

DRR

CH

STS

DRR

CDR

SLEEP

PLT

SLEEP

NOTES

ASCENDING NODE
ORB: 134
MET: 008:08:10:52
LON: 0.3 E

ASCENDING NODE
ORB: 135
MET: 008:09:41:18
LON: 22.8 W

ASCENDING NODE
ORB: 136
MET: 008:11:11:45
LON: 45.9 W

MCC

TPR
BLOCK DATA
WEATHER PRO
8-31/137-140
UPLINK
ORBITER S.V.

ORIGINAL PAGE
OF POOR QUALITY

STS-4 DETAILED

MET
DAY008
12:00

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

NOTES

ORBITAL POSITION
OF PLT AND CDR

ASCENDING NODE
ORB: 137
MET: 008:12:42:11
LON: 69.0 K

MCC

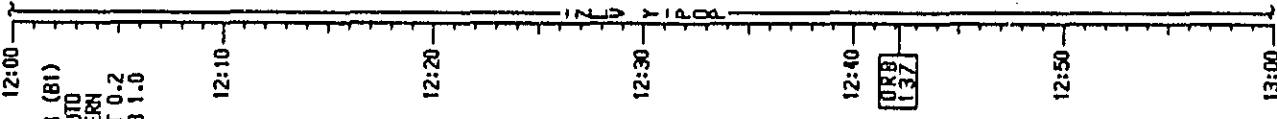
UNLINK
SPC LOAD-
CLEAR COM
ALERT

PLT

SLEEP

CDR

SLEEP



D M X
K R A X
K D X
L

MET
DRY088

STS=4 DETAILED

CDR

PLT

NOTES

MCC

↑
T
M
A
R
D
X

13:00
RT (81)
AUTO
VERN
RT 0.2
DB 1.0

SLEEP

SLEEP

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

POST SLEEP ACTIVITY
(ORBIT OPS C/L, CREW SYS)

Shave electrode sites, if reqd

13:10
13:20
13:30
13:40
13:50
14:00

ORIGINAL PAGE
OF POOR QUALITY

5-108

5/14/82 SISR/TTR

STS-4 DETAILED PLT

MET OPER
DRYDB 15

CDR

NOTES

MCC

PLT

14:00

RI (BI)
R/UTO
V/ERN
RT 0.2
DB 1.0

14:10

ORB 138

14:20

TELEPRINTER MESSAGE REVIEW

14:30

RADIO MWR INITIATED
MWR OPTION: R * 46 .6
P * 339 .1
Y * 11 .9
DAP: R/AUTO/VERN
(14:32) Initiate MWR

14:40

SUB TRACKER SELF-TEST
(ORBIT OPS C/L, GNC)
EML ALIGNMENT - S.TX
(ORBIT OPS C/L, GNC)
STAR ID: -Y: 57, ACPHAR
-Z: 18, CAPELLA
ANC DIF: 91 .7

14:50

EML CELL FORCE - BUDL (Due Card)

DAP: R/AUTO/VERN
(14:55) Initiate MWR

15:00

ASCENDING NODE
ORB: 138
MET: 008:14:12:38
LON: 92.2 W

ORIGINAL PARTIAL
OF POOR QUALITY

Starts 57 & 18
available from
8/14:33 to 8/15:11

LEDEITE
H2O SPLY DUMP
QTY TK R & B

TABLETED PBL

REC'D 10:-Y	-Z	-2	ANC ERR	3
A X	()	()	()	()
A Y	()	()	()	()
A Z	()	()	()	()
EXECUTION TIME: /				

STS-4 DETAILED

MET
DRY008
15:00

R1 (B1)
AUTO
VERN
RT 0.2
DB 1.0

NOTES

MCC

PLT

CDR

CM
R
S

M
T
D
K
R
I
I

UPDATE
CRT TIMER
SETUP PRO

CLERK/SURGEE, (Cue Card)
Steps 1-4

R11 OEX PAR - ON

CO TO DEOPS PREP

10 S

10 S

10 S

CONSUMABLES CURVES

FWD RCS PROPELLANT & He PRESS.	TBS
AFT RCS PROPELLANT & He PRESS.	TBS
OMS PROPELLANT CURVE (R & L POD)	TBS
OMS He PRESSURE (R & L POD)	TBS
OMS N2 PRESSURE (R & L POD)	TBS
SUPPLY WATER	TBS
CRYO H2 CURVE	TBS
CRYO O2 CURVE	TBS

CONSUMABLES
CURVES

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

FLIGHT DESCRIPTION.....	7-2
CREW.....	7-3
ORBITER SYSTEMS.....	7-3
ELECTRICAL POWER SYSTEM.....	7-3
COMMUNICATIONS AND INSTRUMENTATION.....	7-3
GUIDANCE AND NAVIGATION.....	7-4
PROPULSION.....	7-7
ENVIRONMENTAL CONTROL AND LIFE SUPPORT SUBSYSTEM.....	7-7
INTERIM TELEPRINTER SYSTEM (ITS).....	7-8
TELEVISION/PHOTOGRAPHY.....	7-8
REMOTE MANIPULATOR SYSTEM (RMS).....	7-8
PAYLOADS.....	7-9

CAP NOTES

CREW ACTIVITY PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION - MAJOR EVENTS

MISSION DURATION (day/hr:min:sec) - 6/23:37:57

<u>LAUNCH (KSC)</u>	June 27, 1982
MET (day/hr:min:sec)	0/00:00:00
Day of Year	178
CDT/GMT	10:00/15:00

<u>MECO</u>	
MET (day/hr:min:sec)	0/00:08:34.08
ORBIT ha/hp (nm)	87 x -10.3

<u>OMS-1</u>	
MET (day/hr:min:sec)	0/00:10:34
ΔV (fps)	162.
ΔT (min:sec)	01:38
ORBIT ha/hp (nm)	129.8 x 34

<u>OMS-2</u>	
MET (day/hr:min:sec)	0/00:37:39
ΔV (fps)	175
ΔT (min:sec)	01:44
ORBIT ha/hp (nm)	130.2 x 129.7

<u>OMS-3</u>	
MET (day/hr:min:sec)	0/04:29:11.6
ΔV (fps)	62.3
ΔT (min:sec)	0:36.7
ORBIT ha/hp (nm)	164.8 x 129.9

<u>OMS-4</u>	
MET (day/hr:min:sec)	0/05:14:12.5
ΔV (fps)	61.6
ΔT (min:sec)	0:36
ORBIT ha/hp (nm)	165.2 x 164.8

<u>DEORBIT</u>	
MET (day/hr:min:sec)	6/22:41:49
ΔV (fps)	315.2
ΔT (min:sec)	2:55
ORBIT ha/hp (nm)	162 x -5

<u>ENTRY INTERFACE</u>	
MET (day/hr:min:sec)	6/23:08:36

<u>LANDING (EDW)</u>	July 4, 1982
MET (day/hr:min:sec)	6/23:37:57
Day of year	185
CDT	09:24

CAP NOTES

B. CREW

1. Crew designations and responsibilities
 - a. Commander (CDR): Prime crewman for launch, entry, aborts and contingency EVA. Responsible for overall command of the vehicle including the safety of both vehicle and crew.
 - b. Pilot (PLT): Prime crewman for RMS operations and CFES activities. Responsible for on-orbit management of STS.
2. A typical crew day will be that specified in the STS Work Day Handbook (Ref. 3). The daily on-orbit STS activities and their scheduling constraints are identified in the referenced document.
3. The crew will wear Emergency Ejection Suits (EES) from launch through post-insertion and will don them again for entry. Whenever the EES is worn, OBS sensors are also worn. During the rest of the flight, in-flight garments are worn.
4. For crew sleep periods, the middeck and flight deck speaker boxes will be configured for air-to-ground voice and C&W tones. A level check of the speaker boxes is performed prior to the first sleep period. During sleep the WCCUs will be turned off and stowed.

C. ORBITER SYSTEMS

1. Electrical Power System
 - a. A crew-initiated automatic purge of the fuel cells will be scheduled approximately every 12 hours.
 - b. The fuel cell purge schedule is shown in Table 9-1.
2. Communications and Instrumentation
 - a. The Operational Instrumentation (OI) system will be managed from the ground through uplink commands coordinated with the crew. Exceptions to this would be the result of contingencies. Real-time OI data will be transmitted to MCC during each ground station pass via the S-Band PM downlink. In parallel with this, one of the two operations recorders will dump recorded OI data at a 5-to-1 or 8-to-1 playback-to-record ratio (depending upon whether or not voice is included in the recorded data). One OI recorder will be recording at all times, and the other will dump at every station pass via the S-Band FM downlink. Video downlink causes an exception to this recorder dump plan, but only during the station passes where TV is scheduled as a crew activity.

- b. The Development Flight Instrumentation (DFI) system will be crew controlled. The Wideband Ascent Recorder is not used on orbit. The PCM Recorder will be operated during the entire mission in one of three modes: CONTINUOUS RECORD, HI SAMPLE (a 10 second snapshot of data every 5 minutes) and LO SAMPLE (a 10 second snapshot of data every 10 minutes). The Wideband Mission Recorder will be operated in the continuous record mode with all tracks recording in parallel during OMS and RCS burns and as required for FTOs or FSOs. DFI data will be downlinked every ground station pass via a separate S-Band DFI FM downlink. This data will be recorded at the ground station for post-flight shipment to MCC. Recorded DFI data will not be dumped to ground stations during on-orbit operations.
- c. There are thirteen (13) GSTDN sites for on-orbit coverage: ORR, BUC, GDS, MIL, BDA, HAW, GWM, AGO, ACN, MAD, YAR, DKR, and BOT, and one (1) SGLS site, IOS. The BUC site does not support data dumps via S-band FM downlink. The IOS site will normally only support S-band PM downlink and down voice for this flight. The site will normally be supporting DOD requirements, but can be configured real time if required to support S-band up voice, PM uplink and FM downlink.
- d. Three (3) GSTDN sites can be used for real-time TV: GDS, MIL, and HAW.
- e. Nine (9) GSTDN sites and one (1) SGLS site have UHF voice capability: GDS, MIL, BDA, HAW, GWM, ACN, BUC, MAD, DKR, and IOS.
- f. Two (2) sites have only UHF voice capability: YAR, and BOT.
- g. There are five (5) SGLS sites available for on-orbit coverage: GTS, HTS, NHS, VTS, and IOS. IOS is the only site with voice capability and there is only voice via UHF while supporting DOD requirements.

3. Guidance and Navigation

- a. The Orbiter state vector is uplinked about once every three orbits.
- b. IMU alignments will be routinely scheduled approximately every twelve (12) hours.
- c. Both star trackers are left on continuously except for special tests. A self-test of the star tracker will be performed once a day, normally just prior to the IMU alignment scheduled after the sleep periods.

- d. Each IMU will be aligned with different REFSMMATs to provide skewed platforms for enhancement of redundancy management at launch and entry. The launch REFSMMATs have a square root of five skewing and the preferred skew for entry is a square root of six. The REFSMMATs will be changed for entry normally at about 00/03:35 MET. In order to simplify recovery procedures for some contingency cases, one of the IMUs will have the same REFSMMAT for launch and entry. For the case where an IMU fails prior to the switch to the square root of six REFSMMATs, the IMU REFSMMATs, for entry, will be changed to a square root of two skewing to enhance the redundancy management during entry.
- e. The on-orbit avionics configuration for STS-4 is listed below. GPC 3 (freeze dried) and GPC 5 (BFS) will be turned off at -0/01:00 MET.

GPCs - 2 RUN (1 GNC, 1 SM), 2 OFF, 1 INTERMITTENT (GNC)
IMUs - 3 OPERATE
STAR TRACKERS - 2 ON
MASS MEMORY UNITS - 2 ON
FLIGHT CRITICAL MDMs - 8 ON

- f. The ADI RELMATs provide a means to change the reference system for presenting vehicle attitudes to the crew without having to reposition the IMU platforms. The RELMATs support specific flight phase requirements and are defined as listed below.

1) ASCENT (OPS 1 and 6)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0° , pitch 0° , and yaw 0° when the vehicle is pointed at 0° Right Ascension, 0° Declination and the vehicle +Y axis is pointed at the celestial North Pole.

'REF' Position:

This will be a pad-oriented inertial RELMAT with the vehicle +X axis downrange along the first stage launch azimuth and the +Z towards the center of the earth along the launch pad radius vector at the time of lift off. This provides a +X sense ADI ball reading of roll 55.3° (launch azimuth), pitch 90° , and yaw 0° at liftoff.

'LVLH' Position:

This RELMAT will provide for an unbiased LVLH frame in major modes 104, 105, and 106 (i.e., the bias matrix will be an identity matrix). In major modes 101, 102, 103 and 601, the LVIY reference frame will be used.

2) ON-ORBIT (OPS 2 and 8)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0° , pitch 0° , and yaw 0° when the vehicle +X axis is pointed at 0° Right Ascension, 0° Declination and the vehicle +Y axis is pointed at the celestial pole.

'REF' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0° , pitch 0° , and yaw 0° when the vehicle +X axis is in the direction of the velocity vector and the +Z axis is directed radially down to the center of the earth at the orbital noon time which is closest to the midway MET between TIG for nominal OMS-2 and TIG for nominal deorbit burn.

'LVLH' Position:

This RELMAT will provide for an unbiased LVLH frame (i.e., the bias matrix will be an identity matrix).

3) ENTRY (OPS 3)

'INRTL' Position:

This RELMAT will provide a +X sense ADI ball reading of roll 0° , pitch 0° , and yaw 0° when the vehicle is pointed at 0° Right Ascension, 0° Declination and the vehicle +Y axis is pointed at the celestial North Pole.

'REF' Position:

Same as 'INRTL' position.

'LVLH' Position:

Unbiased.

- g. The OPS-2 I-loaded DAP configuration is currently planned to be:

	DAP A	DAP B
Translation Pulse	0.1	0.02
Rotation Discrete Rate - NORM	0.20/sec	0.50/sec
- VERNIERS	0.20/sec	0.20/sec
Rotation Pulse - NORM	0.1	0.04
- VERNIERS	0.01	0.002
Rotation Compensation - NORM	0.0	0.0
- VERNIERS	0.0	0.0
Attitude Deadband (R,P,Y axis)		
- NORM	5.00	3.00
- VERNIERS	1.00	1.00
Rate Deadband - NORM	0.20/sec	0.20/sec
- VERNIERS	0.020/sec	0.020/sec
Jet Opt Pitch	1	1
Yaw	1	1
Cntl Accel	0	0

- h. The OPS-3 Transition DAP configuration is:

Rotation Discrete Rate	0.20/sec
Attitude Deadband	3.50
Rate Deadband	0.30/sec

4. Propulsion

The major burns maneuver schedule for STS-4 is identified in Section 7.A, FLIGHT DESCRIPTION - MAJOR EVENTS.

5. Environmental Control and Life Support Subsystem (ECLS)

- The CO₂ absorbers are not installed for launch or entry. Both canisters are initially installed at approximately 0/05:20 MET and are then alternately replaced with new canisters within the required frequency of approximately every 24 hours. The canisters are both removed approximately 4 hours prior to the deorbit burn ignition during the deorbit preparations on entry day. The installation/replacement schedule is shown in Table 9-3.
- The waste water tank will be loaded to 40% at launch, with sufficient ullage volume to accommodate waste water accumulation during the flight. The tank will be as full as feasible at the planned end of the mission.
- The supply water tanks will be sufficiently loaded at launch so that planned launch day deorbit opportunities can be supported through the use of combined supply and waste water, without opening the payload bay doors. Thus all tanks will be full at launch except Tank A which will be 45% full. This allows sufficient ullage to handle fuel cell water production during the ascent phase. Potential supply water dumps are scheduled approximately every 12 hours in the Crew Activity Plan which may or may not be required. A real-time call will be made prior to each

scheduled dump to inform the crew if a dump is required and to what level. Tanks A & B will be dumped to a level that will allow the tanks to be full prior to the next daily group of EDW deorbit opportunities. The supply water dump schedule is shown in Table 9-2.

D. INTERIM TELEPRINTER SYSTEM (ITS)

1. The Interim Teleprinter System (ITS) will be used for STS-4. The system will provide an on-orbit capability to receive and reproduce text data (such as procedures and CAP updates or changes) from the MCC during routine and off-nominal situations.
2. The teleprinter is located on the middeck in a standard flight locker (MA9F) adjacent to Avionics Bay 3A. Foam insulation inside the locker is used to reduce the noise from the teleprinter during operation.

E. TELEVISION/PHOTOGRAPHY

1. The Closed Circuit Television (CCTV) system will be used for STS-4. This system provides two cameras for in-cabin coverage and two RMS and four payload bay TV cameras for coverage of payload bay activities. The system, after activation, can be managed by ground commands during live coverage passes. For TV coverage outside of STDN coverage, the crew must manage the CCTV system.
2. There is a video tape recorder (VTR) available to record video during periods when there is no STDN coverage. The video is recorded on 30-minute cassettes and will normally not be dumped to the ground. Recorded video can be dumped to the ground if desired since the VTR output (dump) currently is hooked to the PL1 video input, allowing recorded video to be played back into the Orbiter communication system as if it were a PL1 (Spacelab) TV camera input. VTR management must be performed by the crew.
3. 16mm, 35mm, and 70mm camera systems are available.

F. REMOTE MANIPULATOR SYSTEM (RMS)

1. OMS/RCS CONSTRAINTS

- a. VRCS - No constraints during RMS OPS
- b. PRCS - Constraints during Loaded and Unloaded RMS OPS:
 1. Usage not permitted under the following conditions:
 - a. RMS JOINT in a Singularity
 - b. RMS at a Reach Limit
 - c. RMS in Test Mode
 - d. During EE OPS
 - e. Loaded RMS/PRCS Interaction Test will be NO GO for Failed VRCS.
 2. Must be on Tail Only Jets with a 30 deadband when on AUTO DAP.

- c. OMS - Usage not permitted with RMS uncradled or attached to a berthed Payload.
2. No part of the RMS shall be positioned within the following distances of an RCS Thruster:
 - a. PRCS - 15 ft
 - b. VRCS - 3 ft
3. No part of the RMS/Payload/End Effector will be maneuvered outside the Crew/CCTV field of view, unless the joint angles and sequence to be maneuvered have been verified as acceptable.

G. PAYLOADS

1. IECM (Induced Environmental Contamination Monitor)

The crew will be required to operate the IECM switch on Panel R11 four times during the flight. These switch operations, which mode the IECM mass spectrometer, are performed after payload bay door openings, for plume impingement, contamination mapping, and gas release maneuver FTOs, per the STS-4 Flight Requirements Document (Ref. 1). The IECM mass spectrometer must be turned off when the payload bay doors are closed to prevent damage to the mass spectrometer by pressure buildup in the payload bay.

2. MLR (Monodisperse Latex Reactor)

The MLR is activated via a single switch prior to the first crew sleep period and runs continuously for 19.5 hours. The experiment occupies the space of three middeck lockers.

3. CFES (Continuous Flow Electrophoresis System)

The CFES provides a processing system which can segregate biological samples using a separation process based on the relative motion of charged particles through an electric field (electrophoresis). For STS-4, the crew will be required to operate the payload twice during the early portion of the flight. Each operating period lasts approximately eight hours. The PLT has been designated as the prime crewman for CFES operations. The CFES payload is located on the Orbiter middeck. A low acceleration level is desired during CFES operations.

4. GAS (Get-Away Special)

The GAS payload is a self-contained experiment package that requires minimal crew activity. After the crew is given approval for orbit operations, the crew unstows a handheld controller and activates the payload. Once activated, an internal controller sequentially initiates the biological, materials processing, and physical science experiments at the appropriate time. The experiments do not require any special attitudes during their operation. Deactivation and stowing of the handheld controller occur before deorbit preparation.

5. NOSL (Night/Day Optical Survey of Thunderstorm Lightning)

The NOSL experiment is performed in the Orbiter cabin. The experiment requires crew operations for unstowing and setting up in the aft flight deck, for on-orbit operations using targets of opportunity, and for stowage. A -ZLV attitude is desired for taking data.

ON-ORBIT CREW ACTIVITY
FUNCTIONAL TEST OBJECTIVES (FTOs),
FUNCTIONAL SUPPLEMENTARY OBJECTIVES (FSOs)

INTRODUCTION..... 8-2
TABLE 8-1 - STS-4 FTOs/FSOs..... 8-3

FTOs/FSOs

INTRODUCTION

The following Table describes the scheduling data and rationale for on-orbit crew activity related FTOs/FSOs for STS-4. The current FRD (Ref. 1) was used for compiling this table.

FTOs/FSOs

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
401-01	Ascent Performance Data Collection		
402-01	SRB Performance Data Collection		
403-01	On-Orbit Performance Data Collection	N/A	No crew interaction required except for DFI recorder configurations
404-01	Entry/Approach and Landing Performance Data		
411-01	Structural Conditioning	PTC initiated at 06/04:52	Ground will provide go/no-go for crew thermal conditioning
412-01	Attitude Hold Thermal Response	1/07:49 - 1/19:12 1/23:18 - 4/18:18 4/19:24 - 6/04:32 6/04:52 - 6/16:02	PTC (Tail To Sun) +ZSI (Bottom to Sun) PTC
412-02	Startracker Coldsoak Thermal Response	2/04:15 - 2/18:54 2/18:54	Both startrackers powered off Both startrackers powered on Both startrackers powered off for ~12 hours followed by ~12 hours of both startrackers powered on. A startracker self-test and a normal IMU alignment will be performed between the two periods

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOS/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
412-03	Supply Water Dump Line and Nozzle Thermal Response		Has been deleted
412-04	Waste Water Dump Line and Nozzle Thermal Response		Has been deleted
412-05	FRCS Thermal Soakback, One Forward Engine	4/15:40 - 5/00:10	Performed after 20 hours of -XSI or anytime after start of +XSI. Inhibit 3 FRCS engines for 5 hours; fire F3F for 30 seconds; inhibit all 3 engines for 5 hours
412-06	FRCS Thermal Soakback, Two Forward Engines	5/22:41 - 6/04:24	Performed no earlier than 20 hours after initiation of -XSI thermal test period. Requires inhibiting 3 FRCS engines for 5 hours, subsequent firing of 2 of the 3 engines for 30 seconds, and a final 5-hour period of inhibiting of all 3 engines prior to return to normal operations.
412-07	FRCS Thermal Soakback, Pulse Mode	3/16:00 - 4/02:50	Performed after 20 hours in either -XSI or +XSI; inhibit 3 FRCS engines for 5 hours; perform five 30-second firings of F3F (each firing separated by 30 minutes); inhibit all 3 engines for 5 hours
412-08	ARCS Thermal Soakback, One Aft Engine	5/22:41 - 6/04:24	Performed after 20 hours of +XSI; inhibit aft firing PRCS engines and VRCS engines in port pod; fire LIA for 100 seconds; inhibit engines involved for 5 hours

C-4

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
413-01	ET Passive Ablation Sensor Target Photography	8 seconds after ET SEP	
421-01	Early Entry Roll Characteristics	Q = 22.0 psf	
421-02	Aerothermodynamics/ Performance	V = 21,000 fps	
421-03	Aerothermodynamics/ Performance	V = 18,000 fps	
421-04	Aerothermodynamics/ Performance	V = 14,000 fps	
421-05	Aerothermodynamics/ Performance	V = 8,400 fps	
421-06	Supersonic Lateral Trim	M = 3.2	
421-07	Transonic Lateral/ Directional Stability		Has been deleted
421-08	Wing and Tail Excitation (Structural PTI)	M = 2.2	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTG's/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
431-01	Window Observation and Reporting		Has been deleted
432-01	Ascent Wing and Tail Excitation	V = 460 fps	
433-01	Payload Bay Liner Performance	0/02:55	
434-01	Flight Debris Investigation	0/02:57	
441-01	Vacuum Inerting	Between OMS 1&2	The inerting is terminated prior to the OMS-2 burn
441-02	Inerting Verification	0/05:20 - 0/05:52	Between 6 and 12 hours after completion of FT0 441-01
442-01	Simulated OMS Engine Failure (OMS-3)		Has been deleted
444-01	Hydraulic System Warm-up	During FCS C/O on FD5	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
445-01	PRSD Stratification Test, 85% Level	Not Scheduled	
445-02	PRSD Stratification Test, 50% Level	Not Scheduled	
445-03	PRSD Stratification Test, 15% Level	5/22:20 - 5/22:30	Provide cryo supply with 15% density to all 3 FCPs. Configure electrical loads for 19.3 kW split among 3 FCPs and maintain for 2 hours. Plus and then minus pitch maneuvers of 175° at 1°/sec performed
451-01	PLBD Initial Alignment Test		Has been deleted
451-02	PLBD Final Alignment Test		Has been deleted
451-03	PLBD Cold Case Performance	4/16:50 - 4/18:10	Performed as near the end of the -XSI thermal test period as practicable based on operational requirements. Theodolite must be installed. Calibration sightings required during initial PLBD operations
451-04	PLBD Thermal Gradient Performance	6/00:50 - 6/02:10	Performed as near the end of the +XSI thermal test period as practicable based on operational requirements

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
452-01	RMS Software Stop Performance		Has been deleted
452-02	Singularity Management	5/02:00 - 5/02:35	
452-03	Unloaded Arm Response to PRCS	5/01:18 - 5/01:58	
453-01	Contamination Mapping	1/20:20 - 1/22:50	IECM limited to 4 hours of operations after switching to internal battery power
454-01	RCS Plume Flow Field Measurement	2/01:10 - 2/03:10	IECM limited to 4 hours of operations after switching to internal battery power
455-01	Payload Deployment and Berthing Performance	1/20:10 - 1/23:15 2/01:00 - 2/03:30	
455-02	RMS/PRCS Interactions	Shopping List Item	
461-01	Whole Gas Samples	6/03:20	
461-03	ATCO Performance Evaluation	N/A	No crew interaction required

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FT0 NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
462-01	Radiator Coating Bond Verification	5/00:48 - 5/01:18	
466-01	Radiator Performance Test	0/02:20 - 0/08:00 1/06:55 - 1/23:25 2/20:05 - 2/22:54 5/20:20 - 6/01:30	Desired to perform this test during the following attitudes: -ZLV; -ZSI; -XSI or +XSI; PTC; +ZSI; Gravity Gradient
467-01	VPC Freezer Heat Exchanger Dynamics	0/23:50 - 1/07:50	Freezer should have been off at least six (6) hours
467-02	Long Term VPC Freezer Temperature Stability	1/23:45 - 1/23:50 3/02:15 - 3/02:20 4/05:30 - 4/05:35 5/05:35 - 5/05:40 5/22:55 - 5/23:00	
467-03	Sample Freezing Storing and Return	1/07:50 - 1/07:56	FT0 467-01 must be accomplished before this FT0
471-01	S-Band and UHF Antenna Patterns	6/05:20 - 6/05:40	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FTO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
472-01	Autoland Controlled Approach	N/A	
472-02	Crosswind Landing Performance	N/A	
473-01	Startracker Operation During Water Dumps	1/07:23 - 1/07:43	Daylight required
473-03	Forward Station COAS Calibration	0/08:24 - 0/08:29	
474-01	Navigation Base Stability	1/19:31 - 1/19:50 4/18:30 - 4/18:50	
475-01	Cold Case CCTV Evaluation, Non-Operating		Has been deleted
475-02	Cold Case CCTV Evaluation, Operating		Has been deleted
476-01	Backup Orbital Navigation	3/04:19 - 3/04:37 5/18:14 - 5/18:34 5/19:42 - 5/20:04	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FT0/FS0 NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
477-01	PRCS Narrow Deadband Attitude Hold Performance	3/23:20 - 3/23:25	
477-02	Passive Gravity Gradient Attitude Hold	0/06:05 - 0/07:56 0/19:15 - 1/06:52	
479-01	On-Orbit TACAN Nav Aid Capability	2/19:35 - 3/00:37 3/23:40 - 4:00:10 4/00:53 - 4/02:43	GPC must be in OPS 8 during data collection
S401-01	Tile Gap Heating Data Collection	N/A	
S402-01	Catalytic Surface Effects Data Collection	N/A	
S403-01	Dynamic, Acoustic and Thermal Environment Data	N/A	

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOs/FSOs

FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S431-01	IECM Operation	Post Insertion 4/23:05 - 4/23:50 Deorbit Prep	IECM switch is in POS 2 at launch; at four (4) defined times during the flight, the crew places the IECM switch in POS 1 position for 30 ±5 seconds and then back to POS 2 position
S432-01	Infrared Imagery of Shuttle	N/A	
S433-01	Prelaunch and Ascent ACIP Data Operation	Prelaunch & Ascent	
S433-02	Quiescent On-Orbit Data Collection	1/03:18 - 1/03:24	Gravity gradient required
S433-03	Deorbit Through Landing ACIP Data Collection	Deorbit and Entry	
S434-01	Deploy Radiation Dosimeter Pouches	N/A	
S434-02	Stow Radiation Dosimeter Pouches	N/A	

TABLE 8-1 - SIS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S435-01	GAS Operation	0/05:25 - 6/00:00	
S436-01	CFES Operation	0/20:25 - 1/04:15 2/19:45 - 3/04:09	Experiment run #1 Experiment run #2
S441-01	NOSL Operations	0/21:50 - 6/05:05	
S442-01	MLR Operation	0/06:30 - 1/02:15	Low acceleration level desired for 19.5 hours
S443-01	In-flight Motion Sickness Data Collection	0/08:45 1/08:15 2/07:25 3/06:15 4/05:55 5/05:55 6/05:55	
S491-01	Crew Activities IV	1/01:24 - 1/01:32 3/01:40 - 3/02:10 3/19:15 - 3/19:25 4/22:51 - 4/23:00 5/20:07 - 5/20:16	Group 2

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FT0s/FS0s

FSJ NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S491-02	IECM Handling Demonstration TV	2/01:10 - 2/03:10	Group 2
S491-03	Activities of Opportunity TV	TBD	Group 2
S491-04	TV of the CDR	3/19:15 - 3/19:25	Group 1
S491-05	TV of the PLT	1/01:24 - 1/01:32 3/01:40 - 3/02:10 4/22:51 - 4/23:00 5/20:07 - 5/20:16	Group 1
S492-01	Launch Photography (16mm)	Ascent	Group 1
S492-02	Crew Activities (16mm)	1/01:50 - 1/04:15 2/02:38 - 2/21:25 4/00:11 - 4/00:16 4/01:30 - 4/02:12 4/16:50 - 4/18:10	Group 2
S492-03	Payload Bay Photography (16mm)	1/20:20 - 1/22:55	Group 1, associated with RMS/IECM OPS
S492-04	Unscheduled Photography (16mm)	TBD	Group 2

TABLE 8-1 - STS-4 ON-ORBIT CREW ACTIVITY RELATED FTOS/FSOs

FSO NUMBER	TITLE	SCHEDULED (D/HH:MM) (MET)	SCHEDULING REMARKS
S492-05	Approach and Landing Photography (16mm)	Entry	Group 1
S492-06	Photography of the CDR (16mm)	2/20:38 - 2/21:25	Group 2
S492-07	Photography of the PLT (16mm)	4/00:11 - 4/00:16	Group 2
S493-01	Crew Activity Photography (35mm)	TBD	Group 2
S493-02	Payload Bay Photography (35mm)	TBD	Group 2
S493-03	On-Orbit Photography (35mm)	TBD	Group 2
S493-04	Still Photography of the CDR (35mm)	TBD	
S493-05	Still Photography of the PLT (35mm)	TBD	

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TABLES

TABLE 9-1
ORBITER FUEL CELL PURGES

APPROX MET (D/HH:MM)	FUEL CELL PURGE	
	NO.	Δt (HH:MM)
Post-Ins (0/02:52)	1	
0/08:40	2	04:48
0/18:30	3	09:50
1/08:10	4	13:40
1/18:00	5	09:50
2/07:15	6	13:15
2/17:15	7	10:00
3/06:05	8	12:50
3/16:10	9	10:05
4/05:50	10	13:40
4/15:40	11	09:50
5/05:50	12	14:10
5/15:45	13	09:55
6/05:50	14	14:05
6/16:20	15	10:30
Deorbit Prep (6/20:33)	16	05:53

TABLES

TABLE 9-2
 ORBITER WATER DUMPS (SUPPLY)

APPROX MET (D/HH:MM)	NO.	SUPPLY H2O Δt (HH:MM)
0/07:44	1	
0/17:55	2	10:11
1/07:24	3	13:29
1/18:00	4	10:36
2/05:50	5	11:50
2/17:10	6	11:20
3/04:45	7	11:35
3/16:05	8	11:20
4/03:05	9	11:00
4/19:05	10	16:00
5/03:10	11	08:05
5/15:55	12	12:45
6/02:10	13	10:15
6/16:25	14	14:15

TABLE 9-3
CO2 ABSORBER REPLACEMENT

APPROX MET (D/HH:MM)	CO2 ABSORBER REPLACEMENT			
	ABSORBER NO.	POSITION	POSITION A Δt (HH:MM)	POSITION B Δt (HH:MM)
* 0/05:20	1 & 2	A & B		
** 0/08:35	3	A	03:15	
1/08:10	4	B		26:50
2/07:20	5	A	46:45	
3/06:00	6	B		45:50
4/05:35	7	A	46:15	
5/05:40	8	B		47:40
6/05:40	9	A	48:05	
***6/17:50			13:50	37:15

*INITIAL INSTALLATION OF BOTH CO2 ABSORBERS

**CO2 ABSORBER NO 1 IS REWRAPPED AND SAVED FOR CONTINGENCY

***BOTH CO2 ABSORBERS REMOVED FOR ENTRY

TABLE 9-4
CRYO MANAGEMENT

	MET	O2/H2 TANK HTRS SWITCH CONFIGURATION
POST INSERTION	0/03:00 (STATUS AS OF)	O2 TK1 & 2 HTRS A,B (four) - AUTO H2 TK1 & 2 HTRS A,B (four) - AUTO O2 TK3 HTRS (two) - AUTO H2 TK3 HTRS (two) - AUTO O2 TK4 HTRS (two) - OFF H2 TK4 HTRS (two) - OFF
PREP (PRSD TEST)	5/15:50	O2 TK1,2,3,4 HTRS (all) - OFF H2 TK1,2,3,4 HTRS (all) - OFF
POWERUP (PRSD TEST)	5/19:53	O2,H2 TK4 HTRS A (two) - AUTO
PERFORMANCE (PRSD TEST)	5/22:20	
POST (PRSD TEST)	5/22:35	O2 TK1 & 2 HTRS A (two) - AUTO H2 TK1 & 2 HTRS A,B (four) - AUTO O2,H2 TK3 HTRS A (two) - AUTO O2,H2 TK4 HTRS A (two) - OFF

TABLE 9-5 - DFI WIDEBAND ASCENT RECORDER USAGE

APPROX MET (DD/HH:MM:SS)	MODE	PWR	Δt USAGE (MM:SS)	ACCUM USAGE (MM:SS)	TAPE REMAINING (MM:SS)	P*
--00/00:05:30	CONT	ON	--	00:00	32:00	T
00/00:13:00	STBY	ON	18:30	18:30	13:30	B
00/00:35:00	CONT	ON	00:00	18:30	13:30	S
00/00:39:00	STBY	ON	04:00	22:30	9:30	
00/01:05:00	STBY	OFF	04:00	22:30	9:30	

*Data Priority based from IC down to 1 (OI Data is 10)

TABLE 9-6 - DFI WIDE BAND MISSION RECORDER USAGE

APPROX MET (DD/HH:MM)	MODE	PWR	Δt USAGE (MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE REMAINING (HH:MM:SS)	REASON	P*
-00/00:06	CONT	ON	--	00:00:00	02:00:00	LAUNCH THRU OMS 1	T
00/00:13	STBY	ON	19:00	00:19:00	01:41:00		B
00/00:35	CONT	ON	00:00	00:19:00		OMS 2	S
00/00:39	STBY	ON	04:00	00:23:00	01:37:00		
00/01:05	STBY	OFF					
00/04:27	CONT	ON	00:00	00:23:00		OMS 3	
00/04:31	STBY	OFF	04:00	00:27:00	01:33:00		
00/05:12	CONT	ON	00:00	00:27:00		OMS 4	
00/05:16	STBY	OFF	04:00	00:31:00	01:29:00		
01/03:16	STBY	ON	00:00	00:31:00	01:29:00		
01/03:20	CONT	ON	00:00	00:31:00	01:29:00	ACIP ON-ORBIT TEST	
01/03:21	STBY	ON	01:00	00:32:00	01:28:00		
01/03:26	STBY	OFF	00:00	00:32:00	01:28:00		
03/18:48	CONT	ON	00:00	00:31:00		F3F PULSE MODE TEST	
03/18:52	STBY	OFF	04:00	00:36:00	01:24:00		
03/19:18	CONT	ON	00:00	00:36:00		F3F PULSE MODE TEST	
03/19:22	STBY	OFF	04:00	00:40:00	01:20:00		
03/19:48	CONT	ON	00:00	00:40:00		F3F PULSE MODE TEST	
03/19:52	STBY	OFF	04:00	00:44:00	01:16:00		
03/20:18	CONT	ON	00:00	00:44:00		F3F PULSE MODE TEST	
03/20:22	STBY	OFF	04:00	00:48:00	01:12:00		
03/20:48	CONT	ON	00:00	00:48:00		F3F PULSE MODE TEST	
03/20:52	STBY	OFF	04:00	00:52:00	01:08:00		
04/19:13	CONT	ON	00:00	00:52:00		RCS TEST, 1 FWD ENG	
04/19:17	STBY	OFF	04:00	00:56:00	01:04:00		
05/22:44	CONT	ON	00:00	00:56:00		RCS TEST, 2 FWD/1 AFT ENG	

*Data Priority based from 10 down to 1 (01 Data is 10)

**Time of 2 min sample should correspond to the approximate time sleep station readings are taken

TABLE 9-6 - DFI WIDE BAND MISSION RECORDER USAGE (CONTINUED)

APPROX MET (DD/HH:MM)	MODE	PWR	ΔT USAGE (MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE REMAINING (HH:MM:SS)	REASON	P*
05/22:48	STBY	OFF	04:00	01:00:00	01:00:00	WB CAL	
06/18:00	CONT	ON	00:00	01:01:00	00:59:00	DEORBIT BURN	
06/18:01	STBY	OFF	01:00	01:01:00	00:53:00	EI-3 THRU ROLLOUT	
06/22:40	CONT	ON	00:00	01:07:00	00:07:00		
06/22:46	STBY	OFF	06:00	01:07:00			
06/23:06	CONT	ON	00:00	01:53:00			
06/23:39	STBY	OFF	46:00				

*Data Priority based from 10 down to 1 (01 Data is 10)

**Time of 2 min sample should correspond to the approximate time sleep station readings are taken

TABLE 9-7 - DFI PCM RECORDER USAGE

APPROX MET (DD/HH:MM)	MODE	Δt (HH:MM)	Δt TAPE** USAGE (HH:MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE RE- MAINING (HH:MM:SS)	REASON	P*
-00/00:06	CONT	--	--	--	05:52:00	ASCENT THRU VAC INERT +5	T
00/00:23	HI SAMP	00:29	29:00	00:29:00	05:23:00	RA	B
00/00:35	CONT	00:12	00:22	00:29:22	05:22:38	OMS 2	S
00/00:39	LO SAMP	00:04	04:00	00:33:22	05:18:38		
00/01:59	CONT	01:20	01:17	00:34:39	05:17:21	PLBD OPENING	
00/02:02	LO SAMP	00:03	03:00	00:37:39	05:14:21	NOMINAL CONFIG	
00/04:27	CONT	02:25	02:34	00:40:13	05:11:47	OMS 3 BURN	
00/04:31	LO SAMP	00:04	04:00	00:44:13	05:07:47	NOMINAL CONFIG	
00/05:12	CONT	00:41	00:44	00:44:57	05:07:03	OMS 4 BURN	
00/05:16	LO SAMP	00:04	04:00	00:48:57	05:03:03	NOMINAL CONFIG	
00/05:22	CONT***	00:06	00:00	00:48:57	05:03:03	INERTING VERIFICATION	
00/05:27	HI SAMP***	00:05	05:00	00:53:57	04:58:03	INERTING VERIFICATION	
00/05:52	LO SAMP	00:25	00:44	00:54:41	04:57:19	NOMINAL CONFIG	
01/20:20	HI SAMP	38:28	41:26	01:36:07	04:15:53	IECM CONTAM MAPPING	
01/22:55	LO SAMP	02:35	05:19	01:41:26	04:10:34	NOMINAL CONFIG	
03/18:48	CONT	43:53	47:18	02:28:44	03:23:16	F3F PULSE MODE TEST	
03/19:00	HI SAMP	00:12	12:00	02:40:44	03:11:16	F3F PULSE MODE TEST	
03/19:18	CONT	00:18	00:33	02:41:17	03:10:43	F3F PULSE MODE TEST	
03/19:30	HI SAMP	00:12	12:00	02:53:17	02:58:43	F3F PULSE MODE TEST	
03/19:48	CONT	00:18	00:33	02:53:50	02:58:10	F3F PULSE MODE TEST	
03/20:00	HI SAMP	00:12	12:00	03:05:50	02:46:10	F3F PULSE MODE TEST	
03/20:18	CONT	00:18	00:33	03:06:23	02:45:37	F3F PULSE MODE TEST	
03/20:30	HI SAMP	00:12	12:00	03:18:23	02:33:37	F3F PULSE MODE TEST	

*Data Priority based from 10 to 1 (OI Data is 10)

**11 sec of tape used every 5 min 11 sec for HI SAMPLE and 10 min 11 sec for LOW SAMPLE

***If inerting verification is not required, recorder stays at LO SAMPLE

TABLE 9-7 - DFI PCM RECORDER USAGE (CONTINUED)

APPROX MET (DD/HH:MM)	MODE	Δt (HH:MM)	Δt TAPE** USAGE (HH:MM:SS)	ACCUM USAGE (HH:MM:SS)	TAPE RE- MAINING (HH:MM:SS)	REASON	P*
03/20:48	CONT	00:18	00:33	03:18:56	02:33:04	F3F PULSE MODE TEST	
03/21:00	HI SAMP	00:12	12:00	03:30:56	02:21:04	F3F PULSE MODE TEST	
04/01:43	CONT	04:43	09:54	03:40:50	02:11:10	FCS C/O	
04/01:49	LO SAMP	00:06	06:00	03:46:50	02:05:10	NOMINAL CONFIG	
04/05:50	HI SAMP	04:01	04:13	03:51:03	02:00:57	LAST 10 HRS OF -XSI	
04/19:13	CONT	13:23	28:14	04:19:17	01:32:43	RCS TEST, 1 FWD ENG	
04/19:25	HI SAMP	00:12	12:00	04:31:17	01:20:43	RCS TEST, 1 FWD ENG	
05:00:12	LO SAMP	04:47	10:05	04:41:22	01:10:38	NOMINAL CONFIG	
05:22:44	CONT	22:32	24:12	05:05:34	00:46:26	RCS TEST, 2 FWD/1 AFT ENG	
05:22:56	HI SAMP	00:12	12:00	05:17:34	00:34:26	RCS TEST, 2 FWD/1 AFT ENG	
06/04:26	LO SAMP	05:30	11:33	05:29:07	00:22:53	NOMINAL CONFIG	
06/18:31	HI SAMP	14:05	15:02	05:44:09	00:07:51	RADIATOR BYPASS/STOW RADIATORS	
06/19:20	HI SAMP	00:49			01:36:00	DFI PCM RCDR REWIND	
06/19:48	CONT		00:28			PLBD CLOSING/STRAIN GAUGE	
06/19:52	HI SAMP		00:04				
06/19:57	CONT					RADIATOR HEAT SINK	
06/20:02	HI SAMP		00:05				
06/22:36	CONT					TIG-4 MINUTES THRU POST LANDING	
-07/00:00	HI SAMP		01:24			POST ROLLOUT	

*Data Priority based from 10 to 1 (OI Data is 10)

**11 sec of tape used every 5 min 11 sec for HI SAMPLE and 10 min 11 sec for LOW SAMPLE

***If inerting verification is not required, recorder stays at LO SAMPLE

TABLE 9-8 - ATTITUDE AND EVENT TIMELINE

NET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP			EARTH θ	SUN θ	REMARKS
		Roll	Pitch	Yaw		SEL	CONT		RCS					
0/00:08:34	MECO					3.5	0.3	0.2	*	AUTO	*			
0/00:08:49	ET SEP (4 fps, -Z)					3.5	0.3	0.2	*	AUTO	*			
0/00:09:30	INITIATE MANUAL MNVR TO OMS-1 BURN ATT	--	--	--	--	N/A	N/A	N/A	*	MAN ACCEL	*	--	--	--
0/00:10:00	OMS-1 BURN ATT	337.2	190.5	346.5	INRTL	3.5	0.3	0.2	*	AUTO	*	69	359	99 181
0/00:10:31.3	OMS-1 IGNITION					3.5	0.3	0.2	*	AUTO	*			162.1 fps ΔV
0/00:12:07.3	OMS-1 CUTOFF					3.5	0.3	0.2	*	AUTO	*			
0/00:13:21	MPS DUMP TERMINATED					3.5	0.3	0.2	*	AUTO	*			
0/00:20:00	INITIATE AUTO MNVR TO OMS-2 BURN ATT	--	--	--	--	3.5	0.3	0.2	*	AUTO	*	--	--	MNVR TIME = 10 MIN EIG ANG = 115
0/00:30:00	OMS-2 BURN ATT	19.1	312.6	342	INRTL	3.5	0.3	0.2	*	AUTO	*	36	16	146 356
0/00:37:39.3	OMS-2 IGNITION					3.5	0.3	0.2	*	AUTO	*			174.8 fps ΔV
0/00:39:26.5	OMS-2 CUTOFF					3.5	0.3	0.2	*	AUTO	*			
0/00:55:00	DPS RECONFIG TO GNC 2 (OMS-2 ATT)					10.0	0.2	0.2	A	AUTO	NORM			
0/01:05:00	INITIATE -ZLV, XPOP +YBY FWD ATT MODE	--	--	--	--	10.0	0.2	0.2	A	AUTO	NORM	--	--	MNVR TIME = 9 MIN EIG ANG = 103
0/01:14:00	-ZLV, XPOP ATT (PLBD OPENING) (12° ROLL BIAS)	0	192	90	LVLH	10.0	0.2	0.2	A	AUTO	NORM	90	348	89 54 P 90 Y 348 OM 270 TGT: EARTH
0/03:41:00	FREE DRIFT					N/A	N/A	N/A	A	MAN PULSE	VERN			
0/04:10:00	INITIATE AUTO MNVR TO OMS-3 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	MNVR TIME = 11 MIN EIG ANG = 130

ORIGINAL PAGE IS
OF POOR QUALITY

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)	DISC RATE (°/sec)	DAP		EARTH 6	SUN 6	REMARKS
		Roll	Pitch	Yaw				SEL	COUNT			
0/04:21:00	OMS-3 BURN ATT	331.6	153.4	359.3	INRTL	1.0	0.02	A	AUTO	40	0	60 181
0/04:29:11.6	OMS-3 IGNITION					3.5	0.3	A	AUTO			62.3 fps ΔV
0/04:29:48.3	OMS-3 CUTOFF					1.0	0.02	A	AUTO			
0/04:55:00	INITIATE AUTO MNVR TO OMS-4 ATT	--	--	--	--	1.0	0.02	A	AUTO	--	--	MNVR TIME = 15 MIN EIG ANG = 180
0/05:10:00	OMS-4 BURN ATT	28.4	333.8	1	INRTL	1.0	0.02	A	AUTO	56	0	119 359
0/05:14:12.5	OMS-4 IGNITION					3.5	0.3	A	AUTO			61.6 fps ΔV
0/05:14:48.6	OMS-4 CUTOFF					1.0	0.02	A	AUTO			
0/05:47:00	INITIATE GRAVITY GRADIENT ATT MODE					1.0	0.02	A	AUTO			
0/06:01:00	GRAVITY GRADIENT ATT (PLB TO NORTH)	249.2	268.2	358.1	LVLH	N/A	N/A	A	MAN PULSE	3	157	141 109 Y 1 TGT: EARTH OH 249.2
0/07:47:00	TERMINATE GRAVITY GRADIENT	92.7	298	345.6	INRTL	1.0	0.02	A	MAN DISC	3	157	158 294
0/07:56:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	A	AUTO			MNVR TIME = 13 MIN EIG ANG = 147
0/08:09:00	IMU ALIGN ATT	250	336.3	338.8	INRTL	1.0	0.02	A	AUTO	58	154	125 124 -Y ST TO STAR #43 -Z ST TO STAR #15 ANG SEP = 84.1
0/08:17:00	INITIATE AUTO MNVR TO COAS CAL ATT	--	--	--	--	1.0	0.02	A	AUTO			MNVR TIME = 1 MIN EIG ANG = 11
0/08:18:00	COAS CAL ATT	253.2	343.7	330.1	INRTL	1.0	0.02	A	AUTO	90	140	120 118 +Xby TO STAR #26
0/08:24:00	+X COAS CAL					N/A	N/A	B	MAN PULSE			
0/08:29:00	ATTITUDE HOLD					1.0	0.02	A	AUTO			

TABLE 9-8 Continued

MET (D/HR:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE		DISC RATE (°/sec)	DAP		EARTH θ	SUN φ	REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT			
0/08:35:00	INITIATE -ZLV, XPOP +Yby FWD ATT MODE	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 9 MIN EIG ANG = 99 P 90
0/08:44:00	-ZLV, XPOP ATT (12° ROLL BIAS)	0	192	90	LVLH	1.0	0.02	0.2	A	AUTO	VERN	90 55	TGT: EARTH Y 348 OH 270
0/18:32:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 13 MIN EIG ANG = 146
0/18:45:00	IMU ALIGN ATT	16.2	172.5	13.3	INRTL	1.0	0.02	0.2	A	AUTO	VERN	72 143	-Y ST TO STAR #15 -Z ST TO STAR #43 ANG SEP = 84.1
0/18:57:00	INITIATE GRAVITY GRADIENT ATT MODE	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 8 MIN EIG ANG = 86 P 357.6
0/19:05:00	GRAVITY GRADIENT ATT (PLB TO NORTH)	249.2	268.2	358.1	LVLH	N/A	N/A	N/A	A	MAN PULSE	VERN	16 115	Y 1 OH 249.2
1/06:43:00	TERMINATE GRAVITY GRADIENT	92.3	358.6	19.1	INRTL	1.0	0.02	0.2	A	MAN DISC	VERN	90 293	
1/06:52:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 15 MIN EIG ANG = 170
1/07:07:00	IMU ALIGN/STRK OPS DURING H2O DUMP ATT (FTO 473-01)	212.5	77.9	44.4	INRTL	1.0	0.02	0.2	A	AUTO	VERN	27 101	-Y ST TO STAR #27 -Z ST TO STAR #54 ANG SEP = 83.7
1/07:49:00	INITIATE AUTO MNVR TO PTC ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 9 MIN EIG ANG = 100
1/07:58:00	PTC ATT	132.3	236	60.1	INRTL	1.0	0.02	0.2	A	AUTO	VERN	90 355	SUN IN YZby PLANE +X TOWARD R
1/08:07:00	START 0.4 °/SEC PTC ROTATION	132.8	236	60.1	ROTR	1.0	0.02	0.4	A	AUTO	VERN	90 355	EIGEN AXIS P 358 Y 0 ROT RATE = 0.4 °/SEC
1/19:12:00	INITIATE AUTO MNVR TO NAV BASE STA ATT #1	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 12 MIN EIG ANG = 134
1/19:24:00	NAV BASE STA ATT #1 (FTO 474-01)	221.4	128.1	3.5	INRTL	1.0	0.02	0.2	A	AUTO	VERN	35 282	-Y ST TO STAR #40 -Z ST TO STAR #57 ANG SEP = 90.4
1/19:35:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT #2	--	--	--	--	1.0	0.02	0.5	A	AUTO	VERN	--	MNVR TIME = 6 MIN EIG ANG = 180
1/19:41:00	IMU ALIGN/NAV BASE STA ATT #2	50.5	326.1	357.9	INRTL	1.0	0.02	0.5	A	AUTO	VERN	129 338	-Y ST TO STAR #57 -Z ST TO STAR #50 ANG SEP = 90.4

TABLE 9-8 Continued

MET (D/HI:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE (°/sec)		DISC RATE (°/sec)	DAP		EARTH θ	SUM θ	REMARKS
		Roll	Pitch	Yaw		SEL	RCS						
1/19:53:00	INITIATE AUTO MNVR TO -ZSI ATT	--	--	--	--	1.0	0.02	0.2	A	VERN	--	--	MNVR TIME = 8 MIN EIG ANG = 95
1/20:01:00	-ZSI ATT	129.6	234.2	59.2	INRTL	1.0	0.02	0.2	A	VERN	87	199	P 90 Y 0 OM 90 TGT: SUM
1/20:20:00	IECM CONTAMINATION SURVEY (FTO 453-01)					3.0	0.02	0.3	B	VERN & MAN			
1/22:55:00	RE-ESTABLISH -ZSI ATT					1.0	0.02	0.2	A	VERN			
1/23:18:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	VERN	--	--	MNVR TIME = 10 MIN EIG ANG = 116
1/23:28:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	VERN	121	187	179
2/01:10:00	IECM PLUME SURVEY (FTO 454-01)					3.0	0.02	0.2	A	NORM & MAN VERN			
2/03:10:00	RE-ESTABLISH -XSI ATT					0.1	0.02	0.2	B	VERN			
2/03:56:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	VERN	--	--	MNVR TIME = 8 MIN EIG ANG = 92
2/04:04:00	IMU ALIGN ATT	256.2	13.7	345.8	INRTL	1.0	0.02	0.2	A	VERN	57	153	91
2/04:22:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	VERN	--	--	-Y ST TO STAR #22 -Z ST TO STAR #51 ANG SEP = 84
2/04:30:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	VERN	118	180	0
2/05:25:00	INITIATE AUTO MNVR TO RCS BURN 1 ATT					1.0	0.02	0.2	A	VERN			
2/05:40:00	RCS BURN 1 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	VERN	TBD	TBD	TBD
2/05:45:00	RCS BURN 1					3.0	0.2	0.5	8	MAN DISC			
2/05:46:00	ATTITUDE HOLD					1.0	0.02	0.2	A	VERN			

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R, EULER SEQ) Roll Pitch Yaw		ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH δ	SUN δ	REMARKS				
		SEL	CONT		RCS	VERN										
2/05:47:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--				
2/06:02:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	113	12	180	0	
2/19:02:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	--	MNVR TIME = 10 MIN EIG ANG = 114
2/19:12:00	IMU ALIGN ATT	61	240.3	318.3	INRTL	1.0	0.02	0.2	A	AUTO	VERN	165	200	143	137	-Y ST TO STAR #23 -Z ST TO STAR #14 ANG SEP = 91.4
2/19:27:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	--	--	MNVR TIME = 10 MIN EIG ANG = 114
2/19:37:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	113	14	180	0	
3/01:12:00	INITIATE AUTO MNVR TO RCS BURN 2 ATT	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	--	
3/01:27:00	RCS BURN 2 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD	TBD	TBD	TBD	
3/01:32:00	RCS BURN 2					3.0	0.2	0.5	B	MAN DISC	NORH					
3/01:33:00	ATTITUDE HOLD					1.0	0.02	0.2	A	AUTO	VERN					
3/01:37:00	INITIATE AUTO MNVR TO POST BURN ATT	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	--	
3/01:52:00	POST RCS BURN 2 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD	TBD	TBD	TBD	
3/02:07:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	--	--	
3/02:22:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	57	196	180	0	
3/04:05:00	INITIATE AUTO MNVR TO IMU ALIGN/BACKUP NAV ATT #1	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	--	MNVR TIME = 7 MIN EIG ANG = 74
3/04:12:00	IMU ALIGN/BACKUP NAV ATT #1 (FTO 476-01)	252.9	252.5	348.9	INRTL	1.0	0.02	0.2	A	AUTO	VERN	144	159	156	245	-Y ST TO STAR #41 -Z ST TO STAR #34 ANG SEP = 88.6

ORIGINAL PART OF POOR QUALITY

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler SEQ)		ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)	DISC RATE (°/sec)	DAP		EARTH		SUN		REMARKS	
		Pitch	Yaw				SEL	CONT	RCS	θ	φ	θ		φ
3/04:26:00	INITIATE AUTO MNVR TO BACKUP NAV ATT #2	--	--	--	1.0	0.02	A	AUTO	VERN	--	--	--	MNVR TIME = 4 MIN EIG ANG = 38	
3/04:30:00	BACKUP NAV ATT #2	246.8	351	INRTL	1.0	0.02	A	AUTO	VERN	169	311	163	173	-Y ST TO STAR #20 -Z ST TO STAR #17 ANG SEP = 85
3/04:39:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	0.1	0.02	B	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 55
3/04:44:00	-XSI ATT	192	336.8	INRTL	0.1	0.02	B	AUTO	VERN	98	13	179	353	
3/17:37:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	1.0	0.02	A	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 53
3/17:42:00	IMU ALIGN ATT	241.7	353.1	INRTL	1.0	0.02	A	AUTO	VERN	82	148	149	153	-Y ST TO STAR #42 -Z ST TO STAR #15 ANG SEP = 89.1
3/18:02:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	0.1	0.02	B	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 53
3/18:07:00	-XSI ATT	192	336.8	INRTL	0.1	0.02	B	AUTO	VERN	145	26	179	352	
3/18:45:00	PRE FRCS THERMAL SOAKBACK CONFIG				5.0	0.2	A	AUTO	NORM					
3/18:50:00	-X TRANS (FTO 412-07)				5.0	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/18:50:30	ATTITUDE HOLD				0.1	0.02	B	AUTO	VERN					
3/19:20:00	-X TRANS (FTO 412-07)				5.0	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/19:20:30	ATTITUDE HOLD				0.1	0.02	B	AUTO	VERN					
3/19:50:00	-X TRANS (FTO 412-07)				5.0	0.2	A	AUTO	NORM					30 SEC F3F BURN
3/19:50:30	ATTITUDE HOLD				0.1	0.02	B	AUTO	VERN					
3/20:20:00	-X TRANS (FTO 412-07)				5.0	0.2	A	AUTO	NORM					30 SEC F3F BURN

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP		EARTH		REMARKS
		Roll	Pitch	Yaw		SEL	CONT		RCS	θ	φ	θ	
3/20:20:30	ATTITUDE HOLD					0.1	0.02	0.2	B	AUTO	VERN		
3/20:50:00	-X TRANS (FTO 412-07)					5.0	0.2	0.2	A	AUTO	NORM		30 SEC F3F BURN
3/20:53:00	POST FRCS THERMAL SOAKBACK CONFIG					0.1	0.02	0.2	B	AUTO	VERN		
3/23:18:00	PRCS ATT HOLD TEST (FTO 477-01)					0.1	0.2	0.2	A	AUTO	NORM		
3/23:18:30	ATTITUDE HOLD					0.1	0.02	0.2	B	AUTO	VERN		
3/23:41:00	INITIATE AUTO MNVR TO TACAN TRK ATT	--	--	--	--	5.0	0.2	0.2	A	AUTO	NORM	--	P, Y JET OPT=3(TAIL ONTC) MNVR TIME = 14 MIN EIG ANG = 170
3/23:56:00	TACAN TRK ATT (FTO 479-01)	21.4	347.8	29.2	INRTL	5.0	0.2	0.2	A	AUTO	NORM	79 357 97 10	P 7.5 161: #3(KU) Y 0 LAT: -12.414 OH 180 LON: 130.883 EIGEN AXIS P 187.4 Y 276.8 ROT RATE = 0.323 °/SEC
3/23:56:30	INITIATE TACAN NAV ROT	21.4	347.8	29.2	ROTR	5.0	0.2	0.2	A	AUTO	NORM	81 357 97 10	
4/00:12:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 15 MIN EIG ANG = 178
4/00:27:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	76 12 179 352	
4/01:45:00	FCS CHECKOUT - APU START					5.0	0.2	0.2	A	AUTO	NORM		
4/01:53:00	APU SHUTDOWN					1.0	0.02	0.2	A	AUTO	VERN		
4/01:55:00	SENSOR TEST					N/A	N/A	N/A	A	MAN PULSE	VERN		
4/02:00:00	RE-ESTABLISH -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 3 MIN EIG ANG = 30
4/02:03:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	55 7 179 352	
4/02:46:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 5 MIN EIG ANG = 53

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EDLER SEQ)			ATT MODE	DEADENDS ATT RATE		DISC RATE (°/sec)	DAP		EARTH θ	SUN θ	REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT			
4/02:51:00	IMU ALIGN ATT	241.7	307.6	353.1	INRTL	1.0	0.02	0.2	A	AUTO	VERN	104 145 149 153	-Y ST TO STAR #42 -Z ST TO STAR #15 ANG SEP = 89.1
4/03:02:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	MNVR TIME = 5 MIN ETG ANG = 53
4/03:07:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	157 39 179 352	
4/04:15:00	INITIATE AUTO MNVR TO RCS BURN 3 ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	
4/04:30:00	RCS BURN 3 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	VERN	TBD TBD TBD TBD	
4/04:36:00	RCS BURN 3					3.0	0.2	0.5	B	MAN DISC	NORM		
4/04:37:00	ATTITUDE HOLD					1.0	0.2	0.2	A	AUTO	VERN		
4/04:47:00	INITIATE AUTO MNVR TO -XSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	
4/05:02:00	-XSI ATT	192	278.9	336.8	INRTL	0.1	0.02	0.2	B	AUTO	VERN	63 9 179 352	
4/18:18:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT #1	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 11 MIN ETG ANG = 121
4/18:29:00	IMU ALIGN/NAV BASE STA ATT #1 (FTO 474-01)	165.6	157.2	4.3	INRTL	1.0	0.02	0.2	A	AUTO	VERN	31 131 57 350	-Y ST TO STAR #49 -Z ST TO STAR #32 ANG SEP = 87.8
4/18:35:00	INITIATE AUTO MNVR TO IMU ALIGN/NAV BASE STA ATT #2	--	--	--	--	1.0	0.02	0.5	A	AUTO	VERN	--	MNVR TIME = 6 MIN ETG ANG = 180
4/18:41:00	IMU ALIGN/NAV BASE STA ATT #2 (FTO 474-01)	104.9	346.1	11.1	INRTL	1.0	0.02	0.5	A	AUTO	VERN	123 101 108 284	-Y ST TO STAR #32 -Z ST TO STAR #49 ANG SEP = 87.8
4/18:52:00	INITIATE AUTO MNVR TO FRCS THERMAL SOAKBACK ATT	--	--	--	--	3.0	0.02	0.2	A	AUTO	VERN	--	MNVR TIME = 12 MIN ETG ANG = 144
4/19:04:00	FRCS THERMAL SOAKBACK ATT	317.6	227.7	54.5	INRTL	1.0	0.02	0.2	A	AUTO	VERN	81 42 90 180	+Z SI +X TOWARD R
4/19:13:00	FRCS THERMAL SOAKBACK CONFIG					5.0	0.2	0.2	A	AUTO	NORM		

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq)			ATT MODE	DEADBANDS ATT RATE (°/sec)		DISC RATE (°/sec)	DAP		EARTH θ	SUN θ	REMARKS
		Roll	Pitch	Yaw		SEL	CONT		RCS				
4/19:15:00	-X TRANS (FTO 412-05)					5.0	0.2	0.2	A	AUTO			30 SEC F3F BURN
4/19:18:00	POST FRCS THERMAL SOAKBACK CONFIG					0.1	0.02	0.2	B	AUTO			
4/19:24:00	INITIATE AUTO MWR TO +ZSI ATT				--	0.1	0.02	0.2	B	AUTO			MWR TIME = 1 MIN EIG ANG = 10
4/19:25:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	101 124	90 179	P 270 Y 0 OM 267 TGT: SUN
4/20:55:00	INITIATE AUTO MWR TO RCS BURN 4 ATT				--	1.0	0.02	0.2	A	AUTO			
4/21:10:00	RCS BURN 4 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	TBD TBD	TBD TBD	
4/21:15:00	RCS BURN 4					3.0	0.2	0.5	B	MAN DISC			
4/21:16:00	ATTITUDE HOLD					1.0	0.02	0.2	A	AUTO			
4/21:20:00	INITIATE AUTO MWR TO POST BURN ATT				--	1.0	0.02	0.2	A	AUTO			
4/21:35:00	POST RCS BURN 4 ATT	TBD	TBD	TBD	INRTL	1.0	0.02	0.2	A	AUTO	TBD TBD	TBD TBD	
4/21:52:00	INITIATE AUTO MWR TO +ZSI ATT				--	0.1	0.02	0.2	B	AUTO			
4/22:07:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	84 50	90 180	P 270 Y 0 OM 267 TGT: SUN
4/22:34:00	INITIATE AUTO MWR TO IECH GAS RELEASE ATT				--	1.0	0.02	0.2	A	AUTO			MWR TIME = 10 MIN EIG ANG = 115
4/22:44:00	IECH GAS RELEASE ATT (FSO S431-01)	0	90	270	LVLH	1.0	0.02	0.2	A	AUTO	90 270	77 254	P 0 OM 90 TGT: EARTH
4/23:05:00	IECH GAS RELEASE ROTATION	345.4	206.5	61.7	ROTR	0.5	0.02	0.007	A	AUTO	90 270	77 170	ETGEN AXIS P 180 Y 0 ROT RATE = 0.007 °/SEC
4/23:50:00	STOP ROTATION/ATTITUDE HOLD	326.5	206.5	61.7	INRTL	1.0	0.02	0.2	A	AUTO	90 108	77 189	

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS ATT RATE (°/sec)		DISC RATE (°/sec)	DAP			EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	CONT	RCS	θ	φ	θ	φ	
4/23:53:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERH	--	--	--	--	MNVR TIME = 2 MIN EIG ANG = 17 P 270 Y 0 OM 267
4/23:55:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	VERN	100	117	90	180	TGT: SUN
5/01:18:00	PRE RMS/PRCS INTERACTION CONFIG (FTO 452-03)					N/A	N/A	N/A	B	MAN PULSE	NORM					
5/01:58:00	POST RMS/PRCS INTERACTION CONFIG					0.1	0.02	0.2	B	AUTO	VERN					
5/04:24:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO	VERN	--	--	--	--	MNVR TIME = 6 MIN EIG ANG = 64 -Y ST TO STAR #51 -Z ST TO STAR #22
5/04:30:00	IMU ALIGN ATT	12.4	208.6	4.9	INRTL	1.0	0.02	0.2	A	AUTO	VERN	144	104	104	142	ANG SEP = 84
5/04:48:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	0.1	0.02	0.2	B	AUTO	VERN	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 54 P 270 Y 0 OM 267
5/04:54:00	+ZSI ATT	321.2	224	51.4	INRTL	0.1	0.02	0.2	B	AUTO	VERN	97	227	90	180	TGT: SUN
5/05:05:00	RCS HOT FIRE TEST					N/A	N/A	N/A	A	MAN PULSE	NORM					
5/05:20:00	RE-ESTABLISH +ZSI ATT					0.1	0.02	0.2	B	AUTO	VERN					
5/15:45:00	FRCS/ARCS THERMAL SOAKBACK DAP CONFIG					5.0	0.2	0.2	A	AUTO	NORM					P, Y JET OPT = 3 (TAIL CNTL)
5/17:57:00	INITIATE AUTO MNVR TO IMU ALIGN/BACKUP NAV ATT 1	--	--	--	--	3.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 86 -Y ST TO STAR #41 -Z ST TO STAR #34
5/18:05:00	IMU ALIGN/BACKUP NAV ATT 1	252.9	252.5	348.9	INRTL	3.0	0.2	0.2	A	AUTO	NORM	150	141	149	260	ANG SEP = 88.6
5/18:22:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 2	--	--	--	--	3.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 4 MIN EIG ANG = 38
5/18:26:00	BACKUP NAV ATT 2	246.8	288.6	351	INRTL	3.0	0.2	0.2	A	AUTO	NORM	158	339	165	180	-Y ST TO STAR #20 -Z ST TO STAR #17
5/18:35:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	3.0	0.2	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 92

TABLE 9-8 Continued

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler SEQ)			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)	DISC RATE (°/sec)	DAP		EARTH θ	SUN θ	REMARKS			
		Roll	Pitch	Yaw				SEL	CONT				RCS		
5/18:43:00	+ZSI ATT	321.2	224	51.4	INRTL	3.0	0.2	A	AUTO	NORM	84	281	90	180	P 270 Y 0 OM 267 TGT: SUN
5/19:30:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 1	--	--	--	--	3.0	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 7 MIN EIG ANG = 75
5/19:37:00	BACKUP NAV ATT 1	255	255.8	0.6	INRTL	3.0	0.2	A	AUTO	NORM	145	153	145	241	-Y ST TO STAR #41
5/19:52:00	INITIATE AUTO MNVR TO BACKUP NAV ATT 2	--	--	--	--	3.0	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 3 MIN EIG ANG = 36
5/19:55:00	BACKUP NAV ATT 2	246.8	288.6	351	INRTL	3.0	0.2	A	AUTO	NORM	164	347	165	180	-Y ST TO STAR #20 -Z ST TO STAR #17
5/20:07:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	5.0	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 8 MIN EIG ANG = 92
5/20:15:00	+ZSI ATT	321.2	224	51.4	INRTL	5.0	0.2	A	AUTO	NORM	83	286	90	180	P 270 Y 0 OM 267 TGT: SUN
5/22:22:00	PRSD +PITCH MNVR (FTO 445-01)	321.2	224	51.4	ROTR	5.0	0.2	A	MAN DISC	NORM	87	72	90	180	EIGEN AXIS P 0 Y 90
5/22:25:00	PDRS -PITCH MNVR (FTO 445-01)	38.8	44	308.6	ROTR	5.0	0.2	A	MAN DISC	NORM	89	96	90	0	ROT RATE = 1.0 °/SEC EIGEN AXIS P 0 Y 270
5/22:28:00	+ZSI ATT	321.2	224	51.4	INRTL	5.0	0.2	A	AUTO	NORM	94	95	90	180	P 270 Y 0 OM 267 TGT: SUN
5/22:32:00	INITIATE AUTO MNVR TO FRCS/ARCS THERMAL SOAKBACK ATT	--	--	--	--	5.0	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 1 MIN EIG ANG = 3
5/22:33:00	FRCS/ARCS THERMAL SOAKBACK ATT	319.3	226.9	53.2	INRTL	5.0	0.2	A	AUTO	NORM	97	114	90	180	
5/22:46:00	FRCS THERMAL SOAKBACK BURN (FTO 412-06)					5.0	0.2	A	AUTO	NORM					F2F/F3F 30 SEC BURN
5/22:47:00	ARCS THERMAL SOAKBACK BURN (FTO 412-08)					5.0	0.2	A	AUTO	NORM					L1A 100 SEC BURN
5/22:49:00	ATTITUDE HOLD					5.0	0.2	A	AUTO	NORM					
5/23:02:00	INITIATE AUTO MNVR TO +ZSI ATT	--	--	--	--	5.0	0.2	A	AUTO	NORM	--	--	--	--	MNVR TIME = 1 MIN EIG ANG = 3

TABLE 9-8 Continued

MET (D/HR:MM:SS)	EVENT	ATTITUDE (P, Y, R EULER SEQ)			ATT MODE	DEADBANDS RATE (°/sec)		DISC RATE (°/sec)	DAP		EARTH θ	SUN θ	REMARKS
		Roll	Pitch	Yaw		ATT (deg)	RATE (°/sec)		SEL	RCS			
5/23:03:00	751 ATT	321.2	224	51.4	INRTL	5.0	0.2	0.2	A	VERN	98	236	90 180 P 270 Y 0 OM 267 TGT: SUN
6/04:22:00	FRCS/ARCS THERMAL SOAKBACK RECONFIG					1.0	0.02	0.2	A	AUTO			
6/04:32:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO			MNVR TIME = 8 MIN EIG ANG = 90
6/04:40:00	IMU ALIGN ATT	261	349.6	39	INRTL	1.0	0.02	0.2	A	AUTO	51	101	-Y ST TO STAR #43 -Z ST TO STAR #28 ANG SEP = 85
6/04:52:00	INITIATE AUTO MNVR TO PTC ATT	--	--	--	--	1.0	0.02	0.2	A	AUTO			MNVR TIME = 7 MIN EIG ANG = 76
6/04:59:00	PTC ATT	8.6	226.8	53	INRTL	1.0	0.02	0.2	A	AUTO	106	161	SUN IN YZBY PLANE +X TOWARD R EIGEN AXIS P 358
6/05:05:00	START 0.4 DEG/SEC PTC ROTATION	8.6	226.8	53	ROTR	1.0	0.02	0.4	A	AUTO	101	185	ROT RATE = 0.4°/SEC EIGEN AXIS P 358
6/05:25:00	S-BAND/UHF ANTENNA PATTERNS (FTO 471-01)	133	221.3	54.1	ROTR	5.0	0.2	2.0	A	AUTO	79	143	ROT RATE = 2.0°/SEC EIGEN AXIS P 358
6/05:35:00	RE-ESTABLISH PTC	252	222.5	50.8	ROTR	1.0	0.02	0.4	A	AUTO	72	64	ROT RATE = 0.4°/SEC EIGEN AXIS P 358
6/16:02:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	1.0	0.02	0.2	B	AUTO			MNVR TIME = 9 MIN EIG ANG = 105
6/16:11:00	IMU ALIGN ATT	248.2	248.9	339.4	INRTL	1.0	0.02	0.2	B	AUTO	28	141	-Y ST TO STAR #41 -Z ST TO STAR #50 ANG SEP = 85
6/16:22:00	INITIATE AUTO MNVR TO TAIL-TO-SUN	--	--	--	--	1.0	0.02	0.2	A	AUTO			MNVR TIME = 3 MIN EIG ANG = 34
6/16:25:00	TAIL-TO-SUN ATT	258.6	284.1	341	INRTL	1.0	0.02	0.2	A	AUTO	54	144	SUN 3° BELOW -Xdy
6/18:05:00	CONFIG TO PRCS					3.0	0.2	0.5	B	AUTO			
6/19:54:00	INITIATE AUTO MNVR TO IMU ALIGN ATT	--	--	--	--	3.0	0.2	0.5	B	AUTO			MNVR TIME = 4 MIN EIG ANG = 119
6/19:58:00	IMU ALIGN ATT	227	35.6	43.9	INRTL	3.0	0.2	0.5	B	AUTO	66	114	-Y ST TO STAR #14 -Z ST TO STAR #26 ANG SEP = 91.4

TABLE 9-8 Concluded

MET (D/HH:MM:SS)	EVENT	ATTITUDE (P, Y, R Euler Seq) Roll Pitch Yaw			ATT MODE	DEADBANDS ATT RATE (deg) (°/sec)		DISC RATE (°/sec)	DAP			EARTH		SUN		REMARKS
		Roll	Pitch	Yaw		SEL	CONT		RCS	0	φ	0	φ			
6/20:05:00	INITIATE AUTO MNVR TO IMU ALIGN VERIFICATION ATT	--	--	--	--	3.0	0.2	0.5	B	AUTO	NORM	--	--	--	--	MNVR TIME = 2 MIN EIG ANG = 48 -Y ST TO STAR #49 -Z ST TO STAR #60 ANG SEP = 84.1
6/20:07:00	IMU ALIGN VERIFICATION ATT	174.1	57.6	25.8	INRTL	3.0	0.2	0.5	B	AUTO	NORM	78	165	41	192	
6/20:22:00	INITIATE AUTO MNVR TO TOP-TO- SUN ATT	--	--	--	--	3.0	0.2	0.5	B	AUTO	NORM	--	--	--	--	MNVR TIME = 4 MIN EIG ANG = 111
6/20:26:00	TOP-TO-SUN ATT	141.2	155.9	334.9	INRTL	3.0	0.2	0.5	B	AUTO	NORM	46	204	70	0	
6/21:09:00	CONFIG RJDs FOR ENTRY					3.0	0.2	0.5	B	AUTO	NORM					
6/21:11:00	DPS RECONFIG TO GNC 3					3.5	0.3	0.2	*	AUTO	*					
6/22:26:00	INITIATE AUTO MNVR TO DEORB BURN ATT	--	--	--	--	3.5	0.3	0.2	*	AUTO	*	--	--	--	--	MNVR TIME = 5 MIN EIG ANG = 51
6/22:31:00	DEORB BURN ATT	152	113	354	INRTL	3.5	0.3	0.2	*	AUTO	*	133	0	30	316	
6/22:40:00	ACTIVATE SINGLE APU					3.5	0.3	0.2	*	AUTO	*					
6/22:41:49	DEORB BURN IGNITION					3.5	0.3	0.2	*	AUTO	*					315.2 fps ΔV
6/22:44:44	DEORB BURN CUTOFF					3.5	0.3	0.2	*	AUTO	*					
6/22:46:00	INITIATE AUTO MNVR TO EI-5 ATT	--	--	--	--	3.5	0.3	0.2	*	AUTO	*	--	--	--	--	MNVR TIME = 11 MIN EIG ANG = 132
6/22:55:00	ACTIVATE REMAINING APUS					3.5	0.3	0.2	*	AUTO	*					
6/22:57:00	EI-5 ATT	196	339	26	INRTL	3.5	0.3	0.2	*	AUTO	*	103	179	107	201	
6/23:03:37	EI-5	1	39	359	LVLH	3.5	0.3	0.2	*	AUTO	*	129	180	107	201	

ABBREVIATIONS/ACRONYMS

More complete compilations of abbreviations and acronyms are available in the Acronyms and Abbreviations Dictionary (Ref. 4).

ABBREVIATIONS/
ACRONYMS

ABBREVIATIONS/ACRONYMS

ACIP	AERODYNAMIC COEFFICIENTS IDENTIFICATION PACKAGE
ACN	ASCENSION ISLAND (STDN SITE)
ACT	ACTIVATE
ADI	ATTITUDE DIRECTION INDICATOR
AGO	SANTIAGO, CHILE (STDN SITE)
ANT	ANTENNA
AOA	ABORT ONCE AROUND
AOS	ACQUISITION OF SIGNAL
ATT	ATTITUDE
ATO	ABORT TO ORBIT
BDA	BERMUDA ISLAND, BWI (STDN SITE)
BOT	BOTSWANA (STDN SITE)
BUC	BUCKHORN, CALIFORNIA (STDN SITE)
CAL	CALIBRATION
CCTV	CLOSED CIRCUIT TV
CCU	CREWMAN COMMUNICATIONS UMBILICAL
CDR	COMMANDER
CDT	CENTRAL DAYLIGHT TIME
CFES	CONTINUOUS FLOW ELECTROPHORESIS SYSTEM
CHG	CHANGE
CL	CHECKLIST
COAS	CREWMAN OPTICAL ALIGNMENT SIGHT
C&W	CAUTION AND WARNING
DAP	DIGITAL AUTO PILOT
DB	DEADBAND
DEU	DISPLAY ELECTRONICS UNIT
DFI	DEVELOPMENT FLIGHT INSTRUMENTATION

ABBREVIATIONS/
ACRONYMS

DKR	DAKAR, SENEGAL (STDN SITE)
DTO	DETAILED TEST OBJECTIVE
ECLS	ENVIRONMENTAL CONTROL LIFE SUPPORT SYSTEM
EDW	EDWARDS AFB, CALIFORNIA (DEORB OPT SITE)
EES	EMERGENCY EJECTION SUITS
EET	EVENT ELAPSED TIME
EMU	EXTRAVEHICULAR MOBILITY UNIT
EVA	EXTRAVEHICULAR ACTIVITY
FC	FUEL CELL
FDF	FLIGHT DATA FILE
FM	FREQUENCY MODULATION
FRD	FLIGHT REQUIREMENTS DOCUMENT
FSO	FUNCTIONAL SUPPLEMENTARY OBJECTIVE
FTO	FUNCTIONAL TEST OBJECTIVE
FWD	FORWARD
GAS	GET-AWAY SPECIAL
GDS	GOLDSTONE, CALIFORNIA (STDN SITE, 1ST ANTENNA)
GDX	GOLDSTONE, CALIFORNIA (STDN SITE, 2ND ANTENNA)
GNC	GUIDANCE NAVIGATION AND CONTROL
GPC	GENERAL PURPOSE COMPUTER
GSTDN	GROUND SPACE TRACKING & DATA NETWORK
GTS	GUAM ISLAND, U.S. (SGLS SITE)
GWM	GUAM ISLAND, U.S. (STDN SITE)
HAW	HAWAII (KAUAI, STDN SITE)
HTS	HAWAII (SGLS SITE)
HYD	HYDRAULIC
IECM	INDUCED ENVIRONMENTAL CONTAMINATION MONITOR

IMU	INERTIAL MEASUREMENT UNIT
INRTL	INERTIAL
IOS	INDIAN OCEAN (SGLS SITE)
ITS	INTERIM TELEPRINTER SYSTEM
LOS	LOSS-OF-SIGNAL; LINE-OF-SIGHT
LVLH	LOCAL VERTICAL LOCAL HORIZONTAL
MAD	MADRID, SPAIN (STDN SITE, 1ST ANTENNA)
MAX	MADRID, SPAIN (STDN SITE, 2ND ANTENNA)
MCC	MISSION CONTROL CENTER
MDM	MULTIPLEXER/DEMULTIPLEXER
MECO	MAIN ENGINE CUTOFF
MET	MISSION ELAPSED TIME
MIL	MERRITT ISLAND, FLORIDA (STDN SITE)
MILA	MERRITT ISLAND LAUNCH AREA
MLR	MONODISPERSE LATEX REACTOR
MLX	MERRITT ISLAND, FLORIDA (STDN SITE, 2ND ANTENNA)
MNVR	MANEUVER
MPM	MANIPULATOR POSITION MECHANISM
MPS	MAIN PROPULSION SYSTEM
MRL	MANIPULATOR RETENTION LATCHES
MTVC	MANUAL THRUST VECTOR CONTROL
NHS	NEW HAMPSHIRE (SGLS SITE)
OBS	OPERATIONAL BIOMED SENSORS; OBSERVATIONS
OEX	ORBITER EXPERIMENTS
OI	OPERATIONAL INSTRUMENTATION
OMS	ORBITAL MANEUVERING SYSTEM
OPS	OPERATIONS; OPERATIONAL SEQUENCE

ORB	ORBITER
ORR	ORRORAL VALLEY, AUSTRALIA (STDN SITE)
PCM	PULSE-CODE MODULATION
PDRS	PAYLOAD DEPLOYMENT AND RETRIEVAL SYSTEM
PL	PAYLOAD
PLBD	PAYLOAD BAY DOORS
PLT	PILOT
PM	PHASE MODULATION
PMC	PRIVATE MEDICAL COMMUNICATION
PMP	PUMP
PRCS	PRIMARY RCS
PRO	PROCEED
PSA	PRE/POST SLEEP ACTIVITY
PTC	PASSIVE THERMAL CONTROL
RCS	REACTION CONTROL SYSTEM
REF	REFERENCE
REFSMMAT	REFERENCE STABLE MEMBER MATRIX
RELMAT	RELATIVE MATRIX
RF	RADIO FREQUENCY
RMS	REMOTE MANIPULATOR SYSTEM
ROT	ROTATION
RTC	REAL TIME COMMAND
SAA	SOUTH ATLANTIC ANOMALY
S-BD	S-BAND
SEL	SELECT
SGLS	SPACE GROUND LINK SYSTEM/STATION (DOD)
SPC	STORED PROGRAM COMMAND
SSO	SUPPORT SYSTEM FOR THE OEX

ST	STAR TRACKER
STDN	SPACE TRACKING & DATA NETWORK
STS	SPACE TRANSPORTATION SYSTEM
TB	TALKBACK
TDRS	TRACKING AND DATA RELAY SATELLITE
TIG	TIME OF IGNITION
UHF	ULTRA HIGH FREQUENCY
VAC	VACUUM
VTR	VIDEO TAPE RECORDER
VTS	VANDENBERG TRACKING STATION (SGLS SITE)
WCCU	WIRELESS CREW COMMUNICATIONS UNIT
WCS	WASTE COLLECTION SYSTEM
WMC	WASTE MANAGEMENT COMPARTMENT
XFER	TRANSFER
X-POP	X BODY AXIS PERPENDICULAR TO ORBIT PLANE
-XSI	-X BODY AXIS TOWARDS SUN (TAIL TO SUN)
YAR	YARRAGADEE, AUSTRALIA (STDN SITE)
Y-POP	Y BODY AXIS PERPENDICULAR TO ORBIT PLANE
-ZLV	-Z LOCAL VERTICAL (-Z BODY AXIS TOWARDS EARTH)
+ZSI	+Z BODY AXIS TOWARDS SUN (BOTTOM TO SUN)

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4. Acronyms and Abbreviations Dictionary, JSC-11764, April 15, 1980

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