

Orbiter Displays Reference Guide

**Space Shuttle Orbiter
Displays and Controls
(CRT & HUD)**

OI-34

March 2009



General Information

This Orbiter Displays Reference Guide is for information only as it pertains to CRT and HUD displays. The guide was developed as a quick-reference tool for personnel supporting tests involving Orbiter displays. It provides the CRT displays documented in the December 21, 2007 Functional Subsystem Software Requirements (FSSR) Display and Controls, STS83-0020-34, with an effectivity of OI-34 and subs. This guide also provides System Management (SM) mission reconfigurable displays documented in the baseline version of JSC-19590- SM Level C Flight Software Requirements document. Please note the SM displays are mission reconfigurable and there could be changes to the displays subsequent to STS-128.

This reference guide reflects the incorporation of approved Software Change Requests (SCR's) listed in SCR 98107A - Flight Software Release Baseline Specification: OI-34. For more detailed information, refer to the above-mentioned documents. For information regarding the publication and distribution of this guide, contact Jose Rosa (321-861-4658) or Pete Wilson (321-861-4656).

How To Use This Guide

The CRT and HUD displays are listed in alphabetical order by title. The CRT displays are shown with their OPS availability and type. The tables on the next five pages will provide assistance in locating a specific CRT and HUD display quickly, including CRT displays related to Initial Program Load (IPL). There are also tables provided in descending order according to hierarchy of OPS, SPEC and DISP for the CRT displays.

Primary Avionics Software System (PASS) Displays

Title	GNC								SM			PL	Page
	0	1	2	3	6	8	9	0	2	4	9		
Actuator Control							X						1A
Antenna									X	X			1B
APU/Environ Therm*									X				1C
APU/HYD*									X				1D
Ascent Bearing (Hi Inc 1)		X			X								2A
Ascent Bearing (Hi Inc 2)		X			X								2B
Ascent Bearing (Lo Inc 1)		X			X								2C
Ascent Bearing (Lo Inc 2)		X			X								2D
Communications*									X				3B
Controllers						X							3C
Controls		X		X	X								3D
CRYO System*									X				4A
DAP Config			X										4B
Docking Status*									X				4C
DPS Utility	X	X	X	X	X	X	X		X	X	X		4D
Electric*									X				5A
Entry Bearing (MM304-305)				X	X								5B
Entry Bearing (MM602-603)				X	X								5C
Entry TRAJ 1				X									6A
Entry TRAJ 2				X									6C
Entry TRAJ 3				X									7A
Entry TRAJ 4				X									7C
Entry TRAJ 5				X									8A
Environment*									X				8B
External Airlock*									X				8C
Fault	X	X	X	X	X	X	X	X	X	X	X		9A
FCS/DED DIS C/O						X							9B
Fuel Cells*									X				9C
GNC SYS SUMM 1		X	X	X	X	X							10A
GNC SYS SUMM 2			X			X							10B
GND IMU CNTL/MON							X						10C
GPC Memory	X	X	X	X	X	X	X	X	X	X	X		10D
GPC/BTU I/F							X						11A
GPC/Bus Status	X	X	X	X	X	X	X		X	X	X		11B
GPCF PL C&W									X	X			11C
GPCF PL Commanding									X	X			11D
GPCF PL Status									X	X			12A
GPS Status		X	X	X	X	X	X						12D
GTS Display							X				X		13A
Horiz SIT (In-Left/3 TAC)		X		X	X								13D
Horiz SIT (In-Right/3 TAC)		X		X	X								14A
Horiz SIT (Out-Left/3 TAC)		X		X	X								14B
Horiz SIT (Out-Right/3 TAC)		X		X	X								14C
Horiz SIT (Right/3 GPS)		X		X	X								14D
HYD Thermal*									X				16A
IMU Align			X	X									16B
Manual Controls							X						16C
Mass Memory R/W									X	X	X		16D
NWS Check						X							17A
Orbit TGT			X										17B
Override		X		X	X								17D
PCMMU/PL COMM							X		X	X			18A
PDRS Control									X	X			18B
PDRS Faults*									X				18C
PDRS Override									X	X			18D
PDRS Status*									X				19A
PL Bay Doors									X	X			19B
PL Retention*									X				19C
Power Transfer*									X				19D
PRPLT Thermal*									X				20A
RCS		X	X	X	X	X							20B
RCS/RGA/ADTA Test							X						20C
REL NAV			X										20D
RGA/ADTA/RCS (On-Orbit)						X							21A
RM Orbit			X										21B
RTLS TRAJ 2				X									21D
S TRK/COAS CNTL			X	X									22A
Sensor Self-Test (3 GPS)							X						22B
Sensor Self-Test (3 TACAN)							X						22C
Sensor Test (3 GPS)						X							22D
Sensor Test (3 TACAN)						X							23A
SL Memory Dump											X		23B

- continued next page -

Primary Avionics Software System (PASS) Displays

Title	GNC								SM			PL	Page
	0	1	2	3	6	8	9	0	2	4	9		
SM Ground Checkout									X	X			23C
SM OIU*									X				23D
SM SYS SUMM 1*									X				24B
SM SYS SUMM 2*									X				24D
SM Table Maint									X	X			25A
Switches							X						25B
SWITCH/SURF							X						25C
TCS Control							X						25D
Time	X		X				X	X		X	X	X	26B
UNIV PTG			X										26C
VERT SIT 1				X	X								26D
VERT SIT 1 GRTLS					X								27A
VERT SIT 2				X	X								27B
VERT SIT 2 GRTLS					X								27C
XXXXX MNVR YYYYY		X	X	X									28A
XXXXXX TRAJ 1		X											28C
XXXXXX TRAJ 2		X											29A

* - Mission Reconfigurable

Backup Flight System (BFS) Displays

Title	GNC				SM		Page
	0	1	3	6			
BFS Memory	X	X	X	X	X	X	3A
Entry TRAJ 1				X			5D
Entry TRAJ 2				X			6B
Entry TRAJ 3				X			6D
Entry TRAJ 4				X			7B
Entry TRAJ 5				X			7D
Fault	X	X	X	X	X	X	8D
GNC SYS SUMM 1			X	X	X		9D
GNC SYS SUMM 2			X	X	X		10B
GPS Status			X	X	X		12C
Horiz SIT (Single or No GPS)			X	X	X		13B
Horiz SIT (3 String GPS)			X	X	X		13C
Override			X	X	X		17C
PL Bay Doors						X	19B
RTLS TRAJ 2					X		21C
SM SYS SUMM 1						X	24A
SM SYS SUMM 2						X	24C
Thermal						X	26A
VERT SIT 1				X	X		26D
VERT SIT 2				X	X		27B
XXXXX MNVR YYYYY		X	X				28A
XXXXXX TRAJ 1		X					28B
XXXXXX TRAJ 2		X					28D

* - Mission Reconfigurable

GPCIPL/Self-Test Program Displays

Title	Page
XXXXIPL MENU (1)	27D
GPCIPL MENU (2)	12B

Head Up Displays

Title	Page
HUD Display Format 1 After-WOW	15A
HUD Display Format 1 Pre-WOW	15B
HUD VU OPS 8 Low	15C
HUD VU OPS 9 Low	15D

OPS Displays

OPS	Title	PASS	BFS	GNC	SM	PL	Page
0001	GPC Memory	X		X			10D
0001	BFS Memory		X	X			3A
0001	Thermal		X		X		26A
1011	XXXXXX TRAJ 1	X		X			28C
1011	XXXXXX TRAJ 1		X	X			28B
1021	XXXXXX TRAJ 1	X		X			28C
1021	XXXXXX TRAJ 1		X	X			28B
1031	XXXXXX TRAJ 2	X		X			29A
1031	XXXXXX TRAJ 2		X	X			28D
1041	XXXXXX MNVR YYYYY	X	X	X			28A
1051	XXXXXX MNVR YYYYY	X	X	X			28A
1061	XXXXXX MNVR YYYYY	X	X	X			28A
2011	Antenna	X			X		1B
2011	UNIV PTG	X		X			26C
2021	PL Bay Doors	X			X		19B
2021	XXXXXX MNVR YYYYY	X		X			28A
3011	XXXXXX MNVR YYYYY	X	X	X			28A
3021	XXXXXX MNVR YYYYY	X	X	X			28A
3031	XXXXXX MNVR YYYYY	X	X	X			28A
3041	Entry TRAJ 1	X		X			6A
3041	Entry TRAJ 1		X	X			5D
3041	Entry TRAJ 2	X		X			6C
3041	Entry TRAJ 2		X	X			6B
3041	Entry TRAJ 3	X		X			7A
3041	Entry TRAJ 3		X	X			6D
3041	Entry TRAJ 4	X		X			7C
3041	Entry TRAJ 4		X	X			7B
3041	Entry TRAJ 5	X		X			8A
3041	Entry TRAJ 5		X	X			7D
3051	VERT SIT 1	X	X	X			26D
3051	VERT SIT 2	X	X	X			27B
4011	Antenna	X			X		1B
4021	PL Bay Doors	X			X		19B
6011	RTLS TRAJ 2	X		X			21D
6011	RTLS TRAJ 2		X	X			21C
6021	VERT SIT 1	X	X	X			26D
6021	VERT SIT 1 GRTLS	X		X			27A
6031	VERT SIT 1	X	X	X			26D
6031	VERT SIT 2	X	X	X			27B
6031	VERT SIT 2 GRTLS	X		X			27C
8011	FCS/DED DIS C/O	X		X			9B
9011	Mass Memory R/W	X				X	16D
9011	GPC Memory	X		X			10D

* - Mission Reconfigurable

Vehicle Utility (VU) Displays

Title	GNC							SM			PL	Page	
	0	1	2	3	6	8	9	0	2	4	9		
Actuator Control							X						1A
Controllers							X						3C
FCS/DED DIS C/O							X						9B
GND IMU CNTL/MON								X					10C
GPC/BTU I/F								X					11A
GTS Display								X			X		13A
Manual Controls								X					16C
Mass Memory R/W									X	X	X		16D
NWS Check							X						17A
RCS/RGA/ADTA Test								X					20C
RGA/ADTA/RCS (On-Orbit)							X						21A
Sensor Self-Test (3 GPS)									X				22B
Sensor Self-Test (3 TACAN)									X				22C
Sensor Test (3 GPS)							X						22D
Sensor Test (3 TACAN)							X						23A
SL Memory Dump											X		23B
Switches							X						25B
SWITCH/SURF							X						25C
TCS Control								X					25D

System Level Displays

Title	GNC							SM			PL	Page
	0	1	2	3	6	8	9	0	2	4	9	
DPS Utility	X	X	X	X	X	X	X	X	X	X	X	4D
Fault	X	X	X	X	X	X	X	X	X	X	X	9A
GPC Memory	X	X	X	X	X	X	X	X	X	X	X	10D
GPC/Bus Status	X	X	X	X	X	X	X	X	X	X	X	11B
Time	X		X				X	X	X	X	X	26B

SPEC Displays 001 thru 089

SPEC	Title	PFS	BFS	GNC	SM	PL	Page
001	DPS Utility	X		X	X	X	4D
002	Time	X		X	X	X	26B
006	GPC/Bus Status	X		X	X	X	11B
018	GNC SYS SUMM 1	X		X			10A
018	GNC SYS SUMM 1		X	X			9D
019	GNC SYS SUMM 2	X	X	X			10B
020	DAP Config	X		X			4B
021	IMU Align	X		X			16B
022	S TRK/COAS CNTL	X		X			22A
023	RCS	X		X			20B
025	RM Orbit	X		X			21B
033	REL NAV	X		X			20D
034	Orbit TGT	X		X			17B
040	Sensor Test (3 GPS)	X		X			22D
040	Sensor Test (3 TACAN)	X		X			23A
041	RGA/ADTA/RCS (On-Orbit)	X		X			21A
042	SWITCH/SURF	X		X			25C
043	Controllers	X		X			3C
044	Switches	X		X			25B
045	NWS Check	X		X			17A
050	Horiz SIT (In-Left/3 TAC)	X		X			13D
050	Horiz SIT (In-Right/3 TAC)	X		X			14A
050	Horiz SIT (Out-Left/3 TAC)	X		X			14B
050	Horiz SIT (Out-Right/3 TAC)	X		X			14C
050	Horiz SIT (Right/3 GPS)	X		X			14D
050	Horiz SIT (Single or No GPS)		X	X			13B
050	Horiz SIT (3 String GPS)		X	X			13C
051	Override	X		X			17D
051	Override		X	X			17C
053	Controls	X		X			3D
054	Ascent Bearing (Hi Inc 1)	X		X			2A
054	Ascent Bearing (Hi Inc 2)	X		X			2B
054	Ascent Bearing (Lo Inc 1)	X		X			2C
054	Ascent Bearing (Lo Inc 2)	X		X			2D
054	Entry Bearing (MM304-305)	X		X			5B
054	Entry Bearing (MM602-603)	X		X			5C
055	GPS Status	X		X			12D
055	GPS Status		X	X			12C
060	SM Table Maint	X			X		25A
062	PCMMU/PL COMM	X		X	X		18A
063	PL Bay Doors	X	X		X		19B
064	SM Ground Checkout	X			X		23C
066	Environment*	X			X		8B
067	Electric*	X			X		5A
068	Cryo System*	X			X		4A
069	Fuel Cells*	X			X		9C
071	GPCF PL Status	X			X		12A
072	GPCF PL Commanding	X			X		11D
073	GPCF PL C&W	X			X		11C
076	Communications*	X			X		3B
078	SM SYS SUMM 1*	X			X		24B
078	SM SYS SUMM 1		X		X		24A
079	SM SYS SUMM 2*	X			X		24D
079	SM SYS SUMM 2		X		X		24C
085	Mass Memory R/W	X			X	X	16D
086	APU/HYD*	X			X		1D
087	HYD Thermal*	X			X		16A
088	APU/Environ Therm*	X			X		1C
089	PRPLT Thermal*	X			X		20A

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SPEC Displays 090-999

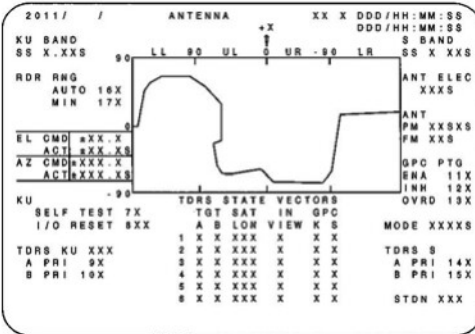
SPEC	Title	PFS	BFS	GNC	SM	PL	Page
094	PDRS Control	X			X		18B
095	PDRS Override	X			X		18D
096	PDRS Faults*	X			X		18C
097	PL Retention*	X			X		19C
099	Fault	X		X	X	X	9A
099	Fault		X	X	X	X	8D
100	GTS Display	X		X		X	13A
101	Sensor Self-Test (3 GPS)	X		X			22B
101	Sensor Self-Test (3 TACAN)	X		X			22C
102	RCS/RGA/ADTA Test	X		X			20C
104	GND IMU CNTL/MON	X		X			10C
105	TCS Control	X		X			25D
106	Manual Controls	X		X			16C
111	SL Memory Dump	X				X	23B
112	GPC/BTU I/F	X		X			11A
113	Actuator Control	X		X			1A
167	Docking Status*	X			X		4C
169	PDRS Status*	X			X		19A
177	External Airlock*	X			X		8C
178	SM OIU*	X			X		23D
179	Power Transfer*	X			X		19D

* - Mission Reconfigurable

XXXX/113/	ACTUATOR CONTROL	XX X DDD/HH:MM:SS
MONITOR	FAIL	DDD/HH:MM:SS
CMD POS ACT A B C D	ACTUATOR GIMBALING	
±XX.XX ±XX.XX SB 1X S S S S	RATE 29 XX.XX DEG/SEC	
±XX.XX ±XX.XX RUD 2X S S S S	FIN POS 30 ±XX.XX DEG	
±XX.XX ±XX.XX LIE 3X S S S S	START 31XXX STOP 32X	
±XX.XX ±XX.XX RIE 4X S S S S	STATUS XXXX	
±XX.XX ±XX.XX LOE 5X S S S S	HYD PR ECP ERR XXX	
±XX.XX ±XX.XX ROE 6X S S S S	1 XXXX BF MON 33X	
±XX.XX ±XX.XX 1P 7X S S S S	2 XXXX	
±XX.XX ±XX.XX 1Y 8X S S S S	3 XXXX	
±XX.XX ±XX.XX 2P 9X S S S S	AI SRB/NW 34X	
±XX.XX ±XX.XX 2Y 10X S S S S	ME ISO V	
±XX.XX ±XX.XX 3P 11X S S S S	TX ZX SX	
±XX.XX ±XX.XX 3Y 12X S S S S	FC LIM CHNG	
±XX.XX ±XX.XX RPA 13X	R/SB RFG/FRT 38X	
±XX.XX ±XX.XX RPS 14X	AI MODES	
±XX.XX ±XX.XX RYA 15X	0 SAFE 22 X	
±XX.XX ±XX.XX RYS 16X	1 MDM 23 X	
±XX.XX ±XX.XX LPA 17X	2 FERY 24 X	
±XX.XX ±XX.XX LPS 18X	3 RAIN 25 X	
±XX.XX ±XX.XX LYA 19X	4 GRAV 26 X	
±XX.XX ±XX.XX LYS 20X	5 NULL 27 X	
±XX.XX ±XX.XX BF 21X	6 TURN 28 X	
	R RATE .5 PCM 44X	

PASS
GNC OPS 9
SPEC 113

(A) ACTUATOR CONTROL



PASS
SM OPS
201, 401

(B) ANTENNA

XXXX/XXX/088	APU/ENVIRON THERM	XX X DDD/HH:MM:SS
FREON LOOP 1	2	DDD/HH:MM:SS
ACCUM QTY XXXX XXXS	H2O LOOP 1	2
FREON ISOL XXXX XXXX	PUMP OUT P XXXX XXXS	
FREON FLOW XXXX XXXS	OUT T XXXX XXXS	
PL HX FLOW XXXX XXXS	OUT ΔP XXXX XXXS	
AFT CP FLOW XXXX XXXS	ICH FLOW XXXX XXXS	
RAD IN T XXXX XXXS	OUT T XXXX XXXS	
RAD OUT T XXXX XXXS	CAB HX IN T XXXX XXXS	
EVAP OUT T XXXX XXXS	ACCUM QTY XXXX XXXS	
EVAP TEMP	APU FUEL T 1	2
HILD IB/OB XXXX XXXS	TK SURF ±XXXS ±XXXS ±XXXS	
NOZ XXXX XXXS	TK MTR. ±XXXS ±XXXS ±XXXS	
TOP FWD/AFT XXXX XXXS	TEST LN 1 ±XXXS ±XXXS ±XXXS	
L/R DUCT XXXX XXXS	TEST LN 2 ±XXXS ±XXXS ±XXXS	
L/R NOZ XXXX XXXS	FEED LN ±XXXS ±XXXS ±XXXS	
EVAP FDLN T A	PUMP IN ±XXXS ±XXXS ±XXXS	
FWD XXXX XXXS	DRN LN 1 ±XXXS ±XXXS ±XXXS	
MID 1 XXXX XXXS	DRN LN 2 ±XXXS ±XXXS ±XXXS	
MID 2 XXXX XXXS	OUT ±XXXS ±XXXS ±XXXS	
AFT XXXX XXXS	BYP LN ±XXXS ±XXXS ±XXXS	
TOPPING XXXX XXXS	GG SPLY LN XXXS XXXS	
ACCUM XXXX XXXS	H2O LN INJ ±XXXS ±XXXS ±XXXS	
HI LOAD XXXX XXXS	(XX)	

PASS
SM OPS 2
SPEC 088
NOTE
This CRT display is mission reconfigurable

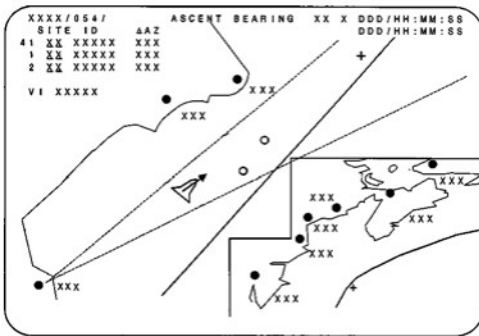
(C) APU/ENVIRON THERM

XXXX/XXX/086	APU/HYD	XX X DDD/HH:MM:SS
APU	HYD	DDD/HH:MM:SS
B/U EGT 1 2 3	B/U P 1 2 3	
EGT XXXX XXXS XXXS	RSVR T XXXX XXXS XXXS	
SPEED % XXXX XXXS XXXS	P XXXX XXXS XXXS	
FUEL QTY XXXX XXXS XXXS	QTY XXXX XXXS XXXS	
TK P XXXX XXXS XXXS	ACCUM P XXXX XXXS XXXS	
OUT P XXXX XXXS XXXS		
TK VLV A XXXS XXXS XXXS		
A T XXXS XXXS XXXS		
B T XXXS XXXS XXXS		
OIL T XXXS XXXS XXXS	W/B 1 2 3	
OUT T XXXS XXXS XXXS	CNTLR XXX XXX XXX	
OUT P XXXX XXXS XXXS	H2O QTY XXXX XXXS XXXS	
GBX P XXXX XXXS XXXS	N2 P XXXX XXXS XXXS	
N2 P XXXX XXXS XXXS	T XXXX XXXS XXXS	
BRG T XXXX XXXS XXXS	REG P XXXX XXXS XXXS	
GG BED T XXXX XXXS XXXS	BYP VLV XXXX XXXS XXXS	
PUMP/VLV	VENT T ±XXXS ±XXXS ±XXXS	
PMP T XXXX XXXS XXXS	TANK T ±XXXS ±XXXS ±XXXS	
VLV T XXXX XXXS XXXS	BLR T ±XXXS ±XXXS ±XXXS	
	(XX)	

PASS
SM OPS 2
SPEC 086
NOTE
This CRT display is mission reconfigurable

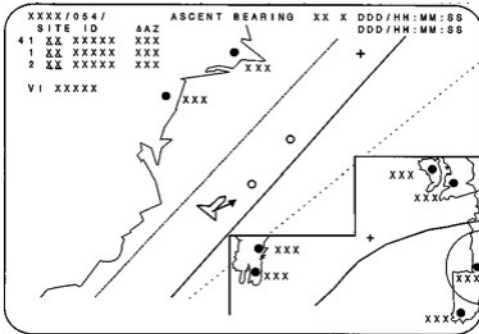
(D) APU/HYD

PASS
GNC OPS
1,6
SPEC 054



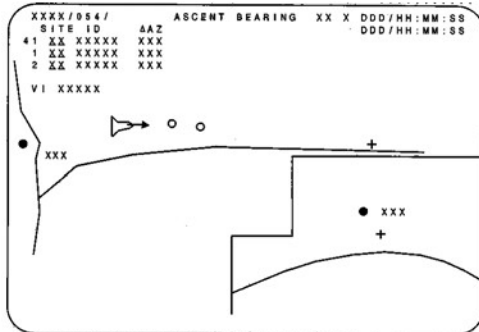
(A) ASCENT BEARING (HI INCLINATION MAP SET 1)

PASS
GNC OPS
1,6
SPEC 054



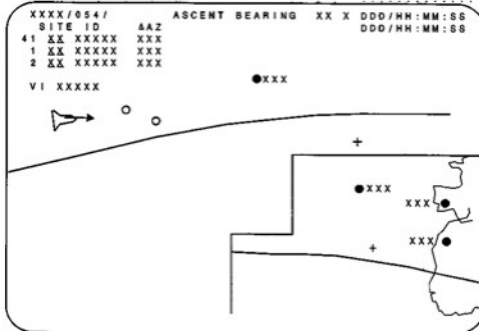
(B) ASCENT BEARING (HI INCLINATION MAP SET 2)

PASS
GNC OPS
1,6
SPEC 054



(C) ASCENT BEARING (LO INCLINATION MAP SET 1)

PASS
GNC OPS
1,6
SPEC 054



(D) ASCENT BEARING (LO INCLINATION MAP SET 2)

PASS
SM OPS 2

SPEC 068

NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/068		CRYO SYSTEM					XX X	DDD/HH:MM:SS
							DDD/HH:MM:SS	
P	02	1	2	3	4	5		
TK P		XXXXXS	XXXXXS	XXXXXS	XXXXXS	XXXXXS		
QTY		XXXXXS	XXXXXS	XXXXXS	XXXXXS	XXXXXS		
T		±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
HTR T	1	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
HTR	1A	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
CUR	1B	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
SNSR	2A	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
MANF	2B	±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
VLV	P	XXXX	XXXX	XXXX	XXXX	XXXX		
H2		XXS	XXS	XXS	XXS	XXS		
P		XXXXS	XXXXS	XXXXS	XXXXS	XXXXS		
TK P		XXXXS	XXXXS	XXXXS	XXXXS	XXXXS		
QTY		XXXXS	XXXXS	XXXXS	XXXXS	XXXXS		
T		±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
HTR T		±XXXXS	±XXXXS	±XXXXS	±XXXXS	±XXXXS		
MANF	P	XXXX	XXXX	XXXX	XXXX	XXXX		
VLV		XXS	XXS	XXS	XXS	XXS		

(XX)

(A) CRYO SYSTEM

PASS
GNC OPS 2

SPEC 020

XXXX/020/		DAP CONFIG					XX X	DDD/HH:MM:SS
							DDD/HH:MM:SS	
ROT RATE	10	X.XXXX	30	X.XXXX	50	X.XXXX	3 DAP AXI	
ATT DB	11	XX.XX	31	XX.XX	51	XX.XX	4 DAP BXL	
RATE DB	12	X.XX	32	X.XX	52	X.XX	5 XXXX	
ROT PLS	13	X.XXX	33	X.XXX	53	X.XXX		
COMP	14	-XXX	34	-XXX	54	-XXX		
P OPTION	15	XXXX	35	XXXX	55	XXXX		
Y OPTION	16	XXXX	36	XXXX	56	XXXX		
TRAN PLS	17	X.XXX	37	X.XXX	57	X.XXX	NOTCH FLTR	
XXX							ENA 6X	
RATE DB	18	X.XXX	38	X.XXX	58	X.XXX	ALT	
JET OPT	19	XXXX	39	XXXX	59	XXXX	XJETS ROT	
# JETS	20	X	40	X	60	X	ENA 7X	
ON TIME	21	X.XX	41	X.XX	61	X.XX	REBOOST	
DELAY	22	XX.XX	42	XX.XX	62	XX.XX	8 CFG X	
XXXX							9 INTVL	
ROT RATE	23	X.XXXX	43	X.XXXX	63	X.XXXX	XXX.XX	
ATT DB	24	XX.XXX	44	XX.XXX	64	XX.XXX		
RATE DB	25	-XXX	45	-XXX	65	-XXX		
ROT PLS	26	X.XXX	46	X.XXX	66	X.XXX		
COMP	27	-XXX	47	-XXX	67	-XXX		
CNTL ACC	28	X	48	X	68	X		

(B) DAP CONFIG

PASS
SM OPS 2

SPEC 167

NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/167		DOCKING STATUS					XX X	DDD/HH:MM:SS
							DDD/HH:MM:SS	
CONTACT	XXXXCNTL	PRL	PWR	XS/XS/XS	CNTL	CMD	PWR	XXXX
CAPTURE	XXXXHTR/DCU	PWR	XS/XS/XS	XRING	DR	BUS	XS/XS	
DAMPING	XXXXAPOS	PWR	XS/XS/XS	HS	DR	BUS	XS/XS	
RNG ALGN	XXXXAPOS	CIRC	PROT	XXXX	DAMPER	BUS	XS/XS	
RING POS	XXXXS/XXXXS/XXXXS				FIXER	BUS	XS/XS	
DRV CMD	XXXX				PMA 2/3	OP 7	CL	
FIXERS	XXXX				HK1	CMD	XSXS/XSXS	
CLUTCH	XXXXS/XXXXS				IND	XSXS/XSXS		
PETAL POS	1 2 3				HK2	CMD	XSXS/XSXS	
RING	XXXX XXXS XXXS				IND	XSXS/XSXS		
BASE	XXXX XXXS XXXS				HK CLS			
UNDOCK CMPLT	XXXX				1/3/5	XXS	7/9/11	XXS
RDY TO HOOK	XXXX				2/4/6	XXS	8/10/12	XXS
HK1 DRV CMD	XXXX				ODS INDIV	HK CL	ODS CONN	
POS	XXXX				1 3 5 7 9 11		X3 XXXS	
IND	XXS/XXS				XXSXXSXXSXXSXXSXXS		X4 XXXS	
HK2 DRV CMD	XXXX				2 4 6 8 10 12			
POS	XXXX				XXSXXSXXSXXSXXSXXS			
IND	XXS/XXS							
CAP LAT CMD	XXXX				PYRO LOGIC	PUR	XS/XS/XS	
IND	XXS/XXS				PYRO CIRC	PROT	XXXX/XXXX	
MAN REL	XXS				PYRO MNA	40/6 AMP	XXXX/XXXX	

(XX)

(C) DOCKING STATUS

PASS
ALL OPS

SPEC 001

XXXX/001/		DPS UTILITY					XX X	DDD/HH:MM:SS
							DDD/HH:MM:SS	
MMU ASSIGN	1 2	PORT ASSIGN	1	15X	16X	UL CNTL		
GNC	1X 2X	STRING	2	17X	18X	AUTO	35X	
SM	3X 4X		3	19X	20X	ENA	36X	
PL	5X 6X		4	21X	22X	INH	37X	
OPS	0 7X 8X	PL 1/2	23X	24X	IPL SOURCE	SW		
MMU STATUS	1 XXX				MASK	38X		
	2 XXX	VAR PARAM ID LIST	25	XXXX	G3 ARCHIVE			
MMU SOURCE/BUS			26	XXXX	LOAD	46X		
GPC/MMU	9X		27	XXXX	RETRIEVE	49X		
MMU/MMU	10X		28	XXXX				
GPC/LDS	11X		29	XXXX	GROUND OPS			
CKPT RETRY	ENA 12X		30	XXXX	GSE POLL	ENA	50X	
			31	XXXX	SM	GSE	INH	51X
			32	XXXX	SM	C/O	ENA	52X
			33	XXXX	GNC	C/O	ENA	53X
RTC	13 XXXX XXXX		34	XXXX	BFC	C/O	ENA	54X
CMD	14				ALT	PLS	TB	55X

(D) DPS UTILITY

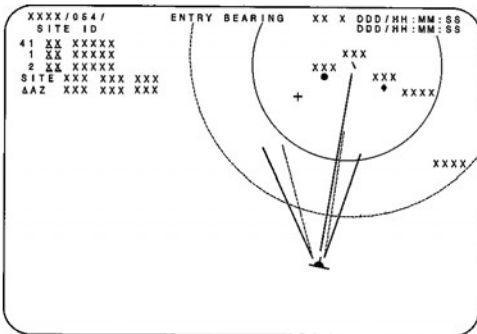
XXXX/XXX/067		ELECTRIC			XX X	DDD/HH:MM:SS	DDD/HH:MM:SS	
DC	1/A	2/B	3/C	AC	1	2	3	
VOLT	FC	XX.XS	XX.XS	XX.XS	VA	XXXS	XXXS	XXXS
MN	XX.XS	XX.XS	XX.XS		VB	XXXS	XXXS	XXXS
PCA	FWD	XX.XS	XX.XS	XX.XS	VC	XXXS	XXXS	XXXS
AFT	XX.XS	XX.XS	XX.XS		VA	XX.XS	XX.XS	XX.XS
ESS	XX.XS	XX.XS	XX.XS		VB	XX.XS	XX.XS	XX.XS
					VC	XX.XS	XX.XS	XX.XS
CNTL	1XXX.XS	XXX.XS	XXX.XS	XOVLD	XXS	XXS	XXS	
	2XXX.XS	XXX.XS	XXX.XS	XOVLD	XXS	XXS	XXS	
	3XXX.XS	XXX.XS	XXX.XS	XOVLD	XXS	XXS	XXS	
AMPS	FC	XXXS	XXXS	XXXS	PAYLOAD DC AMPS			
FWD	XXXS	XXXS	XXXS		AFT B		XXX.XS	
MID	XXXS	XXXS	XXXS		C		XXX.XS	
AFT	±XXXS	±XXXS	±XXXS					
TOTAL AMPS		XXXS						
KW		XXX.XS						

(XX)

PASS
SM OPS 2
SPEC 067

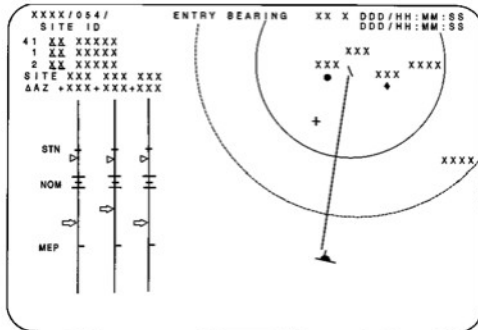
NOTE
This CRT
display is
mission
reconfigurable

(A) ELECTRIC



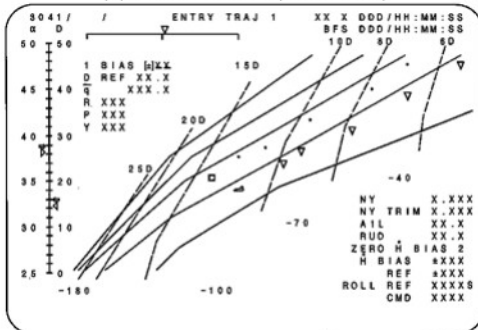
PASS
GNC OPS
3,6
SPEC 054

(B) ENTRY BEARING (MM304-305)



PASS
GNC OPS
3,6
SPEC 054

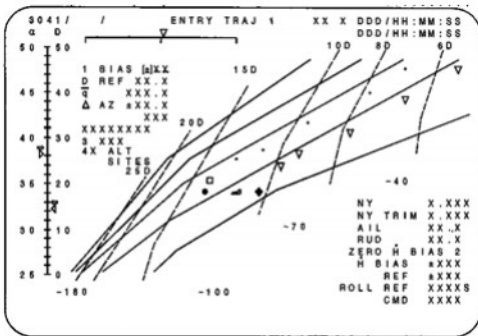
(C) ENTRY BEARING (MM602-603)



BFS
GNC OPS
304

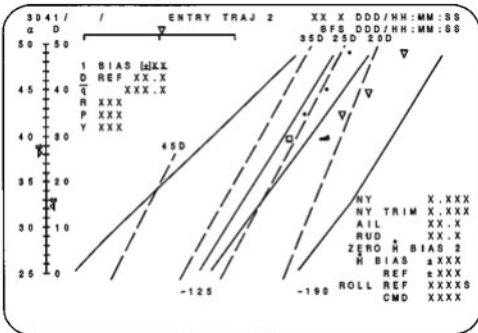
(D) ENTRY TRAJ 1 (BFS)

PASS
GNC OPS
304



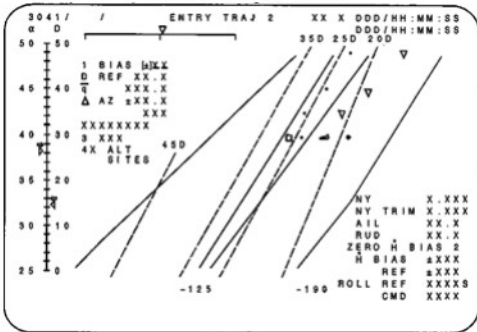
(A) ENTRY TRAJ 1 (PASS)

BFS
GNC OPS
304



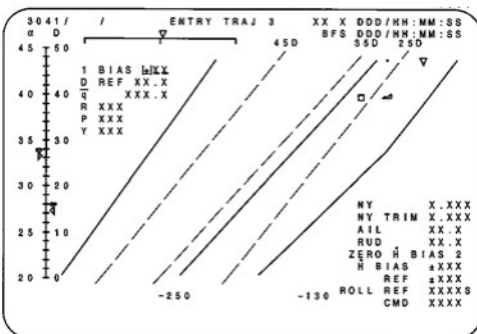
(B) ENTRY TRAJ 2 (BFS)

PASS
GNC OPS
304

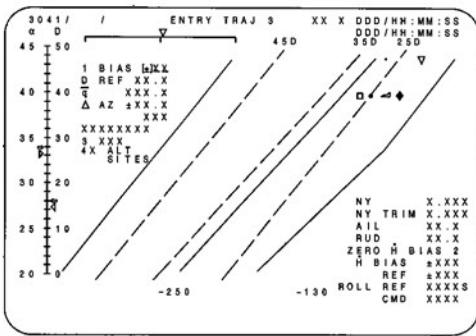


(C) ENTRY TRAJ 2 (PASS)

BFS
GNC OPS
304

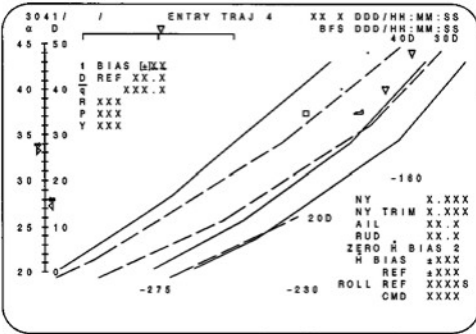


(D) ENTRY TRAJ 3 (BFS)



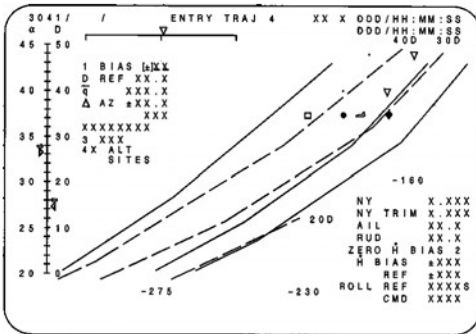
PASS
 GNC OPS
 304

(A) ENTRY TRAJ 3 (PASS)



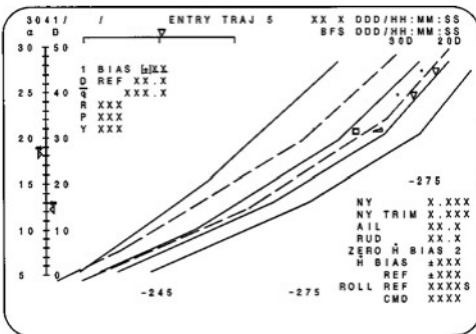
BFS
 GNC OPS
 304

(B) ENTRY TRAJ 4 (BFS)



PASS
 GNC OPS
 304

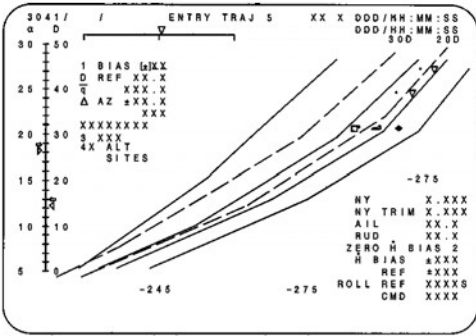
(C) ENTRY TRAJ 4 (PASS)



BFS
 GNC OPS
 304

(D) ENTRY TRAJ 5 (BFS)

PASS
GNC OPS
304



(A) ENTRY TRAJ 5 (PASS)

PASS
SM OPS 2
SPEC 066

NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/066 ENVIRONMENT XX X DDD/HH:MM:SS DDD/HH:MM:SS				
CABIN		AV BAY 1	TEMP XXXXS XXXXS XXXXS	
dP/dT ±.XXS	PRESS XX.XXS	FAN AP X.XXS X.XXS X.XXS	SUPPLY H2O	
PPO2	AIRLK P XX.XS	QTY A XXXS PRESS XXXS		
A X.XXS	FAN ΔP X.XXS	B XXXS	DMP LN T XXXS	
B X.XXS	HX OUT T XXXS	C XXXS	NOZ T A XXXS	
C X.XXS	CABIN T XXXS	D XXXS	B XXXS	
PPCO2 XX.XS				
02 FLOW	X.XS	X.XS	WASTE H2O	
REG P	XXXS	XXXS	QTY 1 XXXS PRESS XXXS	
N2 FLOW	X.XS	X.XS	DMP LN T XXXS	
REG P	XXXS	XXXS	NOZ T A XXXS	
02/N2 CNTL VLV	XXXS	XXXS	B XXXS	
H2O TK N2 P	XXXS	XXXS	VAC VT NOZ T XXXS	
N2 QTY	XXXS	XXXS	CO2 CNTLR	
EMER 02 REG P	XXXS		1XS 2XS	
		FILTER ΔP	X.XS XX.XS	
		PPCO2	XX.XS	
		TEMP	XXX.XS	
		BED A PRESS	XX.XS XX.XS	
		B. PRESS	XX.XS XX.XS	
		ΔP	X.XXS X.XXS	
		VAC PRESS	X.XS	
IMU	FAN	A B C ΔP		
HUMID	SEP	XS XS XS X.XS		

(B) ENVIRONMENT

PASS
SM OPS 2
SPEC 066

NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/177 EXTERNAL AIRLOCK XX X DDD/HH:MM:SS DDD/HH:MM:SS				
EXT A/L PRESS XX.XXS		VESTIBULE		
A/L-VEST ΔP XX.XXS		DEP VLV 1 XX/XX		
INTERNAL TEMP		ISOL VLV 1 XX/XX		
UPR BKHD T XXXS		DEP VLV 2 XX/XX		
LWR BKHD T XXXS		ISOL VLV 2 XX/XX		
EXTERNAL TEMP		TEMP 1/2 XXX/XXX		
AFT STRUC T XXXS				
EXT A/L LINE TEMP		POWER/BATTERY CHARGER		
ZN1 ZN2		EMU1 EMU2		
H2O SPLY T XXXS XXXS		AMPS X.XXS X.XXS		
LCG2 SPLY T XXXS XXXS		VOLTS XX.XXS XX.XXS		
02 SPLY LN T XXXS				
H2O LINE PRESS				
LCG SPLY P 1 XX.XXS XX.XXS				
H2O XFER P XX.XXS				

(C) EXTERNAL AIRLOCK

BFS
ALL OPS

SPEC 099
OR
FAULT
SUMM KEY

XXXX/XXX/099 FAULT XX X DDD/HH:MM:SS BFS DDD/HH:MM:SS				
ORT ID	FAULT	C/W	GPC	TIME
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX
XXX	XXXXXXXXXXXX	XXXX	X	X XXX/XX:XX:XX

(D) FAULT (BFS)

XXXX/XXX/099 FAULT XX X DDD/HH:MM:SS
DDD/HH:MM:SS

CRT ID	FAULT	C/W	GPC	TIME
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX
XXX	XXXXXXXXXX	XXXX	X	XXXXX XXX/XX:XX:XX

PASS
ALL OPS
SPEC 099
OR
FAULT
SUMM KEY

(A) FAULT (PASS)

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

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

BODY FLP DES	SURF DR	START 10X	STOP 11X
VLV 1 XXX 12X			
2 XXX 13X			
3 XXX 14X			

SEC ACT CK	R	OB	CMD	POS	1	2	3	4
CH 1 15X			XXX.X	XXX.XS	S	S	S	S
CH 2 16X	RUD		XXX.X	XXX.XS	S	S	S	S
CH 3 17X	SPD BRK		XXX.X	XXX.XS	S	S	S	S
CH 4 18X	BDY FLP		XX	XXX.X				
STOP 19X								
POS ST 1W								
ENA 20X								
					SEC ACT			
					21 BYPASS		XX	
					22 RESET		XX	

PASS
GNC OPS 8

(B) FCS/DED DIS C/O

XXXX/XXX/069 FUEL CELLS XX X DDD/HH:MM:SS
DDD/HH:MM:SS

VOLTS	AMP	FC 1	FC 2	FC 3	H2O RLF	LINE T	NOZ T	PH	SS1	SS2	SS3	ΔAMPS
XX.XS	XXXS	XX.XS	XX.XS	XX.XS								
H2	H2	X.XS	X.XS	X.XS								
REAC	H2	XXS	XXS	XXS								
STACK T	EXIT T	±XXXS	±XXXS	±XXXS								
COOL T	P	XXXS	XXXS	XXXS								
PUMP	H2 PUMP	XXS	XXS	XXS								
READY		X.XS	X.XS	X.XS								
H2O	PH	XXXS	XXXS	XXXS								
PRI LN T	VLV T	XXXS	XXXS	XXXS								
ALT LN T		XXXS	XXXS	XXXS								

(XX)

PASS
SM OPS 2
SPEC 069
NOTE
This CRT
display is
mission
reconfigurable

(C) FUEL CELLS

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

SURF	POS	MDM	DPS	1	2	3	4
L OB	XXX.XS	XXS	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						
RUD	XXX.X						
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	XXX	S	S	S	
REG P B	XXXXS	XXXXS	XXXXS	ADTA	S	S	S	S
4P/4T	XXS	XXS	XXS					

ULL P	LH2	XX.XS	XX.XS	XX.XS	MPS	PNEU	HE	P
	LO2	XX.XS	XX.XS	XX.XS				
					TK	XXXXS		
					REG	XXXXS		
					ACUM	XXXXS		
GH2 OUT P	XXXXS	XXXXS	XXXXS	MANF	P	LH2	XXXXS	
GO2 OUT T	XXXXS	XXXXS	XXXXS			LO2	XXXXS	

BFS
GNC OPS
1, 3, 6
SPEC 018
OR
SYS SUMM
KEY

(D) GNC SYS SUMM 1 (BFS)

PASS
GNC OPS
1, 2, 3, 6, 8

SPEC 018
OR
SYS SUMM
KEY

XXXX/XXX/018		GNC SYS SUMM 1		XX X DDD/HH:MM:SS	
				DDD/HH:MM:SS	
RCS	JETISOL				
MAN	FAILV LV	SURF	POS	MDM	DPS 1 2 3 4 5
F1XXX	XXS	L OB	XXX.XS	XXS	GPC S S S S S
2XXX	XXS	IB	XXX.XS	XXS	MDM FF S S S S
3XXX	XXS	R IB	XXX.XS	XXS	FA S S S S
4XXX	XXS	OB	XXX.XS	XXS	
5XXX	XXS	AIL	XXX.X		
L1XXX	XXS	RUD	XXX.X		FCS CH 1 2 3 4
2XXX	XXS	SPD BRK	XXX.X		S S S S
3XXX	XXS	BDY FLP	XXX.X		
4XXX	XXS		XXXXXX		
5XXX	XXS				NAV 1 2 3 4
R1XXX	XXS				IMU S S S
2XXX	XXS	CNTLR	1 2 3		ACC S S S S
3XXX	XXS	RHC	L S S S		RGA S S S S
4XXX	XXS		R S S S		XXX S S S
5XXX	XXS		A S S S		MLS S S S
		THC	L S S S		ADTA S S S S
			A S S S		
		SBTC	L S S S		
			R S S S		

(A) GNC SYS SUMM 1 (PASS)

PASS
GNC OPS
2, 8

BFS
GNC OPS
1, 3, 6
SPEC 019
OR
SYS SUMM
KEY TWICE

XXXX/XXX/019		GNC SYS SUMM 2		XX X DDD/HH:MM:SS	
				BFS DDD/HH:MM:SS	
OMS	AFT	QTY	L	R	OMS
			OXID	XX.XS	XX.XS
			FU	XX.XS	XX.XS
			FU INJ	T	XXXX
					XXXX
RCS		OXID	FU	JETISOL	VLV
FWD	HE	PXXXXX	XXXXX		
	TK	P	XXXX	XXXX	
	QTY	XXXX	XXXX		
MANF	1	P	XXXX	XXXX	XXX
	2	P	XXXX	XXXX	XXX
	3	P	XXXX	XXXX	XXX
	4	P	XXXX	XXXX	XXX
	5				XXX
AFT	HE	PXXXXX	XXXXX		
L	TK	P	XXXX	XXXX	
	QTY	XXXX	XXXX		
MANF	1	P	XXXX	XXXX	XXX
	2	P	XXXX	XXXX	XXX
	3	P	XXXX	XXXX	XXX
	4	P	XXXX	XXXX	XXX
	5				XXX

(B) GNC SYS SUMM 2 (PASS/BFS)

PASS
GNC OPS 9
SPEC 104

XXXX/104/		GND IMU CNTL/MON		XX X DDD/HH:MM:SS	
				DDD/HH:MM:SS	
IMU	1	2	3		
X	1 XXX.XX	4 XXX.XX	7 XXX.XX	SEL IMU 1	19X
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
B	HDW XXXX	XXXX	XXXX	TERM/IDLE	27X
I	S/W XX	XX	XX		
T	B/TAT XX	XX	XX	28 MM WRITE	X
				READ	29X
PWR	ON X	X	X	MM STATUS	XXXX
I/O	1 S	S	S	GEN IMU	31X
STBY	10X	11X	12X	30 SITE SEL	X
OPER	13X	14X	15X	ACTUAL	XXX

(C) GND IMU CNTL/MON

PASS
ALL OPS
SPEC 000

0001/ /		GPC MEMORY		XX X DDD/HH:MM:SS	
				DDD/HH:MM:SS	
MEM/BUS CONFIG		READ/WRITE	XXX		
1	CONFIG XL(XX)	DATA	20X	BIT SET	22X
2	GPC X X X X X	CODE	21X	BIT RST	23X
				SEQ ID	24
				WRITE	25
STRING	1 7 X	24	ENG UNITS	XXX	HEX 27X
	2 8 X	ADD ID	DESIRED	ACTUAL	
	3 9 X	28	XXXXXX	29	XXXX
	4 10 X	30	XXXXXX	31	XXXX
PL 1/2	11 X	32	XXXXXX	33	XXXX
		34	XXXXXX	35	XXXX
		36	XXXXXX	37	XXXX
		38	XXXXXX	39	XXXX
CRT	1 12 X				
	2 13 X				
	3 14 X				
	4 15 X				
LAUNCH	1 16 X	MEMORY DUMP		STORE	MC=XX
	2 17 X	40	START ID	XXXX	45
	1 18 X	41	NO WORDS	XXXXXX	46
	2 19 X	42	WDS/FRAME	XXX	STORE
MM	1 18 X	43	DUMP START/STOP	43	
	2 19 X	44	DOWNLIST	GPC X	MM AREA
OPS 3	UPLK 50X	OPS 0	ENA	49	X
OPS 3	INIT 61	ERR	LOG	RESET	48
					PL 52 X
					GNC 53 X
					SM 54 X

(D) GPC MEMORY

```

XXXX/112/      GPC/BTU I/F      XX X DDD/HH:MM:SS
                    DDD/HH:MM:SS
BTU SELECTION      TEST STATUS
FF 1X PCMMU 12X      XXXX      MDM OUTPUT TEST
2 2X MMU1 15X      BTU ITEM XX      MODULE XX
3 3X 2 14X STEP XXXXXX
4 4X MEC1 15X ROW XXXX      ANALOG OUTPUTS
FA 1 5X 2 16X SCE STAT RQ 0 aX.XX 1 aX.XX
2 6X EIU1 17X XXXXXXXX 2 aX.XX 3 aX.XX
3 7X 2 18X 4 aX.XX 5 aX.XX
4 8X 3 19X PORT SEL 1 31X 8 aX.XX 7 aX.XX
PF 1 9X ODU 20X 2 32X 8 aX.XX 9 aX.XX
2 10X MCIU 21X 10 aX.XX 11 aX.XX
      CMD 22X 12 aX.XX 13 aX.XX
      SRB 23X 14 aX.XX 15 aX.XX
ALL DES
MDMS 11X ALL 24X      DISCRETE OUTPUTS
                    CHANNEL 0 XXXXXX
                    CHANNEL 1 XXXXXX
                    CHANNEL 2 XXXXXX
TEST LEVEL 1 25X
      LEVEL 2 26X
CONTROL MDM OUTPUT 27X
      TERMINATE 28
      CONTINUE 29      BTU CYCLIC BITE 30X

```

PASS
GNC OPS 9
SPEC 112

(A) GPC/BTU I/F

```

XXXX/XXX/006 GPC/BUS STATUS XX X DDD/HH:MM:SS
                    DDD/HH:MM:SS

```

	GPC	1S	2S	3S	4S	5S
MODE	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX
OPS	XX	XX	XX	XX	XX	XX
STRING 1	FF	XS	XS	XS	XS	XS
	FA	XS	XS	XS	XS	XS
2	FF	XS	XS	XS	XS	XS
	FA	XS	XS	XS	XS	XS
3	FF	XS	XS	XS	XS	XS
	FA	XS	XS	XS	XS	XS
4	FF	XS	XS	XS	XS	XS
	FA	XS	XS	XS	XS	XS
PL 1	XS	XS	XS	XS	XS	XS
2	XS	XS	XS	XS	XS	XS
LAUNCH 1	XS	XS	XS	XS	XS	XS
2	XS	XS	XS	XS	XS	XS
CRT 1	XS	XS	XS	XS	XS	XS
2	XS	XS	XS	XS	XS	XS
3	XS	XS	XS	XS	XS	XS
4	XS	XS	XS	XS	XS	XS

PASS
ALL OPS
SPEC 006

(B) GPC/BUS STATUS

```

XXXX/073/      GPCF PL C&W      XX X DDD/HH:MM:SS
                    XXXXXX XXXXXXXXX DDD/HH:MM:SS
1 SELECT PL ID:LL XXXX PRIMARY XXXXZX
2 SELECT PL ID:LL XXXX SECONDARY XXXXXXXX

```

DESCR	VAL	DESCR	VAL	DESCR	VALUE
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS
XXXXXXXXXX	XS	XXXXXXXXXX	XS	XXXXXXXXXX	XXXX.XS

PASS
SM OPS
2, 4
SPEC 073

(C) GPCF PL C&W

```

XXXX/072/      GPCF PL COMMANDING XX X DDD/HH:MM:SS
                    XXXXXX XXXXXXXXX DDD/HH:MM:SS
16 SELECT PL ID:LL XXXX
PAYLOAD HAZARDOUS/TIME CRITICAL COMMANDS

```

CMD	HAZ	ENA	INH	EXE		DESCRIPTION
				(88)	(99)	
1	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
2	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
3	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
4	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
5	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
6	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
7	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
8	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
9	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
10	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
11	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
12	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
13	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
14	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX
15	X	X	X	X	X	XXXXXXXXXXXXXXXXXXXX

PASS
SM OPS
2, 4
SPEC 072

(D) GPCF PL COMMANDING


```

XXXX/100/      GTS DISPLAY      XX X DDD/HH:MM:SS
                                     DDD/HH:MM:SS
HDA CONTROL          DED DISP
ENA 1X  INH 3X      FWD 18X  AFT 19X  DRIVE 24X
DES PM 40X PL 41X  HIGH 20X  LOW 21X
                                     FLAG 22X  OFF 23X

CSL/RML TEST
UF1 3X  UF4 6X      CRIT MEC CWDS      ELEV LMT SEL
UF2 4X  UF5 7X      ENA 25X
UF3 5X  IFA 8X      INH 26X
9 FAIL GPC SEL X
TEST EXEC 10X
RESET 11X          SL COMM      SSC      EXC
                                     CH A ENA 30X  35X
                                     B ENA 31X  36X
                                     DSBL 32X  37X

DL FORMAT
12 SEL XX
LOAD 19X          MDM TESTS
RTRN CHW 33 XXXX  38 XXXX
RTRN MSG 34 XXXX  39 XXXX
COUPLER
STATE          XXXX  XXXX
ERR CD         XX    XX

GSE POLL ENA 14X
PASS/BFS XFER 15
RJD TOGGLER
ON 18X OFF 17X

```

PASS
GNC OPS 9
PL OPS 9

SPEC 100

(A) GTS DISPLAY

```

XXXX/050/      HORIZ SIT      XX X DDD/HH:MM:SS
                                     BFS DDD/HH:MM:SS
ALTM 9 XX0XX      NAV DELTA
                                     ΔX 10
                                     (a)XXXXXXXX
XXXXXXXXXXXXXX XX
41 XXXX SITE XX
PRI XXXXX 3X
SEC XXXXX 4X
TAC XXX 5
TAEM TGT
GEN X XXXX 6
HSI X
XEP 7
AIM XXXX 8
PASS/BFS SV XFER 17X 18 AT (a)XXXXXX

NAV RESID RATIOAUT|NH|FOR TAC1 XXX|TAC2 XXX|TAC3 XXX
TAC AZ=XX.XXXX.XS|19X|20X|21X =XXX.XXS|XXX.XXS|XXX.XXS
RNG =XX.XXXX.XS | | | =XXX.XXS|XXX.XXS|XXX.XXS
GPS =XX.XXXX.XS|42X|43X|44X DES 31X DES 32X DES 33X
DRAG H=XXXXXXXX.XS|22X|23X|24X GPS
ADTA H=XXXXXXXX.XS|25X|26X|27X AZ =XXX.XXS
ADTA TO G&C |28X|29X|30X| RNG XXXX.XXS

```

BFS
GNC OPS
1, 3, 6

SPEC 050

(B) HORIZ SIT (BFS, SINGLE OR NO GPS)

```

XXXX/050/      HORIZ SIT      XX X DDD/HH:MM:SS
                                     BFS DDD/HH:MM:SS
ALTM 9 XX0XX      NAV DELTA
                                     ΔX 10
                                     (a)XXXXXXXX
XXXXXXXXXXXXXX XX
41 XXXX SITE XX
PRI XXXXX 3X
SEC XXXXX 4X
TAEM TGT
GEN X XXXX 6
HSI X
XEP 7
AIM XXXX 8
PASS/BFS SV XFER 17X 18 AT (a)XXXXXX

NAV RESID RATIOAUT|NH|FOR GPS|S|XXXXX|S|XXXXX|S|XXXX
GPS P=XX.XXXX.XS|42X|43X|44X|VEL XX.XX XX.XX XX.XX
V=XXX.XXX.XS | | | P 10 XXXXXX XXXXXX XXXXXX
DRAG H=XXXXXXXX.XS|22X|23X|24X DES 31XDES 32XDES 33X
ADTA H=XXXXXXXX.XS|25X|26X|27X AZ XXX RNG ALT
ADTA TO G&C |28X|29X|30X| XXX XXXX.X XXX.X

```

BFS
GNC OPS
1, 3, 6

SPEC 050

(C) HORIZ SIT (BFS, 3 GPS)

```

XXXX/050/      HORIZ SIT      XX.X DDD/HH:MM:SS
                                     DDD/HH:MM:SS
PTI XXX 1 ALTM 9 XX0XX      NAV DELTA
INDEX XX      0 1 2 3
XXX
XXXXXXXXXXXXXX XX
41 XXXX SITE XX
PRI XXXXX 3X
SEC XXXXX 4X
TAC XXX 5
GPS FOM RA
X 49X
TAEM TGT
GEN X XXXX 6
HSI X
XEP 7
AIM XXXX 8
S/B XXXX 39 X.X E XXX 5.0K
18 AT (a)XXXXXX

NAV RESID RATIOAUT|NH|FOR TAC1 XXX|TAC2 XXX|TAC3 XXX
TAC AZ=XX.XXXX.XS|19X|20X|21X =XXX.XXS|XXX.XXS|XXX.XXS
RNG =XX.XXXX.XS | | | =XXX.XXS|XXX.XXS|XXX.XXS
GPS =XX.XXXX.XS|42X|43X|44X DES 31X DES 32X DES 33X
DRAG H=XXXXXXXX.XS|22X|23X|24X ABS 34X DELTA 35X|XXXX
ADTA H=XXXXXXXX.XS|25X|26X|27X GPS S RN=XXXX.X AZ=XXXX.XX
ADTA TO G&C |28X|29X|30X| AIF_G 547X 48X 49X HXXX.X

```

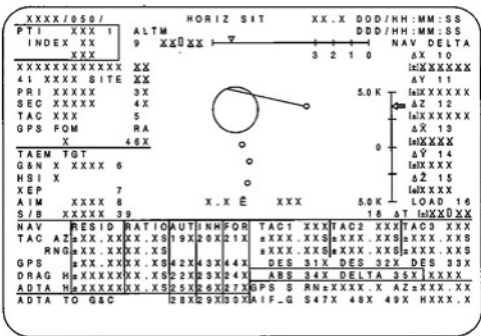
PASS
GNC OPS
1, 3, 6

SPEC 050

(D) HORIZ SIT (IN-LEFT HAC, 3 TACAN)

PASS
GNC OPS
1, 3, 6

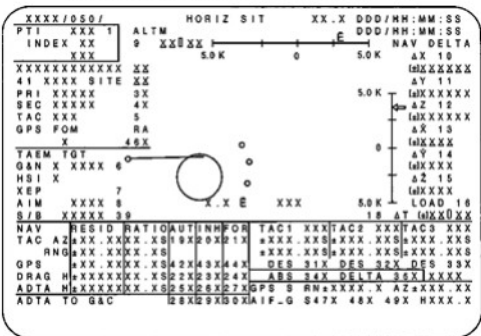
SPEC 050



(A) HORIZ SIT (IN-RIGHT HAC, 3 TACAN)

PASS
GNC OPS
1, 3, 6

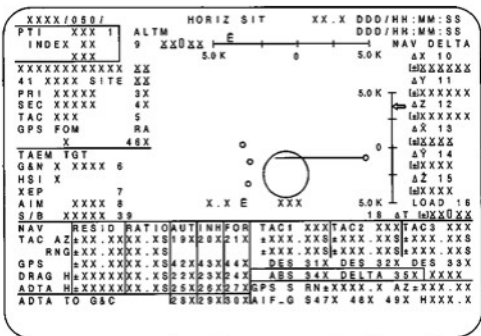
SPEC 050



(B) HORIZ SIT (OUT-LEFT HAC, 3 TACAN)

PASS
GNC OPS
1, 3, 6

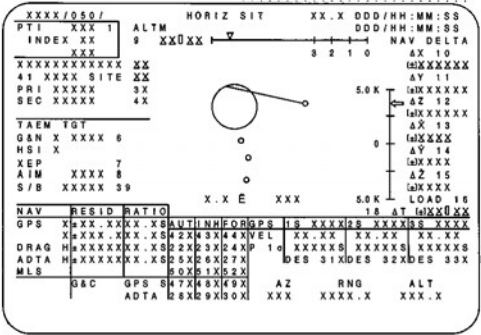
SPEC 050



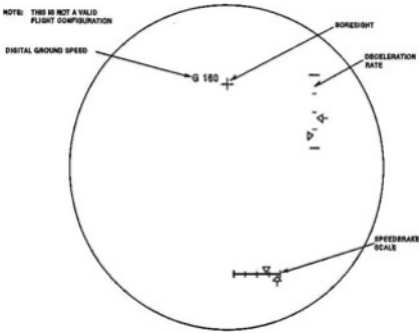
(C) HORIZ SIT (OUT-RIGHT HAC, 3 TACAN)

PASS
GNC OPS
1, 3, 6

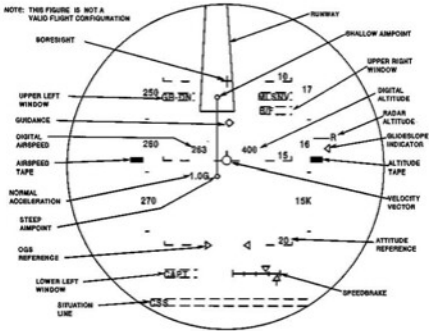
SPEC 050



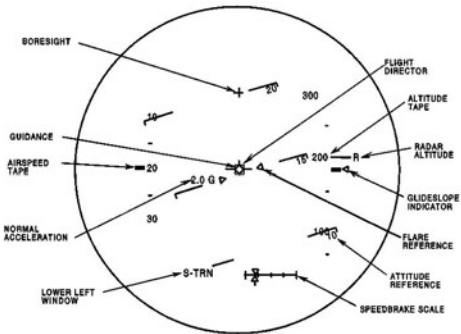
(D) HORIZ SIT (RIGHT HAC, 3 GPS)



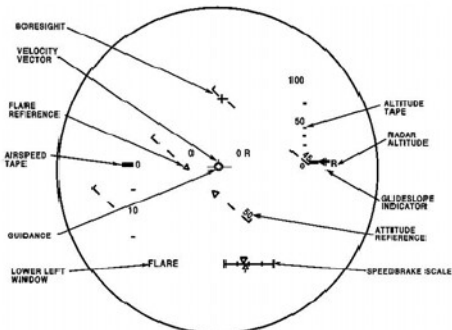
(A) HUD DISPLAY FORMAT 1 AFTER-WOW



(B) HUD DISPLAY FORMAT 1 PRE-WOW



(C) HUD VU OPS 8 LOW



(D) HUD VU OPS 9 LOW

PASS
SM OPS 2
SPEC 087
NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/087		HYD THERMAL			XX X DDD/HH:MM:SS			
					CIRC PUMP CONTROL			
HYD	P	1	2	3	LINE	1	2	3
CIRC PMP		XXXX	XXXX	XXXX	ELEVON	LOB	XXXX	XXXX
PMP BDY		XXXX	XXXX	XXXX		LIB	XXXX	XXXX
RSVR		XXXX	XXXX	XXXX		RIB	XXXX	XXXX
ACCUM		XXXX	XXXX	XXXX		ROB	XXXX	XXXX
HX IN		XXXX	XXXX	XXXX	RD/SB	POU	XXXX	XXXX
OUT		XXXX	XXXX	XXXX		FUS	XXXX	XXXX
					BOYFLP			
SW VLV		PR	S1	S2		FUS	XXXX	XXXX
ELEV L	OB	3XS	1XS	2XS	L BRAKE	WHL	XXXX	XXXX
	IB	2XS	1XS	3XS		FUS	XXXX	XXXX
	R IB	3XS	1XS	2XS	R BRAKE	WHL	XXXX	XXXX
	OB	2XS	1XS	3XS		FUS	XXXX	XXXX
RUD/SPDBK		1XS	2XS	3XS	NG	UPLK	XXXX	XXXX
					MG L			
TIRE PRESS					MG R			
		LEFT		RIGHT		UPLK	XXXX	XXXX
IB	XXXX	XXXX	XXXX	XXXX		FUS	XXXX	XXXX
OB	XXXX	XXXX	XXXX	XXXX				
NG	XXXX	XXXX	XXXX	XXXX				

(XX)

(A) HYD THERMAL

PASS
GNC OPS
2, 3
OPS 3
(MM301)
SPEC 021

XXXX/021/		IMU ALIGN			XX X DDD/HH:MM:SS		
IMU					DDD/HH:MM:SS		
		1S	2S	3S			
STAT	XXXX	XXXX	XXXX	ALIGN	XXX		
TEMP	XX	XX	XX	IMU	1 10X	REF	STAR 13X
STBY	21X	22X	23X		2 11X	IMU	14 X
OPER	4X	5X	6X		3 12X	TYPE	15 XXXXXX
DES	7X	8X	9X				
					EXEC 16X		
					TERM 17		
ACC					IMU BITE MASK		
X	XX.XX	XX.XX	XX.XX		1	XXXX	24X
Y	XX.XX	XX.XX	XX.XX		2	XXXX	25X
Z	XX.XX	XX.XX	XX.XX		3	XXXX	26X
ANG					NAV ΔV THRESH		
X	XXX.XX	XXX.XX	XXX.XX		16 XXXXXXX		
Y	XXX.XX	XXX.XX	XXX.XX				
Z	XXX.XX	XXX.XX	XXX.XX				
ΔX	XXX.XX	XXX.XX	XXX.XX		MM READ 19X		
ΔY	XXX.XX	XXX.XX	XXX.XX				
ΔZ	XXX.XX	XXX.XX	XXX.XX				

(B) IMU ALIGN

PASS
GNC OPS 9
SPEC 106

XXXX/XXX/106		MANUAL CONTROLS			XX X DDD/HH:MM:SS		
					DDD/HH:MM:SS		
RHC	R	P	Y		L	1	XX
L	1	XXXX	XXXX	XXXX	S	2	XX
	2	XXXX	XXXX	XXXX	B	3	XX
	3	XXXX	XXXX	XXXX	T	R	1
R	1	XXXX	XXXX	XXXX	C	2	XX
	2	XXXX	XXXX	XXXX	3	XX	
	3	XXXX	XXXX	XXXX	L	1	XXXX
A	1	XXXX	XXXX	XXXX	R	2	XXXX
	2	XXXX	XXXX	XXXX	P	3	XXXX
	3	XXXX	XXXX	XXXX	T	R	1
TRIM SW	R	P	Y	BDY FLP	A	2	XXXX
PML L	1	X	X	L	1X	3	XXXX
	2	X	X		2X		
	R	1	X	R	1X	THC	TX TY TZ
	2	X	X		2X	L	1 X X X X
RHC L	1	X	X				2 X X X X
	2	X	X				3 X X X X
	R	1	X			A	1 X X X X
	2	X	X				2 X X X X
							3 X X X X

(C) MANUAL CONTROLS

PASS
SM OPS
2, 4
SPEC 085
PL OPS
901

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

(D) MASS MEMORY R/W

```

XXXX/046/      NWS CHECK      XX X DDD/HH:MM:SS
                                DDD/HH:MM:SS
      HYD
      SYS PRESS
      SEL HIGH  ENABLE  CURRENT  POSITION
NWS1 XS  XS  A XS  XX.XXS  A XX.XXS
              B XS              B XX.XXS
NWS2 XS  XS  A XS  XX.XXS  C XX.XXS
              B XS

STIMULI
ENABLE 1X
RIGHT TURN (+) 2X
LEFT TURN (-) 3X
STOP 4X

```

PASS
GNC OPS 8
SPEC 045

(A) NWS CHECK

```

XXXX/034/      ORBIT TGT      XX X DDD/HH:MM:SS
                                DDD/HH:MM:SS
MNVR  TIG  ΔVX  ΔVY  ΔVZ  ΔVT
XX X XXX/XX:XX:XX  ±XXX.X  ±XX.X  ±XX.X  ±XXX.X
                                PRED MATCH= XXXXXXXX

INPUTS                                CONTROLS
1 TGT NO                                T2 TO T1 26
2 T1 TIG  XXX/XX:XX:XX                XXXX 26
6 EL  XXX.XXX                          COMPUTE T1 28X
7 ΔX/DNRNG (±)XXX.XX                  COMPUTE T2 29X
8 ΔY (±)XXX.XX
9 ΔZ/AH (±)XXX.XX
10 ΔX (±)XXX.XX
11 ΔY (±)XXX.XX
12 ΔZ (±)XXX.XX
13 T2 TIG  XXX/XX:XX:XX
17 ΔT (±)XXX.X
18 ΔX (±)XXX.XX
19 ΔY (±)XXX.XX
20 ΔZ (±)XXX.XX
21 BASE TIME XXX/XX:XX:XX

ORBITER STATE
XXX/XX:XX:XX.XXX
X ±XXXXX.XXX
Y ±XXXXX.XXX
Z ±XXXXX.XXX
VX ±XX.XXXXXX
VY ±XX.XXXXXX
VZ ±XX.XXXXXX

```

PASS
GNC OPS 2
SPEC 034

(B) ORBIT TGT

```

XXXX/051/      OVERRIDE      XX X DDD/HH:MM:SS
                                BFS DDD/HH:MM:SS
ABORT MODE  ENTRY FCS
TAL 1X ELEVON FILTER ATMOSPHERE
ATO 2X AUTO 17X NOM 29X NOM 22X
ABORT 3X FIXED 18X ALT 21X N POLE 23X
THROT MAX 4X SSME REPOS 19 XXX S POLE 24X
      ABT 50X
      NOM 51X
PRPLT DUMP 1 25X X LRU DES DES DES
XXX ICNCT 5 XXXX 2 26X 1 31X 35X 39X
OMS DUMP 3 27X 2 32X 38X 40X
      ARM 6X 3 33X 37X 41X
      START 7X ET SEP 4 34X 38X 42X
      STOP 8X AUTO 28X
      9 QUAN/SIDE XXX SEP 29X ROLL MODE
OMS DUMP TTG XXX WRAP MODE 45 XXX
      ET UMB DR
AFT RCS 13 XXX CLOSE 39X COMM XXXX
      14 TIME XXX TDRS 46X
      VENT DOOR CNTL STDN-HI 47X
FWD RCS 15 XXX OPEN 43X XX STDN-LO 48X
      16 TIME XXX CLOSE 44X XX SGLS 49X

```

BFS
GNC OPS
1, 3, 6
SPEC 051

(C) OVERRIDE (BFS)

```

XXXX/051/      OVERRIDE      XX X DDD/HH:MM:SS
                                DDD/HH:MM:SS
ABORT MODE  ENTRY FCS
TAL 1X ELEVON FILTER ATMOSPHERE
ATO 2X AUTO 17X NOM 29X NOM 22X
ABORT 3X FIXED 18X ALT 21X N POLE 23X
THROT MAX 4X SSME REPOS 19 XXX S POLE 24X
      ABT 50X
      NOM 51X
PRPLT DUMP 1S XXXX X 25X SYS AUT DES
XXX ICNCT 5 XXXX 2S XXXX XXX 26X 1S 28X 31X
OMS DUMP 3S XXXX 27X 2S 29X 32X
      ARM 6X 3S 30X 33X
      START 7X
      STOP 8X
      9 QUAN/SIDE XXX
OMS DUMP TTG XXX
      ADTA H G M DES
      L 1S XXXXXX ±XX.X X.XX 34X
      3S XXXXXX ±XX.X X.XX 35X
      R 2S XXXXXX ±XX.X X.XX 36X
      4S XXXXXX ±XX.X X.XX 37X
      ET SEP ROLL MODE XXXXXXXX
      AUTO 38X AUTO SEL 42X
      SEP 39X WRAP MODE 45 XXX
      ET UMB DR VENT DOOR CNTL
      CLOSE 40X OPEN 43X XX
      RCS RM MANF CLOSE 44X XX
      CL OVRD 41

```

PASS
GNC OPS
1, 3, 6
SPEC 051

(D) OVERRIDE (PASS)

PASS
GNC OPS 9

SM OPS
2, 4

SPEC 062

XXXX/092/ SM COM BUFF XXX 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	PCMMU/PL COMM XX X DDD/HH:MM:SS DDD/HH:MM:SS ORB C&W=ISS 20 XXX 21 TEST XXXX	POI I/O RESET 8XX BITE WORD XXXX 9 SEL DECOM X 10 SEL FMT XXX LOAD 11 XXXX 12 SEL INPUT X LOAD 13 DECOM INPUT FMT 1 X XXS 2 X XXS 3 X XXS 4 X XXS 5-FPM XXX DECOM ENA ENA FDA 1 14X 3 16X 2 15X 4 17X 18 TPL GPC SEL X DOWNLIST 19 SEL FMT ID XX
PSP I/O RESET PSP1 6XX PSP2 7XX SYNC LOAD	PL INTRG 1 CHANNEL XXXX 2 CHANNEL XXXX PHASE LOCK XXXX ERR +XXS XMIT PWR XX.XXS PL SIG STR X.XXS	

(A) PCMMU/PL COMM

PASS
SM OPS
2, 4

SPEC 094

XXXX/094/ RMS SEL: XXXX PORT 1X STBD 2X 3 PL ID XX 4 END EFF X	PDRS CONTROL XX X DDD/HH:MM:SS DDD/HH:MM:SS RMS PWR XXX RMS S/M XXX I/O ON SX OFF 6X	ENA INH- 7X 8X AUTO BRAKE 9X 10X POS ENC CK 11X 12X POHS CNTL 28X 29X AUTO MODES 1 2 3 4 17 13 XX 14 XX 15 XX 16 XX START PT XXX LAST PT XXX
END POS 18 X 19 Y 20 Z	OPR CMD MODES / POR REF END ATT 24 PL INIT ID XX CMD CK 25 XXXX POR DISPLAY 36 XXX	
XXXX STO/DPLY MPM X X X X LAT/REL/RDY AFT X X X X X X MID X X X X X X FWD X X X X X X	ORB LD CMD REF NORM FLY-CAMR FLY-PL 31X 32X 33X 26 WR RANGE X AUTO BRAKE CK 27X	

(B) PDRS CONTROL

PASS
SM OPS 2

SPEC 096

NOTE
This CRT
display is
mission
reconfigurable

XXXX/XXX/096 ABE BITE: MDA OVERCURRENT / MOTOR DRV FAULT COMMUTATOR TACHOMETER TOTAL COMPENSATOR MICROCOMPUTER MDA DEMAND VOLTAGE A/D CONVERTER BRAKE POS ENCODER BACKUP RELAY CHECK CRT# DIRECT DRIVE BITE POS ENCODER CONTR ERROR REACH LIMIT	PDRS FAULTS XX X DDD/HH:MM:SS DDD/HH:MM:SS SY SP EP WP WY WR	MCIU MADC X MCPC X ICF X ABE COMM X CHECK CRT# DC/ACTU X EXT FS X EE FLAG X EEEE X EE CMDS X HC X MCIU HC X THP CKT X
CHECK CRT# SPA BITE TEST	SY SP EP WP WY WR XXXX XXXX XXXX XXXX XXXX XXXX	(XX)

(C) PDRS FAULTS

PASS
SM OPS
2, 4

SPEC 0950

XXXX/095/XXX MODE SW OVRD 1X MODE SEL IND ORB UHL 2X SINGLE 3X END EFF 4X ORB LD 5X PL 6X OPR CMD 7X AUTO 1 8X AUTO 2 9X AUTO 3 10X AUTO 4 11X TEST 12X ENTER 13	PDRS OVERRIDE XX X DDD/HH:MM:SS DDD/HH:MM:SS XXXXXXXXXXXXXXXXXX	JNT SW OVRD 17X JOINT SEL 18X SH YAW 19X SH PITCH 20X WR PITCH 21X WR YAW 22X WR ROLL 23X EE TEMP 24X CRIT TEMP 25X	RATE SW OVRD 26X VERNIER 27X COARSE 28X AUTO SW OVRD 29X PROCEED 30 STOP 31 HC AXIS CHG 32X THC 33X RHC 34X
LOADED RATE 14X STOWED OPS 15X SIN/DIR SW REASSIGN 18X	MCIU OVERRIDE SAFING CAN 35X ABE OVRD A 36X ABE OVRD B 37X ABE OVRD C 38X		

(D) PDRS OVERRIDE

XXXX/XXX/169	PDRS STATUS	XX X	DOD/HH:MM:SS
RMS SEL# XXXX			DOD/HH:MM:SS
POR REF SEL# XXX			
	POHS ERR X.X	LAST PT XXX	
	X/P	ATT ERR XX.XX	
	Y/Y	Z/R	
POHS POS REF	±XXXX.XS	±XXXX.XS	±XXXX.XS
POHS ATT REF	±XXX.XS	±XXX.XS	±XXX.XS
POSITION	±XXXX.XS	±XXXX.XS	±XXXX.XS
ATTITUDE	±XXX.XS	±XXX.XS	±XXX.XS
TRANS RATES	ACT ±X.XXXS	±X.XXXS	±X.XXXS
	CMD ±X.XXX	±X.XXX	±X.XXX
ROT RATES	ACT ±X.XXXS	±X.XXXS	±X.XXXS
	CMD ±X.XXX	±X.XXX	±X.XXX
JOINT ANGLES		END EFFECTOR	
SY	SP	EP	RIGID CLOSE CAPTURE
±XXX.XXS	±XXX.XXS	±XXX.XXS	X X X
WP	WY	WR	DERIG OPEN EXTEND
±XXX.XXS	±XXX.XXS	±XXX.XXS	X X X

PASS
SM OPS 2

SPEC 169

NOTE
This CRT
display is
mission
reconfigurable

(A) PDRS STATUS

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

PASS
SM OPS
2, 4

BFS SM

SPEC 063

(B) PL BAY DOORS (PASS/BFS)

XXXX/XXX/097	PL RETENTION	XX X	DOD/HH:MM:SS
			DOD/HH:MM:SS
	LATCH 1	LATCH 2	LATCH 3
	AB/AB	AB/AB	AB/AB
PL SEL 1			LATCH 4
RDY-FOR-LAT	XX	XX	XX
LAT/REL	XX/XX	XX/XX	XX/XX
PL SEL 2			LATCH 5
RDY-FOR-LAT	XX	XX	AB/AB
LAT/REL	XX/XX	XX/XX	XX/XX
PL SEL 3			
RDY-FOR-LAT	XX	XX	XX
LAT/REL	XX/XX	XX/XX	XX/XX

PASS
SM OPS 2

SPEC 097

NOTE
This CRT
display is
mission
reconfigurable

(C) PL RETENTION

XXXX/XXX/179	POWER TRANSFER	XX X	DOD/HH:MM:SS
			DOD/HH:MM:SS
FC POWER (KW)	1/AXXXX	2/BXXXX	3/CXXXX
MAIN VOLTS	XX.XS	XX.XS	XX.XS
PTU/MAIN BUS	XX.XXS	XX.XXS	XX.XXS
	XXX	XXX	
OPCU	PTU 1		PTU 2
OUT VOLTS	A	B	A
AMPS	XX.XXS	XX.XXS	XX.XXS
TEMP	XX.XS	XX.XS	XX.XS
TRIP	XXXS	XXXS	XXXS
	XX XX	XX XX	XX XX
	XX XX	XX XX	XX XX
	XXX XX	XXX XX	XXX XX
	XXX XX	XXX XX	XXX XX
APCU			
OUT VOLTS	XXX.XS		XXX.XS
AMPS	XX.XS		XX.XS
IN AMPS	XX.XS		XX.XS
TEMP	XXXS		XXXS
OUTPUT	XXX		XXX
TRIP	XX XX	XX XX	XX XX
	XXX XX	XXX XX	XXX XX

PASS
SM OPS 2

SPEC 179

NOTE
This CRT
display is
mission
reconfigurable

(D) POWER TRANSFER

PASS
SM OPS 2
SPEC 089

XXXX/XXX/089	PRPLT	THERMAL	XX X	DDD/HH:MM:SS
POD	L	R		DDD/HH:MM:SS
OMS TK	OX	XXXS	XXXS	
ENG I/F	FU	XXXS	XXXS	OMS CRSFD L R C
	FU	XXXS	XXXS	XFD OX XXXS XXXS XXXS
	OX	VLV	XXXS	DRN GMBL LN XXXS XXXS
	FU	INJ	XXXS	OX XXXS XXXS
WEB KEEL	1	XXXS	XXXS	
	2	XXXS	XXXS	
Y	OB	XXXS	XXXS	
	UP	XXXS	XXXS	
OX DRN PNL	1	XXXS	XXXS	
	2	XXXS	XXXS	
ENG COVER	XXXS	XXXS	XXXS	
GSE SERV PNL	XXXS	XXXS	XXXS	
TEST HE/OX	1	XXXS	XXXS	
	2	XXXS	XXXS	

FWD RCS	LINE	T1	FU	OX
		T2	XXXS	XXXS
			XXXS	XXXS

AFT RCS	L	R
MANF 1	OX	XXXS
DRN PNL	1	XXXS
	2	XXXS
VERN PNL	1	XXXS
	2	XXXS

(XX)

(A) PRPLT THERMAL

PASS
GNC OPS
1, 2, 3,
6, 8

SPEC 023

XXXX/023/	RCS	XX X	DDD/HH:MM:SS
			DDD/HH:MM:SS
F 1X	4 PRI FAIL LIM	X	L OMS= R OMS=
L 2X			AFT 5X AFT 6X OMS=RCS QTY
R 3X	51 AUT MANF CL XXX		FWD 46X FWD 47X 49L XX XXS
			OFF 7X 50R XX XXS
			48 PRESS XXX

JET	FAIL	DES	JET	PTY
	INH	DES		
XXX	XXX	8X	8X	X
XX	XXX	10X	11X	X
Y	XX	12X	13X	X
XX	XXX	14X	15X	X
XXU	XXX	16X	17X	X
XU	XXX	18X	19X	X
Z	XU	20X	21X	X
XXX	XXX	22X	23X	X
XD	XXX	24X	25X	X
2D	XXX	26X	27X	X
XD	XXX	28X	29X	X
XXX	XXX	30X	31X	X
X	XX	32X	33X	X
XX	XXX	34X	35X	X
XSX	XXX	36X	37X	X
V	5X	38X	39X	X

HE	P	XXXXX	XXXXX
PRPLT TK P		XXXXX	XXXXX
T		XXXXX	XXXXX
QTY		XXXXX	XXXXX
MANF P	1	XXXXX	XXXXX
	2	XXXXX	XXXXX
	3	XXXXX	XXXXX
	4	XXXXX	XXXXX
MANF VLVs	STAT	OVRO	
	1	XXS	40
	2	XXS	41
	3	XXS	42
	4	XXS	43
	5	XXS	44
XXX XFD P	XXXX	XXXX	
JET RESET	45		

(B) RCS

PASS
GNC OPS 9
SPEC 102

XXXX/102/	RCS/RGA/ADTA TEST	XX X	DDD/HH:MM:SS
			DDD/HH:MM:SS
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			
ENA	STAT	R	P	Y	HIGH START	15X	
R1	7X	XXXX	±XX.XS	±XX.XS	±XX.XS	AUTO SEQ	17X
G2	8X	XXXX	±XX.XS	±XX.XS	±XX.XS	TERM	18X
A3	9X	XXXX	±XX.XS	±XX.XS	±XX.XS		
4	10X	XXXX	±XX.XS	±XX.XS	±XX.XS	INH ALL	19X
ENA	STAT	PaC	PS	PaU	PaL	TT	
A1	11X	XXXX	XX.XXSX	XX.XXSX	XX.XXSX	XX.XXSX	XXX.XXS
D3	12X	XXXX	XX.XXSX	XX.XXSX	XX.XXSX	XX.XXSX	XXX.XXS
T2	13X	XXXX	XX.XXSX	XX.XXSX	XX.XXSX	XX.XXSX	XXX.XXS
A4	14X	XXXX	XX.XXSX	XX.XXSX	XX.XXSX	XX.XXSX	XXX.XXS

(C) RCS/RGA/ADTA TEST

PASS
GNC OPS 2
SPEC 033

XXXX/033/	REL NAV	XX X	DDD/HH:MM:SS
			DDD/HH:MM:SS
RNDZ NAV	ENA 1X	SV UPDATE	
KU ANT	ENA 2X	POS XX.XX	AVG G ON 5X
MEAS	ENA 3X	VEL XX.XX	
GPS			
SV SEL	4	XXXX	RR XXXX
RNG	XXXX.XXX	RNG	XXXX.XXSX
R	XXXX.XX	R	±XXXX.XXS
#	XXX.XX	EL	±XXX.XS
Y	±XXX.XX	AZ	±XXX.XS
W	±XXX.X	wP	±XX.XS
MODE	XX:XX:XX	SB	±XX.XS
FILTER			
S TRK	12X	RR 13X	COAS 14X
STAT	XXXXXXXXXX	XXXX	X ±X.X
FLTR UPDATE	15	XXX	Y ±X.X
COVAR	REINIT	16X	
EDIT OVRO			
RNG	±XX.XX	X.X	XXX XXS
R	±XX.XX	X.X	XXX XXS
V/EL/Y	±X.XX	X.X	XXX XXS
H/AZ/X	±X.XX	X.X	XXX XXS
GPS X	±XXX.XX	X.XS	
X	±XXX.XX	X.XS	

STAT	P	1e	DES
15	XXXX	XXXXX	31X
25	XXXX	XXXXX	32X
35	XXXX	XXXXX	33X
SV TRANSFER			
FLTR	MINUS	PROP	
POS		XX.XX	
VEL		XX.XX	
FLTR TO PROP	±X		
PROP TO FLTR	±X		
ORB TO TGT	±X		
TGT TO ORB	±X		

(D) REL NAV

```

XXXX/041/      RGA/ADTA/RCS      XX X DDD/HH:MM:SS
                                DDD/HH:MM:SS
DES STAT      R      P      Y
R1 1X XXXX  #XX.XS  #XX.XS  #XX.XS
G2 2X XXXX  #XX.XS  #XX.XS  #XX.XS
A3 3X XXXX  #XX.XS  #XX.XS  #XX.XS
  4 4X XXXX  #XX.XS  #XX.XS  #XX.XS

DES STAT      PS      PaC      PoU      PaL      T
A1 5X XXXX  XX.XXXS  XX.XXXS  XX.XXXS  XX.XXXS  XXX.XXS
D3 6X XXXX  XX.XXXS  XX.XXXS  XX.XXXS  XX.XXXS  XXX.XXS
T2 7X XXXX  XX.XXXS  XX.XXXS  XX.XXXS  XX.XXXS  XXX.XXS
A4 8X XXXX  XX.XXXS  XX.XXXS  XX.XXXS  XX.XXXS  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

```

PASS
GNC OPS 8
SPEC 041

(A) RGA/ADTA/RCS (ON-ORBIT)

```

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

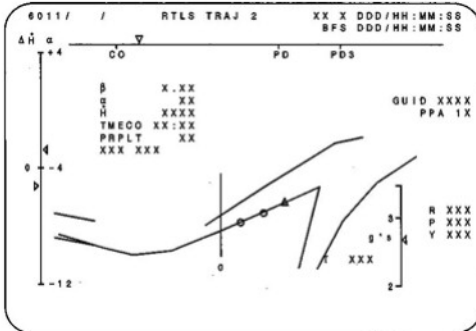
                                A 1 XXXS XXXS XXXS 13X
                                2 XXXS XXXS XXXS 14X
                                3 XXXS XXXS XXXS 15X

                                SW RM INH 16X

```

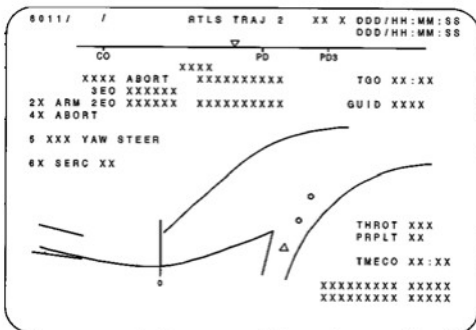
PASS
GNC OPS 2
SPEC 025

(B) RM ORBIT



BFS
GNC OPS
601

(C) RTLS TRAJ 2 (BFS)



PASS
GNC OPS
601

(D) RTLS TRAJ 2 (PASS)

PASS
GNC OPS
2, 3
SPEC 022

```

XXXX/022/      S TRK/COAS CNTL  XX X DDD/HH:MM:SS
                ODD/HH:MM:SS
S TRK CNTL  -Y  -Z          S TABLE  1    2    3
SELF-TEST   1X  3X          TRK ID     XXX  XXX  XXX
STAR TRK    3X  4X          Δ MIN      XXX  XXX  XXX
TGT TRK     5X  6X          ANG DIF   XXX.X XXX.X XXX.X
BREAK TRK   7   8           ERR      XX.XX XX.XX XX.XX
TERM/IDLE   9X 10X         SEL        17X  18X  19X
                S TABLE CLR 20

S TRK         -Y          -Z          COAS
REQD ID      11 XXX     12 XXX     REQD ID      21 XXX
TRK ID       XXX       XXX       ADEG X       *X.X
S PRES       X         X         Y             *X.X
ΔANG         *X.XX     *X.XX     SIGHT MODE   22X
THOLD        13 L     14 L       ACCEPT         23
SHUTTER      XX       XX       CAL MODE     24X
MAN OP       15X     16X       DES           25X
STATUS       XXXXXXXX XXXXXXXX POS  +X 26X  -Z 27X
                XXXX      XXXX      ΔBIAS   X.XX  X.XX
                UPDATE 28      29

```

(A) S TRK/COAS CNTL

PASS
GNC OPS 9
SPEC 101

```

XXXX/101/      SENSOR SELF-TEST  XX X DDD/HH:MM:SS
                ODD/HH:MM:SS
ENA STAT  RNG  AZ  EL
M1 1X XXXX XX.XS ±X.XXS X.XXS
L2 2X XXXX XX.XS ±X.XXS X.XXS
S0 3X XXXX XX.XS ±X.XXS X.XXS

TEST CONTROL:
START 13X
AUTO SEQ 14X
TERM 15X
INH ALL 16X

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

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

```

(B) SENSOR SELF-TEST (3 GPS)

PASS
GNC OPS 9
SPEC 101

```

XXXX/101/      SENSOR SELF-TEST  XX X DDD/HH:MM:SS
                ODD/HH:MM:SS
ENA STAT  RNG  AZ  EL
M1 1X XXXX XX.XS ±X.XXS X.XXS
L2 2X XXXX XX.XS ±X.XXS X.XXS
S0 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
INH ALL 16X

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

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

```

(C) SENSOR SELF-TEST (3 TACAN)

PASS
GNC OPS 8
SPEC 040

```

XXXX/040/      SENSOR TEST  XX X DDD/HH:MM:SS
                ODD/HH:MM:SS
DES STAT  RNG  AZ  EL
MLS 1 1X XXXX XX.XS ±X.XXS X.XXS
    2 2X XXXX XX.XS ±X.XXS X.XXS
    3 3X XXXX XX.XS ±X.XXS X.XXS

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

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

START 18X STOP 14X

```

(D) SENSOR TEST (ON-ORBIT, 3 GPS)

```

XXXX/040/          SENSOR TEST  XX X DDD/HH:MM:SS
                      DDD/HH:MM:SS
      DES STAT  RNG  AZ  EL
MLS 1  1X XXXX XX.XS  +X.XXS X.XXS
    2  2X XXXX XX.XS  +X.XXS X.XXS
    3  3X XXXX XX.XS  +X.XXS X.XXS

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

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

      DES          Y          Z
AA  1  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

```

PASS
GNC OPS 8
SPEC 040

(A) SENSOR TEST (ON-ORBIT, 3 TACAN)

```

XXXX/111/          SL MEMORY DUMP  XX X DDD/HH:MM:SS
SM COM BUFF XXX          DDD/HH:MM:SS

SL COMP SEL
SS 1X
EXP 2X
SL COUPLER
SEL A 3X
    B 4X
5 START ADD  XXXX
6 LENGTH  XXXXX
DUMP 7 XXXX

WORDS ACQ  XXXXX
FAIL RHW  XXXX
AW XXXXX
LAST ADD  XXXX

```

PASS
PL OPS 9
SPEC 111

(B) SL MEMORY DUMP

```

XXXX/064/          SM GROUND CHECKOUT XX X DDD/HH:MM:SS
                      DDD/HH:MM:SS
XXXXXXXXXXXXXXXXXX
      ENA  INH  PROCESS  INH/ENA
FDA  2X  3X
PL ANNUH  4X  X  S P O/P  15 X
SM ANNUH  5X  X

      DOWNLIST
6 SEL FMT  XX
LOAD  7X

      RMS TOOLS
SOFT STOP/REACH
TURNAROUND 8X
REINSTALL  9X
SINGULARITY 10X
JOINT
RATE LIMIT 11X
12 JOINT SEL X
13 ATTEM LIM XX

OPS ACTIVATE 1X

```

PASS
SM OPS
2, 4
SPEC 064

(C) SM GROUND CHECKOUT

```

XXXX/XXX/178      SM OIU  XX X DDD/HH:MM:SS
                      DDD/HH:MM:SS

ACTIVE DEVICES
PDI
DCM  SYNC
      B W F
1  XSXSXS  PRI FRM SYNC  XXXS
2  XSXSXS  PRI STATUS  XXXS
3  XSXSXS  B/U FRM SYNC  XXXS
4  XSXSXS  B/U STATUS  XXXS

PSP LOAD
CMD XXX

```

PASS
SM OPS
2
SPEC 178

NOTE
This CRT
display is
mission
reconfigurable

(XX)

(D) SM OIU

BFS SM
SPEC 078
OR
SYS SUMM
KEY

XXXX/XXX/078			SM SYS SUMM 1			XX X DDD/HH:MM:SS		
						BFS DDD/HH:MM:SS		
SMOKE	1/A	2/B	DC VOLTS	1/A	2/B	3/C		
CABIN	XX.XS		FC	XX.XS	XX.XS	XX.XS		
L/R FD	XX.XS	XX.XS	MAIN	XX.XS	XX.XS	XX.XS		
AV BAY	1 XX.XS	XX.XS	ESS	XX.XS	XX.XS	XX.XS		
	2 XX.XS	XX.XS					A-----B-----C-----A	
	3 XX.XS	XX.XS	CNTL	1 XXX.XSXXX.XSXXX.XSX				
CABIN				2 XXX.XSXXX.XSXXX.XSX				
PRESS	XX.XXS			3 XXX.XSXXX.XSXXX.XSX				
dP/dT	±.XXS		AC					
BU/EQ	±.XXS	±.XXS	VOLT	±A XXXS	XXXS	XXXS		
PP02	X.XXS	X.XXS		±B XXXS	XXXS	XXXS		
FAN ΔP	X.XXS			±C XXXS	XXXS	XXXS		
HX OUT T	XXXS		AMPS	±A XX.XS	XX.XS	XX.XS		
O2 FLOW	X.XS	X.XS		±B XX.XS	XX.XS	XX.XS		
N2 FLOW	X.XS	X.XS		±C XX.XS	XX.XS	XX.XS		
IMU FAN ΔP	X.XXS		FUEL CELL	PH XXXS	XXXS	XXXS		
ΔV FC1	FC2	FC3	AMPS	XXXS	XXXS	XXXS		
SS1	XXXS	XXXS	REAC VLV	XXXS	XXXS	XXXS		
SS2	XXXS	XXXS	STACK T	±XXXS	±XXXS	±XXXS		
SS3	XXXS	XXXS	EXIT T	±XXXS	±XXXS	±XXXS		
TOTAL AMPS	XXXXS		COOL P	XXXS	XXXS	XXXS		
	KW	XXS	PUMP	XXS	XXS	XXS		

(A) SM SYS SUMM 1 (BFS)

PASS
SM OPS 2
SPEC 078
OR
SYS SUMM
KEY

NOTE
This CRT display is mission reconfigurable

XXXX/XXX/078			SM SYS SUMM 1			XX X DDD/HH:MM:SS		
						DDO/HH:MM:SS		
SMOKE	1/A	2/B	DC VOLTS	1/A	2/B	3/C		
CABIN	XX.XS		FC	XX.XS	XX.XS	XX.XS		
L/R FD	XX.XS	XX.XS	MAIN	XX.XS	XX.XS	XX.XS		
AV BAY	1 XX.XS	XX.XS	ESS	XX.XS	XX.XS	XX.XS		
	2 XX.XS	XX.XS					A-----B-----C-----A	
	3 XX.XS	XX.XS	CNTL	1 XXX.XSXXX.XSXXX.XSX				
CABIN				2 XXX.XSXXX.XSXXX.XSX				
PRESS	XX.XXS			3 XXX.XSXXX.XSXXX.XSX				
dP/dT-EQ	±.XXS	±X.XXS	SAC					
O2 CONC	XXX.XS		VOLT	±A XXXS	XXXS	XXXS		
PP02	X.XXS	X.XXS		±B XXXS	XXXS	XXXS		
FAN ΔP	X.XXS			±C XXXS	XXXS	XXXS		
HX OUT T	XXXS		AMPS	±A XX.XS	XX.XS	XX.XS		
O2 FLOW	XX.XS	XX.XS		±B XX.XS	XX.XS	XX.XS		
N2 FLOW	XX.XS	XX.XS		±C XX.XS	XX.XS	XX.XS		
IMU FAN ΔP	XXS	XXS	FUEL CELL	AMPS	XXXS	XXXS		
ΔV FC1	FC2	FC3		REAC VLV	XX	XX		
SS1	XXXS	XXXS		STACK T	±XXXS	±XXXS		
SS2	XXXS	XXXS		EXIT T	±XXXS	±XXXS		
SS3	XXXS	XXXS		COOL P	XXXS	XXXS		
TOTAL AMPS	XXXXS			PUMP	XXS	XXS		
	KW	XXS					(XX)	

(B) SM SYS SUMM 1 (PASS)

BFS SM
SPEC 079
OR
SYS SUMM
KEY TWICE

XXXX/XXX/079			SM SYS SUMM 2			XX X DDD/HH:MM:SS		
						BFS DDD/HH:MM:SS		
CRYO TK	1	2	3	4	5	MANF1	MANF2	
H2 PRESS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS
O2 PRESS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
HTR T1	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
T2	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
APU	1	2	3	HYD	1	2	3	
TEMP EGT	±XXXS	±XXXS	±XXXS	PRESS	±XXXS	±XXXS	±XXXS	±XXXS
B/U EGT	±XXXS	±XXXS	±XXXS	ACUM P	±XXXS	±XXXS	±XXXS	±XXXS
OIL IN	±XXXS	±XXXS	±XXXS	RSVR T	±XXXS	±XXXS	±XXXS	±XXXS
OUT	±XXXS	±XXXS	±XXXS	QTY	±XXXS	±XXXS	±XXXS	±XXXS
GG BED	±XXXS	±XXXS	±XXXS	W/B				
INJ	±XXXS	±XXXS	±XXXS	H2O QTY	±XXXS	±XXXS	±XXXS	±XXXS
SPEED %	±XXXS	±XXXS	±XXXS	BYP VLV	±XXXS	±XXXS	±XXXS	±XXXS
FUEL QTY	±XXXS	±XXXS	±XXXS					
PMP LK P	±XXS	±XXS	±XXS					
OIL OUT P	±XXXS	±XXXS	±XXXS					
FU TK VLV								
A T	±XXXS	±XXXS	±XXXS	THERM CNTL	1	2		
B T	±XXXS	±XXXS	±XXXS	H2O PUMP P	±XXXS	±XXXS	±XXXS	±XXXS
AV BAY	1	2	3	FREON FLOW	±XXXS	±XXXS	±XXXS	±XXXS
TEMP	±XXXS	±XXXS	±XXXS	EVAP OUT T	±XXXS	±XXXS	±XXXS	±XXXS
FAN ΔP	X.XXS	X.XXS	X.XXS					

(C) SM SYS SUMM 2 (BFS)

PASS
SM OPS 2
SPEC 079
OR
SYS SUMM
KEY TWICE

NOTE
This CRT display is mission reconfigurable

XXXX/XXX/079			SM SYS SUMM 2			XX X DDD/HH:MM:SS		
						DDO/HH:MM:SS		
CRYO TK	1	2	3	4	5	MANF1	MANF2	
H2 PRESS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS	XXXS
O2 PRESS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
HTR T1	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
T2	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS	±XXXS
APU	1	2	3	HYD	1	2	3	
TEMP EGT	±XXXS	±XXXS	±XXXS	PRESS	±XXXS	±XXXS	±XXXS	±XXXS
B/U EGT	±XXXS	±XXXS	±XXXS	RSVR T	±XXXS	±XXXS	±XXXS	±XXXS
OIL IN	±XXXS	±XXXS	±XXXS	P	±XXXS	±XXXS	±XXXS	±XXXS
OUT	±XXXS	±XXXS	±XXXS	QTY	±XXXS	±XXXS	±XXXS	±XXXS
SPEED %	±XXXS	±XXXS	±XXXS	W/B				
FUEL QTY	±XXXS	±XXXS	±XXXS	H2O QTY	±XXXS	±XXXS	±XXXS	±XXXS
PMP LK P	±XXS	±XXS	±XXS	BYP VLV	±XXXS	±XXXS	±XXXS	±XXXS
OIL OUT P	±XXXS	±XXXS	±XXXS					
AV BAY				THERM CNTL	1	2		
TEMP	±XXXS	±XXXS	±XXXS	H2O PUMP P	±XXXS	±XXXS	±XXXS	±XXXS
FAN ΔP	X.XXS	X.XXS	X.XXS	FREON FLOW	±XXXS	±XXXS	±XXXS	±XXXS
				EVAP OUT T	±XXXS	±XXXS	±XXXS	±XXXS

(D) SM SYS SUMM 2 (PASS)

BFS SM

0001 / /		THERMAL		XX X DDD/HH:MM:SS	
HYD SYS TEMP		BOYFLP RD/SB		L OB L IS R IS R OB	
PRIME		+XXXX +XXXX +XXXX +XXXX +XXXX +XXXX			
STBY 1		+XXXX +XXXX +XXXX +XXXX +XXXX +XXXX			
BRAKE PRESS		HYD SYS 1/3		XXXXX XXXXX XXXXX XXXXX	
HYD SYS 2/3		XXXXX XXXXX XXXXX XXXXX			
HTR TEMP		L/A		R/B	
PRPLT		SSSSSSSS		SSSSSSSS	
POD		SS		SS	
OMS CRSPD		SS		SS	
EVAP		SS		SS	
H1 LOAD		SSS		SSS	
TOP DUCT		SS		SS	
NOZ		S		S	
FDLN		SSSS		SSSS	
HYD BLR/HTR		S		S	
APU		S		S	
GO/FU PMP HTR		SSSSSS		SSSSSS	
TK/FU LN HTR		SSSSSSSS		SSSSSSSS	
PUMP/VLV		SS		SS	

(A) THERMAL

PASS
OPS 0
GNC OPS
2, 8, 9
SM OPS
2, 4
PL OPS 9
SPEC 002

XXXX/002/		TIME		XX X DDD/HH:MM:SS	
MISSION TIME		TONE		DDD/HH:MM:SS	
GMT 1X		3		XX:XX:XX MSN T	
MET 2X		6		XX:XX:XX	
CRT TIMER		9 SET		[M]XX:XX:XX	
START 12		STOP 13		20 [M]XX:XX:XX CRT T	
14 START AT		XX:XX:XX MSN T		23 DURATION XX	
17 COUNT TO		XX:XX:XX MSN T			
MTU		24 GMT & [M]XXX/XX:XX:XX-XXX			
28 MET & [M]XXX/XX:XX:XX.XXX		UPDATE 32		MET RESET 33	
GPC TIME		GMT		TRY	
MTU ACCUM 1		XXX/XX:XX:XX.XXXS		34	
2		XXX/XX:XX:XX.XXXS		35	
3		XXX/XX:XX:XX.XXXS		36	
GPC		XXX/XX:XX:XX.XXXS		37	
TIME SYNC		38			

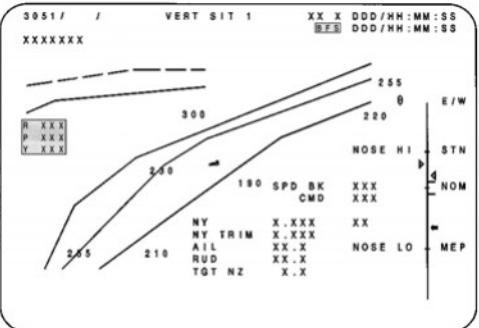
(B) TIME

PASS
GNC OPS
201

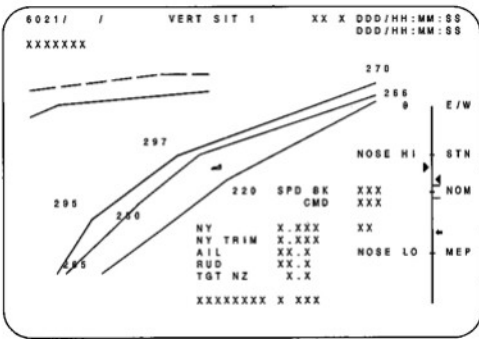
2011 / /		UNIV PTG		XX X DDD/HH:MM:SS	
CUR MNVR COMPL		XX:XX:XX		DDD/HH:MM:SS	
1 START TIME		XX/XX:XX:XX			
MNVR OPTION		START MNVR		CUR FUT	
5 R XXX-XX		16 X		X RBST 25 X X	
6 P XXX.XX		TRK 19 X		X CNCL 28	
7 Y XXX.XX		ROT 20 X		X DURATION 27	
		CNCL 21		XX:XX:XX-XX	
TRK/ROT OPTIONS		ATT MON		22 MON AXIS X XX	
8 TGT ID XXX		ERR TOT 23X		ERR DAP 24X	
9 RA XXX-XXX		ROLL		PITCH	
10 DEC [M]XX-XXX		CUR		XXX.XX XXX.XX XXX.XX	
11 LAT [M]XX-XXX		REQD		XXX.XX XXX.XX XXX.XX	
12 LON [M]XXX-XXX		ERR		+XXX.XX +XXX.XX +XXX.XX	
13 ALT [M]XXXXX-X		RATE		+XX.XXX +XX.XXX +XX.XXX	
14 BODY VECT X					
15 P XXX-XX					
16 Y XXX.XX					
17 OM XXX.XX					

(C) UNIV PTG

PASS
GNC OPS
305, 602,
603
BFS
GNC OPS
305, 602,
603

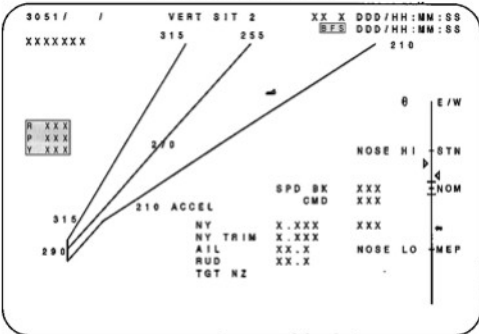


(D) VERT SIT 1 (PASS/BFS)



PASS
 GNC OPS
 602, 603

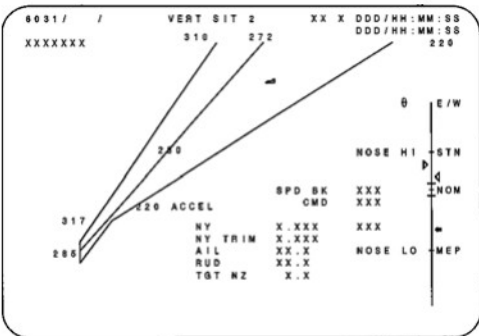
(A) VERT SIT 1 GRTLS



PASS
 GNC OPS
 305, 603

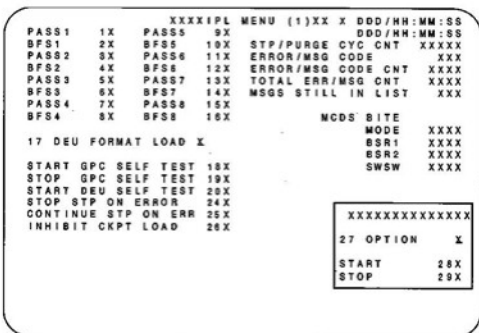
BFS
 GNC OPS
 305, 603

(B) VERT SIT 2 (PASS/BFS)



PASS
 GNC OPS
 602, 603

(C) VERT SIT 2 GRTLS



GPC IPL

WHERE
 XXXX =
 GPC, BSL2

(D) XXXX IPL MENU (1)

PASS
GNC OPS
104, 105,
106, 202,
301, 302,
303

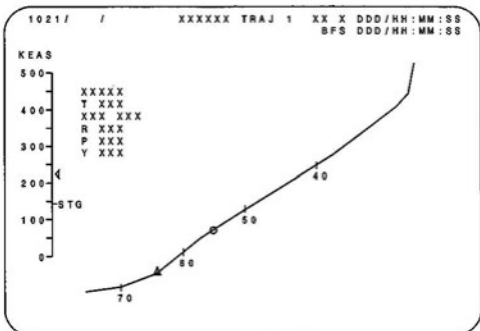
BFS
GNC OPS
104, 105,
106, 301,
302, 303

1041 / /	XXXXX MNVR YYYYY	XX X DDD/HH:MM:SS
OMS BOTH 1X	L 3XS	BURN ATT
RCS SEL 4X	R 3XS	24 R LXX
5 TV ROLL 3XX		25 P XXX
TRIM LOAD		26 Y XXX
6 P [a]K-L	MNVR 27X XXXXX	VGO X aXXXX.XX
7 LY [a]K.X	TTG XX:XX	Y aXXX.XX
8 RY [a]K.X	REI XXXX	Z aXXX.XX
9 WT XXXXX	TXX XX:XX	
10 TIG	GMBL	
XXX/XX:XX:XX-X	L R	HA HP
TGT PEG 4	P aX.XS aX.XS	TGT XXX aXXX
14 C1 XXXXX	Y aX.XS aX.XS	CUR XXX aXXX
15 C2 [a]K-XXXX	PRI 28X 29X	55 ABORT TGT XL
16 HT XXX-XXX	SEC 30X 31X	
17 ST XXX-XXX	OFF 32X 33X	FWD RCS
18 PRPLT [a]XXXXX	GMBL CK 34X	ARM 36X
TGT PEG 7	XXXXXXX	DUMP 37X
19 AVX [a]XXXX-X		OFF 38X
20 AVY [a]XXXX-X		SURF DRIVE
21 AVZ [a]XXXX-X		ON 39X
XXXX 22/TIMER 23		OFF 40X

(A) XXXXXX MNVR YYYYY (PASS/BFS)

BFS
GNC OPS
101, 102

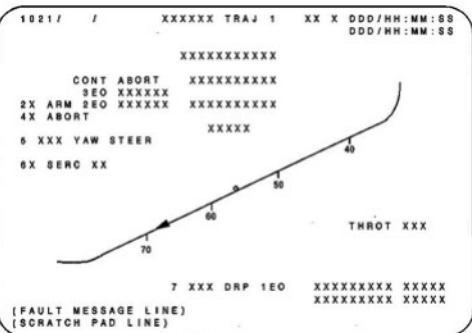
Where
XXXXXX=
LAUNCH,
ASCENT,
ATO, RTLS



(B) XXXXXX TRAJ 1 (BFS)

PASS
GNC OPS
101, 102

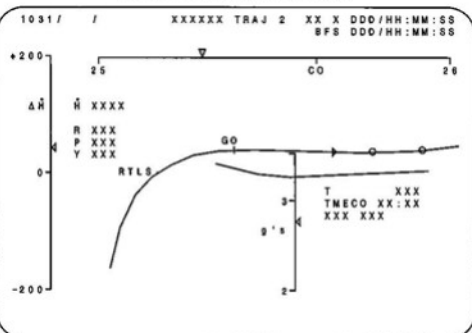
Where
XXXXXX=
LAUNCH,
ASCENT,
ATO, RTLS



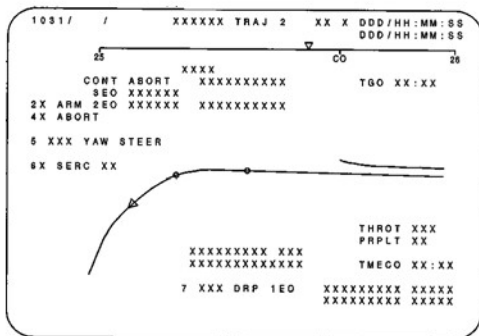
(C) XXXXXX TRAJ 1 (PASS)

BFS
GNC OPS
103

Where
XXXXXX=
ASCENT,
ATO, TAL



(D) XXXXXX TRAJ 2 (BFS)



PASS
 GNC OPS
 103

Where
 XXXXXX=
 ASCENT,
 TAL, ATO

(A) XXXXXX TRAJ 2 (PASS)

———— **Notes** ————

———— **Notes** ————

———— **Notes** ————

———— **Notes** ————

Notes

This Orbiter Displays
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