

CRT Reference Summary

SPACE SHUTTLE ORBITER DISPLAYS AND CONTROLS

STS-7

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G.W. Phillips, Supervisor
Display and Control Systems



Rockwell International

Space Transportation &
Systems Group

STS 83-0097
NAS9-14000
IRD SE-694E
WBS 7.1.2

This CRT Reference Summary provides all STS-7 CRT displays extracted from the Space Shuttle Orbiter Level C Functional Subsystem Software Requirements Displays and Controls Specification, STS81-0020B. In addition, 11 payload displays are derived from the Level C Functional Subsystem Software Requirements, Payload/Carrier Management, STS81-0044/V7. For more detailed information regarding the CRT Displays, contact Roland Lewis, (213) 922-2139.

DISPLAY LOCATION

To aid in locating a display, two separate tables of contents are provided. Table A lists displays by function, display title and page number, as well as by flight phase (Ground Check-out, On-board Management, etc.).

Table B lists these CRT displays by OPS or SPEC number, display title, major function and page number. OPS page numbers are identified by four digit numbers; both SPEC and DISP page numbers are identified by three digit numbers. In addition, three IPL-related displays are listed separately under "Special Displays."

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GROUND CHECKOUT		
Accel Assy Sensor Test	Pre-Flight Sensor Self Test	158
ADTA Drivers Test	Pre-Flight RCS/RGA/ADTA Test	15C
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ON-BOARD CHECKOUT

Accel Assy Sensor Test	On-Orbit Sensor Self Test	13C
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Altimeter Sensor Test	On-Orbit Sensor Self Test	13C
Ded Disp C/O	FCS Dedicated Displays C/O	13A
DEU Self Test	DEU Stand-Alone Self-Test	16C
GPC Self Test	XXXX IPL Menu (1) and (2)	12C,12D
Hand Controllers Test	Manual Controls	16D
MLS Sensor Test	On-Orbit Sensor Self Test	13C
Port Moding/Selection Test	Bus/BTU Status	16B
Radar Alt Sensor Test	On-Orbit Sensor Self Test	13C
RCS Aft/Fwd Jets Test	On-Orbit RGA/ADTA/RCS Test	13D
RGA Drivers Test	On-Orbit RGA/ADTA/RCS Test	13D
RM Control Test	RM Controllers	14B
RM Switches Test	RM Switches/Surfaces Feedback	14A
Switch Monitoring Test	Switches	14C
TACAN Sensor Test	On-Orbit Sensor Self Test	13C

ON-BOARD MANAGEMENT

Abort (AOA, ATO)	Override	5D,19D
ADTA Deselect	Override	5D
Air Data Source	Horiz Situation (PFS)	5C
Alt Elev Sched Cmd	Entry Controls	6B
Antenna Mgmt	Antenna	7A
Checkpoint Retrieval	DPS Utility	11C
Downlist GPC Select	GPC Memory	11B
Downlist Param Select	DPS Utility	11C
Drag Ref Bias	Entry Trajectory 1 - 5	1D-2D,17D-18D
Dump (OMS/RCS/MPS)	Contingency Abort	6A
Dump (RTLS RCS)	Vertical Situation 1	3A,3B
ET Separation	Override	5D,19D
Filter Control Options	Horizontal Situation (PFS)	5C
Freeze-Dry	GPC Memory	11B
GPC Memory Dump	GPC Memory	11B
Hand Controllers Deselect	RM Orbit	5A
IMU Deselect	Override	5D,19D
IMU Mode Align	IMU Align (Orbit)	4B
IPL-GPC	XXXX IPL Menu (1) and (2)	12C,12D
Mem Config/Bus Assign	GPC Memory	11B
Memory Read/Write	GPC Memory/BFS Memory	11B,17A
MMU Assign	DPS Utility	11C
MMU Read/Write	Mass Memory Read/Write	13B
MTU Update	Time	11D
Nav Update Position/Vel	Horiz Situation (PFS)	5C
OMS (Burn, Tgt)	XXXXX MNVR YYYY	1B
One Shot Transfer	BFS Memory	17A
P/L Bay Door Operation	Payload Bay Doors	7B
PCMMU Selection	PCMMU/Payload Comm	8A
PDI Operation	PCMMU/Payload Comm	8A
PSP Ena/Inh	PCMMU/Payload Comm	8A
RCS Controls	Reaction Control System	4D
Rendezvous Navigation Ena	Relative Navigation	5B
RTC (Real Time Command)	DPS Utility	11C
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S-Band	Communication/Recorder	9B
SM Comm Buffer	Mass Memory Read/Write	13B
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State Vector Update	Horizontal Situation (BFS)	19C
String Assign	GPC Memory	11B
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Function	Display	Page
Table Maint	SM Table Maintenance	7C
TACAN Az and Range	Horizontal Situation (PFS)	5C
Telemetry Format Load Enable	BFS Memory	17A
Time Management	Time	11D
Transfer (PASS/BFS)	BFS Memory	17A
Uplink Control	DPS Utility	11C
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Zero H Dot Bias	Entry Trajectory 1 - 5	1D-2D,17D-18D

ON-BOARD MONITORING

Aerosurface Positions	GNC System Summary 1 (PFS)	6C
Aerosurface Positions	GNC System Summary 1 (BFS)	20B
APU System	APU/Hydraulic	10A
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Bus Status	GPC/Bus Status	12A
CRT Messages	Fault PFS/BFS	12B,20A
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DPS Failure Indicators	GNC System Summary 1 (PFS)	6C
DPS Failure Indicators	GNC System Summary 1 (BFS)	20B
ECLSS	Environment	8C
ET Pressure	GNC System Summary 1	6C
ET Prop Remaining	RTLS Trajectory 2	19A
ET Prop Remaining	XXXXXX Trajectory	1A
Flash Evaporator Sys Status	Environment	8C
Flash Evaporator Sys Status	APU/Environment Thermal	10C
Flash Evaporator Sys Status	APU/Hydraulic	10A
Flight Control Channel Ind	GNC System Summary 1 (PFS)	6C
Freon Loop	APU/Environment Thermal	10C
Fuel Cells Status	Cryogenic Fuel Cells	9A
H Dot	Ascent Trajectory 2	17C
Helium Pressure	GNC System Summary 2 (PFS)	6D
Helium Pressure	GNC System Summary 2 (BFS)	20C
Hydraulic Switching Valve	APU/Hydraulic	10A
Hydraulic Temp/Press	APU/Hydraulic	10A
Ku-Band Monitoring	Comm/Recorder	9B
Maneuver Attitude Control	Universal Pointing	1C
MECO Time (Predicted)	XXXXXX Trajectory	1A
MPS	GNC System Summary 1 (BFS)	20B
OI Caution and Warning	SM System Summary 2 (PFS/BFS)	9D,20D
OI Caution and Warning	SM System Summary 1 (PFS/BFS)	9C
OMS Propulsion System	GNC System Summary 2 (PFS)	6D
OMS Propulsion System	GNC System Summary 2 (BFS)	20C
OMS Thermal Monitoring	Propellant Thermal	10D
Power Distr	Electric	8D
Q, NY, Ail, Rud	Entry Trajectory 1 - 5	1D-2D,17D-18D
RCS Manifold Status	GNC System Summary 1 (PFS)	6C
RCS Pressure	GNC System Summary 2 (PFS)	6D
RCS Pressure	GNC System Summary 2 (BFS)	20C
RCS Temperature	Propellant Thermal	10D
RHC Status	GNC System Summary 1 (PFS)	6C
RMS Faults	PDRS Status	11A
RMS Retention Latches	PDRS Controls	8B
S-Band Monitoring	Comm/Recorder	9B
SM Switch Configuration	System Check	7D
SSME Throttling	Ascent Trajectory 1	17B
Target Look Angle	Antenna	7A
Thermal Monitoring	Thermal	19B
Theta, NY, Ail, Rud	Vertical Situation 1 and 2	3A-3D
Waterloop	APU/Environment Thermal	10C

PAYLOAD MANAGEMENT

PAM-D1/TELSAT	ANIK Deploy	21A
PAM-D1/TELSAT	ANIK Control	21B
PAM-D2	PALAPA Deploy	21C
PAM-D2	PALAPA Control	21D
SPAS-01	SPAS Detached	22A
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PAYLOAD MONITORING

PAM-D1/TELSAT	ANIK Monitor	22C
PAM-D1/TELSAT	ANIK SCA Status	22D
PAM-D2	PALAPA Monitor	23A
PAM-D2	PALAPA SCA Status	23B
SPAS-01	SPAS Systems	23C

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“OPS” DISPLAYS

OPS No.	Display	Major Function					Page
		P F S	B F S	G N C	S M L	P	
0001	GPC MEMORY	X		X			11B
0001	BFS MEMORY		X	X			17A
0001	THERMAL		X		X		19B
1021	XXXXXX TRAJ 1		X	X			17B
1031	XXXXXX TRAJ 2		X	X			17C
1011	XXXXXX TRAJ	X		X			1A
1021	XXXXXX TRAJ	X		X			1A
1031	XXXXXX TRAJ	X		X			1A
1041	XXXXX MNVR YYYYY	X	X	X			1B
1051	XXXXX MNVR YYYYY	X	X	X			1B
1061	XXXXX MNVR YYYYY	X	X	X			1B
2011	ANTENNA	X				X	7A
2011	UNIV PTG	X		X			1C
2021	PL BAY DOORS	X	X		X		7B
2021	XXXXX MNVR YYYYY	X	X	X			1B
3011	XXXXX MNVR YYYYY	X	X	X			1B
3021	XXXXX MNVR YYYYY	X	X	X			1B
3031	XXXXX MNVR YYYYY	X	X	X			1B
3041	ENTRY TRAJ 1	X		X			1D
3041	ENTRY TRAJ 1		X	X			17D
3041	ENTRY TRAJ 2	X		X			2A
3041	ENTRY TRAJ 2		X	X			18A
3041	ENTRY TRAJ 3	X		X			2B
3041	ENTRY TRAJ 3		X	X			18B
3041	ENTRY TRAJ 4	X		X			2C
3041	ENTRY TRAJ 4		X	X			18C
3041	ENTRY TRAJ 5	X		X			2D
3041	ENTRY TRAJ 5		X	X			18D
3051	VERT SIT 1	X	X	X			3A
3051	VERT SIT 2	X	X	X			3C
4011	ANTENNA	X				X	7A
6011	XXXXX TRAJ	X		X			1A
6011	RTLS TRAJ 2		X	X			19A
6021	VERT SIT 1	X	X	X			3A
6021	VERT SIT 1 (GRTLS)	X		X			3B
6031	VERT SIT 1	X	X	X			3A
6031	VERT SIT 2	X	X	X			3C
6031	VERT SIT 2 (GRTLS)	X		X			3D
8011	FCS/DED DIS C/O	X		X			13A
9011	MASS MEMORY R/W	X				X	13B
9011	GPC MEMORY	X		X			11B

SPECIAL DISPLAYS	
Display	Page
XXXXIPL MENU NO. 1	12C
GPCIPL MENU NO. 2	12D
DEU STAND-ALONE SELF-TEST	16C

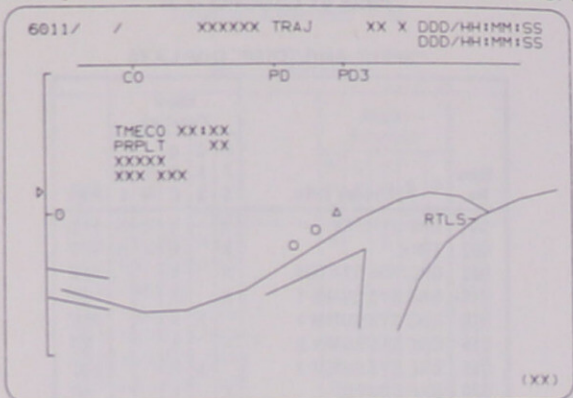
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"SPEC" AND "DISP" DISPLAYS

Spec No.	Display Title	Major Function						Page
		P F S	B F S	G N C	S M	P L		
001	DPS UTILITY	X		X	X	X	11C	
002	TIME	X		X	X	X	11D	
006	GPC/BUS STATUS	X		X			12A	
018	GNC SYS SUMM 1	X		X			6C	
018	GNC SYS SUMM 1		X	X			20B	
019	GNC SYS SUMM 2	X		X			6D	
019	GNC SYS SUMM 2		X	X			20C	
020	DAP CONFIG	X		X			4A	
021	IMU ALIGN	X		X			4B	
022	STRK/COAS CNTL	X		X			4C	
023	RCS	X		X			4D	
025	RM ORBIT	X		X			5A	
033	REL NAV	X		X			5B	
040	SENSOR SELF-TEST	X		X			13C	
041	RGA/ADTA/RCS	X		X			13D	
042	SWITCH/SURF	X		X			14A	
043	CONTROLLERS	X		X			14B	
044	SWITCHES	X		X			14C	
050	HORIZ SIT	X		X			5C	
050	HORIZ SIT		X	X			19C	
051	OVERRIDE	X		X			5D	
051	BFS OVERRIDE		X	X			19D	
052	CONT ABORT	X		X			6A	
053	ENTRY CONTROLS	X		X			6B	
060	SM TABLE MAINT	X			X		7C	
061	SYS CHECK	X			X		7D	
062	PCMMU/PL COMM	X			X		8A	
063	PL BAY DOORS	X	X		X		7B	
066	ENVIRONMENT	X			X		8C	
067	ELECTRIC	X			X		8D	
068	CRYO/FUEL CELLS	X			X		9A	
076	COMM/RCDR	X			X		9B	
078	SM SYS SUMM 1	X	X		X		9C	
079	SM SYS SUMM 2	X			X		9D	
079	SM SYS SUMM 2		X		X		20D	
085	MASS MEMORY R/W	X			X	X	13B	
086	APU/HYD	X			X		10A	
087	HYD THERMAL	X			X		10B	
088	APU/ENVIRON THERM	X			X		10C	
089	PRPLT THERMAL	X			X		10D	
094	PDRS CONTROL	X			X		8B	
096	PDRS STATUS	X			X		11A	
099	FAULT	X		X	X	X	12B	
099	FAULT		X	X	X	X	20A	
100	GTS DISPLAY	X		X		X	15A	
101	SENSOR SELF-TEST	X		X			15B	
102	RCS/RGA/ADTA TEST	X		X			15C	
104	GND IMU CNTL/MON	X		X			15D	
105	TCS CONTROL	X		X			16A	
106	MANUAL CONTROL	X		X			16D	
110	BUS/BTU STATUS	X		X		X	16B	
112	GPC/BTU I/F	X		X			14D	
201	ANIK DEPLOY	X				X	21A	
202	PALAPA DEPLOY	X				X	21C	
206	ANIK MONITOR	X				X	22C	
207	PALAPA MONITOR	X				X	23A	
211	ANIK CONTROL	X				X	21B	
212	PALAPA CONTROL	X				X	21D	
216	ANIK SCA STATUS	X				X	22D	
217	PALAPA SCA STATUS	X				X	23B	
219	SPAS SYSTEMS	X				X	23C	
220	SPAS EXPERIMENT	X				X	22B	
221	SPAS DETACHED	X				X	22A	

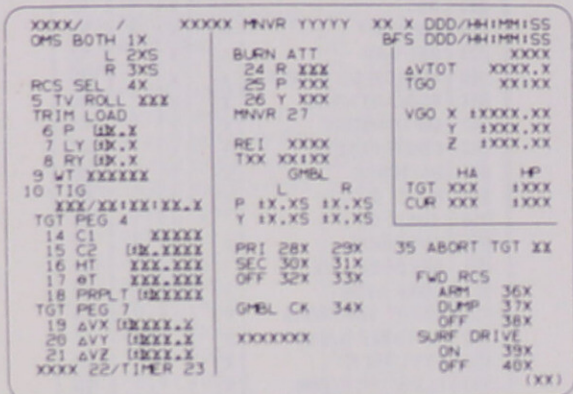
GUIDANCE, NAVIGATION & CONTROL - "OPS" DISPLAYS

A



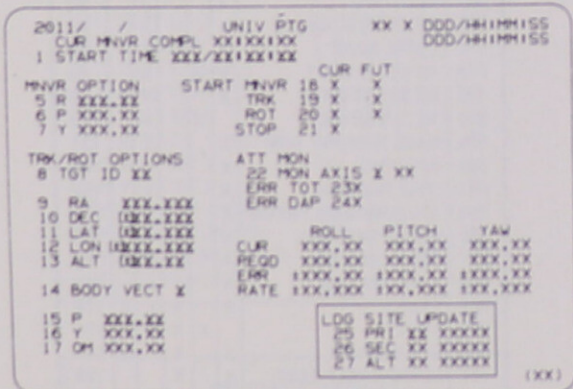
XXXXXX TRAJECTORY (PFS)

B



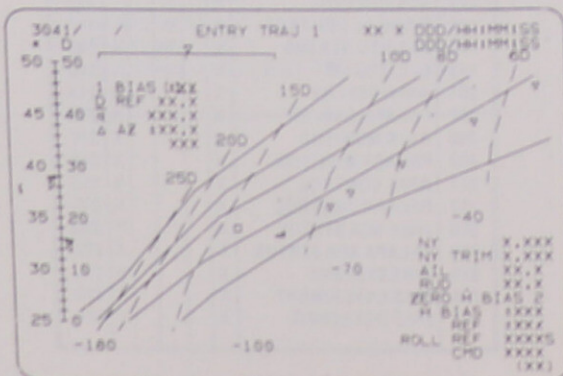
XXXXX MANEUVER YYYYY (PFS & BFS)

C



UNIVERSAL POINTING (PFS)

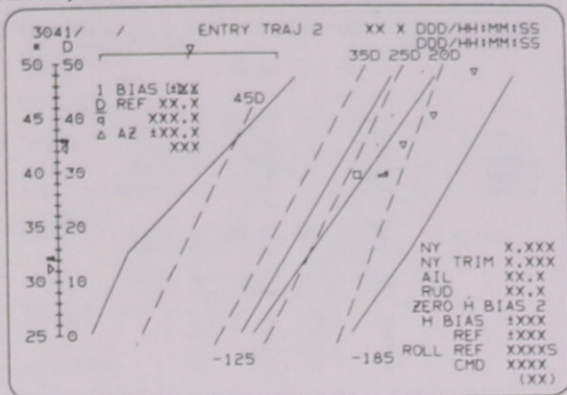
D



ENTRY TRAJECTORY 1 (PFS)

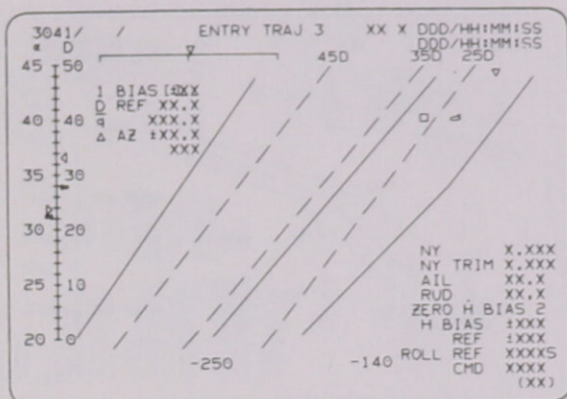
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A



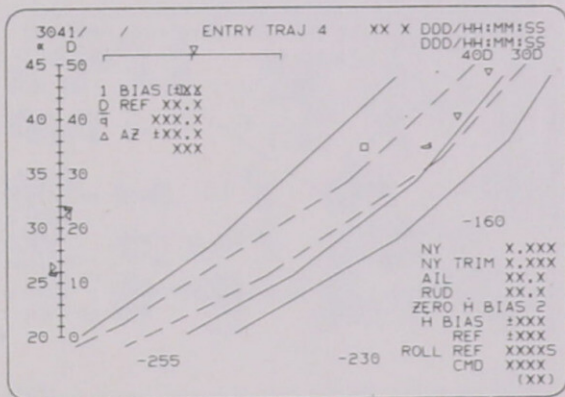
ENTRY TRAJECTORY 2 (PFS)

B



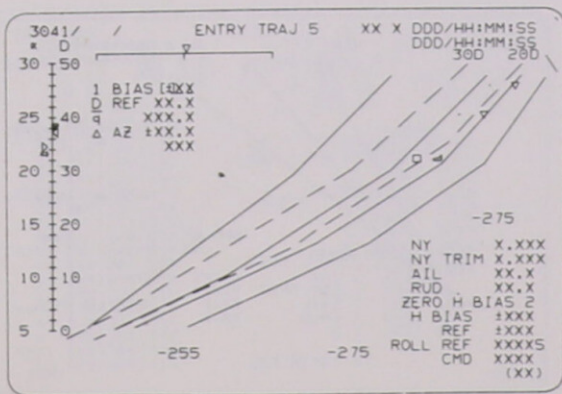
ENTRY TRAJECTORY 3 (PFS)

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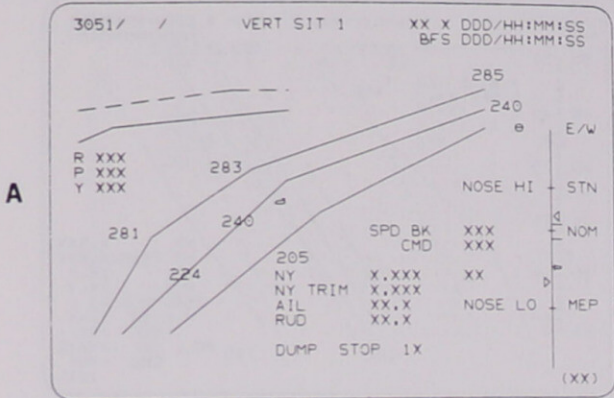


ENTRY TRAJECTORY 4 (PFS)

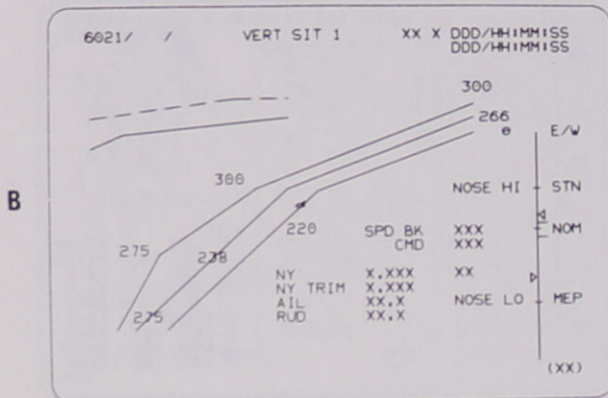
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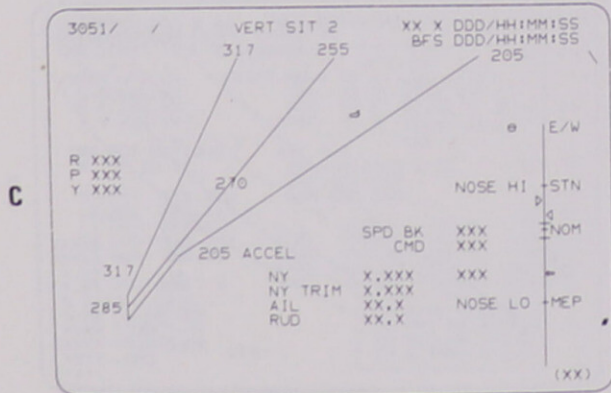
ENTRY TRAJECTORY 5 (PFS)



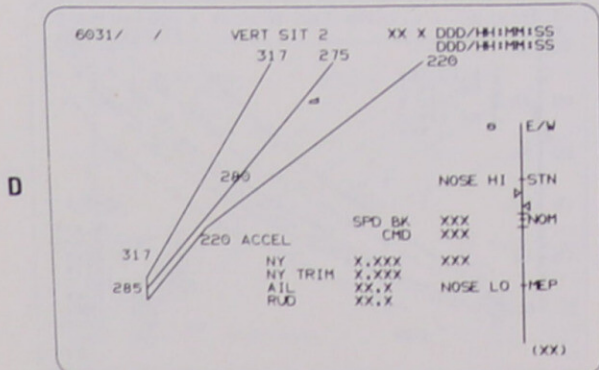
VERTICAL SITUATION 1 (PFS/BFS)



VERTICAL SITUATION 1 GRTLS (PFS)



VERTICAL SITUATION 2 (PFS/BFS)



VERTICAL SITUATION 2 GRTLS (PFS)

GUIDANCE, NAVIGATION & CONTROL - "SPEC" DISPLAYS

A

XXXX/020/		DAP CONFIG		XX X DDD/HH:MM:SS	
		A		B	
TRANSLATION PULSE	1	X.XX	15	X.XX	
ROTATION DISC RATE	NORM 2	X.XXX	16	X.XXX	
	VERN 3	X.XXX	17	X.XXX	
PULSE	NORM 4	X.XX	18	X.XX	
	VERN 5	X.XXX	19	X.XXX	
COMP	NORM 6	.XX	20	.XX	INERTIAS
	VERN 7	.XXX	21	.XXX	29 IX X.XXX
					30 IY X.XXX
					31 IZ X.XXX
DEADBAND ATT	NORM 8	XX.XX	22	XX.XX	
	VERN 9	XX.XXX	23	XX.XXX	
RATE	NORM 10	X.XX	24	X.XX	
	VERN 11	.XXX	25	.XXX	
JET OPT	P 12	X	26	X	
	Y 13	X	27	X	
CNTL ACCEL	14	X	28	X	

(XX)

DIGITAL AUTOPILOT (DAP) CONFIG (PFS)

B

XXXX/021/		IMU ALIGN		XX X DDD/HH:MM:SS	
IMU				DDD/HH:MM:SS	
STAT	1S 2S 3S	XXXX	XXXX	XXXX	
TEMP	XX	XX	XX	IMU 1 10X	STAR ALIGN 13X
STBY	1X	2X	3X	2 11X	14 IMU/IMU X
OPER	4X	5X	6X	3 12X	MATRIX 15X
DES	7X	8X	9X		
					EXEC 16X
					TERM 17
ACC	1	2	3		
X	±X.XX	±X.XX	±X.XX		
Y	±X.XX	±X.XX	±X.XX		
Z	±X.XX	±X.XX	±X.XX		
ANG	1	2	3		
X	XXX.XX	XXX.XX	XXX.XX		
Y	XXX.XX	XXX.XX	XXX.XX		
Z	XXX.XX	XXX.XX	XXX.XX		
ΔX	±XXX.XX	±XXX.XX	±XXX.XX		
ΔY	±XXX.XX	±XXX.XX	±XXX.XX		
ΔZ	±XXX.XX	±XXX.XX	±XXX.XX		
					NAV ΔV THRESH
					18 XXXXXXX
					MM READ 19X

(XX)

IMU ALIGNMENT (PFS)

C

XXXX/022/		S TRK/COAS CNTL		XX X DDD/HH:MM:SS	
				DDD/HH:MM:SS	
S TRK CNTL	-Y -Z			S TABLE	1 2 3
SELF-TEST	1X 2X			TRK ID	XX XX XX
STAR TRK	3X 4X			Δ MIN	XX XX XX
				ANG DIF	XXX.X XXX.X XXX.X
BREAK TRK	7 8			ERR	X.XX X.XX X.XX
TERM/IDLE	9X 10X			SEL	17X 18X 19X
				S TABLE CLR	20
S TRK	-Y -Z			COAS	
REQD ID	11 XX 12 XX			REQD ID	21 XX
TRK ID	XX XX			Δ DEG X	±X.X
S PRES	X X			Y	±X.X
Δ ANG	±X.XX ±X.XX			SIGHT MODE	22X
THOLD	13 X 14 X			ACCEPT	23
SHUTTER	XX XX			CAL MODE	24X
MAN OP	15X 16X			DES	25X
STATUS	XXXXXXXX XXXX			POS	+X 26X -Z 27X
	XXXX XXXX			Δ BIAS	X.XX X.XX
				UPDATE	28 29

(XX)

STAR TRACKER/COAS CONTROL (PFS)

D

XXXX/023/		RCS		XX X DDD/HH:MM:SS	
				DDD/HH:MM:SS	
RCS FWD 1X	JET FAIL			OMS PRESS ENA	
L 2X	4 LIMIT	X		L OMS 5X	OMS RCS QTY
R 3X				R OMS 6X	L XX.XXS
				OFF 7X	R XX.XXS
JET FAIL	DES JET				
X1X	XXX 8X 9X				
U	XXX 10X 11X				
X	XXX 12X 13X				
X	XXX 14X 15X				
X2X	XXX 16X 17X				
U	XXX 18X 19X				
D	XXX 20X 21X				
X	XXX 22X 23X				
X3X	XXX 24X 25X				
X	XXX 26X 27X				
D	XXX 28X 29X				
X	XXX 30X 31X				
X4X	XXX 32X 33X				
X	XXX 34X 35X				
X	XXX 36X 37X				
X5X	XXX 38X 39X				
X	XXX 40X 41X				
				JET RESET	47

(XX)

REACTION CONTROL SYSTEM (PFS)

GUIDANCE, NAVIGATION & CONTROL - "SPEC" DISPLAYS

A

```

XXXX/025/          RM ORBIT          XX X DDD/HH:MM:SS
                                      DDD/HH:MM:SS

  THC TX TY TZ DES      RHC R      P      Y      DES
  L 1 XS XS XS 1X      L 1 XXXS XXXS XXXS 7X
    2 XS XS XS 2X      2 XXXS XXXS XXXS 8X
    3 XS XS XS 3X      3 XXXS XXXS XXXS 9X

  A 1 XS XS XS 4X      R 1 XXXS XXXS XXXS 10X
    2 XS XS XS 5X      2 XXXS XXXS XXXS 11X
    3 XS XS XS 6X      3 XXXS XXXS XXXS 12X

                                A 1 XXXS XXXS XXXS 13X
                                2 XXXS XXXS XXXS 14X
                                3 XXXS XXXS XXXS 15X

                                SW RM INH 16X
                                                                (XX)
    
```

REDUNDANCY MGMT ORBIT (PFS)

B

```

XXXX/033/          REL NAV          XX X DDD/HH:MM:SS
                                      DDD/HH:MM:SS

  REL MOTION
  NAV          RR XXXX          AVG G ON 1X
  RNG XXXX,XXX RNG XXXX,XXXS   ΔVX ±XX,XX
  R ±XXXX,XX  R ±XXXX,XXS     ΔVY ±XX,XX
  e XXX,XX    EL ±XXX,XS      ΔVZ ±XX,XX
  Y ±XX,XX    AZ ±XXX,XS      ΔVTOT XXX,XX
  Z ±XXX,X    WP ±XX,XS       RESET COMP 2
  NODE XX:XX:XX WR ±XX,XS     TOT 3

  RNDZ ANGLE SENSOR
  S TRK 10X RR 11X COAS 12X    KU ANT ENA 4X
  STAT XXXXXXXXXX OFFSET X ±X,X SV TRANSFER
                                ORB TO TGT 5X
                                TGT TO ORB 6X
                                COVAR REINIT 7X
                                RNDZ NAV ENA 8X
                                MEAS ENA 9X

  FILTER
  SLOW RATE 13X MARK HIST      EDIT OVDR
  RESID      RATIO ACPT REJ    AUT INH FOR
  RNG ±XX,XX X,X  XX  XXS    14X 15X 16X
  R ±XX,XX  X,X  XX  XXS    17X 18X 19X
  V/EL/Y ±X,XX X,X  XX  XXS  20X 21X 22X
  H/AZ/X ±X,XX X,X  XX  XXS

                                                                (XX)
    
```

RELATIVE NAVIGATION (PFS)

C

```

XXXX/050/          HORIZ SIT        XX X DDD/HH:MM:SS
                                      DDD/HH:MM:SS

  PTI XXX 2  ALTM
  INDEX XX  9 XX,XX
  XXX

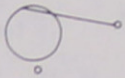
  RWY CTR X
  XXXXX 3X
  XXXXX 4X
  XXXXX 5X

  TAEM TGT
  GIN X XXXX 6
  HSI X
  XEP 7
  AIM XXXX 8      X,X Δ

  NAV RESID RATIO AUT INH FOR TAC1 XXX TAC2 XXX TAC3 XXX
  TAC AZ ±XX,XXX,XS 19X 20X 21X ±XXX,XXS ±XXX,XXS ±XXX,XXS
  RNG ±XX,XXX,XS ±XXX,XXS ±XXX,XXS ±XXX,XXS
  DES 31X DES 32X DES 33X

  DRAG H ±XXXXXXX,XS 22X 23X 24X
  ADTA H ±XXXXXXX,XS 25X 26X 27X
  ADTA TO GTC 28X 29X 30X

  HUD 37 L X ABS 34X
  38 R X XXXX DELTA 35X
                                                                (XX)
    
```



HORIZONTAL SITUATION (PFS)

D

```

XXXX/051/          OVERRIDE        XX X DDD/HH:MM:SS
                                      DDD/HH:MM:SS

  ABORT MODE
  AOA 1X
  ATO 2X
  ABORT 3X

  ET SEP
  AUTO 4X
  SEP 5X

  ET UMB DR
  CLOSE 6X

  RCS RM
  MANF CL
  OVDR 7

  IMU
  STAT ATT DES
  15 XXXX X 8X
  25 XXXX XXX 9X
  35 XXXX 10X

  ADTA H * M DES
  L 15 XXXXXX ±XX,X X,XX 11X
  35 XXXXXX ±XX,X X,XX 12X
  R 25 XXXXXX ±XX,X X,XX 13X
  45 XXXXXX ±XX,X X,XX 14X

  PRL
  AUT DES
  SYS 15 15X 16X
  25 17X 18X
  35 19X 20X

  ENTRY ROLL MODE SW-XXXXXX
  AUTO SEL 21X

  VENT DOOR CNTL
  OPEN 22X
  CLOSE 23X

  MAX THRROT 24X
                                                                (XX)
    
```

OVERRIDE (PFS)

5

GUIDANCE, NAVIGATION & CONTROL - "SPEC" DISPLAYS

A

```

6021/052/          CONT ABORT  XX X DDD/HH:MM:SS
                   DDD/HH:MM:SS

DUMP START 1X
STOP 2X

PULL OUT NZ X,X
                   (XX)
    
```

CONTINGENCY ABORT (PFS)

B

```

XXXX/053/          ENTRY CONTROLS  XX X DDD/HH:MM:SS
                   DDD/HH:MM:SS

XXX FCS 32

(XX)
    
```

ENTRY CONTROLS (PFS)

GUIDANCE, NAVIGATION & CONTROL - "DISP" DISPLAYS

C

```

XXXX/XXX/018      GNC SYS SUMM 1  XX X DDD/HH:MM:SS
                   DDD/HH:MM:SS

RCS | JETISOL | SURF | POS | MOM | DPS | 1 | 2 | 3 | 4 | 5
MANFFAIL VLV
F1 XXXX XXS L OB XXX.XS XXS GPC S S S S S
2 XXX XXS IB XXX.XS XXS MDM FF S S S S S
3 XXX XXS R IB XXX.XS XXS FA S S S S S
4 XXX XXS OB XXX.XS XXS
5 XXX XXS AIL XXX.X
L1 XXX XXS RUD XXX.X FCS CH 1 2 3 4
2 XXX XXS SPD BRK XXX.X 5 S S S S
3 XXX XXS BDY FLP XXX.X
4 XXX XXS XXXXXX
5 XXX XXS
R1 XXX XXS
2 XXX XXS
3 XXX XXS
4 XXX XXS
5 XXX XXS

CNTLR 1 2 3
RHC L S S S S S
R A S S S S S
THC L S S S S S
A S S S S S S
SBTC L S S S S S
R S S S S S S

NAV 1 2 3 4
IMU S S S S S
ACC S S S S S
RGA S S S S S
TAC S S S S S
MLS S S S S S
ADTA S S S S S

(XX)
    
```

GNC SYSTEM SUMMARY 1 (PFS)

D

```

XXXX/XXX/019      GNC SYS SUMM 2  XX X DDD/HH:MM:SS
                   BFS DDD/HH:MM:SS

RCS | JETISOL | OMS | L | R
OXID | FU MANFFAIL VLV | TK P HE | XXXXS | XXXXS
HE P XXXX XXXX F1 XXX XXS TK P HE XXXXS XXXXS
TK P XXX XXXX 2 XXX XXS OXID XXXS XXXS
F : QTY XXX XXXX 3 XXX XXS FU XXXS XXXS
1/4 P XXX XXXX 4 XXX XXS N2 TK P P XXXS XXXS
3/4 P XXX XXXX 5 XXX XXS REG P XXXS XXXS
HE P XXXX XXXX L1 XXX XXS P VLV XXS XXS
TK P XXX XXXX 2 XXX XXS ENG IN P OXID XXXS XXXS
1 QTY XXX XXXX 3 XXX XXS FU XXXS XXXS
P P XXX XXXX 4 XXX XXS VLV 1 XXXS XXXS
4 P XXX XXXX 5 XXX XXS P VLV 2 XXXS XXXS
R TK P XXXX XXXX R1 XXX XXS FU INJ T XXXS XXXS
TK P XXX XXXX 2 XXX XXS
1 QTY XXX XXXX 3 XXX XXS
P P XXX XXXX 4 XXX XXS
4 P XXX XXXX 5 XXX XXS

(XX)
    
```

GNC SYSTEM SUMMARY 2 (PFS)

SYSTEM MANAGEMENT - "OPS" DISPLAYS

A

```

2011/          ANTENNA          XX X DDD/HHMMISS
KU BAND          SIG STR          DDD/HHMMISS
X.XXS
RDR RNG          LL 90 VL 0 VR -90 LR          S BAND
AUTO 1X          SIG STR          X.XXS
MIN 2X          ANT ELEC          XXXS
RDR THOLD          ANT          XXXS
FXD 3X          QUAD          XXXS
VAR 4X          HEMI          XXS
ANT
EL CMD 1XX.X
ACT 1XX.XS
AZ CMD XXXX.X
ACT XXXX.XS
MODE=XXXXXS
SCAN WARN XX
ENA 5X TDRS          TDRS          STON          GPC
OVRD 6X XXXX XXX   XXXX          XXX          ANT CMD
AUT 9X          AUT 12X          AUT 15X          ENA 17X
SELF TEST 7X   W 10X          W 13X          NEXT 16X          INH 18X
I/O RESET          E 11X          E 14X
KU 8XX
    
```

(XX)

ANTENNA (PFS)

B

```

2021/063/XXX   PL BAY DOORS   XX X DDD/HHMMISS
AC POWER      ON 1X          BFS DDD/HHMMISS
OFF 2X
AUTO MODE SEL 3X          PBD SW-XXXXXS
MICRO-SW STAT
CENTER LATCHES  MAN  OP/CL  AUTO
SEL              SEQ
5- 8            4X  XXS    X   XXXX
9-12           5X  XXS    X   XXXX
1- 4            6X  XXS    X   XXXX
13-16          7X  XXS    X   XXXX
STBD
FWD LATCHES    8X  XXS    X   XXXX XXXXX
AFT LATCHES    9X  XXS    X   XXXX XXXXX
DOOR           10X XXXS   X
PORT
FWD LATCHES    11X XXS    X   XXXX XXXXX
AFT LATCHES    12X XXS    X   XXXX XXXXX
DOOR           13X XXXS   X
PBD SW BYPASS  14X      OPEN 15X
                                STOP 16X
                                CLOSE 17X
    
```

(XX)

PAYLOAD BAY DOORS (PFS/BFS)

SYSTEM MANAGEMENT - "SPEC" DISPLAYS

C

```

XXXX/060/      SM TABLE MAINT XX X DDD/HHMMISS
SM COM BUFF XXX          DDD/HHMMISS
PARAM          XXXXXX
1 ID XXXXXX
VALUE= [XXXXXXXXXXS]
ALERT          LIMITS          BACKUP C/W
LOW           HI           LOW           HI
2 [XXXXXXXXXX] 3 [XXXXXXXXXX] 11 [XXXXXXXXXX] 12 [XXXXXXXXXX]
4 [XXXXXXXXXX] 5 [XXXXXXXXXX]
6 [XXXXXXXXXX] 7 [XXXXXXXXXX]
8 FILTER XX
ENA 9X
INH 10X
13 FILTER XX
ENA 14X
INH 15X
CONSTANT
16 ID XXXXXX
17 VALUE= [XXXXXXXXXXXXXXXXXX]
CHECKPT XXX/XXIXXIXX   FDA
INITIATE 18           ENA 19X
STATUS XXXX          INH 20X
    
```

(XX)

SM TABLE MAINTENANCE (PFS)

D

```

XXXX/061/      SYS CHECK          XX X DDD/HHMMISS
SM COM BUFF XXX          DDD/HHMMISS
LIST XXX          PARAM
1 SEL XXX          3 ID XXXXXX
COMPARE 2          LIMIT/SW POS
4 LOW [XXXXXXXXXX] XXXX
5 HI [XXXXXXXXXX]
WRITE 6 XXXX
DISCREPANCY          REQD
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
XXXX XXXX XXXX XXXX XXXX XXXX
    
```

(XX)

SYSTEM CHECK (PFS)

SYSTEM MANAGEMENT - "SPEC" DISPLAYS

A

```

XXXX/062/          PCMMU/PL COMM  XX X DDD/HH:MM:SS
SM COM BUFF XXX   DDD/HH:MM:SS
PCMMU
BITE WORD XXXX
FMT
SEL FXD      1XS
      PGM      2XS
PGM ID 64 XXX
      128 XXX
3 SEL ID XXX
LOAD 4 XXXX

I/O RESET
PCM 5XX

PSP          PL INTRG
I/O RESET   1 CHANNEL XXXX
PSP1 6XX   2 CHANNEL XXXX
PSP2 7XX   PHASE LOCK XXXX
SYNC BIT XXXX ERR ±XXX
LOAD FRAME XXXX XMIT PWR XX.XXS
      XXXX XXXX PL SIG STR X.XXS
  
```

PCMMU/PAYLOAD COMMUNICATIONS (PFS)

B

```

XXXX/094/          PDRS CONTROL  XX X DDD/HH:MM:SS
RMS SEL: XXXX    RMS PWR XXX      DDD/HH:MM:SS
PORT 1X          SOFT STOP 7X 8X
STBD 2X          I/O ON 5X      ENA INH
3 PL ID XX       OFF 6X        AUTO BRAKE 9X 10X
4 END EFF X      POS ENC CK 11X 12X

          AUTO MODES
          1 2 3 4          17 START PT XXX
          13 XX 14 XX 15 XX 16 XX      LAST PT XXX

          OPR CMD MODES
          END ATT          24 PL INIT ID XX
18 X [XXXX] 21 P [XXXX]
19 Y [XXXX] 22 Y [XXXX]  CMD CK 25 XXXX
20 Z [XXXX] 23 R [XXXX]

RMS STO/DPLY          26 WR RANGE X
SHLD X X X X

RMS LAT/REL/RDY
AFT X X X X X X
MID X X X X X X
FWD X X X X X X
  
```

PDRS CONTROL (PFS)

C

```

XXXX/XXX/066      ENVIRONMENT  XX X DDD/HH:MM:SS
CABIN
dP/dT ±.XXS CABIN P XX.XS AV BAY 1 2 3
PPO2 AIRLK P XX.XS TEMP XXXXS XXXXS XXXXS
A X.XXS FAN ΔP X.XXS FAN ΔP X.XXS X.XXS X.XXS
B X.XXS HX OUT T XXXS
C X.XXS CABIN T XXXS
PPC02 XX.XS

          H2O
          SUPPLY
02 FLOW X.XS X.XS QTY A XXXS PRESS XXXS
REG P XXXS XXXS B XXXS DMP LN T XXXS
N2 FLOW X.XS X.XS C XXXS NOZ T A XXXS
REG P XXXS XXXS D XXXS B XXXS
02/N2 CNTL VLV XXS XXS
H2O TK N2 P XXXS XXXS
N2 QTY XXXS XXXS
EMER 02 QTY XXXS
REG P XXXXS

          WASTE
          QTY 1 XXXS PRESS XXXS
          DMP LN T XXXS
          NOZ T A XXXS
          B XXXS
IMU FAN A B C ΔP VAC VT NOZ T XXXS
HUMID SEP XS XS X.XS
  
```

ENVIRONMENT (PFS)

D

```

XXXX/XXX/067      ELECTRIC      XX X DDD/HH:MM:SS
DC 1/A 2/B 3/C AC 1 2 3
VOLT FC XX.XS XX.XS XX.XS V #A XXXS XXXS XXXS
MN XX.XS XX.XS XX.XS #B XXXS XXXS XXXS
PCA FWD XX.XS XX.XS XX.XS #C XXXS XXXS XXXS
AFT XX.XS XX.XS XX.XS #A XX.XS XX.XS XX.XS
CNTL AB XX.XS XX.XS XX.XS #B XX.XS XX.XS XX.XS
BC XX.XS XX.XS XX.XS #C XX.XS XX.XS XX.XS
CA XX.XS XX.XS XX.XS OVL D XXS XXS XXS
ESS XX.XS XX.XS XX.XS O/U V XXS XXS XXS

          PAYLOAD DC AMPS
          AFT B XXX.XS
          C XXX.XS

TOTAL AMPS XXXXS
KW XXX.XS
  
```

ELECTRIC (PFS)

SYSTEM MANAGEMENT - "DISP" DISPLAYS

A

XXXX/XXX/068		CRYO/FUEL CELLS XX X				DDD/HH:MM:SS		
		TK				DDD/HH:MM:SS		
						FC		
P 02	1	2	3	4	VOLTS	1	2	3
TK P	XXXX	XXXX	XXXX	XXXX	AMPS	XX.XS	XX.XS	XX.XS
QTY	XXXX	XXXX	XXXX	XXXX	FLOW	XX.XS	XX.XS	XX.XS
HTR T 1	±XXXX	±XXXX	±XXXX	±XXXX	REAC	XX.XS	XX.XS	XX.XS
HTR T 2	±XXXX	±XXXX	±XXXX	±XXXX	H2	XX.XS	XX.XS	XX.XS
HTR 1A	XXXX	XXXX	XXXX	XXXX	STACK T	±XXXX	±XXXX	±XXXX
CUR 1B	XXXX	XXXX	XXXX	XXXX	EXIT T	XXXX	XXXX	XXXX
SNSR 2A	XXXX	XXXX	XXXX	XXXX	COOL T	XXXX	XXXX	XXXX
SNSR 2B	XXXX	XXXX	XXXX	XXXX	P	XXXX	XXXX	XXXX
MANF P	XXXX	XXXX	XXXX	XXXX	PUMP	XXS	XXS	XXS
VLV	XXS	XXS			H2O LN T	XXXX	XXXX	XXXX
H2					VLV T	XXXX	XXXX	XXXX
P	XXXX	XXXX	XXXX	XXXX	PH	XXS	XXS	XXS
TK P	XXXX	XXXX	XXXX	XXXX	H2O RLF	LINE T		XXXX
QTY	XXXX	XXXX	XXXX	XXXX	NOZ T A			XXXX
T	±XXXX	±XXXX	±XXXX	±XXXX	PURGE LN	O2 T	B	XXXX
HTR T	±XXXX	±XXXX	±XXXX	±XXXX		H2 T1		XXXX
MANF P	XXXX	XXXX				T2		XXXX
VLV	XXS	XXS						(XX)

CRYOGENIC/FUEL CELLS (PFS)

B

XXXX/XXX/076		COMM/RCDR XX X		DDD/HH:MM:SS	
S-BAND PM				DDD/HH:MM:SS	
XPND	XXXX	KU-BAND			
MODE	XXXXX	PA TEMP		±XXXX	
SPD SPEC	XXXX	GMBL TEMP	A	±XXXX	
RANGING	XXXX		B	±XXXX	
PREAMP	XXXX	SPD SPEC		XXXX	
FREQ	XXS	CCTV			
PWR AMPL		CNTL UNIT		XXXX	
OPER	XXXX	CAM OVER-TEMP		XXXX	
STBY	XXXX				
		GCIL CONFIG			XXXX
NSP		RECORDERS			
FR SYNC 1	XXXX	OPS 1		OPS 2	PL
2	XXXX	XXXXX		XXXXX	XXXXX
FAIL SAFE	XXXX	TRK	XXS	XXS	XXS
DATA XMIT	XXS	DIR	XXXX	XXXX	XXXX
RCV	XXS	TAPE	XXXX	XXXX	XXXX
UL DATA	XXS	TAPE	XXXX	XXXX	XXXX
CODING XMIT	XXXX	TEMP	XXXX	XXXX	XXXX
RCV	XXXX	BITE	XXS	XXS	XXS
RCDR INPUT	XXXXX				

COMMUNICATIONS/RECORDER (PFS)

C

XXXX/XXX/078		SM SYS SUMM 1 XX X		DDD/HH:MM:SS		
				BFS DDD/HH:MM:SS		
EMERGENCY						
SMOKE	1/A	2/B	DC VOLTS	1/A	2/B	3/C
AV BAY 1	XX.XS	XX.XS	FC	XX.XS	XX.XS	XX.XS
2	XX.XS	XX.XS	MAIN	XX.XS	XX.XS	XX.XS
3	XX.XS	XX.XS	CNTL	AB	XX.XS	XX.XS
dP/dT	±.XXS		BC	XX.XS	XX.XS	XX.XS
BU	±.XXS		CA	XX.XS	XX.XS	XX.XS
CABIN						
PRESS	XX.XS		AC			
PP02	X.XXS	X.XXS	VOLT	0A	XXXX	XXXX
FAN ΔP	X.XXS	X.XXS	0B	XXXX	XXXX	XXXX
HX OUT T	XXXX		0C	XXXX	XXXX	XXXX
O2 FLOW	XX.XS	XX.XS	AMPS	0A	XX.XS	XX.XS
N2 FLOW	XX.XS	XX.XS	0B	XX.XS	XX.XS	XX.XS
			0C	XX.XS	XX.XS	XX.XS
IMU FAN	AXS	BXS	FUEL CELL			
TOTAL AMPS	XXXXX		AMPS	XXXX	XXXX	XXXX
KW	XXS		REAC VLV	XXS	XXS	XXS
			STACK T	±XXXX	±XXXX	±XXXX
			EXIT T	XXXX	XXXX	XXXX
			COOL P	XXXX	XXXX	XXXX
			PUMP	XXS	XXS	XXS

SM SYSTEM SUMMARY 1 (PFS/BFS)

D

XXXX/XXX/079		SM SYS SUMM 2 XX X		DDD/HH:MM:SS		
				DDD/HH:MM:SS		
CRYO TK						
H2 PRESS	1	2	3	4		
O2 PRESS	XXXX	XXXX	XXXX	XXXX		
HTR T1	±XXXX	±XXXX	±XXXX	±XXXX		
T2	±XXXX	±XXXX	±XXXX	±XXXX		
APU						
TEMP EGT	1	2	3	HYD	1	2
B/U EGT	XXXX	XXXX	XXXX	PRESS	XXXX	XXXX
OIL IN	XXXX	XXXX	XXXX	RSVR T	XXS	XXS
OUT	XXXX	XXXX	XXXX	QTY	XXXX	XXXX
SPEED	XXXX	XXXX	XXXX	W/B		
FUEL QTY	XXXX	XXXX	XXXX	H2O QTY	XXXX	XXXX
PMP LK P	XXS	XXS	XXS	BYP VLV	XXXX	XXXX
OIL OUT P	XXXX	XXXX	XXXX			
AV BAY						
TEMP	XXXX	XXXX	XXXX	THERM CNTL	1	2
FAN ΔP	X.XXS	X.XXS	X.XXS	H2O PUMP P	XXXX	XXXX
				FREON FLOW	XXXX	XXXX
				EVAP OUT T	XXXX	XXXX

SM SYSTEM SUMMARY 2 (PFS)

9

SYSTEM MANAGEMENT - "DISP" DISPLAYS

XXXX/XXX/886			APU/HYD			XX X DDD/HH:MM:SS DDD/HH:MM:SS				
APU	1	2	3	HYD	1	2	3			
B/U	EGT	XXXXS	XXXXS	XXXXS	B/U	P	XXXXS	XXXXS	XXXXS	
EGT		XXXXS	XXXXS	XXXXS	RSVR	T	XXXXS	XXXXS	XXXXS	
SPEED	#	XXXXS	XXXXS	XXXXS	ACCUM	P	XXXXS	XXXXS	XXXXS	
FUEL	QTY	XXXXS	XXXXS	XXXXS	W/B					
TK	P	XXXXS	XXXXS	XXXXS	H2O	QTY	XXXXS	XXXXS	XXXXS	
OUT	P	XXXXS	XXXXS	XXXXS	N2	P	XXXXS	XXXXS	XXXXS	
VLV	A	XXS	XXS	XXS	REG	P	XXXXS	XXXXS	XXXXS	
	B	XXS	XXS	XXS	BYP	VLV	XXXXS	XXXXS	XXXXS	
OIL	T	XXXXS	XXXXS	XXXXS	VENT	T	±XXXXS	±XXXXS	±XXXXS	
OUT	P	XXXXS	XXXXS	XXXXS	TANK	T	±XXXXS	±XXXXS	±XXXXS	
OUT	P	XXXXS	XXXXS	XXXXS	BLR	T	±XXXXS	±XXXXS	±XXXXS	
GBX	N2	XXXXS	XXXXS	XXXXS						
	P	XXXXS	XXXXS	XXXXS						
	BRG	XXXXS	XXXXS	XXXXS						
GG	BED	T	XXXXS	XXXXS						
					SW	VLV	FR	S1	S2	
PUMP/VLV	COOL				ELEV	L	OB	3XS	1XS	2XS
PMP	T	XXXXS	XXXXS	XXXXS						3XS
VLV	T	XXXXS	XXXXS	XXXXS						2XS
										1XS
										3XS
										2XS
										1XS
										3XS
										2XS
										1XS
										3XS
										(XX)

APU/HYDRAULIC (PFS)

XXXX/XXX/887			HYD THERMAL			XX X DDD/HH:MM:SS DDD/HH:MM:SS				
HYD	1	2	3	LINE	CIRC	PUMP	CONTROL			
CIRC	PMP	P	XXXXS	XXXXS	XXXXS	ELEVON	LOB	±XXXXS	±XXXXS	±XXXXS
PMP	BOY	T	±XXXXS	±XXXXS	±XXXXS		LIB	±XXXXS	±XXXXS	±XXXXS
RSVR		T	±XXXXS	±XXXXS	±XXXXS		RIB	±XXXXS	±XXXXS	±XXXXS
ACCUM		T	±XXXXS	±XXXXS	±XXXXS		ROB	±XXXXS	±XXXXS	±XXXXS
HX	IN	T	±XXXXS	±XXXXS	±XXXXS	RD/SB	POU	±XXXXS	±XXXXS	±XXXXS
OUT		T	±XXXXS	±XXXXS	±XXXXS		FUS	±XXXXS	±XXXXS	±XXXXS
						BOYFLP	POU	±XXXXS	±XXXXS	±XXXXS
							FUS	±XXXXS	±XXXXS	±XXXXS
						L BRAKE	WHL	±XXXXS	±XXXXS	±XXXXS
							FUS	±XXXXS	±XXXXS	±XXXXS
						R BRAKE	WHL	±XXXXS	±XXXXS	±XXXXS
							FUS	±XXXXS	±XXXXS	±XXXXS
						NLG	UPLK	±XXXXS	±XXXXS	±XXXXS
							MFUS	±XXXXS	±XXXXS	±XXXXS
						LMG	MFUS	±XXXXS	±XXXXS	±XXXXS
						RMG	UPLK	±XXXXS	±XXXXS	±XXXXS
							FUS	±XXXXS	±XXXXS	±XXXXS
										(XX)

HYDRAULIC THERMAL (PFS)

XXXX/XXX/888			APU/ENVIRON THERM			XX X DDD/HH:MM:SS DDD/HH:MM:SS			
FREON	LOOP	1	2	H2O	LOOP	1	2		
ACCUM	QTY	XXXXS	XXXXS	PUMP	OUT	P	XXXXS	XXXXS	
FREON	FLOW	XXXXS	XXXXS	OUT	T		XXXXS	XXXXS	
PL	HX	FLOW	XXXXS	OUT	T	ΔP	XXXXS	XXXXS	
AFT	CP	FLOW	XXXXS	ICH	FLOW		XXXXS	XXXXS	
RAD	IN	T	XXXXS	OUT	T		XXXXS	XXXXS	
RAD	OUT	T	XXXXS	CAB	HX	IN	T	XXXXS	
EVAP	OUT	T	XXXXS	ACCUM	QTY		XXXXS	XXXXS	
EVAP	TEMP	DUCT	NOZ	APU	FUEL	T	1	2	3
HI	LOAD	INBD	XXXXS	TK	SURF	±XXXXS	±XXXXS	±XXXXS	±XXXXS
OUTBD	XXXXS	XXXXS	XXXXS	TK	HTR	±XXXXS	±XXXXS	±XXXXS	±XXXXS
TOPPING	FWD	XXXXS	XXXXS	TK	VLV	XXXXS	XXXXS	XXXXS	XXXXS
AFT	XXXXS	XXXXS	XXXXS	TEST	LN	±XXXXS	±XXXXS	±XXXXS	±XXXXS
L	XXXXS	XXXXS	XXXXS	FEED	LN	±XXXXS	±XXXXS	±XXXXS	±XXXXS
R	XXXXS	XXXXS	XXXXS	PUMP	LN	±XXXXS	±XXXXS	±XXXXS	±XXXXS
EVAP	FOLDN	T	A	DRN	LN	±XXXXS	±XXXXS	±XXXXS	±XXXXS
			B	OUT	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS
			FWD	BY	LN	±XXXXS	±XXXXS	±XXXXS	±XXXXS
			MID	H2O	LN	PRI	±XXXXS	±XXXXS	±XXXXS
			MID	SEC	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS
			AFT	INJ	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS
			TOPPING						
			HI	LOAD	XXXXS	XXXXS	XXXXS	XXXXS	XXXXS
									(XX)

APU/ENVIRONMENT THERMAL (PFS)

XXXX/XXX/889			PRPLT THERMAL			XX X DDD/HH:MM:SS DDD/HH:MM:SS				
OMS	TK	OX	XXXXS	XXXXS	XXXXS	OMS	CRSFD	L	R	C
ENG	I/F	OX	XXXXS	XXXXS	XXXXS	XFD	OX	XXXXS	XXXXS	XXXXS
		FU	XXXXS	XXXXS	XXXXS	GMBL	LN	XXXXS	XXXXS	XXXXS
		OX	XXXXS	XXXXS	XXXXS	DRN	OX	XXXXS	XXXXS	XXXXS
		FU	XXXXS	XXXXS	XXXXS					
WEB	KEEL	1	XXXXS	XXXXS	XXXXS					
		2	XXXXS	XXXXS	XXXXS					
Y	OB	XXXXS	XXXXS	XXXXS	XXXXS	BLD	AFT	FUS	XXXXS	XXXXS
	UP	XXXXS	XXXXS	XXXXS	XXXXS		PL	BAY	XXXXS	XXXXS
OX	DRN	PNL	1	XXXXS	XXXXS					
			2	XXXXS	XXXXS					
ENG	COVER	XXXXS	XXXXS	XXXXS	XXXXS	FWD	RCS	FU	OX	
SERV	PNL	XXXXS	XXXXS	XXXXS	XXXXS		LINE	T1	XXXXS	XXXXS
GSE	SERV	PNL	XXXXS	XXXXS	XXXXS			T2	XXXXS	XXXXS
TEST	HE/OX	1	XXXXS	XXXXS	XXXXS	AFT	RCS	L	R	
		2	XXXXS	XXXXS	XXXXS	MANF	1	OX	XXXXS	XXXXS
						DRN	PNL	1	XXXXS	XXXXS
								2	XXXXS	XXXXS
						VERN	PNL	1	XXXXS	XXXXS
								2	XXXXS	XXXXS
										(XX)

PROPELLANT THERMAL (PFS)

SYSTEM MANAGEMENT - "DISP" DISPLAYS

XXXX/XXX/096 PDRS STATUS XX X DDD/HH:MM:SS
DDD/HH:MM:SS

RMS SEL: XXXX

		X/P	Y/Y	Z/R
TRANS RATES	ACT	±XX.XXS	±XX.XXS	±XX.XXS
	CMD	±XX.XX	±XX.XX	±XX.XX
ROT RATES	ACT	±XX.XXS	±XX.XXS	±XX.XXS
	CMD	±XX.XX	±XX.XX	±XX.XX
POSITIONS	ACT	±XXXXXS	±XXXXXS	±XXXXXS
ATTITUDES	ACT	±XXX.XS	±XXX.XS	±XXX.XS

RMS FAULTS

	JOINTS	SY	SP	EP	WP	WY	WR			
REACH LIMIT	X	X	X	X	X	X	X	MCIU	MADC	X
ABE - TACH	X	X	X	X	X	X	X		MCPC	X
SPA	X	X	X	X	X	X	X		ICF	X
MTR DR	X	X	X	X	X	X	X		ABE/MCIU	X
MTR PWR	X	X	X	X	X	X	X		CHECK CRT1	
CONTROL ERR	X	X	X	X	X	X	X		END EFF	X
CK CRT- POS	X	X	X	X	X	X	X		TEMP CKT	X
									D/C/MCIU	X

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A

PDRS STATUS (PFS)

SYSTEM LEVEL - "OPS" DISPLAYS

0001/000/ GPC MEMORY XX X DDD/HH:MM:SS
DDD/HH:MM:SS

MEM/BUS CONFIG 1 CONFIG XX(XX)
2 GPC X X X X X

STRING 1 7 X
2 8 X
3 9 X
4 10 X
PL 1/2 11 X

CRT 1 12 X
2 13 X
3 14 X
4 15 X

LAUNCH 1 16 X
2 17 X
MM 1 18 X
2 19 X

READ/WRITE XXXX
DATA 20X BIT SET 22X SEQ ID 24
CODE 21X BIT RST 23X WRITE 25
26 ENG UNITS XXXX HEX 27X
ADD ID DESIRED ACTUAL
28 XXXXX 29 XXXX ±XXXXXXXXXXXX
30 XXXXX 31 XXXX ±XXXXXXXXXXXX
32 XXXXX 33 XXXX ±XXXXXXXXXXXX
34 XXXXX 35 XXXX ±XXXXXXXXXXXX
36 XXXXX 37 XXXX ±XXXXXXXXXXXX
38 XXXXX 39 XXXX ±XXXXXXXXXXXX

MEMORY DUMP
40 START ID XXXXX
41 NUMBER WDS XXXXX
42 WDS/FRAME XXXX
DUMP 43
44 DOWNLIST GPC X

STORE MG=XX
45 CONFIG XX
46 GPC X
STORE 47

ERR LOG RESET.48

(XX)

B

GPC MEMORY (PFS)

SYSTEM LEVEL - "SPEC" DISPLAYS

XXXX/001/ DPS UTILITY XX X DDD/HH:MM:SS
DDD/HH:MM:SS

MMU ASSIGN PORT ASSIGN

		PRI	SEC	UL CNTL
GNC 1X 2X	STRING 1	15X	16X	AUTO 35X
SH 3X 4X	2	17X	18X	ENA 36X
PL 5X 6X	3	19X	20X	INH 37X
OPS 0 7X 8X	4	21X	22X	
	PL 1/2	23X	24X	

MMU STATUS
1 XXX
2 XXX

VAR PARAM ID LIST

MMU SOURCE/BUS	25	XXXX
GPC/MMU	26	XXXX
MMU/MMU	27	XXXX
GPC/LDB	28	XXXX
	29	XXXX
	30	XXXX
CKPT RETRV	31	XXXX
ENA 12X	32	XXXX
	33	XXXX
RTC	34	XXXX
13 XXXX XXXX		
CMD 14		

(XX)

C

DPS UTILITY (PFS)

XXXX/002/ TIME XX X DDD/HH:MM:SS
DDD/HH:MM:SS

MISSION TIME TONE
GMT 1X 3 XX:XX:XX MSN T
MET 2X 6 XX:XX:XX
CRT TIMER 20 (0X:XX:XX CRT T
9 SET (0X:XX:XX
START 12 STOP 13
14 START AT XX:XX:XX MSN T 23 DURATION XX
17 COUNT TO XX:XX:XX MSN T

MTU
24 GMT Δ (0X:XX:XX:XX:XX:XX
28 MET Δ (0X:XX:XX:XX:XX:XX
UPDATE 32 MET RESET 33

GPC TIME

	GMT	TRY	GPC
MTU ACCUM 1	XXX/XX:XX:XX,XXXS	34	1 XX
2	XXX/XX:XX:XX,XXXS	35	2 XX
3	XXX/XX:XX:XX,XXXS	36	3 XX
GPC	XXX/XX:XX:XX,XXXS	37	4 XX
			5 XX

TIME SYNC 38

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D

TIME (PFS)

ON-ORBIT VEHICLE UTILITY - "OPS" DISPLAYS

A

```

8011/ / FCS/DED DIS C/O XX X DDD/HH:MM:SS
          DDD/HH:MM:SS

DED DIS          MODE LT          AVG G ON 9X
FWD 1X HIGH 3X  ON 7X
AFT 2X LOW 4X   OFF 8X
          FLAG 5X
          OFF 6X

SURF DR START 10X STOP 11X

BODY FLP DES
VLV 1 XXX 12X
    2 XXX 13X
    3 XXX 14X

SEC ACT CK
CH 1 15X
CH 2 16X
CH 3 17X
CH 4 18X
STOP 19X
POS STIM
ENA 20X

SURF          CMD          POS          1 2 3 4
ELEV L 0B XXX.X XXX.XS S S S S
      1B XXX.X XXX.XS S S S S
      R 1B XXX.X XXX.XS S S S S
      0B XXX.X XXX.XS S S S S
RJD XXX.X XXX.XS S S S S
SPD BRK XXX.X XXX.XS S S S S
BOY FLP XX XXX.X

SEC ACT
21 BYPASS XX
22 RESET XX
    
```

FCS DEDICATED DISPLAYS CHECKOUT (PFS)

B

```

9011/085/ MASS MEMORY R/W XX X DDD/HH:MM:SS
SM COM BUFF XXXX          DDD/HH:MM:SS
DESIRED ACTUAL DESIRED ACTUAL
1 XXXX XXXX 21 XXXX XXXX SELECT
2 XXXX XXXX 22 XXXX XXXX MMU 1 40X
3 XXXX XXXX 23 XXXX XXXX MMU 2 41X
4 XXXX XXXX 24 XXXX XXXX 42 S/W SYSTEM X
5 XXXX XXXX 25 XXXX XXXX 43 PHASE XXX
6 XXXX XXXX 26 XXXX XXXX 44 LOAD BLK XXX
7 XXXX XXXX 27 XXXX XXXX 45 OFFSET XXXXX
8 XXXX XXXX 28 XXXX XXXX 46 NUMBER XX
9 XXXX XXXX 29 XXXX XXXX 47 PATCH ID XXXX
10 XXXX XXXX 30 XXXX XXXX VIOLATE XXX
11 XXXX XXXX 31 XXXX XXXX READ LOAD BLK 48X
12 XXXX XXXX 32 XXXX XXXX MERGE 49X
13 XXXX XXXX 33 XXXX XXXX WRITE LOAD BLK 50X
14 XXXX XXXX 34 XXXX XXXX COMPARE 51X
15 XXXX XXXX 35 XXXX XXXX STATUS XXXX
16 XXXX XXXX 36 XXXX XXXX ERROR CODE X
17 XXXX XXXX 37 XXXX XXXX REGISTER A XXXX
18 XXXX XXXX 38 XXXX XXXX B XXXX
19 XXXX XXXX 39 XXXX XXXX MM VERSION XX,XX
20 XXXX XXXX CHECKSUM XXXX DUMP VIA DL 52X
    
```

MASS MEMORY READ/WRITE (PFS)

ON-ORBIT VEHICLE UTILITY - "SPEC" DISPLAYS

C

```

XXXX/040/ SENSOR TEST XX X DDD/HH:MM:SS
          DDD/HH:MM:SS

MLS 1 DES STAT RNG AZ EL
    2 1X XXXX XX.XS ±X.XXS X.XXS
    3 2X XXXX XX.XS ±X.XXS X.XXS
    3 3X XXXX XX.XS ±X.XXS X.XXS

TAC 1 DES STAT RNG AZ
    2 4X XXXX X.XS XXX.XXS
    2 5X XXXX X.XS XXX.XXS
    3 6X XXXX X.XS XXX.XXS

RA 1 DES STAT ALT
    2 7X XXXX XXXXS
    2 8X XXXX XXXXS

AA 1 DES Y Z
    2 9X ±XX.XS ±XX.XS
    2 10X ±XX.XS ±XX.XS
    3 11X ±XX.XS ±XX.XS
    4 12X ±XX.XS ±XX.XS

START 13X STOP 14X
    
```

SENSOR SELF-TEST (PFS)

D

```

XXXX/041/ RGA/ADTA/RCS XX X DDD/HH:MM:SS
          DDD/HH:MM:SS

R1 DES STAT R P Y
    2 1X XXXX ±XX.XS ±XX.XS ±XX.XS
    2 2X XXXX ±XX.XS ±XX.XS ±XX.XS
    4 3X XXXX ±XX.XS ±XX.XS ±XX.XS
    4 4X XXXX ±XX.XS ±XX.XS ±XX.XS

DES STAT PS P=C P=U P=L T
A1 5X XXXX XX.XXS XX.XXS XX.XXS XX.XXS XXX.XXS
D3 6X XXXX XX.XXS XX.XXS XX.XXS XX.XXS XXX.XXS
T2 7X XXXX XX.XXS XX.XXS XX.XXS XX.XXS XXX.XXS
A4 8X XXXX XX.XXS XX.XXS XX.XXS XX.XXS XXX.XXS

TEST HI 9X LOW 10X STOP 11X

RCS DRIVERS
RJDF 12X TEST EXEC 15X TEST XXXX
RJDA-A 13X CONTINUE 16X JET XXX
-B 14X STOP 17
    
```

RGA/ADTA/RCS TEST (PFS)

ON-ORBIT VEHICLE UTILITY - "SPEC" DISPLAYS

XXXX/042/ SWITCH/SURF XX X DDD/HHMM:SS
DDD/HHMM:SS

		ORIDE		DES		ORIDE		DES	
FCS CH	1	X	S	1	X	3	1	X	7
	2	X	S	2	X	4	1	X	8
	3	X	S	3	X	5	1	X	9
	4	X	S	4	X	6	1	X	10
	5	X	S	5	X	7	1	X	11
	6	X	S	6	X	8	1	X	12

		P			R/Y			SPD BRK		BDY FLP	
		AUT	CSS	GAIN	AUT	CSS	GAIN	AUT	MAN	AUT	DES
FCS MODE	L	1	X	S	1	X	S	1	X	S	13
	2	X	S	2	X	S	2	X	S	14	
	3	X	S	3	X	S	3	X	S	15	
	4	X	S	4	X	S	4	X	S	16	
	5	X	S	5	X	S	5	X	S	17	
	6	X	S	6	X	S	6	X	S	18	

		L OB		L IB		R IB		R OB		RUD		SPD BRK		BDY FLP	
SURF	1	X	S	X	S	X	S	X	S	X	S	X	S	X	S
	2	X	S	X	S	X	S	X	S	X	S	X	S	X	S
	3	X	S	X	S	X	S	X	S	X	S	X	S	X	S
	4	X	S	X	S	X	S	X	S	X	S	X	S	X	S

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RM SWITCHES/SURFACES FEEDBACK (PFS)

XXXX/043/ CONTROLLERS XX X DDD/HHMM:SS
DDD/HHMM:SS

		L		R		P		Y		DES	
THC	1	X	S	1	X	1	X	1	X	1	13
	2	X	S	2	X	2	X	2	X	2	14
	3	X	S	3	X	3	X	3	X	3	15
	4	X	S	4	X	4	X	4	X	4	16
	5	X	S	5	X	5	X	5	X	5	17
	6	X	S	6	X	6	X	6	X	6	18

		L		R		P		Y		DES	
SPD BK	1	X	S	1	X	1	X	1	X	1	19
	2	X	S	2	X	2	X	2	X	2	20
	3	X	S	3	X	3	X	3	X	3	21
	4	X	S	4	X	4	X	4	X	4	22
	5	X	S	5	X	5	X	5	X	5	23
	6	X	S	6	X	6	X	6	X	6	24

		L		R		P		Y		DES	
RUD PED	1	X	S	1	X	1	X	1	X	1	25
	2	X	S	2	X	2	X	2	X	2	26
	3	X	S	3	X	3	X	3	X	3	27
	4	X	S	4	X	4	X	4	X	4	28
	5	X	S	5	X	5	X	5	X	5	29
	6	X	S	6	X	6	X	6	X	6	30

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RM CONTROLLERS (PFS)

XXXX/044/ SWITCHES XX X DDD/HHMM:SS
DDD/HHMM:SS

		ENTRY		ROLL		MODE	
		LOW	NO	Y	J	DES	
1	X	S	X	1	X	1	13
	2	X	S	2	X	2	14
	3	X	S	3	X	3	15
	4	X	S	4	X	4	16

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SWITCHES (PFS)

PRE-FLIGHT VEHICLE UTILITY - "SPEC" DISPLAYS

XXXX/112/ GPC/BTU I/F XX X DDD/HHMM:SS
DDD/HHMM:SS

		BTU SELECTION		TEST STATUS		MDM OUTPUT TEST	
FA1	1	X	1	X	1	X	1
	2	X	2	X	2	X	2
	3	X	3	X	3	X	3
	4	X	4	X	4	X	4
	5	X	5	X	5	X	5
	6	X	6	X	6	X	6

		PORT SEL		ANALOG OUTPUTS	
PF1	1	23	1	0	1
	2	24	2	2	2
	3		3	4	3
	4		4	4	4
	5		5	5	5
	6		6	6	6

		DISCRETE OUTPUTS	
MDS	11	X	11
	12	X	12
	13	X	13
	14	X	14
	15	X	15
	16	X	16

		BTU CYCLIC BITE	
CONTROL	1	25	1
	2	26	2
	3	27	3
	4	28	4
	5	29	5
	6	30	6

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GPC/BTU INTERFACE (PFS)

PRE-FLIGHT VEHICLE UTILITY - "SPEC" DISPLAYS

XXXX/100/ GTS DISPLAY XX X DDD/HHMMISS
 DDD/HHMMISS

HDA CONTROL DED DISP
 ENA 1X INH 2X FWD 18X AFT 19X DRIVE 24X
 HIGH 20X LOW 21X
 CSL/RML TEST FLAG 22X OFF 23X

UF1 3X UF4 6X
 UF2 4X UF5 7X
 UF3 5X IFA 8X
 9 FAIL GPC SEL X
 TEST EXEC 10X
 RESET 11X

CRIT MEC CMDS ELEV LMT SEL
 ENA 25X HORZ 27X
 INH 26X VERT 28X

DL FORMAT
 12 SEL XX
 LOAD 13X

GSE POLL ENA 14X

PASS/BFS XFER 15

RJD TOGGLER
 ON 16X OFF 17X

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GENERAL TEST SUPPORT (PFS)

XXXX/101/ SENSOR SELF-TEST XX X DDD/HHMMISS
 DDD/HHMMISS

ENA STAT RNG AZ EL
 M1 1X XXXX XX.XS ±X.XXS X.XXS
 L2 2X XXXX XX.XS ±X.XXS X.XXS
 S3 3X XXXX XX.XS ±X.XXS X.XXS

ENA STAT RNG AZ
 T1 4X XXXX X.XS XXX.XXS
 A2 5X XXXX X.XS XXX.XXS
 C3 6X XXXX X.XS XXX.XXS

TEST CONTROL:
 START 13X
 AUTO SEQ 14X
 TERM 15X

ENA STAT ALT
 R1 7X XXXX XXXXS
 A2 8X XXXX XXXXS

INH ALL 16X

ENA Y Z
 A1 9X ±XX.XS ±XX.XS
 A2 10X ±XX.XS ±XX.XS
 3 11X ±XX.XS ±XX.XS
 4 12X ±XX.XS ±XX.XS

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SENSOR SELF TEST (PFS)

XXXX/102/ RCS/RGA/ADTA TEST XX X DDD/HHMMISS
 DDD/HHMMISS

RCS DRIVERS

RJDF 1X START TEST 4X STAT XXXX
 RJDA-A 2X CONT 5X JET XXX
 -B 3X TERM 6 STEP X

SENSORS TEST CONTROL:
 HIGH START 15X
 LOW START 16X
 AUTO SEQ 17X
 TERM 18X

ENA STAT R P Y
 R1 7X XXXX ±XX.XS ±XX.XS ±XX.XS
 G2 8X XXXX ±XX.XS ±XX.XS ±XX.XS
 A3 9X XXXX ±XX.XS ±XX.XS ±XX.XS
 4 10X XXXX ±XX.XS ±XX.XS ±XX.XS

INH ALL 19X

ENA STAT P=C P=S P=U P=L TT
 A1 11X XXXX XX,XXXS XX,XXXS XX,XXXS XX,XXXS XXX.XXS
 D3 12X XXXX XX,XXXS XX,XXXS XX,XXXS XX,XXXS XXX.XXS
 T2 13X XXXX XX,XXXS XX,XXXS XX,XXXS XX,XXXS XXX.XXS
 A4 14X XXXX XX,XXXS XX,XXXS XX,XXXS XX,XXXS XXX.XXS

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RCS/RGA/ADTA TEST (PFS)

XXXX/104/ GND IMU CNTL/MON XX X DDD/HHMMISS
 DDD/HHMMISS

IMU

	1	2	3	
X	1 XXX.XX	4 XXX.XX	7 XXX.XX	SEL IMU 1 16X
Y	2 XXX.XX	5 XXX.XX	8 XXX.XX	2 17X
Z	3 XXX.XX	6 XXX.XX	9 XXX.XX	3 18X

O XXX.XX XXX.XX XXX.XX ATT DET 19X
 M XXX.XX XXX.XX XXX.XX HNGR CAL A 20X
 I XXX.XX XXX.XX XXX.XX B 21X
 IR XXX.XX XXX.XX XXX.XX C 22X
 V X ±XX.XX ±XX.XX ±XX.XX PREFLT CAL 23X
 Y ±XX.XX ±XX.XX ±XX.XX GYROCOMP 24X
 Z ±XX.XX ±XX.XX ±XX.XX XXXX XXXX
 VRSS XX.XX XX.XX XX.XX INERTIAL 25X
 PLAT POS 26X
 TERM/IDLE 27X

BI HDW XXXX XXXX XXXX
 I S/W XX XX XX
 TESTAT XX XX XX 28 MM WRITE X
 READ 29X

PWR ON X X X MM STATUS XXXX
 I/O S S S
 STBY 10X 11X 12X 30 SITE SEL X
 OPER 13X 14X 15X ACTUAL XXXX

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GROUND IMU CONTROL/MONITOR (PFS)

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PRE-FLIGHT VEHICLE UTILITY – “SPEC” DISPLAYS

A

XXXX/105/		TCS CONTROL	XX X DDD/HH:MM:SS
			DDD/HH:MM:SS
1 SELECT ID XX	NAME XXXXXXXX	ECP ERROR XXX	
MM READ 2 XXXX	STATUS XXXX	ERROR CODE XXX	
STEP XXXXX	TIME XX:XX:XX	BITE XXXXX	
STOP 3	4 STOP AT XXXXX	CANCEL 5	
RESUME 6	7 RSM AT XXXXX	CLEAR MSGS 8	
TIME		TEXT	
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		
XX:XX:XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		(XX)

TCS CONTROL (PFS)

B

XXXX/110/		BUS/BTU STATUS	XX X DDD/HH:MM:SS
			DDD/HH:MM:SS
MODE X	FF1P	X X X X	LF1P X X X X
MC X	1S	X X X X	1S X X X X
MF XX	2P	X X X X	2P X X X X
XX	3P	X X X X	3P X X X X
CPU XX	4P	X X X X	4P X X X X
	FF4S	X X X X	FF4S X X X X
PRI/SEC	FA1P	X X X X	2P X X X X
PORTS	1S	X X X X	2S X X X X
	2P	X X X X	LR1P X X X X
PRI 1X	2S	X X X X	1S X X X X
SEC 2X	3P	X X X X	2P X X X X
	3S	X X X X	2S X X X X
	4P	X X X X	MCIU X X X X
	FA4S	X X X X	X X X X
	MMU1	X X X X	LDIUP X X X X
	2	X X X X	S X X X X
	DEU1	X X X X	PF1P X X X X
	2	X X X X	1S X X X X
	3	X X X X	2S X X X X
	4	X X X X	2P X X X X
			MEC10 X X X X
			MEC1A X X X X
			1B X X X X
			1C X X X X
			1D X X X X
			2A X X X X
			2B X X X X
			2C X X X X
			2D X X X X
			3A X X X X
			3B X X X X
			3C X X X X
			3D X X X X
			MEC20 X X X X
			(XX)

BUS/BTU STATUS (PFS)

C

pack my box with five dozen liquor jugs
 PACK MY BOX WITH FIVE DOZEN LIQUOR JUGS
 [· · ·] (! ~) " ? ' - ' , , , / = @ ! - _

KBUA 24
 KBUB **
 MF GNC ERR
 TEST 1

0123456789±+---*x><x STATUS 8200 8000 8000 2000

DEU STAND-ALONE SELF TEST (PFS)

PRE-FLIGHT VEHICLE UTILITY – “DISP” DISPLAYS

D

XXXX/XXX/106		MANUAL CONTROLS	XX X DDD/HH:MM:SS
			DDD/HH:MM:SS
RHC	R	P	Y
L	1 ±XXX ±XXX ±XXX		
	2 ±XXX ±XXX ±XXX		
	3 ±XXX ±XXX ±XXX		
R	1 ±XXX ±XXX ±XXX		
	2 ±XXX ±XXX ±XXX		
	3 ±XXX ±XXX ±XXX		
A	1 ±XXX ±XXX ±XXX		
	2 ±XXX ±XXX ±XXX		
	3 ±XXX ±XXX ±XXX		
TRIM SW	R P Y	BOY FLP	
PNL L	1 X X X	L 1X	
	2 X X X	2X	
R	1 X X X	R 1X	
	2 X X X	2X	
RHC L	1 X X X	THC L	TX TY TZ
	2 X X X	1 X X X	
	1 X X X	2 X X X	
	2 X X X	3 X X X	
		A	1 X X X
			2 X X X
			3 X X X
			(XX)

MANUAL CONTROLS (PFS)

BFS GNC - "OPS" DISPLAYS

A

```

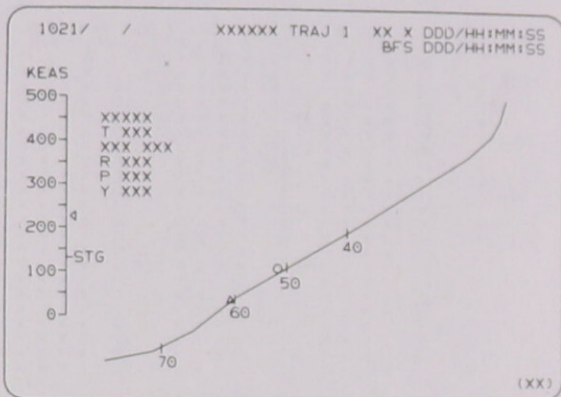
0001/000/          BFS MEMORY          XX X DDD/HH:MM:SS
                                      BFS DDD/HH:MM:SS
READ/WRITE
DATA 1X BIT SET 3X SEQ ID 5
CODE 2X BIT RST 4X WRITE 6
7 ENG UNITS XXX HEX BX
ADD ID DESIRED ACTUAL
9 XXXXX 10 XXXX ±XXXXXXXXXXXX
11 XXXXX 12 XXXX ±XXXXXXXXXXXX
13 XXXXX 14 XXXX ±XXXXXXXXXXXX
15 XXXXX 16 XXXX ±XXXXXXXXXXXX
17 XXXXX 18 XXXX ±XXXXXXXXXXXX
19 XXXXX 20 XXXX ±XXXXXXXXXXXX

MEMORY DUMP          LAUNCH BUS 1 26X
21 START ID XXXXX   2 27X
22 NUMBER WDS XXXXXX OFF 28X
23 WDS/FRAME XXX
DUMP 24
PASS/BFS XFER ENA 25X   TFL ENA 29X
    
```

(XX)

BFS MEMORY (BFS)

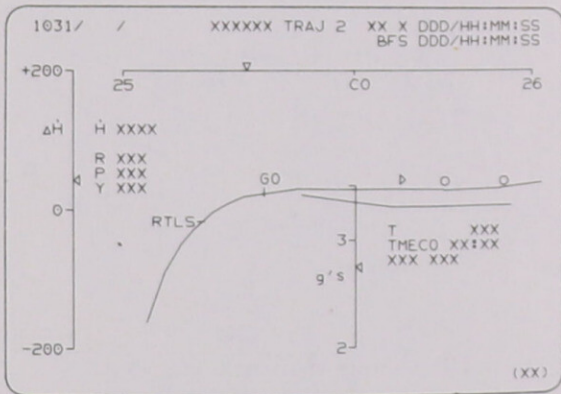
B



(XX)

ASCENT TRAJECTORY 1 (BFS)

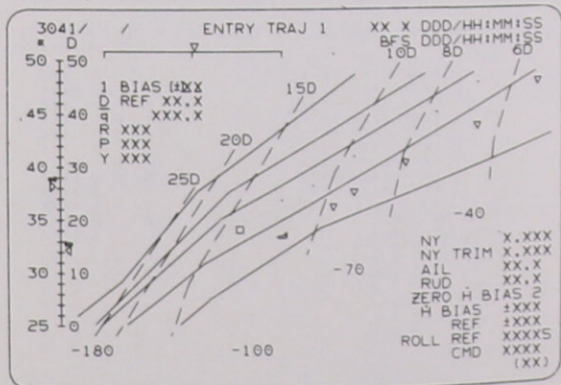
C



(XX)

ASCENT TRAJECTORY 2 (BFS)

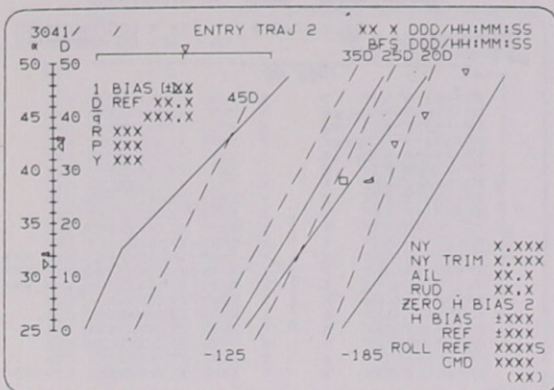
D



ENTRY TRAJECTORY 1 (BFS)

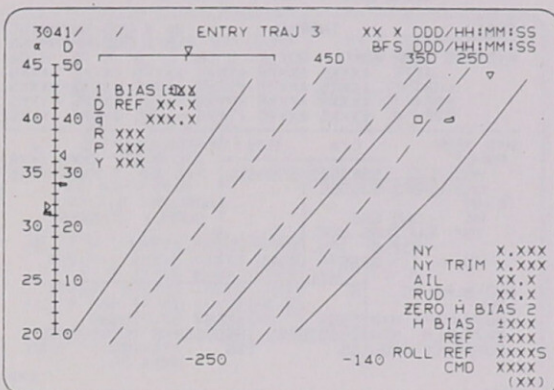
BFS GNC - "OPS" DISPLAYS

A



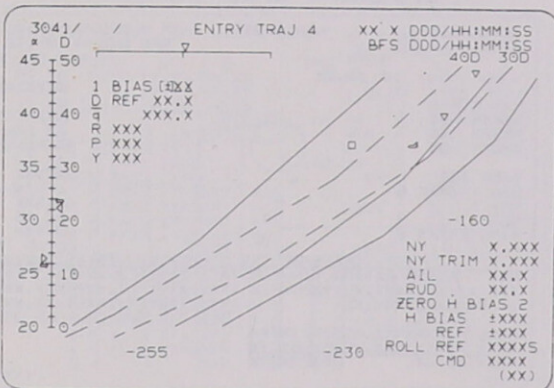
ENTRY TRAJECTORY 2 (BFS)

B



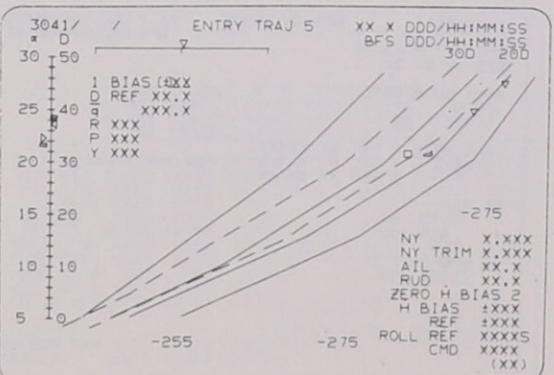
ENTRY TRAJECTORY 3 (BFS)

C



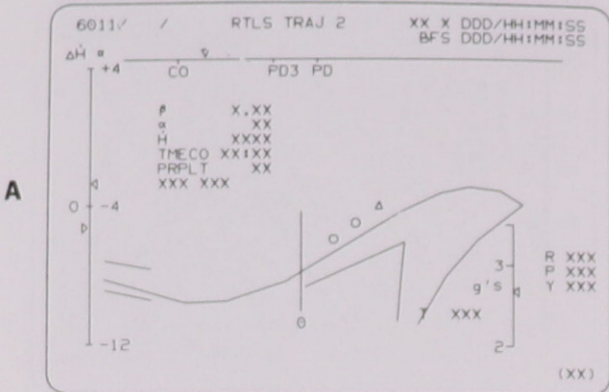
ENTRY TRAJECTORY 4 (BFS)

D



ENTRY TRAJECTORY 5 (BFS)

BFS GNC—"OPS" DISPLAYS



RTLS TRAJECTORY 2 (BFS)
BFS SM — "OPS" DISPLAYS

0001/ / THERMAL XX X DDD/HH:MM:SS
BFS DDD/HH:MM:SS

HYD SYS TEMP	BDYFLP	RD/SB	L OB	L IB	R IB	R OB
ACTR	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX
PRIME	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX
STBY 1	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX
STBY 2	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX	±XXXX

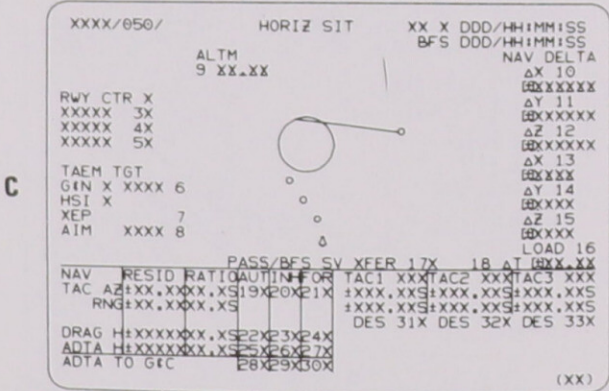
HTR TEMP	L/A	R/B	FREON LOOP 1	2
PRPLT			ACCUM QTY	XXXX XXXX
POD	SSSSSSS	SSSSSSS	RAD IN T	XXXX XXXX
OMS CRSFD	SSSSSSS		H2O	
EVAP			SUPPLY P	XXXX
HI LOAD	SSS			
TOP DUCT	SS			
NOZ	S	S		
FDLN	SSSS	SSSS		

HYD BLR/HTR	5	5	5
APU			
GG/FU PMP HTR	SSSS	SSSS	SSSS
TK/FU LN HTR	SSSSSSSSS	SSSSSSSSS	SSSSSSSSS
PUMP/VLV COOL	SS	SS	SS

(XX)

THERMAL (BFS)

BFS GNC — "SPEC" DISPLAYS



HORIZONTAL SITUATION (BFS)

XXXX/051/ BFS OVERRIDE XX X DDD/HH:MM:SS
BFS DDD/HH:MM:SS

IMU 1 2 3		
DES 1X 2X 3X		

VENT DOOR CNTL	ABORT MODE
OPEN 4X	AOA 12X
CLOSE 5X	ATO 13X
	ABORT 14X

LAND SITE 6 PRI XX XXXXX	
UPDATE 7 SEC XX XXXXX	MAX THR-OT 24X
8 ALT XX XXXXX	

ET SEP	
AUTO 9X	
SEP 10X	

ET UMB DR	
CLOSE 11X	

XXX FCS 15
(XX)

BFS OVERRIDE (BFS)

BFS GNC - "DISP" DISPLAYS

XXXX/899/	FAULT	C/W	GPC	XX X DDD/HH:MM:SS BFS DDD/HH:MM:SS TIME
CRT ID	FAULT			
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXX/XX:XX:XX

FAULT (BFS)

XXXX/XXX/018	GNC SYS SUMM 1	XX X DDD/HH:MM:SS BFS DDD/HH:MM:SS
SURF POS MOM	DPS 1 2 3 4	
L OB XXX.XS XXS	MDH FF S S S S	
IB XXX.XS XXS	FA S S S S	
R IB XXX.XS XXS	PL S S	
OB XXX.XS XXS		
AIL XXX.X	FCS CH 1 2 3 4	
RUD XXX.X	S S S S	
SPD BRK XXX.X		
BDY FLP XXX.X		

MPS	L	C	R	NAV	1	2	3	4
HE TK P	XXXXS	XXXXS	XXXXS	IMU	S	S	S	
REG P A	XXXXS	XXXXS	XXXXS	TAC	S	S	S	
B	XXXXS	XXXXS	XXXXS	ADTA	S	S	S	S
dP/dT	XXXXS	XXXXS	XXXXS					
ULL P LH2	XX.XS	XX.XS	XX.XS					
L02	XX.XS	XX.XS	XX.XS					
MANF P LH2	XXXXS							
L02	XXXXS							

GNC SYSTEM SUMMARY 1 (BFS)

XXXX/XXX/019	GNC SYS SUMM 2	XX X DDD/HH:MM:SS BFS DDD/HH:MM:SS
OMS AFT QTY	L R	OMS L R
	OXID XX.XS XX.XS	TK P HE XXXXS XXXXS
	FU XX.XS XX.XS	OXID XXXS XXXS
FU INJ T	XXXX XXXS	FU XXXS XXXS
RCS	OXID FU FAIL VLV	N2 TK P XXXXS XXXXS
FWD HE	XXXXXXXXXS	REG P XXXS XXXS
TK P	XXXXS XXXS	P VLV XXS XX S
QTY	XXXXS XXXS	ENG IN P
MANF 1 P	XXXXS XXXS XXXS	OXID XXXS XXXS
2 P	XXXXS XXXS XXXS	FU XXXS XXXS
3 P	XXXXS XXXS XXXS	VLV 1 XXXS XXXS
4 P	XXXXS XXXS XXXS	2 XXXS XXXS
5 P	XXXXS XXXS XXXS	
AFT HE	XXXXXXXXXS	HE PXXXXXXXXXS
L TK P	XXXXS XXXS	R TK P XXXXS XXXXS
QTY	XXXXS XXXS	QTY XXXXS XXXXS
MANF 1 P	XXXXS XXXS XXXS	1 P XXXXS XXXS XXXS
2 P	XXXXS XXXS XXXS	2 P XXXXS XXXS XXXS
3 P	XXXXS XXXS XXXS	3 P XXXXS XXXS XXXS
4 P	XXXXS XXXS XXXS	4 P XXXXS XXXS XXXS
5 P	XXXXS XXXS XXXS	5 P XXX XS

GNC SYSTEM SUMMARY 2 (BFS)

XXXX/XXX/079	SM SYS SUMM 2	XX X DDD/HH:MM:SS BFS DDD/HH:MM:SS
CRYO TK	1 2 3 4	
H2 PRESS	XXXXS XXXXS XXXXS XXXXS	
O2 PRESS	XXXXXS XXXXS XXXXS XXXXS	
HTR T1	XXXXS XXXXS XXXXS XXXXS	
T2	XXXXS XXXXS XXXXS XXXXS	
APU	1 2 3	HYD 1 2 3
TEMP EGT	XXXXS XXXXS XXXXS	PRESS XXXXS XXXXS XXXXS
B/U EGT	XXXXS XXXXS XXXXS	ACUM P XXXXS XXXXS XXXXS
OIL IN	XXXXS XXXXS XXXXS	RSVR T XXXS XXXS XXXS
OUT	XXXXS XXXXS XXXXS	QTY XXXS XXXS XXXS
GG BED	XXXXS XXXXS XXXXS	
INJ	XXXXS XXXXS XXXXS	W/B
SPEED * X	XXXXS XXXXS XXXXS	H2O QTY XXXS XXXS XXXS
FUEL QTY	XXXXS XXXXS XXXXS	BYP VLV XXXS XXXS XXXS
PMP LK P	XXS XXS XXS	
OIL OUT P	XXXXS XXXXS XXXXS	THERM CNTL 1 2
FU TK VLV	XXXXS XXXXS XXXXS	H2O PUMP P XXXS XXXS
		FREON FLOW XXXXS XXXXS
AV BAY		EVAP OUT T XXXS XXXS
TEMP	XXXXS XXXXS XXXXS	
FAN ΔP	X.XXS X.XXS X.XXS	

SM SYSTEM SUMMARY 2 (BFS)

PAYLOAD SYSTEMS—"SPEC" DISPLAYS

A

XXXX/201 ANIK DEPLOY		XX X DDD/HH:MM:SS	
DPLY X XXX/XX:XX:XX SCA CLK XX		XXXX DDD/HH:MM:SS	
		COUNTDOWN XX:XX:XX	
ITM	EVENT	SCHD	CPLT
1	COUNTDOWN START		XXXX
2	MECH SEQ START		XX
	SUNSHIELD OPEN		X,XX X,XX
	STBD RSTRNT OUT		X,XX X,XX
	PORT RSTRNT OUT		X,XX X,XX
	SPIN XXX.XS XXX.X		XX.X XX.X
5/6	S/C ASE X/ENCDR ON		X/X
7	CONFIG		X
8	INT PWR		X
XXX XXX XXXX			
	TERM SEQ START	3:00	X
	VEH ORD PREARM	1:30	X
SSP	PAM S/A		XS
SSP	S/C S/A		X
SSP	DEPLOY PREARM	>1:30	X
9	S/C SIU DIS	1:25	X
	DEPLOY ARM	1:05	X
	DEPLOY FIRE	1:00	X
3	DEPLOY INHIBIT		XXX
4	RESET		
(XX)			

ANIK DEPLOY (PFS)

B

XXXX/211 ANIK CONTROL		XX X DDD/HH:MM:SS	
DPLY X XXX/XX:XX:XX SCA CLK XX		XXXX DDD/HH:MM:SS	
		COUNTDOWN XX:XX:XX	
PRI	SCA X XXXX	DEPLOY ORD	ARM SUNSHIELD
1/0	INIT 1	PREARM	XSXS CLS S5HLD 5XS
	SLF TEST XXXX	ARM CMD	XSXS OPN S5HLD 6XS
	OUTPUTS XXX	ARM BUS	XSXS MTR RLY 1 2
	STATUS XXXX	FIRE CMD	XSXS ENA 7X 8X
	SPIN RATE	FIRE RLY	XSXS DIS 9X 10X
	LIM ORIDE 2X	VEH ORD	XSXS CLS 11X 12X
	SLOW 3X	PREARM BUS	XSXS OPN 13X 14X
	NORMAL 4X	ARM BUS	XSXS ON 15X 16X
S/C SYSTEMS	1 2	PAM S/A	XXX OFF 17X 18X
21/22	ASE ON XSXS	SAFE XXXS	CUR X,XX X,XX
23	OFF		POS 1XXXX XXXX
24/25	BUS OFF XSXS	S/C ORD	1 2 2XXXX XXXX
26/27	TCHG ON XSXS	S/C S/A	XSXS 3XXXX XXXX
28/29	OFF XSXS	34 SAFEXXS	
	SIU ON XSXS	SEP SW CL	XSXS RLY BUS ON
30/31	ENA XSXS	AKM ENA	XSXS 15 25 35 45
32/33	DIS XSXS	INH SW	XSXS PAM SEP SW CL
	PCM CLK ON XSXS	LVLV OPN 1	XSXS 8V AS BS
	ODD STAT GO XSXS	OMNI ENA 1	XSXS 16V AS BS
	EVEN STAT GO XSXS		XSXS
	BATT T GO XSXS		XSXS
(XX)			

ANIK CONTROL (PFS)

C

XXXX/202 PALAPA DEPLOY		XX X DDD/HH:MM:SS	
DPLY X XXX/XX:XX:XX SCA CLK XX		XXXX DDD/HH:MM:SS	
		COUNTDOWN XX:XX:XX	
ITM	EVENT	SCHD	CPLT
1	COUNTDOWN START		XXXX
2	MECH SEQ START		XX
	SUNSHIELD OPEN		X,XX X,XX
	STBD RSTRNT OUT		X,XX X,XX
	PORT RSTRNT OUT		X,XX X,XX
	SPIN XXX.XS XXX.X		XX.X XX.X
5/6	S/C ASE X/ENCDR ON		X/X
7	CONFIG		X
8	INT PWR		X
XXX XXX XXXX			
	TERM SEQ START	3:00	X
	VEH ORD PREARM	1:30	X
SSP	PAM S/A		XS
SSP	S/C S/A		X
SSP	DEPLOY PREARM	>1:30	X
9	S/C SIU DIS	1:25	X
	DEPLOY ARM	1:05	X
	DEPLOY FIRE	1:00	X
3	DEPLOY INHIBIT		XXX
4	RESET		
(XX)			

PALAPA DEPLOY (PFS)

D

XXXX/212 PALAPA CONTROL		XX X DDD/HH:MM:SS	
DPLY X XXX/XX:XX:XX SCA CLK XX		XXXX DDD/HH:MM:SS	
		COUNTDOWN XX:XX:XX	
PRI	SCA X XXXX	DEPLOY ORD	ARM SUNSHIELD
1/0	INIT 1	PREARM	XSXS CLS S5HLD 5XS
	SLF TEST XXXX	ARM CMD	XSXS OPN S5HLD 6XS
	OUTPUTS XXX	ARM BUS	XSXS MTR RLY 1 2
	STATUS XXXX	FIRE CMD	XSXS ENA 7X 8X
	SPIN RATE	FIRE RLY	XSXS DIS 9X 10X
	LIM ORIDE 2X	VEH ORD	XSXS CLS 11X 12X
	SLOW 3X	PREARM BUS	XSXS OPN 13X 14X
	NORMAL 4X	ARM BUS	XSXS ON 15X 16X
S/C SYSTEMS	1 2	PAM S/A	XXX OFF 17X 18X
21/22	ASE ON XSXS	SAFE XXXS	CUR X,XX X,XX
23	OFF		POS 1XXXX XXXX
24/25	BUS OFF XSXS	S/C ORD	1 2 2XXXX XXXX
26/27	TCHG ON XSXS	S/C S/A	XSXS 3XXXX XXXX
28/29	OFF XSXS	34 SAFEXXS	
	SIU ON XSXS	SEP SW CL	XSXS RLY BUS ON
30/31	ENA XSXS	AKM ENA	XSXS 15 25 35 45
32/33	DIS XSXS	INH SW	XSXS PAM SEP SW CL
	PCM CLK ON XSXS	LVLV OPN 1	XSXS 8V AS BS
	ODD STAT GO XSXS	OMNI ENA 1	XSXS 16V AS BS
	EVEN STAT GO XSXS		XSXS
	BATT T GO XSXS		XSXS
(XX)			

PALAPA CONTROL (PFS)

XXXX/221/ SPAS DETACHED XX X DDD/HH:MM:SS
 DDD/HH:MM:SS
 XXX:XX:XX
 PSP ENA 1 ID X ATT REF INRTL 24XS
 LVLH 25XS
 LOAD XXXX XXXX
 S/W DEPLOYED 2XS
 MNVR CHDS + - X +X.XXS +XXX.XXS Y X.XXS 16MM
 X 3XS 4XS Y +X.XXS +XXX.XXS Z X.XXS ON 56X
 Y 5XS 6XS Z +X.XXS +XXX.XXS Z X.XXS OFF 57X
 Z 7XS 8XS GYRO COMP - 41 LITES XX/XXX X
 + - B A ON XS
 B ON 42 XS
 STOP 9
 NULL ATT 10 ΔX 26 27 +XX.XS
 11 RATE XX/XX X ΔY 28 29 +XX.XS 43 N2 VLV 1/2 XXSX
 ΔZ 30 31 +XX.XS PRPLT QTY XXXS
 REF INIT 32 GYROS ON/OFF XN2 LO P XX.XS
 INRTL 12 - XPNDR COH 33XS 44 BACKUP ENA X
 LVLH + - NCOH 34XS 45 DCU ACT X
 X 13XS 14XS 35 XMIT ON X 46 N2 VLV 1/2 X
 Y 15XS 16XS PNL 8 TEMP XX.XS MNVR CHDS + -
 Z 17XS 18XS MASS SPECT ON 36X X 47 48
 OFF 37X Y 49 50
 CNTL MODE FREE 19XS 38 SHIELD CL X Z 51 52
 INRTL 20XS 39 PROGRAM X 53 PULSE LO/HI X
 LVLH 21XS STATUS XX 54 BAT A ON X
 RATE X.XXS MASS 18/28 XX/XX 55 LITES ON/OFF X
 +22 -23 (XX)

A

SPAS DETACHED (PFS)

XXXX/220/ SPAS EXP XX X DDD/HH:MM:SS
 DDD/HH:MM:SS
 XXX:XX:XX
 PSP ENA 1 ID X MOMS
 LOAD XXXX XXXX PWR ON 9XS SOLAR CELL
 OFF 10XS PWR ON 19XS
 S/W ATTACHED 2XS READY XXXS OFF 20XS
 3 RESET X RCDR TAPE XXXXS
 STAT XXXXS
 TEMP XX.XS
 VIDEO 1 XXX.XS HEAT PIPE
 2 XXX.XS PWR ON 21XS
 TEMP XX.XS OFF 22XS
 PRESS XX.XS EXP ON 23XS
 11 TIME X 1.5 XX MAUS 2 ON 24XS
 12 MOD 1 LO/HI X OFF 25XS
 13 MOD 2 LO/HI X TEMP XX.XS
 RESET 14
 MASS SPECT ON 4XS
 OFF 5XS
 6 SHIELD CL X
 7 CAP OPEN X
 8 PROGRAM X
 STATUS XXS
 MASS 18/28 XX/XX YAW SENSOR
 PWR ON 15XS MAUS 1
 OFF 16XS TEMP XX.XS
 SHUTTER CL 17XS FRICTION
 OP 18XS TEMP XX.XS
 (XX)

B

SPAS EXPERIMENT (PFS)

PAYLOAD SYSTEMS—"DISP" DISPLAYS

XXXX/XXX/206 ANIK MONITOR XX X DDD/HH:MM:SS
 DPLY X XXX/XX:XX:XX SCA CLK XX XXXX DDD/HH:MM:SS
 XXXX COUNTDOWN XX:XX:XX
 CUR MTR 1 2 SPIN PORT STBD
 XX.X X.XX X.XX
 XX.X X.XX X.XX
 ENA MTR 1 2 XXXS XXXS XXXS
 2 XXXS XXXS XXXS
 STAT MTR 1 2 XXXS XXXS
 2 XXXS XXXS
 DIR MTR 1 2 XXXS XXXS INHIBITS 1 2
 2 XXXS XXXS SSHLD CLS XS XS
 XXXS INDX EXT XS XS
 BRAKE PWR XXXS
 XXXS
 INDX/RST 1 2 1 2 3 1 2 3
 IN XSXS XSXSXSXSXSXS
 OUT XSXS XSXSXSXSXSXS
 1/A 2/B
 BUS CUR XX.XS XX.XS
 ORD VOLT XX.XS XX.XS
 TIMER 8V XX.XS XX.XS
 16V XX.XS XX.XS
 T/O BAT T XXXS XXXS
 SOLID T XXXS
 (XX)

C

ANIK MONITOR (PFS)

XXXX/XXX/216 ANIK SCA STATUS XX X DDD/HH:MM:SS
 DPLY X XXX/XX:XX:XX XXXX DDD/HH:MM:SS
 SCA 1 XXXS COUNTDOWN XX:XX:XX
 2 XXXS P B SEQ P B
 SLF TEST GO XS XS DPL RATE ENA XS XS INIT XS XS
 OUTPUTS XS XS DPL RATE GO XS XS IDLE XS XS
 CLOCK XX.X XX.X INDEXED XS XS CLSS XS XS
 LIM ORIDE XS XS OPSS XS XS
 PAM ORDNANCE CANT START XS XS MECH XS XS
 S/A ARMED XS XS UNDERSPEED XS XS TERM XS XS
 S/A SAFE XS XS OVERSPEED XS XS STOW XS XS
 RATE DET NG XS XS HALT XS XS
 SEP SWS ON XS XS CANT INDEX XS XS
 RLY BUSES ON XS XS CANT INSERT XS XS
 VEH ARM ON XS XS
 DPL ARM FIRE XS XS RESTRAINTS
 DPL FIRE CMD XS XS WITHDRAWN P XS XX
 S XS XX
 SYSTEM INSERTED P XX XX
 S XX XX
 VEH SYS GO A XS XS
 B XS XS
 T/O BAT GO A XS XS SUNSHIELD
 B XS XS OPEN XS XX
 P/L DEPLOYED XS XS CLOSED XS XX
 (XX)

D

ANIK SCA STATUS (PFS)

A

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XXXX/XXX/207 PALAPA MONITOR XX X DDD/HH:MM:SS
DPLY X XXX/XX:XX:XX SCA CLK XX XXXX DDD/HH:MM:SS
XXXX COUNTDOWN XX:XX:XX
PALAPA STATUS
CUR MTR 1 1 XX.X X.XX X.XX S/C CUR 1 2
2 XX.X X.XX X.XX BUS XX.X XX.X
ENA MTR 1 1 XXXS XXXS XXXS BATT XX.X XX.X
2 XXXS XXXS XXXS
STAT MTR 1 1 XXXS XXXS
2 XXXS XXXS
DIR MTR 1 1 XXXS XXXS INHIBITS 1 2
2 XXXS XXXS SSHLD CLS XS XS
BRAKE PWR XXXS INDX EXT XS XS
XXXS
INDX/RST 1 2 1 2 3 1 2 3
IN XSXS XSXSXSXSXSXS
OUT XSXS XSXSXSXSXSXS
1/A 2/B
BUS CUR XX.XS XX.XS
ORD VOLT XX.XS XX.XS
TIMER 8V XX.XS XX.XS
16V XX.XS XX.XS
T/O BAT T XXXS XXXS
SOLID T XXXS

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(XX)

PALAPA MONITOR (PFS)

B

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XXXX/XXX/217 PALAPA SCA STATUS XX X DDD/HH:MM:SS
DPLY X XXX/XX:XX:XX XXXX DDD/HH:MM:SS
SCA 1 XXXS COUNTDOWN XX:XX:XX
2 XXXS P B SPIN P B SEQ P B
SLF TEST GO XS XS DPL RATE ENA XS XS INIT XS XS
OUTPUTS XS XS DPL RATE GO XS XS IDLE XS XS
CLOCK XX.X XX.X INDEXED XS XS CLSS XS XS
LIM ORIDE XS XS OPSS XS XS
PAM ORDNANCE CANT START XS XS MECH XS XS
S/A ARMED XS XS UNDERSPEED XS XS TERM XS XS
S/A SAFE XS XS OVERSPEED XS XS STOW XS XS
RATE DET NG XS XS HALT XS XS
SEP SWS ON XS XS CANT INDEX XS XS
RLY BUSES ON XS XS CANT INSERT XS XS
VEH ARM ON XS XS
DPL ARMIFIRE XS XS RESTRAINTS
DPL FIRE CMD XS XS WITHDRAWN P XS XX
S XS XX
SYSTEM INSERTED P XX XX
S XX XX
VEH SYS GO A XS XS
B XS XS
T/O BAT GO A XS XS SUNSHIELD XS XX
B XS XS OPEN XS XX
P/L DEPLOYED XS XS CLOSED XS XX

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(XX)

PALAPA SCA STATUS (PFS)

C

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XXXX/XXX/219 SPAS SYSTEMS XX X DDD/HH:MM:SS
DDD/HH:MM:SS
XXX:XX:XX
THERMAL ACS
SILL STBD T XX.XS PRPLT QTY XXXS
PORT T XX.XS N2 LO P XX.XS PSP
KEEL T XX.XS VLV XS LOAD XXXX XXXX
TANK 1 T XX.XS GYRO STAT XXXXS
3 T XX.XS
4 T XX.XS
PNL 3 T XX.XS BATT A B LOCK XXXS
7 T XX.XS V XX.XS XX.XS BIT SYNC XXXS
8 T XX.XS A XX.XS XX.XS * ERROR ±XXX.XS
T XX.XS T XX.XS XX.XS AGC XXX.XS
P XXX.XSXXX.XS PWR OUT XX.XS
MODUS DHS U/V PROTECT MODE YXXXS
PROC T XX.XS CKT BATT A XXXS RCVR V XX.XS
5V X.XS B XXXS TEMP XX.XS
12VX2 XX.XS STS BUS V XX.XS PL RETENTION
15VX2 XX.XS A XX.XS RDY LAT REL
ERR WD 1 XXS CNVTR V 1 XX.XS LAT AB AB AB
2 XXS 2 XX.XS P XX XX XX
CMD WD XXXXS 3 XX.XS S XX XX XX
DCU 5V X.XS 4 XX.XS K XX XX XX
12V XX.XS 5 XX.XS

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(XX)

SPAS SYSTEMS (PFS)