JSC-20695

Flight Data File
Crew Activity Plan
STS 51-L

Mission Operations Directorate
Operations Division

Basic
September 18, 1985

EVENT	CST		
Launch	13:40	Wed	Jan 22
TDRS Deploy	23:41	Wed	Jan 22
SPARTAN Deploy	19:31	Fri	Jan 24
SPARTAN Retrieve	15:55	Sun	Jan 26
Crew Conference	13:40	Mon	Jan 27
KSC Landing	14:14	Tues	Jan 28

NASA
National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

MISSION OPERATIONS DIRECTORATE

STS 51-L CREW ACTIVITY PLAN

BASIC
September 18, 1985

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Section 2

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Chief, Operations Division

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

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Incorporates 482
No:

ACKNOWLEDGMENTS

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LIST OF EFFECTIVE PAGES

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INTRODUCTION

The STS 51-L Crew Activity Plan is the flight data file article that contains the on-orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Rendezvous, Deorbit Prep, and Entry Checklists. The STS 51-L Rendezvous book contains all RMS procedures which are to be conducted during the rendezvous operational timeline. All other RMS procedures are in the PDRS OPS checklist. For continuity, the entire flight is shown in the summary level timeline.

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

The flight profile (Cycle 1A trajectory data) used for this Crew Activity Plan is for a launch date of January 22, 1986, at 19:40 GMT. Orbiter inertial attitudes are expressed relative to the Mean of 1950 (M50) reference frame.

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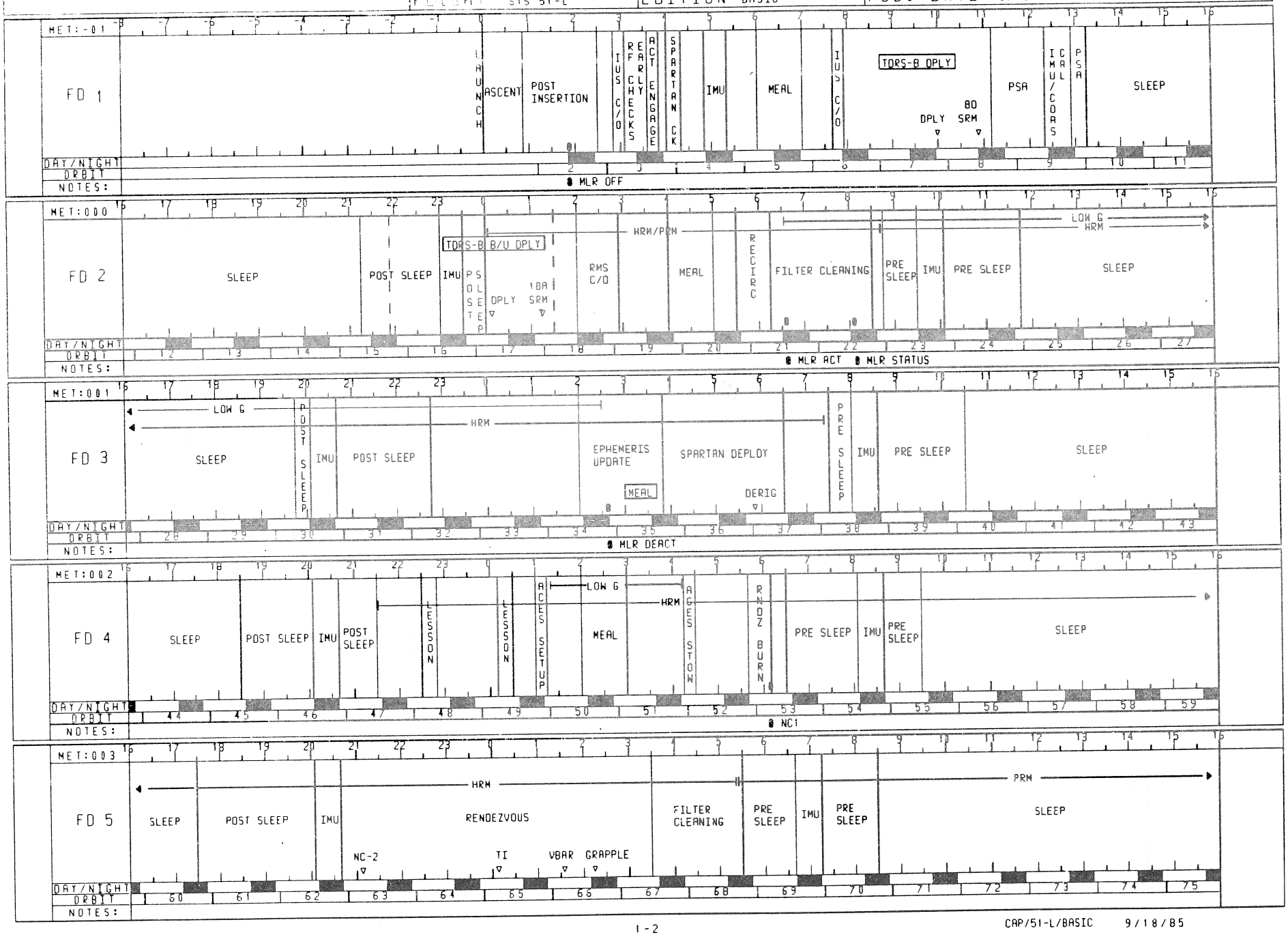
STS 51-L OVERVIEW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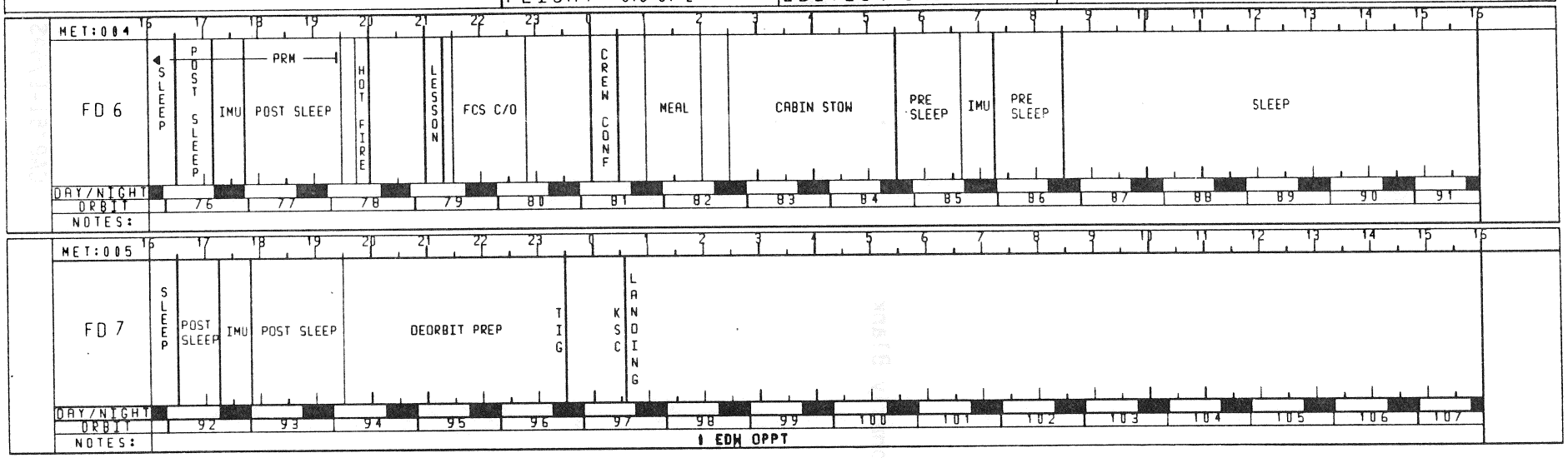
LUNCH
ASCENT
POST INSERTION
IUS C/O
RF CHECKS
ACT ENGAGE
SPARTAN CK
IMU
MEAL
IUS C/O
TDRS-B DPLY
DPLY
BD SRM
PSA
ICMUL/COAS
PSA
SLEEP
DAY/NIGHT
ORBIT
NOTES:
MLR OFF
MET:000
FD 2
SLEEP
POST SLEEP
IMU
POST STEP
TDRS-B B/U DPLY
DPLY
18A SRM
RMS C/O
HRM/PRM
MEAL
RECIRC
FILTER CLEANING
LOW G
HRM
PRE SLEEP
IMU
PRE SLEEP
SLEEP
MLR ACT
MLR STATUS
MET:001
FD 3
LOW G
HRM
SLEEP
POST SLEEP
IMU
POST SLEEP
EPHEMERIS UPDATE
MEAL
SPARTAN DEPLOY
DERIG
PRE SLEEP
IMU
PRE SLEEP
SLEEP
MLR DEACT
MET:002
FD 4
SLEEP
POST SLEEP
IMU
POST SLEEP
LESSON
LESSON
ACES SETUP
LOW G
HRM
MEAL
AGES STOW
RNDZ BURN
PRE SLEEP
IMU
PRE SLEEP
SLEEP
NC1
MET:003
FD 5
HRM
PRM
SLEEP
POST SLEEP
IMU
RENDEZVOUS
NC-2
TI
VBAR
GRAPPLE
FILTER CLEANING
PRE SLEEP
IMU
PRE SLEEP
SLEEP

FLIGHT STS 51-L	EDITION BASIC	PUB. DATE 9/18/85



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SUMMARY TIMELINE

SUMMARY
TIMELINE

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
022:19:40/ 023:07:40	000:00:00/ 000:12:00	022:13:40/ 023:01:40	01/ 022 CST	-41.9		JANUARY 22, 1986	STS 51-L	BASIC	9/18/85

CST :022 14 15 16 17 18 19 20 21 22 23 0 1
FD :001
MET :000 0 1 2 3 4 5 6 7 8 9 10 11 12
CST:023

STS: PLBD MNVR | PLBD OPS | AFT CNTLR | APU COOLDOWN | IMU ALIGN (YAW) | MEAL | MNVR TDRS | MNVR DPY | DEPLOY | OMS SEP | WINDOW PRO | SRM | ZLV MNVR

POST INSERTION | UNSTOW CABIN | OMS BURN | MNVR | PRE SLEEP

TDRS DEPLOY

LAUNCH | OMS-1 | OMS-2 | P/TV ACT | CANR ASSY | P/TV SETUP | P/TV ACT | TILT TB 29 | REM HT ACT | LWR TBL -6 | CLOSEOUT

PL: PAYLOAD CI/UO | MLR OFF | GUIDANCE ENCODE | EARLY IUS C/O | RF CKS EARLY | ACT ENGAGE | SP HTR ACT | SP TEMP CK | XFER SV | IUS C/O | XFER SV | TDRS PI | TDRS DIR | IUS PI | OCPU COUNTDOWN | SP TEMP CK

DAY/NIGHT

OPER: 1 2 3 4 5 6 7 8 9

GSTDN COVERAGE: YAR DKR ACN HAW GDS GDX MIL MLX BDA HTS VTS MIL MLX ACN YAR GWM HAW GDS GDX VTS GWM HAW GDX GDS ACN MIL GWM HAW GTS HTS VTS IOS GWM HAW GTS HTS IOS GWM HAW AGO ACN GWM AGO ACN

RTS COVERAGE: GTS HTS GTS HTS VTS IOS GTS HTS IOS GTS HTS

TDRS E W

ATTITUDE: ASCENT | -ZLV -YVV | IMU | -ZLV -YVV | TDRS CK | DPLY | SEP | VIEW | PROT | -ZLV +XVV

OPT FLD: 64K | 16 | 64K | 16K

NOTES:
- ● PRE-DPY CK (HTS)
- ▽IUS DIRECT (VTS)
- ● TDRS PI SETUP (MIL)
- ▽ TDRS PI CK (TDRE)
- ▽ TDRS DIRECT (ACN)
- o APU HTR DEACT
- o APU HTR RECONFIG
- ● TDRS CK ATT (FOR HAW)
- ● (TDRE) ● TDRS DIR (HAW AOS)
- IUS PI (HTS LOS)
- ● -ZLV, +XVV

TRACKING ARC

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:07:40/ 023:19:40	000:12:00/ 001:00:00	023:01:40/ 023:13:40	01 / 023 CST	-43.1	○	JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023
FD :001
MET :000

FD: 02

STS: FES OFF | IMU MNVR | IMU ALIGN | ZLV MNVR | SLEEP | IMU MNVR | IMU ALIGN | ZLV MNVR

PRE SLEEP | POST SLEEP

PL: DSO 450

DAY/NIGHT

ORBIT: 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

GSTDN COVERAGE:
- 9: GWM, AGO, ACN, DKR, GWM, AGO, DKR
- 10: GWM, DKR, MAD, DKR, MAD, MAX, YAR, CAN
- 11: MLX, MIL, BDA, DKR, MAD, MAX, YAR, CAN
- 12: MIL, MLX, BDA, DKR, MAD, YAR, CAN
- 13: MLX, MIL, BDA, DKR, YAR, HAW

RTS COVERAGE:
- 9: GTS, GTS, GTS
- 10: IOS
- 11: IOS, HTS, VTS

TDRS E W

ATTITUDE: IMU | -ZLV +XVV | IMU | -ZLV -XVV

OPT FLD

NOTES:
- 0 AFT STATION
- 0 -ZLV, +XVV
- 0 -ZLV, -XVV
- 0 DSO 450 SALIVARY CORTISOL LEVELS

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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CST :023
FD :002
MET :001

CST:024

STS

KU-BD DPLY | KU-BD ACT | RMS PWRUP | RMS C/O | SP SURVEY | RMS PWRDN | MEAL | OMS BURN TIG | ZLV MNVR | FLTR IFM | IMU MNVR | IMU ALIGN | ZLV MNVR | SLEEP

PL

POST SLEEP | P/Tv SETUP | P/TV ACT | P/TV ACT | PRE SLEEP

TEACHER ACTIVITY | TEACHER ACTIVITY | TEACHER ACTIVITY

PRM ACT | PRM ACT | SPT CK/IP | SP PROC CK | VTR SETUP | VTR PLYBCK | DSO 450 | MLR ACT | DSO 450 | MLR STATUS | SPT CK/IP | PRM DEACT | DSO 450

DAY/NIGHT

ORBIT: 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

GSTDN COVERAGE

17: GDS, GDX, MIL, BDA, MLX, DKR, ACN, YAR
18: HAW, GDS, GDX, MIL, MLX, BDA, YAR, GWM, HAW, GDS, GDX, MIL, ACN
19: GWM, HAW, GDX, GDS, MIL, ACN, GWM, HAW, GWM, HAW, AGO, GWM, AGO, ACN
20: MLX, ACN, GWM, HAW
21: ACN, GWM, HAW
22: AGO, ACN, GWM, AGO, ACN
23: GWM, HAW
24: GWM

RTS COVERAGE

17: VTS
18: HTS, VTS, GTS
19: HTS, VTS, VTS, GTS, HTS
20: IOS, GTS, HTS
21: IOS, GTS, HTS
22: IOS, GTS, HTS
23: GTS, HTS
24: GTS

TDRS E W

ATTITUDE: -ZLV -XVV | OMS | -ZLV -XVV | IMU | -ZLV +YVV

OPT FLD: LOW G-MLR

NOTES:

- DSO 450 SALIVARY CORTISOL LEVELS
- -ZLV, -XVV
- DSO 450 SALIVARY CORTISOL LEVELS
- FILTER CLEANING
- -ZLV, +YVV
- DSO 450 SALIVARY CORTISOL LEVELS

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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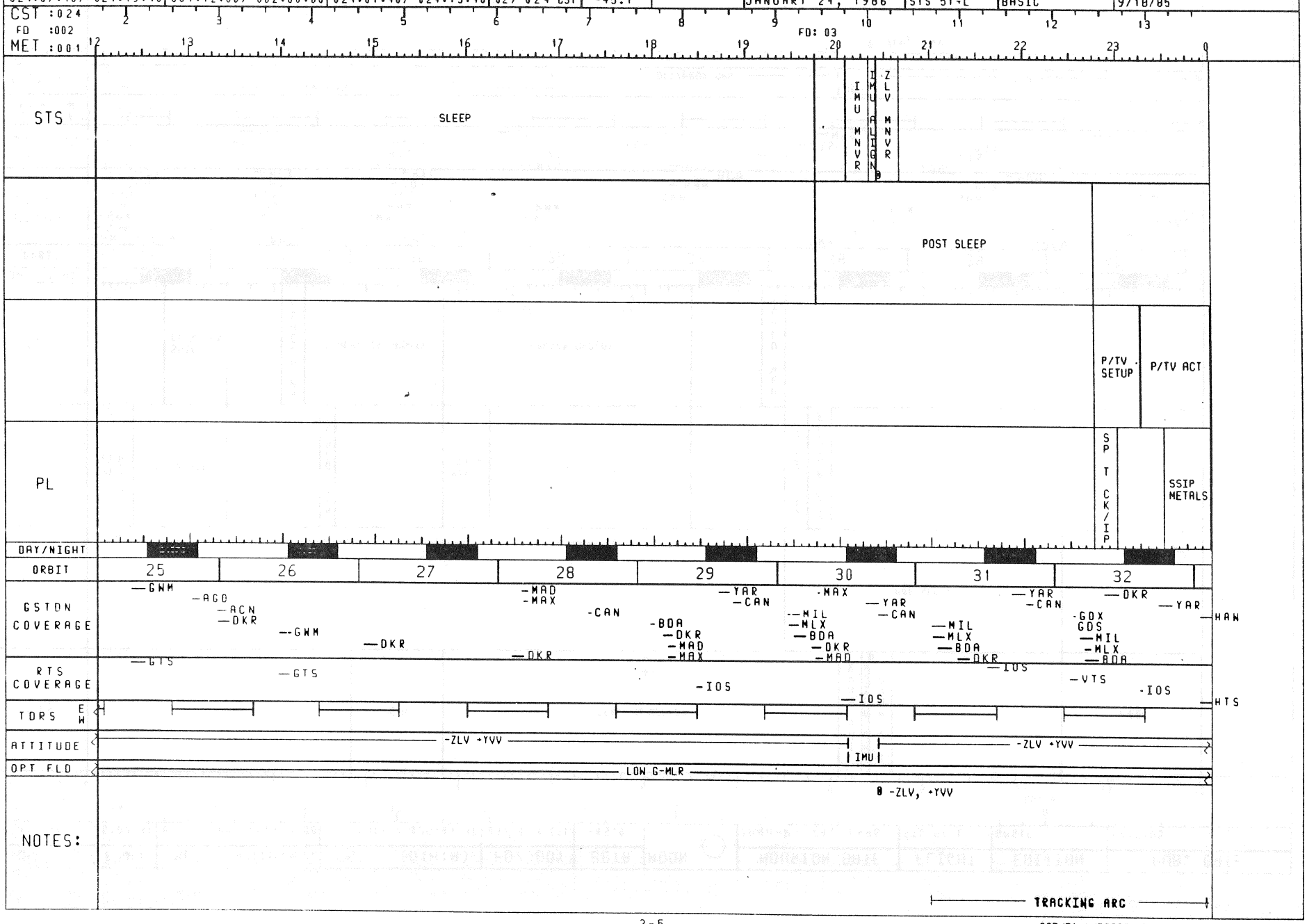

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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CST :024 14 15 16 17 18 19 20 21 22 23 0 CST:025
FD :003
MET :002 0 1 2 3 4 5 6 7 8 9 10 11 12

STS: MEAL | SPARTAN DEPLOY (SEP) | IMU MNVR | IMU ALIGN | ZLV MNVR | SLEEP | PRE SLEEP

PL: P/TV SETUP | P/TV ACT | MLR DEACT | P/TV SETUP | P/TV ACT | VTR SETUP | VTR PLYBCK | SSIP CRYSTALS | SP PREHEAT | EPHEMERIS UPDATE | SPARTAN DEPLOY (GRAPPLE, DERIG) | HRM DEACT

DAY/NIGHT

ORBIT: 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40

GSTDN COVERAGE

33	34	35	36	37	38	39	40
HAW —ACN —GDS —YAR —GDX —MIL —MLX —BDA —DKR	-BDA —ACN —HAW —GDX —GDS —MIL —MLX	-MLX —ACN —GWM —HAW —GDX —GDS —MIL	—ACN —GWM —HAW	—GWM —HAW AGO	-GWM —HAW —AGO -ACN	—ACN —GWM -HAW AGO	—GWM —AGO —ACN

RTS COVERAGE

33	34	35	36	37	38	39	40
HTS —VTS	—HTS —VTS	—GTS —HTS —VTS	—HTS —VTS —GTS	—HTS —IOS —GTS	—IOS —GTS —HTS	—IOS —GTS -HTS	—GTS

TDRS E W

ATTITUDE: -ZLV +YVV | DPY/PROX OPS | IMU | -ZLV +XVV

OPT FLD: LOW G-MLR

θ -ZLV, +XVV

NOTES:

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
025:07:40/ 025:19:40	002:12:00/ 003:00:00	025:01:40/ 025:13:40	03/ 025 CST	-46.5		JANUARY 25, 1986	STS 51-L	BASIC	9/18/85

CST :025
FD :003
MET :002

FD: 04

12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13

STS: SLEEP | IMU MNVR | IMU ALIGN | ZLV MNVR

POST SLEEP | P/TV SETUP | P/TV ACT | P/TV SETUP | P/TV ACT

LESSON PREP | TEACHER'S | LESSON PREP

PL: HRS ACT

DAY/NIGHT

ORBIT: 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48

GSTDN COVERAGE:
- 41: GWM, AGO, DKR, ACN
- 42: GWM, DKR, DKR
- 43: MAD, MAX, YAR, CAN, DKR
- 44: MAD, MAX, MIL, BDA, DKR, YAR, CAN, MIL, MLX, BDA
- 45: DKR, MAD, YAR, CAN, MIL, MLX, BDA, DKR, YAR, HAW, GDX, GDS, MIL, MLX, ACN, YAR, HAW
- 46: DKR, YAR, BDA, DKR
- 47: IOS, IOS
- 48: HTS, VTS, HTS

RTS COVERAGE: GTS, GTS, IOS, IOS, IOS, HTS, VTS, HTS

TDRS E W

ATTITUDE: -ZLV +XVV | IMU | -ZLV +XVV

OPT FLD: @ -ZLV, +XVV

NOTES:

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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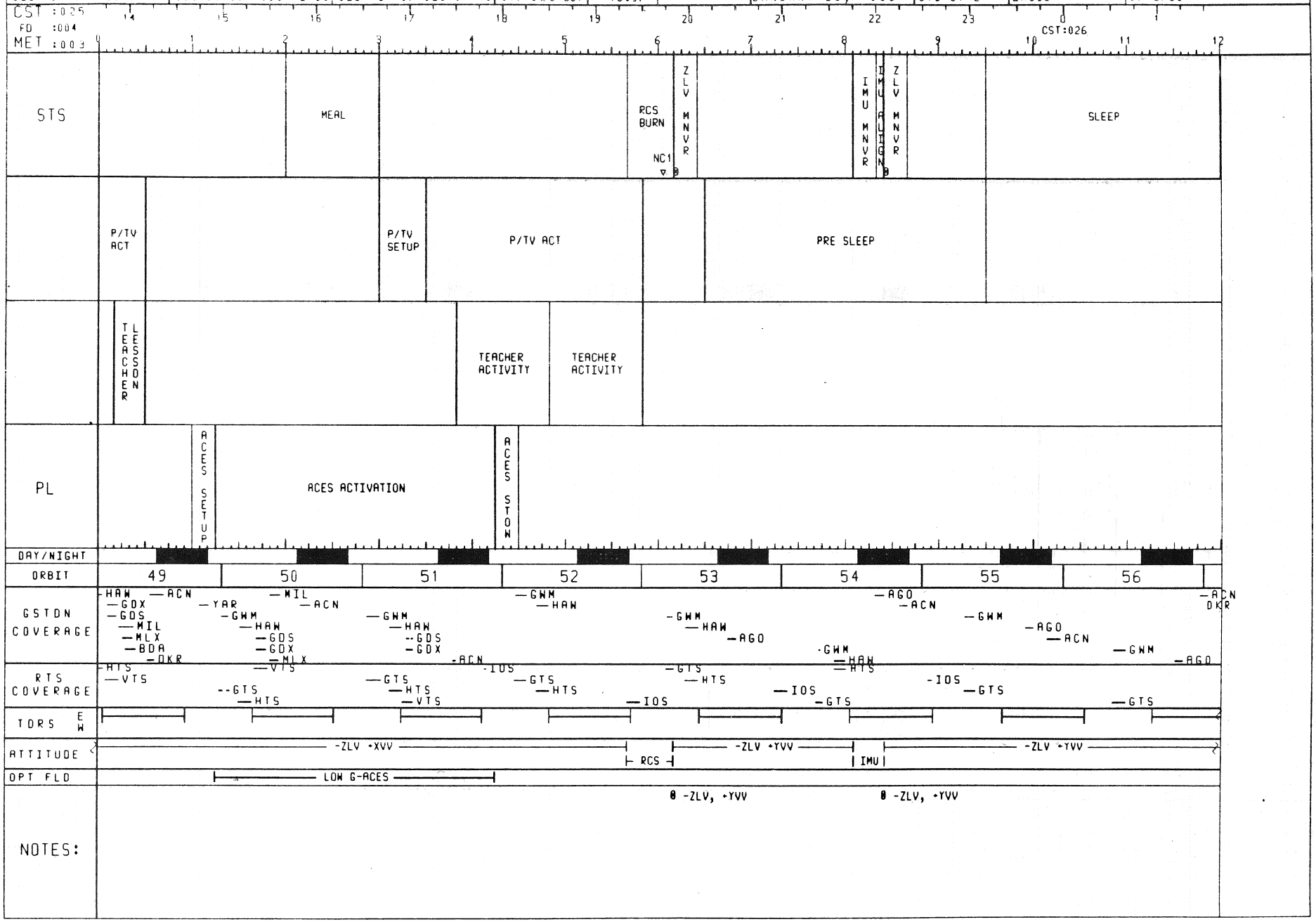

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CST :026
FD :004
MET :003
FD: 05

STS: SLEEP | IMU MNVR | IMU ALIGN | RENDEZVOUS OPS (NC2, NH)

POST SLEEP | MEAL

P/TV SETUP

PL: RENDEZVOUS OPS

DAY/NIGHT

ORBIT: 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64

GSTDN COVERAGE: GWM, AGO, DKR, MAD, MAX, YAR, CAN, MIL, MLX, BDA, GTS, IOS, VTS, HTS, HAW, ACN, GDS, GDX

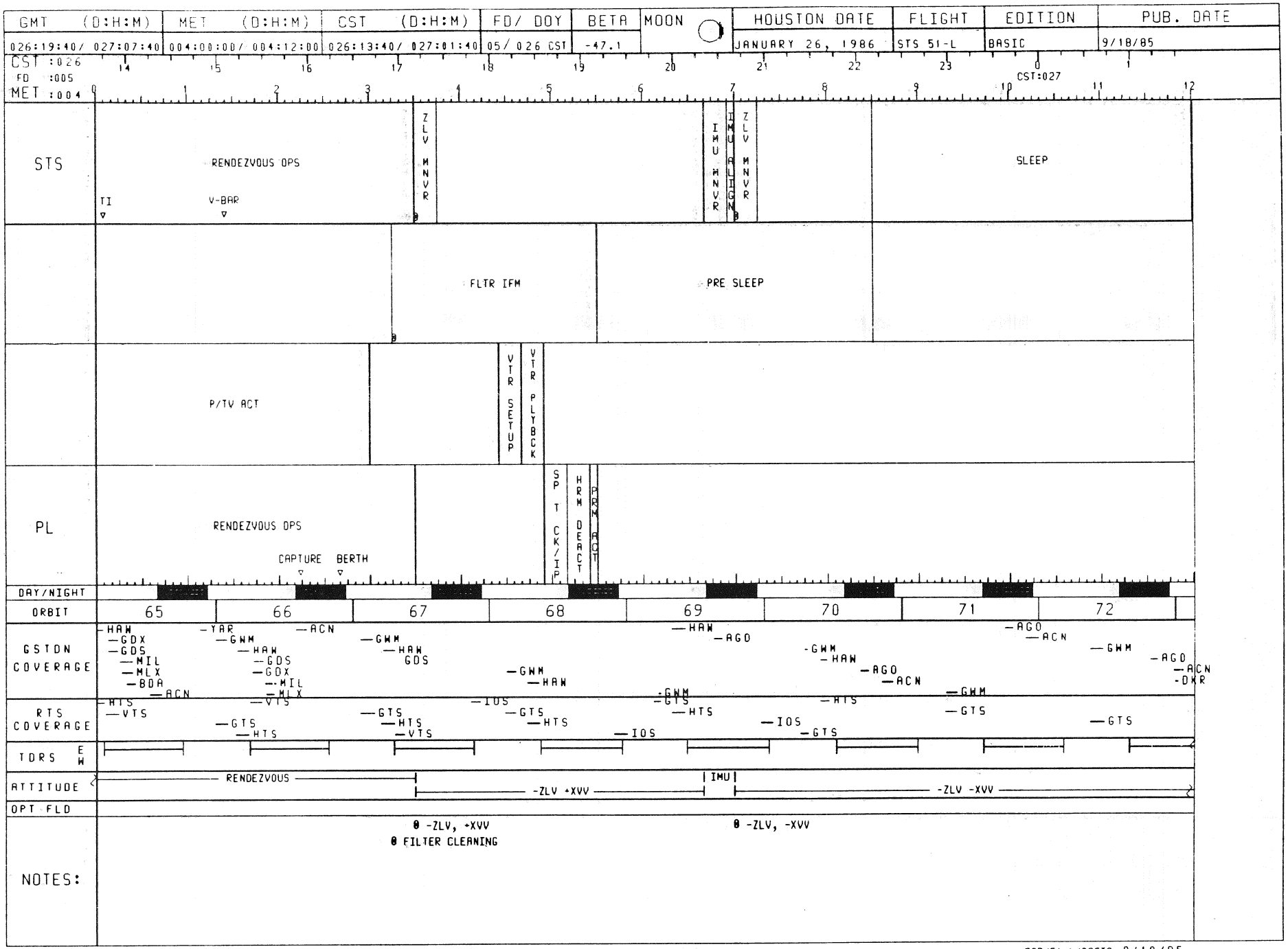
RTS COVERAGE: GTS, IOS, VTS, HTS

TDRS E W

ATTITUDE: -ZLV +YVV | IMU | RENDEZVOUS

OPT FLD

NOTES: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FD/ DOY
05/ 026 CST
BETA
-47.1
MOON
HOUSTON DATE
JANUARY 26, 1986
FLIGHT
STS 51-L
EDITION
BASIC
PUB. DATE
9/18/85
CST :026
FD :005
MET :004
CST:027
STS
RENDEZVOUS OPS
TI
V-BAR
ZLV MNVR
IMU MNVR
IMU ALIGN
ZLV MNVR
SLEEP
FLTR IFM
PRE SLEEP
P/TV ACT
VTR SETUP
VTR PLYBCK
PL
RENDEZVOUS OPS
CAPTURE
BERTH
SPT CK/IP
HRM DEACT
PRM ACT
DAY/NIGHT
ORBIT
65
66
67
68
69
70
71
72
GSTDN COVERAGE
HAW
GDX
GDS
MIL
MLX
BDA
ACN
YAR
GWM
HAW
GDS
GDX
MIL
MLX
VTS
GWM
HAW
GDS
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AGO
GWM
HAW
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ACN
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ACN
DKR
RTS COVERAGE
HTS
VTS
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GTS
HTS
IOS
HTS
GWM
GTS
GTS
TDRS E W
ATTITUDE
RENDEZVOUS
-ZLV +XVV
IMU
-ZLV -XVV
OPT FLD
θ -ZLV, +XVV
θ FILTER CLEANING
θ -ZLV, -XVV
NOTES:

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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CST :027
FD :005
MET :004

FD: 06

STS: SLEEP | IMU MNVR | IMU ALIGN | ZLV MNVR | RCS HOT FIRE | FCS C/O | APU COOLA

POST SLEEP | P/TV SETUP | P/TV ACT

LESSON PREP | TEACHER | P/TV SETUP | P/TV ACT

PL: DSO 450 | ARM DEACT | SPT CK/IP | DSO 450

DAY/NIGHT

ORBIT: 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80

GSTDN COVERAGE: GWM, GTS, DKR, DKR, MAD, MAX, CAN, BDA, DKR, MAD, MAX, YAR, CAN, MIL, MLX, IOS, BDA, DKR, MAD, YAR, CAN, MIL, MLX, IOS, BDA, DKR, YAR, CAN, MIL, MLX, IOS, BDA, MLX, DKR, GDX, GDS, MIL, VTS, YAR, BDA, MLY, DKR, HAW, ACN, GDS, GDX, HTS, VTS, HAW, YAR, GWM, HTS, GTS

RTS COVERAGE

TDRS E W

ATTITUDE: -ZLV -XVV | IMU | -ZLV +XVV

OPT FLD

θ -ZLV, +XVV
o APU HTR ACT
θ DSO 450 SALIVARY CORTISOL LEVELS
θ DSO 450 SALIVARY CORTISOL LEVELS

NOTES:

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
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CST :027 14 15 16 17 18 19 20 21 22 23 0 1 CST:028
FD :006
MET :005 0 1 2 3 4 5 6 7 8 9 10 11 12

STS: MEAL | CABIN STOW | TMU MNVR | IMU ALIGN | ZLV MNVR | SLEEP

CREW CONF | KU-BD STOW | PRE SLEEP

P/TV ACT

PL: DSO 450 | SPT CK/IP | GAS ENCOR STOW | DSO 450

DAY/NIGHT

ORBIT	81	82	83	84	85	86	87	88

GSTDN COVERAGE: HAW, GDS, GDX, MIL, MLX, BDA, ACN, GWM, AGO, DKR

RTS COVERAGE: HTS, VTS, GTS, IOS

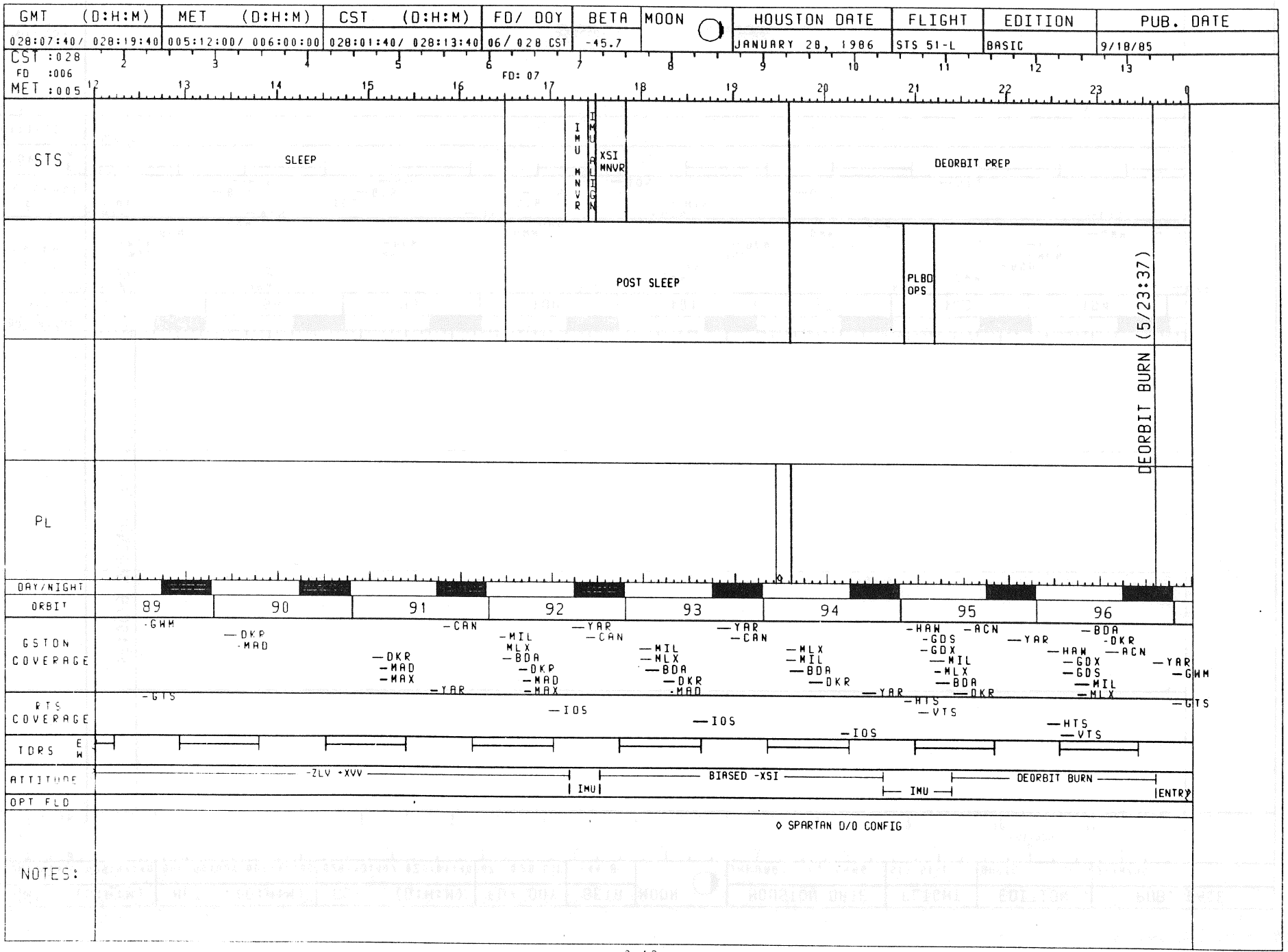
TDRS E W

ATTITUDE: -ZLV +XVV | IMU | -ZLV +XVV

OPT FLD

● DSO 450 SALIVARY CORTISOL LEVELS ● -ZLV, +XVV ● DSO 450 SALIVARY CORTISOL LEVELS

NOTES: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CST (D:H:M)
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FD/ DOY
06/ 028 CST
BETA
-45.7
MOON
HOUSTON DATE
JANUARY 28, 1986
FLIGHT
STS 51-L
EDITION
BASIC
PUB. DATE
9/18/85
CST :028
FD :006
MET :005
FD: 07
STS
SLEEP
IMU MNVR
IMU ALIGN
XSI MNVR
DEORBIT PREP
POST SLEEP
PLBD OPS
DEORBIT BURN (5/23:37)
PL
DAY/NIGHT
ORBIT
89
90
91
92
93
94
95
96
GSTDN COVERAGE
GWM
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MAD
CAN
DKR
MAD
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YAR
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GWM
RTS COVERAGE
GTS
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HTS
VTS
HTS
VTS
GTS
TDRS E W
ATTITUDE
-ZLV +XVV
IMU
BIASED -XSI
IMU
DEORBIT BURN
ENTRY
OPT FLD
◊ SPARTAN D/O CONFIG
NOTES:

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
028:19:40/ 029:07:40	006:00:00/ 006:12:00	028:13:40/ 029:01:40	07/ 028 CST	-44.8		JANUARY 28, 1986	STS 51-L	BASIC	9/18/85

CST :028
FD :007
MET :006

14 15 16 17 18 19 20 21 22 23 0 1
CST:029
0 1 2 3 4 5 6 7 8 9 10 11 12

STS

KSC LANDING 6/00:34

PL

DAY/NIGHT

ORBIT: 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104

GSTDN COVERAGE
HAW GDS GDX MIL MLX ACN
HAW GDX GDS GWM HAW GWM
AGO GWM HAW AGO ACN GWM
ACN GWM AGO ACN DKR GWM AGO
DKR

RTS COVERAGE
HTS VTS GTS HTS
VTS IOS GTS HTS
IOS GTS HTS IOS
GTS HTS GTS
GTS

TDRS E W

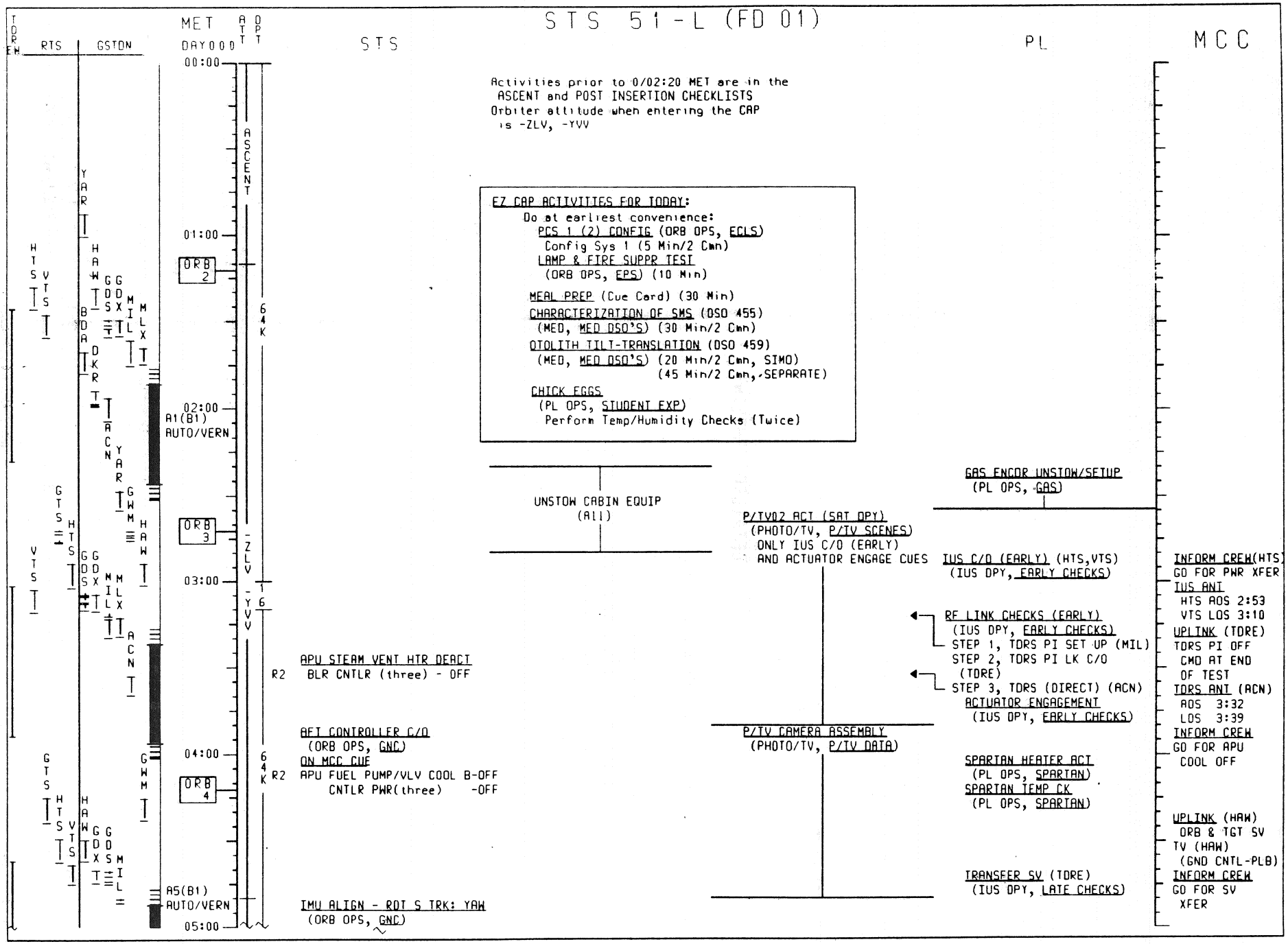
ATTITUDE ENTRY

OPT FLD

NOTES:

DETAILED TIMELINE

STS 51-L (FD 01)



Activities prior to 0/02:20 MET are in the ASCENT and POST INSERTION CHECKLISTS
Orbiter attitude when entering the CAP is -ZLV, -YVV

EZ CAP ACTIVITIES FOR TODAY:
Do at earliest convenience:
PCS 1 (2) CONFIG (ORB OPS, ECLS)
Config Sys 1 (5 Min/2 Cmn)
LAMP & FIRE SUPPR TEST
(ORB OPS, EPS) (10 Min)
MEAL PREP (Cue Card) (30 Min)
CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)
OTOLITH TILT-TRANSLATION (DSO 459)
(MED, MED DSO'S) (20 Min/2 Cmn, SIMO)
(45 Min/2 Cmn, SEPARATE)
CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)

UNSTOW CABIN EQUIP
(All)

GAS ENCOR UNSTOW/SETUP
(PL OPS, GAS)

P/TV02 ACT (SAT OPY)
(PHOTO/TV, P/TV SCENES)
ONLY IUS C/O (EARLY)
AND ACTUATOR ENGAGE CUES

IUS C/O (EARLY) (HTS,VTS)
(IUS OPY, EARLY CHECKS)

RF LINK CHECKS (EARLY)
(IUS OPY, EARLY CHECKS)
STEP 1, TDRS PI SET UP (MIL)
STEP 2, TDRS PI LK C/O
(TDRE)
STEP 3, TDRS (DIRECT) (ACN)
ACTUATOR ENGAGEMENT
(IUS OPY, EARLY CHECKS)

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

SPARTAN HEATER ACT
(PL OPS, SPARTAN)
SPARTAN TEMP CK
(PL OPS, SPARTAN)

TRANSFER SV (TDRE)
(IUS OPY, LATE CHECKS)

APU STEAM VENT HTR DEACT
BLR CNTLR (three) - OFF

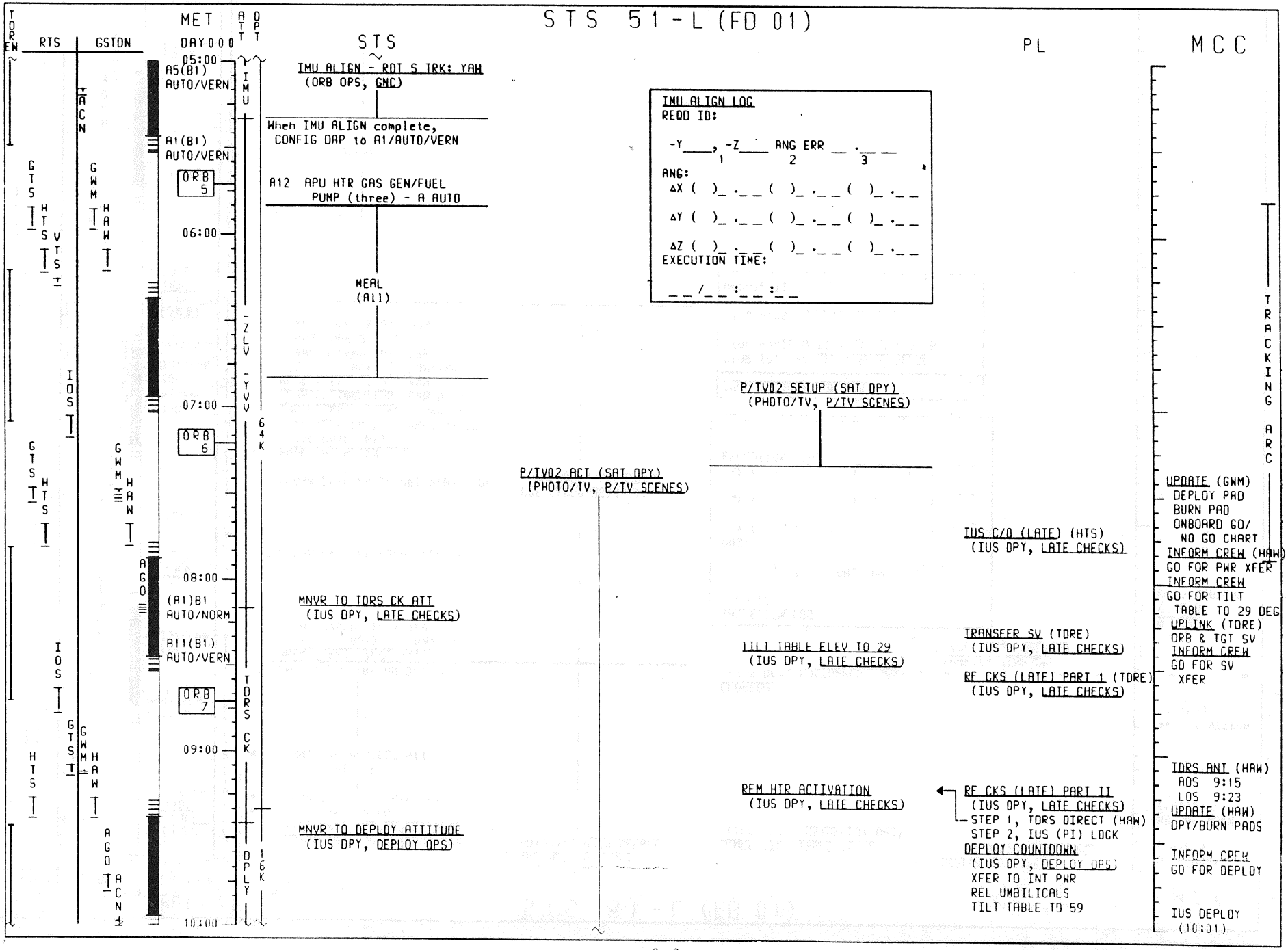
AFT CONTROLLER C/O
(ORB OPS, GNC)
ON MCC CUE
APU FUEL PUMP/VLV COOL B-OFF
CNTLR PWR(three) -OFF

IMU ALIGN - RDT S TRK: YAW
(ORB OPS, GNC)

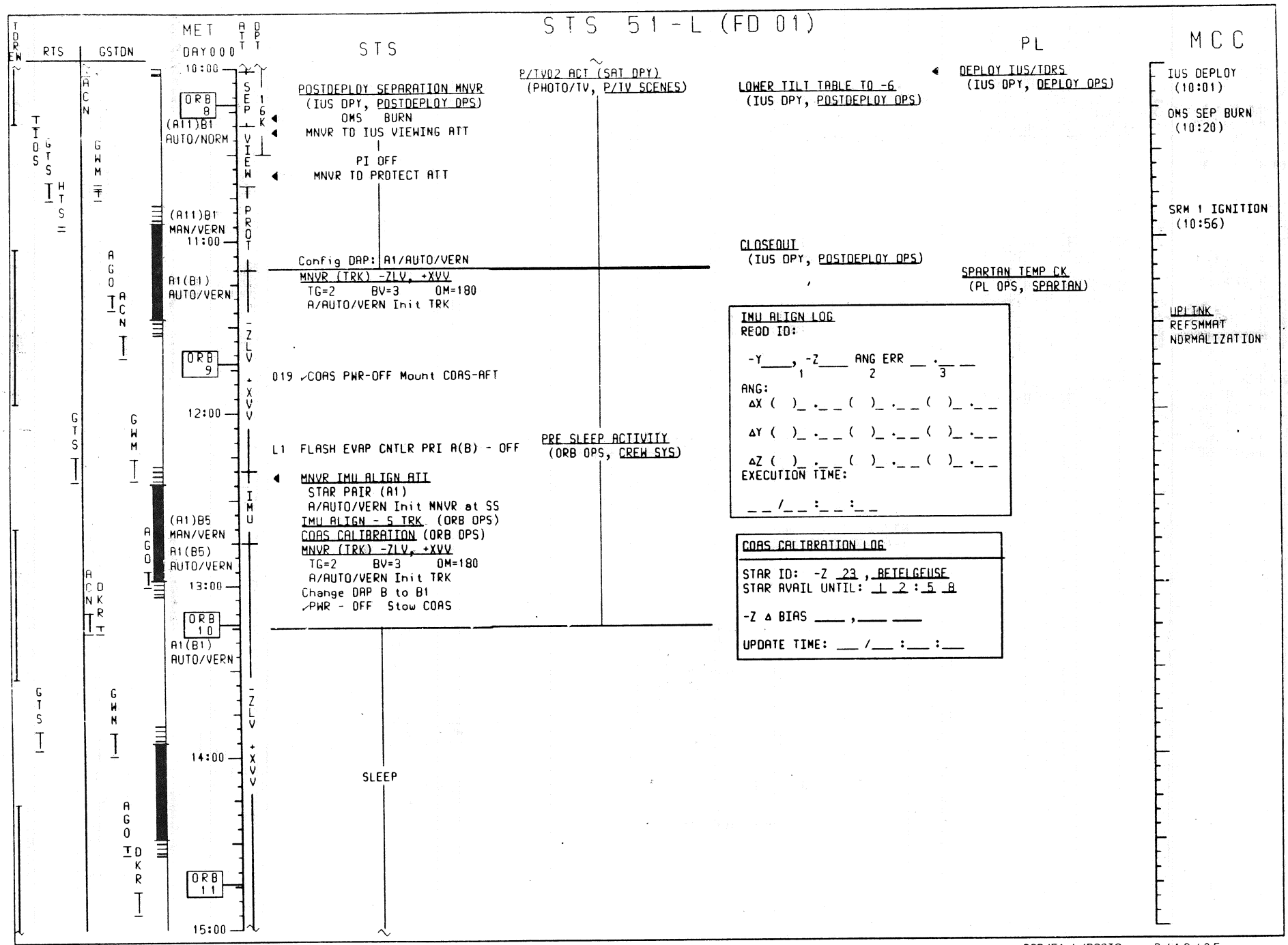
INFORM CREW(HTS)
GO FOR PWR XFER
IUS ANT
HTS AOS 2:53
VTS LOS 3:10
UPLINK (TDRE)
TDRS PI OFF
CMD AT END
OF TEST
TDRS ANT (ACN)
AOS 3:32
LOS 3:39
INFORM CREW
GO FOR APU
COOL OFF

UPLINK (HAW)
ORB & TGT SV
TV (HAW)
(GND CNTL-PLB)
INFORM CREW
GO FOR SV
XFER

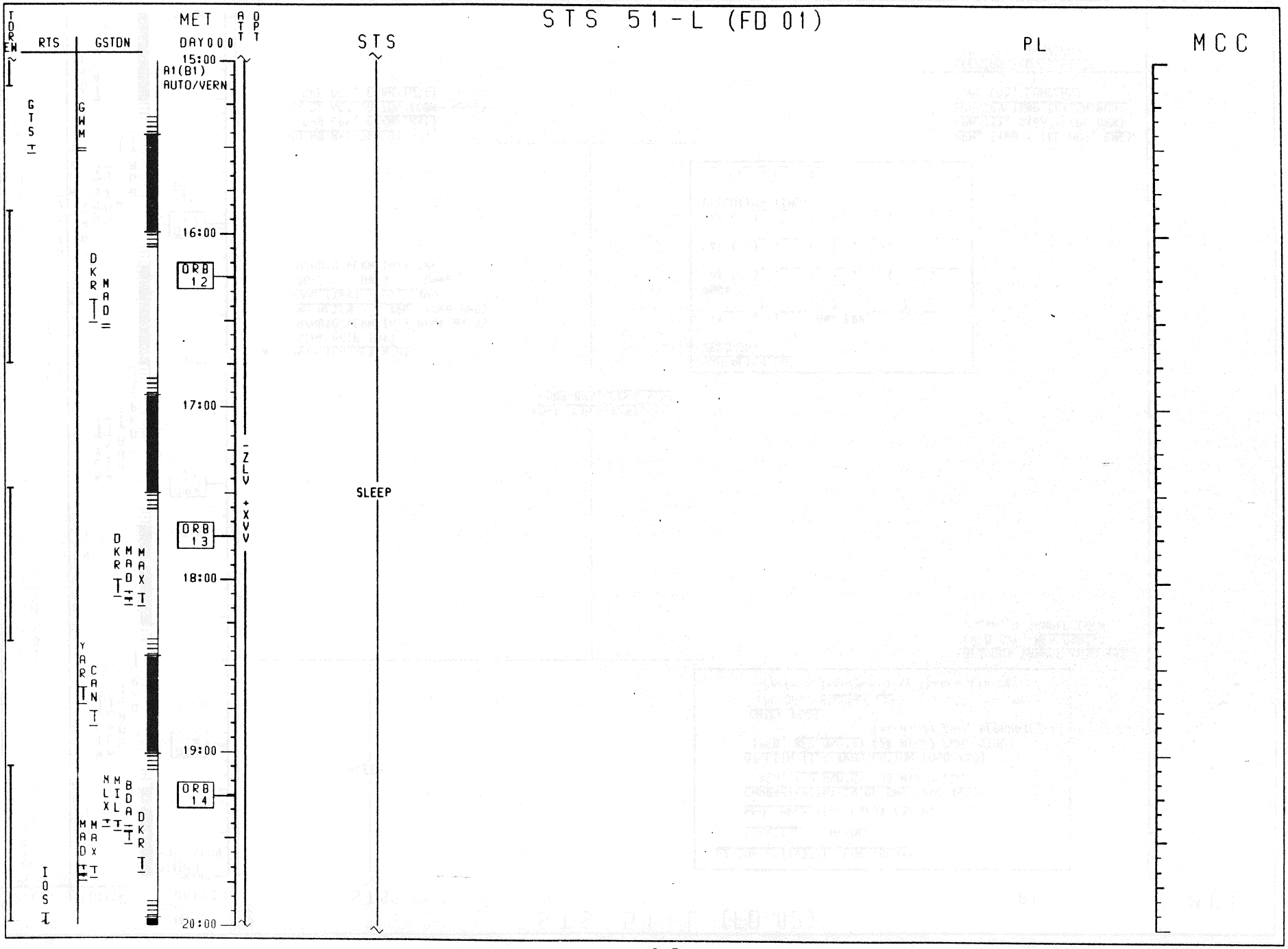
STS 51-L (FD 01)


TDRSW
RTS
GSTDN
MET
DAY 000
ATT
OPT
STS
PL
MCC
05:00
06:00
07:00
08:00
09:00
10:00
A5(B1)
AUTO/VERN
A1(B1)
AUTO/VERN
ORB 5
ORB 6
ORB 7
(A1)B1
AUTO/NORM
A11(B1)
AUTO/VERN
IMU
-ZLV
-YVV
64K
TDRS CK
DPLY
16K
TACN
GTS
HTS
VTS
GWM
HAW
IOS
AGO
ACN
IMU ALIGN - ROT S TRK: YAW
(ORB OPS, GNC)
When IMU ALIGN complete,
CONFIG DAP to A1/AUTO/VERN
A12 APU HTR GAS GEN/FUEL
PUMP (three) - A AUTO
MEAL
(A11)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __.__ __
1 2 3
ANG:
ΔX ( )_.__ ( )_.__ ( )_.__
ΔY ( )_.__ ( )_.__ ( )_.__
ΔZ ( )_.__ ( )_.__ ( )_.__
EXECUTION TIME:
__/__:__:__
P/TV02 SETUP (SAT OPY)
(PHOTO/TV, P/TV SCENES)
P/TV02 ACT (SAT OPY)
(PHOTO/TV, P/TV SCENES)
MNVR TO TDRS CK ATT
(IUS OPY, LATE CHECKS)
TILT TABLE ELEV TO 29
(IUS OPY, LATE CHECKS)
REM HIR ACTIVATION
(IUS OPY, LATE CHECKS)
MNVR TO DEPLOY ATTITUDE
(IUS OPY, DEPLOY OPS)
IUS C/O (LATE) (HTS)
(IUS OPY, LATE CHECKS)
TRANSFER SV (TDRE)
(IUS OPY, LATE CHECKS)
RF CKS (LATE) PART 1 (TDRE)
(IUS OPY, LATE CHECKS)
RF CKS (LATE) PART II
(IUS OPY, LATE CHECKS)
STEP 1, TDRS DIRECT (HAW)
STEP 2, IUS (PI) LOCK
DEPLOY COUNTDOWN
(IUS OPY, DEPLOY OPS)
XFER TO INT PWR
REL UMBILICALS
TILT TABLE TO 59
TRACKING ARC
UPDATE (GWM)
DEPLOY PAD
BURN PAD
ONBOARD GO/
NO GO CHART
INFORM CREW (HAW)
GO FOR PWR XFER
INFORM CREW
GO FOR TILT
TABLE TO 29 DEG
UPLINK (TDRE)
OPB & TGT SV
INFORM CREW
GO FOR SV
XFER
TDRS ANI (HAW)
AOS 9:15
LOS 9:23
UPDATE (HAW)
OPY/BURN PADS
INFORM CREW
GO FOR DEPLOY
IUS DEPLOY
(10:01)

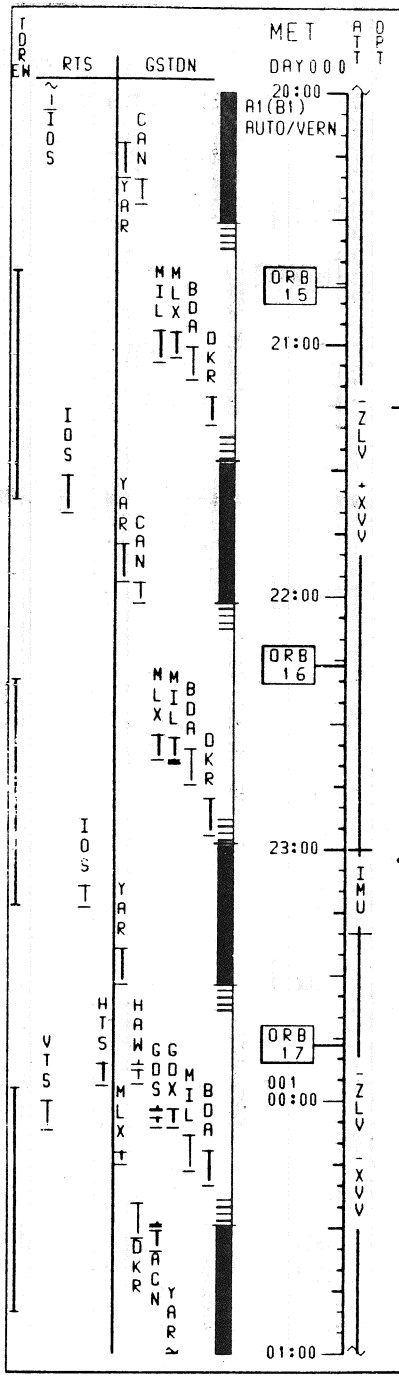
STS 51-L (FD 01)


TDRSW
RTS
GSTDN
MET
DAY 000
ATT
OPT
STS
PL
MCC
10:00
ORB 8
(A11)B1
AUTO/NORM
(A11)B1
MAN/VERN
11:00
A1(B1)
AUTO/VERN
ORB 9
12:00
(A1)B5
MAN/VERN
A1(B5)
AUTO/VERN
13:00
ORB 10
A1(B1)
AUTO/VERN
14:00
ORB 11
15:00
SEP
VIEW
PROT
-ZLV
+XVV
IMU
-ZLV
+XVV
16K
TDRS
GTS
HTS
GTS
GWM
AGO
ACN
GTS
GWM
ACN
AGO
ACN
DKR
GTS
GWM
AGO
DKR
POSTDEPLOY SEPARATION MNVR
(IUS DPY, POSTDEPLOY OPS)
OMS BURN
MNVR TO IUS VIEWING ATT
PI OFF
MNVR TO PROTECT ATT
Config DAP: A1/AUTO/VERN
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK
019 COAS PWR-OFF Mount COAS-AFT
L1 FLASH EVAP CNTLR PRI A(B) - OFF
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
COAS CALIBRATION (ORB OPS)
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK
Change DAP B to B1
PWR - OFF Stow COAS
SLEEP
P/TV02 ACT (SAT OPY)
(PHOTO/TV, P/TV SCENES)
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
LOWER TILT TABLE TO -6
(IUS OPY, POSTDEPLOY OPS)
DEPLOY IUS/TDRS
(IUS OPY, DEPLOY OPS)
CLOSEOUT
(IUS OPY, POSTDEPLOY OPS)
SPARTAN TEMP CK
(PL OPS, SPARTAN)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
__ /__ :__ :__
COAS CALIBRATION LOG
STAR ID: -Z 23 , BETELGEUSE
STAR AVAIL UNTIL: 1 2 : 5 8
-Z Δ BIAS ____ ,____ ____
UPDATE TIME: __ /__ :__ :__
IUS DEPLOY
(10:01)
OMS SEP BURN
(10:20)
SRM 1 IGNITION
(10:56)
UPLINK
REFSMMAT
NORMALIZATION

STS 51-L (FD 01)


TDRSW
RTS
GSTDN
MET
DAY 000
ATT
DPT
STS
PL
MCC
15:00
A1(B1)
AUTO/VERN
GWM
GTS
DKR
MAD
16:00
ORB 12
17:00
-ZLV +XVV
SLEEP
ORB 13
MAD
MAX
DKR
18:00
YAW
CAN
19:00
ORB 14
MAD
MAX
MLX
MIL
BDA
DKR
IOS

STS 51-L (FD 02)



STS

SLEEP

PL

MCC

EZ CAP ACTIVITIES FOR TODAY:

EXERCISE (1 Hr/ALL)

MEAL PREP (Cue Card) (30 Min)

CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)

OTOLITH TILT-TRANSLATION (DSO 459)
(MED, MED DSO'S) (20 Min/2 Cmn, SIMO)
(45 Min/2 Cmn, SEPARATE)

CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)

SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH

POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)

◀ MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S IRK (ORB OPS)
MNVR (IRK) -ZLV, -XVV
TG=2 BV=3 OM=0
A/AUTO/VERN Init IRK

IMU ALIGN LOG
REQD ID:

-Y____, -Z____ ANG ERR __ .__ __
1 2 3

ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

EXECUTION TIME:

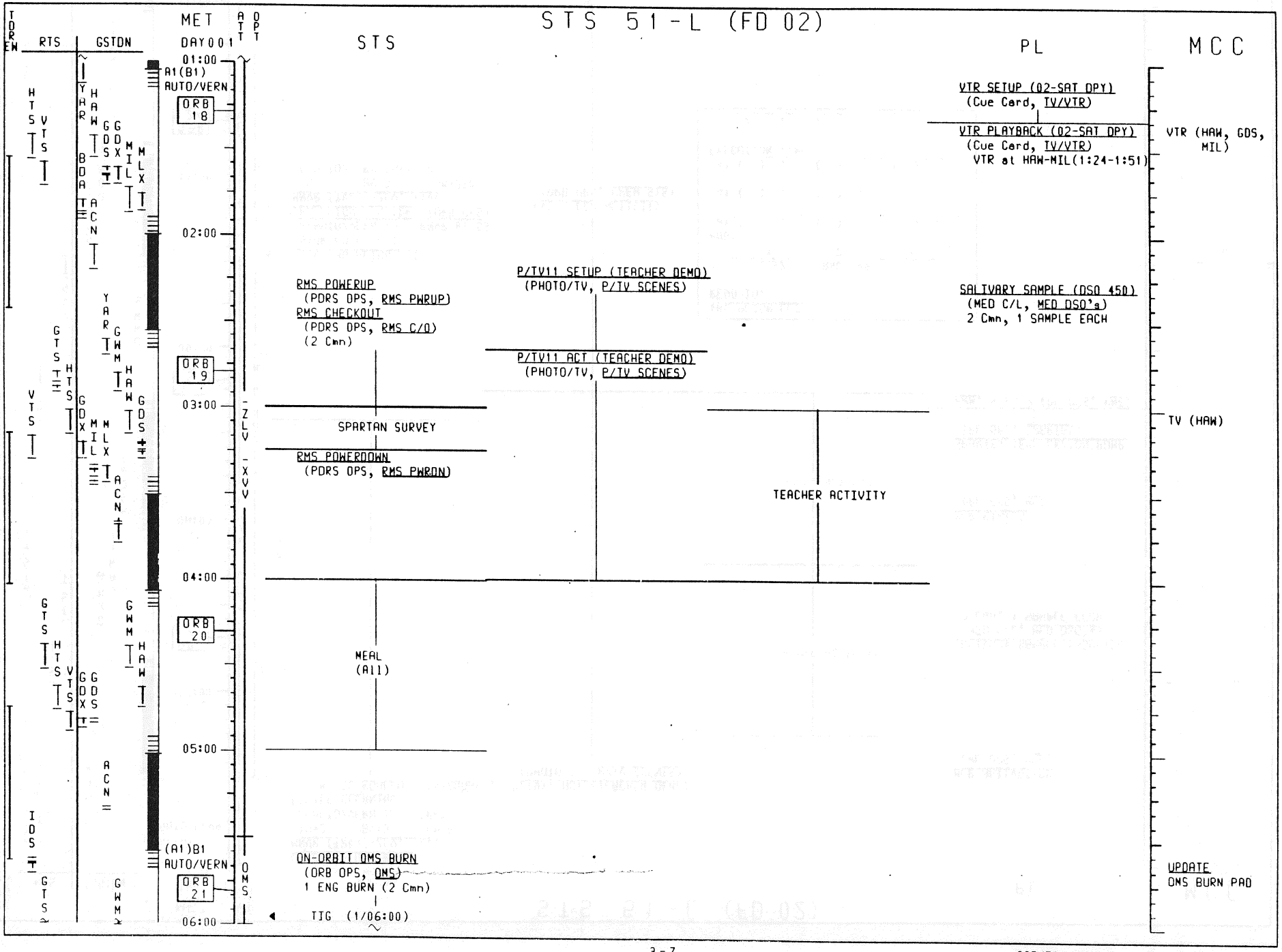
__ /__ :__ :__

KU-BD ANT DEPLOY
(ORB OPS, COMM/INSTL)
KU-BD ACTIVATION (COMM mode)
(ORB OPS, COMM/INSTL)

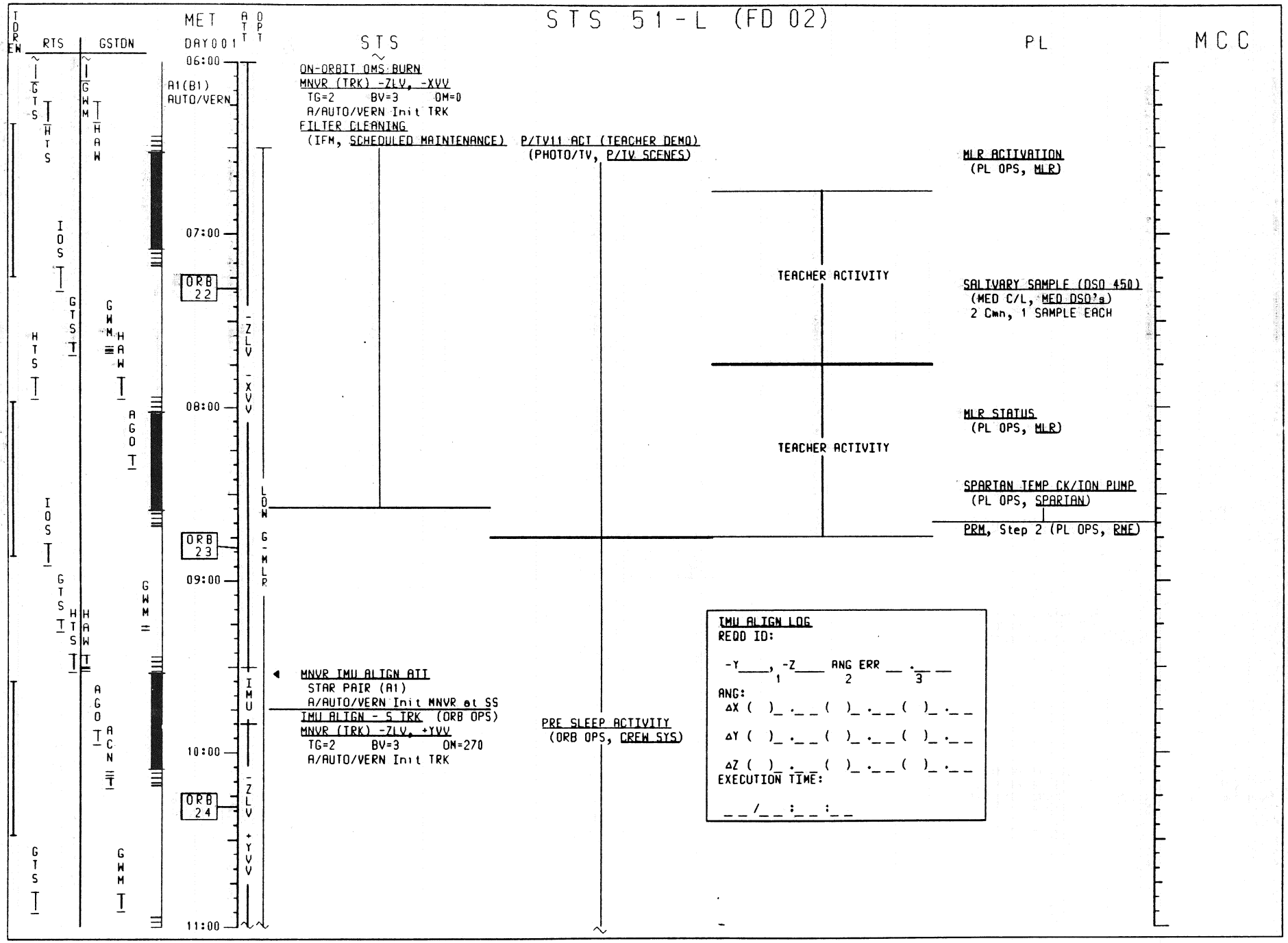
PRM, Step 1 (PL OPS, RME)
HRM III, Step 1 (PL OPS)
SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)

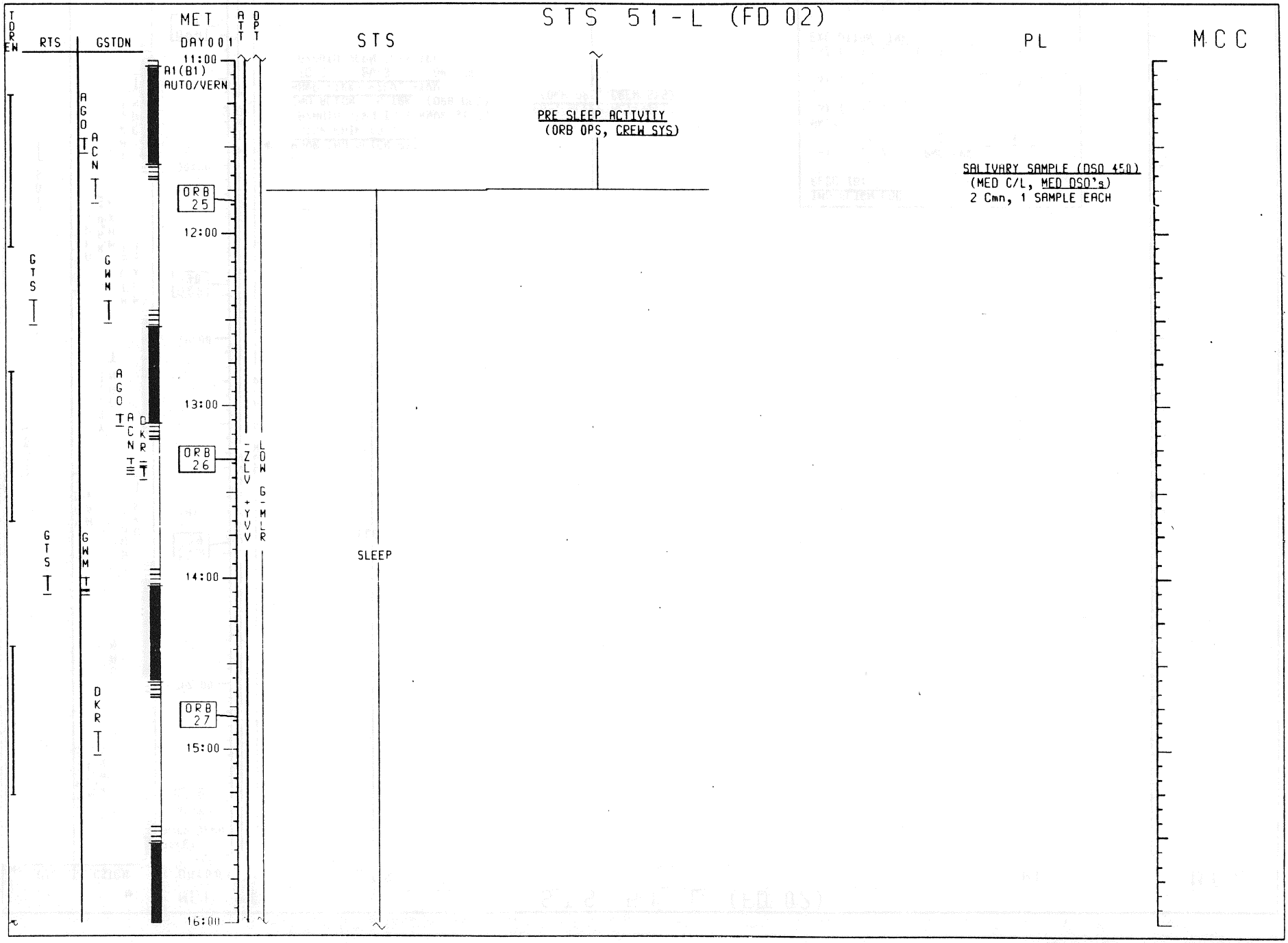
SPARTAN PROCESSOR CK
(PL OPS, SPARTAN)

STS 51-L (FD 02)

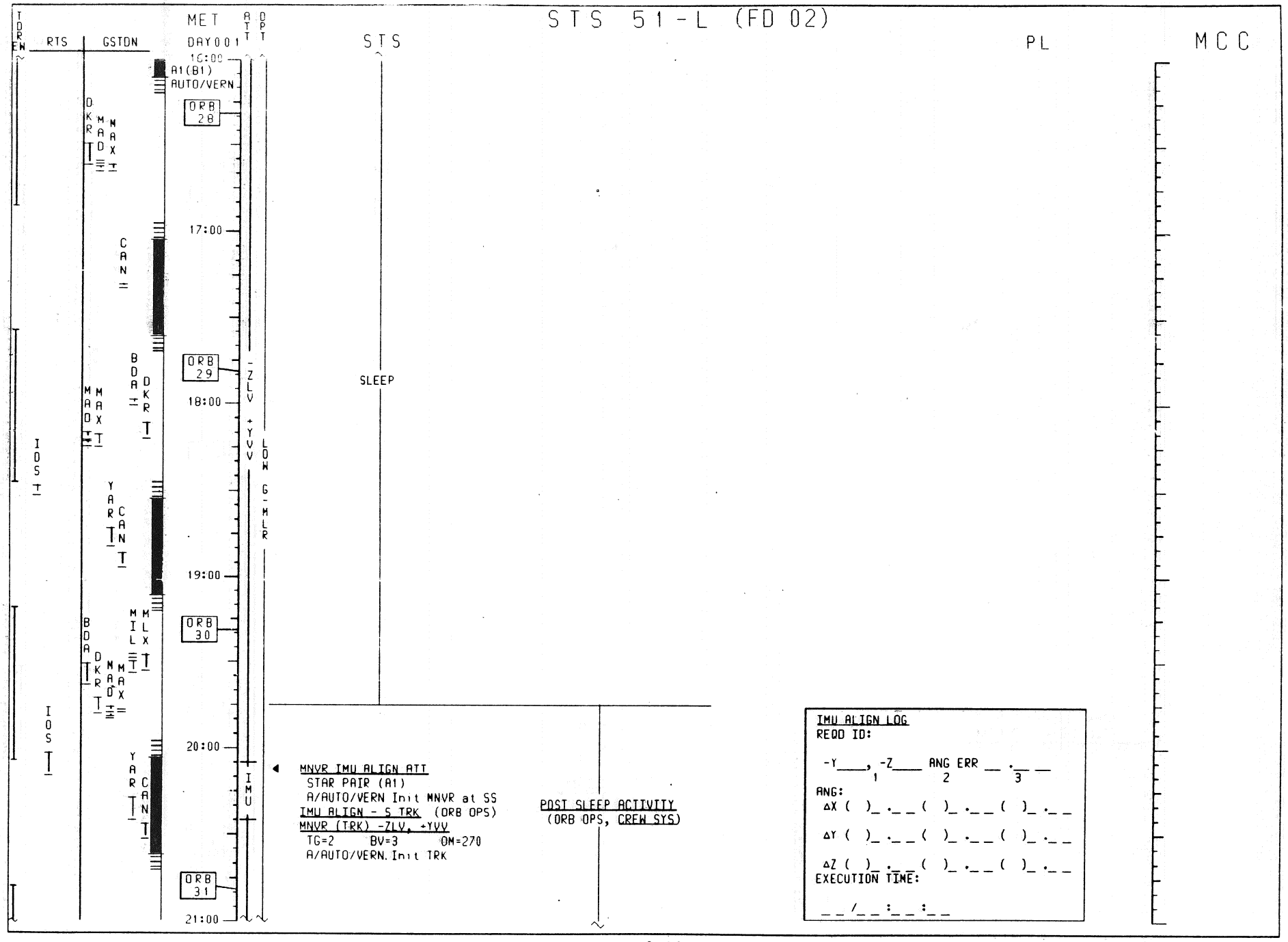

TDRSW
RTS
GSTDN
MET
DAY 001
ATT OPT
STS
PL
MCC
01:00
A1(B1)
AUTO/VERN
ORB 18
02:00
ORB 19
03:00
ZLV - XVV
04:00
ORB 20
05:00
(A1)B1
AUTO/VERN
ORB 21
06:00
OMS
VTR SETUP (02-SAT DPY)
(Cue Card, TV/VTR)
VTR PLAYBACK (02-SAT DPY)
(Cue Card, TV/VTR)
VTR at HAW-MIL(1:24-1:51)
VTR (HAW, GDS, MIL)
RMS POWERUP
(PDRS DPS, RMS PWRUP)
RMS CHECKOUT
(PDRS DPS, RMS C/O)
(2 Cmn)
P/TV11 SETUP (TEACHER DEMO)
(PHOTO/TV, P/TV SCENES)
P/TV11 ACT (TEACHER DEMO)
(PHOTO/TV, P/TV SCENES)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH
SPARTAN SURVEY
RMS POWERDOWN
(PDRS DPS, RMS PWRDN)
TV (HAW)
TEACHER ACTIVITY
MEAL
(All)
ON-ORBIT OMS BURN
(ORB OPS, OMS)
1 ENG BURN (2 Cmn)
TIG (1/06:00)
UPDATE
OMS BURN PAD

STS 51-L (FD 02)

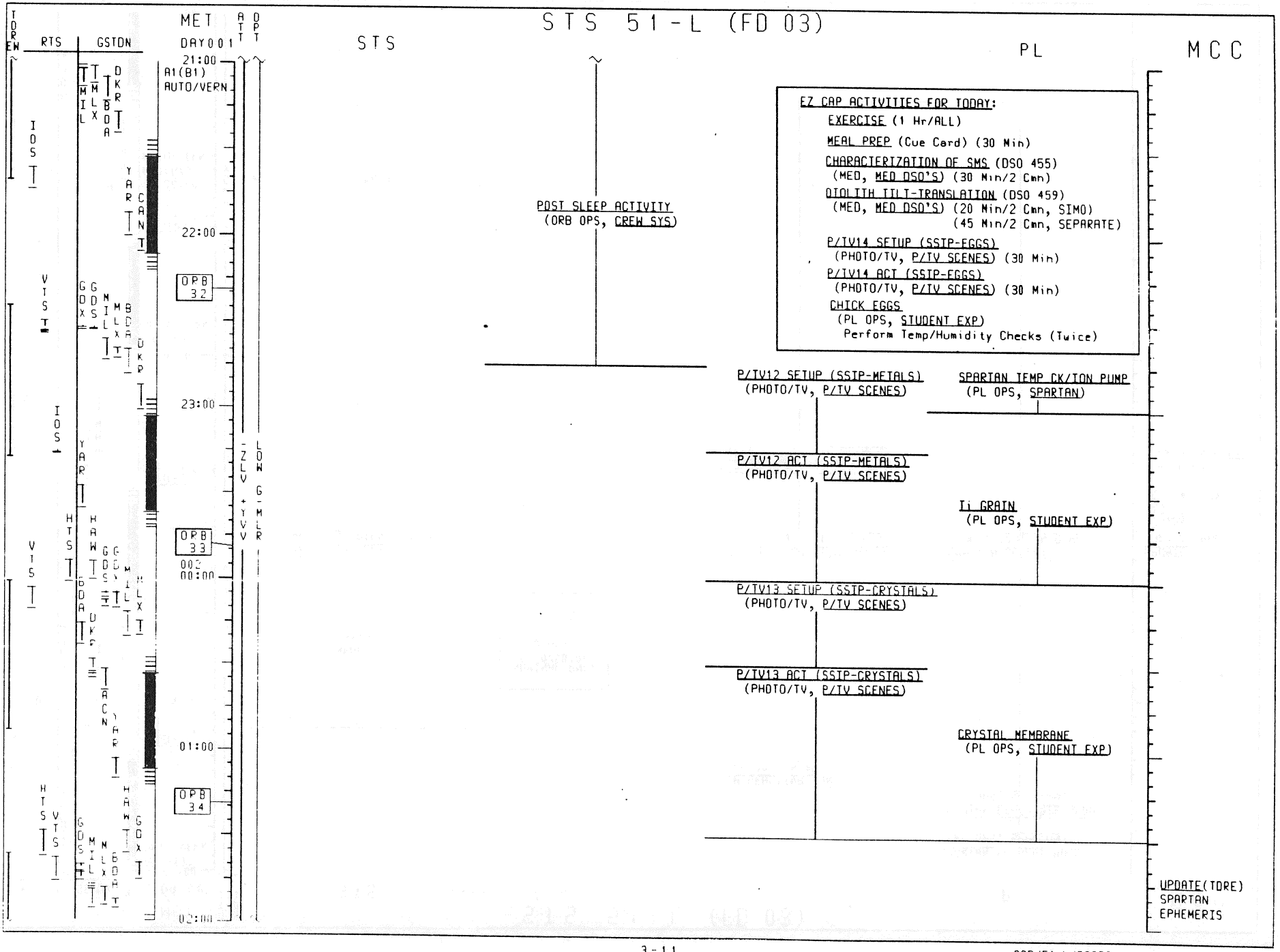

TDRSW
RTS
GSTDN
MET DAY 001
ATT OPT
STS
PL
MCC
06:00
07:00
08:00
09:00
10:00
11:00
A1(B1) AUTO/VERN
ON-ORBIT OMS BURN
MNVR (TRK) -ZLV, -XVV
TG=2 BV=3 OM=0
A/AUTO/VERN Init TRK
FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
P/TV11 ACT (TEACHER DEMO)
(PHOTO/TV, P/TV SCENES)
MLR ACTIVATION
(PL OPS, MLR)
TEACHER ACTIVITY
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH
TEACHER ACTIVITY
MLR STATUS
(PL OPS, MLR)
SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)
PRM, Step 2 (PL OPS, RME)
ORB 22
ORB 23
ORB 24
-ZLV -XVV
LDW G-MLR
IMU
-ZLV +YVV
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +YVV
TG=2 BV=3 ON=270
A/AUTO/VERN Init TRK
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
_ _ /_ _ :_ _ :_ _


STS 51-L (FD 02)
TDRSW
RTS
GSTDN
MET
DAY 001
ATT
DPT
STS
PL
MCC
11:00
A1(B1)
AUTO/VERN
AGO
ACN
GTS
GWM
ORB 25
12:00
AGO
ACN
DKR
13:00
ORB 26
ZLV
+YVV
LOW G-MER
GTS
GWM
SLEEP
14:00
DKR
ORB 27
15:00
16:00
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH

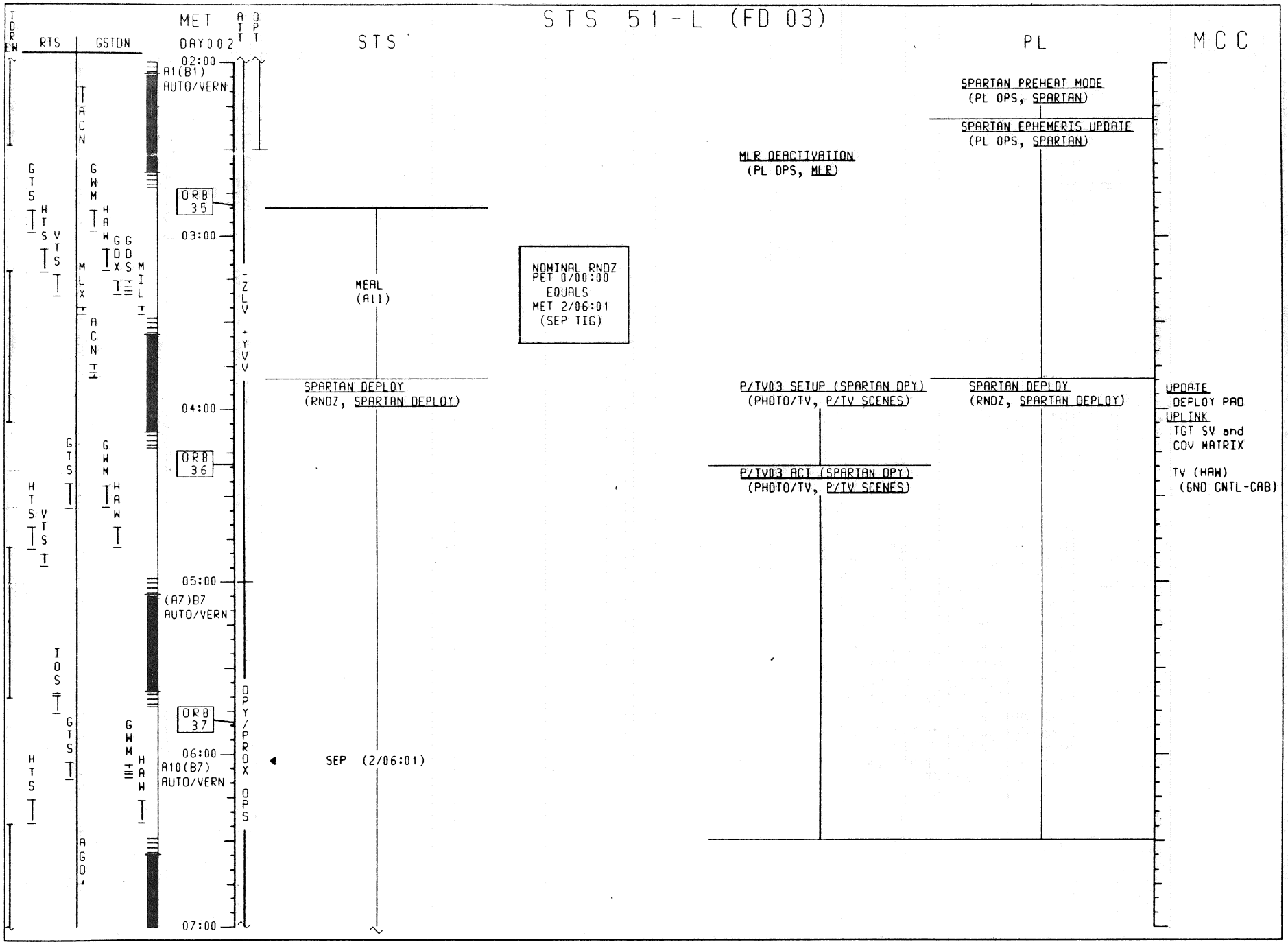
STS 51-L (FD 02)


TDRSW
RTS
GSTDN
MET
DAY 001
ATT
DPT
STS
PL
MCC
16:00
17:00
18:00
19:00
20:00
21:00
A1(B1)
AUTO/VERN
ORB 28
ORB 29
ORB 30
ORB 31
DKR MAD MAX
CAN
BDA DKR
MAD MAX
YAR CAN
BDA DKR MAD MAX
MIL MLX
YAR CAN
IOS
IOS
-ZLV +YVV
IMU
LOW G-MLR
SLEEP
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +YVV
TG=2 BV=3 OM=270
A/AUTO/VERN. Init TRK
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
__ /__ :__ :__

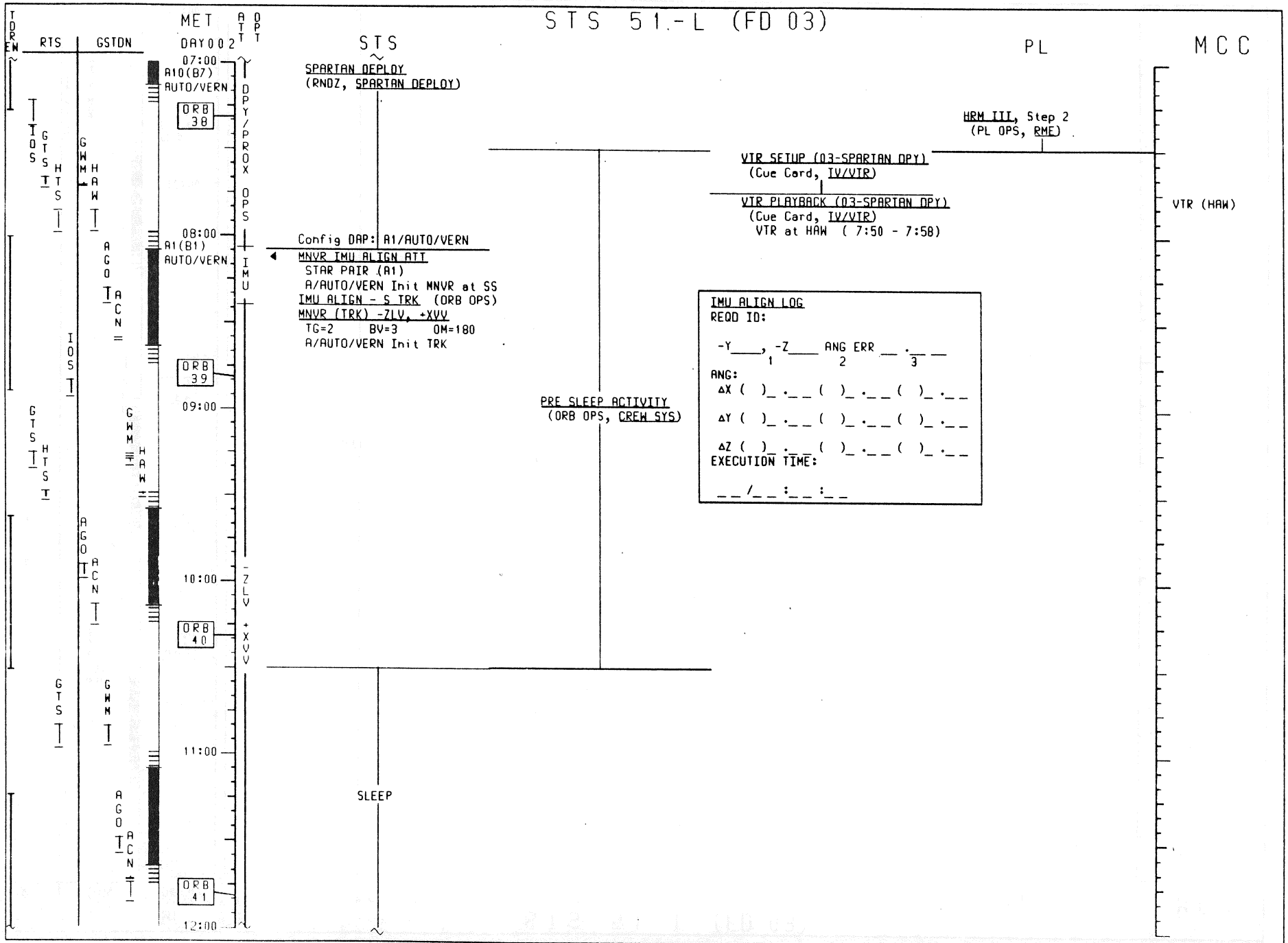
STS 51-L (FD 03)


TORE
RTS
GSTDN
MET
DAY001
ATT
DPT
STS
PL
MCC
21:00
A1(B1)
AUTO/VERN
22:00
23:00
01:00
02:00
OPB 32
OPB 33
OPB 34
002
00:00
-ZLV +YVV
LOW G-MLR
IOS
VIS
HTS
YAR
CAN
MIL
MLX
BDA
DKR
GDX
GDS
HAW
ACN
UKS
EZ CAP ACTIVITIES FOR TODAY:
EXERCISE (1 Hr/ALL)
MEAL PREP (Cue Card) (30 Min)
CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)
DIOLITH TILT-TRANSLATION (DSO 459)
(MED, MED DSO'S) (20 Min/2 Cmn, SIMO)
(45 Min/2 Cmn, SEPARATE)
P/IV14 SETUP (SSIP-EGGS)
(PHOTO/TV, P/IV SCENES) (30 Min)
P/IV14 ACT (SSIP-EGGS)
(PHOTO/TV, P/IV SCENES) (30 Min)
CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
P/IV12 SETUP (SSIP-METALS)
(PHOTO/TV, P/IV SCENES)
SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)
P/IV12 ACT (SSIP-METALS)
(PHOTO/TV, P/IV SCENES)
Ti GRAIN
(PL OPS, STUDENT EXP)
P/IV13 SETUP (SSIP-CRYSTALS)
(PHOTO/TV, P/IV SCENES)
P/IV13 ACT (SSIP-CRYSTALS)
(PHOTO/TV, P/IV SCENES)
CRYSTAL MEMBRANE
(PL OPS, STUDENT EXP)
UPDATE(TORE)
SPARTAN
EPHEMERIS

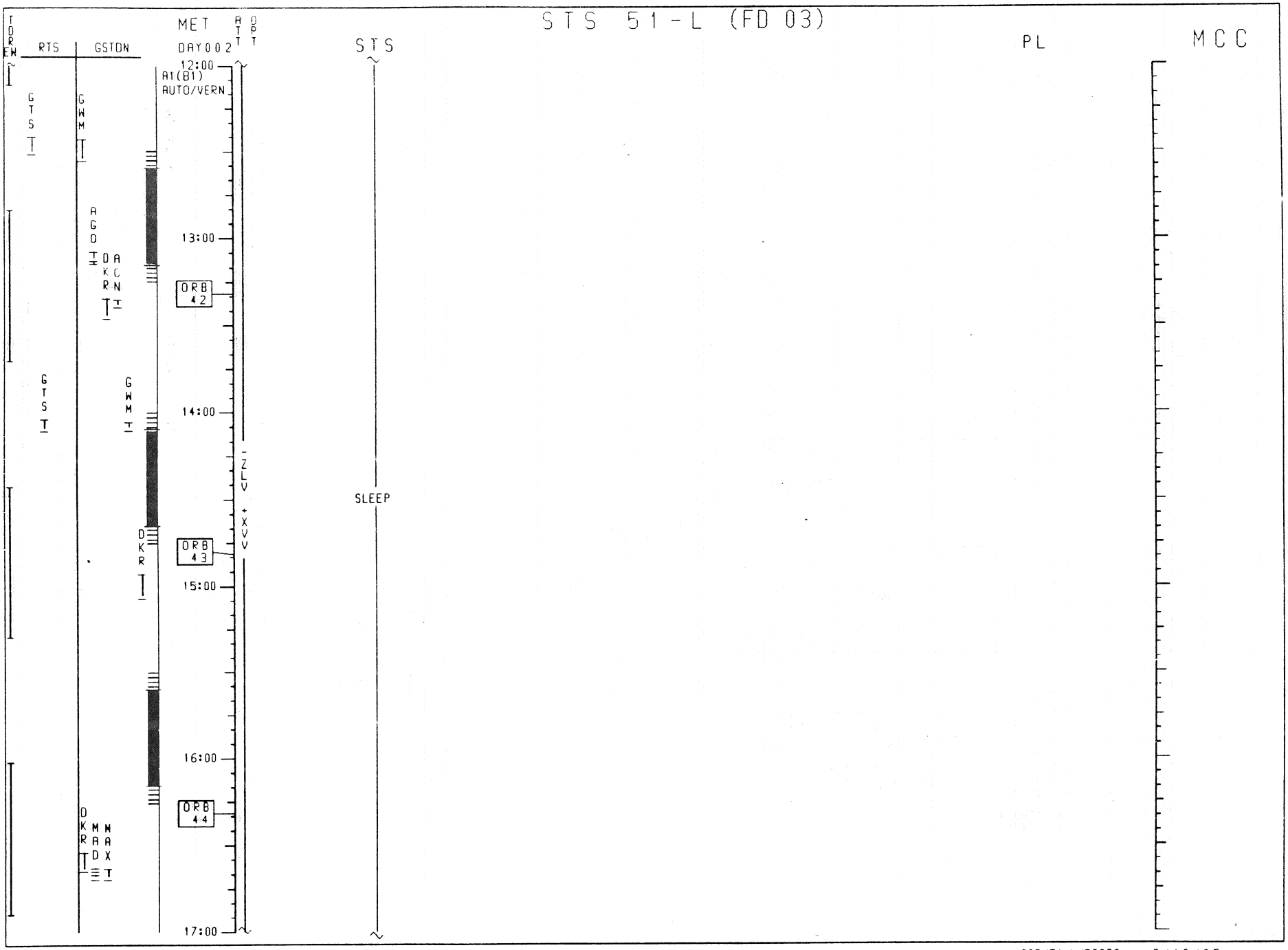
STS 51-L (FD 03)


TDRSS
RTS
GSTDN
MET
DAY002
ATT OPT
STS
PL
MCC
02:00
A1(B1)
AUTO/VERN
ACN
GTS
HTS
VTS
GWM
HAW
GDSS
MIL
MLX
ACN
ORB 35
03:00
-ZLV +YVV
MEAL
(All)
NOMINAL RNDZ
PET 0/00:00
EQUALS
MET 2/06:01
(SEP TIG)
SPARTAN PREHEAT MODE
(PL OPS, SPARTAN)
SPARTAN EPHEMERIS UPDATE
(PL OPS, SPARTAN)
MLR DEACTIVATION
(PL OPS, MLR)
SPARTAN DEPLOY
(RNDZ, SPARTAN DEPLOY)
04:00
ORB 36
P/TV03 SETUP (SPARTAN DPY)
(PHOTO/TV, P/TV SCENES)
SPARTAN DEPLOY
(RNDZ, SPARTAN DEPLOY)
UPDATE
DEPLOY PAD
UPLINK
TGT SV and
COV MATRIX
TV (HAW)
(GND CNTL-CAB)
P/TV03 ACT (SPARTAN DPY)
(PHOTO/TV, P/TV SCENES)
05:00
(A7)B7
AUTO/VERN
IOS
ORB 37
DPY/PROX OPS
06:00
SEP (2/06:01)
A10(B7)
AUTO/VERN
AGO
07:00

STS 51-L (FD 03)


TDRSW
RTS
GSTDN
MET
DAY 002
ATT
OPT
STS
PL
MCC
07:00
A10(B7)
AUTO/VERN
ORB 38
08:00
A1(B1)
AUTO/VERN
ORB 39
09:00
10:00
ORB 40
11:00
ORB 41
12:00
DPY/PROX OPS
IMU
-ZLV
+XVV
TDRS
GTS
HTS
GWM
HAW
AGO
ACN
IOS
SPARTAN DEPLOY
(RNDZ, SPARTAN DEPLOY)
Config DAP: A1/AUTO/VERN
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
SLEEP
HRM III, Step 2
(PL OPS, RME)
VIR SETUP (03-SPARTAN OPY)
(Cue Card, IV/VIR)
VIR PLAYBACK (03-SPARTAN OPY)
(Cue Card, IV/VIR)
VTR at HAW (7:50 - 7:58)
VTR (HAW)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ .__ ( )_ .__ ( )_ .__
ΔY ( )_ .__ ( )_ .__ ( )_ .__
ΔZ ( )_ .__ ( )_ .__ ( )_ .__
EXECUTION TIME:
__ /__ :__ :__

STS 51-L (FD 03)


TDRSW
RTS
GSTDN
MET
DAY002
ATT
OPT
STS
PL
MCC
12:00
A1(B1)
AUTO/VERN
13:00
14:00
15:00
16:00
17:00
GTS
GWM
AGOH
DAKR
ORB 42
ORB 43
ORB 44
-ZLV +XVV
SLEEP
DKR
MAD
NAX

STS 51-L (FD 04)

TDRE W | RTS | GSTDN | MET DAY 002 | ATT OPT | STS | PL | MCC

17:00 — A1(B1) AUTO/VERN

ORB 45

18:00

ORB 46

19:00

20:00

ORB 47

21:00

22:00

-ZLV +XVV

IMU

-ZLV +XVV

SLEEP

POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)

Do EC PURGE MANUAL (CUE CARD)

◄ MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK

P/TV08 SETUP (FIELD TRIP)
(PHOTO/TV, P/TV SCENES)

LESSON PREP

HRM III, Step 1 (PL OPS)

EZ CAP ACTIVITIES FOR TODAY:

RCS REGULATOR RECONFIGURE
07/08 He PRESS A(three)-CL(tb-CL)
B(three)-GPC(tb-OP)
Perform midflt/A.M.(10 Min)
HEATER RECONFIG - B (ORB OPS, EPS)
Perform midflt/A.M.(5 Min)
EXERCISE (1 Hr/ALL)
MEAL PREP (Cue Card) (30 Min)
ECLSS REDUNDANT COMPONENT C/O
(ORB OPS, ECLS) (10 Min)
Inform MCC when complete
PCS 1 (2) CONFIG (ORB OPS, ECLS)
Config Sys 2 (5 Min/2 Cmn)
Perform midflight
CAB TEMP CNTL RECONFIG
MD44F Pin CAB TEMP CNTL actuator
linkage to actuator 2
L1 CAB TEMP CNTLR - 2
Perform midflight (5 Min)
CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)
CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)

IMU ALIGN LOG
REQD ID:

-Y____, -Z____ ANG ERR __ .__ __
1 2 3

ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

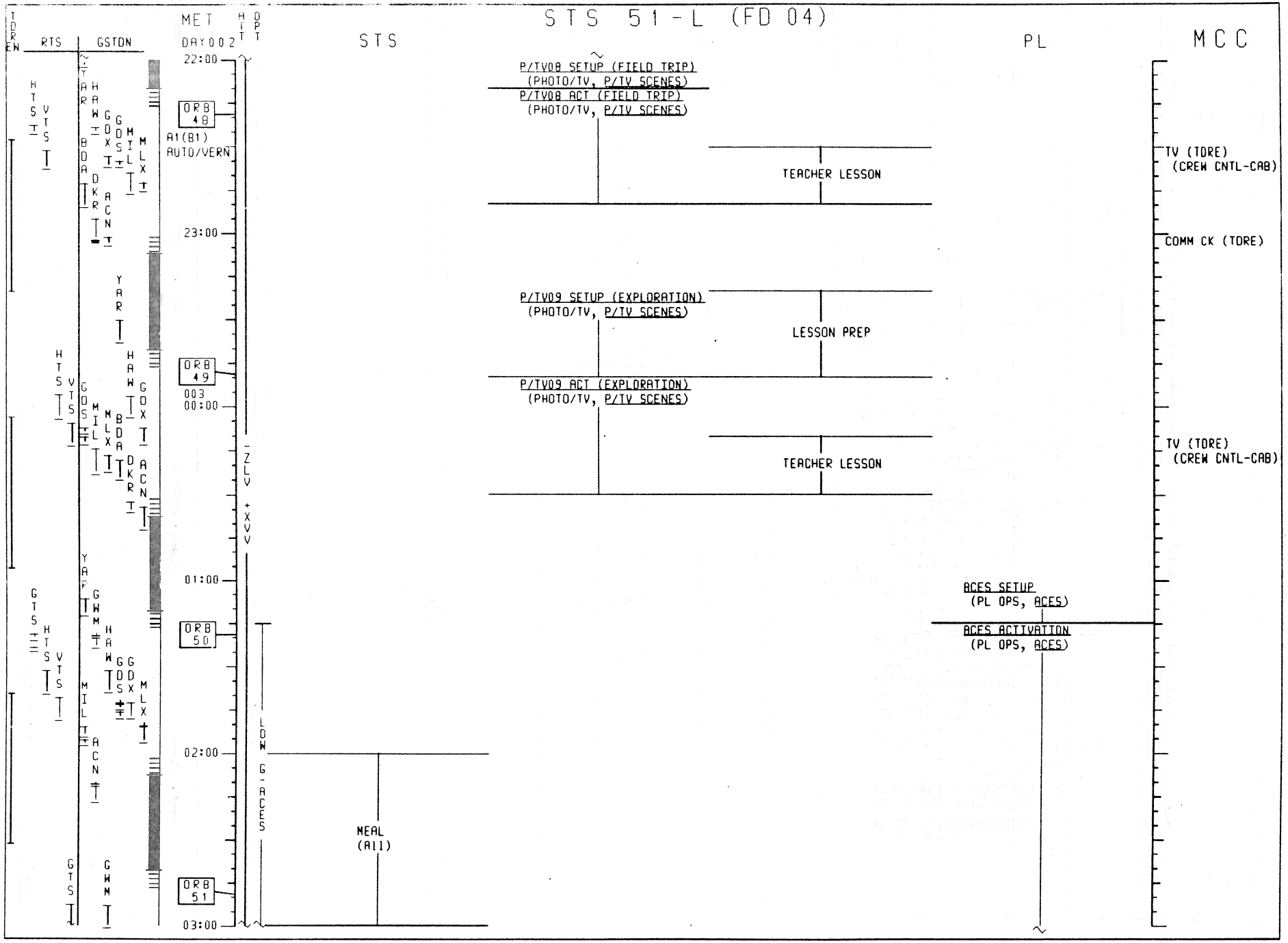
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

EXECUTION TIME:

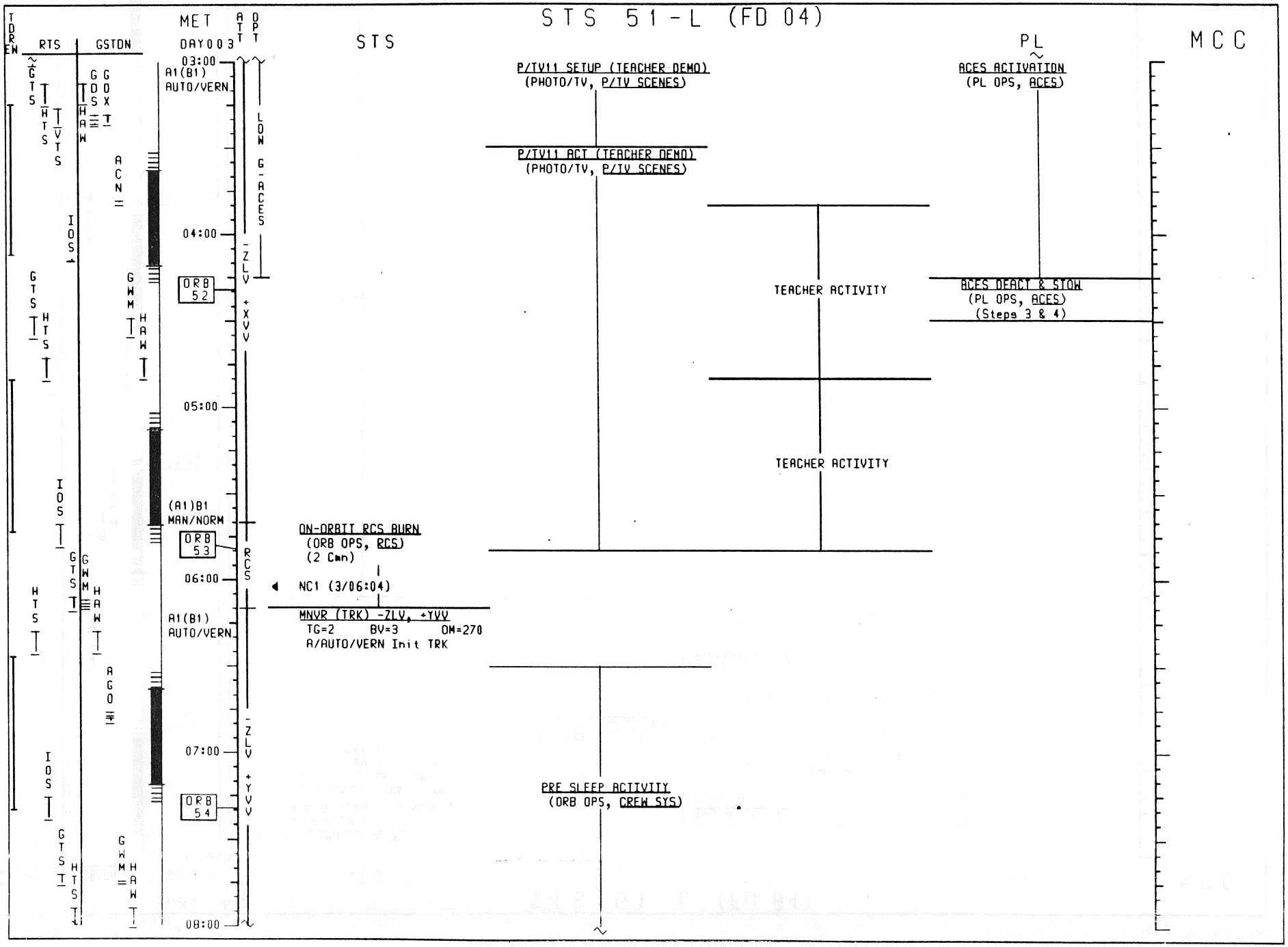
__/__ :__ :__

COMM CK (TDRE)

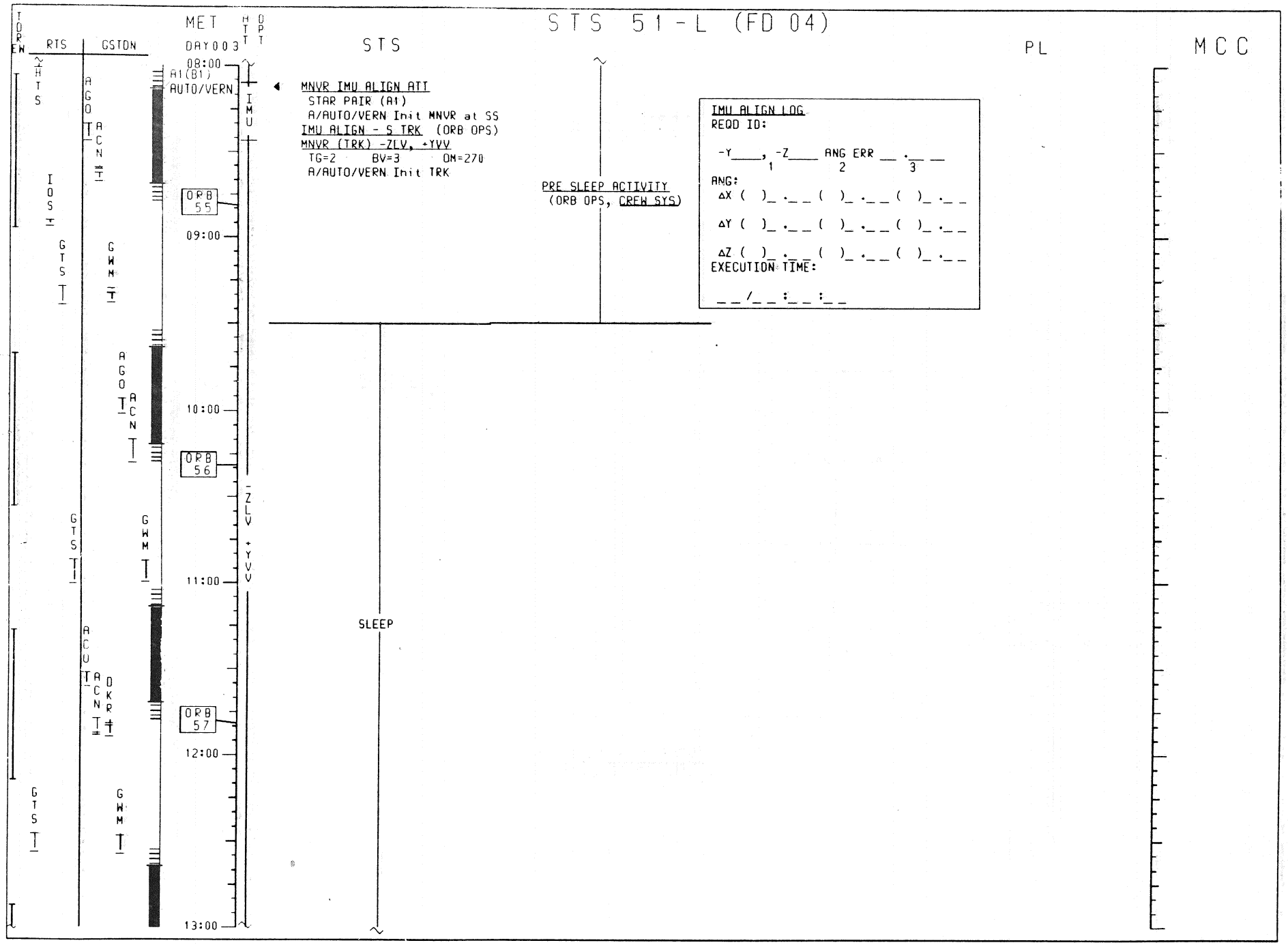
STS 51-L (FD 04)

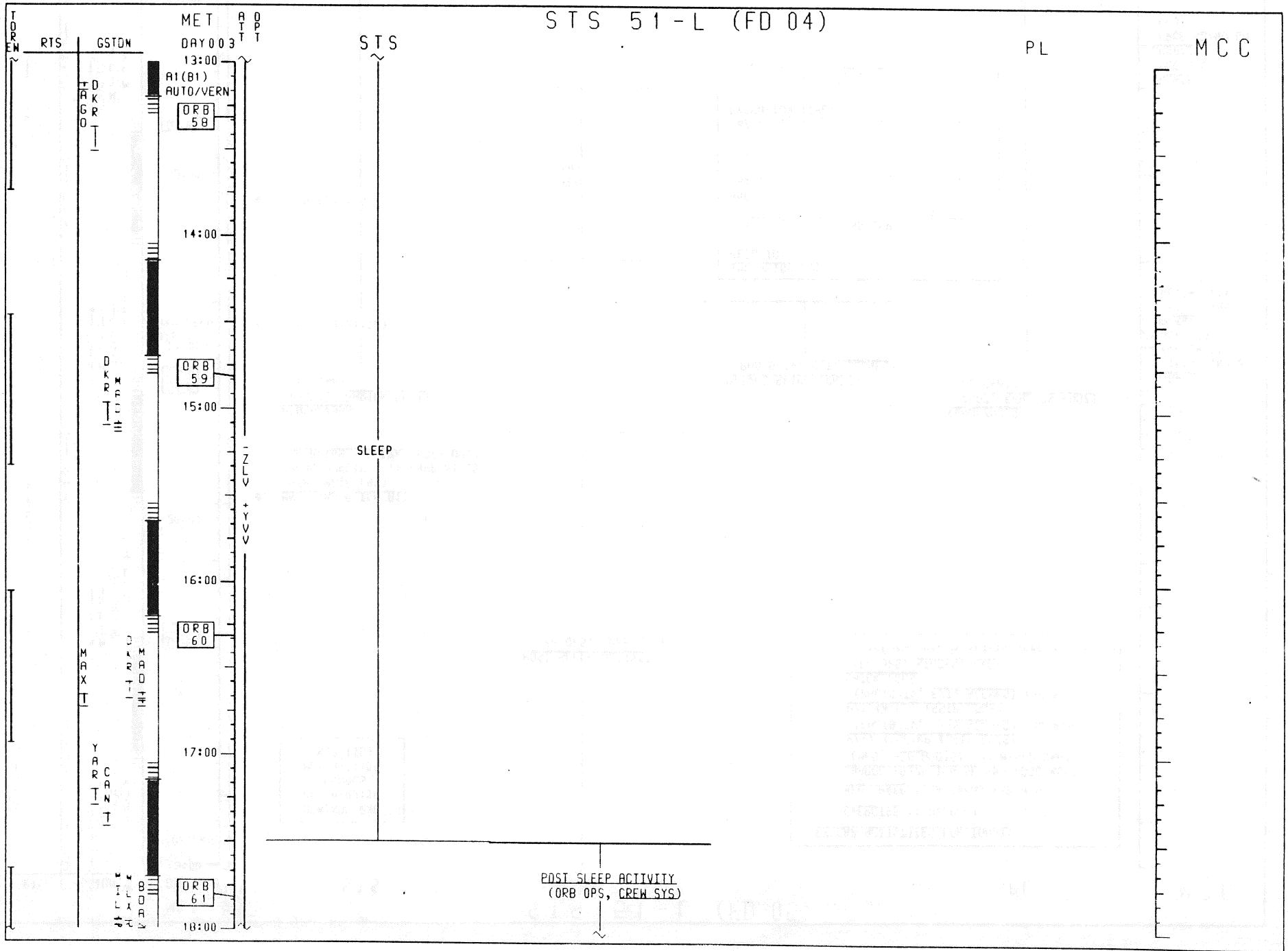

MET
DAY 002
22:00
23:00
003
00:00
01:00
02:00
03:00
STS
PL
MCC
RTS
GSTDN
ORB 48
A1(B1)
AUTO/VERN
ORB 49
ORB 50
ORB 51
P/TV08 SETUP (FIELD TRIP)
(PHOTO/TV, P/TV SCENES)
P/TV08 ACT (FIELD TRIP)
(PHOTO/TV, P/TV SCENES)
TEACHER LESSON
P/TV09 SETUP (EXPLORATION)
(PHOTO/TV, P/TV SCENES)
LESSON PREP
P/TV09 ACT (EXPLORATION)
(PHOTO/TV, P/TV SCENES)
TEACHER LESSON
MEAL
(A11)
ACES SETUP
(PL OPS, ACES)
ACES ACTIVATION
(PL OPS, ACES)
TV (TDRE)
(CREW CNTL-CAB)
COMM CK (TDRE)
TV (TDRE)
(CREW CNTL-CAB)

STS 51-L (FD 04)

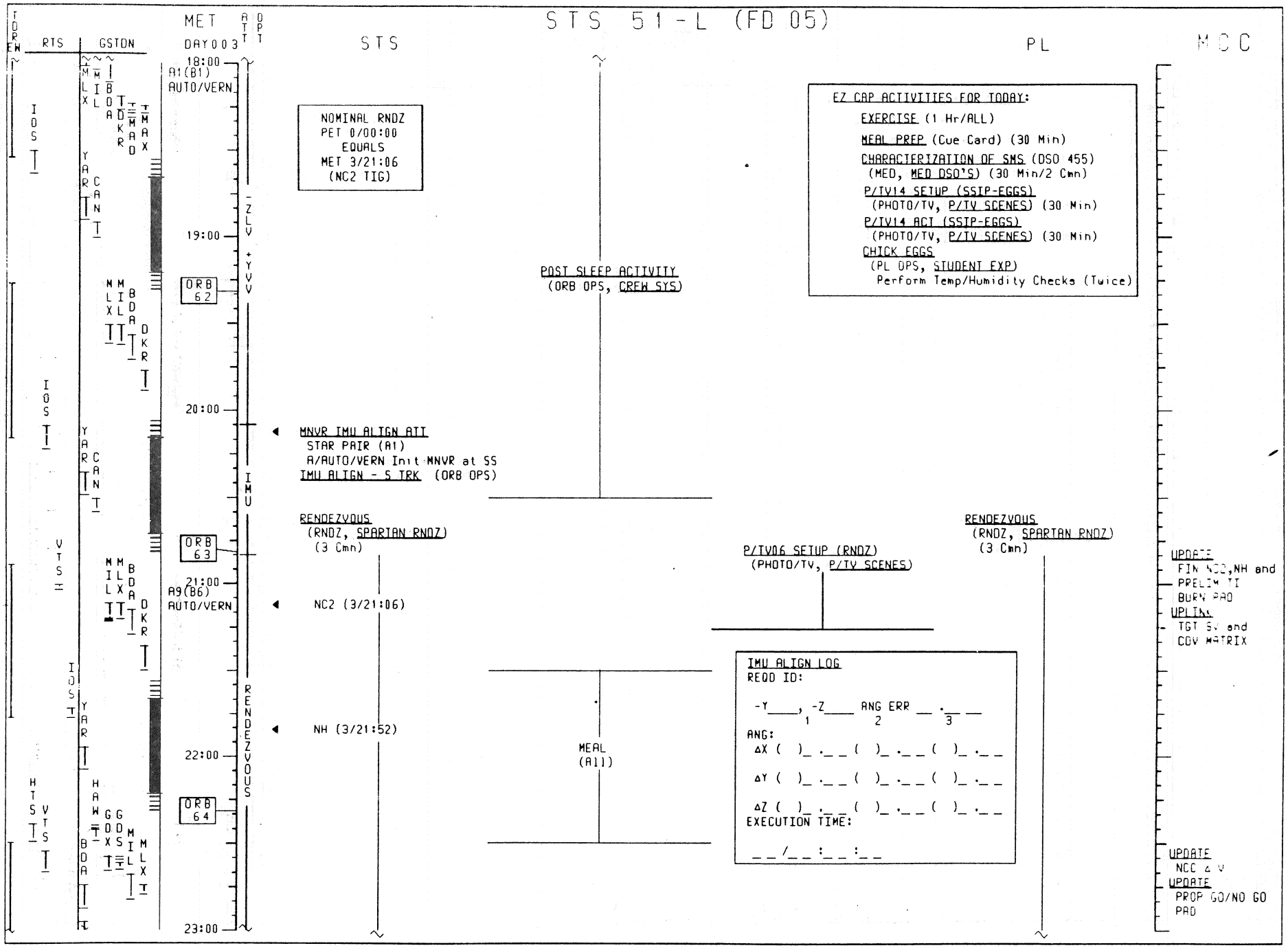

TDRSW
RTS
GSTDN
MET
DAY 003
ATT
DPT
STS
PL
MCC
03:00
04:00
05:00
06:00
07:00
08:00
A1(B1)
AUTO/VERN
(A1)B1
MAN/NORM
A1(B1)
AUTO/VERN
ORB 52
ORB 53
ORB 54
LOW G-ACES
-ZLV
+XVV
RCS
-ZLV
+YVV
P/TV11 SETUP (TEACHER DEMO)
(PHOTO/TV, P/TV SCENES)
P/TV11 ACT (TEACHER DEMO)
(PHOTO/TV, P/TV SCENES)
TEACHER ACTIVITY
TEACHER ACTIVITY
ACES ACTIVATION
(PL OPS, ACES)
ACES DEACT & STOW
(PL OPS, ACES)
(Steps 3 & 4)
ON-ORBIT RCS BURN
(ORB OPS, RCS)
(2 Cmn)
NC1 (3/06:04)
MNVR (TRK) -ZLV, +YVV
TG=2 BV=3 OM=270
A/AUTO/VERN Init TRK
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)

STS 51-L (FD 04)

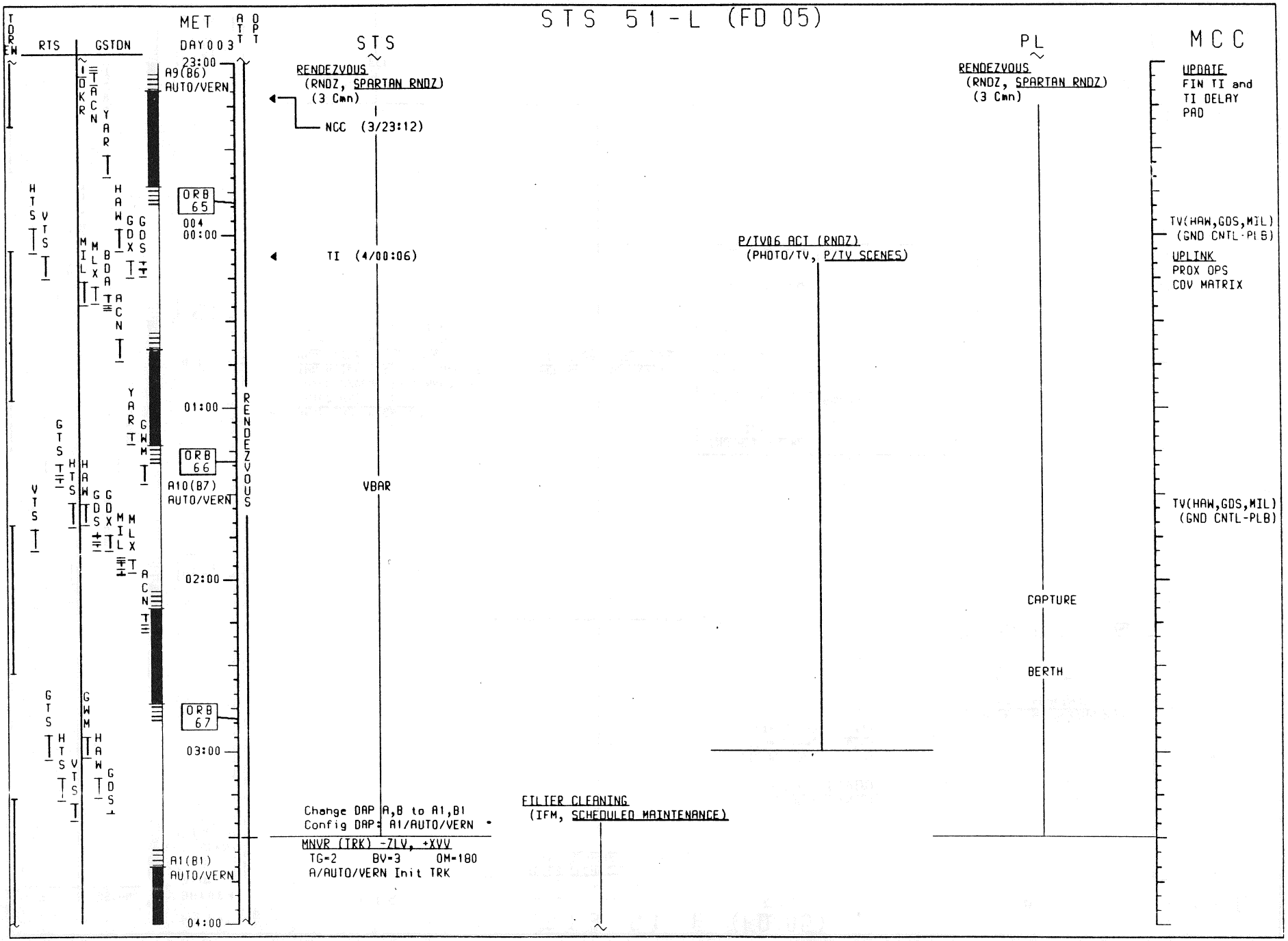

TDRS EW
RTS
GSTON
MET
DAY 003
MIT
OPT
STS
PL
MCC
08:00
09:00
10:00
11:00
12:00
13:00
A1(B1)
AUTO/VERN
IMU
ORB 55
ORB 56
ORB 57
-ZLV +YVV
SLEEP
AGO
ACN #1
GTS
GWM
ACN #2
DKR #1
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +YVV
TG=2 BV=3 OM=270
A/AUTO/VERN Init TRK
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
__ /__ :__ :__


STS 51-L (FD 04)
MET
DAY 003
RTS
GSTDN
STS
PL
MCC
13:00
14:00
15:00
16:00
17:00
18:00
A1(B1)
AUTO/VERN
ORB 58
ORB 59
ORB 60
ORB 61
SLEEP
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)

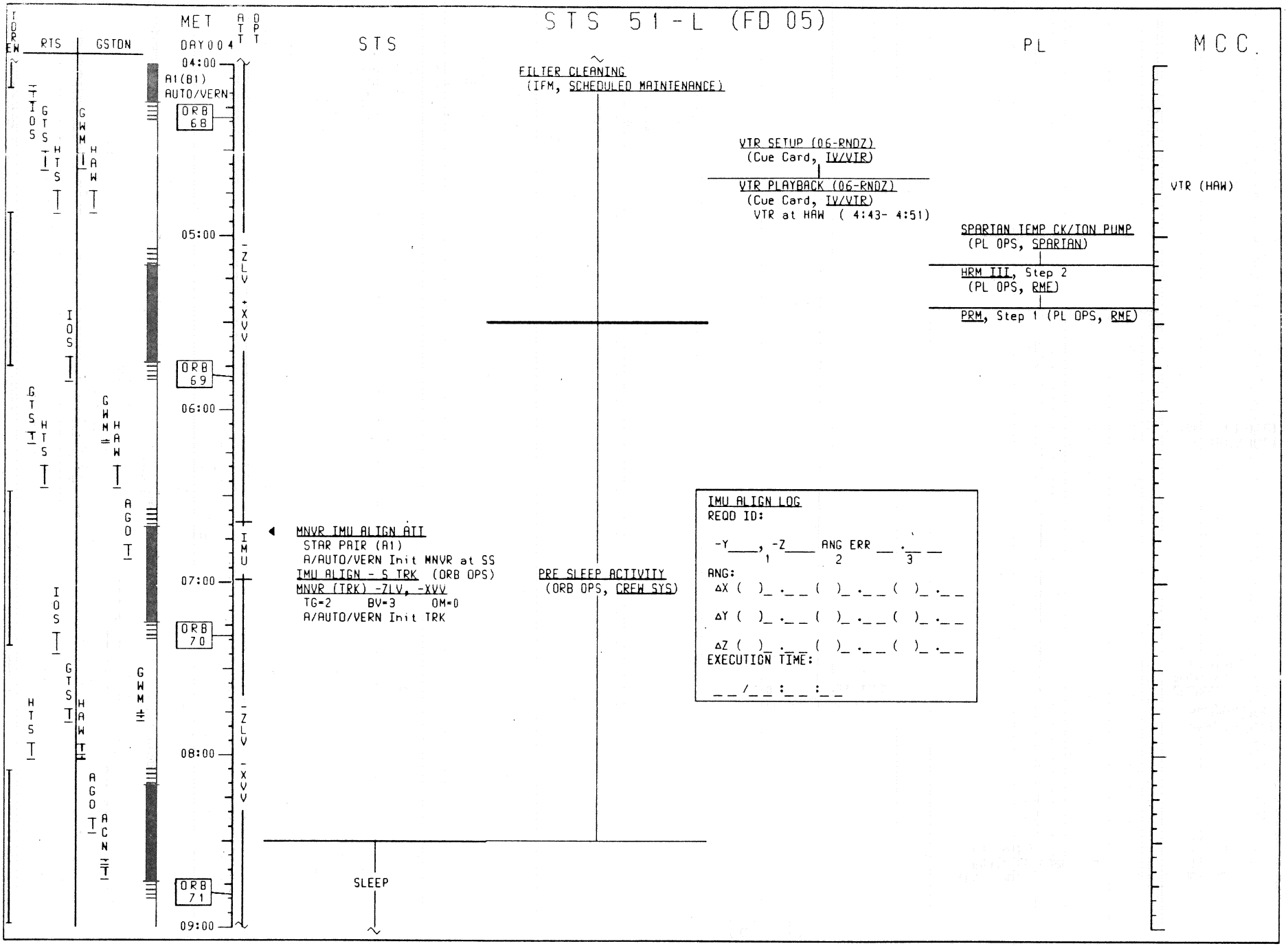
STS 51-L (FD 05)


TDRSW
RTS
GSTDN
MET
DAY 003
ATT
ADPT
STS
PL
MCC
18:00
A1(B1)
AUTO/VERN
19:00
20:00
21:00
A9(B6)
AUTO/VERN
22:00
23:00
-ZLV
+YVV
IMU
RENDEZVOUS
ORB 62
ORB 63
ORB 64
IOS
VTS
HTS
YAR
CAN
MILX
BDA
DKR
HAW
GDS
MAD
NOMINAL RNDZ
PET 0/00:00
EQUALS
MET 3/21:06
(NC2 TIG)
EZ CAP ACTIVITIES FOR TODAY:
EXERCISE (1 Hr/ALL)
MEAL PREP (Cue Card) (30 Min)
CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)
P/TV14 SETUP (SSIP-EGGS)
(PHOTO/TV, P/TV SCENES) (30 Min)
P/TV14 ACT (SSIP-EGGS)
(PHOTO/TV, P/TV SCENES) (30 Min)
CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
RENDEZVOUS
(RNDZ, SPARTAN RNDZ)
(3 Cmn)
NC2 (3/21:06)
NH (3/21:52)
MEAL
(A11)
P/TV06 SETUP (RNDZ)
(PHOTO/TV, P/TV SCENES)
RENDEZVOUS
(RNDZ, SPARTAN RNDZ)
(3 Cmn)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __.__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
__/__:__:__
UPDATE
FIN NOD, NH and
PRELIM TI
BURN PAD
UPLINK
TGT SV and
COV MATRIX
UPDATE
NCC & V
UPDATE
PROP GO/NO GO
PAD

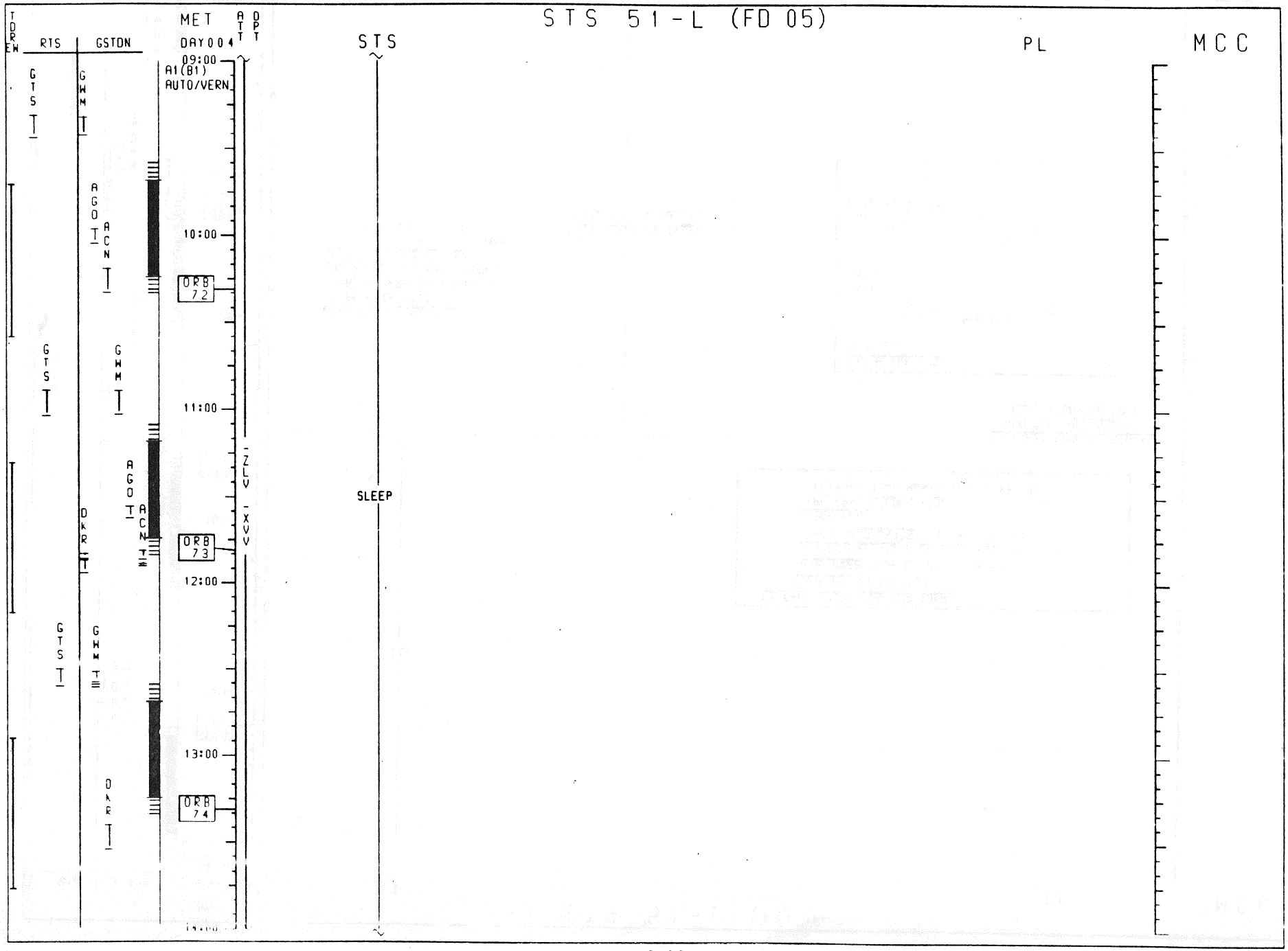
STS 51-L (FD 05)


TDRSW
RTS
GSTDN
MET
DAY 003
ATT OPT
23:00
A9(B6)
AUTO/VERN
ORB 65
004
00:00
01:00
ORB 66
A10(B7)
AUTO/VERN
02:00
ORB 67
03:00
A1(B1)
AUTO/VERN
04:00
RENDEZVOUS
DKR
TAC
YAR
HAW
GDS
GDX
MIL
MLX
BDA
ACN
HTS
VTS
GTS
GWM
STS
RENDEZVOUS
(RNDZ, SPARTAN RNDZ)
(3 Cmn)
NCC (3/23:12)
TI (4/00:06)
VBAR
Change DAP A,B to A1,B1
Config DAP: A1/AUTO/VERN
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK
FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
P/TV06 ACI (RNDZ)
(PHOTO/TV, P/TV SCENES)
PL
RENDEZVOUS
(RNDZ, SPARTAN RNDZ)
(3 Cmn)
CAPTURE
BERTH
MCC
UPDATE
FIN TI and
TI DELAY
PAD
TV(HAW,GDS,MIL)
(GND CNTL-PLB)
UPLINK
PROX OPS
COV MATRIX
TV(HAW,GDS,MIL)
(GND CNTL-PLB)

STS 51-L (FD 05)

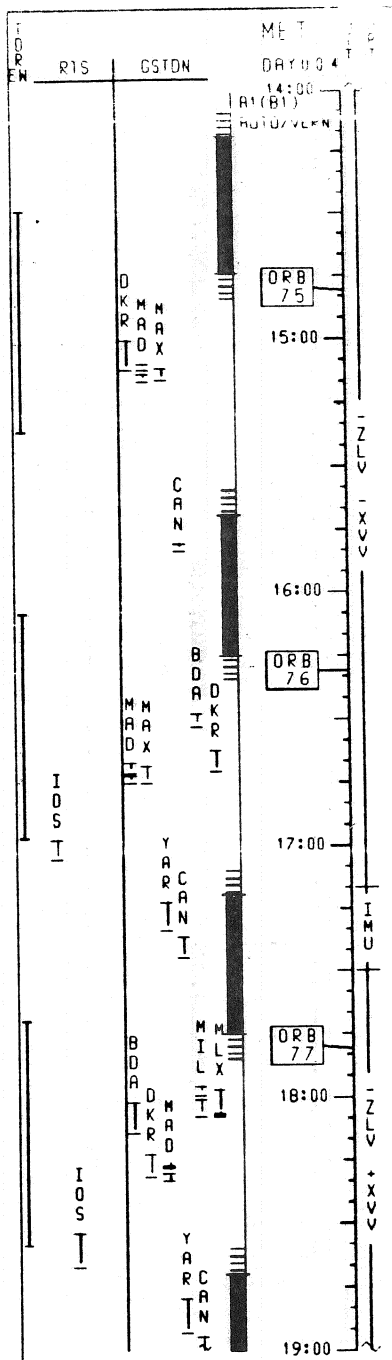

MET
DAY 004
ATT OPT
STS
PL
MCC
RTS
GSTDN
04:00
05:00
06:00
07:00
08:00
09:00
A1(B1)
AUTO/VERN
ORB 68
ORB 69
ORB 70
ORB 71
-ZLV +XVV
IMU
-ZLV -XVV
FILTER CLEANING
(IFM, SCHEDULED MAINTENANCE)
VTR SETUP (06-RNDZ)
(Cue Card, IV/VIR)
VTR PLAYBACK (06-RNDZ)
(Cue Card, IV/VIR)
VTR at HAW (4:43- 4:51)
VTR (HAW)
SPARTAN IEMP CK/ION PUMP
(PL OPS, SPARTAN)
HRM III, Step 2
(PL OPS, RME)
PRM, Step 1 (PL OPS, RME)
MNVR IMU ALIGN AII
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, -XVV
TG=2 BV=3 OM=0
A/AUTO/VERN Init TRK
PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
_ _/_ _ :_ _ :_ _
SLEEP
TDRS
GTS
HTS
GWM
HAW
IOS
AGO
ACN

STS 51-L (FD 05)


TDRSW
RTS
GSTDN
MET
DAY 004
ATT
DPT
STS
PL
MCC
09:00
A1(B1)
AUTO/VERN
10:00
11:00
12:00
13:00
14:00
GTS
GWM
AGT
ACN
DKR
ORB
72
73
74
-ZLV
-XVV
SLEEP

PL

MCC



STS

SLEEP

MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK

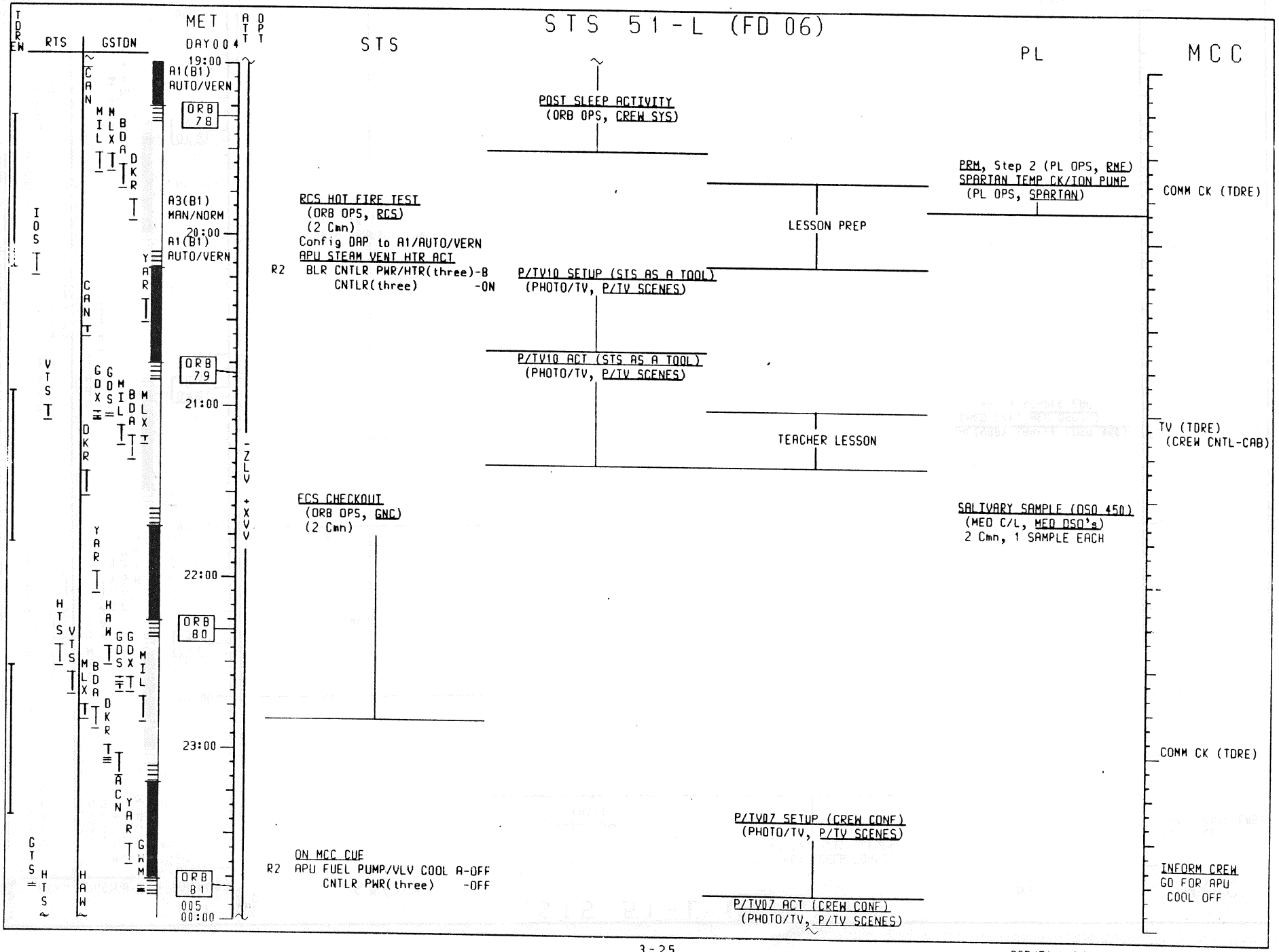
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)

EZ CAP ACTIVITIES FOR TODAY:
EXERCISE (1 Hr/ALL)
MEAL PREP (Cue Card) (30 Min)
CHARACTERIZATION OF SMS (DSO 455)
(MED, MED DSO'S) (30 Min/2 Cmn)
CHICK EGGS
(PL OPS, STUDENT EXP)
Perform Temp/Humidity Checks (Twice)

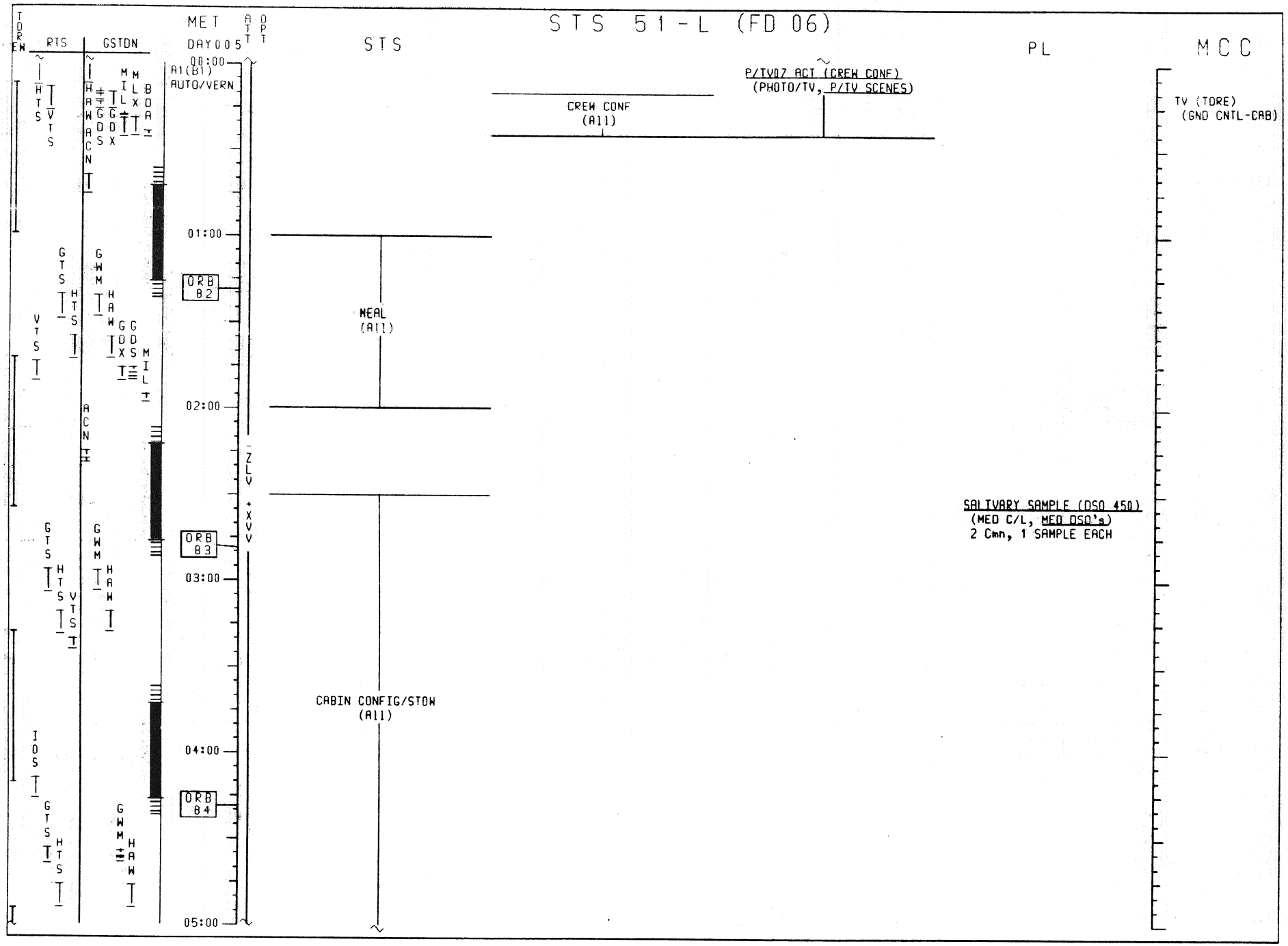
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH

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

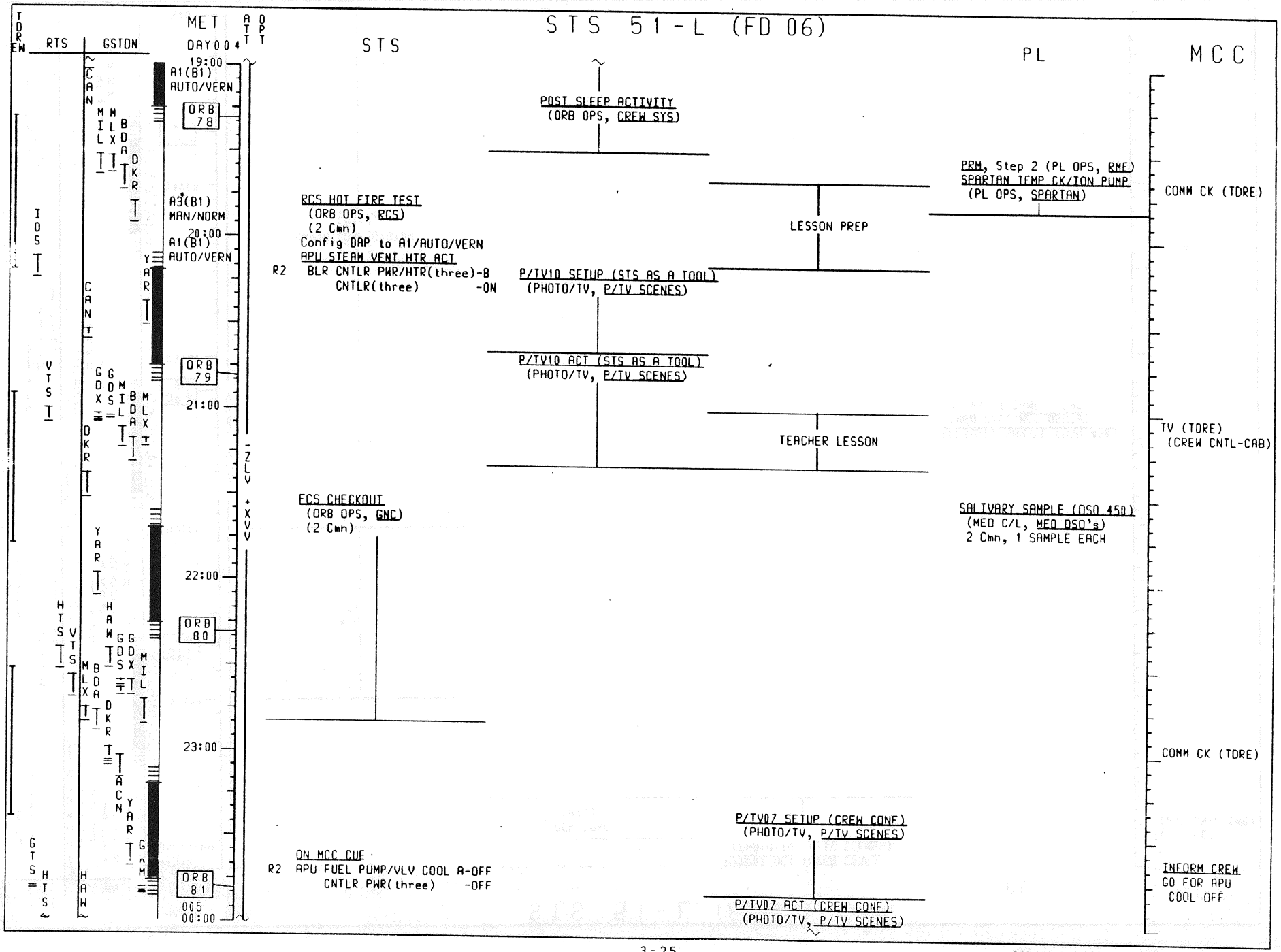
STS 51-L (FD 06)


TDRW
RTS
GSTDN
MET
DAY 004
ATT
DPT
STS
PL
MCC
19:00
A1(B1)
AUTO/VERN
ORB 78
A3(B1)
MAN/NORM
20:00
A1(B1)
AUTO/VERN
ORB 79
21:00
ZLV
+XVV
22:00
ORB 80
23:00
ORB 81
005
00:00
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
PRM, Step 2 (PL OPS, RME)
SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)
COMM CK (TDRE)
RCS HOT FIRE TEST
(ORB OPS, RCS)
(2 Cmn)
Config DAP to A1/AUTO/VERN
APU STEAM VENT HTR ACT
R2 BLR CNTLR PWR/HTR(three)-B
CNTLR(three) -ON
LESSON PREP
P/TV10 SETUP (STS AS A TOOL)
(PHOTO/TV, P/TV SCENES)
P/TV10 ACT (STS AS A TOOL)
(PHOTO/TV, P/TV SCENES)
TEACHER LESSON
TV (TDRE)
(CREW CNTL-CAB)
FCS CHECKOUT
(ORB OPS, GNC)
(2 Cmn)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH
COMM CK (TDRE)
P/TV07 SETUP (CREW CONF)
(PHOTO/TV, P/TV SCENES)
ON MCC CUE
R2 APU FUEL PUMP/VLV COOL A-OFF
CNTLR PWR(three) -OFF
P/TV07 ACT (CREW CONF)
(PHOTO/TV, P/TV SCENES)
INFORM CREW
GO FOR APU
COOL OFF

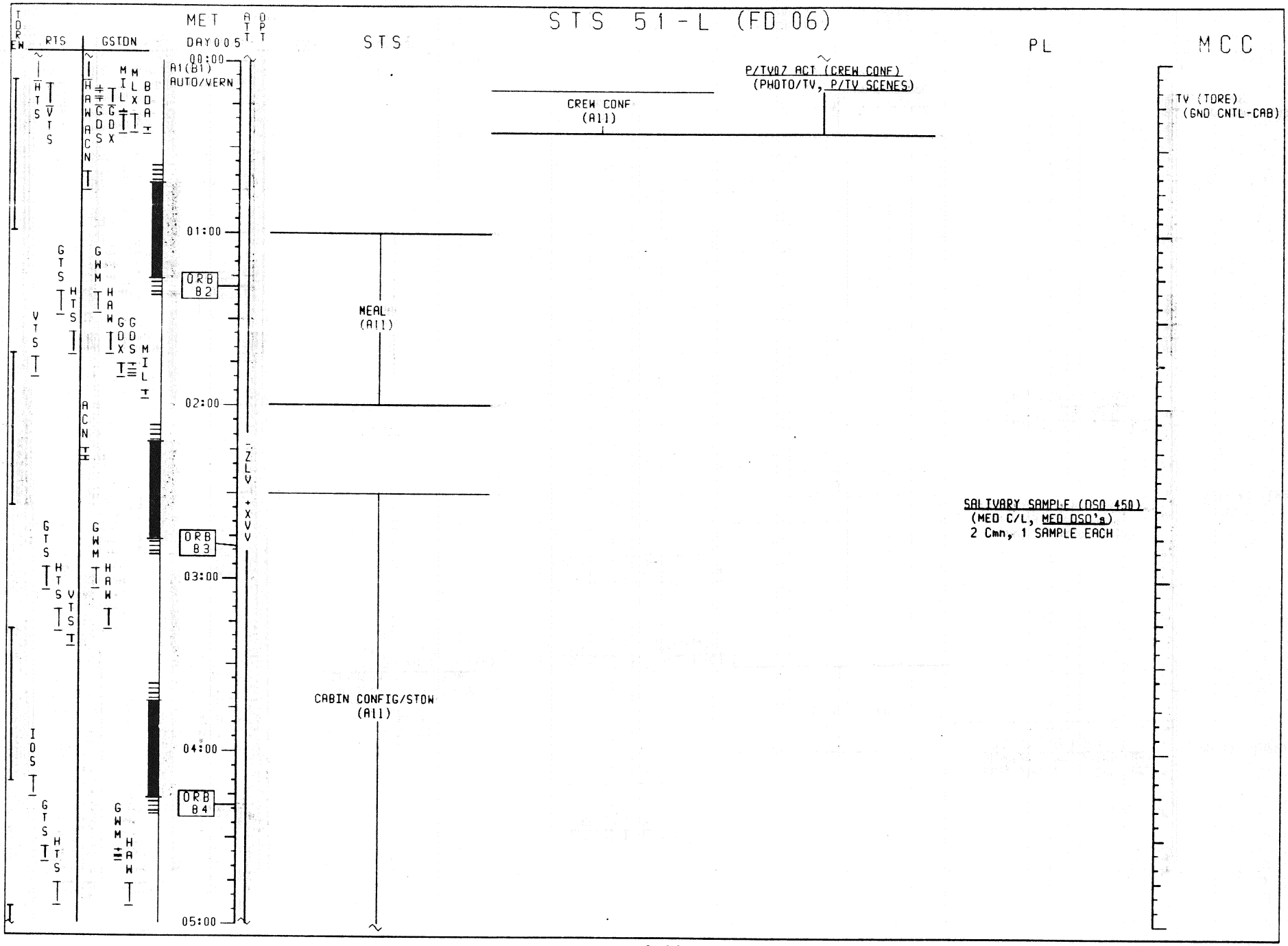
STS 51-L (FD 06)


TDRE
RTS
GSTDN
MET
DAY 005
ATT OPT
STS
PL
MCC
00:00
A1(B1)
AUTO/VERN
01:00
02:00
03:00
04:00
05:00
ORB B2
ORB B3
ORB B4
-ZLV
+XVV
P/TV07 ACT (CREW CONF)
(PHOTO/TV, P/TV SCENES)
CREW CONF
(A11)
MEAL
(A11)
CABIN CONFIG/STOW
(A11)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH
TV (TDRE)
(GND CNTL-CAB)

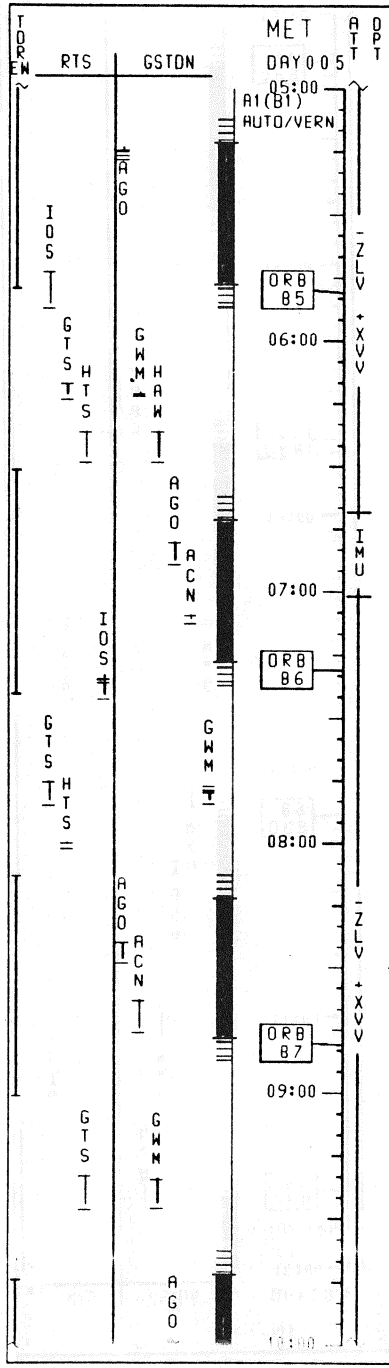
STS 51-L (FD 06)


TDRE
RTS
GSTDN
MET
DAY 004
ATT
DPT
STS
PL
MCC
19:00
A1(B1)
AUTO/VERN
ORB 78
A3(B1)
MAN/NORM
20:00
A1(B1)
AUTO/VERN
ORB 79
21:00
22:00
ORB 80
23:00
ORB 81
005
00:00
CAN
MIL
MLX
BDA
DKR
IOS
CANT
GDX
GDS
YAR
VTS
HTS
HAW
ACN
GTS
GWM
-ZLV +XVV
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
PRM, Step 2 (PL OPS, RME)
SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)
COMM CK (TDRE)
RCS HOT FIRE TEST
(ORB OPS, RCS)
(2 Cmn)
Config DAP to A1/AUTO/VERN
APU STEAM VENT HTR ACT
R2 BLR CNTLR PWR/HTR(three)-B
CNTLR(three) -ON
LESSON PREP
P/TV10 SETUP (STS AS A TOOL)
(PHOTO/TV, P/TV SCENES)
P/TV10 ACT (STS AS A TOOL)
(PHOTO/TV, P/TV SCENES)
TEACHER LESSON
TV (TDRE)
(CREW CNTL-CAB)
ECS CHECKOUT
(ORB OPS, GNC)
(2 Cmn)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH
COMM CK (TDRE)
P/TV07 SETUP (CREW CONF)
(PHOTO/TV, P/TV SCENES)
ON MCC CUE
R2 APU FUEL PUMP/VLV COOL A-OFF
CNTLR PWR(three) -OFF
INFORM CREW
GO FOR APU
COOL OFF
P/TV07 ACT (CREW CONF)
(PHOTO/TV, P/TV SCENES)

STS 51-L (FD 06)


MET
DAY 005
00:00
01:00
02:00
03:00
04:00
05:00
A1(B1)
AUTO/VERN
ORB B2
ORB B3
ORB B4
RTS
GSTDN
STS
PL
MCC
CREW CONF
(All)
P/TV07 ACT (CREW CONF)
(PHOTO/TV, P/TV SCENES)
MEAL
(All)
CABIN CONFIG/STOW
(All)
TV (TORE)
(GND CNTL-CAB)
SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH

STS 51-L (FD 06)



STS

CABIN CONFIG/STOW
(All)

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

◀ MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) -ZLV, +XVV
TG=2 BV=3 OM=180
A/AUTO/VERN Init TRK

PRE SLEEP ACTIVITY
(ORB OPS, CREW SYS)

SLEEP

PL

SPARTAN TEMP CK/ION PUMP
(PL OPS, SPARTAN)

GAS ENCOR STOW
(PL OPS, GAS)

IMU ALIGN LOG
REQD ID:

-Y____, -Z____ ANG ERR __ .__ __
1 2 3

ANG:

ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _

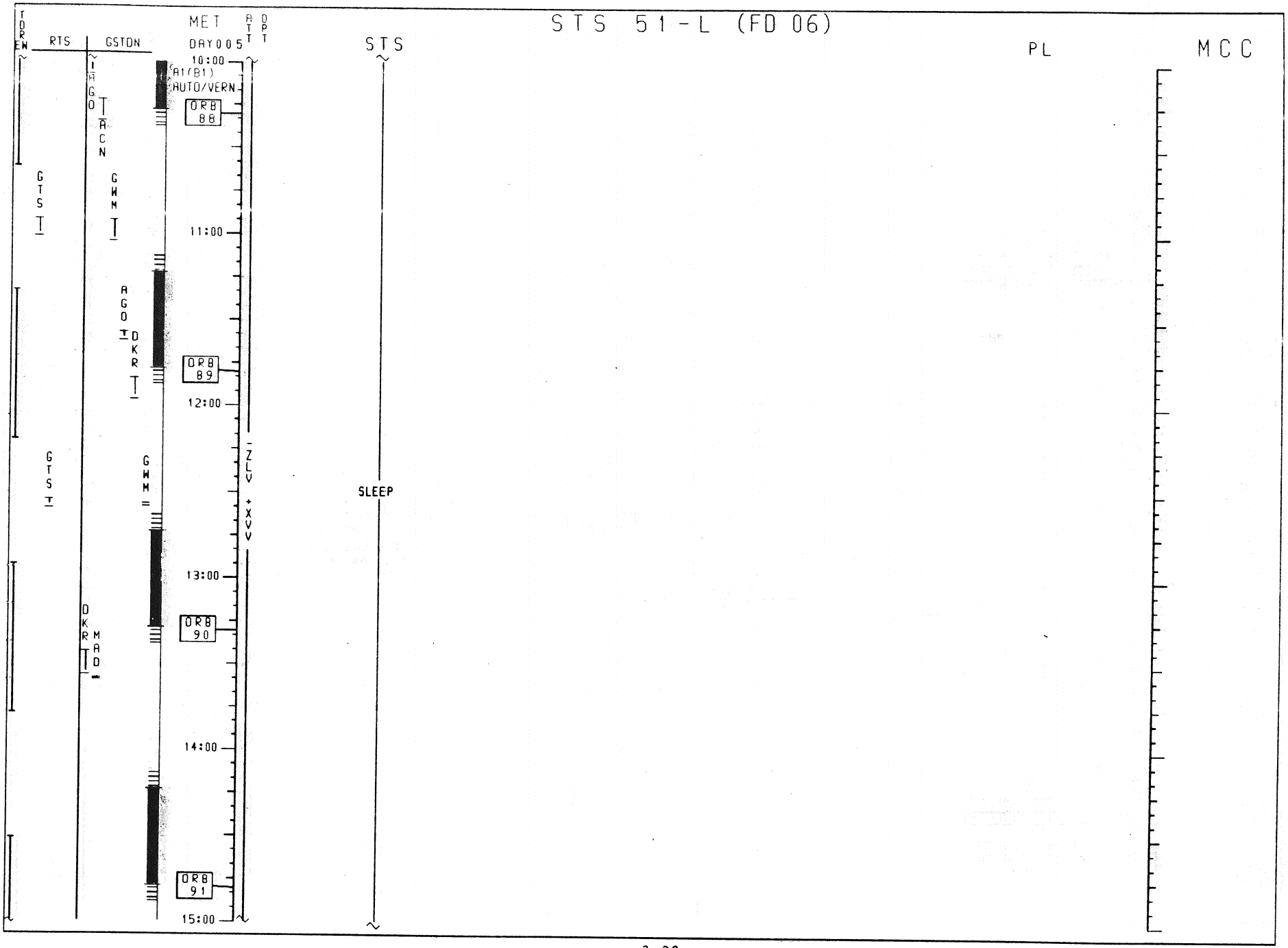
EXECUTION TIME:

__ /__ :__ :__

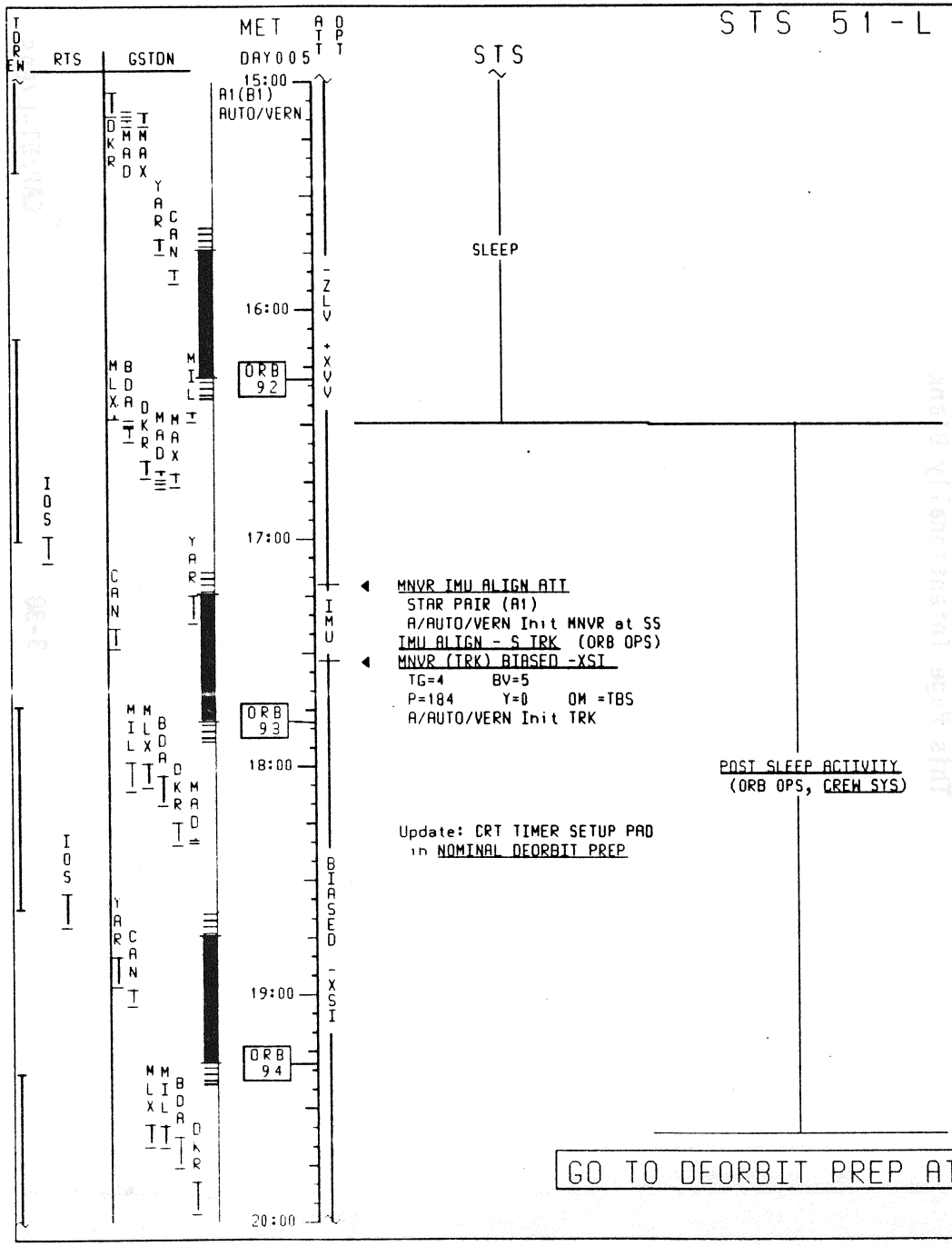
MCC

SALIVARY SAMPLE (DSO 450)
(MED C/L, MED DSO's)
2 Cmn, 1 SAMPLE EACH

STS 51-L (FD 06)


TDRSW
RTS
GSTDN
MET
DAY005
ATT
OPT
STS
PL
MCC
10:00
11:00
12:00
13:00
14:00
15:00
A1(B1)
AUTO/VERN
ORB 88
ORB 89
ORB 90
ORB 91
TDRSE
GTS
ISGO
ACN
GWM
AGO
DKR
MAD
-ZLV
+XVV
SLEEP

STS 51-L (FD 07)


TDRE W
RTS
GSTDN
MET
DAY 005
ATT
DPT
STS
PL
MCC
15:00
16:00
17:00
18:00
19:00
20:00
A1(B1)
AUTO/VERN
SLEEP
-ZLV +XVV
IMU
BIASED -XSI
ORB 92
ORB 93
ORB 94
IOS
IOS
DKR
TMAD
YAR
CAN
MILX
BDA
MILL
MADX
MNVR IMU ALIGN ATT
STAR PAIR (A1)
A/AUTO/VERN Init MNVR at SS
IMU ALIGN - S TRK (ORB OPS)
MNVR (TRK) BIASED -XSI
TG=4 BV=5
P=184 Y=0 OM =TBS
A/AUTO/VERN Init TRK
Update: CRT TIMER SETUP PAD
in NOMINAL DEORBIT PREP
POST SLEEP ACTIVITY
(ORB OPS, CREW SYS)
EZ CAP ACTIVITIES BEFORE LEAVING CAP:
AIR SAMPLE
Rcd MET on bottle
FLUID LOADING PREP
Fill 4 drink containers with
8 oz H2O each (per person)
IMU ALIGN LOG
REQD ID:
-Y____, -Z____ ANG ERR __ .__ __
1 2 3
ANG:
ΔX ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔY ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
ΔZ ( )_ ._ _ ( )_ ._ _ ( )_ ._ _
EXECUTION TIME:
_ _ /_ _ :_ _ :_ _
UPDATE
CRT TIMER
SETUP PAD
SPARTAN HTR DEACT
R1 PL AFT MN B - OFF
GO TO DEORBIT PREP AT 5/19:37 MET

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CONTINGENCY TIMELINES

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9D TDRS DEPLOYMENT

The 9D Deployment Timeline is designed to accommodate delaying deployment of TDRS to the 9D opportunity. The nominal timeline is used until 0/07:25 MET.

All nominal deployment activities are included in this timeline. The tracking arc and the IUS C/O and TDRS late checks are performed at the last acceptable opportunities. Additional assumptions are shown on page 4A-2. The timeline is based on the nominal Cycle 1A trajectory.

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
022:19:40/ 023:07:40	000:00:00/ 000:12:00	022:13:40/ 023:01:40	01/ 022 CST	-41.9		JANUARY 22, 1986	STS 51-L	BASIC	9/18/85

CST :022 14 15 16 17 18 19 20 21 22 23 0 1 CST:023
FD 0001
MET :000 0 1 2 3 4 5 6 7 8 9 10 11 12

STS

MNVR TDRS | ATT | MNVR DPY | ATT | DEPLOY | OMS SEP | BURN

TDRS DEPLOY

THIS 9D TIMELINE MAKES THE FOLLOWING ASSUMPTIONS:
- THE NOMINAL 8D TIMELINE IS USED UNTIL 0/07:25 MET
- THE IUS/TDRS ACTIVITIES ARE SHOWN AT THE LAST ACCEPTABLE TIME TO MAKE A SUCCESSFUL 9D DEPLOY
- THE ORBITER IS IN A -ZLV -YVV ATTITUDE
- THE NOMINAL TRACKING ARC ACTIVITY WAS NOT INITIATED
- THE TRACKING ARC IS FROM GWM (7:28) TO HAW (9:21)
- THE TDRS DIRECT CK IS PERFORMED AT THE LAST ACCEPTABLE SITE (GWM); THEREFORE, A BACKUP SITE IS NOT AVAILABLE
- THE TIMELINE TRANSITIONS BACK TO THE NOMINAL 8D TIMELINE AT 1/05:30 MET
- FD2 MORNING TEACHER ACTIVITIES WILL BE RE-SCHEDULED REAL TIME

P/TV SETUP | P/TV ACT | TILT TB 29 | REM HT ACT | LWR TBL -6

PL

IUS C/O | XFER SV | TDRS PI | TDRS DIR | IUS PI | DEPLOY COUNTDOWN

DAY/NIGHT

ORBIT 2 3 4 5 6 7 8 9

GSTDN COVERAGE

YAP DKF HAW ACN GDS GDX MIL MLX BDA HTS VTS
YAR GWM HAW ACN GDS GDX VTS GTS HTS
MIL MLX ACN GWM HAW GDS GDX GTS HTS VTS IOS
MIL ACN GWM HAW GDS GDX GTS HTS VTS IOS
GWM HAW GTS HTS VTS IOS
GWM HAW AGO GTS HTS IOS GTS
GWM HAW AGO ACN HTS IOS GTS HTS
GWM AGO ACN

RTS COVERAGE

TDRS E W

ATTITUDE -ZLV -YVV | TDRS CK | DPLY | VIEW | SEP

OPT FLD 64K | 16K

0 1 0 TDRS CK ATT (FOR GWM)
0 2
0 3
0 4

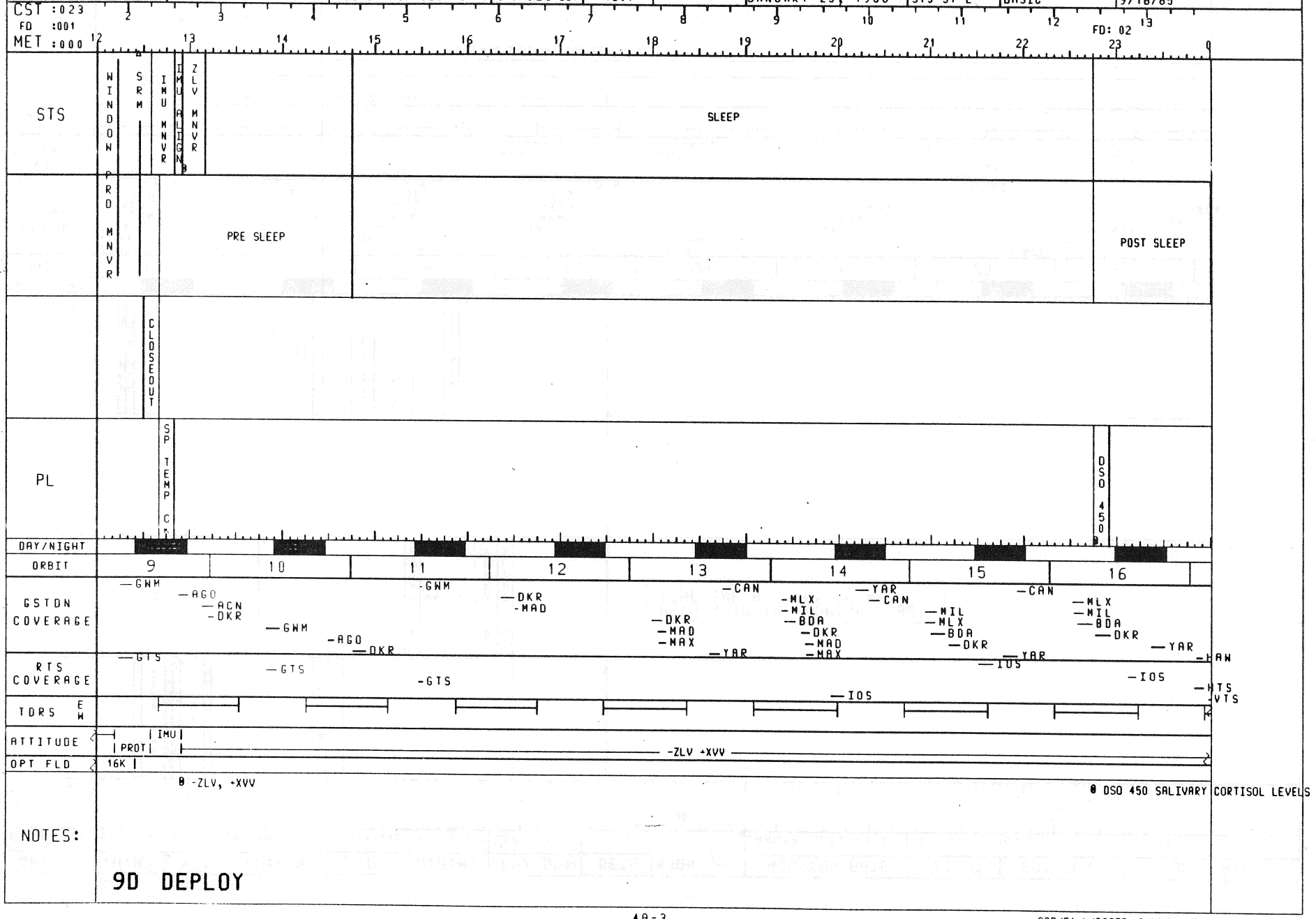
NOTES:

(IUS DPY, LATE CHECKS)
1. IUS C/O (LATE) (✓ 64K)
2. RF CHECKS (LATE) PART I, (TDRE)
3. RF CHECKS (LATE) PART II, Step 1, (GWM AOS)
4. RF CHECKS (LATE) PART II, Step 2, (HTS LOS) (✓ 16K)

9D DEPLOY

TRACKING ARC

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:07:40/ 023:19:40	000:12:00/ 001:00:00	023:01:40/ 023:13:40	01/ 023 CST	-43.1		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85



NOTES:

9D DEPLOY

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:19:40/ 024:07:40	001:00:00/ 001:12:00	023:13:40/ 024:01:40	02/ 023 CST	-44.2		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023 14 15 16 17 18 19 20 21 22 23 0 CST:024

FD :002

MET :001 0 1 2 3 4 5 6 7 8 9 10 11 12

STS

IMU MNVR | IMU ALIGN | ZLV MNVR | COAS STOW | KU-BD DPLY | KU-BD ACT | MEAL

POST SLEEP | RMS PWRUP | RMS C/O | SP SURVEY | RMS PWRDN

RETURN TO THE NOMINAL (8D) TIMELINE AT 1/05:30 MET

PL

PHRR MM AA OTT | SPT CK/IF | SP PROC CN | VTR SETUP | VTR PLYBCK | DSD 450 B

DAY/NIGHT

ORBIT 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

GSTDN COVERAGE

GDS GDX MIL BDA MLX DKR ACN | YAR HAW GDS GDX MIL WLX BDA ACN | YAR GWM HAW GDS GDX MIL HTS VTS GTS | MLX ACN GWM HAW GDX GDS ACN VTS IOS GTS | GWM HAW GWM HAW AGO | AGO ACN GWM HAW GTS | GWM AGO ACN

RTS COVERAGE

VTS | HTS VTS | HTS VTS GTS | GTS HTS | IOS GTS HTS | IOS GTS HTS | IOS GTS HTS | GTS

TDRS E W

ATTITUDE IMU | -ZLV -XVV

OPT FLD

NOTES:

o MOUNT CDRS-AFT

θ AFT STATION

θ -ZLV, -XVV

θ DSO 450 SALIVARY CORTISOL LEVELS

9D DEPLOY

10D TDRS DEPLOYMENT

The 10D Deployment Timeline is designed to accommodate delaying deployment of TDRS to the 10D opportunity. The nominal timeline is used up to 0/07:25 MET. A 10D deployment will be considered only if a high probability of deploying exists or if an 18A deployment cannot be accommodated due to orbiter or IUS/TDRS problems.

All nominal deployment activities are included in this timeline. The tracking arc and the IUS C/O and TDRS late checks are performed at the last acceptable opportunities. Additional assumptions are shown on page 4B-2. The timeline is based on the nominal Cycle 1A trajectory.

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
022:19:40/ 023:07:40	000:00:00/ 000:12:00	022:13:40/ 023:01:40	01/ 022 CST	-41.9		JANUARY 22, 1986	STS 51-L	BASIC	9/18/85

CST :022 14 15 16 17 18 19 20 21 22 23 CST:023

FD :001

MET :000 0 1 2 3 4 5 6 7 8 9 10 11 12

STS

MNVR TDRS

THE 10D TIMELINE MAKES THE FOLLOWING ASSUMPTIONS:
- THE NOMINAL 8D TIMELINE IS USED UNTIL 0/07:25 MET
- THE IUS/TDRS ACTIVITIES ARE SHOWN AT THE LAST ACCEPTABLE TIME TO MAKE A SUCCESSFUL 10D DEPLOY
- THE ORBITER IS IN A -ZLV -YVV ATTITUDE
- THE NOMINAL TRACKING ARC ACTIVITY WAS NOT INITIATED
- THE TRACKING ARC IS FROM GWM (7:28) TO HAW (9:21)
- THE TIMELINE TRANSITIONS BACK TO THE NOMINAL 8D TIMELINE AT 1/05:30 MET
- FD2 MORNING TEACHER ACTIVITIES WILL BE RE-SCHEDULED REAL TIME

P/TV SETUP | P/TV ACT | TILT TO 29

PL

IUS C/O | XFER SV | TDRS PI

DAY/NIGHT

ORBIT 2 3 4 5 6 7 8 9

GSTDN COVERAGE
YAR DKR MIL ACN HAW GDS GDX MLX BDA HTS VTS GWM AGO

RTS COVERAGE
GTS HTS VTS IOS

TDRS E W

ATTITUDE -ZLV -YVV | TDRS CK

OPT FLD 64K

0 1 0 TDRS CK ATT (FOR GWM)

0 2

NOTES:

(IUS DPY, LATE CHECKS)
1 IUS C/O (LATE) (~ 64K)
2 RF CHECKS (LATE) PART I, (TDRE)

10D DEPLOY

TRACKING ARC

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:07:40/ 023:19:40	000:12:00/ 001:00:00	023:01:40/ 023:13:40	01/ 023 CST	-43.1		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023
FD :001
MET :000

12 13 14 15 16 17 18 19 20 21 22 23 0 2 3 4 5 6 7 8 9 10 11 12 13

STS: MNVR TO DPY ATT | DEPLOY | OMS SEP BURN | WINDOW PROX MNVR | SRM | IMU MNVR | IMU ALIGN | ZLV MNVR | SLEEP

PRE SLEEP

◀ TDRS DEPLOY ▶

PL: REM HT ACT | TORS OIR | IUS PI | DEPLOY COUNTDOWN | LWR TBL -6 | CLOSEOUT | SPTEMP CK

DAY/NIGHT

ORBIT: 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16

GSTDN COVERAGE:
- GWM, AGO, ACN, DKR
- GWM, AGO, DKR
- GWM, DKR, MAD
- CAN, DKR, MAD, MAX, YAR
- YAR, CAN, MLX, MIL, BDA, DKR, MAD, MAX
- CAN, MIL, MLX, BDA, DKR, YAR
- MLX, MIL, BDA, DKR, YAR, HAW

RTS COVERAGE:
- GTS
- GTS
- GTS
- IOS
- IOS
- IOS
- HTS, VTS

TDRS E W

ATTITUDE: DPLY | SEP | VIEW | PROT | IMU | -ZLV +XVV

OPT FLD: 64K | 16K

NOTES:

1. @ [1] @ -ZLV, +XVV
2. @ [2] (IUS DPY, LATE CHECKS)
   - [1] RF CHECKS (LATE) PART II, Step 1 (GWM AOS)
   - [2] RF CHECKS (LATE) PART II, Step 2 (GTS LOS) (✓ 16K)

10D DEPLOY

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:19:40/ 024:07:40	001:00:00/ 001:12:00	023:13:40/ 024:01:40	01 / 023 CST	-44.2		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023 FD :001 14 FD :002 15 16 17 18 19 20 21 22 23 0 CST:024 1

MET :001 0 1 2 3 4 5 6 7 8 9 10 11 12

STS

SLEEP | IMU MNVR o | IMU ALIGN o | COAS STOW o | ZLV MNVR | COAS STOW | KU-BD DPLY | KU-BD ACT | MEAL

POST SLEEP

RMS PWRUP | RMS C/O | SP SURVEY | RMS PWRDN

RETURN TO NOMINAL (8D)
TIMELINE AT 1/05:30 MET

PL

DSO 450 8 | PHARMACOKINETICS | VTR SETUP | VTR PLYBCK | SP TCK/IP | SP PROC CK | DSO 450 8

DAY/NIGHT

ORBIT	17	18	19	20	21	22	23	24

GSTDN COVERAGE

GDS GDX MIL BDA MLX DKR ACN YAR HAW GDS GDX MIL MLX BDA ACN YAR GWM HAW GDS GDX MIL HTS VTS MLX ACN GWM HAW GDX GDS VTS ACN GWM HAW AGO ACN GWM HAW GTS HTS IOS GWM HAW AGO ACN GWM AGO ACN

RTS COVERAGE

VTS HTS VTS GTS VTS HTS GTS HTS IOS GTS HTS IOS GTS HTS IOS GTS

TDRS E W

ATTITUDE -ZLV +XVV | IMU | -ZLV -XVV

OPT FLD

NOTES:

o MOUNT COAS-AFT
8 AFT STATION
8 -ZLV, -XVV

8 DSO 450 SALIVARY CORTISOL LEVELS

8 DSO 450 SALIVARY CORTISOL LEVELS

10D DEPLOY

18A TDRS DEPLOYMENT

The 18A Deployment Timeline is designed to accommodate delaying deployment of TDRS to the 18A opportunity. The timeline begins during crew sleep and assumes the tilt table is stowed at 0°. All nominal deployment activities are included in this timeline. Additional assumptions are shown on page 4C-2.

The timeline is based on the nominal Cycle 1A trajectory.

18A TDRS

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:07:40/ 023:19:40	000:12:00/ 001:00:00	023:01:40/ 023:13:40	01/ 023 CST	-43.1		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023 FD :002

MET :000

STS

SLEEP

MNVR TDRS

MNVR DPY

POST SLEEP

◀ TDRS DEPLOY

THIS 18A TIMELINE MAKES THE FOLLOWING ASSUMPTIONS:
- THE IUS/TDRS-B WAS RESTOWED
- THE CDRS CAL WAS NOT PERFORMED ON FD1
- THE FD2 MORNING IMU ALIGN IS A STAR-OF-OPPORTUNITY ALIGN
- P/TV CAMERA SETUP STILL IN PLACE
- THE IUS/TDRS-B ACTIVITIES ARE SCHEDULED AT THE LAST ACCEPTABLE TIME FOR A SUCCESSFUL 18A DEPLOY
- THE TIMELINE RETURNS TO NOMINAL AT 1/04:00
- FD2 MORNING TEACHER ACTIVITIES WILL BE RE-SCHEDULED REAL TIME

P/TV ACT

TILT TB 29

REN HT ACT

PL

DSO 450

PRM AA CDT

TDRS PI

TDRS OIR

IUS C/O

XFER SV

IUS PI

DAY/NIGHT

ORBIT 9 10 11 12 13 14 15 16

GSTDN COVERAGE
GWM AGO ACN DKR GWM AGO DKR GWM DKR MAD DKR MAD MAX YAR CAN MLX MIL BDA DKR MAD MAX YAR CAN YAR CAN MIL MLX BDA DKR IUS YAR MLX MIL BDA DKR YAR AW

RTS COVERAGE
GTS GTS GTS IOS IOS VTS

TDRS E W

ATTITUDE -ZLV +YVV DPLT TDRS ATT

OPT FLD 64K 16K

NOTES:

(IUS DPY, LATE CHECKS)
1. RF CHECKS (LATE) PART I (TDRE)
2. RF CHECKS (LATE) PART II, Step 1 (MIL AOS)
3. IUS C/O (LATE) (✓ 64K)
4. RF CHECKS (LATE) PART II, Step 2 (IOS LOS) (✓ 16K)

● TDRS CK ATT (FOR MIL) ● 1

● DSO 450 SALIVARY CORTISOL LEVELS ● 2 ● 3 ● 4

18A DEPLOY

TRACKING ARC

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
023:19:40/ 024:07:40	001:00:00/ 001:12:00	023:13:40/ 024:01:40	02/ 023 CST	-44.2		JANUARY 23, 1986	STS 51-L	BASIC	9/18/85

CST :023 14 15 16 17 18 19 20 21 22 23 0 1
FD :002
MET :001 0 1 2 3 4 5 6 7 8 9 10 CST:024 11 12

STS

DEPLOY | OMS SEP BURN | WINDOW PRO MNVR | SRM | IMU MNVR | COMMUNICATIONS CONFIGURATION | ZLV MNVR | KU-BD DPLY | KU-BD ACT

DEPLOY ▶ | RMS PWRUP | RMS C/O | SP SURVEY | RMS PWRON

RETURN TO NOMINAL (8D)
TIMELINE AT 1/4:00 MET

PL

LWR TBL-6 | CLOSEOUT

DEPLOY | DOWNTOWN | VTR SETUP | VTR PLYBCK | DSO 450 | SP TCK/IP | SP PROC CK

DAY/NIGHT

ORBIT: 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24

GSTDN COVERAGE

17	18	19	20	21	22	23	24
GDS, GDX, MIL, BDA, MLX, DKR, ACN	YAR, HAW, GDS, GDX, MIL, MLX, BDA	ACN, MLX, YAR, GWM, HAW, GDS, GDX, MIL	ACN, GWM, HAW, GDX, GDS, ACN	GWM, HAW, AGO	GWM, HAW, AGO	AGO, ACN, GWM, HAW, GTS, HTS	GWM, AGO, ACN

RTS COVERAGE

17	18	19	20	21	22	23	24
VTS	HTS, VTS	RTS, VTS, GTS	VTS, GTS, HTS	IOS, GTS, HTS	IOS, GTS, HTS	IOS, GTS, HTS	GTS

TDRS E W

ATTITUDE: OMS | PROT | IMU | -ZLV -XVV

OPT FLD: 16K

NOTES:

- 0 DSO 450 SALIVARY CORTISOL LEVELS
- 0 AFT STATION
- 0 -ZLV, -XVV

18A DEPLOY

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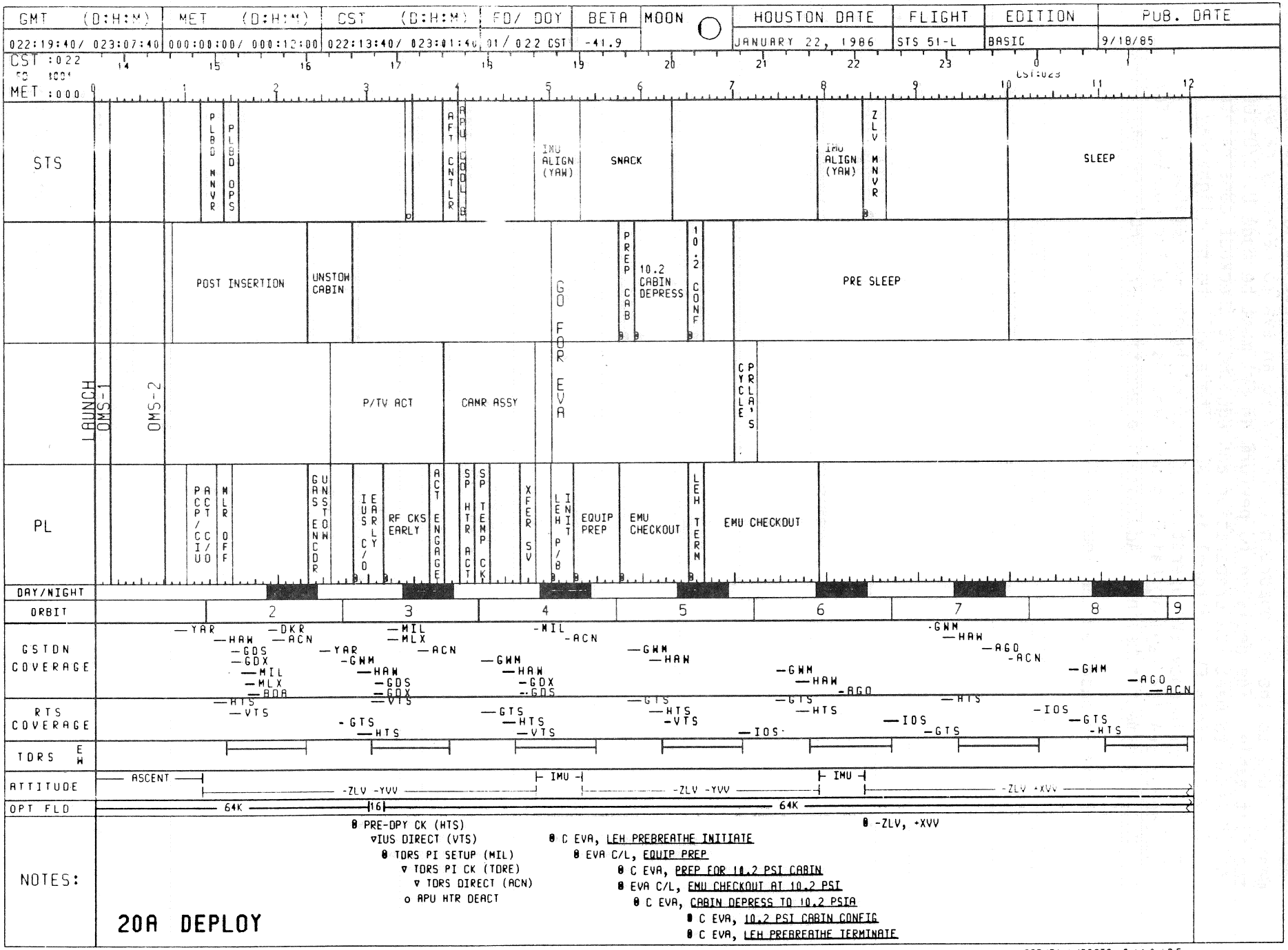
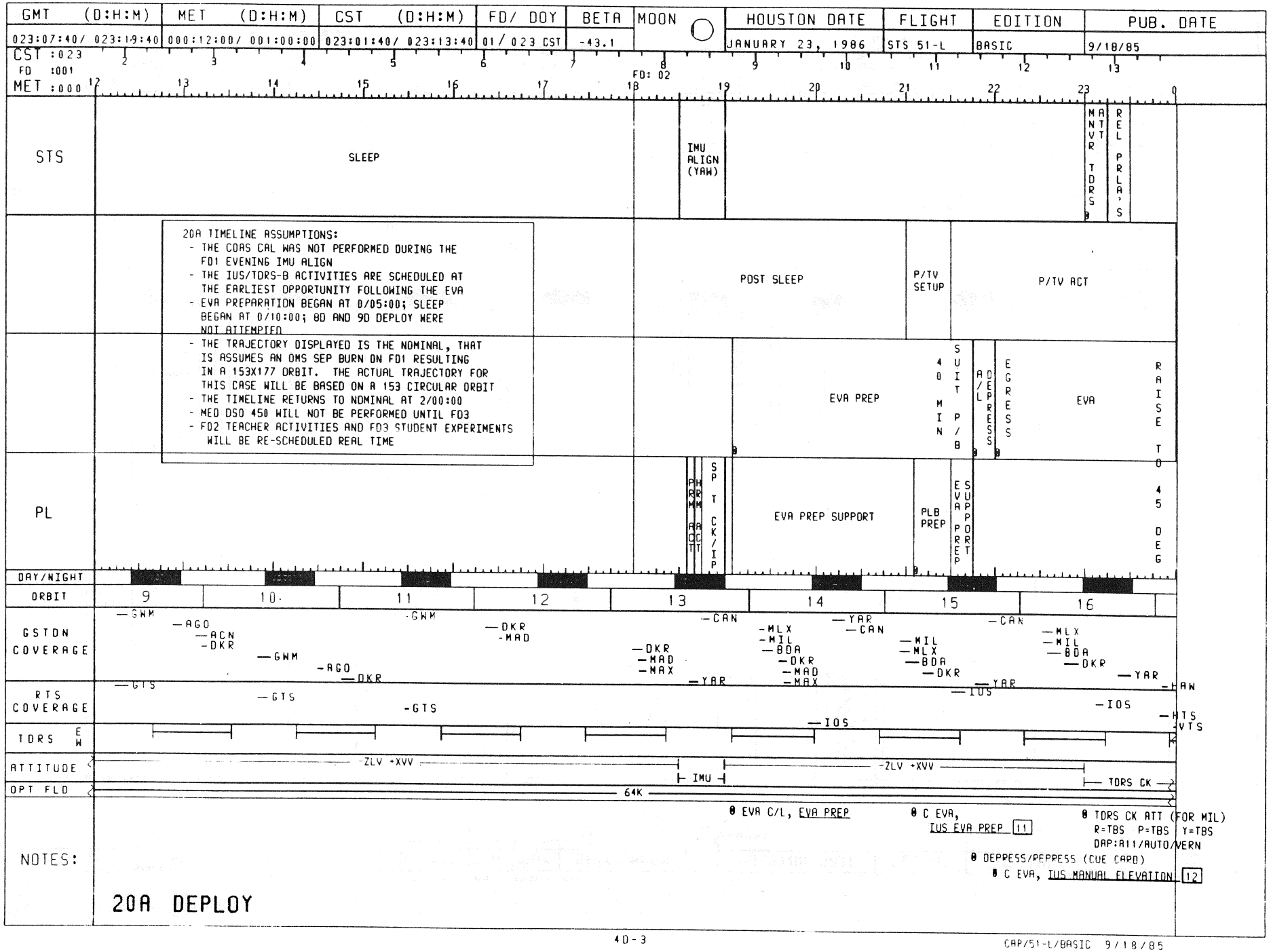
20A TDRS (EVA) DEPLOYMENT

The 20A Deployment Timeline is designed to accommodate delaying deployment of TDRS to the 20A opportunity following an EVA to manually raise the tilt table. The decision to perform an EVA must be made by 0/05:00 MET in order to meet EVA preparation and equipment checkout constraints. The 10.2 psi cabin EVA protocol is used. There will be no Flight Day 1 EVA. The Contingency EVA Operations STS 51-L Flight Supplement, Contingency EVA for Payload Failures Section, is the source document for the 20A deployment timeline. Additional assumptions are shown on page 4D-3.

The timeline is based on the nominal Cycle 1A trajectory.


GMT (D:H:M)
MET (D:H:M)
CST (D:H:M)
FD/ DOY
BETA
MOON
HOUSTON DATE
FLIGHT
EDITION
PUB. DATE
022:19:40/ 023:07:40
000:00:00/ 000:12:00
022:13:40/ 023:01:40
01/ 022 CST
-41.9
JANUARY 22, 1986
STS 51-L
BASIC
9/18/85
CST :022
MET :000
STS
PLBD MNVR
PLBD OPS
AFT CNTLR
ARL GOLLB
IMU ALIGN (YAW)
SNACK
IMU ALIGN (YAW)
ZLV MNVR
SLEEP
POST INSERTION
UNSTOW CABIN
GO FOR EVA
PREP CAB
10.2 CABIN DEPRESS
10.2 CONF
PRE SLEEP
LAUNCH
OMS-1
OMS-2
P/TV ACT
CAMR ASSY
CYCLE PRLA'S
PL
PACPT/CCIUO
MLR OFF
GUNSTOWNCDR
IEUSCYD
RF CKS EARLY
ACT ENGAGE
SP HTR ACT
SP TEMP CK
XFER SV
LIMIT P/B
EQUIP PREP
EMU CHECKOUT
LEH TERM
EMU CHECKOUT
DAY/NIGHT
ORBIT
2
3
4
5
6
7
8
9
GSTDN COVERAGE
YAR
DKR
HAW
ACN
GDS
GDX
MIL
MLX
BDA
VTS
HTS
GTS
GWM
AGO
RTS COVERAGE
IOS
TDRS E W
ATTITUDE
ASCENT
IMU
-ZLV -YVV
-ZLV +XVV
OPT FLD
64K
16
NOTES:
PRE-DPY CK (HTS)
IUS DIRECT (VTS)
TDRS PI SETUP (MIL)
TDRS PI CK (TDRE)
TDRS DIRECT (ACN)
APU HTR DEACT
C EVA, LEH PREBREATHE INITIATE
EVA C/L, EQUIP PREP
C EVA, PREP FOR 10.2 PSI CABIN
EVA C/L, EMU CHECKOUT AT 10.2 PSI
C EVA, CABIN DEPRESS TO 10.2 PSIA
C EVA, 10.2 PSI CABIN CONFIG
C EVA, LEH PREBREATHE TERMINATE
-ZLV, +XVV
20A DEPLOY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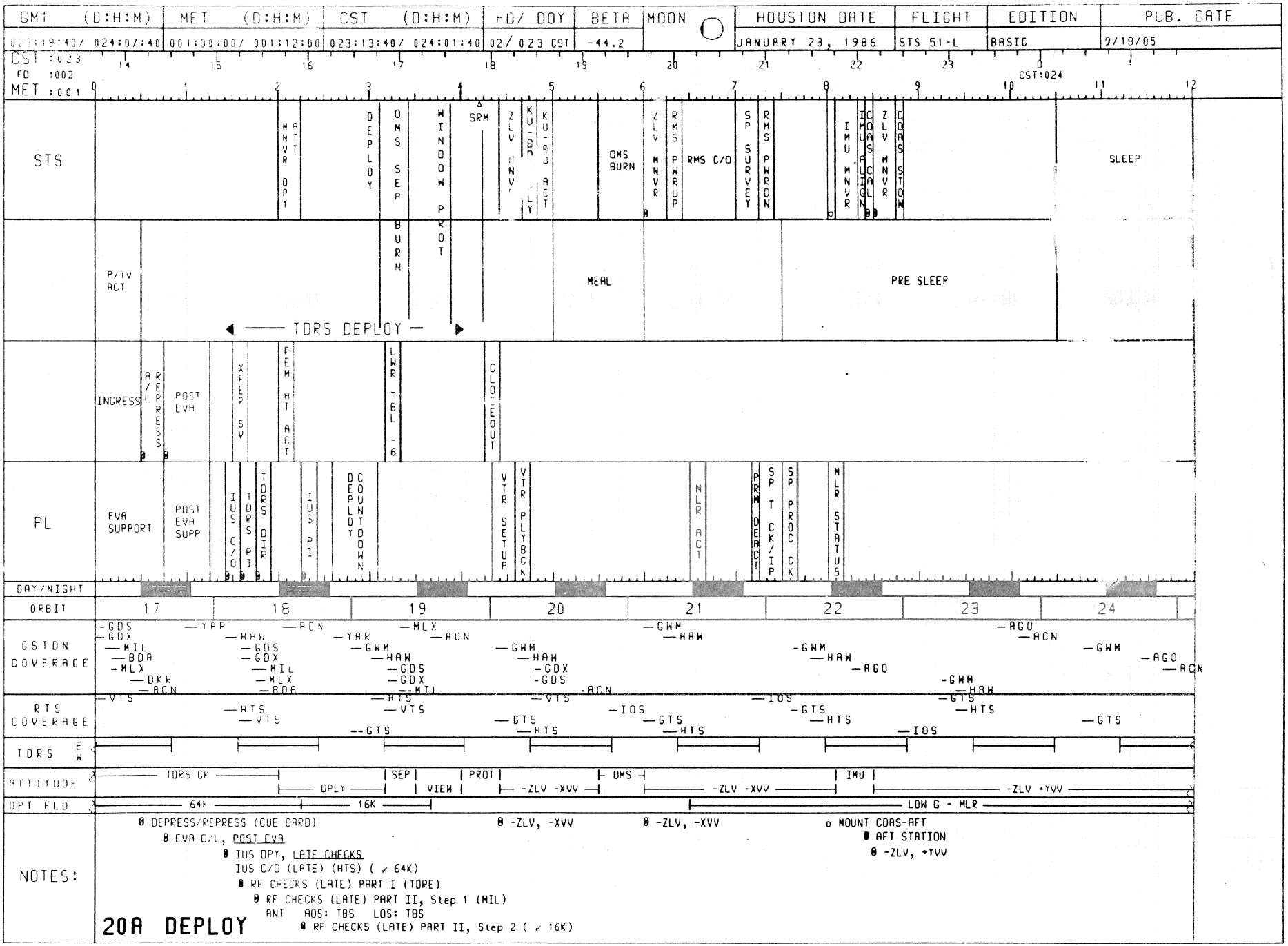
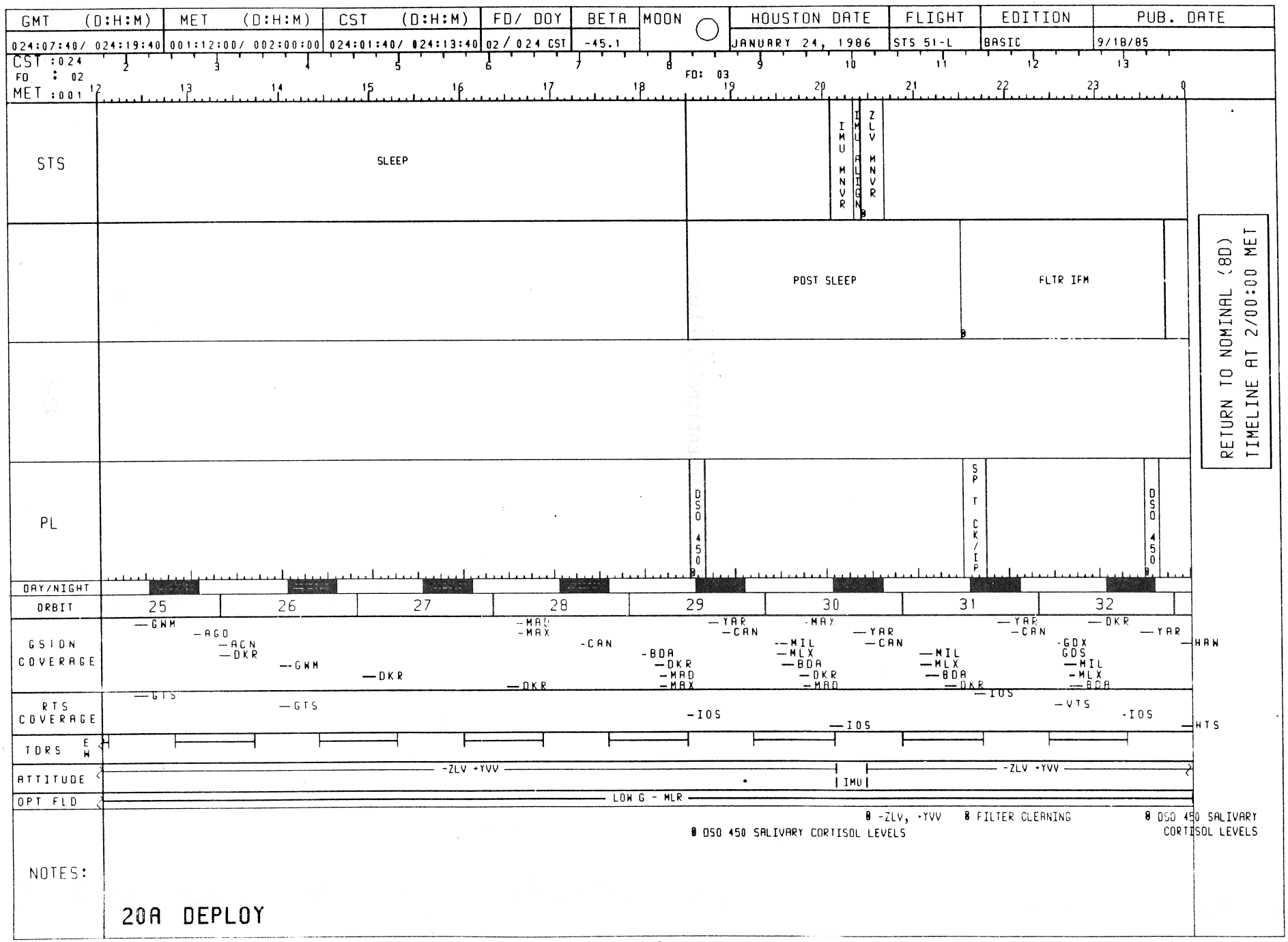
023:07:40/ 023:19:40
MET (D:H:M)
000:12:00/ 001:00:00
CST (D:H:M)
023:01:40/ 023:13:40
FD/ DOY
01 / 023 CST
BETA
-43.1
MOON
HOUSTON DATE
JANUARY 23, 1986
FLIGHT
STS 51-L
EDITION
BASIC
PUB. DATE
9/18/85
CST :023
FD :001
MET :000
FD: 02
STS
SLEEP
IMU ALIGN (YAW)
MANVR TDRS
REL PRLA'S
20A TIMELINE ASSUMPTIONS:
- THE CDAS CAL WAS NOT PERFORMED DURING THE FD1 EVENING IMU ALIGN
- THE IUS/TDRS-B ACTIVITIES ARE SCHEDULED AT THE EARLIEST OPPORTUNITY FOLLOWING THE EVA
- EVA PREPARATION BEGAN AT 0/05:00; SLEEP BEGAN AT 0/10:00; 8D AND 9D DEPLOY WERE NOT ATTEMPTED
- THE TRAJECTORY DISPLAYED IS THE NOMINAL, THAT IS ASSUMES AN OMS SEP BURN ON FD1 RESULTING IN A 153X177 ORBIT. THE ACTUAL TRAJECTORY FOR THIS CASE WILL BE BASED ON A 153 CIRCULAR ORBIT
- THE TIMELINE RETURNS TO NOMINAL AT 2/00:00
- MED DSO 450 WILL NOT BE PERFORMED UNTIL FD3
- FD2 TEACHER ACTIVITIES AND FD3 STUDENT EXPERIMENTS WILL BE RE-SCHEDULED REAL TIME
POST SLEEP
P/TV SETUP
P/TV ACT
EVA PREP
40 MIN
SUIT P/B
ADL PRESS
EGRESS
EVA
RAISE TO 45 DEG
PL
PHRR MM ACCT
SPT CK/IP
EVA PREP SUPPORT
PLB PREP
EVA PREP
SUPPORT
DAY/NIGHT
ORBIT
9
10
11
12
13
14
15
16
GSTDN COVERAGE
GWM
AGO
ACN
DKR
GWM
AGO
DKR
GWM
DKR
MAD
DKR
MAD
MAX
CAN
YAR
MLX
MIL
BDA
DKR
MAD
MAX
YAR
CAN
YAR
CAN
MIL
MLX
BDA
DKR
YAR
CAN
MLX
MIL
BDA
DKR
YAR
HAW
RTS COVERAGE
GTS
GTS
GTS
IOS
IOS
IOS
TDRS E W
ATTITUDE
-ZLV +XVV
IMU
-ZLV +XVV
TDRS CK
OPT FLD
64K
NOTES:
8 EVA C/L, EVA PREP
8 C EVA, IUS EVA PREP 11
8 TDRS CK ATT (FOR MIL) R=TBS P=TBS Y=TBS DAP:A11/AUTO/VERN
8 DEPPESS/PEPPESS (CUE CARD)
8 C EVA, IUS MANUAL ELEVATION 12
20A DEPLOY


GMT (D:H:M)
MET (D:H:M)
CST (D:H:M)
FD/ DOY
BETA
MOON
HOUSTON DATE
FLIGHT
EDITION
PUB. DATE
023:19:40/ 024:07:40
001:00:00/ 001:12:00
023:13:40/ 024:01:40
02/ 023 CST
-44.2
JANUARY 23, 1986
STS 51-L
BASIC
9/18/85
CST :023
FD :002
MET :001
CST:024
STS
PL
DAY/NIGHT
ORBIT
GSTDN COVERAGE
RTS COVERAGE
TDRS E W
ATTITUDE
OPT FLD
NOTES:
SLEEP
MEAL
PRE SLEEP
TDRS DEPLOY
INGRESS
POST EVA
EVA SUPPORT
POST EVA SUPP
DEPLOY COUNTDOWN
TDRS CK
DPLY
SEP
VIEW
PROT
-ZLV -XVV
DMS
IMU
-ZLV +YVV
64K
16K
LOW G - MLR
20A DEPLOY
Ø DEPRESS/REPRESS (CUE CARD)
Ø EVA C/L, POST EVA
Ø IUS DPY, LATE CHECKS
IUS C/O (LATE) (HTS) (✓ 64K)
Ø RF CHECKS (LATE) PART I (TDRE)
Ø RF CHECKS (LATE) PART II, Step 1 (MIL)
ANT AOS: TBS LOS: TBS
Ø RF CHECKS (LATE) PART II, Step 2 (✓ 16K)
Ø -ZLV, -XVV
Ø -ZLV, -XVV
o MOUNT CDAS-AFT
Ø AFT STATION
Ø -ZLV, +YVV

GMT (D:H:M)	MET (D:H:M)	CST (D:H:M)	FD/ DOY	BETA	MOON	HOUSTON DATE	FLIGHT	EDITION	PUB. DATE
024:07:40/ 024:19:40	001:12:00/ 002:00:00	024:01:40/ 024:13:40	02 / 024 CST	-45.1		JANUARY 24, 1986	STS 51-L	BASIC	9/18/85



RETURN TO NOMINAL (8D)
TIMELINE AT 2/00:00 MET

8 -ZLV, +YVV 8 FILTER CLEANING 8 DSO 450 SALIVARY CORTISOL LEVELS

8 DSO 450 SALIVARY CORTISOL LEVELS

NOTES:

20A DEPLOY

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CONSUMABLES CURVES
(TBS)

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

STS 51-L DAP BOOK

DAP A CONFIGURATIONS

	A1*	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
TRANSLATION												
PULSE ft/sec	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.10	0.10	0.05	0.25	0.05
ROTATION												
DSC RT NORM °/sec	0.200	0.400	0.200	0.200	0.200	0.200	0.100	0.500	0.200	0.200	0.200	0.100
VERN °/sec	0.200	0.400	0.200	0.008	0.200	0.200	0.008	0.200	0.200	0.200	0.200	0.008
PULSE NORM °/sec	0.10	0.10	0.30	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.10
VERN °/sec	0.010	0.010	0.010	0.010	0.050	0.010	0.010	0.010	0.010	0.010	0.010	0.010
COMP NORM °/sec	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
VERN °/sec	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
DEADBAND												
ATT NORM (deg)	5.00	1.00	5.00	1.00	5.00	5.00	1.00	3.00	2.00	2.00	1.00	1.00
VERN (deg)	1.000	1.000	1.000	0.070	1.000	1.000	0.500	1.000	1.000	1.000	1.000	0.500
RATE NORM °/sec	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
VERN °/sec	.020	.020	.020	.010	.020	.020	.010	.020	.020	.020	.010	.010
JET OPT												
P	1	1	3	1	1	3	3	1	1	1	1	3
Y	1	1	3	3	1	3	3	1	1	1	1	3
CNTL ACCEL	0	0	0	0	0	0	2	0	0	0	0	3

*I-LOADED OPS-2 DAP Configuration

DAP B CONFIGURATIONS

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

*I-LOADED OPS-2 DAP Configuration

TOP
FRONT COVER 'DAP BOOK'

DAP BOOK

HOOK
VELCRO

CAP/51-L/O/BAS

CAP/51-L/O/BAS

UNIV PTG
TGT ID = 1 Orbiting Vehicle = 2 Earth ctr = 3 Earth tgt Input LAT (±90) LON (±180, + = East) ALT (-3444.0 to 20000.0 nm) = 4 Sun ctr = 5 Celestial tgt Input RA (0-359.99) DEC (±90) = 11-110 Nav Stars
BODY VECT = 1 +X* = 2 -X* = 3 -Z* = 4 PTC (-2° below +X)* = 5 Optional Input P (0-359.99) Y (270-359.99,0-90) * input OM → OM (0-359.99)
MON AXIS = 1 +X 2 -X

G20 DAP CONFIG	
CNTL ACCEL = 0 Orbiter alone 2 SPARTAN Nominal Dpy 3 SPARTAN Single Joint Dpy	JET OPT = 1 Normal = 2 Nose only = 3 Tail only

TOP
BACK OF FRONT COVER
'DAP BOOK'

(reduced copy)

TOP

DAP	PURPOSE
A1	- NOMINAL IMU ALIGN LOSS OF VERN (NOSE & TAIL)
A2	- PTC
A3	- RCS HOT FIRE
A4	- GG
A5	- IMU ALIGN (ROTATING)
A6	- LOSS OF VERN (TAIL ONLY)
A7	- SPARTAN RELEASE (NOMINAL)
A8	- PRE/POST DEPLOY
A9	- RENDEZVOUS
A10	- PROX OPS
A11	- IUS DEPLOY
A12	- SPARTAN RELEASE (SINGLE JOINT DPY)

CAP/51-L/O/BAS

A1

TOP

DAP A1

PURPOSE:

NOMINAL
IMU ALIGN
LOSS OF VERN
(NOSE & TAIL)

A1

		TRANSLATION	
0.1 0	1	PULSE	
		ROTATION	
0.2 0 0	2	DSC RT	NORM
0.2 0 0	3		VERN
0.1 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0	6	COMP	NORM
.0 0 0	7		VERN
		DEADBAND	
5.0 0	8	ATT	NORM
1.0 0 0	9		VERN
0.2 0	10	RATE	NORM
.0 2 0	11		VERN
1	12	JET OPT	P
1	13		Y
0	14	CNTL ACCEL	

CAP/51-L/O/BAS

CAP/51-L/O/BAS

A2

TOP

TOP

A1

DAP A2

PURPOSE:

PTC

CAP/51-L/O/BAS

A2

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

CAP/51-L/O/BAS

A3

TOP

TOP

A2

DAP A3

PURPOSE:

RCS HOT FIRE

CAP/51-L/O/BAS

A3

			TRANSLATION
0.1 0	1	PULSE	
			ROTATION
0.2 0 0	2	OSC RT	NORM
0.2 0 0	3		VERN
0.3 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0	6	COMP	NORM
.0 0 0	7		VERN
			DEADBAND
5.0 0	8	ATT	NORM
1.0 0 0	9		VERN
0.2 0	10	RATE	NORM
.0 2 0	11		VERN
3	12	JET OPT	P
3	13		Y
0	14	CNTL ACCEL	

CAP/51-L/O/BAS

A4

TOP

A3

DAP A4

PURPOSE:

GG

CAP/51-L/O/BAS

TOP

A4

DAP A5

PURPOSE:

IMU ALIGN (ROTATING)

CAP/51-L/O/BAS

TOP

TOP

A4

A4

```
                    TRANSLATION
  0.1 0    1        PULSE

                    ROTATION
 0.2 0 0   2        OSC RT  NORM
 0.0 0 8   3                VERN
   0.1 0   4        PULSE   NORM
 0.0 1 0   5                VERN
   .0 0 0  6        COMP    NORM
  .0 0 0   7                VERN

                    DEADBAND
  1.0 0    8        ATT     NORM
 0.0 7 0   9                VERN

  0.2 0    10       RATE    NORM
 .0 1 0    11               VERN

     1     12  JET OPT      P
     3     13               Y

     0     14  CNTL ACCEL
```

CAP/51-L/O/BAS

TOP

A5

TOP

A5

```
                    TRANSLATION
  0.1 0    1        PULSE

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

                    DEADBAND
  5.0 0    8        ATT     NORM
 1.0 0 0   9                VERN

  0.2 0    10       RATE    NORM
 .0 2 0    11               VERN

     1     12  JET OPT      P
     1     13               Y

     0     14  CNTL ACCEL
```

CAP/51-L/O/BAS

A6

TOP

TOP

A5

DAP A6

PURPOSE:

LOSS OF VERN
(TAIL ONLY)

CAP/51-L/0/BAS

TOP

A6

DAP A7

PURPOSE:

SPARTAN RELEASE (NOMINAL)

CAP/51-L/0/BAS

TOP

A6

			TRANSLATION
0.1 0	1	PULSE	
			ROTATION
0.2 0 0	2	DSC RT	NORM
0.2 0 0	3		VERN
0.1 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0 0	6	COMP	NORM
.0 0 0	7		VERN
			DEADBAND
5.0 0	8	ATT	NORM
1.0 0 0	9		VERN
0.2 0	10	RATE	NORM
.0 2 0	11		VERN
3	12	JET OPT	P
3	13		Y
0	14	CNTL ACCEL	

CAP/51-L/0/BAS

A7

TOP

A7

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

CAP/51-L/0/BAS

A8

TOP

DAP A8

PURPOSE:

PRE/POST DEPLOY

TOP

			TRANSLATION
0.1	0	1	PULSE
			ROTATION
0.5	0	2	OSC RT NORM
0.2	0	3	VERN
0.1	0	4	PULSE NORM
0.0	1	5	VERN
.0	0	6	COMP NORM
.0	0	7	VERN
			DEADBAND
3.0	0	8	ATT NORM
1.0	0	9	VERN
0.2	0	10	RATE NORM
.0	2	11	VERN
1		12	JET OPT P
1		13	Y
0		14	CNTL ACCEL

TOP

DAP A9

PURPOSE:

RENDEZVOUS

TOP

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

DAP A10

PURPOSE:

PROX OPS

CAP/51-L/O/BAS

TOP

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

CAP/51-L/O/BAS

TOP

DAP A11

PURPOSE:

LDG DEPLOY

CAP/51-L/O/BAS

TOP

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

CAP/51-L/O/BAS

TOP

TOP

A11

DAP A12

PURPOSE:

SPARTAN RELEASE
(SINGLE JOINT DPY)

CAP/51-L/O/BAS

A12

			TRANSLATION
0.0 5	1		PULSE
			ROTATION
0.1 0 0	2	DSC RT	NORM
0.0 0 8	3		VERN
0.1 0	4	PULSE	NORM
0.0 1 0	5		VERN
.0 0	6	COMP	NORM
.0 0 0	7		VERN
			DEADBAND
1.0 0	8	ATT	NORM
0.5 0 0	9		VERN
0.2 0	10	RATE	NORM
.0 1 0	11		VERN
3	12	JET OPT	P
3	13		Y
3	14	CNTL ACCEL	

CAP/51-L/O/BAS

TOP

TOP

A12

DAP	PURPOSE
B1	NOMINAL PRCS IMU ALIGN OMS & RCS BURNS
B2	LOSS OF VERN (TAIL ONLY)
B3	LOSS OF VERN (NOSE & TAIL) GG MNVR
B4	SSUS DEPLOY
B5	COAS CAL
B6	RENDEZVOUS
B7	PROX OPS
B8	(Blank)

CAP/51-L/O/BAS

B1

TOP

(reduced copy)

DAP B1

PURPOSE:

NOMINAL
PRCS IMU ALIGN
OMS & RCS BURNS

CAP/51-L/O/BAS

TOP

B1

DAP B2

PURPOSE:

LOSS OF VERN
(TAIL ONLY)

CAP/51-L/O/BAS

TOP

B1

TRANSLATION			
PULSE		15	0.0 2
ROTATION			
DSC RT	NORM	16	0.5 0 0
	VERN	17	0.2 0 0
PULSE	NORM	18	0.0 4
	VERN	19	0.0 0 2
COMP	NORM	20	.0 0 0
	VERN	21	.0 0 0
DEADBAND			
ATT	NORM	22	3.0 0
	VERN	23	1.0 0 0
RATE	NORM	24	0.2 0
	VERN	25	.0 2 0
JET OPT	P	26	1
	Y	27	1
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B2

TOP

B2

TRANSLATION			
PULSE		15	0.0 2
ROTATION			
DSC RT	NORM	16	0.2 0 0
	VERN	17	0.2 0 0
PULSE	NORM	18	0.0 4
	VERN	19	0.0 0 2
COMP	NORM	20	.0 0 0
	VERN	21	.0 0 0
DEADBAND			
ATT	NORM	22	3.0 0
	VERN	23	1.0 0 0
RATE	NORM	24	0.2 0
	VERN	25	.0 2 0
JET OPT	P	26	3
	Y	27	3
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B3

B2

DAP B3

PURPOSE:

LOSS OF VERN
(NOSE & TAIL)
GG MNVR

CAP/51-L/O/BAS

TOP

B3

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

CAP/51-L/O/BAS

TOP

B4

DAP B4

PURPOSE:

SSUS DEPLOY

CAP/51-L/O/BAS

TOP

B4

TRANSLATION			
PULSE		15	0.0 2
ROTATION			
OSC RT	NORM	16	0.2 0 0
	VERN	17	0.0 0 8
PULSE	NORM	18	0.0 4
	VERN	19	0.0 0 2
COMP	NORM	20	.0 0
	VERN	21	.0 0 0
DEADBAND			
ATT	NORM	22	0.3 0
	VERN	23	0.1 0 0
RATE	NORM	24	0.2 0
	VERN	25	.0 1 0
JET OPT	P	26	3
	Y	27	3
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B5

DAP B5

PURPOSE:

COAS CAL

CAP/51-L/O/BAS

TOP

DAP B6

PURPOSE:

RENDEZVOUS

CAP/51-L/O/BAS

TOP

B5

TRANSLATION			
PULSE		15	0.02
ROTATION			
DSC RT	NORM	16	0.200
	VERN	17	0.016
PULSE	NORM	18	0.04
	VERN	19	0.002
COMP	NORM	20	.00
	VERN	21	.000
DEADBAND			
ATT	NORM	22	3.00
	VERN	23	0.033
RATE	NORM	24	0.20
	VERN	25	.020
JET OPT	P	26	3
	Y	27	3
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B6

TOP

B6

TRANSLATION			
PULSE		15	0.05
ROTATION			
DSC RT	NORM	16	0.500
	VERN	17	0.200
PULSE	NORM	18	0.04
	VERN	19	0.002
COMP	NORM	20	.00
	VERN	21	.000
DEADBAND			
ATT	NORM	22	2.00
	VERN	23	1.000
RATE	NORM	24	0.20
	VERN	25	.020
JET OPT	P	26	1
	Y	27	1
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B7

B6

DAP B7

PURPOSE:

PROX OPS

CAP/51-L/O/BAS

B7

TRANSLATION			
PULSE		15	0.0 1
ROTATION			
DSC RT	NORM	16	0.2 0 0
	VERN	17	0.2 0 0
PULSE	NORM	18	0.0 4
	VERN	19	0.0 0 2
COMP	NORM	20	.0 0
	VERN	21	.0 0 0
DEADBAND			
ATT	NORM	22	2.0 0
	VERN	23	1.0 0 0
RATE	NORM	24	0.2 0
	VERN	25	.0 2 0
JET OPT	P	26	1
	Y	27	1
CNTL ACCEL		28	0

CAP/51-L/O/BAS

B7

DAP B8

PURPOSE: (Blank)

CAP/51-L/O/BAS

B8

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

CAP/51-L/O/BAS

CAP/51-L/O/BAS

TOP

TOP
BACK COVER 'DAP BOOK'

STS 51-L ATTITUDE TIMELINE

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