Flight Plan

STS-94

STS-83 Reflight
(FRR Cycle Trajectory)

Mission Operations Directorate
Operations Division

Final
February 21, 1997

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National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas
PCN-1 (May 27, 1997) Sheet 1 of 1

List of Implemented Change Requests (482s):
NONE - Reference Memo # DO3-97-044

Incorporate the following into the STS-83 document:
1. Replace Cover
2. Replace iii & iv

Prepared by: [Signature]
Book Manager

Approved by: [Signature]
Lead, Flight Planning and Pointing Group

Approved by: [Signature]
Chief, Flight Planning Branch

Encl: 3 pages

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

STS-83 FLIGHT PLAN

FINAL
February 21, 1997

PREPARED BY:

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Book Manager

APPROVED BY:

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and Pointing Group

Robert H. Nute
Chief, Flight Planning Branch

Larry Davis
Chief, Operations Division

Brock R. Stone
Acting Director,
Mission Operations

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Incorporates the following:

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INTRODUCTION

The STS–83 Flight Plan is the Flight Data File article that contains the on–orbit timeline. It does not contain the detailed timelines that are covered in the Ascent, Post Insertion, Deorbit Prep, and Entry Checklists.


The flight profile used for this Flight Plan is for a launch date of April 3, 1997, at 13:01 CST. Orbiter inertial attitudes are expressed relative to a Mean of 1950 (M50) reference frame.

JSC–22359, Crew Scheduling Constraints (Appendix K, CPMP), Basic, Rev B, January 1992 has been used to build the timelines contained in this Flight Plan. The following Appendix K Exemption has been approved for STS–83:

#83 – Allows Blue Team to wake up 14:30 hours before landing time to provide the Red Team with 8 hours of sleep prior to entry.

The timeline formats used in the Flight Plan are based on JSC–19933, Timeline Format Definitions and Standard Notes, Rev C, May 1990.
Inherent in the above timeline is the following Appendix K Violation:
Blue awake Flight Day 16 = 14.5 hours (14 hrs max), per App. K 2.1.3C
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- 2-12 FLT PLN/83/FIN

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- FREE/H2O

**FREE/H2O In:**
- 55-81A/5-17A

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- 2-20 FLT PLN
- FREE/H2O2
- FREE/H2O1
- A/C 2
- ASSL AIR SAMPLE

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**Attitude:**
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- H2O
- D10 677

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- DSD 331

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**TDRS E/W:**
- ZLV
- YVV

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<td>AI(S1) AUTO/VERN</td>
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<tr>
<td>05:00</td>
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<td>06:00</td>
<td>SLEEP</td>
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<td>07:00</td>
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<td>08:00</td>
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</tbody>
</table>

**CDR**

**PLT**

**MS2**

**SL CREW**

**MCC**

**SPACELAB ACTIVATION**
(STM OPS, SL ACT)

**PAYLOAD ACTIVATION**
(PL SYS, PAYLOAD ACT)

**ELEVON PARK**
(ORB OPS, CMC)

**AI2 APU RTR SS/PU (three) - A AUTO**

**APU SLAM VENT MTR DEACT**

**R2 BLR FWR (three) - OFF**

**EDO Pallet ACT**
(ORB OPS, EPS)

**SHUTTLE EMER EYEWASH (SEE)**
Unstow, attach on or near container(s) and attach near appropriate experiment location

---

**FLT PLN/83/FIN**
STS-83 (RED FD 02)

CDR

PLT

MS2

SL CREW

MCC

TDRS

MET

FREEDOM 70

Crew: D & D

Day 000

08:00

AI(B1)

AUTO/VERN

09:00

SLEEP

SLEEP

CRT4 POWERDOWN

R12L

CRT4 - STBY

AFT CONTROLLER C/O

(ORB Ops, GNC)

RED FD 02 EZ ACTIVITIES:

CPA Ops (ORB Ops, CREW SYS)

OLAC FILTER INSPECT

POST Reboot/SHED (as avail)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

MONITOR LATENT VIRUS REACT

(BIOMECH, DSO 493)

MONITOR LATENT VIRUS REACT

(BIOMECH, DSO 493)

SL FIRE/SMOKE TEST

(SLM Ops, ECLS)

MONITOR LATENT VIRUS REACT

(BIOMECH, DSO 493)

(UHF MODE - OFF)

PRIVATE MEDICAL CONFERENCE

(ALL)

POST SLEEP

H/0

POST SLEEP

H/0

H/0

POST SLEEP

H/0

H/0

H/0

INHUM SEP for H2O

POST SLEEP

H/0

POST SLEEP

H/0

H/0

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DUAL SHIFT PRE-SLEEP

(ORB Ops FS, CREW SYS)

DSO 493

FLT PLN/83/FIN

J-4
STS-83 (RED FD 02)

TDRS EW
MET FREE H2O CRYO FD

CDR PLT MS2 SL CREW MCC

POST SLEEP

POST SLEEP

AI(B1) AUTO/VERN.

POST SLEEP

OCA SETUP
(ORB OPS FS, OCA)
Insert OCA Data Disk

OCA DOWNLINK (KFX)
(ORB OPS FS, OCA)

OCA XFER (ORB OPS FS, OCA)

VMCC

I

13:00

ERG/IVIS/PCIS (SETUP)
(BIOMED, IVIS OPS)

ERG/IVIS/PCIS (SETUP)
(BIOMED, IVIS OPS)

14:00

SLEEP

15:00

EXERCISE

CRYO 02 TK HIR SNSR CK
(ORB OPS, FES)

16:00

FLT PLN/83/FIN
STS-83 (BLUE FD 02)

CDR  PLT  MS2  SL CREW  MCC

P/TV17 SETUP (PAO)
(PHOTO/TV, P/TV SCENES)

PAO VOICE CHECK/EVENT
TV at TDRW (04:22-04:42)
(MSI, PSI)

MEAL

SLEEP  SLEEP

08:00

07:00

06:00

05:00

04:00

Day 001

A1(B1)

AUTO/VERN

A/6/2

CRYOFD

FREE/ H2O

ATT

MET

TDRS

EW
STS-83 (BLUE FD 02)

MET

CDR
PLT
MS2
SL CREW
MCC

Day 001
08:00

AI(B1) AUTO/VERN

09:00

SLEEP

10:00

EXERCISE

11:00

POST SLEEP

12:00

RED FD03 EZ ACTIVITIES:
- CPA OPS (ORB OPS, CREW SYS)
- OORB FILTER INSPECT
- PILOT SIMULATOR PLT
- (ORB OPS, DIO 662)
- PASS Bbout/SHEM (as avail)

POST SLEEP

DUAL SHIFT PRE-SLEEP

ORB OPS FS, CREW SYS

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

PLANNING RESERVE

DSO 493

FLT PLN/83/FIN
Day 001
16:00--

AI(B1) AUTO/VER

17:00-

EXERCISE

18:00-

MEAL

19:00-

MEAL

3- FLT PLN/83/FIN

SL CREW

MCC
STS-83 (BLUE FD 03)

CDR

PLT

MS2

SL CREW

MCC

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

SLEEP

SLEEP

P/I/U/2 SETUP (PAO)
(PHOTO/TV, P/I/U SCENES)

PAO VOICE CHECK/EVENT
TV at 04:00 (03:43 - 04:03)

PAO VOICE CHECK/EVENT
(MSI)

AUTO/VERN

PGBA2MON

SAMS4MON

00:00

01:00

02:00

03:00

04:00

3-14

FLT PLN/83/FIN
Day 003
OA: o_i o
A1BI [AUT_ / V_RN], RED FD05 EZ ACTIVITIES:
CPA OPS (ORB OPS, CREW SYS)
ACAC FILTER INSPECT
PIDO SIMULATOR PLT
(ORB OPS, DIO 662)
PGSC Reboot/Setup (as avail)

09:00- SL EP SL EP

09:00
SLEEP
SLEEP

10:00
MONITOR LATENT VIRUS REACT
MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

11:00
POST SLEEP
POST SLEEP

12:00
PLANNING RESERVE

DUAL SHIFT PRE-SLEEP
(DUAL OPT OP, CREW SYS)

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)
(MS3)

MONITOR LATENT VIRUS REACT
(BIOMED, DSO 493)

PLANNING RESERVE

DUAL SHIFT PRE-SLEEP
(DUAL OPT OP, CREW SYS)

DSO 493
FILTER CLEANING
(TFM, SCHEDULED MAINTENANCE)
Inspect filters and clean as necessary
WCS Hose Block Filter for debris

SLEEP
STNS-83 (RED FD 05)

<table>
<thead>
<tr>
<th>TIME</th>
<th>ACTIVITY</th>
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<tbody>
<tr>
<td>15:00</td>
<td>AI (B1) AUTO/VERN</td>
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<tr>
<td>16:00</td>
<td>FREE/H2O</td>
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<td>17:00</td>
<td>FREE/H2O</td>
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<tr>
<td>18:00</td>
<td>FREE/H2O</td>
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<td>19:00</td>
<td>FREE/H2O</td>
</tr>
<tr>
<td>20:00</td>
<td>FREE/H2O</td>
</tr>
</tbody>
</table>

- CDR: MEAL
- PLT: MEAL
- MS2: SLEEP
- SL CREW: MEAL
- MCC: VOICE OPS (P1) W1 (SAREX, PL OPS) RISE-19:05 TERM-19:12
- TOSMODUL

FLT PLN/83/FIN
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity / Notes</th>
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<tbody>
<tr>
<td>20:00</td>
<td>Day 004 A1(B1) AUTO/VERN</td>
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<tr>
<td>21:00</td>
<td>SLEEP</td>
</tr>
<tr>
<td>22:00</td>
<td>VIDEO TELECONFERENCING (ORB OPS FS, OCA) - PMC</td>
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<tr>
<td>23:00</td>
<td>VIDEO TELECONFERENCING (ORB OPS FS, OCA) - PMC</td>
</tr>
<tr>
<td>00:00</td>
<td>PRE SLEEP</td>
</tr>
</tbody>
</table>

**BLUE FD06 EZ ACTIVITIES:**
- CABIN AIR MONITOR (ORB OPS, DIO 623)
- RSOC SME (as Avail)

**RED OFF-DUTY (MS3)**
- VIDEO TELECONFERENCING (ORB OPS FS, OCA) - PFC (MS3)

**MONITOR LATENT VIRUS REACT** (BIOMED, DSO 323)
- DUAL SHIFT POST-SLEEP (ORB OPS FS, CREW SYS)
- VOICE OPS (E5) WI (SAREX, PL OPS)
  - RISE=21:17 TERM=21:30

**RED OFF-DUTY (MS3)**
- DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)
- VOICE OPS (E7) WI (MS1) (SAREX, PL OPS)
  - RISE=23:01 TERM=23:09

**DSO 493**
- OCA-PMC
**STS-83 (BLUE FD 06)**

<table>
<thead>
<tr>
<th>CDR</th>
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<th>MS2</th>
<th>SL CREW</th>
<th>MCC</th>
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<tr>
<td>SLEEP</td>
<td>SLEEP</td>
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<tr>
<td>MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)</td>
<td>MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)</td>
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<td>MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)</td>
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</tr>
<tr>
<td>RED FD07 EZ ACTIVITIES:</td>
<td>P/TV SETUP (PAO)</td>
<td>PAO VOICE CHECK/EVENT</td>
<td>PAO VOICE CHECK/EVENT</td>
<td></td>
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<tr>
<td>CPA OPS (ORB OPS, CREW SYS)</td>
<td>(PHOTO/TV, P/TV SCENES)</td>
<td>TV at TRED 10:40 - 11:00</td>
<td>(PS1)</td>
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</tr>
<tr>
<td>PILOT SIMULATOR PLT</td>
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<tr>
<td>(ORB OPS, OTO 662)</td>
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<tr>
<td>PSSC Reboot/SEP (as avail)</td>
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<tr>
<td>POST SLEEP</td>
<td>POST SLEEP</td>
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<tr>
<td>PLANNING RESERVE</td>
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<tr>
<td>DUAL SHIFT PRE-SLEEP</td>
<td>DUAL SHIFT PRE-SLEEP</td>
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<tr>
<td>(ORB OPS FS, CREW SYS)</td>
<td>(ORB OPS FS, CREW SYS)</td>
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</tbody>
</table>

**Day 005**

08:00
A1 (B1)
A0 / O0 / V/RK

09:00

10:00

11:00

12:00

**TOTAL:** 3-34
ST3-83 (RED FD 07)

Day 005
16:00
A1(B1)
AUTO/VERN

17:00

18:00

19:00

20:00

SUPPLY/WASTE WATER DUMP
(CRB, OPS, ECLS)
Initiate Swac Dump

VOICE OPS (E6) W1
(SAREX, PL, OPS)
RISE: 19:54 TERM: 20:01

FLT PLN/83/FIN
STS-83 (RED FD 07)

**MET**

Day 005
20:00
A1(81) AUTO/VERN

**FREE/20**

**CDR**

**PLT**

**MS2**

**SL CREW**

**NCC**

---

**SUPPLY/WASTE WATER DUMP**

(ORB OPS, ECLS)

Terminate Simo Dump

---

**TOSMODUL**

**VOICE OPS (E7) W1**

(SAREX, PL OPS)

RISE=21:29 TERM=21:37

**TOSMODUL**

**EXERCISE**

**MONITOR LATENT VIRUS REACT**

(BIOMED, DSO 493)

**(MSI)**

**DUAL SHIFT POST-SLEEP**

(ORB OPS FS, CREW SYS)

---

**VIDEO TELECONFERENCING**

(ORB OPS FS, OCA) - PMC

**VOICE OPS (E10) W1**

(SAREX, PL OPS)

RISE=23:07 TERM=23:08

**PLANNING RESERVE**

**DUAL SHIFT PRE-SLEEP**

(ORB OPS FS, ELMN SYS)

**DUAL SHIFT PRE-SLEEP**

(ORB OPS FS, ELMN SYS)

**DUAL SHIFT PRE-SLEEP**

(ORB OPS FS, CREW SYS)

---

**BLUE FD07 EZ ACTIVITIES:**

CREW CHOICE D/L

PBSC SMEM (as avail)

---

**FLT PLN/83/FIN**
### STS-83 (BLUE FD 07)

<table>
<thead>
<tr>
<th>MET</th>
<th>FREE/FLD</th>
<th>FREE/H2O</th>
<th>CRYO/FD</th>
<th>A/G</th>
<th>FREE/FLD</th>
<th>CDR</th>
<th>PLT</th>
<th>MS2</th>
<th>SL CREW</th>
<th>MCC</th>
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</thead>
<tbody>
<tr>
<td>Day 006</td>
<td>04:00</td>
<td>A1(61) AUTO/VERN</td>
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<td>05:00</td>
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<td>OFD 1</td>
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<td>06:00</td>
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<td>SLEEP</td>
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<td>07:00</td>
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<td>08:00</td>
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</tbody>
</table>

- **Voice Ops:** (110) W1 (PS1)
  - SAREX, BL OPS
  - Rise=04:27, Term=04:36

- **LF3D(MS1)**

- **Meal**

- **CS22 INTG**

**Notes:**
- FLT PLN/83/FIN
STS-83 (BLUE FD 07)

Day 006
08:00

A1 (01)
AUTO/VERN

10:00
MONITOR LATENT VIRUS REACT
(OTMED, DSO 493)

11:00
POST SLEEP

RED FOOD EZ ACTIVITIES:
- CEA OPS (ORB OPS, CREW SYS)
- CLC filters INSPECT
- CREW CHUTE O2
- POST REPLET/REM (as avail)

EXERCISE

DSO 493

PLN/83/FIN

4-30
STS-83 (RED FD 08)

**EW Day 006**

**20:00**

- **AI (BI)**
  - AUTO/VER

**21:00**

**BLUE FD08 EZ ACTIVITIES:**

- **CABIN AIR MONITOR**
  - (ORB OPS, DTO 623)
  - PGSC SMEM (as avail)
  - VOICE OPS (E12) WI (PS2)
  - (SAREX, PL OPS)
  - RISE=21:33
  - TERM=21:41

**22:00**

- **MONITOR LATENT VIRUS REACT**
  - (ORB OPS FS, CREW SYS)

**23:00**

- **VOICE OPS (EB) WI (MS1)**
  - (SAREX, PL OPS)
  - RISE=22:58
  - TERM=23:05

**00:00**

- **U**
  - MNVR
  - IMU ALIGN

**FLT PLN/83/FIN**
STS-83 (BLUE FD 08)

Day 007

208:00

AI (BI) [AUTO/VERN]

08:00

09:00

SLEEP

10:00

MONITOR LATENT VIRUS React
(BIOTMED, DSO 493)

11:00

POST SLEEP

RED FD09.1Z ACTIVITIES:
CPA OPS (ORB OPS, CREW SYS)
ORL/ILLER INSPECT
PILOT SIMULATOR PLT
(ORB OPS, DIO 663)
POSC Reboot/SHMR (as avail)

12:00

MONITOR LATENT VIRUS React
(BIOTMED, DSO 493)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

PLANNING RESERVE

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

SL CREW

MCC
STS-83 (RED FD 09)

CDR: H/O
PLT: H/O
MS2: H/O
SL CREW: H/O
MCC: H/O

12:00
- WCS COMPACTOR OPS (ORB OPS, CREW)
- DUAL SHIFTS PRE-SLEEP
- 1st compaction, back of WCS CC
- FILTER CLEANING
- (IFM, SCHEDULED MAINTENANCE)
- Inspect filters and clean as necessary

13:00
- EXERCISE

14:00
- OCA DOWNLINK (KFX)
- (ORB OPS, OCA)
- VMCC
- PC6MON

15:00
- WDAS SETUP
- (PL OPS, WDAS)
- WDAS DATA RETRIEVAL
- (PL OPS, WDAS)

16:00
- WDAS SETUP
- (PL OPS, WDAS)
- WDAS DATA RETRIEVAL
- (PL OPS, WDAS)

SLEEP

FLT PLN/83/FIN
STSB-83 (BLUE FD 09)

CDR

PLT

MS2

SL CREW

MCC

SUPPLY/WASTE WATER DUMP
(ORB OPS, ECLS)
Initiate Simo Dump

SUPPLY/WASTE WATER DUMP
(ORB OPS, ECLS)
Terminate Simo Dump

MEAL

TOSMODUL

Day 008
04:00
A1(S1)

AUTO/VERN.
STS-83 (RED FD 10)

Day 008

16:00

TO MODUL

CABIN TEMP CTRL RECONFIG

MD44F Pin CAB TEMP CTRL act link to secondary act

L1 CABIN TEMP CTRL - 2

RCS REG RECONFIG (ORB OPS, RCS)

17:00

MEAL

18:00

VIDEO TELECONFERENCING

(ORB OPS FS, OCA) - PFC

19:00

LF361H54

20:00

FLT PLN/83/FIN
**STS-83 (RED FD 10)**

**MET**
- **CDR**: Cabin Air Monitor (as avail)
- **PLT**: Cabin Air Monitor (as avail)
- **MS2**: Cabin Air Monitor (as avail)
- **SL CREW**: Cabin Air Monitor (as avail)
- **MCC**: Cabin Air Monitor (as avail)

**Day 008**
- **20:00**
  - AUTO/VERN
- **21:00**
  - SL IEP
- **22:00**
  - EXERCISE
- **23:00**
  - POST SLEEP
- **00:00**
  - FLIGHT PLAN/HN

**BLUE FD10 EZ ACTIVITIES:**
- CABIN AIR MONITOR (ORB OGS, DSO 493)
- PGSC SMEM (as avail)

**VIDEO TELECONFERENCING**
- (ORB OBS FS, OCA) - PMC

**PLANNING RESERVE**
- DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)

**PRE-SLEEP**
- MNVR IMU ALIGN ATT
- STAR PAIR (CI) A/AUTO/VERN (23:45) Init MNVR
<table>
<thead>
<tr>
<th>Time</th>
<th>CDR</th>
<th>PLT</th>
<th>MS2</th>
<th>SL CREW</th>
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<td>04:00</td>
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</table>

**Day 009**

- IMU ALIGN - S TRK (ORB OPS)
- MNVR 55 BIASED -ZLV -XV
- A/AUTO/VERN Init TRK
- DUAL SHIFT PRE-SLEEP
- AUTO / VERN
- TG=2 BV=5 P=90 Y=305 OM=O
- P/TVI SETUP (PAO)
- SL MODULE AIR SAMPLE
- TV at TRW (00:56-01:19)
- PAO VOICE CHECK/EVENT
- P1MON
- SAMS4MON
- OCA DOWNLINK (KFX)
- CONDENSATE TANK DUMP
- OCA XFER
- PM MON
- VMCC
- SPOC 1

**3-56**
STS-83 (BLUE FD 10)

REO FD11 EZ ACTIVITIES:
- CRA OPD (ORB OPS, CREW SYS)
- ECM ELLER INSP.
- PILOT SIMULATOR PLT, CDR
  (ORB OPS, D10 667)
- PGSC Reboot/SMES (as avail)

08:00
- Ai(B1)
- AUTO/VERN

09:00
- SLEEP
- SLEEP

10:00
- MONITOR LATENT VIRUS REACT
  (BIOMED, DSO 493)
- MONITOR LATENT VIRUS REACT
  (BIOMED, DSO 493)
- MONITOR LATENT VIRUS REACT
  (BIOMED, DSO 493)
  (MS3)

11:00
- POST SLEEP
- POST SLEEP

12:00
- P/T/LI SETUP (PAD)
  (PHOTO/TV, P/T/L SCENES)
- P/AO VOICE CHECK/EVENT
  TV at TORE (11:05-11:25)
- P/AO VOICE CHECK/EVENT
  (MS1,PS1)

FLT PLN/83/FIN
<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>13:00</td>
<td>EXERCISE</td>
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<tr>
<td>14:00</td>
<td>PC6MON</td>
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<tr>
<td>15:00</td>
<td>PC9MVID</td>
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<tr>
<td>16:00</td>
<td>SAM5AMON</td>
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<td>SLEEP</td>
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<td>PC4VDPHY</td>
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</table>

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

OCA DOWNLINK (KFX)
(ORB OPS FS, OCA)

OCA XFER
FAN MATE 1
SPOC 1

3-59
STS-83 (BLUE FD 11)

TDRS

Day 010
04:00
A1(B1)
AUTO/VERN.

FREE/H2O

MET

FREE/H2O

ATT

FREE/H2O

A/C

CRYO

FREE/H2O

P/TV12 SETUP (PAO)

(PHOTO/TV, P/TV SCENES)

FREE/H2O

SL CREW

FREE/H2O

MCC

FREE/H2O

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<table>
<thead>
<tr>
<th>TIME</th>
<th>CDR</th>
<th>PLT</th>
<th>MS2</th>
<th>SL CREW</th>
<th>MCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00</td>
<td>SLEEP</td>
<td>SLEEP</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10:00</td>
<td>MONITOR LATENT VIRUS REACT (BIOMED, ISO 493)</td>
<td>MONITOR LATENT VIRUS REACT (BIOMED, ISO 493)</td>
<td>MONITOR LATENT VIRUS REACT (BIOMED, ISO 493) (MS3)</td>
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<tr>
<td>11:00</td>
<td>POST SLEEP</td>
<td>POST SLEEP</td>
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</table>

**RED FD12 EZ ACTIVITIES:**
- CPA OPS (ORB OPS, CREW SYS)
- OCAC FILTER INSPECT
- CREW CHOICE D/L
- PVS Reboot/REL (as avail)
**STS-83 (RED FD 12)**

**12:00-12:30**
- Filter cleaning (IFM, scheduled maintenance)
  - Inspect filters and clean as necessary

**13:00**
- Exercise

**14:00-15:00**
- Dual shift pre-sleep (ORB Ops FS, Crew Sys)

**16:00**
- Sleep

**16:00-17:00**
- SAMS4MON

**16:00-**
- PGBA3OBS

**16:00-**
- PGBA2MON

**16:00-**
- PGBA1MON

**16:00-**
- PC9AVID

**16:00-**
- OCA Downlink (KFX) (ORB Ops FS, OCA)

**16:00-**
- OCA XFER Fan Rail 14

**16:00-**
- MCC

**16:00-**
- SL Crew

**16:00-**
- MS2

**16:00-**
- PLT

**16:00-**
- CDR
STS-83 (RED FD 12)

**MT**
- Day 010
- 16:00-17:00: A1(B1) AUTO/VERN
- 17:00-18:00: TV at TDRE (17:25-17:42)
- 18:00-19:00
- 19:00-20:00

**ORB**

**ATT**

**FRE**

**H2O**

**CDR**

**PLT**

**MS2**

**SL CREW**

**MCC**

- PTV Setup (PAO)
  - (PHOTO/TV, PTV SCENES)
- MEAL
- MEAL
- PAO Voice Check/Event
- PAO Voice Check/Event
  - TV at TDRE (17:25-17:42)
- SLEEP
- PAO Voice Check/Event
  - (MS3, PS2)
<table>
<thead>
<tr>
<th>Time</th>
<th>CDR</th>
<th>PLT</th>
<th>MS2</th>
<th>SL CREW</th>
<th>MCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00</td>
<td>DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)</td>
<td>POST SLEEP</td>
<td>DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)</td>
<td>OCA-PME</td>
<td></td>
</tr>
<tr>
<td>01:00</td>
<td>DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)</td>
<td>DUAL SHIFT PRE-SLEEP (ORB OPS FS, CREW SYS)</td>
<td>PAO VOICE CHECK/EVENT</td>
<td>OCA XFER</td>
<td></td>
</tr>
<tr>
<td>02:00</td>
<td>SLEEP</td>
<td>SLEEP</td>
<td>PGBA2MON</td>
<td>SAMS4MON</td>
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<tr>
<td>03:00</td>
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<td>LF7SCA1</td>
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</tbody>
</table>
RED FD13 EZ ACTIVITIES:
- CPA OPS (ORB OPS, CREW SYS)
- ORB FILTER INSP
- PILOT SIMULATOR PLT
  (ORB OPS, DIO 667)
- POST Reboot/SHUT (as avail)

<table>
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<tr>
<th>TIME</th>
<th>CDR</th>
<th>PLT</th>
<th>MS2</th>
<th>SL CREW</th>
<th>MCC</th>
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<tr>
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</table>

- EXERCISE
- POST SLEEP
- POST SLEEP
- MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)
- MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)
- MONITOR LATENT VIRUS REACT (BIOMED, DSO 493)

FLT PLN/83/FIN
EVALUATION OF MICR CAPT (BIOMED, DSO 493)
Sample Collection & Processing, Steps A & B

BLUE FD13 EZ ACTIVITIES:
PGSC SMEM (as avail)
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00</td>
<td>AUTO/VERN CPACPAQ.P (ORB OPS, CREW SYS)</td>
</tr>
<tr>
<td>09:00</td>
<td>OCA-C FILTER INSPECT</td>
</tr>
<tr>
<td>10:00</td>
<td>SIMULATOR PLT, CDR (ORB OPS, DSO 667)</td>
</tr>
<tr>
<td>11:00</td>
<td>PG$C REBOOT/SMEM (as avail)</td>
</tr>
<tr>
<td>12:00</td>
<td>SLEEP (MS3)</td>
</tr>
<tr>
<td>12:00</td>
<td>T12SAMS</td>
</tr>
<tr>
<td>12:00</td>
<td>MONITOR LATENT VIRUS REACTION (BIOMED, DSO 493)</td>
</tr>
<tr>
<td>12:00</td>
<td>EXERCISE</td>
</tr>
</tbody>
</table>

**Video Teleconferencing**

- (ORB OPS FS, OCA) - PFC

**RED FD# EZ Activities:**

- CREW (ORB OPS, CREW SYS)
- SIMULATOR PLT, CDR (ORB OPS, DSO 667)
- PG$C REBOOT/SMEM (as avail)
STS-83 (RED FD 14)

16:00
A1(B1) AUTO/VERN

17:00
CSLM4SPU

18:00
CSLM2RN3

19:00
CSLM3PWR

20:00
CSLM4SPU

OCA DOWNLINK (KFX)
(ORB OPS FS, OCA) - MCC

VIDEO TELECONFERENCE
(ORB OPS FS, OCA) - PFC

SLEEP

MEAL

MEAL

OCA-XFER
PAR MNTL 13
3PD1

OCA-PFC

OCA-PFC
STS-83 (RED FD 15)

Day 013

12:00-
AI (B1)
AUTO/VERN.

13:00-

14:00-

15:00-

16:00-

P/TV17 SETUP (PAO)
(PHOTO/TV, P/TV SCENES)

CREWCONF

CREWCONF

CREWCONF

CREWCONF (ALL)

VOICE OPS (B1) WI
(PL OPS, SAREX)
RISE=14:27 SET=14:35
DUAL SHIFT PSE-SLEEP
(ORB OPS FS, CREW SYS)

PC9MON

PGBA2MON

PGBA30BS

SAMS4MON

PGBA3MON

PGBA30BS

WDAS SETUP
(PL OPS, WDAS)

WDAS SETUP
(PL OPS, WDAS)

PC9MON

PGBA2MON

SAMS4MON

FLT PLN/83/FIN
ST-83 (BLUE FD 15)

RED FD16 EZ ACTIVITIES:
- CPA OPS (ORB OPS, CREW SYS)
- OCCR Filter Inspect
- Pilot Simulator PLT, CDR (ORB Ops, DIO 567)
- PGSC Reboot/SMEM (as avail)

Day 014
08:00
A1 (B1) AUTO/VERN

09:00
SLEEP
SLEEP

10:00

11:00
POST SLEEP
POST SLEEP

12:00

3:00

MEAL
MEAL

CS46JINT
EXERCISE

FLT PLN/83/FIN
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>12:00</td>
<td>D/O BRIEF</td>
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<tr>
<td>13:00</td>
<td>AUTO/VERN-D/BRIEF</td>
</tr>
<tr>
<td>14:00</td>
<td>RCS HOT FIRE TEST</td>
</tr>
<tr>
<td>15:00</td>
<td>APU HIR DECONFIG</td>
</tr>
<tr>
<td>16:00</td>
<td>EXERCISE</td>
</tr>
</tbody>
</table>

**Notes:**
- APU STEAM VENT HI/ACI
- VBLR (NLIR/HIR(three)) - B
- PWR (three) - ON
- RCS HOT FIRE TEST (ORB OPS, RCS) Config DAP: A/AUTO/VERN
- DUAL SLEEP (ORB OPS, RSS) (ORB OPS FS, CREW RSS)
STS-83 (RED FD 16)

**Day 014 2 D**

**16:00**
- AUTO/VERN.
- EXERCISE

**17:00**
- SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS, PC11/DC1)
- Initiate Simo Dump

**18:00**
- SUPPLY/WASTE WATER DUMP (ORB OPS, ECLS, MICROBIAL CAPTURE (BIOMED, DIO 677), Obs & Data Record STOW)
- MICROBIAL CAPTURE (BIOMED, DIO 677)

**19:00**
- PGBA4LND

**20:00**
- CABIN CONFIG/STOW

**3:00**
- CABIN CONFIG/STOW

**18:00**
- MEAL

**17:00**
- MEAL (BACKUP)

**16:00**
- MEAL

**15:00**
- MEAL (ORB OPS, COM/M/INST)

**14:00**
- MEAL

**13:00**
- MEAL

**12:00**
- MEAL

**11:00**
- MEAL

**10:00**
- MEAL

**9:00**
- MEAL (ORB OPS FS, CREW SYS)

**8:00**
- MEAL

**7:00**
- MEAL

**6:00**
- MEAL

**5:00**
- MEAL

**4:00**
- MEAL

**3:00**
- MEAL

**2:00**
- MEAL

**1:00**
- MEAL

**0:00**
- MEAL

**STOW**
- STOW

**LANDING-I COMM C/O (ORB OPS, COM/M/INST)**

**DUAL SHIFTS PRE-SLEEP (ORB OPS FS, CREW SYS)**

**Upgrade WASTE/SUPPLY H2O DUMP QTY**

**(FLT PLN/83/FIN)**
STS-83 (RED FD 16)

MET

CDR
PLT
MS2
SL CREW
MCC

Day 015

00:00
AI(B1)
AUTO/VERN

01:00

02:00

03:00

04:00

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

DUAL SHIFT PRE-SLEEP
(ORB OPS FS, CREW SYS)

ON-ORBIT +X RCS BURN
(ORB OPS, RCS)

ON-ORBIT +X RCS BURN
(ORB OPS, RCS)

POST SLEEP

POST SLEEP

POST SLEEP

CABIN AIR MONITOR
(ORB OPS, DTO 623)
PGS MCR (as avail)

FLT PLN/83/FIN
ST3-83 (BLUE FD 16)

CABIN CONFIG/STOW

PRE-DEORBIT PREP ACTIVITIES
AIRLOCK CLOSEOUT
Remove loose items stored in Airlock
Perform AIRLOCK ENT & SW VERIF
(DEORBIT PREP, ENT SW LIST/VERIF)

SITX N/W
(81/90, 020.684)
Day 015 2 D

08:00--- 0

AI(BI).

AUT/VERN ERG/IVIS/PCIS (STOW (BIOMED, IVIS OPS)

SPACELAB DEACTIVATION
(SL ACT/DEACT, SL DEACT)

SL MODULE AIR SAMPLE
(SLM OPS, ECLSS)

DEAC STOW
(ORB OPS, CREW SYS)

PRIORITY PRIORITY GROUP B
(ORB PKT, PRIOR PKT)

EGRESS

SPACELAB DEACTIVATION
(SL ACT/DEACT, SL DEACT)

ES ACT BEFORE LEAVING FLT PLN:

SL MODULE AIR SAMPLE
Record MET and location on bottle
Fluid Loading Prep
Fill drink containers with H2O per
PMC instructions

MNT PLN/83/FIN

GO TO D/O PREP at MET 15/11:36
<table>
<thead>
<tr>
<th>DAP</th>
<th>PURPOSE</th>
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<td>A1</td>
<td>NOMINAL</td>
<td>B1</td>
<td>NOMINAL</td>
</tr>
<tr>
<td>A2</td>
<td>PTC</td>
<td>B2</td>
<td>LOSS OF VERN</td>
</tr>
<tr>
<td>A3</td>
<td>GG</td>
<td>B3</td>
<td>LOSS OF VERN</td>
</tr>
<tr>
<td>A4</td>
<td>PRE/POST DEPLOY</td>
<td>B4</td>
<td>SSUS DEPLOY</td>
</tr>
<tr>
<td>A5</td>
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- **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 $-Y$ Star Tracker*
  - 5 Optional
  - Input P (0–359.99)
  - Y (270–359.99, 0–90)
  - * input OM $\rightarrow$
  - OM (0–359.99)

- **MON AXIS**
  - 1 $+X$
  - 2 $-X$

**CNT ACC** = 0 UNLOADED RMS

- 1-5 NOT USED
# STS-83 GENERIC DAP A CONFIGURATIONS

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**Note:**
- ROT RATE: Rotation Rate
- ATT DB: Attitude Rate
- RATE DB: Rate Difference
- ROT PLS: Rotation Pulsion
- COMP: Component
- P OPTION: Primary Option
- Y OPTION: Secondary Option
- TRAN PLS: Transmission Pulsion
- ALT: Altitude
- RATE DB: Rate Difference
- JET OPT: Jet Option
- # JETS: Number of Jets
- ON TIME: On Time
- DELAY: Delay
- VERN: Vernier
- PURPOSE: Purpose
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| 109/07:57:00 GMT | NaN | AUTO DB AT 3.00 R 90  | 150 | -J:30 AMARES |
| 23 015/15:20:00 MRT | NaN | B1 RATE 0.5000 SUN | -   | Deorbit Burn     |
| 109/10:21:00 GMT | NaN | AUTO DB AT 3.00 R 226 | 25 | CMS Retro       |

*** ALL ATTITUDES IN MEAN OF 1950 ***
*** PTL EULER SEQUENCE ***
FLIGHT PLAN NOTES
(CONSTRAINTS AND GUIDELINES)

A. FLIGHT DESCRIPTION

Orbiter: OV102/Columbia
Inclination: 28.5°
Insertion Altitude: 160 X 160 nm
Duration: 16 days

B. MAJOR EVENTS

<table>
<thead>
<tr>
<th>EVENT</th>
<th>MET</th>
<th>DATE</th>
<th>CST</th>
<th>GMT</th>
<th>ΔV</th>
<th>HA/HP</th>
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</thead>
<tbody>
<tr>
<td>Launch</td>
<td>00/00:00</td>
<td>04/03/97</td>
<td>13:01</td>
<td>19:01</td>
<td>***</td>
<td>*****</td>
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<tr>
<td>OMS2 C/O</td>
<td>00/00:42</td>
<td>04/03/97</td>
<td>13:43</td>
<td>19:43</td>
<td>220.7</td>
<td>160/163</td>
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<tr>
<td>Orbit Adjust</td>
<td>15/01:45</td>
<td>04/18/97</td>
<td>14:46</td>
<td>20:46</td>
<td>0.0</td>
<td>154/160</td>
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<tr>
<td>Deorbit</td>
<td>15/15:36</td>
<td>04/19/97</td>
<td>05:37</td>
<td>11:37</td>
<td>259.0</td>
<td><em><strong>/</strong></em></td>
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<tr>
<td>Landing</td>
<td>15/16:36</td>
<td>04/19/97</td>
<td>06:37</td>
<td>12:37</td>
<td>***</td>
<td><em><strong>/</strong></em></td>
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C. LANDING OPPORTUNITIES

<table>
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<th>Landing Orbit No.</th>
<th>Site</th>
<th>Local Time</th>
<th>MET</th>
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<tbody>
<tr>
<td>Nominal Primary</td>
<td>251</td>
<td>KSC</td>
<td>07:37 15/16:36</td>
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<tr>
<td>1 Rev Late</td>
<td>252</td>
<td>KSC</td>
<td>09:13 15/18:12</td>
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<tr>
<td>Weather Alt</td>
<td>253</td>
<td>EDW</td>
<td>07:40 15/19:39</td>
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<tr>
<td>1 Day Late Primary</td>
<td>267</td>
<td>KSC</td>
<td>07:39 16/14:36</td>
</tr>
<tr>
<td>1 Rev Late</td>
<td>268</td>
<td>KSC</td>
<td>09:14 16/18:13</td>
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<tr>
<td>Weather Alt</td>
<td>269</td>
<td>EDW</td>
<td>07:41 16/19:40</td>
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<tr>
<td>2 Days Late Primary</td>
<td>283</td>
<td>KSC</td>
<td>07:40 17/16:39</td>
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<tr>
<td>1 Rev Late</td>
<td>284</td>
<td>KSC</td>
<td>09:15 17/18:14</td>
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<tr>
<td>Weather Alt</td>
<td>285</td>
<td>EDW</td>
<td>07:41 17/19:40</td>
</tr>
</tbody>
</table>

D. CREW

CDR – Jim Halsell
PLT – Susan Still
MS1 – Janice Voss
MS2 – Mike Gernhardt
MS3 – Don Thomas
PS1 – Greg Linteris
PS2 – Roger Crouch

1. BLUE Team: MS2, MS1, PS1
   RED Team: CDR, PLT, MS3, PS2

   Each team works approximately 12 hours followed by 12 hours off duty. This allows continuous 24-hour/day payload operations.

2. The Payload Commander is MS1. The crewmembers responsible for performing an EVA, should one become necessary, are MS2 and MS3.
E. COMMUNICATIONS

**SHUTTLE**

TDRS Support: East (41° W), West (174° W)
Ground Sites: MIL and BDA
Contingency RTS: DGS, GTS, HTS, MIL, BDA, OTS, and VTS

F. IMU ALIGNS

Routine IMU aligns are expected to occur every 48 hours. If stars of opportunity are not available in the flown attitude, the orbiter will be required to maneuver to an IMU attitude for alignment.

G. OFF DUTY

Off duty periods for the crew are scheduled for flight days 5, 9, and 13.

H. PAYLOADS

1. Microgravity SpaceLab (MSL-1)

   MSL consists of a complement of experiments which focus on microgravity materials processing technology and other science and research requiring the low-gravity environment of Earth orbit.

   The following is a list of the MSL experiments:

   a. Space Acceleration Measurement System (SAMS)
   b. Large Isothermal Furnace (LIF)
   c. Protein Crystal Growth—Single Locker Thermal Enclosure System (PCG-STES)
   d. Microgravity Measurement Assembly (MMA)
   e. Electromagnetic Containerless Processing Facility (TEMPUS)
   f. Quasi–Steady Acceleration Measurement (QSAM)
   g. Middeck Glovebox (MGBX)
   h. Orbital Acceleration Research Experiment (OARE)
   i. Astro–Plant Growth Bioprocessing Apparatus (ASTRO–PGBA)
   j. Fiber Supported Droplet Combustion Experiment (FSDC-2)
   k. Physics of Hard Spheres Experiment (PHASE)
   l. Combustion Module (CM-1)
   m. Droplet Combustion Experiment (DCE)
   n. Coarsening in Solid–Liquid Mixtures (CSLM)
   o. Capillary Heat Transfer (CHT)
   p. Internal Flows in a Free Drop (IFFD)
   q. Bubble and Drop Nonlinear Dynamics (BDND)

2. Cryogenic Flexible Diode (CRYOFD)

   The CRYOFD is a hitchhiker canister designed to demonstrate the in–space performance of a methane and an oxygen flexible, cryogenic, diode heat pipe.


   SAREX–II is a flight deck payload capable of two–way communication with amateur radio stations in the Line of Sight (LOS) of the orbiter. The antenna is mounted in either Window 1 or 6.
I. ON-ORBIT DTOs

1. Cabin Air Monitoring (DTO 623)

This DTO will use the solid sorbent sampler to continuously sample the orbiter atmosphere throughout the flight.

2. Portable In-Flight Landing Operations Trainer (PILOT) (DTO 667)

This DTO consists of a laptop PC with landing software and a spare RHC (essentially a landing simulator). The DTO will attempt to verify that the simulator will assist the CDR and PLT in maintaining a high level of proficiency for approach and landing on EDO missions.

3. Evaluation of Microbial Capture Device in Microgravity (DTO 677)

This DTO will demonstrate the zero-gravity operation of water sampling hardware proposed for the microbiological characterization of spacecraft potable water. Six microbial capture devices (MCDs) will be processed during the last 5 days of the flight using both shuttle drinking water and ground supplied water.

4. Radiation Measurements in Shuttle Crew Compartment (DTO 684)

This DTO will measure the linear energy transfer spectrum of the complex space radiation in the crew compartments. The data will provide accurate measurements of biologically effective dose equivalent and evaluate risk of single event upsets (SEUs) in shuttle avionics.

J. ON-ORBIT DSOs

1. Interaction of the Space Shuttle Launch and Entry Suit and Sustained Weightlessness on Egress Locomotion (DSO 331)

This DSO will identify the impact of the Launch Entry Suit/Advanced Crew Escape Suit (LES/ACES) and sustained weightlessness on egress locomotion mechanical efficiency as measured by oxygen consumption and gait alteration.

2. Monitoring Latent Virus Reactivation and Shedding in Astronauts (DSO 493)

This DSO will study spaceflight-induced immunocompetence focusing on the potential for reactivation and dissemination (shedding) of latent viruses. Saliva samples will be collected daily from participating crewmembers.

K. ON-ORBIT RMEs

1. Wireless Data Acquisition System (RME 1330)

This RME will demonstrate the Wireless Instrumentation System (WIS) to provide temperature measurements that can be used to determine if payload hardware is approaching its thermal limits in near real time.
FLIGHT DATA FILE
Distribution
83 FLT PLN FSP FIN

** JSC **

AP3/BIRTH DISTRIBUTION (10)
AP3/PAO DISTRIBUTION (100)
AP5/SCHOR, R.K.
BTG/MC GUER, M. (3)
BTG/WHITE, C.
BT53/STI LIBRARY (3)
C44/ALDRIDGE, A.
C44/HANCOCK, L.
CA/LEESTMA, D.C.
CA4/VOGT, G.
CA4/BERTRAND, D.J.
CB/CB/ST-83 FLIGHT CREW (7)
CB/CHIEF
CB/FAMILY ESCORT MGR
CB/HEINRICKS, T.T. (9)
CB/IVINS, M.S.
CB/SHUTTLE COMM SEC
CB/ST5-83 FLIGHT CREW (7)
DA2/STONE, B.R.
DA8/SCHANON, J.P.
DA82/ACTION CENTER
DF/SC/COMM RNS 182 (4)
DF/OOW, WOOD (4)
DF/14/ARMSTRONG, C.H.
DF/22/OPS FDF REP (4)
DF/4/INCO FDF REP (3)
DF/42/EVA (4)
DF/4/ROBOTICS SECTION (5)
DF/5/MMACS LEAD OFFICER (3)
DF/54/BOOK MANAGER PTV (2)
DF/55/BOOSTER (3)
DF/62/GNC GROUP LEAD (3)
DF/63/PROP
DF/7/JOYCE, P.M.
DF/73/EGIL LIBRARY
DF/73/LEAD EGIL
DF/73/SYSTEMS LIBRARY
DF/82/ECCOM LIBRARY (2)
DJ/QUICK, T.K. (5)
DM/1/CHIEF
DM/2/FLIGHT DESIGN MANAGER
DM/4/ONES, F.B.
DM/5/CARMAN, G.

DM32/GROUP LEAD (7)
DM32/ORBIT FDO GROUP LEAD (7)
DM33/HEAD
DM33/LIBRARY (4)
DM46/ENTRY FDO
DM46/LSO (2)
DO12/OPS SAFETY OFFICE
DO2/SALINAS, L.
DO3/FDF LIBRARY
DO352/TECH EDITOR
DO/353/BLUE SHELF (10)
DO353/FDF FLIGHT LEAD
DO353/FDF MGR/RESERVE (15)
DO4/BOOK MANAGER FLT PLN (15)
DO5/TECH TEAM (15)
DO4/POINTING
DO4/SHUTTLE FLT PLANNING (3)
DO4/HEAD
DO45/SECTION HEAD
DO45/TIMELINE - FAO SSR#1
DO6/LIBRARY (18)
DP/CHIEF
DT/1/SIM SUP OFFICE
DT32/TEAM LEAD
DT34/BORDELON, M.
DT34/CONTROL PROP (4)
DT35/OPS/NAV TRAIN LEAD (4)
DT35/MOYES, C. (2)
DT35/RMS TRAINING GROUP (2)
DT3/SHUTTLE COMM SECTION (2)
DT3/SPENCER, J.
DT3/TRAINING SYS SECTION (2)
DT/37/SDR (4)
DT37/ROVEN, G.C.
EC/CTSD LIBRARY
EC/ROTTEN, H.A.
EC/ANDERSON, S. (2)
EC/CHANG, C.M.
EE/RCA SUPPORT
EG/CRITIEL, S. (2)
EG/LIBRARY
EG/1/ANV, D.B.
EG/1/MCSUAIN, C.
ER/4/HESS, C. (4)
ES/3/CHANG, Y. P.
ES/32/ERN, R.
ES/62/DAVIS, R.
EV/1/L16/LIBRARY
EV12/SALARAZ, S.
EV44/ASD/ASD-44-LIB
JL5/SUPPORT (2)
MA2/DITTMORE, R.D.
MER/30 LIBRARY
MO/PW/WFELDER, J.
MTS/BANKS, W.R.
MTS/LODEN, H.A.
MTS/MANAGER (2)
MV/3/CULLOUGH, C.E.
MV3/LIBRARY
MV5/OLIVER, P.
MV6/RMS INTEGRATION (5)
NV2/CHIEF
NS4/LIBRARY
NS4/GOFFNEY, B. (2)
NS43/FOUDD, S.
NS/VAWARD, D.K.
PS/CLINTON, S.
R11/E/DCR GROUP
R12B-16/CF SAIL REP
SD/HATCHER, D. (5)
SD/LIND, M. (5)
SD/WARE, K.
SD24/SURGEON (2)
SD26/PANDER, L. (5)
SL/4/JAMES, J.
SL/5/COX, K.R.
SM/CHRISTIANSEN, A.C.
SM/5/WARD, S.
SM/7/ECO7
SM/GAUNCE, M.
SP33/HARRIS, C.D.
SP43/CHRISTOPHER, K.
SP43/HELION, C.
SP44/KLORIS, V.
ST/1/USAF TECH LIBRARY (5)
ST5/ASSOCIATE LEAD FORECASTER

** JSC OFFSITE **

LS15 - HOUSTON
3700 BAY AREA BLVD
SUITE 600
P.O. BOX 58487
HOUSTON, TX 77258
6402A/PROJECT OFFICE (3)

ALLIED SIGNAL - HOUSTON
833B-551/OST DOCUMENT CONTROL (4)

HUGHES TRAINING
TSC/LIBRARY

LOCKHEED-MARTIN - HOUSTON
C107/HYNDMAN, J.
C70/KEENDER, J.

MCDONNELL DOUGLAS - HST TWR 1
16095 SPACE CENTER BLVD
HOUSTON, TX 77062
B1/BRUSSARD, A.

UNISYS GOVERNMENT SYSTEMS GROUP - HST
UO3D-(DFD)/KOPP, A.J.

BOEING AEROSPACE - HOUSTON
P.O. BOX 58487
HOUSTON, TX 77058
HF-10/TRAULOS, J.A.
HF-10/WIBLE, L.

HONEYWELL - HOUSTON
2525 BAY AREA BLVD
SUITE 200
HOUSTON, TX 77058
GEBEGER, I.

ROCKWELL - HOUSTON
2C10/ASSUNIC, C.
2C10/BATTLEY, R.H.
2C10/CUNNINGHAM, N.
2C10/WOODALL, J.W.
2C10-555/DE VAULT, G.M.
2C10-555/TAYLOR, J.T.
2C3-17/BRYAN, L.W.