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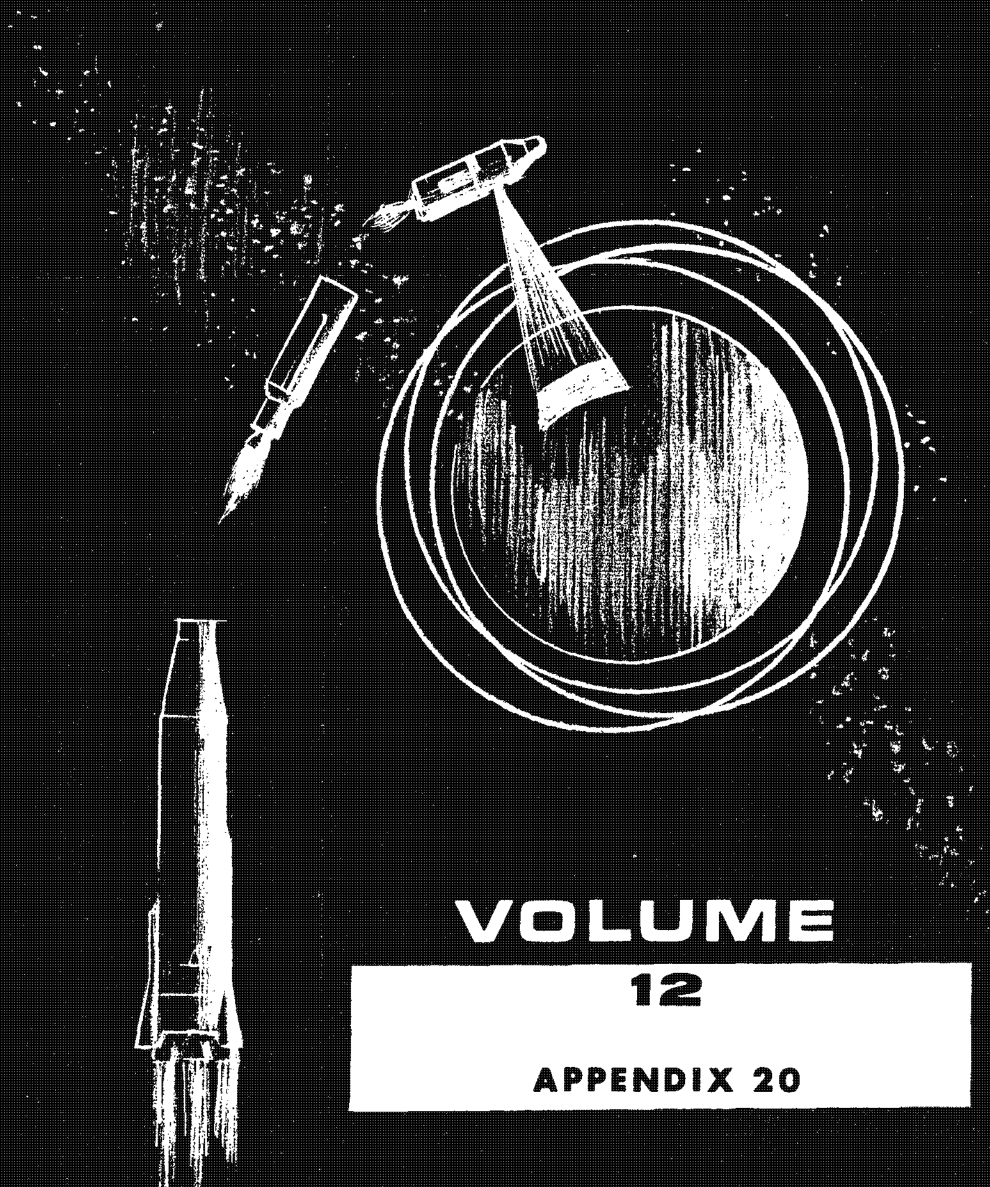
PROGRAM REPORT



VOLUME

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APPENDIX 20

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APPENDIX 20

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APPENDIX 20

SYSTEM ACCEPTANCE SPECIFICATION

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SVS 5388
10 October 1966

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SYSTEM ACCEPTANCE
SPECIFICATION (U)
CONTRACT NO. AF 04(695)-580

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GENERAL ELECTRIC
MISSILE AND SPACE DIVISION
SPECIAL MILITARY SPACE PROJECT
KING OF PRUSSIA PARK
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88 1. SCOPE

80A THIS DOCUMENT DEFINES THE SUBSYSTEM AND SYSTEM ACCEPTANCE REQUIREMENTS FOR ALL PROGRAM 206 PRIME VEHICLES PROCURED UNDER THE AF-560 CONTRACT. THE ACCEPTANCE REQUIREMENTS FOR BOTH IN-HOUSE (H) AND FIELD (F) ARE INCLUDED, AND THE AREA (S) OF EFFECTIVENESS FOR A REQUIREMENT IS INDICATED WITH THE APPROPRIATE LETTER, H OR F, IN THE MARGIN PRECEDING THE REQUIREMENT. WHEREVER AN H AND F APPEAR SIDE BY SIDE IN THE MARGIN, THE REQUIREMENT IS EFFECTIVE AT BOTH LOCATIONS.

88 THIS DOCUMENT INCORPORATES THE FOLLOWING APPLICABLE DOCUMENT(S) AND RE-PLACES SVS 5380, SYSTEM ACCEPTANCE SPECIFICATION

80A SVS 5373 SYSTEM ACCEPTANCE SPECIFICATION

88 SVS 5373 SYSTEM ACCEPTANCE SPECIFICATION ADDENDUM 79

88 SVS 5380 SYSTEM ACCEPTANCE SPECIFICATION

88 SVS 5380 SYSTEM ACCEPTANCE SPECIFICATION ADDENDUM 87

80A SPECIFIC SYSTEM AND SUBSYSTEM OPERATIONAL INFORMATION IS GIVEN IN DETAIL IN SVS 5311 SATELLITE VEHICLE MODEL SPECIFICATION.

88 SPECIFICALLY THIS DOCUMENT INCORPORATES ALL REQUIREMENTS OF SVS5373, SVS 5380 AND ALL CHANGES TO SVS 5380, ON VEHICLES 973 THROUGH 988, PERTINENT TO THE 988 AND SUBSEQUENT VEHICLES. THOSE CHANGES FROM SVS 5373 ARE SO ANNOTATED IN THE LEFT-HAND MARGIN.

THE INFORMATION AND REQUIREMENTS INCLUDED IN SECTIONS 1 THROUGH 3 OF THIS DOCUMENT APPLY BOTH TO IN-HOUSE AND THE FIELD.

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SECTION 4 CONTAINS THE REQUIREMENTS THAT AFFECT IN-HOUSE AND/OR FIELD, AND DEFINES THE AREAS OF EFFECTIVITY. SECTION 5 DEFINES THE FIELD REQUIREMENTS FOR LAUNCH. A DEFINITION OF TERMS USED IN THIS DOCUMENT APPEARS IN APPENDIX A. HOLD-TIME LIMITATIONS AND RED AND GREEN LINE LIMITS ARE DEFINED IN APPENDIX B. SV TELEMETRY CHANNEL ASSIGNMENTS ARE SUMMARIZED IN APPENDIX C. LAUNCH/HOLD CRITERIA ARE LISTED IN APPENDIX D. REFERENCE FIGURES ARE CONTAINED IN APPENDIX E.

80A AREAS OF DIFFERENCES BETWEEN THIS DOCUMENT AND SUBSEQUENT DOCUMENT WILL ALSO BE LOCATED BY A VEHICLE ADDENDUM NUMBER APPEARING IN THE MARGIN PRECEDING THE LINE, PARAGRAPH, OR SECTION CHANGED. THE VEHICLE ADDENDUM NUMBER USED WILL BE IDENTIFIED IN THE SCOPE OF THE SUBSEQUENT DOCUMENT.

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2. APPLICABLE DOCUMENTS

2.1 DOCUMENT ISSUES IN EFFECT ON THE DATE OF THIS SPECIFICATION

ISSUES OF THE FOLLOWING DOCUMENTS, OF THE ISSUE SHOWN, FORM A PART OF THIS SPECIFICATION TO THE EXTENT REFERENCED HEREIN. IN THE EVENT OF CONFLICT BETWEEN ANY REFERENCED DOCUMENT, COMPONENT OR SUBSYSTEM SPECIFICATION AND THIS SPECIFICATION, THIS SPECIFICATION SHALL PREVAIL.

2.1.1 SPECIFICATIONS

83A 2.1.1.1 MILITARY

83A MIL-E-6051C	ELECTRICAL-ELECTRONIC SYSTEM COMPATIBILITY AND INTERFACE CONTROL REQUIREMENTS FOR AERONAUTICAL WEAPON SYSTEMS
MIL-W-6858B	WELDING, RESISTANCE, ALUMINUM, MAGNESIUM, NON-HARDENING STEELS OR ALLOYS, NICKEL ALLOYS, HEAT-RESISTING ALLOYS, AND TITANIUM ALLOYS, SPOT AND SEAM
MIL-Q-9858	QUALITY CONTROL SYSTEM REQUIREMENTS
MIL-P-26539A	PROPELLANT, NITROGEN TETROXIDE
MIL-P-27401B	PROPELLANT PRESSURIZING AGENT, NITROGEN

AF SYSTEM COMMAND MANUAL, VOL. 80-1 THROUGH 80-8

80A 2.1.1.2 GENERAL ELECTRIC

118A1508C	RIVETING, REQUIREMENTS FOR SOLID TYPE ONLY
118A1528H	IDENTIFICATION MARKING
118A1552C	RIVET, SWAGED, COLLAR (HUCKBOLT INSTALLATION)
118A1600M	FINISHES AND COATINGS

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118A1664E	DRAWING TERMS AND TOLERANCES, INTERPRETATION OF
118A1675B	WELDMENTS, ALUMINUM AND MAGNESIUM, GENERAL SPECIFICATION
118A1679	RELIABILITY, FAILURE REPORTING
156A9534	SEPARATION SYSTEM, INSTALLATION PROCEDURE. TUNING
165A4220	ACTIVATION PREPARATION INSTRUCTIONS FOR BATTERY PRIMARY 26.5 VOLT AMP/HR
171A8202	CARBON TETRAFLUORIDE
171A8479	ACTIVATION AND PREPARATION INSTRUCTION FOR BATTERY, STORAGE, 28V. 5AMP HR
SVS 3953B	COMPONENT QUALIFICATION TEST REQUIREMENTS
SVS 3954C	OPERATIONAL AEROSPACE GROUND EQUIPMENT SYSTEM SPECIFICATION
83A SVS 3969E	SYSTEM DESIGN REQUIREMENTS FOR TELEMETRY, TRACKING, AND COMMAND SUBSYSTEMS
SVS 4191	GROUND SUPPORT COMPONENT SPECIFICATION FOR POWER SUPPLY MULTIPLE OUTPUT
SVS 4200	ROCKET FUEL REQUIREMENTS FOR SPACE ENGINES
SVS 4264	GROUND POWER UNIT. ITEM 91
SVS 4379	EXTERNAL-INTERNAL ENVIRONMENTAL DESIGN CRITERIA
SVS 4382	AGENA/SV INTERFACE SPECIFICATION
SVS 4399A	SV CLEANLINESS REQUIREMENT SPECIFICATION

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SVS 44278	OCV INSULATION BLANKETS
SVS 5311	SATELLITE VEHICLE MODEL SPECIFICATION

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8A	2.1.2 OTHER DOCUMENTS	
80A	2.1.2.1 GENERAL ELECTRIC	
	113C9399	FUSE MODULE
	114C1815	ROCKER ARM
	114C1822	AFT BRACKET ASSY.
	134B1868	SHAFT, ROCKER
	134B1880	RETRACT PIN
	GE 165A4177	APPLICATION OF LOW EMISSIVITY TAPE FOR BATTERY AND TANK
	GE 171A8891	SHIPPED LOOSE LIST
	201R883	INNER SHIELD
	GE 825D645C	PROGRAM 206 SPRING AND GUIDE ASSEMBLY
	GE 238R807	COMPONENT INSTALATION-OCV
	GE 238R839	INSTALLATION, HEATERS, ENVIRONMENTAL CONTROL
	GE 238R850	MANUFACTURING DOLLY
	GE 238R890	PNEUMATIC INSTALLATION, BUSS
	GE 241R753	OCV ASSEMBLY CARRIAGE
88	GE241R777A	SV AIR CONDITIONING INTERFACE PALC2 PAD 4
	GE 242R555	MANUFACTURING DOLLY
	GE 242R556K	STRUCTURE ADAPTER ASSEMBLY OF

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GE 242R584	INSTALLATION, COMPONENTS, BUSS SECTION
GE 238E170D	OCV SECTION ASSEMBLY
GE 248E916	TRUCK, WORK AND ASSEMBLY
88 GE 255E952D	PROPELLANT LOADING PIPING INTERFACE
GE 255E970	OCV CRADLE
GE 825D636E	SV SPRING AND GUIDE ASSEMBLY
SK-56124-925	MODIFICATION KIT, VIBRATION SENSOR
GE 895D351E	COATINGS, OCV MID SECTION

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* QC OPERATING PROCEDURES, EQUIPMENT AND GAGE CONTROL OR FIELD EQUIVALENT

* QC OPERATING PROCEDURES, CALIBRATION LOG BOOKS, PROCEDURE AND DISTRIBUTION

* QC OPERATING PROCEDURES, FINAL PROCESSING INSPECTION AND SHIPMENT OF RE-ENTRY VEHICLES, QUALITY CONTROL OF

80A * THESE ARE QC FUNCTIONS REQUIRED BY MIL-Q-9858 AS IMPLEMENTED BY GE-MSP TO CUSTOMER APPROVALS.

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3. GENERAL REQUIREMENTS

THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED HEREIN, SHALL BE MET WHEN ACCEPTANCE TESTING EACH SATELLITE VEHICLE (SV).

3.1 TEST EQUIPMENT

3.1.1 CONTROL EQUIPMENT

PREVIOUSLY ACCEPTED AEROSPACE GROUND EQUIPMENT (AGE) MAINTAINED AND CALIBRATED FOR USE, SHALL BE USED TO VERIFY THAT SUBSYSTEM AND SYSTEM ACCEPTANCE REQUIREMENTS ARE MET BY SV. AGE IS DEFINED IN GE SPECIFICATION SVS 3954C.

WHERE COMPATIBLE TEST EQUIPMENT IS USED IN LIEU OF DEFINED AGE, A DESCRIPTION OF THE SUBSTITUTE EQUIPMENT AND PERTINENT DETAILS SHALL BE RECORDED IN A REFERENCED LOG BOOK.

80A 3.1.2 MONITORING EQUIPMENT

AGE (OR) COMPATIBLE EQUIPMENT APPROVED BY THE GE-MSP PROGRAM 206 SYSTEM ENGINEER, OR HIS DESIGNATED REPRESENTATIVE, AND CALIBRATED GROUND STATION EQUIPMENT SHALL BE USED FOR MONITORING DATA.

3.1.3 POWER SUPPLY

3.1.3.1 EXTERNAL POWER

EXTERNAL POWER SUPPLIES (GROUND POWER) CAN BE USED FOR ALL TESTS EXCEPT WHERE INTERNAL POWER IS SPECIFIED. THE EQUIPMENT SHALL BE CAPABLE OF MEETING THE REQUIREMENTS OUTLINED IN SPECIFICATIONS SVS 4191 AND SVS 4264.

3.1.3.2 INTERNAL POWER

TEST BATTERIES WHICH SUPPLY 28 (+5, -2) VOLTS MAY BE USED FOR SUBSYSTEM AND SYSTEM TESTING IN LIEU OF STANDARD AGE (ITEM 91).

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3.1.4 MEASURMENT ACCURACY

ALL MEASUREMENTS SHALL BE MADE WITH INSTRUMENTS MEETING THE MINIMUM ACCURACY REQUIREMENTS GIVEN HEREIN. ACCURACIES OF MEASURING INSTRUMENTS SHALL BE VERIFIED PERIODICALLY BY CALIBRATION CONDUCTED AS SPECIFIED IN EQUIPMENT AND GAGE CONTROL OF THE QUALITY CONTROL OPERATING PROCEDURES.

MINIMUM ACCURACY OF MEASUREMENTS SHALL BE AS FOLLOWS, UNLESS OTHERWISE SPECIFIED IN THIS DOCUMENT.

TEMPERATURE	+-2 DEG C (+-3.6 DEG F)
RELATIVE HUMIDITY	+-5 PCT
ELAPSED TIME	+-2 PCT
BAROMETRIC PRESSURE	+-0.1 PSIA
VOLTAGE	+-2 PCT
CURRENT	+-2 PCT
FREQUENCY	+-1 PCT FULL SCALE
RESISTANCE	+-10 PCT FULL SCALE

VOLTAGE (MEASUREMENTS AT THE BATTERY BUS) +-0.5 PCT

80A 3.2 OPERATION TIME AND CONDITIONS

OPERATING TIMES ON ALL CRITICAL COMPONENTS, SUBSYSTEMS AND SYSTEMS, AND ESTIMATED OPERATING TIMES ON ALL OTHERS, SHALL BE RECORDED IN THE VEHICLE LOG. THE MINIMUM AND MAXIMUM CUMULATIVE OPERATION TIMES ON CRITICAL COMPONENTS ARE INCLUDED IN APPENDIX B, HOLD TIME LIMITATIONS, GREEN AND RED LINE LIMITS. ANY COMPONENT NOT MEETING THESE RESTRICTIONS WILL NOT BE CONSIDERED ACCEPTABLE HARDWARE.

80A ANY COMPONENT, SUBSYSTEM, OR SYSTEM EXPOSED TO CONDITIONS THAT ARE NOT

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WITHIN THE FOLLOWING LIMITS, WILL NOT BE CONSIDERED ACCEPTABLE HARDWARE, EXCEPT AS SPECIFICALLY REVIEWED AND APPROVED BY THE GENERAL ELECTRIC (GE-MSP) PROGRAM 206 SYSTEM ENGINEER OR HIS DESIGNATED REPRESENTATIVE

A. SPECIFIED EQUIPMENT OPERATING TEMPERATURES

B. TEMPERATURE SPECIFIED FOR NON-OPERATING CONDITIONS

C. ALLOWABLE OPERATING CYCLES (STATIC OR DYNAMIC). (SEE APPENDIX B.)

D. SPECIFIED OPERATING PRESSURES OF VOLTAGE DIFFERENTIALS

3.3 TEST CONDITIONS

ACCEPTANCE TESTS SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS SPECIFIED IN PARAGRAPH 4.2 AND SPECIFICATION SVS 4399A.

3.4 TEST INFORMATION AND SV HISTORY

3.4.1 TEST DATA

80A 3.4.1.1 TEST RECORDS

TEST RECORDS, INCLUDING TAPES, SHALL BE KEPT IN A FILE BY THE TESTING AGENCY ACCORDING TO THEIR SECURITY CLASSIFICATION. AFTER PRELIMINARY TEST ANALYSIS, THESE TEST RECORDS SHALL BE SENT TO THE DATA FILE AT GENERAL ELECTRIC MILITARY SPACE PROGRAM (GE-MSP)FOR STORAGE.ALL TEST RECORDS MUST BE IDENTIFIED BY VEHICLE SERIAL NUMBER, TEST NUMBER, TASK NUMBER, RUN NUMBER, AND DATE. ALL MAGNETIC TAPE TEST DATA SHALL BE STORED FOR A PERIOD OF 90 DAYS AFTER LAUNCH.

3.4.1.2 STANDING INSTRUCTIONS AND TEST PROCEDURES
ALL STANDING INSTRUCTIONS (SI,S) AND TEST PROCEDURES (TP,S) SHALL BECOME A PART OF THE VEHICLE LOG BOOK. ALL ENTRIES IN THE LOG BOOK SHALL BE MADE IN INK AND SHALL NOT BE ERASED. INCORRECT ENTRIES SHALL BE DELETED BY A STRAIGHT LINE DRAWN THROUGH THE ERRONEOUS INFORMATION. FOLLOWED BY THE DATE AND THE INITIALS OF THE INDIVIDUAL MAKING THE CORRECTIONS. ALL DATA SHEETS SHALL BE REPRODUCIBLE AND PAGES SHALL BE NUMBERED. NO DATA SHEETS SHALL BE DESTROYED OR REMOVED.

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3.4.2 VEHICLE LOG BOOKS

THE QUALITY CONTROL VEHICLE WORK BOOKS SHALL BE A RUNNING COMPILATION OF THE RECORDS OF ALL EVENTS ASSOCIATED WITH THE FABRICATION, INSPECTION, AND TESTING OF THE SATELLITE VEHICLE, I.E., A DETAILED CHRONOLOGICAL HISTORY OF ALL FACTORS THAT COULD INFLUENCE THE RESPECTIVE VEHICLE'S PERFORMANCE. WHEN THE VEHICLE COMPLETES SYSTEM TESTS, THE WORK BOOK AND ALL OF ITS ASSOCIATED RECORDS WILL BE SUMMARIZED AND ISSUED AS A LOG BOOK TO THE CUSTOMER, SUCH THAT THE LOG BOOK WILL BE A RECORD OF ALL EQUIPMENT THAT HAS BEEN INSTALLED IN THE VEHICLE + ALL WORK DONE ON THAT VEHICLE.

3.4.2.1 INSPECTION

THE INSPECTION PORTION OF THE VEHICLE WORK BOOK SHALL BE MAINTAINED IN ACCORDANCE WITH QUALITY CONTROL OPERATING PROCEDURE FOR THE FABRICATION AND INSPECTION CYCLES.

80A 3.4.2.2 TEST

IN ACCORDANCE WITH SVS 3953B, THE TEST PORTION OF THE WORK BOOK WILL INCLUDE A LISTING OF THE FOLLOWING

A. COMPONENTS

1)SERIAL AND DRAWING NUMBERS.

2)REVISIONS BUILT AND TESTED TO.

3)EVIDENCE OF QUALITY CONTROL INSPECTION AND TEST BUY-OFF.

4)APPROPRIATE TEST DATA SHEETS.

80A B. SUBSYSTEM AND SYSTEM - EQUIPMENT
1)SERIAL AND DRAWING NUMBERS.

2)REVISIONS BUILT AND TESTED TO.

3)LIST OF DEVIATIONS AND [illegible]

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4)EVIDENCE OF QUALITY CONTROL INSPECTION AND TEST BUY-OFF.

5)ALL APPROPRIATE TEST DATA SHEETS.

6)COPIES OF NCR (IN-HOUSE AND FIELD) FAILURE FORMS.

80A 3.4.2.3 HISTORY

THE WORK BOOK WILL ALSO CONTAIN THE UP TO DATE HISTORY OF THE VEHICLE AS IT IS PROCESSED FROM THE BEGINNING OF SYSTEM ASSEMBLY THROUGH LAUNCH. ALL HARDWARE CHANGES, ASSEMBLY, REPAIRS, INSPECTION REPAIRS, TEST PROBING PROCEDURES, AND TEST REPAIRS WILL BE RECORDED. ALL TEST TROUBLESHOOTING AND FINDINGS WILL BE INCLUDED.

IF MALFUNCTIONS ARE FOUND DURING SYSTEM TESTING THEY WILL BE LOCALIZED AND THE FAULTY COMPONENTS REPAIRED OR REPLACED. THE REMOVED OR REPLACED COMPONENTS OR PIECE PART WILL BE TAGGED WITH A COMPLETED NCR FAILURE REPORT FORM. THE PART, WITH ITS FAILURE REPORT, WILL BE PROCESSED THROUGH THE COMPONENT FAILURE ANALYSIS GROUP FOR STUDY AND FAULT DIAG-NOSIS. THE RESULTS OF THIS WILL BE REPORTED AND STATISTICALLY COMPILED BY ENGINEERING RELIABILITY FOR ANALYSIS AND CORRECTIVE ACTION. THE RECORD OF THE FAILURE AND ITS CORRECTIVE ACTION WILL HAVE BEEN INCLUDED IN THE LOG BOOK.

THE WORK BOOK SHALL RECORD THE TESTS RE-RUN FOLLOWING A MALFUNCTION. IF A TEST OR STANDING INSTRUCTION IS NOT ENTIRELY RE-RUN AFTER A MALFUNCTION, REASONS AND DETAILS OF THE PARTIAL RE-RUN SHALL BE RECORDED IN THE WORK BOOK.

3.4.3 CALIBRATION BOOKS

CALIBRATION BOOKS SHALL BE ACQUIRED AND MAINTAINED ACCORDING TO QUALITY CONTROL OPERATING PROCEDURES. CALIBRATION BOOKS MUST BE CURRENT AT THE TIME OF SHIPMENT. EACH VEHICLE SHALL HAVE ITS OWN CALIBRATION BOOK WHICH WILL ACCOMPANY IT AT ALL TIMES. THE VALUES SPECIFIED IN THE CALIBRATION BOOK SHALL BE WITHIN +-5 PCT OF THE VEHICLE TELEMETRY VALUES. FIELD ENGINEERING SHALL UPDATE THE CALIBRATION BOOK TO REFLECT THE LATEST CHANGE MADE TO THE SYSTEM. IF THERE IS A DESCREPANCY IN THE FIELD, THE CALIBRATION BOOK SHALL BE CHANGED AFTER IT HAS BEEN DETERMINED THAT

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THE DIFFERENCE IN THE READING DOES NOT INDICATE A FAILURE IN THE SYSTEM. RESULTS OF RECALIBRATION OF FLIGHT SENSORS AND OF INOPERATIVE OR MODIFIED TELEMETRY CHANNELS SHALL BE FORWARDED TO ALL AFFECTED PARTIES IN A TIMELY MANNER.

3.4.4 AIRBORNE WEIGHT AND BALANCE DATA

AN AIRBORNE WEIGHT AND BALANCE DATA DOCUMENT WILL BE SUPPLIED WITH EACH SV USE NUMBER. THIS DOCUMENT WILL BE USED TO DEFINE WEIGHT AND BALANCE REQUIREMENTS IN THE FIELD. IT SHALL ALSO DEFINE WEIGHT CALCULATION REQUIRED. IN THE EVENT OF CONFLICT BETWEEN THE AIRBORNE WEIGHT AND BALANCE DATA DOCUMENT AND THE REQUIREMENTS OF TABLE 4.3.2, TABLE 4.3.2 SHALL PREVAIL.

3.4.5 PUNCHED TAPES

PUNCHED TAPES SHOULD BE ACCOMPANIED BY A MACHINE PRINTOUT WHICH IDENTIFIES THE COMMANDS. INFORMATION SHALL BE PROVIDED SO THAT THE COMMAND LISTINGS MAY BE INTERPRETED.

80A 3.5 CONFORMANCE AND INSPECTION

THE SATELLITE VEHICLE, INDIVIDUAL ASSEMBLIES, AND COMPONENTS SHALL BE INSPECTED PRIOR TO, OR DURING, SUBSYSTEM AND SYSTEM ACCEPTANCE TESTS, TO DETERMINE CONFORMANCE WITH THE APPLICABLE DRAWINGS, SPECIFICATIONS, AND WORKMANSHIP STANDARDS. ALL SV COMPONENTS (EITHER ORIGINAL OR REPLACEMENT) SHALL HAVE PASSED THE SYSTEM REQUIREMENTS FOR FACTORY ACCEPTANCE AND FOR FIELD ACCEPTANCE APPLICABLE TO EACH. QUALITY ASSURANCE PROCEDURES AND METHODS SHALL MEET THE REQUIREMENTS OF MIL-Q-9858 AS IMPLEMENTED BY GE-MSP.

3.6 OPERATIONAL ADJUSTMENTS

UNLESS SPECIFIED IN THE RESPECTIVE SUBSYSTEM OR SYSTEM CRITERIA FOR ACCEPTANCE, NO OPERATIONAL ADJUSTMENTS SHALL BE MADE OTHER THAN DURING FUNCTIONAL ALIGNMENT. SPECIFIED ADJUSTMENTS WILL BE RECORDED AND ANY AFFECTED INSTRUMENTS OR HARDWARE RECALIBRATED AS NECESSARY.

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84 3.7 REJECTION AND RETEST

THE RESPONSIBLE TEST AGENCY SHALL DETERMINE THE AMOUNT OF RETEST REQUIRED AS A RESULT OF ANY FAILURE. THE RETEST SHALL INCLUDE THOSE TESTS NECESSARY TO DEMONSTRATE FACTORY REQUIREMENTS IN THE EVENT OF REPLACEMENT OF A COMPONENT IN THE FIELD. FAILURE OF ANY PORTION OF THE SV TO PASS THE ACCEPTANCE TEST SPECIFIED HEREIN SHALL BE CAUSE FOR REJECTION OF THAT PORTION. ONCE DATA ARE TAKEN, ANY ADJUSTMENTS REQUIRED DURING OR AFTER FINAL FUNCTIONAL TESTING WILL BE CONSIDERED AS GROUND FOR REJECTION. REPAIR OR REPLACEMENT OF ANY ITEM OF THE VEHICLE SYSTEM SHALL BE CAUSE FOR REVALIDATION OF AFFECTED SYSTEM INTERFACES. THIS INCLUDES REVALIDATION OF EACH CIRCUIT AFFECTED BY CONNECTOR BREAK/ MAKE OR CHANGE OF PIN CONNECTIONS. IN ADDITIONS,REPAIR OF ANY CONDUCTOR IN A HARNESS SEGMENT SHALL BE CAUSE FOR REVALIDATION OF ALL FUNCTIONS PROVIDED BY OTHER CONDUCTORS WITHIN THE SAME HARNESS SEGMENT. REPAIR OR REPLACEMENT ATTRIBUTABLE TO FAILURE OF GFE SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE GOVERNMENT FURNISHED PROPERTY CLAUSE OF THE CONTRACT. ADEQUATE RECORDS, AS OUTLINED IN PARAGRAPH 3.4 SHALL BE MAINTAINED TO SHOW CORRECTIVE ACTION, CHANGES MADE DURING REWORK, DEGREE OF RETESTING PERFORMED, AND EXPLANATION FOR PARTIAL TEST RE-RUNS.

80A 3.8 DEVIATIONS FROM SPECIFICATION

AUTHORIZATION FOR ANY DEVIATIONS FROM REQUIREMENTS OF THIS SPECIFICATION SHALL INCLUDE APPROVAL OF THE GE-MSP PROGRAM 206 SYSTEM ENGINEER OR HIS DESIGNATED REPRESENTATIVE.

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3.9 FAILURES

3.9.1 TEST FAILURES

TEST FAILURES AFTER PRE-SHIPMENT INSPECTION BY THE AIR FORCE ACCEPTANCE TEAM, OR MATERIAL DESCREPANCIES DEVIATING FROM THE PRIME DRAWINGS, SHALL BE GROUNDS FOR MATERIAL REJECTION. DISPOSITION OF THIS MATERIAL WILL BE DETERMINED BY SUBMITTING THE DISCREPANCY TO THE MATERIAL REVIEW BOARD (MRB). THIS BOARD WILL DETERMINE THE DISPOSITION OF THE DISCREPANT MATERIAL AND THE DISPOSITION WILL BE BINDING ON THE SUPPLIER.

80A 3.9.2 FAILURE REPORTS

FAILURE REPORTS WILL BE WRITTEN ON ALL TEST FAILURES PRIOR TO AND DURING SYSTEM ACCEPTANCE TESTING. THE FAILURE REPORT NCR (IN HOUSE AND FIELD). WILL BE USED FOR ALL SYSTEM, SUBSYSTEM, AND COMPONENT FAILURES AND SHALL CONFORM TO THE PROCEDURES OUTLINED IN THE GENERAL ELECTRIC STANDARD 118A1679.

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3.10 TEST REPORTS

80A 3.10.1 FACTORY REPORTING

UPON COMPLETION OF THE SYSTEM ACCEPTANCE TEST FOR EACH SV, A TEST REPORT WILL BE WRITTEN BY THE RESPONSIBLE SYSTEMS TEST ENGINEERING UNIT. THE DOCUMENT SHOULD CONTAIN, AS A MINIMUM, THE FOLLOWING

A. ANALYSIS OF PERTINENT DATA.

B. INTERPRETATION OF THE DATA WITH RESPECT TO ALL ENGINEERING SIGN-OFF ACTIONS OR DISCREPANCIES.

C. A SUMMARY OF THE RECOMMENDED CORRECTIVE ACTION (IF SUCH ACTION IS PRACTICAL) TO AVOID SIMILAR OUT-OF-SPEC READINGS IN THE FUTURE.

D. GENERAL DISCUSSION OF THE SYSTEMS PERFORMANCE DURING THE ACCEPTANCE TEST.

E. NOTES ON CHANGES BETWEEN VEHICLE UNDER TEST AND PREVIOUS SERIAL NUMBERS OF SAME TYPE.

3.10.2 FIELD REPORTING

A FIELD TEST PROCESSING SUMMARY SHALL BE ISSUED WITHIN FIVE DAYS AFTER LAUNCH TO PROVIDE A SUMMARY OF FIELD TESTING AND LAUNCH RESULTS VERSUS THE REQUIREMENTS OF THIS SPECIFICATION.

3.11 SPECIFICATION DEVIATIONS

SYSTEM ACCEPTANCE SHALL INCLUDE ANY REQUIRED RETEST AS A RESULT OF INCORPORATED AN'S OR UCP'S. THE FINAL UCI FOR EACH VEHICLE SHALL LIST ALL DEVIATIONS AGAINST THIS SPECIFICATION.

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3.12 SPECIAL REQUIREMENTS BEFORE SHIPMENT OR TRANSPORTATION

74A 3.12.1 PRESSURIZATION BEFORE SHIPMENT

TO PREVENT PERMEATION OF CONTAMINANTS INTO THE FOLLOWING SUBSYSTEMS DURING SHIPMENT OR TRANSPORTATION, THESE SUBSYSTEMS WHEN NOT LOADED FOR FLIGHT SHALL BE TRANSPORTED WITH 5 PSIG MINIMUM OF NITROGEN OR FREON CONFORMING TO CONTAMINATION AND MOISTURE REQUIREMENTS OF THE SUBSYSTEMS.

A. STABILIZATION PNEUMATICS

1. UPSTREAM N/C SQUIB VALVE.

2. DOWNSTREAM N/C SQUIB VALVE.

B. BUSS PNEUMATICS

1) UPSTREAM N/C SQUIB VALVE.

2) DOWNSTREAM N/C SQUIB VALVE.

C. SATELLITE RE-ENTRY VEHICLE (SRV) (H-30)

1) SPIN TANK.

2) DESPIN TANK.

D. ORBIT ADJUST

1. PRESSURANT TANK.

2. FUEL TANK (PRESSURIZE LIQUID SIDE OF BLADDER FIRST).

3. OXIDIZER TANK (PRESSURIZE LIQUID SIDE OF BLADDER FIRST).

74A 3.12.2 PARTS REMOVAL REQUIREMENT
ALL ITEMS CALLED OUT IN THE SHIPPED LOOSE LIST, GE DWG 171A8891, SHALL BE REMOVED FROM THE VEHICLE BEFORE SHIPMENT

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4. ACCEPTANCE REQUIREMENTS

TESTS SHALL BE PERFORMED IN HOUSE AND IN THE FIELD TO DEMONSTRATE THAT BOTH THE SUBSYSTEMS AND THE SYSTEM MEET THE REQUIREMENTS AS STATED HEREIN TO DEMONSTRATE THAT THE VEHICLE CAN SUCCESSFULLY COMPLETE ITS MISSION. SPECIFIC SUBSYSTEM REQUIREMENTS MAY BE DEMONSTRATED EITHER IN A SUBSYSTEM TEST OR IN A SYSTEM TEST AT THE DISCRETION OF THE TESTING AGENCY. ALL TESTS SHALL BE NON-DESTRUCTIVE. AGE SHALL BE UTILIZED TO PROVIDE THE NECESSARY INPUT SIGNALS, SIMULATED LOADS, INTERCONNECTION, AND TO OBTAIN TEST RESULTS. THE AGE SHALL ALSO BE USED TO PROVIDE CAPABILITIES FOR EQUIPMENT HANDLING, ASSEMBLY AND DISASSEMBLY, AND PRESSURIZATION FOR LEAK TESTING OF THE PNEUMATIC SUBSYSTEMS.

REQUIRED RESPONSES AND APPLICABLE TOLERANCES ARE GIVEN FOR VALUES TO BE MEASURED. WHERE A PARTICULAR SEQUENCE IS MANDATORY FOR OBTAINING THE NECESSARY DEMONSTRATION OF CONFIDENCE, THIS FACT IS SO STATED.

THE END-TO-END APPROACH TO SYSTEM TESTING SHALL BE USED. ONE-SHOT DEVICES THAT HAVE PREVIOUSLY DEMONSTRATED HIGH RELIABILITY IN OTHER TESTS ARE EXCLUDED. WHERE NECESSARY, SUBSTITUTES ARE PROVIDED DURING TESTING SO THAT OPERATIONS INVOLVING ONE-SHOT DEVICES MAY BE TESTED ADEQUATELY.

ALL TESTS REQUIRING ELECTRICAL POWER SHALL BE PERFORMED AT A VOLTAGE OF 26 TO 33 VDC UNLESS OTHERWISE SPECIFIED HEREIN.

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HP 4.1 IN-PROCESS REQUIREMENTS AND RECEIVING INSPECTION

80C F 4.1.1 GENERAL REQUIREMENTS FOR FIELD INSPECTION

PYROTECHNICS WILL BE RECEIVED AND INSPECTED IN THE PYROTECHNIC STORAGE AREA, WHERE THEY WILL REMAIN STORED UNTIL REMOVED FOR FLIGHT INSTALLATION.

NO VEHICLE ASSEMBLY OR SUBASSEMBLY SHALL BE SUBJECTED TO SHOCKS GREAT ENOUGH TO TRIP THE SHOCK INDICATOR MOUNTED WITH IT FOR SHIPMENT (SEE SVS 4379). NOR SHALL ANY VEHICLE ASSEMBLY OR SUBASSEMBLY WHILE IN THE VAFB/PMR COMPLEX, SHALL EXPERIENCE SHOCKS RESULTING FROM FREE FALL IN EXCESS OF LIMITS SPECIFIED IN SVS 4379. IF SUCH SHOCKS SHOULD OCCUR, A FORMAL ENGINEERING INVESTIGATION IS REQUIRED.

80C CLEANLINESS-- SV CLEANLINESS SHALL MEET THE REQUIREMENTS OF SVS 4399-A AT THE TIME OF MECHANICAL MATING OF ANY SV SECTIONS.

H 4.1.2 ELECTRICAL CONTINUITY

AFTER THE WIRING HARNESSES ARE INSTALLED IN THE SUBASSEMBLY, THEY SHALL BE GIVEN ELECTRICAL CONTINUITY TESTS. WHERE CONTINUITY TESTS ARE NOT PRACTICAL, IMPEDANCE MEASUREMENTS SHALL BE MADE.

H 4.1.3 HARNESS CHECK

THE HARNESS SHALL NOT BE CONNECTED TO ANY COMPONENT OR TO THE VEHICLE GROUND (AIR FRAME) DURING THE HARNESS CHECK DESCRIBED IN PARAGRAPHS 4.1.4 AND 4.1.5.

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H 4.1.4 DIELECTRIC STRENGTH

AFTER THE CONNECTORS ARE POTTED AND BEFORE THE HARNESS IS INSTALLED IN THE VEHICLE, EACH WIRE IN EACH BRANCH OF THE HARNESS SHALL BE SUBJECTED TO A VOLTAGE OF 1000VAC +- 10 PCT. FOR A PERIOD OF 10 SECONDS WITH ALL OTHER CONDUCTORS CONNECTED TO THE GROUND OF THE ABOVE VOLTAGE. THERE SHALL BE NO EVIDENCE OF INSULATION BREAKDOWN. THE HARNESS SHALL NOT BE SUBJECTED TO THE 1000VAC MORE THAN TWICE. IF DIELECTRIC STRENGTH REMEASUREMENT IS NECESSARY, THE VOLTAGE SHALL NOT BE GREATER THAN 500 VAC +- 10 PCT. FOR A PERIOD OF 10 SECONDS.

H 4.1.5 RESISTANCE BETWEEN CONDUCTORS

EACH CONDUCTOR SHALL BE SUBJECTED TO A VOLTAGE POTENTIAL OF 500 VDC +- 10 PCT. THE RESISTANCE BETWEEN ISOLATED LEADS AND GROUND SHALL BE AT LEAST 100 MEGOHMS.

HF 4.1.6 MAJOR HARNESS REWORK REQUIREMENTS

ANY HARNESS FALLING UNDER THIS CATEGORY SHALL BE VERIFIED AND MEET THE REQUIREMENT OF PARAGRAPHS 4.1.2, 4.1.3, 4.1.4, AND 4.1.5.

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H 4.2 EXTERNAL ENVIRONMENTAL REQUIREMENTS

H 4.2.1 GENERAL GROUND CONDITIONING REQUIREMENTS

ALL ACCEPTANCE TESTS WILL BE PERFORMED UNDER THE FOLLOWING ENVIRONMENTAL CONDITIONS UNLESS OTHERWISE SPECIFIED IN THIS DOCUMENT.

TEMPERATURE	25 DEG. +- 10 DEG.C (77 DEG. +- 18 DEG.F)
BAROMETRIC PRESSURE	28 TO 32 INCHES OF MERCURY (IN. HG)
RELATIVE HUMIDITY	80 PCT. OR LESS

88 HF 4.2.1 GENERAL GROUND CONDITIONING REQUIREMENTS

ENVIRONMENTAL CONDITIONS SHALL BE MAINTAINED AS LISTED IN FIG 4.2-1.

F 4.2.2 ADDITIONAL PAD OPERATION REQUIREMENTS

IN ADDITION TO PROVISIONS CONTAINED IN FIG 4.2-1 FOR PAD OPERATIONS, THE FOLLOWING LIMITAIIONS APPLY

A. 37 DEG. +- 3 DEG. F AIR ON--THE SV POWER MUST BE ON WHENEVER THIS SITUATION EXISTS. GROUND POWER MUST BE ON FOR THE SATELLITE RE-ENTRY VEHICLE (SRV) AND THE ADAPTER HEATER.

B. 70 DEG. +- 10 DEG. F AIR ON--SV POWER CAN BE ON OR OFF UNDER THIS CIRCUMSTANCE. GROUND POWER MUST BE ON FOR RAGS AND TARS GYRO HEATERS.

C. NO AIR CONDITIONING

1. BASED ON 70 DEG. +- 10 DEG. F PRIOR COOLING, SV POWER MUST BE OFF AND COOLING AIR NOT BE OFF MORE THAN 30 MINUTES EVERY SIX HOURS

2. BASED ON 37 DEG. +- 3 DEG. F PRIOR COOLING, SV POWER (I.E., COMPONENTS) CAN BE ON WHILE COOLING IS OFF, BUT AIR CAN NOT BE OFF MORE THAN 30 MINUTES IN SIX HOURS.

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D. AIR SUPPLY BELOW 31 DEG. F--AIR MUST BE TURNED OFF AND THE BACKUP AIR CONDITIONER SUBSTITUTED FOR PRIME IF BLANKET HEATERS ARE UNABLE TO MAINTAIN ADAPTER SKIN TEMPERATURES AND SPECIFIED OCV BLANKET THERMISTOR TEMPERATURES. SV POWER AND GROUND POWER TO THE SRV AND ADAPTER MUST BE ON.

E. AIR SUPPLY ABOVE +80 DEG. F--AIR MUST BE TURNED OFF AND BACKUP AIR CONDITIONERS SUBSTITUTED FOR PRIME. SV POWER MUST BE TURNED OFF. GROUND POWER FOR RAGS AND TARS GYROS SHALL BE SUPPLIED ON DEMAND.

F. AIR SUPPLY BETWEEN +37 DEG. F AND +60 DEG. F--SV POWER AND GROUND POWER MUST BE ON.

G. PRIME AND BACKUP AIR CONDITIONER REQUIREMENTS--THE REQUIREMENTS ON THE PRIME AND BACKUP AIR CONDITIONERS SHALL BE AS DEFINED IN SVS 4382.

80A HF 4.2.3 ADDITIONAL REQUIREMENTS

THE SV MAY BE OPERATED FOR LIMITED PERIODS WITHOUT COOLING IN THE ENCLOSED TEST AREAS, SO LONG AS THE FOLLOWING COMPONENT THERMAL LIMITATIONS ARE NOT EXCEEDED

A. CONIC TRANSMITTERS TEMPERATURE * 150 DEGREES F.
B. AIRBORNE RECORDER TEMPERATURE * 100 DEGREES F.
C. S BAND BEACON TEMPERATURE * 150 DEGREES F.
D. DELTA 4 TRANSMITTER-MAXIMIM CUMULATIVE OPERATING TIME 1 HOUR IN ANY TWO HOUR PERIOD.
* SEE APPENDIX C FOR CHANNEL ALLOCATIONS

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F 4.3 WEIGHT AND BALANCE REQUIREMENT

F 4.3.1 VEHICLE DIVISIONS

SEPARATE MEASUREMENTS OR SEPARATE MATHEMATICAL CALCULATIONS FOR MASS PROPERTY DETERMINATIONS SHALL BE MADE FOR EACH OF THE FOLLOWING

F A. SATELLITE RE-ENTRY VEHICLE (SRV) LESS THRUST CONE (RV AT RE-ENTRY) (SECTIONS 1 AND 2)

1. WEIGHT	CALCULATED*
2. CENTER OF GRAVITY LOCATION	CALCULATED
3. MOMENTS OF INERTIA ABOUT ROLL AXIS	**
4. MOMENTS OF INERTIA ABOUT PITCH AND YAW AXES	**
5. PRODUCTS OF INERTIA	CALCULATED*

*ITEMS CALCULATED USING MEASUREMENTS IN ITEM B.

**ITEMS MAY BE MEASURED OR CALCULATED USING INFORMATION IN AIRBORNE WEIGHT AND BALANCE DATA DOCUMENT AS A BASE. MASS PROPERTIES OF THE ASSEMBLED SV SHALL BE DETERMINED MATHEMATICALLY FROM THE ABOVE MEASURED OR CALCULATED PROPERTIES.

F B. SRV WITH THRUST CONE (SECTIONS 1,2, AND 3)

1. WEIGHT	MEASURED
2. CENTER OF GRAVITY LOCATION	MEASURED
3. MOMENTS OF INERTIA ABOUT ROLL AXIS	**
4. MOMENTS OF INERTIA ABOUT PITCH AND YAW AXES	**
5. PRODUCTS OF INERTIA	MEASURED

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F C. ADAPTER (SECTION 4)

1. WEIGHT **

2. CENTER OF GRAVITY LOCATION **

3. MOMENTS OF INERTIA ABOUT ROLL, PITCH, AND YAW AXES **

4. PRODUCTS OF INERTIA **

F D. ORBITAL CONTROL VEHICLE (OCV) (SECTIONS 5 AND 6)

1. WEIGHT **

2. CENTER OF GRAVITY LOCATION **

3. MOMENTS OF INERTIA ABOUT ROLL, PITCH, AND YAW AXES **

4. PRODUCTS OF INERTIA **

F E. AGENA/OCV ADAPTER (SECTION 7)

1. WEIGHT **

2. CENTER OF GRAVITY LOCATION **

3. MOMENTS OF INERTIA ABOUT ROLL, PITCH, AND YAW AXES **

4. PRODUCTS OF INERTIA **

** ITEMS MAY BE MEASURED OR CALCULATED USING INFORMATION IN AIRBORNE WEIGHT AND BALANCE DATA DOCUMENT AS A BASE. MASS PROPERTIES OF THE ASSEMBLED SV SHALL BE DETERMINED MATHEMATICALLY FROM THE ABOVE MEASURED OR CALCULATED PROPERTIES.

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83A F 4.3.2 REQUIRED LIMITS

FINAL WEIGHT, CENTER OF GRAVITY(CG) LOCATIONS AND MOMENTS, AND PRODUCTS OF INERTIA VALUES SHALL FALL WITHIN THE LIMITS SPECIFIED IN TABLE 4.3.2.

80A TABLE 4.3.2. WEIGHT AND BALANCE REQUIREMENTS*

	CONDITION	WEIGHT (POUNDS)	CENTER OF GRAVITY LONGITUDINAL X (SV STATION NO.)	CENTER OF GRAVITY VERTICAL Z (INCHES FROM CENTERLINE)	CENTER OF GRAVITY LATERAL Y (INCHES FROM CENTERLINE)
83A	SV AT LAUNCH	LT4934**	LT153**	0.7 +- 1.5	0 +- 1.0

CONDITION	WEIGHT (POUNDS)	CENTER OF GRAVITY LONGITUDINAL X (SV STATION NO.)	CENTER OF GRAVITY RADIAL INCHES FROM CENTERLINE
SRV AT SEPARATION	LT410**	LT39.5**	0 +- 0.1
RV AT RE-ENTRY	LT310**	LT14** IN. FROM NOSE	0 +- 0.1
RV (AIR SNATCH)	LT200**		

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* THESE ARE ABSOLUTE LIMITS. INACCURACIES OF MEASUREMENTS AND CALCULATIONS MUST BE ADDED TO MEASURED AND CALCULATED VALUES BEFORE COMPARING WITH VALUES IN THIS TABLE.

** LT BEFORE A NUMBER IN THE TABLE INDICATES A VALUE IS LESS THAN (LT)

	CONDITION	MOMENT OF INERTIA (SLUG-FT**2) ROLL	YAW	PITCH	PRODUCT OF INERTIA (SLUG-FT**2) ROLL/YAW	ROLL/PITCH	YAW/PITCH
80A	SV AT LAUNCH	473+-20	3330+-200	3255+-200	0(+90,-25)	0+-20	0+-20
	SRV AT SEPARATION	NOTE 1 (Y-P)/((Y+P)/2) AVG=0.10 MAX			0+-0.1	0+-0.1	0+-0.20
	RV AT RE-ENTRY	NOTE 2	----	----	0+-0.1	0+-0.1	0+-0.40

* THESE ARE ABSOLUTE LIMITS. INACCURACIES OF MEASUREMENTS AND CALCULATIONS MUST BE ADDED TO MEASURED AND CALCULATED VALUES BEFORE COMPARING WITH VALUES IN THIS TABLE.

NOTE 1 LESS THAN 0.47 TIMES LARGER SRV LATERAL INERTIA VALUE.

NOTE 2 LESS THAN THE SMALLER RV LATERAL INERTIA VALUE.

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F 4.3.3 CALCULATIONS

THE CALCULATIONS FOR DETERMINING THE REQUIRED MASS PROPERTIES SHALL BE AS DEFINED IN THE AIRBORNE WEIGHT AND BALANCE DATA DOCUMENT FOR EACH VEHICLE.

THE TOTAL WEIGHT OF EXCESS AND DEFICIENCIES SHALL NOT EXCEED 15 PCT. OF THE NET GROSS WEIGHT AS DEFINED BELOW

SRV NET GROSS EQUALS GROSS MINUS FLIGHT BATTERIES, ROCKET AND SPIN-DESPIN GASSES.

ADAPTER NET GROSS EQUALS GROSS.

OCV NET GROSS EQUALS GROSS MINUS FLIGHT BATTERIES, PROPELLANTS, FREON AND PRESSURANT.

THE SRV SHALL BE BALLASTED AS REQUIRED TO MEET THE CENTER OF GRAVITY AND DYNAMIC BALANCE REQUIREMENTS OF TABLE 4.3.2.

F 4.3.4 CONDITIONS DURING MEASUREMENT

ALL PARTS AND COMPONENTS (INCLUDING WIRING, HOSES, TUBING, AND CABLES) SHALL BE SECURELY FASTENED IN PLACE, AND ALL VEHICLE COMPONENTS SHALL BE IN THEIR FLIGHT POSITION, WITH ALL FASTENING HARDWARE INSTALLED.

A LOG CONTAINING THE FOLLOWING INFORMATION SHALL BE MAINTAINED FOR ALL ITEMS (IN EXCESS OR DEFICIENT, INCLUDING DUMMY COMPONENTS AND THOSE THAT ARE SUBSEQUENTLY REPLACED) THAT ARE IN EACH VEHICLE SECTION--

1. ITEM IDENTIFICATION

2. WEIGHTS

3. CENTER OF GRAVITY LOCATION

4. MOMENT AND PRODUCT OF INERTIA

5. EXACT LOCATION WITHIN THE VEHICLE

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HF 4.4 ALIGNMENT REQUIREMENTS

HF 4.4.1 TELEMETRY SENSORS

EACH TELEMETRY AXIAL ACCELERATION SENSOR SHALL BE VISUALLY CHECKED TO ASSURE THAT ITS SENSITIVE AXIS IS PARALLEL TO THE VEHICLE ROLL AXIS.

F 4.4.2 TWO AXIS REFERENCE SYSTEMS (TARS)

THE STABLE PLATFORM OPTICAL REFERENCE SHALL BE ALIGNED TO THE VEHICLE REFERENCE SURFACES WITHIN THE FOLLOWING TOLERANCES

PITCH	+-0.10 DEG.
ROLL	+-0.10 DEG.
YAW	+-0.10 DEG.

F 4.4.3 OCV ROCKET ENGINES

THE THRUST AXIS OF THE ENGINES SHALL INTERSECT WITHIN A RADIAL DISTANCE OF +-0.06 INCH. OF THE MISSION MEAN CENTER OF GRAVITY.

H 4.4.3 OCV ROCKET ENGINES

THE ENGINE THRUST AXES SHALL BE ADJUSTABLE WITHIN THE FOLLOWING MINIM[illegible] [illegible]NGLES, AS MEASURED FROM THE SV ROLL AXIS 4 DEG. 7 MIN. TO 5 DEG. [illegible] MIN.

F 4.4.4 SRV RETROROCKET ENGINE

A. THE ENGINE GEOMETRIC ROLL CONTERLINE SHALL BE WITHIN 0.02 INCH (AVERAGE) OF THE SRV GEOMETRIC ROLL AXIS AT THE CG PLANE.

B. WITH RE[illegible]ROCKET MOUNTED, THE CENTER OF GRAVITY OF THE SRV SHALL BE WITHIN [illegible]1 INCH FROM THE GEOMETRIC ROLL CENTERLINE.

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HF 4.4.5 RATE GYRO SYSTEM (RAGS)

THE RAGS PACKAGE MOUNTING PLATE ASSEMBLY SHALL BE ALIGNED TO THE VEHICLE GEOMETRIC AXES AT THE FACTORY TO THE FOLLOWING ACCURACIES

PITCH +-6 MINUTES OF ARC

ROLL +-6 MINUTES OF ARC

YAW +-6 MINUTES OF ARC

RAGS PACKAGE MAY BE REMOVED AND REPLACED OR INTERCHANGED WITHOUT REQUIRING RE-ALIGNMENT ONLY IF THE MOUNTING PLATE IS NOT REMOVED FROM THE VEHICLE OR THE LOCATING PIN IS NOT REMOVED OR DISTURBED.

H 4.4.6 SV COLD GAS NOZZLES

COLD GAS NOZZLES SHALL BE ALIGNED ORTHOGONAL TO THEIR RESPECTIVE CONTROL AXES WITHIN +-1.0 DEGREE OF TRUE ANGULAR POSITION.

THE NOZZLE THRUST AXIS SHALL BE LOCATED IN A PLANE PERPENDICULAR TO A LINE WHICH PASSES THROUGH THE VEHICLE CENTER OF GRAVITY, AND WHICH IS PARALLEL TO THE VEHICLE GEOMETRIC AXIS. CORRESPONDING POSITIVE AND NEGATIVE PITCH AND YAW NOZZLES SHALL BE LOCATED IN A PLANE DEFINED BY THE GEOMETRIC CENTER OF THE CORRESPONDING NOZZLE THROAT PLANES AND THE VEHICLE GEOMETRIC MEAN CENTER OF GRAVITY.

H 4.4.7 BUSS RATE GYRO

THE RATE GYRO INPUT AXIS FOR THE BACK-UP STABILIZATION SUBSYSTEM (BUSS) SHALL BE PARALLEL TO THE SV ROLL AXIS TO WITHIN +-3.0 DEGREES. REFER TO DRAWING 242R584.

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H 4.4.8 BUSS MAGNETOMETER

THE BUSS MAGNETOMETER SENSORS SHALL MEET THE FOLLOWING REQUIREMENTS FOR ALIGNMENT

SENSOR	PARALLEL TO
ROLL	SV ROLL AXIS TO WITHIN +-1 DEGREE
P	SV Q AXIS TO WITHIN +-1 DEGREE
Q	SV P AXIS TO WITHIN +-1 DEGREE

THE MAGNETOMETER P, Q, AND R SENSORS ARE DEFINED BY THE SENSOR ALIGNMENT SURFACES. THE MAGNETOMETER SHALL BE LOCATED IN THE SV PER DRAWING 242R584.

H 4.4.9 BUSS THRUST VALVES

THE P AND Q THRUST VALVES SHALL BE LOCATED PER DRAWING 238R890. EACH THRUST VALVE (EXCEPT THE P THRUST VALVE, A1957) SHALL BE PERPENDICULAR TO THE SV ROLL AXIS TO WITHIN +-3.0 DEGREES. THE P THRUST VALVE (A1957) AT THE 40 DEGREE, 30 MINUTE LOCATION SHALL BE INCLINED 3 DEGREES FORWARD (+-3 DEGREES) OF THE PERPENDICULAR TO THE ROLL AXIS. EACH THRUST VALVE SHALL BE PARALLEL TO THE APPROPRIATE P AND Q AXIS TO WITHIN +-1.0 DEGREE) THE BUSS ROLL THRUST VALVE PLANE SHALL BE PERPENDICULAR TO THE SV ROLL AXIS TO WITHIN +-3.0 DEGREES) EACH ROLL THRUST VALVE SHALL BE PERPENDICULAR TO A RADIAL LINE PASSING THROUGH THE NOZZLE CENTERLINE TO WITHIN +-3.0 DEGREES AND RADIALLY OUT FROM THE SV ROLL AXIS ON A MOMENT ARM OF 32+-2 INCHES. REFER TO DRAWING 238R890.

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HF 4.4.10 SRV COLD GAS NOZZLES

THE COLD GAS NOZZLES SHALL BE ALIGNED WITHIN +-1 DEGREE OF THEIR TRUE ANGULAR POSITIONS IF THE NOZZLES ARE REMOVED OR REPLACED.

H 4.4.11 SRV/ADAPTER

THE ANGULAR POSITION OF THE SRV WITH RESPECT TO THE ADAPTER, AS CONTROLLED BY LOCATING PINS, SHALL MEET THE REQUIREMENTS SPECIFIED BY DRAWINGS 242R556K AND 238E170D.

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HF 4.5 SUBSYSTEM ACCEPTANCE REQUIREMENTS

HF 4.5.1 ELECTRICAL POWER AND DISTRIBUTION SUBSYSTEM

HF 4.5.1.1 FUNCTIONAL REQUIREMENT

THE ABILITY OF THE ELECTRICAL POWER AND DISTRIBUTION (EP AND D) SUBSYSTEM TO PROVIDE ELECTRICAL POWER AND THE MEANS FOR SIGNAL DISTRIBUTION THROUGHOUT THE SATELLITE VEHICLE SHALL BE VERIFIED, ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

F 4.5.1.2 DETAILED REQUIREMENTS

88 F 4.5.1.2.1 OPERATIONAL BATTERIES

THE OPERATIONAL BATTERIES SHALL MEET THE FOLLOWING REQUIREMENTS.

73A A. THE UNACTIVATED BATTERY, AS RECEIVED, SHALL HAVE NO EVIDENCE OF PHYSICAL DAMAGE. THE UNACTIVATED SHELF LIFE SHALL BE ONE YEAR MAXIMUM.

B. THE BATTERIES SHALL BE STORED IN THEIR SEALED CONTAINERS AT 0 DEG F TO 80 DEG F UNTIL READY FOR USE.

C. PRIOR TO BATTERY ACTIVATION, THE HEATER/THERMOSTAT ASSEMBLY SHALL BE INSTALLED PER DRAWING SPECIFICATIONS 238R839 AND CHECKED FOR PROPER OPERATION.

80C D. THE BATTERIES SHALL BE INSTALLED PER GE DRAWING 238R807.

88 E. BATTERY ACTIVATION AND PREPARATION SHALL BE PERFORMED PER GE-MSP DRAWING 171A8479. MAXIMUM WET STAND SHALL BE PER FIGURE 4.5.1.2.2-1.

F. A RELIEF VALVE TEST SHALL BE PERFORMED AT THE FINAL COVERING OF THE BATTERIES.

G. FINAL OPEN CIRCUIT VOLTAGE PRIOR TO INSTALLATION SHALL BE 32.4 VDC MINIMUM.

78C H. THE TOTAL WEIGHT OF EACH BATTERY SHALL BE 128.5 +- 3 POUNDS.

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79A I.AFTER INSTALLATION OF FLIGHT BATTERIES IN THE SV, THE FOLLOWING REQUIREMENTS SHALL BE MET.

1.INDIVIDUAL BATTERY CURRENTS,TOTAL CURRENTS,TOTAL VOLTAGE, AMPERE-HOUR READINGS AND INDIVIDUAL BATTERY TEMPERATURES SHALL BE MONITORED VIA TELEMETRY INSTRUMENTATION NOMINALLY EVERY 6 HOURS, WHENEVER THE SV IS OPERATING ON INTERNAL POWER.

79A 2.OPERATIONAL STATUS OF THE FLIGHT VIBRATION SENSOR ON BATTERY NO.1 SHALL BE VERIFIED.

J.MEASUREMENT ACCURACY

1.ALL VOLTAGE INSTRUMENTATION SHALL HAVE AN ACCURACY OF +-0.5 PERCENT OF THE ACTUAL VOLTAGE READING.
2.ALL CURRENT INDICATING INSTRUMENTS SHALL HAVE AN ACCURACY OF+-1 PERCENT OF THE ACTUAL CURRENT READING.

83A K. ELECTROLYTE

1. THE VOLUME OF ELECTROLYTE SHALL BE 280 +2 -0 CC.

2. THE SPECIFIC GRAVITY SHALL BE 1.40 +- 0.01

83A L. CELL CHARACTERISTICS

1. CELL VOLTAGES SHALL BE 1.83 VOLTS MINIMUM.

2. VOLTAGE PER CELL SHALL NOT DRIFT MORE THAN 0.010 VOLTS WHEN MEASURED 24 AND 120 HOURS FOLLOWING ACTIVATION.

3. VOLTAGE VARIATION BETWEEN THE HIGHEST AND LOWEST CELLS SHALL NOT EXCEED 0.010 VOLTS WHEN MEASURED 120 HOURS AFTER ACTIVATION.

83A M. THE CELLS SHALL BE MEASURED AT LEAST ONCE PER DAY FOR FIVE (5) DAYS.

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83A N. SEALING OF ELECTRICAL TERMINALS SHALL BE PERFORMED AFTER A MINIMUM ACTIVATED STAND TIME OF FIVE (5) DAYS.

83A F 4.5.1.2.2 BUSS/SEPARATION BACK UP BATTERY

THE BUSS/SEPARATION BACK UP BATTERY SHALL MEET THE FOLLOWING REQUIREMENTS

F A. THE UNACTIVATED BATTERY, AS RECEIVED, SHALL HAVE NO EVIDENCE OF PHYSICAL DAMAGE. THE UNACTIVATED SHELF LIFE SHALL BE 1 YEAR MAXIMUM.

F B. THE BATTERY SHALL BE STORED IN ITS SEALED CONTAINER AT 0 DEG.F MINIMUM, 80 DEG. F MAXIMUM UNTIL READY FOR USE.

80C F C. PRIOR TO INSTALLATION, THE HEATER ASSEMBLY SHALL BE CHECKED AND THE BATTERY SHALL BE TAPED WITH THE APPLICABLE EMISSIVITY TAPE, PER GE DRAWING 165A4177.
D. INTERNAL THERMOSTAT RANGE 50 DEG. F TO 60 DEG. F.

83A F E. ELECTROLYTE

1. THE VOLUME OF ELECTROLYTE SHALL BE 60 +- 1CC.
2. THE SPECIFIC GRAVITY SHALL BE 1.40 +- 0.01.

F F. WEIGHT 25.0 +- 1.5 POUNDS

F G. ACTIVATION AND PREPARATION SHALL BE PERFORMED PER GE-MSP DWG. 165A4220.

F H. THE CAPABILITY OF THE BUSS/SEPARATION BACKUP BATTERY TO SUPPLY UNINTERRUPTED POWER TO THE BUSS/SEPARATION BUS SHALL BE DEMONSTRATED FOR THE CONDITION WHEN THE MAIN BUS VOLTAGE IS INTERRUPTED.

83A I. THE CELL SHALL BE MEASURED AT LEAST ONCE PER DAY FOR FIVE (5) DAYS.

83A J. SEALING OF ELECTRICAL TERMINALS SHALL BE PERFORMED AFTER A MINIMUM ACTIVATED STAND TIME OF FIVE (5) DAYS.

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80A HF 4.5.1.2.3 LONG LIFE CONTROL BOX (LLCB)

83A HF 4.5.1.2.3.1 POWER TRANSFER

83A HF A. THE AGE HARDWIRE COMMAND SHALL

1. APPLY ALL EIGHT SV OPERATIONAL POWER LINES TO THE MAIN BUS AND TO THE BUSS/SEPARATION BUS.

2. APPLY THE BUSS/SEPARATION BACKUP POWER LINE TO THE BUSS/SEPARATION BUS.

83A H B. THE STORED COMMAND, BATTERY RESET SHALL

83A 1. APPLY ALL EIGHT SV OPERATIONAL POWER LINES TO THE MAIN BUS AND BUSS/SEPARATION BUS.

2. APPLY THE BUSS/SEPARATION BACKUP POWER LINE TO THE BUSS/SEPARATION BUS.

HF C. EXTERNAL POWER LINES SHALL BE APPLIED TO THE MAIN BUS AND TO THE BUSS/SEPARATION BUS BY AGE HARDLINE COMMAND.

88 HF 4.5.1.2.3.2 REVERSE CURRENT ISOLATION CIRCUIT

THE FOLLOWING REQUIREMENTS SHALL BE MET WITH THE SV BUS VOLTAGE AT 26 TO 33 VDC FOR EACH OPERATIONAL POWER FEED LINE. THE REVERSE CURRENT SHALL NOT EXCEED 0.04 AMPS, WITH THAT OPERATIONAL POWER FEED LINE AT GROUND POTENTIAL.

80A HF 4.5.1.2.3.3 BUSS/SEPARATION POWER ISOLATION

A. THE REVERSE CURRENT FROM THE BUSS/SEPARATION BUS TO THE SV MAIN BUS SHALL BE LESS THAN 1.0 MA WHEN THE PRIMARY SV POWER IS OFF AND THE NOMINAL SV LOAD IS APPLIED TO THE SV PRIMARY BUS.

B. THE REVERSE CURRENT FROM THE BUSS/SEPARATION BUS TO THE BUSS/SEPARATION BACKUP POWER FEED LINE SHALL BE LESS THAN 1.0 MA WHEN THE BUSS/SEPARATION POWER FEED LINE IS AT GROUND POTENTIAL.

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83A HF 4.5.1.2.3.4 CURRENT UNBALANCE

THE MAXIMUM CURRENT UNBALANCE BETWEEN EACH OPERATIONAL POWER FEED LINE SHALL BE LESS THAN 30 PERCENT OF THE AVERAGE CURRENT OF ALL EIGHT POWER FEED LINE RETURNS.

80A HF 4.5.1.2.3.5 BUSS/SEPARATION POWER BACKUP

THE CAPABILITY OF THE BUSS/SEPARATION BACKUP POWER FEED LINE TO SUPPLY UNINTERRUPTED POWER TO THE BUSS AND SEPARATION SUBSYSTEM SHALL BE DEMONSTRATED IN ONE BUSS RECOVERY MODE OF OPERATION WHEN THE MAIN BUS VOLTAGE IS REMOVED.

80A HF 4.5.1.2.4 AMPERE-HOUR METER (AHM) REQUIREMENTS

F THE NINE INDIVIDUAL BATTERY CURRENT MONITORS, TOTAL CURRENT MONITOR, STAB SUBSYSTEM CURRENT MONITOR, COMMAND CURRENT MONITOR AND AMPERE-HOUR METER SHALL INDICATE NORMAL OPERATION ON TELEMETRY.

H AMPERE-HOUR METER OPERATION SHALL BE VERIFIED BY COMPARING THE TELEMETRY OUTPUTS OF THE AMPERE-HOURS CONSUMED VERSUS A MEASUREMENT OF ACTUAL AMPERE-HOURS DELIVERED TO THE SYSTEM. THE 0-40 AMPERE-HOUR METER SHALL STEP TO THE 10 AMPERE-HOUR SETTING WITHIN +-5 PCT. OF THE ACTUAL AMPERE-HOURS DELIVERED.

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HF 4.5.1.2.5 AGE RELAYS

THE AGE RELAYS SHALL BE CHECKED FOR FUNCTIONAL OPERATION INCLUDING CONTACT POSITION.

H 4.5.1.2.6 LINE VOLTAGE DROPS

THE VOLTAGE DROP TO THE TELEMETRY COMPONENTS SHALL NOT EXCEED 1.5 VOLTS FOR A VOLTAGE INPUT OF 28 +- .5 VOLTS.

76A HF 4.5.1.3 BUSS VOLTAGE LIMITATION

THE VOLTAGE APPLIED TO BUSS COMPONENTS SHALL NOT EXCEED 29.5 VDC, EXCEPT FOR THAT VOLTAGE TO THE BUSS RECEIVER, DECODER TYPE V, DECODER TYPE VIII AND TIMER, WHICH SHALL NOT EXCEED 31 VDC.

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HF 4.5.2 SV TELEMETRY SUBSYSTEM

HF 4.5.2.1 FUNCTIONAL REQUIREMENT

THE ABILITY OF THE SV TELEMETRY (TM) SUBSYSTEM TO TRANSMIT OPERATIONAL DATA, AND PROVIDE THE INFORMATION NECESSARY TO COMMAND THE SV INTO ITS VARIOUS MODES OF OPERATION SHALL BE VERIFIED, ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

HF 4.5.2.2 DETAILED REQUIREMENTS

76A F 4.5.2.2.1 VHF ANTENNAS

F A. HIGH FREQUENCY ANTENNA SEGMENT--THE HIGH-FREQUENCY ANTENNA SEGMENT SHALL OPERATE AT A NOMINAL CENTER FREQUENCY OF 258.5 MC. WITH THE TELEMETRY RF POWER ENERGIZED, THE RATIO OF INCIDENT RF POWER TO REFLECTED RF POWER, WHEN MEASURED AT THE OUTPUT OF THE TRANSMITTER, SHALL BE GREATER THAN 50.

F B. LOW-FREQUENCY ANTENNA SEGMENT--THE REQUIREMENTS FOR THE LOW-FREQUENCY ANTENNA SEGMENT ARE THE SAME AS SPECIFIED IN ITEM (A) ABOVE, EXCEPT THAT THE NOMINAL CENTER FREQUENCY IS 248.6 MC.

76A H 4.5.2.2.1 VHF ANTENNAS

H WITH THE ANTENNAS AND ALL OTHER ADAPTER EXTERNAL SKIN COMPONENTS INSTALLED IN THE ADAPTER, THE ANTENNA VSWR AND THE BAND-WIDTH SHALL MEET THE FOLLOWING REQUIREMENTS.

H A. HIGH-FREQUENCY ANTENNA SEGMENT--THE HIGH-FREQUENCY ANTENNA SEGMENT SHALL BE TUNED TO A NOMINAL FREQUENCY OF 258.5 MC. THE VSWR (REFERENCED TO 50 OHMS) SHALL BE 2 TO 1 OR LESS OVER A BANDWIDTH OF 2 MC, CENTERED ABOUT THE NOMINAL FREQUENCY. WITH THE TELEMETRY RF POWER ENERGIZED, THE RATIO OF INCIDENT RF POWER TO REFLECTED RF POWER AT CENTER FREQUENCY, SHALL NOT BE LESS THAN 50, MEASURED AT THE OUTPUT OF THE TRANSMITTER).

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H B. LOW-FREQUENCY ANTENNA SEGMENT--THE REQUIREMENTS FOR THE LOW-FREQUENCY ANTENNA SEGMENT ARE THE SAME AS SPECIFIED IN ITEM A ABOVE, EXCEPT THAT THE NOMINAL CENTER FREQUENCY IS 248.6 MC.

H C. THE SETTING SCREW OF EACH ANTENNA SHALL BE SEALED AFTER TUNING.

79 HF 4.5.2.2.2 TELEMETRY TRANSMITTERS

H THE TELEMETRY TRANSMITTER OUPTUTS (REFERENCED TO 50 OHMS) SHALL BE MEASURED WITH VOLTAGES OF 26 VDC AND 33 VDC APPLIED, AND SHALL MEET THE FOLLOWING REQUIREMENTS

F THE TELEMETRY TRANSMITTER OUTPUTS, WITH VEHICLE BUS VOLTAGES OF 27 (+0.5, -0) VDC, SHALL MEET THE FOLLOWING REQUIREMENTS

76A A. HIGH FREQUENCY TRANSMITTER (DELTA 3)

OUTPUT FREQUENCY (TAB PP)	258.5 MC +- 0.01 PCT.
POWER DELIVERED TO EITHER VHF ANTENNA	5 WATTS MINIMUM

B. LOW FREQUENCY TRANSMITTER (DELTA 2)

OUTPUT FREQUENCY (TAB NN)	248.6 MC +- 0.01 PCT.
POWER DELIVERED TO EITHER VHF ANTENNA	5 WATTS MINIMUM

C. POWER OUTPUT AT SPURIOUS FREQUENCIES

1. DELTA 2 POWER OUTPUT AT F0-9.9 +-1.0 MC SHALL BE AT LEAST 20 DB DOWN FROM THE MEASURED POWER OUTPUT AT F0.

2. DELTA 3 POWER OUTPUT AT F0+9.9+-1.0 MC SHALL BE AT LEAST 20 DB DOWN FROM THE MEASURED POWER OUTPUT AT F0.

79 3. ANY POWER OUTPUT AT SPURIOUS FREQUENCIES, OTHER THAN THE ONES NOTED IN 1 AND 2 ABOVE, SHALL BE AT LEAST 50 DB DOWN FROM THE LOWER OF THE TWO CARRIER LEVELS.

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HF 4.5.2.2.3 TELEMETRY TRANSFER SWITCH

THE TRANSFER SWITCH SHALL MEET THE FOLLOWING REQUIREMENTS

A. RESPOND TO RTC 7 COMMAND BY APPLYING
1. LINK 2 ON DELTA 2.
2. LINK 3 ON DELTA 3.
3. LINK 2 COMPOSITE ON AGE HARDWIRE.

B. RESPOND TO RTC 8 COMMAND BY APPLYING

1. LINK 2 ON DELTA 3.
2. LINK 3 ON DELTA 2.

3. LINK 3 COMPOSITE ON AGE HARDWIRE.

HF C. RESPOND TO RECORDER MODE 2 ON COMMAND BY TRANSFERRING LINK 3 TO LINK 3 PLAYBACK.

H D. THE HARDWIRE TELEMETRY READOUT CONNECTION SHALL BE MONITORED TO DEMONSTRATE THAT THE HARDWIRE TELEMETRY SIGNAL IS THE SAME AS THAT BEING RECEIVED THROUGH THE RF LINK.

86 HF 4.5.2.2.4 TAPE RECORDER RECORDER/REPRODUCER SIGNAL DATA

HF THE RECORDER/REPRODUCER SHALL BE ON FOR AT LEAST 10 SECONDS OR OFF FOR AT LEAST 10 SECONDS BEFORE A SUBSEQUENT OFF OR ON COMMAND.

86 THE ELAPSED TIME REQUIRED TO MAKE ONE COMPLETE CYCLE OF THE TAPE SHALL BE 4 MINUTES +-12.5 PCT. WHEN THE RECORDER IS IN THE PLAYBACK MODE. THE READ-IN TO READ-OUT TAPE TIME RATIO SHALL BE 4+-5 PCT.

H RECORD CYCLE TIME IN THE CALIBRATION BOOK.

F ACTUAL MEASURED CYCLE TIME SHALL BE RECORDED IN THE CALIBRATION BOOK, AND TRANSMITTED TO STC. THE TOTAL ALLOWABLE OPERATING TIME BEFORE LAUNCH SHALL BE AS STATED IN THE HOLD TIME LIMITATIONS IN APPENDIX B.

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HF 4.5.2.2.5 MODULATION CHARACTERISTICS OF SUBCARRIER OSCILLATORS

HF 4.5.2.2.5.1 FREQUENCY LIMITS

H THE SUBCARRIER OSCILLATOR (SCO) FREQUENCY REQUIREMENTS SHALL BE AS SHOWN IN TABLE 4.5.2.2.5.1.

88 H TABLE 4.5.2.2.5.1 SCO FREQUENCY LIMITS

FREQ (KC)	STIMULUS VOLTAGE FOR HIGH DEVIATION (VDC)	HIGH LIMIT (CPS)	STIMULUS VOLTAGE FOR LOW DEVIATION (VDC)	LOW LIMIT (CPS)	TOLERANCE (+-CPS)
SCO BASE 1 (ORRT)					
2.3	5	2466	0	2134	9
3.0	5	3216	0	2784	11
3.9	5	4181	0	3619	14
5.4*	4.3	5789	-2.25	5011	20
7.35	5	7879	0	6821	27
SCO BASE 2 (ORT)					
14.5	5	15544	0	13456	54
30*	4.3	32160	-2.25	27840	111
40*	4.3	42880	-2.25	37120	148
52.5	5	56280	0	48720	194
70	5	75040	0	64960	259

* MULTIPLEXED

ORT ORBITAL REAL TIME ORRT ORBITAL RECORD AND REAL TIME

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88 H TABLE 4.5.2.2.5.1 SCO FREQUENCY LIMITS (CONT)

FREQ (KC)	STIMULUS VOLTAGE FOR HIGH DEVIATION (VDC)	HIGH LIMIT (CPS)	STIMULUS VOLTAGE FOR LOW DEVIATION (VDC)	LOW LIMIT (CPS)	TOLERANCE (+-CPS)
SCO BASE 3 (ORRT)					
1.7	5	1822	0	1578	6
14.5**	***	14500	***	14500	20
10.5*	4.3	11256	-2.25	9744	39
22*	4.3	23584	-2.25	20416	81
SCO BASE 6 (ORT)					
22	5	23584	0	20416	81
40	5	42880	0	37120	148
52.5	5	56280	0	48720	194
SCO BASE 8 (ORT)					
5.4	5	5789	0	5011	20
7.35	5	7879	0	6821	27
10.5	5	11256	0	9744	39
14.5*	4.3	15544	-2.25	13456	54

88 SCO BASE 9 (POWERED FLIGHT MODE)--DELETED

* MULTIPLEXED
** TAPE SPEED COMPENSATION OSCILLATOR
*** FIXED FREQUENCY VOLTAGE CONTROLLED OSCILLATOR (VCO)

ORT ORBITAL REAL TIME ORRT ORBITAL RECORD AND REAL TIME

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88 HF 4.5.2.2.5.2 PRE-EMPHASIS SCHEDULE

HF THE PRE-EMPHASIS SCHEDULE SHALL MEET THE FOLLOWING REQUIREMENT.

H A.THE PRE EMPHASIS SCHEDULE SHALL BE SET,UTILIZING THE RF LINK, WITHIN +-5 PERCENT OF THE VALUE DEFINED IN TABLE 4.5.2.2.5.2.

HF B.THE PRE EMPHASIS SCHEDULE SHALL BE WITHIN +-10 PERCENT OF THE VALUES DEFINED IN TABLE 4.5.2.2.5.2 WHEN VERIFIED THROUGH EITHER TRANSMITTER

88 HF C.THE PRE EMPHASIS SCHEDULE OF BASE 6 AND 8 SHALL MEET THE REQUIREMENTS OF A AND B ABOVE.

88 D.DELETED

88 E.DELETED

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88 HF TABLE 4.5.2.2.5.2. PRE-EMPHASIS SCHEDULE

SCO	TRANSMITTER DEVIATION (KILOCYCLES PER SECOND)				
CENTER FREQUENCY (KC)	ORBITAL REAL TIME BASES 1,2,3	ORBITAL RECORD BASES 1,3	ORBITAL REAL TIME BASE 6	ORBITAL REAL TIME BUSS DATA BASE 8	POWERED FLIGHT VIB DATA BASE 9 (DELETED)
1.7	6	12	---	---	
2.3	6	12	---	---	
3.0	6	12	---	---	
3.9	7	14	---	---	
5.4	8	16	---	8	
7.35	10	20	---	9	
10.5	12	24	---	11	
14.5	14	---	---	14	
14.5*	---	34	---	---	
22.0	17	34	18	---	
30.0	20	---	---	---	
40.0	23	---	29	---	
52.5	26	---	35	---	
70.0	30	---	---	---	
93.0	---	---	---	---	

WITH BASE 2 DISABLED, THE ORBIT RECORD MIXER AMPLIFIER OUTPUT TO THE TAPE RECORDER SHALL BE NO GREATER THAN 1.2 VOLTS RMS, NOR LESS THAN 1.0 VOLT RMS.

NOTE ONLY THE ORBIT RECORD MIXER AMPLIFIER AND THE 14.5 -KC TAPE-SPEED-COMPENSATION SCO CAN BE ADJUSTED AFTER THE ORBITAL REAL TIME PRE-EMPHASIS HAS BEEN SET. CONSEQUENTLY, THE ORBIT RECORD SCHEDULE SHOWS APPROXIMATE DEVIATIONS WITH THE EXCEPTION OF THE TAPE-SPEED-COMPENSATION OSCILLATOR AND THE 22-KC SCO USED TO INDICATE PROPER MIXER AMPLIFIER ADJUSTMENT.

* TAPE SPEED COMPENSATION OSCILLATOR.

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HF 4.5.2.2.5.3 MODULATION SETTING

H AFTER PRE-EMPHASIS HAS BEEN DEMONSTRATED, DECREASING OF THE RF SIGNAL STRENGTH UNTIL THE RECEIVER SIGNAL THRESHOLD IS REACHED SHALL CAUSE ALL SCO SIGNALS TO DROP OUT WITHIN 2 DB OF EACH OTHER.

F NO REQUIREMENTS UNLESS SUBCARRIER CHANNEL PRE-EMPHASIS HAS BEEN RESET IN THE FIELD, IN WHICH CASE THE REQUIREMENT SHALL BE THE SAME AS IN FACTORY REQUIREMENT PARAGRAPH 4.5.2.2.5.3.

88 4.5.2.2.5.4 VEHICLE CLOCK TIME RECORDING

THE FIRST R1+ COMMAND OF A RECORD SEQUENCE SHALL SWITCH THE INPUT OF THE 22 KC SCO BASE 2 FROM THE 30 X 5 MULTIPLEXER TO THE VEHICLE CLOCK FOR 2 SECONDS.

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88 HF 4.5.2.2.6 MULTIPLEXERS

ALL MULTIPLEXERS SHALL MEET THE FOLLOWING REQUIREMENTS.

A. THE NOISE ON EACH PULSE SHALL NOT EXCEED 2 PERCENT FULL SCALE.

B. SAMPLING RATE SHALL BE CONSTANT WITHIN +-5 PERCENT.

C. LINEARITY-DEVIATION FROM THE BEST STRAIGHT LINE BETWEEN 10 , 50, AND 90 PERCENT SHALL NOT BE GREATER THAN +- 1 PERCENT.

D. DUTY CYCLE SHALL BE 50+-5 PERCENT.

E. CHANNEL WITH NO INPUT TERMINATION SHALL READ LESS THAN 0 PERCENT

F. SAMPLING RATE

90 X 1/3	ONE SAMPLE EVERY 33.4 MILLISECONDS +-5 PERCENT
30 X 5	ONE SAMPLE EVERY 6.66 MILLISECONDS +-5 PERCENT
30 X 2.5	13.3 MILLISECONDS (+-5 PERCENT)

G. THE PEDESTAL SHALL BE 20 TO 25 PCT. OF THE TOTAL MULTIPLEXER EXCURSION.

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HF 4.5.2.2.7 TELEMETRY CHANNEL ASSIGNMENTS AND TRANSDUCERS

79A HF 4.5.2.2.7.1 CHANNEL ASSIGNMENTS

HF A. THE TELEMETRY ALLOCATION SHALL BE PER APPENDIX C.

HF B. ALL TELEMETRY EVENTS AND ANALOG MONITORS SHALL BE OPERATIONAL.

HF C. VALUES SHALL BE OBTAINED FOR EVERY FUNCTION AND LISTED IN THE CALIBRATION BOOK.

HF D. UNLESS OTHERWISE SPECIFIED, THE VALUE IN THE TELEMETRY CALIBRATION BOOK SHALL BE WITHIN +-10 PCT. OF THE VEHICLE VALUES FOR EVENT MEASUREMENTS, AND WITHIN +-5 PCT. OF THE VEHICLE VALUES FOR ANALOG MEASUREMENTS.

H E. THE VOLTAGE OF EACH TELEMETRY CHANNEL SHALL BE SUPPLIED BY THE SENSOR ASSIGNED TO THAT CHANNEL. THE LEVEL AND/OR POLARITY OF OPERA-TION SHALL BE (UNLESS OTHERWISE SPECIFIED) WITHIN +-10 PCT. FOR EVENTS AND +-5 PCT. FOR ANALOG MEASUREMENTS OF THE VALUES SPECIFIED IN APPENDIX C.

88 F.DELETED

HF 4.5.2.2.8 SENSOR POWER SUPPLY
THE 5-VOLT SENSOR POWER SUPPLY SHALL BE WITHIN +-0.1 VDC OF ITS RATED VOLTAGE AT EXTREMES OF VEHICLE BUS VOLTAGES.

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88 HF 4.5.2.2.9 SUBSYSTEM PERFORMANCE REQUIREMENTS

THE DATA OBTAINED FOR EACH MODE OF THE TRANSFER SWITCH SHALL BE COMPARABLE IN QUALITY AND THE TELEMETRY CHANNEL ASSIGNMENT SHALL BE THE SAME.

HF A. THE MEASURED PEAK-TO-PEAK NOISE FOR THE REAL-TIME LINK (MULTIPLEXED AND CONTINUOUS) SHALL BE NO GREATER THAN 2 PCT. OF FULL SCALE, USING A STANDARD IRIG (INTER-RANGE INSTRUMENTATION GROUP) OUTPUT FILTER.

HF B. THE MEASURED INCREASE IN PEAK-TO-PEAK NOISE FOR THE PLAYBACK LINK (MULTIPLEXED, AND CONTINUOUSLY RECORDED FOR 16 MINUTES), AS COMPARED TO REAL-TIME DATA, SHALL BE NO MORE THAN 4 PCT. OF FULL SCALE USING A STANDARD IRIG OUTPUT FILTER.

H C. PRIMARY SV TELEMETRY-- THE ANALOG VOLTAGE LEVEL VALUE OF AN INPUT SIGNAL VOLTAGE TO TELEMETRY SHALL NOT BE CHANGED BY MORE THAN +-5 PCT. OF FULL SCALE (OR +-0.25 VDC) BY THE REAL-TIME TELEMETRY DATA LINK, OR MORE THAN +-8 PCT. OF FULL SCALE BY THE RECORDER/REPRODUCER PLAYBACK TELEMETRY DATA LINK. THIS INCLUDES BOTH THE RECORD OF THE CONTINUOUS SCO SIGNAL AND THE DECOMMUTATION RECORD OF THE MULTIPLEXED SIGNAL. ALL SEPARATION EVENTS VOLTAGE LEVELS MUST NOT BE CHANGED BY MORE THAN +-10 PCT.

HF D. THE FOLLOWING RECORDING MODES SHALL BE VERIFIED. THEIR DATA AS PLAYED BACK SHALL MEET THE REQUIREMENTS OF ITEM 2 ABOVE.

1. REAL TIME TM ON AND IR RECORD OFF, DELAY LINE ERASE SHALL BE ON BAND 11, SCO BASE 1 AND 30 X 2.5 MULTIPLEXER ON BAND 12, SCO BASE 3

2. REAL TIME TM ON AND IR RECORD ON, DELAY LINE ERASE SHALL BE ON BAND 11, SCO BASE 1 AND RH IR PREAMPLIFIER ON BAND 12, SCO BASE 3.

3. REAL TIME TM OFF AND IR RECORD ON, LH PREAMPLIFIER ON BAND 11, SCO BASE 1, AND RH PREAMPLIFIER ON BAND 12, SCO BASE 3.

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4. REAL TIME TM OFF AND IR RECORD OFF, CONTINUOUS BATTERY CURRENT ON BAND 11, SCO BASE 1, AND 30 X 2.5 MULTIPLEXER ON BAND 12, SCO BASE 3.

88 HF E. DELETED

88 HF F. DELETED

88 HF G. DELETED

88 HF H. DELETED

80B HF I. THE RECORD COUNTER SHALL ADVANCE UPON EACH EXECUTION OF AN R1+ COMMAND ONLY.

74B HF 4.5.2.3 OPERATIONAL RECUIREMENTS

A. THE CONIC TRANSMITTERS SHALL NOT BE ALLOWED TO EXCEED 150 DEG. F.

B. THE AIRBORNE RECORDER SHALL NOT BE ALLOWED TO EXCEED 100 DEG. F.

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HF 4.5.3 TRACKING AND COMMAND SUBSYSTEM

HF 4.5.3.1 FUNCTIONAL REQUIREMENT

THE ABILITY OF TRACKING AND COMMAND SUBSYSTEM TO PROVIDE A DUAL FUNCTION FIRST, TO ACCEPT, STORE, AND/OR EXECUTE COMMANDS, SECOND, TO PROVIDE TRACKING INFORMATION SHALL BE VERIFIED, ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

HF 4.5.3.2 DETAILED REQUIREMENTS

HF 4.5.3.2.1 S-BAND ANTENNA

THE S-BAND ANTENNA SYSTEM SHALL, AS A MATED ASSEMBLY INSTALLED IN THE ADAPTER, MEET THE FOLLOWING REQUIREMENTS.

HF A. FREQUENCY THE ANTENNA ASSEMBLY SHALL OPERATE IN THE FREQUENCY RANGE OF 2845 MC TO 2925 MC.

H B. BANDWIDTH THE VSWR (REFERENCED TO 50 OHMS) SHALL BE 2.0 TO 1 OR LESS AT 2850 +-1MC AND 2920 +-1 MC.

83 HF 4.5.3.2.2 S-BAND BEACON

HF A. INTERROGATION--

HF	1. FREQUENCY	2850+-2 MC
H	2. PULSE WIDTH	0.8 +- 0.1 MICROSECOND AT 50 PCT. AMPLITUDE POINTS
H	3. PULSE REPETITION RATE (WITH DATA PULSE)	410 TO 612 PULSE GROUPS PER SEC
H	4. PULSE REPETITION RATE (WITHOUT DATA PULSE)	410 TO 1600 PULSE PAIRS PER SEC

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F B. RESPONSE--

F 1. FREQUENCY 2920 +-2 MC AT 70 DEG F PLUS +-1 PCT/DEG C ABOVE OR BELOW 70 DEG F

F 2. PULSE REPETITION RATE FUNCTIONAL TEST INDICATING PROPER OPERATION

F 3. PEAK POWER OUTPUT 1000 WATTS MINIMUM

H B. RESPONSE

1. FREQUENCY	2920 + - 2 MC
2. PULSE WIDTH	0.8 +- 0.2 MICROSECOND
3. PULSE REPETITION RATE	SAME AS INTERROGATION PULSE
4. PULSE RISE TIME	0.1 MICROSECOND MAXIMUM BETWEEN 10 PCT. AND 90 PCT. AMPLITUDES OF LEADING EDGE.
5. PEAK POWER OUTPUT	1000 WATTS MINIMUM
6. DELAY (FIXED)	1.0 +- 0.35 MICROSECONDS AT -45 DBM

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HF	C. RECEIVER--	
HF	1. FREQUENCY	2850 +- 2 MC
HF	2. SENSITIVITY	-65 DBM OR BELOW
F	3. BANDWIDTH* -3 DB FROM MAX SENSITIVITY	7 MC (MIN)
	-40 DB FROM MAX SENSITIVITY	35 MC(MAX)
F	4. STABILITY	RECEIVER FREQUENCY (F(R)) +-2 MC AT ROOM TEMP (AFTER 2-MINUTE WARMUP).
		F(R) (ROOM TEMP) +- 3 MC MAX UNDER ENVIRONMENTS. (REFERENCE 4.2.1)
H	D. VIDEO OUTPUT (DETECTED, SHAPED VIDEO TRAIN)	
	1. AMPLITUDE	-10 VOLTS PEAK (MIN) -20 VOLTS PEAK (MAX)
	2. PULSE WIDTH	0.8 TO 1.5 MICROSECONDS
	3. PULSE RISE TIME	0.15 MICROSECONDS (MAX)
	4. LOAD IMPEDANCE	5 KILOHMS MINIMUM RESISTANCE 100 MICROFARADS MAXIMUM SHUNT CAPACITY.

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H E. MONITORS

1. RECEIVER	INDICATION OF BEACON INTERROGATION RATES BETWEEN 0 AND 1600 PULSE GROUPS PER SECOND
OUTPUT VOLTAGE	0 TO + 5 VDC
VOLTAGE LEVEL (AT 1600 PULSES PER SEC)	4.5 (+0.00 -1.00) VDC
2. TRANSMITTER	INDICATION OF BEACON RESPONSE RATE BETWEEN 410 AND 1600 PULSES PER SECOND
OUTPUT VOLTAGE	0 TO +5 VDC
VOLTAGE LEVEL (AT 1600 PULSES PER SEC)	4.5 (+0.00 -1.00) VDC
80A 3. TEMPERATURE	INDICATION OF BEACON INTERNAL TEMPERATURES AT AMBIENT

HF F. BEACON SUSCEPTIBILITY REQUIREMENTS--WITH ALL THE VEHICLE OCV/ADAPTER TRANSMITTERS ENERGIZED, EXCLUDING THE S-BAND BEACON TRANSMITTER, THE LEVEL OF HARMONIC PRESENT ON THE RF LINE, AT THE INTERFACE OF THIS LINE AND THE S-BAND BEACON, IN THE RANGE OF FREQUENCIES 2836 MC AND 2864 MC, SHALL BE 6 DB DOWN (MINIMUM) FROM THE SUSCEPTIBILITY THRESHOLD OF THAT PARTICULAR S-BAND BEACON, OR 15 MICROVOLTS (MAXIMUM), WHICHEVER IS SMALLER.

74B HF G. OPERATIONAL RESTRICTION--THE S-BAND BEACON TEMPERATURE SHALL NOT EXCEED 150 DEGREES F.

83 H. THE S-BAND BEACON SHALL NOT BE INTERROGATED PRIOR TO A ONE-MINUTE (MINIMUM) WARMUP PERIOD.

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HF 4.5.3.2.3 SUBSYSTEM PERFORMANCE

83A HF 4.5.3.2.3.1 GENERAL

H COMMAND SUBSYSTEM OPERATION SHALL BE VERIFIED WITH A VEHICLE BUS VOLTAGE OF 26 VDC AND 33 VDC, USING COMMANDS INSERTED VIA HARDWIRE AND VIA AIR LINK.

F COMMAND SUBSYSTEM TESTING SHALL BE VERIFIED WITH A VEHICLE BUS VOLTAGE OF 29.5 +-3.5 VDC, USING COMMANDS INSERTED VIA HARDWIRE OR VIA AIR LINK.

83A HF A. THE COMMAND SUBSYSTEM SHALL ACCEPT, STORE, AND/OR EXECUTE ONLY DISCRETE COMMANDS MEETING BIT COUNT, PARITY, AND SYNCH PULSE REQUIREMENTS DEFINED IN SVS 3969E.

83A HF B. COMMANDS NOT MEETING THE APPLICABLE REQUIREMENT SPECIFIED IN SVS 3969E SHALL BE REJECTED. THE COMMAND DECODER AND THE PROGRAMMER SHALL REJECT ON EACH TYPE OF BIT COUNT ERROR (POSITIVE AND NEGATIVE) AND THE PARITY CHECKER SHALL REJECT ON ODD PARITY.

HF C. ONLY THOSE COMMANDS SENT SHALL BE EXECUTED.

F D. THE TELEMETRY MONITOR WORD ACCEPT/REJECT SHALL BE SPECIFIED IN THE CALIBRATION BOOK. THE VALUES SPECIFIED IN THE CALIBRATION BOOK SHALL BE WITHIN +- 10 PCT. OF THE VEHICLE TELEMETRY VALUES FOR EACH APPROPRIATE LEVEL.

83A H D. THE TELEMETRY MONITOR WORD ACCEPT/REJECT SHALL BE VERIFIED TO BE WITHIN THE LIMIT SPECIFIED IN SVS 3969E FOR EACH APPROPRIATE LEVEL.

H E. COMMANDS SHALL BE ACCEPTED WHEN TRANSMITTED AT PULSE REPETITION RATES OF 487 AND 557 PULSES PER SECOND.

F E. COMMANDS SHALL BE ACCEPTED WHEN TRANSMITTED AT PULSE REPETITION RATES OF 410 TO 612 PULSES PER SECOND.

HF F. PULSE POSITIONS OUTSIDE OF THE SPECIFICATION TOLERANCE SHALL NOT BE ACCEPTED.

88 HF 4.5.3.2.3.2 REAL TIME COMMANDS (RTC)

74A A. EACH FUNCTIONAL RTC AS DEFINED IN APPENDIX F SHALL BE EXECUTED.

88 B. REALTIME COMMANDS SHALL MEET THE REQUIREMENTS OF PARAGRAPH 4.5.3.2.3.1.

83A HF 4.5.3.2.3.3 STORED PROGRAMMER COMMANDS

74A HF A. THE STORED PROGRAMMER COMMANDS, WHICH INCLUDES BOTH SINGLE STORED PROGRAMMER COMMANDS (SSPC) AND DOUBLE STORED PROGRAMMER COMMANDS (DSPC), NECESSARY TO PERFORM EACH COMMAND FUNCTION AS SPECIFIED IN APPENDIX F, SHALL BE TRANSMITTED TO THE VEHICLE AND EACH COMMAND FUNCTION SHALL BE VERIFIED.

HF B. EACH PROGRAMMER STORAGE LINE (LINES 1 THROUGH 4) SHALL BE UTILIZED FOR STORING THE COMMANDS.

HF C. A STORED COMMAND SHALL REMAIN STORED INDEFINITELY ON ANY OF FOUR DELAY LINES AND SHALL BE READ OUT EACH TIME THE VEHICLE CLOCK TIME MATCHES THE COMMAND TIME.

HF D. EVERY FUNCTIONAL COMMAND SHALL BE EXECUTED WITHIN +-0.1 SECOND OF ITS SPECIFIED TIME LABEL.

83A HF E. TYPICAL STORAGE TIME DURATION OF ONE SECOND TO AT LEAST 500,000 SECONDS SHALL BE SELECTED.

83A HF F. ALL DSPC 2 TIME DURATIONS SHALL BE EXECUTED.

83A HF G. EACH SIGNIFICANT DIGIT OF A DSPC 3 TIME DURATION COMMAND SHALL BE EXECUTED.

H H. THE FIRST PART OF A DOUBLE STORED PROGRAMMER COMMAND INSERTED TWICE AND FOLLOWED BY ITS SECOND PART, SHALL BE EXECUTED.

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88 HF 4.5.3.2.3.4 STORAGE LINES

A. EACH STORAGE LINE SHALL BE SUBJECTED TO A LINE CAPACITY TEST.

B. ZERO TO 98 STORED WORDS SHALL INDICATE THAT THE LINE IS NOT FULL 99 WORDS AND UP SHALL INDICATE THAT THE LINE IS FULL.

83A C. ANY COMMAND ATTEMPTED TO BE LOADED INTO A LINE WHICH IS ALREADY FULL SHALL BE REJECTED.

HF 4.5.3.2.3.5 POWER CONTROLLER TIMER

83A HF A. THE TIMER SHALL TURN OFF THE S-BAND BEACON. TELEMETRY TRANSMITTERS, VCOS, MULTIPLEXERS, RECORDER, PULSE POSITION DEMODULATOR, COMMAND DECODER, 6 VOLT POWER SUPPLY, AND THE TIMER ITSELF WHEN THE TIMER TIMES OUT FROM ANY MODE.

HF B. THE TIMER SHALL RESPOND TO 6R, 6 AND 12-MINUTE MODE COMMANDS IN THE FOLLOWING MANNER

1. IN THE 6-MINUTE RESETTABLE MODE THE POWER CONTROLLER TIMER SHALL

(A) RESET WITH EACH POWER-ON ALERT.

(B) RESET AND SWITCH TO 6-MINUTE NON-RESETTABLE MODE BY A MODE 6 COMMAND.

88 (C) RESET AND SWITCH TO 12-MINUTE RESETTABLE MODE BY A MODE 12 COMMAND WHEN THAT COMMAND IS FOLLOWED BY A POWER ON ALERT WITHIN THE 6 MINUTE TIMER PERIOD.

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2. IN THE 6-MINUTE NON-RESETTABLE MODE THE POWER CONTROLLER TIMER SHALL

(A) NOT BE RESET BY A POWER-ON ALERT.

(B) NOT BE AFFECTED BY A MODE 6R COMMAND.

88 (C) NOT BE AFFECTED BY A MODE 12 COMMAND.

3. IN THE 12-MINUTE RESETABLE MODE THE POWER CONTROLLER TIMER SHALL

(A) BE RESET WITH EACH POWER-ON ALERT BUT WILL REMAIN IN 12-MINUTE MODE.

(B) BE RESET AND SWITCH TO 12-MINUTE NON-RESETTABLE MODE BY A MODE 6 COMMAND

(C) NOT BE SWITCHED FROM 12-MINUTE TO 6-MINUTE RESETTABLE MODE OR 6-MINUTE NON-RESETTABLE MODE BY ANY COMMAND.

4. IN THE 12-MINUTE NON-RESETTABLE MODE THE POWER CONTROLLER TIMER SHALL

(A) NOT BE RESET BY A POWER-ON ALERT.

(B) NOT BE AFFECTED BY ANY COMMAND.

5. AFTER THE POWER CONTROLLER TIMER HAS TIMED OUT, A POWER-ON ALERT SHALL START THE TIMER IN THE 6-MINUTE RESETTABLE MODE.

HF C. THE POWER CONTROLLER TIMER SHALL BE ACCURATE TO +-45 SECONDS IN THE 6-MINUTE MODE AND +-90 SECONDS IN THE 12-MINUTE MODE.

HF D. MANUAL INITIALIZATION SHALL RESET THE TIMER FROM ANY OTHER MODE TO THE 6-MINUTE RESETTABLE MODE.

83A HF 4.5.3.2.3.6 SECURE WORD COUNT AND PPD REQUIREMENTS

83A HF A. THE SECURE WORD COUNTER SHALL BE ADVANCED BY ONE COUNT WITH EACH PPD ON COMMAND VIA PRIMARY COMMAND SYSTEM OR BUSS.

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HF B. THE SECURE WORD COUNTER SHALL BE RESET TO ZERO WITH PRELAUNCH PRESET.

HF C. SECURE WORDS SHALL BE EXECUTED WHEN THE CLOCK MATCHES THE TIME LABEL AND THE SECURE WORD KEY MATCHES THE SECURE WORD.

HF D. THE SECURE WORDS SHALL NOT BE EXECUTED WHEN THE SECURE WORD KEY DOES NOT MATCH THE SECURE WORD BY ONE OR MORE BITS AND/OR THE SECURE WORD CONSISTS OF ALL ZEROS.

H E. ALL 128 SECURE WORDS SHALL BE VERIFIED.

H F. THE PULSE POSITION DEMODULATOR SHALL BE TESTED TO ENSURE PASSAGE OF ONLY ONE PULSE PER GROUP, IN ACCORDANCE WITH THE FOLLOWING LIST

INPUT	OUTPUT
1 AND 0	S
S AND 0	S
S AND 1	S
VALID PULSE GROUP WITHIN 1300 MICROSECONDS OF LAST PULSE	S

80C G. WITH THE SECURE COUNT AT 127, A PPD ON COMMAND SHALL NOT ADVANCE THE SECURE COUNT.

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HF 4.5.3.2.3.7 COMMAND INTERFERENCE

A. THE COMMAND DECODER SHALL PROCESS ONLY ONE COMMAND AT A TIME.

B. THE ABILITY OF THE COMMAND DECODER TO EXECUTE STORED COMMANDS WHILE RECEIVING CONTINUOUS S PULSES, SHALL BE VERIFIED.

C. DURING EXECUTION OF ANY COMMAND (RTC OR PROGRAMMER COMMANDS), ALL OTHER COMMANDS SHALL BE INHIBITED.

80A HF 4.5.3.2.3.8 PROGRAMMER POWER REQUIREMENTS DELETED

74A HF 4.5.3.2.3.9 PROGRAMMER CLOCK

A. TIME ACCURACY-THE ACCURACY, AFTER A 15-MINUTE (MINIMUM) WARMUP, SHALL BE WITHIN 1 PART IN 10**6 WHEN COMPARED TO A SECONDARY TIME STANDARD.

B. CLOCK ADEQUACY-UPON FAILURE TO MEET THE 1 PART IN 10**6 TIME ACCURACY REQUIREMENT, THE PROGRAMMER CLOCK SHALL BE ACCEPTABLE ONLY WHEN THE FOLLOWING ADDITIONAL REQUIREMENTS ARE DEMONSTRATED IN A SYSTEM TEST CONFIGURATION.

1) OSCILLATOR FREQUENCY--THE FREQUENCY SHALL BE 1 MC +-3 CPS AFTER 15 MINUTES (MINIMUM) WARMUP.

74A 2) OSCILLATOR STABILITY--THE RATE OF CHANGE OF THE OSCILLATOR FREQUENCY SHALL NOT EXCEED, AFTER A 15 MINUTE WARM-UP, A RATE EQUIVALENT TO 6.66 CYCLES IN 1 MILLION SECONDS. MEASUREMENT DURATION SHALL BE DEPENDANT UPON TEST EQUIPMENT RESOLUTION CAPABILITY. SUCCESSIVE MEASUREMENTS INTERRUPTED BY PROGRAMMER OFF/ON POWER CYCLING OF THE OSCILLATOR FREQUENCY SHALL DIFFER BY LESS THAN +-0.5 CYCLES.

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88 HF 4.5.3.2.4 COMMAND TIMING REQUIREMENTS

A. THE FOLLOWING COMMANDS SHALL BE ABLE TO BE EXECUTED WITHIN THE FOLLOWING MINIMUM TIMES

RTC 1 THRU 16	20 MILLISECONDS
SSPC 1	0.1 SECOND, EXCEPT WITH CD -.3 SECOND
SSPC 2	0.1 SECOND
DSPC 1	0.2 SECOND FOR SECURE MATCH 0.1 SECOND FOR NO SECURE MATCH
DSPC 2	ADJUSTABLE BETWEEN THE LIMITS OF 10.1 SECONDS TO 30.5 SECONDS
DSPC 3	ADJUSTABLE UP TO 102.4 SECONDS
DSPC 4	0.1 SECOND
DSPC 5	0.2 SECOND
DSPC 6	0.1 SECOND

B. MANUAL INITIALIZE SHALL NOT BE ON FOR MORE THAN 10 SECONDS.

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HF 4.5.4 SEPARATION SUBSYSTEM

HF 4.5.4.1 SUBSYSTEM FUNCTIONAL REQUIREMENT

THE ABILITY OF THE SV SEPARATION SUBSYSTEM TO CONTROL THE SEPARATION FUNCTIONS AFTER THE MAIN CONTACTS OF THE BAROSWITCH HAVE CLOSED SHALL BE VERIFIED. THE ABILITY OF BUSS TO PROVIDE BACKUP FOR CERTAIN SPECIFIC FUNCTIONS SHALL ALSO BE VERIFIED. SIMULATED PYROTECHNIC DEVICES SHALL BE USED DURING TESTING.

HF 4.5.4.2 DETAILED REQUIREMENTS

HF 4.5.4.2.1 CONTINUITY LOOP

HF THE RESISTANCE OF THE CONTINUITY LOOP WHICH SHALL COMPRISE THE CONTINUOUS CIRCUIT INDICATING BAROSWITCH MAIN CONTACTS OPEN (BACK CONTACTS CLOSED), ALL ELECTRICAL CONNECTIONS MADE, AND CONTINUITY THROUGH PYROTECHNIC SQUIB BRIDGE WIRES (OR SIMULATORS) SHALL BE 2750* +-200 OHMS.

* VALUE DOES NOT INCLUDE ANY PARALLEL RESISTANCES INTRODUCED WHEN SIMULATORS ARE USED.

HF THE MAXIMUM APPLIED VOLTAGE SHALL NOT EXCEED 25.0 VDC.

HF THE CURRENT THROUGH THE CONTINUITY LOOP SHALL NOT EXCEED 10 MILLIAMPERES DC.

F WHEN TESTING CONTINUITY WITH LIVE PYROTECHNICS (PRELAUNCH), THE TOTAL TIME WITH POWER ON MUST BE LIMITED TO 72 HOURS MAXIMUM ALLOWABLE TIME WITH A MAXIMUM CONTINUITY LOOP TEST CURRENT OF 5 MILLIAMPERES, OR 36 HOURS WITH A MAXIMUM CURRENT OF 10 MILLIAMPERES. A LOG OF THIS TIME MUST BE KEPT.

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83 HF 4.5.4.2.2 BAROSWITCH OPERATION

HF A. PRESSURE DECREASE TO THE BAROSWITCH SHALL MEET THE FOLLOWING RATE 0.75+-0.25 MMHG/SECONDS

HF B. FOR AN INPUT OF DECREASING PRESSURE

HF 1) THE SECONDARY CONTACTS SHALL OPEN AT 350+-25 MMHG.ABSOLUTE.

HF 2) THE MAIN CONTACTS SHALL CLOSE AT 50+-20 MMHG.ABSOLUTE.

HF C. ANY TIME PRESSURE IS INCREASED TO ATMOSPHERIC PRESSURE (AMBIENT)

1) THE MAIN CONTACTS SHALL OPEN.

2) THE SECONDARY CONTACTS SHALL CLOSE.

86 HF 4.5.4.2.3 SEPARATION SUBSYSTEM OPERATION

A. THE ABILITY OF THE SEPARATION SUBSYSTEM TO PERFORM THE COMMANDED FUNCTIONS LISTED IN TABLE 4.5.4.2.4 SHALL BE VERIFIED. THE SEPARATION OR THE BUSS COMMAND SEQUENCES SHALL NOT FUNCTION UNLESS BAROSWITCH CLOSURE OR CLOSURE SIMULATION HAS OCCURRED.

HF B. THE FOLLOWING SUBSYSTEM LOGIC SHALL BE DEMONSTRATED

SV I MUST BE EXECUTED ANY TIME IT IS GIVEN

SV 2 WILL EXECUTE ANY TIME IT IS GIVEN

SV 3 MUST BE GIVEN BEFORE SV 4 THROUGH SV 8 INCLUSIVE

SV 5/6 MUST BE GIVEN BEFORE OR AT SAME TIME AS SV 7

SV 7 MUST BE GIVEN BEFORE OR AT SAME TIME AS SV 8

86 C. THE CAPABILITY OF EACH REDUNDANT SECTION OF THE SEPARATION CONTROLLER TO PERFORM ALL OF THE SEPARATION FUNCTIONS SHALL BE DEMONSTRATED.

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88 HF 4.5.4.2.4 REQUIRED SQUIB SIMULATOR CURRENTS

HF A. THE CAPABILITY OF THE SEPARATION SUBSYSTEM TO FIRE THE PYROS SHALL BE DEMONSTRATED WITH THE SV ON INTERNAL POWER AND THE BUS VOLTAGE WITHIN THE FOLLOWING RANGES.

OCV* PRIMARY BUS	26 TO 33
86 OCV* BUSS/SEPARATION BUS	23.5 TO 31.5
SRV THERMAL BATTERY	26 TO 33
RECOVERY BATTERY	13 TO 15.5

88 *MEASURED AT THE OUTPUT OF THE LLCB

HF B. THE SV SQUIB CURRENT/EVENTS SHALL MEET THE FOLLOWING REQUIREMENT-

1) THE SV SQUIB CURRENT/EVENTS SHALL MEET THE REQUIREMENTS OF TABLE 4.5.4.2.4 (SV PRIMARY MINIMUM CURRENT)WHEN THE SV IS ON INTERNAL POWER AND COMMANDED THROUGH THE PRIMARY SYSTEM AND THE SV VOLTAGES MEET THE FOLLOWING REQUIREMENTS--

SV PRIMARY BUS AT	28+-0.5 VDC
BUSS/SEP BACKUP BATTERY	0 VDC
SRV THERMAL BATTERY	33+-0.5
RECOVERY BATTERY	15+-0.5

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2) THE SV SQUIB CURRENT/EVENTS SHALL MEET THE REQUIREMENTS OF TABLE 4.5.4.2.4 (BUSS/SEP BACKUP MINIMUM CURRENT) WHEN THE SV IS ON INTERNAL POWER AND COMMANDED THROUGH BUSS AND THE SV VOLTAGES MEET THE FOLLOWING REQUIREMENTS--

SV PRIMARY BUS	23+-0.5 VDC
BUSS/SEPARATION BUS	25.0+-0.5 VDC
SRV THERMAL BATTERY	33+-0.5
RECOVERY BATTERY	15+-0.5

F FOR ANY OTHER BUS VOLTAGES WITHIN THE SPECIFIED VALUES, THE CURRENT REQUIREMENTS OF TABLE 4.5.4.2.4 SHALL BE ADJUSTED USING THE FOLLOWING FORMULA

I(2)=I(1) V(2)/V(1)

WHERE

I(1) = CURRENT SPECIFIED IN THE SPECIFICATION.

I(2) = REQUIRED CURRENT FOR THE VOLTAGE USED.

V(1) = VOLTAGE AT WHICH CURRENT IS SPECIFIED IN THE SPECIFICATION.

V(2) = ACTUAL BATTERY BUS VOLTAGE UNDER FIRING LOAD.

HF THE MINIMUM CURRENTS SHALL BE DEMONSTRATED USING THE BAROSWITCH CIRCUITS.

HF THE PRODUCT OF (CURRENT)(CURRENT)(TIME) SHALL NOT EXCEED 1250 AMPERES**2 MILLISECONDS.

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88 HF TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING, AND REQUIRED SQUIB SIMULATOR CURRENTS.

	COMMAND SOURCE SV BUSS SEP. CMD NO.	SV PRIMARY SEP. CMD NO.	DELTA TIME (SEC.)	FUNCTION	UNIT	SV PRIMARY MINIMUM CURRENT (AMPS)	BUSS/SEP BACKUP MINIMUM CURRENT (AMPS)
		1		A. COMPUTER PRE-ARM	A(1)709	4.2	N/A
					A(2)709	4.2	N/A
				B. PB 1	A 748	1.8	N/A
				PB 2	A 749	1.8	N/A
		2		A. FIRES MARMON	A 742	3.9	N/A
				CLMP SQUIBS (SV/	A 743	3.8	N/A
				S01A SEPARATION	A 744	3.9	N/A
				SQUIBS)	A 745	3.9	N/A
88			15-28	B. ZEKE ANTENNA FAIRING EJECT 2	A 1989	4.8	N/A
				MAGNETOMETER FAIRING EJECT 2	A 1984	4.6	N/A
88			34-60	C. MAGNETOMETER FAIRING EJECT 1	A 1983	4.6	N/A
				ZEKE ANTENNA FAIRING EJECT 1	A 1988	4.8	N/A
	2	3		FIRES DISCONNECT 1	A 1705	6.7	EVENT
				PRESSURE BOTTLE 1	A 1740	4.2	EVENT
				PRESSURE BOTTLE 2	A 1741	4.1	EVENT

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88 HF TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING, AND REQUIRED SQUIB SIMULATOR CURRENTS (CONT).

	COMMAND SOURCE SV BUSS SEP. CMD NO.	SV PRIMARY SEP. CMD NO.	DELTA TIME (SEC.)	FUNCTION	UNIT	SV PRIMARY MINIMUM CURRENT (AMPS)	BUSS/SEP BACKUP MINIMUM CURRENT (AMPS)
82	3	4		FIRES DISCONNECT 2	A 707 A 708	5.4 5.4	5.4 5.4
82				FIRES DISCONNECT 3	A 746	5.4	5.4
	4	5/6		A. ENERGIZES SRV TM ON OCV BUSS	N/A	N/A	N/A
				B. FIRES SRV TM BATTERY SQUIBS	A 1811	7.7	7.0
				C. ARMS K1 OF A 1700 PROGRAMMER AND STARTS INHIBIT TIMER	N/A	N/A	N/A

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88 HF TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING, AND REQUIRED SQUIB SIMULATOR CURRENTS (CONT).

COMMAND SOURCE SV BUSS SEP. CMD NO.	SV PRIMARY SEP. CMD NO.	DELTA TIME (SEC.)	FUNCTION	UNIT	SV PRIMARY MINIMUM CURRENT (AMPS)	BUSS/SEP BACKUP MINIMUM CURRENT (AMPS)
5	7	0.9 NOM.	A. FIRES SRV/ ADAPTER INFLIGHT DISCONNECT	A 725 A 726	3.7 3.7	EVENT EVENT
			B. ENERGIZES TWO THERMAL BATTERIES	A 1604 A 1605	2.5 2.5	EVENT EVENT
			C. TRANSFERS SRV TM TO INTERNAL POWER	A 1700	N/A	N/A
			D. ARMS K2 AND K3 WHICH APPLY POWER TO BOTH RECOVERY PROGRAMMER CHANNELS AND POWERS THE BACKUP TIMER (K3 BACKS UP FUNCTION OF K1)	A 1700	N/A	N/A
6	8		FIRES FOUR PIN PULLER SQUIBS	A721(2) A723(2)	4.1 EA 4.2 EA	EVENT EVENT

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TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING, AND REQUIRED SQUIB SIMULATOR CURRENTS (CONT).

COMMAND SOURCE SV BUSS SEP. CMD NO.	SV PRIMARY SEP. CMD NO.	DELTA TIME (SEC.)	FUNCTION	UNIT	SV PRIMARY MINIMUM CURRENT (AMPS)	BUSS/SEP BACKUP MINIMUM CURRENT (AMPS)
			OTHER FUNCTIONS			
N/A	N/A		EXPLOSIVE PISTON (PRIMARY ACT DISC.)	A 1390	7.1	N/A
			ORBIT ADJUST VALVES	A 802(2)	4.2 EA	N/A
			(EXPLOSIVE)	A 803(2)	4.2 EA	N/A
			PAD-ABORT	A 1032(2)	3.9 EA	N/A
			SQUIB VALVES	A 1033(2)	3.9 EA	N/A
			BUSS GAS ENABLE 1	A(1) 1963	N/A	4.0
			BUSS GAS ENABLE 2	A(2) 1963	N/A	4.0

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88 HF TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING,AND REQUIRED SQUIB SIMULATOR CURRENTS (CONT)

COMMAND SOURCE BUSS CMD NO.	SV PRIMARY SEP CMD NO.	DELTA TIME (SECONDS)	FUNCTION	UNIT	MINIMUM CURRENT (AMPS)
			SRV RECOVERY FUNCTIONS		
			SPIN VALVE	A1606(2)	3.0EA
			ROCKET INITIATOR	A1607	3.5
			DE SPIN VALVE	A1608(2)	3.0EA
			CAPSULE THRUST CONE	A1601	3.0
			INFLIGHT DISCONNECT	A1602	3.0
			CAPSULE THRUST CONE	A1609	3.0
			EXPLOSIVE BOLTS	A1610	3.0
			PARACHUTE COVER	A1728	3.0
				A1729	3.0
				A1730	3.0
				A1731	3.0

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HF 4.5.4.2.5 SEPARATION SWITCH OPERATION

A. COMPUTER PREARM SWITCHES--THE FOLLOWING FUNCTIONS SHALL BE VERIFIED THE COMPUTER LOGIC BOX SHALL BE DISABLED WITH BOTH SWITCHES DEPRESSED. THE COMPUTER LOGIC BOX SHALL BE ENABLED AND THE CONTINUITY LOOP INTERRUPTED WHEN EITHER OR BOTH SWITCHES ARE RELEASED. THE ABILITY OF THE TELEMETRY TO MONITOR THESE EVENTS SHALL BE VERIFIED.

B. OCV/AGENA SWITCH--SWITCH OPERATION SHALL BE DEMONSTRATED. WHEN THIS SWITCH IS FULLY DEPRESSED, ITS CONTINUITY LOOP CONTACTS SHALL BE CLOSED AND THOSE TO THE SEPARATION TELEMETRY MONITOR 4 SHALL BE OPEN. WHEN RELEASED, THE CONTACTS SHALL BE REVERSED.

HF 4.5.4.2.6 SEPARATION SUBSYSTEM TELEMETRY EVENTS MONITORS

F THE FUNCTION OF EACH SEPARATION SUBSYSTEM EVENT OCCURRENCE SHALL BE INDICATED ON SEPARATION TELEMETRY EVENTS MONITORS. THE TLM SIGNAL FROM ONE EVENT SHALL PERSIST UNTIL THE NEXT EVENT ON THAT CHANNEL.

F 4.5.4.2.7 PYRO CHECKOUT

ALL PYROS SHALL BE INSPECTED FOR DAMAGE AND CHECKED FOR ELECTRICAL CONTINUITY PRIOR TO INSTALLATION INTO SV. AFTER PYRO INSTALLATION, EACH PYRO BRIDGEWIRE CONTINUITY SHALL BE RECHECKED BEFORE HARNESS CONNECTION.

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HF 4.5.4.3 SPECIAL PRECAUTIONS

HF 4.5.4.3.1 BAROSWITCH CONTACTS

BAROSWITCH CONTACTS SHALL NEVER BE OPENED WHILE ELECTRICALLY ENERGIZED. BAROSWITCH CONTACTS SHALL CARRY THE SQUIB FIRING CURRENTS (APPROXIMATELY 20 AMPERES PER CONTACT FOR 60 MILLISECONDS) NOT MORE THAN 50 TIMES PRIOR TO FLIGHT. THE BAROSWITCH MAY NOT BE ELECTRICALLY BYPASSED NOR POWER SUPPLIED DIRECTLY TO THE SEPARATION CONTROLLER DURING MEASUREMENTS OF SQUIB SIMULATOR CURRENTS. AIR FILTERED TO 10 MICRONS SHALL BE USED WHEN-EVER THE BAROSWITCH IS VENTED.

HF 4.5.4.3.2 INTERCHANGEABILITY

ALL PARTS OF THE SUBSYSTEM HAVING THE SAME PART NUMBER SHALL BE FUNCTION-ALLY AND DIMENSIONALLY INTERCHANGEABLE EXCEPT THAT CERTAIN PARTS ARE MANUFACTURED AS MATCHED SETS AND IF ONE PART IS CHANGED, ALL PARTS OF THE SET MUST BE CHANGED. THESE SETS ARE

A. SV SPRING AND GUIDE ASSEMBLY (4), DRAWING 825D636 E

B. SPRING AND GUIDE ASSEMBLY (4), DRAWING 825D645 C

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HF 4.5.5 STABILIZATION SUBSYSTEM

HF 4.5.5.1 FUNCTIONAL REQUIREMENT

THE ABILITY OF THE STABILIZATION SUBSYSTEM TO BE ABLE TO PERFORM THE FOLLOWING FUNCTIONS SHALL BE VERIFIED, ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

A. STABILIZE THE SV WITH RESPECT TO THE ORBITAL PLANE AND THE NADIR.

B. PROVIDE MANEUVERING CAPABILITY IN ALL AXES.

HF 4.5.5.2 DETAILED REQUIREMENTS

HF 4.5.5.2.1 TARS AND RAGS GYRO

12 H 4.5.5.2.1.1 RUNDOWN

EACH RAGS AND TARS GYRO SHALL MEET THE FOLLOWING REQUIREMENTS. THE RUNDOWN TIME (SEE APPENDIX A) SHALL NOT VARY BY MORE THAN 50PCT FROM THE MANUFACTURERS ACCEPTANCE VALUE AND SHALL NOT BE LESS THAN 10 SECONDS. THE RUNDOWN SHALL BE CONDUCTED AT THE OPERATING FLUID TEMPERATURE (NULL TEMP +-3DEG F.). THE GYRO SHALL BE MAINTAINED AT THAT TEMPERATURE FOR 30 MINUTES PRIOR TO BEING RUN FOR A MINIMUM OF 10 MINUTES PRIOR TO POWER TURNOFF AND MONITORING OF RUNDOWN TIME.

F2 F 4.5.5.2.1.1 RUNDOWN

TARS AND RAGS CUMULATIVE OPERATING TIME FROM THE LAST RUNDOWN TEST UNTIL LAUNCH SHALL NOT EXCEED 100 HOURS FOR EACH GYRO.

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80C HF 4.5.5.2.1.2 DRIFT

F A. DRIFT TESTS SHALL BE PERFORMED ON THE ROLL, PITCH, AND YAW RATE AND POSITION GYROS. THE ROLL AND YAW POSITION GYROS AND ALL RATE GYROS SHALL BE ADJUSTED TO THE CALCULATED MEAN VALUE OF THE TRIM BIAS DRIFT. DATA OBTAINED FROM GYRO DRIFT HISTORY. IF THE CALCULATED MEAN VALUE OF THE TRIM BIAS IS GREATER THAN THE ALLOWABLE BIAS DRIFT, THE ROLL AND YAW GYROS SHALL BE ADJUSTED TO ZERO BIAS.

H A. DRIFT TESTS SHALL BE PERFORMED ON THE ROLL, PITCH, AND YAW RATE AND POSITION GYROS. IF DRIFT TESTS RESULT IN DRIFT COMPENSATION ADJUSTMENTS, AN ADDITIONAL DRIFT TEST FOR THE AFFECTED GYROS SHALL BE REQUIRED 24 HOURS OR MORE AFTER DRIFT COMPENSATION ADJUSTMENTS ARE MADE. THE GYROS SHALL BE ADJUSTED, IF PRACTICAL, TO THE CALCULATED MEAN VALUE OF THE TRIM BIAS DRIFT DATA OBTAINED FROM GYRO DRIFT HISTORY, BUT TO LESS THAN THE VALUES STATED IN ITEM B.

80C HF B. THE POST-COMPENSATION DRIFT LIMITS SHALL NOT EXCEED THE FOLLOWING

DRIFT	RAGS	TARS	AXES
ACCELERATION INSENSITIVE (DEG/HR)	1.5	0.4	ROLL AND YAW
	1.5	2.5	PITCH
ACCELERATION SENSITIVE (DEG/HR/G)	2.5	2.5	ROLL, PITCH, AND YAW (KEARFOTT)
ACCELERATION SENSITIVE (DEG/HR/G)	6.0	6.0	ROLL,PITCH,AND YAW (SPERRY)

74A HF 4.5.5.2.1.3 GYRO RUN-IN REQUIREMENTS

F A DRIFT TEST SHALL BE PERFORMED AFTER A TOTAL MINIMUM CUMULATIVE RUN-IN TIME OF 300 HOURS.

H A DRIFT TEST SHALL BE PERFORMED AFTER A MINIMUM OF 50 HOURS RUN-IN TIME. AS AN OBJECTIVE, EACH GYRO SHOULD HAVE A MINIMUM TOTAL CUMULATIVE TIME OF 250 HOURS PRIOR TO SHIPMENT.

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HF 4.5.5.2.2 SWITCHING LINES

HF 4.5.5.2.2.1 LIMIT CYCLE

THE ATTITUDE CONTROL AMPLIFIERS (ACA) SHALL CONTROL THE THRUST VALVE OPERATION FOR THE FOLLOWING MODES OF OPERATION WITHIN THE LIMITS SPECIFIED IN FIGURES 4.5.5.2.2-1, -2, -3. (THE TARS SHALL BE STATIC. THE FIGURES DO NOT REFLECT DERIVED RATE.)

1. COARSE LIMIT CYCLE.
2. FINE LIMIT CYCLE (WITHOUT RATE ROOFS).
3. FINE LIMIT CYCLE (WITH RATE ROOFS).

83A HF 4.5.5.2.2.2 ROLL MANEUVER

THE ROLL MANEUVERING AMPLIFIER (RMA) SHALL CONTROL THE ROLL HIGH THRUST VALVES FOR THE FOLLOWING MODES OF OPERATION WITHIN THE LIMITS SPECIFIED IN FIGURES 4.5.5.2.2-4 AND-5. (THE TARS SHALL BE STATIC.)

1. HIGH MANEUVER RATE.
2. MEDIUM MANEUVER RATE.

IT SHALL BE VERIFIED THAT WHILE THE RMA IS ENABLED AND CONTROLLING, THE ROLL MANEUVERING AMPLIFIER SHALL PROVIDE RATE ROOF INHIBIT SIGNALS TO THE PITCH AND YAW ATTITUDE CONTROL AMPLIFIER AND WHEN THE ROLL HIGH THRUST VALVES ARE ACTUATED BY THE RMA, THE ROLL LOW THRUST VALVES ARE INOPERATIVE.

H HIGH AND LOW THRUST NOZZLE OPERATION SHALL BE VERIFIED DURING THE SWITCHING LINE TEST.

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80C HF 4.5.5.2.2.3 DERIVED RATE

THE EXISTENCE OF DERIVED RATE SWITCHING LINES SHALL BE VERIFIED.

FIGURES 4.5.5.2.2-6 AND 4.5.5.2.2-7 ARE INCLUDED IN APPENDIX E FOR REFERENCE.

HF 4.5.5.2.3 ORBITAL RATE BIAS

THE RATE BIAS PROVIDED FOR THE PITCH GIMBAL SERVO LOOP SHALL TORQUE THE PITCH GIMBAL ABOUT THE PITCH AXIS AND SHALL MEET THE FOLLOWING REQUIREMENTS

H A. FLY FORWARD--WITH FLY FORWARD COMMANDED, THE RATE BIAS SHALL BE -0.068 DEGREE/SECOND +-5 PCT., WITHOUT EARTH RATE COMPENSATION.

F A. FLY FORWARD--WITH FLY FORWARD COMMANDED, THE RATE BIAS SHALL BE -0.068 DEGREE/SECOND +-8 PCT, WITHOUT EARTH RATE COMPENSATION.

H B. FLY REVERSE--WITH FLY REVERSE COMMANDED, THE RATE BIAS SHALL BE +0.068 DEGREE/SECOND +-5 PCT., WITHOUT EARTH RATE COMPENSATION.

F B. FLY REVERSE--WITH FLY REVERSE COMMANDED, THE RATE BIAS SHALL BE +0.068 DEGREE/SECOND +-8 PCT., WITHOUT EARTH RATE COMPENSATION.

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83A HF 4.5.5.2.4 PITCH AND YAW RATE BIAS

H BIAS CONTROL FOR PITCH AND YAW RATE GYROS SHALL BE DEMONSTRATED BY MEASURING PITCH AND YAW RAGS OUTPUTS WHILE ROTATING THE ROLL TARS GIMBAL. (IT IS NOT SUFFICIENT TO NULL THE ROLL GIMBAL BY MERELY CAGING THE TARS. A NULL ROLL RESOLVER OUTPUT IS THE ONLY TRUE EVALUATION OF ROLL GIMBAL ZERO.) THE APPROPRIATE BIASES SHOULD BE

83A B(PITCH) = 0.236 COS R VOLTS DC +- 7.5 PCT

83A B(YAW) = 0.236 SIN R VOLTS DC +- 7.5 PCT

SYMBOL DEFINITIONS B(PITCH) AND B(YAW) ARE THE RESPECTIVE PITCH AND YAW RAGS OUTPUTS WHEN COMPENSATED FOR INERTIAL RATES ABOUT RAGS, AND R IS THE VEHICLE ROLL ANGLE MEASURED WITH RESPECT TO THE TARS ROLL GYRO.

F THE PITCH AND YAW RATE BIAS SHALL VARY WITH THE ROLL ATTITUDE IN ACCORDANCE WITH THE FOLLOWING

PITCH BIAS = 0.068 COS ROLL ANGLE (DEG/SEC)+-5 PCT., WITH EARTH COMPENSATION ACCOUNTED FOR

YAW BIAS = 0.068 SIN ROLL ANGLE (DEG/SEC)+-5 PCT., WITH EARTH COMPENSATION ACCOUNTED FOR

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HF 4.5.5.2.5 PITCH, ROLL AND YAW MANEUVERING

HF 4.5.5.2.5.1 PITCH

COMMAND CAPABILITY TO SELECT TWO VEHICLE PITCH ATTITUDES, PITCH ZERO (0 DEG) AND PITCH DOWN (-58.3 DEG), WITH RESPECT TO THE PITCH GIMBAL SHALL BE VERIFIED. THE MEASURED DIFFERENCE BETWEEN THE TWO PITCH ATTITUDES SHALL BE 58 DEGREES +-5 PCT.

HF A. WITH THE PITCH GIMBAL IN THE PITCH-DOWN ATTITUDE AND THE PITCH ROLL GYROS UNCAGED, ROLL COMMAND ANGLES SHALL NOT INTRODUCE ROLL POSITION ERRORS.

HF B. WITH THE PITCH GIMBAL IN THE PITCH-ZERO ATTITUDE, IT SHALL BE VERIFIED THAT THE ROLL COMMAND ANGLES CAUSE THE APPROPRIATE MOTION ABOUT THE ROLL GIMBAL.

748 HF 4.5.5.2.5.2 ROLL

A. ROLL ATTITUDE = 0.709(64-N) WHERE N IS 0 TO 127 AND IS THE DECIMAL EQUIVALENT OF THE BINARY COMMAND. THE ABILITY TO RESPOND TO EACH ONE AND ZERO BIT OF THE COMMAND SHALL BE DEMONSTRATED.

B. FOR DELTA COMMANDED ANGLES OF +90DEG(-90DEG.)THE ABSOLUTE VALUE OF THE ROLL ATTITUDE ERROR TLM SHALL BE GREATER THAN 2.7 DEGREES. THE ABSOLUTE VALUE OF THE TLM LEVEL SHALL REMAIN GREATER THAN 2.7 DEGREES, UNTIL THE ABSOLUTE VALUE OF THE REMAINING ATTITUDE ERROR IS LESS THAN 2.7 DEGREES

83 HF 4.5.5.2.5.3 YAW

HF COMMAND CAPABILITY TO SELECT TWO MODES OF YAW ATTITUDES, FLY FORWARD AND FLY REVERSE SHALL BE VERIFIED. POSITIVE AND NEGATIVE YAW GYRO COMPASSING SHALL BE DEMONSTRATED FOR BOTH THE FLY FORWARD AND FLY REVERSE MODES OF OPERATION.

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HF YAW GYRO TORQUING BY COMMAND SHALL BE DEMONSTRATED WITH THE TEMPERATURE STABILIZED AT ITS NULL TEMPERATURE +-0.5 DEGREE FOR 15 MINUTES. THE YAW GYRO SHALL BE TORQUED AT THE FOLLOWING RATE, IN THIS MODE OF OPERATION.

H A. 0.4 DEGREE/SEC +-5 PCT

F A. 0.4 DEGREE/SEC +-8 PCT

83 H YAW RATE SHALL INCREASE OPPOSITE IN POLARITY AND AS A FUNCTION OF ROLL ERROR WITH IR ON AND FLY FORWARD COMMANDED.

HF 4.5.5.2.5.4 PHYSICAL INTERFERENCES

A. WITH THE TARS IN THE VEHICLE, THE GIMBAL SHALL BE SIMULTANEOUSLY PITCHED AFT -60 DEGREES AND ROLLED +-5 DEGREES WITH NO PHYSICAL INTERFERENCE.

B. WITH THE TARS MOUNTED IN THE VEHICLE, THE ABILITY TO ROTATE SIMULTANEOUSLY FROM +47 DEGREES TO -47 DEGREES IN ROLL AND +-5 DEGREES IN PITCH WITHOUT PHYSICAL VEHICLE INTERFERENCE SHALL BE DEMONSTRATED.

83A HF 4.5.5.2.5.5 GIMBAL TORQUING CAPABILITY

HF A. NEITHER THE PITCH NOR THE ROLL TORQUER MOTOR VOLTAGES SHALL EXCEED +-12.5 VOLTS FOR ANY CONDITION OF GIMBAL POSITION OR COMMANDED ANGLE.

HF B. THE ACA ERROR OUTPUT SHALL BE LINEAR (NO DISCONTINUITY) DURING OPERATION IN THE INERTIAL UNCAGED MODE (DISCONTINUITY INDICATES STICKING).

HF C. IN THE CAGED MODE, NO DISCONTINUITY IN THE ACA ERROR OUTPUT SHALL BE OBSERVED IN THE TERMINAL PHASE OF THE COMMANDED ANGLE (DISCONTINUITY INDICATES STICKING).

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85 HF 4.5.5.2.6 IR FUNCTIONAL AND POLARITY CHECK

HF A. SYSTEM POLARITY-- IR LOCK-ON SHALL BE DEMONSTRATED FOR POSITIVE AND NEGATIVE IR ERRORS IN BOTH PITCH AND ROLL AXES.

H THE ROLL ERROR SHALL NOT EXCEED +-10 DEGREES UNLESS THE IR LOOP IS DISABLED.

HF B. EARTH INHIBIT ETR SCANNER (BEC B-151) ONLY. THE PITCH IR COMPUTER OUTPUT SHALL INHIBIT IF BOTH SCANNER PREAMPLIFIER OUTPUTS ARE 0.32+-0.15 VOLTS PEAK TO PEAK.

THE ROLL IR COMPUTER OUTPUT SHALL INHIBIT IF EITHER SCANNER PREAMPLIFIER OUTPUT IS 0.32+-0.15 VOLTS PEAK TO PEAK.

HF C. SUN INHIBIT ETR SCANNER (BEC B-151)ONLY.

1. THE ROLL IR COMPUTER OUTPUTS SHALL INHIBIT IF EITHER SCANNER PREAMP OUTPUT IS 10.5+-4.5 VOLTS PEAK TO PEAK. COMPONENT DATA MAY BE USED TO DEMONSTRATE COMPLIANCE TO THIS INHIBIT LEVEL REQUIREMENT.

2. FUNCTIONAL REQUIREMENT - EITHER SCANNER PREAMP OUTPUT GREATER THAN 6 VOLTS PEAK TO PEAK (OR TM SATURATION) SHALL INHIBIT THE IR COMPUTER OUTPUT.

HF D. CAGED MODE-WHILE IN THE CAGED MODE THE INPUT TO THE ROLL AND YAW GYRO TORQUERS SHALL NOT BE OPENED BY EITHER IR OFF OR IR INHIBIT.

85 HF E. SEARCH MODE

1. SEARCH MODE OFF-WHILE SEARCH MODE IS COMMANDED OFF AND THE SYSTEM IS UNCAGED, AN EARTH INHIBIT OR A SUN INHIBIT SIGNAL SHALL CAUSE THE VEHICLE TO FLY INERTIAL IN THE FOLLOWING MANNER.

A. OPEN CIRCUIT THE ROLL TORQUER GENERATOR

B. OPEN CIRCUIT THE YAW TORQUER GENERATOR WHEN THE YAW TORQUING IS IN THE OFF POSITION.

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2) SEARCH MODE ON - WHILE SEARCH MODE IS COMMANDED ON, AN EARTH INHIBIT OR A SUN INHIBIT SHALL NOT GROUND THE PITCH AND ROLL COMPENSATOR INPUTS, AND NEITHER INHIBIT SIGNAL SHALL OPEN CIRCUIT THE INPUTS TO THE ROLL AND YAW GYRO TORQUER GENERATORS.

85 HF F. IR OFF-AN IR OFF COMMAND, WHILE IN THE UNCAGED MODE SHALL CAUSE THE VEHICLE TO FLY INERTIAL IN THE FOLLOWING MANNER.

1. OPEN CIRCUIT THE ROLL TORQUER GENERATOR

2. OPEN CIRCUIT THE YAW TORQUER GENERATOR WHEN THE YAW TORQUING IS IN THE OFF POSITION.

83 G. SEARCH MODE--IN THE SEARCH MODE THE PITCH AND ROLL OUTPUT TORQUING RATES AND POLARITIES IN THE INHIBIT STATE SHALL BE RECORDED IN THE CALIBRATION BOOK.

HF H. IR SENSORS--IR SENSOR HEADS SHALL BE PRESSURIZED INTERNALLY WITH A DRY MIXTURE OF 10 PCT HELIUM AND 90 PCT DRY NITROGEN OR WITH 100 PCT DRY NITROGEN TO APPROXIMATELY 5 PSIG. LEAKAGE RATE SHALL NOT EXCEED 1 PSIG IN 15 DAYS. SENSOR HEAD PRESSURE SHALL NOT EXCEED 15 PSIG.

80A F I. IR SENSOR READINESS--THIS POSITIVE PRESSURE SHALL BE VERIFIED WITHIN 3 DAYS PRIOR TO AGENA MATING. THE SENSOR HEAD SHALL BE REPRESSURIZED TO 5 +-0.5 PSIG IF THE INTERNAL PRESSURE FALLS BELOW 3 PSIG AT STANDARD TEMPERATURE.

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HF 4.5.5.2.7 COMMAND COMPATIBILITY

88 HF 4.5.5.2.7.1 FUNCTIONAL COMMANDS

THE CAPABILITY OF THE STABILIZATION SUBSYSTEM TO RESPOND IN A PREDICTABLE MANNER TO ALL FUNCTIONAL COMMANDS FROM THE COMMAND SUBSYSTEM AND FROM AGE SHALL BE DEMONSTRATED.

THE COMMAND FUNCTIONS SHALL BE AS FOLLOWS

HF A. ACA ENABLE/DISABLE.

HF B. IR ON/OFF

HF C. RATE ROOFS ON/OFF

HF D. PITCH/ROLL/YAW LOW THRUST.

HF E. PITCH/ROLL/YAW HIGH THRUST.

HF F. PITCH/ROLL/YAW DEADBAND FINE.

HF G. PITCH/ROLL/YAW DEADBAND COARSE.

HF H. RMA ENABLE/DISABLE.

HF I. MANEUVER RATE HIGH/MEDIUM.

HF J. PITCH DOWN (PREDAC BYPASS)

HF K. PITCH ZERO (PREDAC NOT BYPASS)

HF L. ROLL

HF M. FLY FORWARD. (UNCAGED YAW)

HF N. FLY REVERSE. (UNCAGE YAW) BOTH COMMANDS

HF O. YAW TORQUING ON/OFF.

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HF P. UNCAGE PITCH, ROLL.

88 HF Q. REMOTE BUSS ENABLE/ACA OFF-- ENABLE/DISABLE.

88 HF R. IR OFF AND DISCONNECT 1-- ENABLE/DISABLE.

88 HF S. PREDAC BYPASS

88 HF T. SEARCH ON

88 HF U. SEARCH OFF

88 HF V. BALANCE VALVE OPEN

88 HF W. BALANCE VALVE CLOSE

88 HF X. HIGH SYSTEM SELECTOR VALVE CLOSE

88 HF Y. LOW SYSTEM SELECTOR VALVE CLOSE

88 HF Z. HIGH AND LOW SYSTEM SELECTOR VALVE OPEN

HF THE AGE FUNCTIONS SHALL BE AS FOLLOWS

HF A. CAGE PITCH, ROLL.

HF B. CAGE YAW

HF C. TEST TORQUE YAW

88 HF D. OPEN PAD ABORT SOLENOID VALVE

88 HF E. OPEN BALANCE VALVE

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HF 4.5.5.2.7.2 TABOO LOGIC

HF A. ACA DISABLE COMMAND

1. AN ACA ENABLE COMMAND SHALL ENABLE THE YAW,PITCH AND ROLL ACA,S.

2. ONLY WHEN THE REMOTE BUSS ENABLE AND ACA OFF COMMAND IS IN THE ENABLE STATE THE ACA DISABLE COMMAND SHALL DISABLE THE YAW, PITCH AND ROLL ACAS.

3. ONLY WHEN THE REMOTE BUSS ENABLE/ACA OFF COMMAND IS IN THE DISABLE STATE THE ACA DISABLE COMMAND SHALL NOT DISABLE THE YAW, PITCH AND ROLL ACAS.

HF B. IR ON/OFF COMMAND

1. THE IR ON COMMAND SHALL ENABLE THE IR.

2. WHEN THE IR OFF AND DISCONNECT 1 COMMAND IS IN THE ENABLE STATE, THE IR OFF COMMAND SHALL DISABLE THE IR AT THE COMPENSATOR.

3. WHEN THE IR OFF AND DISCONNECT 1 COMMAND IS IN THE DISABLE STATE, THE IR OFF COMMAND SHALL NOT DISABLE THE IR.

HF C. YAW AND PITCH ACA- IN THE YAW AND PITCH ACAS, A HIGH THRUST COMMAND SHALL CAUSE THE RATE ROOFS TO BE COMMANDED OFF. WITH SUBSEQUENT LOW THRUST JET COMMANDS, RATE ROOFS SHALL REMAIN OFF UNLESS RECOMMANDED ON. WITH HIGH THRUST JET AND FINE LIMIT CYCLE COMMANDED, RATE ROOF ON COMMANDS SHALL HAVE NO EFFECT.

HF D. ROLL ACA. IN THE ROLL ACA, A HIGH THRUST COMMAND SHALL CAUSE THE ROLL COARSE LIMIT CYCLE TO BE COMMANDED ON. WITH SUBSEQUENT LOW THRUST JET COMMANDS, THE ACA SHALL REMAIN IN ROLL COARSE LIMIT CYCLE UNLESS FINE LIMIT CYCLE IS RECOMMANDED. WITH HIGH THRUST JET AND COARSE LIMIT CYCLE COMMANDED, FINE LIMIT CYCLE COMMANDS SHALL HAVE NO EFFECT.

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HF E. RMA. FOLLOWING A HIGH OR MEDIUM RATE COMMAND, THE RMA SHALL DISABLE ITSELF WHEN THE RATE AND POSITION ERRORS TO THE ROLL ACA ARE AS FOLLOWS

1) HIGH RATE MANEUVER. ROLL ACA RATE INPUT LESS THAN 0.273 DEGREE/ SECOND AND POSITION ERROR LESS THAN 2.11 DEGREES.

2) MEDIUM RATE MANEUVER. ROLL ACA RATE INPUT LESS THAN 0.273 DEGREE / SECOND AND POSITION ERROR LESS THAN 0.7 DEGREE.

HF F. ORBIT ADJUST ON. AN ORBIT ADJUST COMMAND (ENGINE 1 ON AND/OR ENGINE 2 ON) SHALL CAUSE THE HIGH THRUST JET COMMANDED STATE IN THE YAW, PITCH, AND ROLL ACAS. LOW THRUST JET COMMANDS TO THE ACA DURING ENGINE 1 ON AND/OR ENGINE 2 ON SHALL HAVE NO EFFECT.

85 HF G. YAW TORQUING ON. A YAW TORQUING ON COMMAND SHALL SET THE YAW ACA TO COARSE LIMIT CYCLE WHILE THE YAW TORQUING IS ON. YAW FINE LIMIT CYCLE COMMANDS SHALL HAVE NO EFFECT, AND THE IR OFF COMMAND OR THE IR INHIBIT SIGNAL SHALL NOT OPEN CIRCUIT THE YAW TORQUER GENERATOR.

HF H. PITCH AND ROLL COMMANDS. A BYPASS PREDAC OR A PITCH-DOWN COMMAND SHALL DISABLE THE ROLL MANEUVERING CAPABILITY. ANY ROLL COMMANDS INSERTED IN EITHER OF THESE MODES SHALL NOT BE EXECUTED. THE LAST ROLL COMMAND INSERTED SHALL BE EXECUTED WHEN THE PITCH-ZERO COMMAND IS GIVEN.

88 HF 4.5.5.2.7.3 REDUNDANT PNEUMATICS REQUIREMENTS.

THE BALANCE VALVE OPEN COMMAND SHALL OPEN THE BALANCE VALVES FOR 35 +- 15 SEC.

THE BALANCE VALVE CLOSED COMMAND SHALL CLOSE THE BALANCE VALVE WHEN EXECUTED AFTER A BALANCE VALVE OPEN COMMAND, AND PRIOR TO THE AUTOMATIC BALANCE VALVE CLOSE.

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THE HIGH SECTION (SV-2) AND THE LOW SECTION (SV-1) COMMANDED OPEN, FOLLOWED BY A HIGH SECTION (SV-2) COMMAND CLOSE, SHALL.

A. DISABLE THE RMA

B. P. ACA LOW THRUST ON

C. Y. ACA LOW THRUST ON

D. R. ACA LOW THRUST ON

E. CLOSE HIGH SECTION (SV-2)

THE HIGH SECTION (SV-2) AND LOW SECTION (SV-1) COMMANDED OPEN, FOLLOWED BY A LOW SECTION (SV-1) COMMAND CLOSED, SHALL PERFORM THE FOLLOWING.

A. DISABLE THE RMA

B. P. ACA HIGH THRUST ON

C. Y. ACA HIGH THRUST ON

D. R. ACA HIGH THRUST ON

E. CLOSE LOW SECTION (SV-1)

NOTE. THE ABOVE COMMANDS WITH THE EXCEPTION OF THE BALANCE VALVE COMMANDS SHALL BE TIMED FOR 1 TO 3.5 SECONDS.

THE BUSS FUNCTION (DISABLE PRIMARY PNEUMATIC) SHALL.

A. DISABLE THE RMA

B. DISABLE THE ACA

C. CLOSE THE HIGH SECTION (SV-2) AND LOW SECTION (SV-1)

D. TIME DURATION SHALL BE 4 SECONDS AS INDICATED ON TLM.

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88 HF 4.5.5.2.8 STABILIZATION PNEUMATICS COMPATIBILITY AND POLARITY

THE ELECTRICALLY OPERATED SOLENOID VALVES SHALL OPERATE IN THE FOLLOWING MANNER FOR RATE AND POSITION ERRORS OUTSIDE THE DEADBAND LIMITS. BOTH HIGH AND LOW THRUST VALVE OPERATION SHALL BE DEMONSTRATED. (SEE FIGURES 4.5.5.2.2-1 THROUGH-5 AND FIGURE 4.5.5.2.8.)

HF A. POSITIVE VALVES FOR NEGATIVE RATES AND ZERO POSITION ERROR, OR FOR NEGATIVE POSITION ERRORS AND ZERO RATE.

HF B. NEGATIVE VALVES FOR POSITIVE RATES AND ZERO POSITION ERROR, OR FOR POSITIVE POSITION ERRORS AND ZERO RATE.

HF C. HIGH-THRUST-ONLY VALVES FOR RMA ENABLED OPERATION (ROLL ACA INHIBITED)

88 HF D. PROPER VALVE OPERATION IN ALL MODES OF THE REDUNDANT PNEUMATICS

80A H 4.5.5.2.9 STABILIZATION NOISE MEASUREMENTS

74B H A. WITH THE PITCH AND YAW RATE BIASES DISCONNECTED AND SHORTED AT THE RAGS INPUT, THE NOISE ON EACH OF THE THREE CHANNEL OUTPUTS FROM THE RAGS AS MEASURED AT THE ACA INPUT, SHALL BE LESS THAN 0.0073VOLT 0 TO PEAK, IN THE FREQUENCY RANGE OF 0 TO 60 CPS. ALLOWANCE SHALL BE MADE FOR EARTHS RATE COUPLING INTO RAGS WHEN MAKING THIS MEASUREMENT.

80A H B. WITH THE TARS GIMBAL ASSEMBLY (HSS ASSEMBLY), IN THE FLIGHT CONFIGURATION ON THE SV, UNCAGED AND SLEWED TO A SIMULATED IR HORIZON REPRESENTATIVE OF A 190 DEGREE RANKINE EARTH, THE ACCEPTABLE IR NOISE LEVEL AS INDICATED BY ROLL OR PITCH IR COMPUTED ERROR ON TM (REF. APPENDIX C) SHALL BE LESS THAN 0.25 VOLTS (5 PCT) SHIFT FOR A TIME DURATION NOT EXCEEDING 0.4 SEC, THE SPACING OF INDIVIDUAL TRANSIENT NOISE PULSES SHALL BE 5 SEC. MINIMUM.

THE IR PREAMP SIGNALS AS SEEN ON TM (REF. APPENDIX C) SHALL NOT HAVE NOISE EXCEEDING 0.4 VOLTS PEAK TO PEAK OR A GROUND LEVEL SHIFT EXCEEDING 0.2 VOLTS.

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80C HF 4.5.5.2.10 GYRO TEMPERATURE REQUIREMENTS

HF A. GYRO TEMPERATURE (TARS AND RAGS) REQUIREMENTS ARE AS FOLLOWS.

CONDITION	TARS TEMP (DEG. F)	RAGS TEMP (DEG. F)
NONOPERATING	0 TO 180	0 TO 180
OPERATING	NULL TO +-3	NULL TO +-3
MAXIMUM	180	180

80C HF B. A 30-MINUTE TEMPERATURE SOAK SHALL BE REQUIRED PRIOR TO OPERATION.

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8OC HF C. RAGS AND TARS GYRO OPERATIONAL HEATER TEST REQUIREMENT IS .

1) THE RAGS AND TARS GYRO HEATER CONTROLLERS SHALL MAINTAIN GYRO INDICATED TEMPERATURE AT NULL +-3 DEGREES F.

HF 2) THE CONTROL RANGE OF THE TEMPERATURE CONTROLLER SHALL MEET THE REQUIREMENT OF THE FOLLOWING FIGURE SUCH THAT THE TEMPERATURE WILL REACH A PLATEAU AT NULL +-3 DEGREES F. FOR AN INCREASE IN STAND BY HEAT OF A MINIMUM OF 5 WATTS ABOVE THE MINIMUM REQUIRED TO MAINTAIN NULL +-3 DEGREES F. ALSO IT SHALL BE VERIFIED THAT BOTH KNEES OF THE CURVE EXIST. (EXTRAPOLATION OF TWO OR MORE POINTS CAN BE USED TO SHOW THAT THE KNEES EXIST.)

```
                          I                             /
                          I                            /
                          I                           /
                          I                          /
NULL TEMP.                I..........-----------------
+-3 DEG. F.               I          /.               .
                          I         / .               .
GYRO                      I        /  .               .
IND                       I       /   .               .
TEMPERATURE               I           .--- 5 WATTS----.
RANGE                     I             (MINIMUM)
                           ---------------------------------
                               APPLIED STAND BY HEAT (WATTS)
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HF 4.5.5.2.11 SYSTEM POLARITY

A SYSTEM RATE AND POSITION POLARITY TEST SHALL BE ACCOMPLISHED WITH THE RAGS PACKAGE INSTALLED.

83A HF 4.5.5.2.12 STATIC CAGING ACCURACY

THE STATIC CAGING ACCURACY OF THE PITCH, ROLL, AND YAW CAGING SERVOS SHALL BE

PITCH 0 +-0.6 DEGREES ATTITUDE ERROR (AS READ ON TLM)

ROLL AND YAW 0 +-0.3 DEGREES ATTITUDE ERROR (AS READ ON TLM)

HF 4.5.5.3 STABILIZATION PNEUMATIC ACCEPTANCE REQUIREMENTS.

88 H 4.5.5.3.1 PROOF PRESSURE REQUIREMENTS

A.PROOF PRESSURE TESTS MUST BE PERFORMED PRIOR TO ANY OTHER PRESSURED GAS TEST

88 B.PROOF FLUID/PRESSURE

1. TANKS SHALL BE PRESSURIZED ONLY WITH FREON 114

2. THE SYSTEM SHALL MEET THE FOLLOWING PROOF PRESSURE REQUIREMENT.

SECTION	(DEFINITION)	FLUID	PROOF PRESSURE (PSIG)
TANK	1	FREON 114	6000+0-100
CHARGING LINE	2	GN2 OR CF4	6000+0-100
SUPPLY PRESSURE	3	GN2 OR CF4	6000+0-100
HIGH REG.PRESSURE	4	GN2 OR CF4	750+0-10
LOW REG.PRESSURE	5	GN2 OR CF4	113+0-5

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88 DEFINITIONS

1. TANKS-INCLUDES BOTH TANKS ONLY

2. CHARGING LINE-INCLUDES ALL TUBING AND HARDWARE DOWNSTREAM OF THE NIPPLE OF THE QUICK DISCONNECT AND THE OUTPUT OF THE SECOND FILTER. THIS LINE CONTAINS TWO FILTERS, A PAD ABORT SOLENOID AND TWO N/O SQUIB VALVES.

3. SUPPLY LINE-INCLUDES ALL TUBING AND HARDWARE DOWNSTREAM OF THE TWO TANKS TO THE INPUT OF THE LOW AND HIGH PRESSURE REGULATORS. THIS LINE CONTAINS TWO TRANSDUCERS, A PRESSURE SWITCH, TWO N/C BALANCE VALVES, TWO ISOLATION SOLENOID VALVES AND TWO SECONDARY FILL PLATES.

4. HIGH REG. PRESSURE-INCLUDES ALL TUBING AND HARDWARE DOWNSTREAM OF THE HIGH PRESSURE REGULATOR TO THE HIGH PRESSURE NOZZLES. THIS LINE CONTAINS TWELVE (12) HIGH PRESSURE NOZZLES, A TRANSDUCER, AND A RELIEF VALVE.

5. LOW REG. PRESSURE-INCLUDES ALL TUBING AND HARDWARE DOWNSTREAM OF THE LOW PRESSURE REGULATOR TO THE LOW PRESSURE NOZZLES. THIS LINE CONTAINS A TRANSDUCER AND EIGHT (8) LOW PRESSURE NOZZLES.

C. THE PROOF PRESSURE SHALL BE MAINTAINED FOR 5 MINUTES MINIMUM

D. TEMPERATURE LIMITS OF PRESSURANT SHALL BE FOR ALL CONDITIONS OF CHARGING AND DISCHARGING, 35 DEGREES F. MINIMUM, 190 DEGREES F. MAXIMUM

E. VENTING FROM THE PROOF PRESSURE LEVEL SHALL BE DONE SLOWLY, AND SUBSEQUENTLY THE COMPONENTS INSPECTED FOR EVIDENCE OF INCIPIENT FAILURE.

88 F. THE TRIGGER MECHANISM OF THE N/O EXPLOSIVE VALVES SHALL BE PROTECTED FROM DEFORMATION BY USE OF APPROPIATE PLUGS. WHEN INTERNAL PRESSURE EXCEEDS 5000 PSIG.

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88 HF 4.5.5.3.2 LEAKAGE REQUIREMENTS

HF THE LEAKAGE REQUIREMENTS ARE AS FOLLOWS

HF A. THE LEAK TEST FLUID SHALL BE CLEAN GASEOUS NITROGEN (GN(2)) DRIED TO A DEW POINT OF -65DEG F. OIL CONTAMINATION OF THE FLUID SHALL BE LESS THAN 10 PPM WITH NOMINAL PARTICLE SIZE LESS THAN 5 MICRONS, AND ALL PARTICLES SHALL HAVE A SIZE LESS THAN 18 MICRONS. THE TEMPERATURE OF THE OPERATING FLUID MAY VARY BETWEEN 40 DEG F AND +180 DEG F. A KNOWN PERCENTAGE OF HELIUM SHALL BE USED AS A TRACER.

HF B. EACH SECTION SHALL BE LEAK TESTED TO THE PRESSURE LIMITS INDICATED IN THE FOLLOWING LIST. LEAKAGE SHALL NOT EXCEED THE SPECIFIED LEAKAGE LIMIT SHOWN IN THE LIST AFTER TEMPERATURE AND PRESSURE STABILIZATION.

C. THE SUBSYSTEM SHALL BE LEAK TESTED AT 4800 PSIG AND MEET THE FOLLOWING REQUIREMENTS.

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		SECTION	TEST PRESSURE (PSIG)	LEAKAGE LIMIT
88	1.	TANKS AND ALL LINES UPSTREAM OF THE SOLENOID VALVES INCLUDING CHARGING LINES EXCLUDING LINE BETWEEN SOLENOID VALVES AND NOZZLES*	4800 +0 -150 AT SECONDARY CHARGE PORT	600 SCC/HR**
74B	2.	DOWN STREAM OF SOLENOID		
		*** (LINE BETWEEN SOLENOID AND NOZZLES)		
		HIGH PRESSURE NOZZLE LINES	360 TO 430	NO DETECTABLE LEAKAGE ALLOWED
		LOW PRESSURE NOZZLE LINES	54 TO 65	NO DETECTABLE LEAKAGE ALLOWED
80C	3.	PAD ABORT SOLENOID VALVE. WHEN DEENERGIZED	4800 +0 -150 ON DOWNSTREAM SIDE OF PAD ABORT SQUIB VALVES	160 SCC/HR **
80C	4.	QUICK DISCONNECT NIPPLE WITH PAD ABORT SOLENOID VALVE ENERGIZED	4800 +0 -150 ON DOWNSTREAM SIDE OF PAD ABORT SQUIB VALVES	160 SCC/HR **

*SOLENOID VALVES DE-ENERGIZED.
**STANDARD CUBIC CENTEMETERS PER HOUR. SEE APPENDIX A, DEFINITIONS.

*** SOLENOID VALVES ENERGIZED, NOZZLE CAPPED USING BUBBLE SOLUTION OR EQUIVALENT.

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88 HF 4.5.5.3.3 FUNCTIONAL REQUIREMENTS

80A H A. SOLENOID VALVE OPERATION--WITH THE SUPPLY PRESSURE SECTION PRESSURIZED TO 4800 +0 -100 PSIG WITH GN2 OR CF4 MEETING THE REQUIREMENTS OF PARAGRAPH 4.5.5.3.2 ITEM A, ENERGIZE EACH SOLENOID VALVE INDIVIDUALLY FOR A MINIMUM OF 100 MILLISECONDS. THEN ENERGIZE THE PITCH AND ROLL SOLENOID VALVES SIMULTANEOUSLY, FOLLOWED BY YAW AND ROLL SOLENOID VALVES SIMULTANEOUSLY, FOR ALL COMBINATIONS OF PITCH-ROLL COUPLES AND YAW-ROLL COUPLES. SOLENOID VALVE OPERATION SHALL BE VERIFIED BY ACTUAL GAS FLOW FROM THE NOZZLE.

83A F A) SOLENOID VALVE OPERATION--SOLENOID VALVE OPERATION SHALL BE VERIFIED BY ACTUAL GAS FLOW FROM THE NOZZLE EXIT. REFER TO PARAGRAPH 4.5.5.2.8.

80C HF B. HIGH PRESSURE REGULATOR

1) WITH 4800 +0 -150 PSIG INLET PRESSURE THE, PRESSURE DOWNSTREAM OF THE HIGH PRESSURE REGULATOR SHALL BE.

FLOW RATE SCFM (CF4)	NOM. SOL VALVE OPERATION	PRESSURE (PSIG) LOW	HIGH
0	NONE	360	430
LT 66	HIGH PITCH OR YAW	360	410
66 TO 80	HIGH ROLL COUPLE	360	400

80A HF 2) MAXIMUM CREEP RATE AFTER LOCK-UP SHALL BE 0.25 PSI PER MINUTE.

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88 HF C. LOW PRESSURE REGULATOR

1) WITH 4800 +0 -150 PSIG INLET PRESSURE TO THE LOW PRESSURE REGULATOR. THE PRESSURE DOWNSTREAM OF THE LOW PRESSURE REGULATOR SHALL BE.

	FLOW RATE SCFM	NOMINAL SOL. VALVE OPERATION	PRESSURE (PSIG) LOW	HIGH
88	0 TO MAXIMUM	NONE	48	70

2) MAX CREEP RATE AFTER LOCKUP SHALL BE 0.33 PSI PER MINUTE.

3) MAXIMUM LOCKUP PRESSURE - 7.5 PSIG MAX.

D.PRESSURE TRANSDUCER CHECK--THE PRESSURE TRANSDUCER SHALL HAVE A MAXIMUM ERROR OF +-2.5 PCT. AT FULL SCALE (5000 PSIG), EXCLUSIVE OF INSTRUMENTATION TOLERANCES. IN ADDITION, A TELEMETRY READOUT CHECK SHALL BE MADE TO VERIFY AT LEAST ONE POINT, WITH STORAGE TANKS PRESSURIZED TO 1000 PSIG OR ABOVE.

80A HF E. COLD-GAS LOW-RANGE SENSOR-THE THREE LEVELS OF THE LOW RANGE SENSOR SHALL MEET THE FOLLOWING REQUIREMENTS WHEN SUBJECTED TO A DECREASING PRESSURE

H 1) THE COLD-GAS LOW-RANGE SENSOR SHALL INDICATE A 5000-1000 PSIA LEVEL WHEN THE PRESSURE IS ABOVE 1000+-40 PSIA.

F 1. THE COLD-GAS LOW-RANGE SENSOR SHALL INDICATE A 5000-1000 PSIA LEVEL WHEN THE PRESSURE IS ABOVE 1000+-100 PSIA.

H 2) THE COLD-GAS LOW-RANGE SENSOR SHALL SWITCH FROM THE 5000-1000 PSIA LEVEL TO THE 1000-750 PSIA LEVEL AT 1000+-40 PSIA.

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F 2. THE COLD-GAS LOW-RANGE SENSOR SHALL SWITCH FROM THE 5000-1000 PSIA LEVEL TO THE 1000-750 PSIA LEVEL AT 1000+-100 PSIA.

H 3) THE COLD-GAS LOW-RANGE SENSOR SHALL SWITCH FROM THE 1000-750 PSIA LEVEL TO THE 750-0 PSIA LEVEL AT 750+-40 PSIA.

F 3. THE COLD-GAS LOW-RANGE SENSOR SHALL SWITCH FROM THE 1000-750 PSIA LEVEL TO THE 750-0 PSIA LEVEL AT 750+-100 PSIA.

H F. CALIBRATION CURVES--THE CALIBRATION CURVES OF THE PRESSURE TRANSDUCER AND THE LOW-RANGE SENSOR SHALL BE RECORDED IN THE CALIBRATION BOOK. THE PRESSURES AT WHICH THE LOW-RANGE PRESSURE SWITCHES SHALL BE NOTED ON ITS CALIBRATION CURVE.

F F. THE CALIBRATION BOOK VALUES OF THE COLD-GAS PRESSURE TRANSDUCER SHALL BE WITHIN +-2.5PCT OF FULL SCALE (5000PSI) FOR THE GIVEN AMBIENT.

1. THE VALUE SPECIFIED IN THE CALIBRATION BOOK AT WHICH THE COLD-GAS LOW-RANGE PRESSURE SENSOR STEPS OCCUR SHALL BE WITHIN +-10PCT OF THE MEASURED VEHICLE VALUE.

79A H G. RELIEF VALVE REQUIREMENT

76B H 1. WITH INCREASING PRESSURE THE RELIEF VALVE SHALL VENT AT,

565 PSIG MINIMUM
700 PSIG MAXIMUM

79A F 2. THE RELIEF VALVE LEAKAGE MUST NOT EXCEED 20 SCC/HR. AT HIGH PRESSURE REGULATOR LOCKUP PRESSURE.

79A H 2. THE RELIEF VALVE LEAKAGE MUST NOT EXCEED 20 SCC/HR. AT ANY INLET PRESSURE UP TO 500 PSIG.

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88 H 4.5.5.3.4 PURGE AND SAMPLE REQUIREMENTS

A. OPERATING FLUID--THE OPERATING FLUID SHALL BE CLEAN AND DRIED TO A DEW POINT OF -65 DEG F (MOISTURE CONTENT LESS THAN 5 PPM BY WEIGHT OF WATER) WITH AN OIL CONTAMINATION OF LESS THAN 10 PARTS PER MILLION, WITH 98 PCT OF THE PARTICLES HAVING A DIAMETER OF LESS THAN 5 MICRONS. NO PARTICLES SHALL HAVE A DIAMETER OF 12 MICRONS OR MORE. THE GAS SHALL CONFORM TO MIL-P-27401B

B. PURGE REQUIREMENTS--THE SUBSYSTEM SHALL BE PURGED AND THEN SAMPLED AFTER EACH PRESSURE TEST. THE SUBSYSTEM SHALL MEET THE PURGING AND SAMPLING REQUIREMENTS OF TABLE 4.5.5.3.4-1. CLEAN DRY GAS AS SPECIFIED IN PARAGRAPH A ABOVE SHALL BE UTILIZED FOR CLEANING AND SAMPLING OPERATIONS. THE HIGH PRESSURE BRANCH AT RATED FLOW SHALL BE AT 380PSIG+-20PSIG AND THE LOW PRESSURE BRANCH AT RATED FLOW SHALL BE AT 50PSIG+-4PSIG DURING ALL PURGING AND SAMPLING.

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TABLE 4.5.5.3.4-1

STABILIZATION PNEUMATICS SUB-SYSTEM PURGE AND SAMPLE TIMES

	SOLENOIDS	PURGE TIME/VALVE	COOLING TIME BETWEEN BURSTS	SAMPLE TIME
	HIGH PITCH	10 BURST 15 SEC EACH	5 SEC	1 BURST 8 SEC
	HIGH YAW	10 BURSTS 15 SEC EACH	5 SEC	1 BURST 8 SEC
80A	HIGH ROLL	15 BURSTS 15 SEC EACH	5 SEC	1 BURST 12 SEC
	LOW PITCH	10 BURSTS 1 MIN EACH	15 SEC	1 BURST 54 SEC
	LOW YAW	10 BURSTS 1 MIN EACH	15 SEC	1 BURST 54 SEC
88	REDUNDANT LOW ROLL/ LOW ROLL	30 BURSTS 1 MIN EACH	15 SEC	6 BURSTS 1 MIN EA

AFTER THE PURGING. A PARTICLE COUNT OF EACH SAMPLE SHALL BE TAKEN. THE LIMITS OF THE PARTICLE COUNT OF THE SAMPLE, PER VOLUME (10 STANDARD CUBIC FEET) OF GAS SHALL NOT EXCEED THE VALUES GIVEN IN TABLE 4.5.5.3.4-2

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TABLE 4.5.5.3.4-2 PARTICLE COUNT LIMITS

MAXIMUM COUNT (METALLIC/ NONMETALLIC)		PARTICLE SIZE (MICRONS) EQUAL OR GREATER THAN.					
ITEM		0	26	51	101	151	350
AVERAGES SOLENOIDS	PURGE TIME/VALVE						
HIGH PRESSURE BRANCH NOZZLES	UNLIMITED	33/415	13/115	3/15	1/0	0/0	
LOW PRESSURE BRANCH NOZZLES	UNLIMITED	33/415	13/115	3/15	1/0	0/0	
INDIVIDUAL NOZZLES (BOTH HIGH AND LOW PRESSURE BRANCHES)	UNLIMITED	59/415	29/115	9/15	3/0	0/0	

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88 HF 4.5.5.4 STABILIZATION SUBSYSTEM OPERATIONAL REQUIREMENTS

HF A. THE GYROS SHALL NOT BE MOVED DURING SPIN-UP OR SPIN-DOWN. GYRO MOVEMENTS SHALL BE LIMITED TO THOSE THAT WILL NOT DRIVE THE GYRO WHEEL TO ITS STOPS. STOPS ARE PROVIDED AT +-6 DEGREES OF WHEEL PRECESSION.

HF B. WHENEVER VEHICLE POWER IS TURNED ON, OR SWITCHED BETWEEN EXTERNAL AND INTERNAL SOURCES, OR INTERRUPTED MOMENTARILY, THE STABILIZATION SUBSYSTEM MUST BE INITIALIZED BY DISABLING THE ACA AND RMA. (REFER TO SVS 5004)

80A HF C. COMPONENT LIMITS SHALL BE AS LISTED BELOW

	NOMENCLATURE	OPERATIONAL LIMITS
88	PAD ABORT SOLENOID VALVE AND BALANCE VALVES	FOR CONTINUOUS ELECTRICAL OPERATION, VOLTAGE WILL BE REDUCED TO 8 VOLTS
	TANK, STABILIZATION	DO NOT PRESSURIZE ABOVE 6000 PSIG. THE CHARGING RATE SHALL NOT EXCEED 200 PSI PER MIN.
	REGULATOR, HIGH PRESSURE PNEUMATIC	DO NOT PRESSURIZE OUTLET SIDE OF REGULATOR ABOVE 750 PSIG.
	REGULATOR, LOW PRESSURE PNEUMATIC	DO NOT PRESSURIZE OUTLET SIDE OF REGULATOR ABOVE 113 PSIG.
	VALVE, SOLENOID HIGH FLOW AND LOW FLOW	CONTINUOUS ELECTRICAL OPERATION AT NO-FLOW CONDITIONS NOT TO EXCEED 2 MINUTES/2 HOURS.

88 HF D. THE OPERATION OF THE HEATER AND THERMOSTATS IN THE HIGH ROLL SOLENOID VALVES SHALL BE VERIFIED. THE CAPABILITY OF THE OVERRIDE THERMOSTAT TO INTERRUPT POWER TO THE HEATER SHALL BE VERIFIED.

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HF 4.5.6 STRUCTURES SUBSYSTEM

HF 4.5.6.1 DETAILED REQUIREMENTS

HF 4.5.6.1.1 STATION 84 BULKHEAD

HF A. THE TOTAL LEAKAGE RATE OUT OF THE AFT FACE OF THE STATION 84 BULKHEAD SHALL NOT EXCEED 1.1 STANDARD CUBIC FEET PER MINUTE, WHEN A POSITIVE PRESSURE OF 2 INCHES OF WATER IS APPLIED TO THE STATION 84 BULKHEAD FORWARD FACE.

HF B.THE MAXIMUM DELTA PRESSURE ACROSS THE BULKHEAD SHALL BE NO GREATER THAN 0.2 PSI.

F 4.5.6.1.2 SEPARATION CLEARANCE

THE REQUIRED CLEARANCE BETWEEN POINTS ATTACHED TO VEHICLE SECTION 7 AND POINTS ATTACHED TO THE SV BULKHEAD (I.E., SHORTEST DISTANCE BETWEEN THE POINTS PROJECTED ON A PLANE NORMAL TO THE ROLL AXIS) SHALL BE AT LEAST 0.075 INCH PER INCH OF RELATIVE AXIAL TRAVEL (DIFFERENCE OF STATION NUMBER BETWEEN THE TWO POINTS).

HF 4.5.6.1.3 GENERAL ACCEPTANCE REQUIREMENTS

H A. ACCEPTANCE REQUIREMENTS FOR OVERALL DIMENSIONS AND TOLERANCES MUST AGREE WITH GE SPECIFICATION 118A1664E UNLESS OTHERWISE SPECIFIED ON THE APPLICABLE STRUCTURAL DRAWING.

H B. THE QUALITY OF FINISHES AND COATINGS SHALL AGREE WITH GE SPECIFICATION 118A1600M EXCEPT WHERE NOTED ON THE APPLICABLE STRUCTURES DWG.

H C. THE REQUIREMENTS FOR RIVETING STRUCTURAL ASSEMBLIES SHALL BE PER GE SPECIFICATIONS 118A1508C AND 118A1552C.

H D. THE REQUIREMENTS FOR MARKING SHALL BE PER GE SPECIFICATION 118A1526H.

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HF E. THE REQUIREMENTS FOR TORQUING OF SCREWS OR BOLTS SHALL BE PER THE AIR FORCE SYSTEM COMMAND MANUAL VOL 80-1 THROUGH 80-8, UNLESS OTHERWISE SPECIFIED ON THE APPLICABLE SECTION OR STRUCTURAL DRAWING.

H F. THE REQUIREMENT FOR SPOT WELDING OF ALUMINUM STRUCTURAL ASSEMBLIES SHALL BE PER MILITARY SPECIFICATION MIL-W-6858B, CLASS C.

H G. THE REQUIREMENTS FOR FUSION WELDING OF ALUMINUM STRUCTURAL ASSEMBLIES SHALL BE PER GE SPECIFICATION 118A1675B, CLASS II OR CLASS III, AS NOTED ON THE APPLICABLE DRAWING.

F THE STRUCTURAL MEMBERS SHALL BE FREE FROM DAMAGE INCURRED IN SHIPPING AND HANDLING, SUCH AS CRACKS IN THE ADAPTER SKIN VISIBLE TO THE UNAIDED EYE, DENTS IN THE OCV SKIN RESULTING IN CRACKS, BUCKLING OF BULKHEADS, STRINGERS OR WEBS, AND MISSING, DAMAGED OR LOOSE GROUPS OF ADJACENT RIVETS.

F SECTION 5 OUTER SHIELD SHALL BE FREE OF CRACKS AND WORN AREAS.

HF 4.5.6.1.4 BATTERY VENTING ASSEMBLY

THE BATTERY VENT PASSAGES SHALL BE FREE OF ANY OBSTRUCTIONS.

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HF 4.5.6.1.5 BULKHEAD PRESSURE DIFFERENTIAL AND VEHICLE VENTING

ALL BULKHEAD AND VEHICLE VENT HOLES SHALL BE FREE OF OBSTRUCTIONS.

THE VEHICLE ACCESS DOORS SHALL BE INSPECTED. EACH SEAL SHALL BE FREE OF CRACKS OR WORN AREAS.

80A H 4.5.6.1.6 OPERATIONAL BATTERIES/WELL FIT REQUIREMENTS

A. THE CAPABILITY TO INSTALL EIGHT BATTERIES OR MECHANICAL EQUIVALENT SHALL BE VERIFIED.

B. THE PROXIMITY OF ADJACENT STRUCTURE TO ANY SIDE OF EACH BATTERY SHALL BE 0.15 INCH MINIMUM.

C. FOR EACH BATTERY WELL THE CAPABILITY TO INSTALL BATTERY-WELL REMOVABLE FORMER FITTINGS AND THE PRIME BATTERY WELL DOOR SHALL BE VERIFIED WITH ALL BATTERIES OR MECHANICAL EQUIVALENT INSTALLED.

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HF 4.5.7 ORBIT ADJUST SUBSYSTEM

HF 4.5.7.1 SUBSYSTEM FUNCTIONAL REQUIREMENT

THE FUNCTIONAL READINESS OF THE ORBIT ADJUST SUBSYSTEM TO EFFECT ORBIT CORRECTION, ORBIT MAINTENANCE, CROSS RANGE MANEUVERING, AND OCV DEORBIT BY PROVIDING INCREMENTS OF IMPULSE IN THE DIRECTION OF THE VEHICLE LONGITUDINAL AXIS IN RESPONSE TO STORED COMMANDS SHALL BE VERIFIED ONLY AFTER THE FOLLOWING DETAILED REQUIREMENTS HAVE BEEN MET.

HF 4.5.7.2 DETAILED REQUIREMENTS

H 4.5.7.2.1 PROOF PRESSURE REQUIREMENTS

H THE HIGH PRESSURE SECTION OF THE SYSTEM SHALL WITHSTAND A PROOF PRESSURE OF 7500 (+0,-100) PSIG. THIS SHALL INCLUDE THE PRESSURANT TANK, HIGH PRESSURE TRANSDUCER, THE UPSTREAM SIDE OF THE TWO START VALVES, THE PRESSURANT FILL VALVE AND THE ASSOCIATED TUBING AND FITTING. PROOF PRESSURE SHALL BE MAINTAINED FOR A TOTAL OF 5+-0.5 MINUTES. TANK TEMPERATURE SHALL NOT EXCEED 120 DEG. F. WHEN THE TANK IS AT 7000 PSIG. OR ABOVE. DURING THE PRESSURANT TANK FILLING OPERATION A TEMPERATURE NOT TO EXCEED 160 DEG F MAY BE TOLERATED WHEN THE TANK IS BELOW 7000 PSIG. PRESSURANT SHALL BE FILLED AND VENTED THROUGH THE PRESSURANT FILL VALVE. AT THE COMPLETION OF THE PROOF PRESSURE TEST, THE HIGH PRESSURE SYSTEM SHALL EXHIBIT NO VISUAL EVIDENCE OF INCIPIENT FAILURE.

80C HF 4.5.7.2.2 LEAKAGE REQUIREMENTS

H A. HIGH-PRESSURE--PRESSURIZE THE SECTION UPSTREAM OF THE EXPLOSIVE ACTUATED N/C VALVE WITH GN2 THROUGH THE PRESSURANT FILL VALVE TO 5000 PSIG. AFTER TEMPERATURE AND PRESSURE STABILIZATION, THE LEAK RATE SHALL NOT EXCEED 240 SCC/HR. IF THE LEAK RATE EXCEEDS 60 SCC/HR, THE SYSTEM MUST BE PROBED TO ENSURE AN EVEN DISTRIBUTION OF LEAKS.

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80C F A. HIGH PRESSURE--THE LEAKAGE RATE OF THAT PART OF THE PRESSURANT SYSTEM UPSTREAM OF THE NORMALLY CLOSED SQUIB VALVES, WHEN MEASURED AT A TANK PRESSURE OF 5000 PSIG, SHALL NOT EXCEED A VALUE OF 240 SCC/HR. IF THE LEAK RATE EXCEEDS 60 SCC/HOUR, THE SYSTEM MUST BE PROBED TO ENSURE AN EVEN DISTRIBUTION OF LEAKS.

H B. LOW-PRESSURE--BY SIMULTANEOUSLY INTERCONNECTING NINE CHECK POINTS (ONE DOWN STREAM OF THE REGULATOR, ONE DOWNSTREAM OF EACH CHECK VALVE, AND ONE DOWNSTREAM OF EACH GN2 DIAPHRAGM BURST FILTER) WITH THE PRESSURANT FILL VALVES FOR FUEL AND OXIDIZER (ONE AT EACH OF THE FUEL AND OXIDIZER PROPELLANT FILL NIPPLES, AND ONE BETWEEN EACH LIQUID BURST DISC AND SOLENOIDS) THE LOW-PRESSURE SYSTEM SHALL BE PROOF-PRESSURE TESTED TO A MAXIMUM OF 300 PSIG. DURING THE TEST, THE PRESSURE MUST BE EQUALIZED ACROSS THE BLADDER BY PRESSURIZING THE LIQUID SIDE FROM THE BLADDER DIAPHRAGM TO THE BURST FILTER THROUGH THE PROPELLANT FILL NIPPLE. MONITOR THE PRESSURE CONTINUOUSLY FOR CHANGES. TOTAL LEAKAGE RATE SHALL NOT EXCEED 630 SCC/HOUR EQUALLY DISTRIBUTED AMONG THE JOINTS. RELIEVE PRESSURE SLOWLY SO THAT DANGEROUS PRESSURE DIFFERENTIALS SHALL NOT BE ESTABLISHED ACROSS THE BLADDERS OR BURST DISKS.

80C F B. DELETED

80A FF C. THE LEAK TEST FLUID SHALL BE CLEAN NITROGEN DRIED TO A DEW POINT OF -65 DEG.F OIL CONTAMINATION OF THE FLUID SHALL BE LESS THAN 10 PARTS PER MILLION WITH 98 PCT OF THE PARTICLES HAVING A DIAMETER OF LESS THAN 5 MICRONS AND 100 PCT OF THE PARTICLES HAVING A DIAMETER OF LESS THAN 10 MICRONS. THE TEMPERATURE OF THE OPERATING FLUID MAY VARY BETWEEN +30 DEG.F AND +120DEG.F. A KNOWN PERCENTAGE OF HELIUM SHALL BE USED AS A TRACER.

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80C HF 4.5.7.2.3 FUNCTIONAL REQUIREMENTS

HF SOLENOID OPERATION SHALL BE VERIFIED BY ACTUAL GAS FLOW AT A MINIMUM SUPPLY PRESSURE OF 10 PSIG FROM EACH ROCKET ENGINE NOZZLE. GAS SHALL NOT FLOW WHILE THE SOLENOID VALVES ARE CLOSED. SOLENOID VALVE ON TIME SHALL BE GREATER THAN 3 SEC. BUT LESS THAN 7 SEC. FOR EACH ACTUATION. THE SOLENOIDS SHALL BE ALLOWED TO COOL AT LEAST 20 SECONDS BETWEEN EACH ACTUATION. THIS REQUIREMENT SHALL BE MET INDIVIDUALLY ON EACH ENGINE AND SOLENOID VALVE.

H SOLENOID VALVES SHALL EACH BE ACTIVATED 3 TIMES.

80A H 4.5.7.2.4 OCV RELAY BOX

RELAY ACTUATION BY TEST COMMAND SIGNAL SHALL BE VERIFIED FUNCTIONALLY IN ACCORDANCE WITH THE FOLLOWING LIST--

COMMAND	VOLTAGE AT TEST POINT (VDC)
PRESSURIZE PROPELLANT TANKS	24-33
PRESSURIZE STABILIZATION TANKS	24-33
ENGINE 1 ON	24-33
ENGINE 2 ON	24-33
SHUT DOWN ENGINES	24-33

80A HF 4.5.7.3 O.A. PNEUMATICS OPERATIONAL REQUIREMENTS.

HF A. THE CHARGING RATE FOR THE PRESSURANT SYSTEM SHALL NOT EXCEED 500 PSI PER MINUTE.

80A H B. FREON 114 MAY BE USED AS A PROOF-PRESSURE TEST FLUID. IN SUCH CASE THE WATER CONTENT SHALL BE 10 PPM MAX, OIL CONTENT 10 PPM MAX, 98 PCT OF ALL PARTICLES SHALL HAVE A MAXIMUM DIMENSION OF LESS THAN 5 MICRONS, AND ALL PARTICLES SHALL BE LESS THAN 10 MICRONS. WHEN NITROGEN IS USED FOR LEAKAGE TESTING, THIS GAS SHALL CONFORM TO MIL-P-27401B.

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80A HF C. NO CONNECTION SHALL BE MADE TO THE SUBSYSTEM EXCEPT THROUGH A 5 MICRON NOMINAL, 10 MICRON MAX., OR BETTER FILTER, NOR SHOULD ANY ACCESS PORT BE EXPOSED UNLESS IN A CLEAN ROOM OR IN THE PRESENCE OF A DUST-FREE CUSHION.

80A HF D. SUBSEQUENT TO EACH DISCHARGING OF A SECTION WITHIN THE SUB-SYSTEM THE FILTRATE SHALL BE EXAMINED. PARTICLE SIZE SHALL NOT EXCEED 5 MICRONS NOM., 10 MICRONS MAX.

HF E. ALL COMPONENTS EXCEPT THE PROPELLANT SUPPLY TANKS MAY BE OPERATED BETWEEN THE TEMPERATURE LIMITS OF +30 DEG.F TO +120 DEG.F. THE TANKS SHALL NOT BE CHARGED TO FULL OPERATING PRESSURE ANY TIME THE TANK TEMPERATURE EXCEEDS +90 DEG.F.

F. TO AVOID BLADDER FLEXURE, LEAKAGE TESTS SHALL BE CONDUCTED SO THAT THE LIQUID SIDE OF THE BLADDER IS ALWAYS UNDER HIGHER PRESSURE. THE PRESSURE DIFFERENTIAL SHALL BE 5 PSIG NOMINAL AND 15 PSIG MAXIMUM. TO AVOID RUPTURE OF THE BURST DIAPHRAGMS IN PRESSURANT LINES AND LIQUID LINES, LEAKAGE TESTS SHALL BE CONDUCTED SO AS TO MAINTAIN LESS THAN 60 PSI DIFFERENTIAL PRESSURE ACROSS THE BURST DIAPHRAGMS. FURTHER, THE NUMBER OF CYCLES OF PRESSURE DIFFERENTIAL REVERSAL ON THE BURST DIAPHRAGMS SHALL BE LIMITED TO 15.

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HF 4.5.8 SATELLITE RE-ENTRY VEHICLE (SRV)

HF 4.5.8.1 SUBSYSTEM FUNCTION

THE ABILITY OF THE SRV TO EFFECT DEORBIT OF THE SRV VEHICLE, TO FACILITATE AIR SNATCH OR WATER RECOVERY OF THE CAPSULE, AND TO EFFECT CAPSULE SINKING WITHIN 55 TO 95 HOURS AFTER IMPACT IF RECOVERY IS NOT ACCOMPLISHED SHALL BE DEMONSTRATED ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

HF 4.5.8.2 GENERAL REQUIREMENTS

A. REDUNDANCY OF SRV FUNCTIONS SHALL BE DEMONSTRATED.

HF 4.5.8.3 DETAILED REQUIREMENTS

HF 4.5.8.3.1 EJECTION PROGRAMMER AND EVENT SEQUENCING

HF 4.5.8.3.1.1 EJECTION PROGRAMMER

THE INITIATION OF THE EJECTION SEQUENCE SHALL OCCUR AT SEPARATION OF THE SRV ADAPTER ELECTRICAL DISCONNECT AFTER WHICH THE EJECTION PROGRAMMER SHALL PROVIDE THE FOLLOWING

A. A SIGNAL TO THE SPIN SQUIBS AT 3.4+-0.30 SECONDS AFTER INFLIGHT DISCONNECT (IFD) SEPARATION.

B. A SIGNAL TO THE RETROROCKET SQUIB AT 1.25+-0.10 SECONDS AFTER THE SPIN SIGNAL.

C. A SIGNAL TO THE DESPIN SQUIBS AT 10.75+-0.54 SECONDS AFTER RETRO-ROCKET SIGNAL.

D. A SIMULTANEOUS SIGNAL TO THE INFLIGHT DISCONNECT SQUIB AND TO EACH OF THE TWO EXPLOSIVE BOLT SQUIB ELEMENTS OF THE THRUST CONE RELEASE CONTROL AT 1.5+-0.15 SECONDS AFTER DESPIN SIGNAL.

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HF 4.5.8.3.1.2 CONTINUITY AND EVENT SEQUENCING

A. THE CONTINUITY LOOP SHALL BE VERIFIED.

B. THE OPERABILITY, IN THEIR PROPER SEQUENCE OF THE FOLLOWING PROGRAMMED RESPONSES SHALL BE DEMONSTRATED WITH SIMULATED SQUIBS AND EXTERNAL POWER SUPPLY BEING UTILIZED AS REQUIRED.

1) TELEMETRY BATTERY ACTIVATION (ARM.)

2) TELEMETRY AND RECOVERY BEACON POWER ON (ARM.)

3) ARM RECOVERY PROGRAMMER (ARM.)

4) START INHIBIT TIMER (ARM.)

5) THERMAL BATTERY ACTIVATION (TRANSFER).

6. ARM REDUNDANT PARACHUTE COVER OFF RELAY (TRANSFER)

7) SPIN UP

8) RETRO FIRE

9) DESPIN

10. THRUST CONE SEPARATION AND CABLE DISCONNECT

11) PARACHUTE THERMAL COVER OFF.

83A HF 4.5.8.3.2 RECOVERY PROGRAMMER

THE CAPABILITY OF EACH OF THE TWO SECTIONS OF THE RECOVERY PROGRAMMER TO PERFORM THE COMPLETE RECOVERY FUNCTION SHALL BE DEMONSTRATED.

THE CAPABILITY OF ONE SECTION OF THE RECOVERY PROGRAMMER TO ACTIVATE THE OUTPUT OF THE OTHER SECTION SHALL BE DEMONSTRATED.

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IN ANY MODE OF OPERATION THE RECOVERY PROGRAMMER SHALL MEET THE FOLLOWING REQUIREMENTS WITH SIMULATED POWER OF 13.5 TO 15.5 VDC.

1. APPROPRIATE SIGNALS TO THE FLASHING LIGHT CONTROLLER.

2. CAUSE THE EJECTION PISTON EVENTS TO OCCUR.

THE RECOVERY PROGRAMMER SHALL TIME OUT 34 +-1.5 SECONDS AFTER SIMULATION OF G SWITCH OPENING. K7 AND K9 OF THE A1700 PROGRAMMER SHALL NOT RESET UNTIL GROUND ON PIN 10 OF J1576 IS REMOVED.

80A HF 4.5.8.3.3 TELEMETRY

HF A. THE TELEMETRY TRANSMITTER SHALL MEET THE FOLLOWING REQUIREMENTS AT 28.0+-0.5 V.D.C.

FREQUENCY 242.0 MC +-0.01 PCT.

POWER OUTPUT 1.5 WATTS MIN. (MEASURED INTO A 50-OHM MATCHED LOAD)

80A HF B. SCO FREQUENCY REQUIREMENTS

1)THE FREQUENCIES OF THE 3 KC, 3.9 KC AND 5.4 KC SUBCARRIER OSCILLATORS SHALL BE CENTERED ABOUT THEIR CENTER FREQUENCIES TO WITHIN +- 0.5 PERCENT WITH A STIMULUS OF 2.5 VDC. A +5 VDC STIMULUS VOLTAGE SHALL DEVIATE EACH SCO +7 PERCENT AND -0.05 PERCENT OF THE CENTER FREQUENCY. A 0 VDC STIMULUS VOLTAGE SHALL DEVIATE EACH SCO -7 PERCENT +- 0.05 PERCENT OF THE CENTER FREQUENCY.

74A H 2) THE 10.5 KC SCO SHALL OPERATE PROPERLY FOR + 1G AND - 1G AMBIENT CONDITIONS.

74A F 2) THE 10.5 KC SCO SHALL OPERATE PROPERLY FOR + 1G AMBIENT CONDITIONS.

H C. THE TRANSMITTER CENTER FREQUENCY SHALL NOT EXCEED +-0.01 PCT OF DESIGN FREQUENCY FOR A DEVIATION BANDWIDTH OF 114+-6.0 KC FOR THE EXTREMES OF PRIMARY VOLTAGE.

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80A HF D. THE INDIVIDUAL SCO DEVIATIONS SHALL CONFORM TO THE FOLLOWING PRE-EMPHASIS SCHEDULE--

SUBCARRIER	TRANSMITTER DEVIATION (+-KC)
3.0 KC	10+-2 KC
3.9 KC	14+-2KC
5.4KC	17+-3 KC
10.5 KC	33+-4 KC

HF E. THE SRV TELEMETRY ALLOCATION SHALL BE PER APPENDIX C.

HF F. ALL TELEMETRY EVENTS AND ANALOG MONITORS SHALL BE OPERATIONAL.

HF G. VALUES SHALL BE OBTAINED FOR EVERY FUNCTION AND LISTED IN THE CALIBRATION BOOK.

HF H. THE VALUES IN THE TELEMETRY CALIBRATION BOOK SHALL BE WITHIN +- 10 PCT OF THE VEHICLE VALUES FOR EVENTS MEASUREMENTS AND WITHIN +- 5 PCT OF THE VEHICLE VALUES FOR ANALOG MEASURMENTS.

H I. THE VOLTAGE OF EACH TELEMETRY CHANNEL SHALL BE SUPPLIED BY THE SENSOR ASSIGNED TO THAT CHANNEL. THE LEVEL AND / OR POLARITY OF OPERATION SHALL BE WITHIN +- 10 PCT FOR EVENTS AND +-5 PCT FOR ANALOG MEASURMENTS OF THE VALUES SPECIFIED IN APPENDIX C.

H J. THE TELEMETRY ANTENNA SEGMENT SHALL OPERATE AT A NOMINAL CENTER FREQUENCY OF 242.0MC. THE VSWR (REF TO 50 OHMS) SHALL BE LESS THAN 2 TO 1 OVER A BAND WIDTH OF +-1MC.

H K. THE BEACON ANTENNA SEGMENT SHALL OPERATE AT A NOMINAL CENTER FREQUENCY OF 235.0MC. THE VSWR (REF TO 50 OHMS) SHALL BE LESS THAN 2 TO 1 OVER A BAND WIDTH OF +-1MC.

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85 4.5.8.3.4 RF BEACON OPERATION

BEACON FREQUENCY	235.0 MC +- 0.01 PERCENT
POWER (AVERAGE)	400 MILLIWATTS MIN. (50 PCT DUTY CYCLE)
OPERATING VOLTAGE	13 +- 1 VDC
MODULATION	SWEEPS FROM LOW TO HIGH FREQUENCY
MODULATION FREQUENCY BAND	200 TO 1500 CPS
MODULATION EXCURSION	500 CPS MIN. WITHIN FREQUENCY BAND
SWEEP RATE	1 TO 3 CPS
LOADING	VSWR 2 TO 1 MAXIMUM
ELECTROMAGNETIC INTER-FERENCE	ANTENNA CONDUCTED HARMONIC AND SPURIOUS SIGNALS SHALL BE LESS THAN 55 DBM

HF 4.5.8.3.5 SPIN/DESPIN COLD GAS SUBSYSTEMS LEAKAGE REQUIREMENTS

H THE PRESSURE TANKS OF THE SPIN/DESPIN SUBSYSTEM WHEN PRESSURIZED TO 2900+-100 PSIG WITH A MIXTURE OF 90PCT NITROGEN AND 10PCT FREON SHALL HAVE A LEAKAGE, INCLUDING TANKS AND VALVES, OF NO MORE THAN 6.25 SCC/HOUR.

F THAT PART OF THE PRESSURANT SYSTEM UPSTREAM OF THE NORMALLY CLOSED SQUIB VALVES SHALL BE PRESSURIZED TO 2900+-100 PSIG WITH A HELIUM/NITROGEN MIXTURE AND SHALL BE PROBED WITH A MASS SPECTROMETER LEAK DE-TECTOR. ANY INDICATED LEAKAGE SHALL BE REPAIRED.

HF 4.5.8.3.6 FLASHING LIGHT

THE GROUP 1 FLASHING LIGHT ASSEMBLY SHALL FLASH ON AT A FREQUENCY OF 60 FLASHES PER MINUTE MINIMUM AND 120 FLASHES PER MINUTE MAXIMUM. THE GROUP 3 FLASHING LIGHT ASSEMBLY SHALL FLASH ON AT A FREQUENCY OF 52 FLASHES PER MINUTE MINIMUM AND 75 FLASHES PER MINUTE MAXIMUM.

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HF 4.5.8.3.7 INHIBIT TIMER
THE INHIBIT TIMER SHALL INITIATE THE FOLLOWING FUNCTIONS

HF A. A THRUST CONE EJECTION SIGNAL AT 250+-25 SECONDS AFTER THE ARM SIGNAL.

HF B. A FOREBODY SHIELD AND THERMAL COVER SEPARATION SIGNAL 944+-47 SECONDS AFTER THE ARM SIGNAL.

HF C. AS INDICATED BY TELEMETRY

1. THE THRUST CONE EJECTION SIGNAL (ITEM A ABOVE) SHALL BE APPLIED FOR 50+-20 SECONDS.

2. THE S1 G-SWITCH SHALL BE BYPASSED 860+-25 SECONDS AFTER THE ARM SIGNAL AND SHALL REMAIN BYPASSED FOR 50+-20 SECONDS.

HF 4.5.8.3.8 SHIELD ACCEPTANCE REQUIREMENTS

HF A. PAINT DEFECTS- DEFECTS IN THE GRAY FOREBODY PAINT SHALL NOT EXCEED A TOTAL AREA OF 50 SQUARE INCHES AND NO SINGLE DEFECTIVE AREA SHALL EXCEED 20 SQUARE INCHES.

HF B. SURFACE AND EDGE DEFECTS--CHIPS, GOUGES, OR NICKS ARE ACCEPTABLE TO A DEPTH OF 0.030 INCH, IF EACH SUCH DEFECT FALLS WITHIN AN AREA 1 INCH IN DIAMETER. A MINIMUM OF 1/2 INCH MUST SEPARATE EACH DEFECT. NO MORE THAN TWO DEFECTS SHALL FALL WITHIN A 5 INCH RADIUS.

ON THE EDGE AREA ONLY, DEPRESSIONS TO 0.060 INCH MAXIMUM DEPTH ARE ACCEPTABLE. A CIRCUMFERENTIAL DEPRESSION LENGTH SHALL NOT EXCEED 1 INCH AND DEFECTS SHALL BE CIRCUMFERENTIALLY SEPARATED BY AT LEAST 2 INCHES.

SCRATCHES ARE PERMISSIBLE TO A MAXIMUM DEPTH OF 0.015 INCH. THEY CAN BE ANY LENGTH, WIDTH, AND ORIENTATION.

HF C. GAP SEALANT--THERE SHALL BE NO DEFECTS IN THE GAP SEALANT.

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HF 4.5.8.3.9 POP/OFF VALVES

THE POP-OFF VALVES SHALL BE CHECKED AND THE ACTUAL VALUES RECORDED FOR THE FOLLOWING--

VALVE	MAX CRACKING PRESSURE (PSIA)	MIN RESEAT PRESSURE (PSIA)
ASCENT	1.6	VERIFY RESEAT
DESCENT	2.2	VERIFY RESEAT
0.1 RELIEF	VISUAL INSPECTION ONLY	

88 F 4.5.8.3.10 PARACHUTE

THE PARACHUTE SHALL NOT HAVE BEEN PACKED BY THE VENDOR MORE THAN 80 DAYS PRIOR TO THE NOMINAL LAUNCH DATE.

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83 F 4.5.8.3.11 BATTERIES POWER SUPPLY DUAL UNIT

THE BATTERIES, POWER SUPPLY DUAL UNIT, SHALL MEET THE FOLLOWING REQUIREMENTS

F A. THE UNACTIVATED BATTERIES, AS RECEIVED, SHALL HAVE NO EVIDENCE OF PHYSICAL DAMAGE. THE UNACTIVATED LIFE SHALL BE 1 YEAR MAXIMUM FROM DATE OF FABRICATION.

F B. THE BATTERIES SHALL BE STORED IN SEALED CONTAINERS AT 0 DEG F TO 80DEG F UNTIL READY FOR USE.

F C. THE APPLICABLE HEATER MODULE SHALL BE INSTALLED PRIOR TO INSTALLATION OF THE BATTERIES IN THE VEHICLE.

F D. INTERNAL THERMOSTAT RANGE SHALL BE 60DEG F TO 95DEG F.

83 F E. WET STAND SHALL BE 48 HOURS MINIMUM PRIOR TO INSTALLATION IN VEHICLE, 35 DAYS MAXIMUM, AT 80 DEG F MAXIMUM.

F F. ELECTROLYTE QUANTITY FOR EACH CELL SHALL BE 15+-0.25 CUBIC CENTIMETERS.

F G. ELECTROLYTE SPECIFIC GRAVITY SHALL BE 1.40+-0.01.

F H. VENT CAP INSTALLATION SHALL NOT BE MADE WITHIN 6 HOURS OF BATTERY ACTIVATION.

F I. OPEN-CIRCUIT VOLTAGE OF EACH CELL AFTER 4 HOURS OF ACTIVATION SHALL BE 1.80VDC MINIMUM.

F J. OPEN-CIRCUIT VOLTAGE OF EACH BATTERY SECTION (AFTER 4 HOURS OF ACTIVATION) SHALL BE AS FOLLOWS

SECTION A	16.2VDC MINIMUM
SECTION B	16.2VDC MINIMUM

F K. READINGS SHALL BE RECORDED EVERY 4 HOURS IN THE FIRST 24-HOUR OF THE WET STAND CYCLE.

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748 F L. LOAD TESTS--THE FOLLOWING LOAD TESTS SHALL BE PERFORMED ONCE ONLY

1. FOUR SECOND LOAD TEST SHALL BE MADE 48 HOURS AFTER ACTIVATION

A) OPEN CIRCUIT VOLTAGE 16.2VDC MINIMUM

B) TERMINAL LOAD VOLTAGE 12.5VDC MINIMUM

C) OUTPUT CURRENT 5 AMPERES MINIMUM

D) APPLIED LOAD 2.6+-0.1 OHMS

E) APPLIED OPERATIONAL TIME 4 SECONDS MAXIMUM

F M. PRESSURIZATION--ALL COVER SCREWS SHALL BE TORQUED TO 8+-1 INCH-POUNDS AND THE BATTERIES SHALL MEET THE FOLLOWING PRESSURIZATION REQUIREMENTS

1. RELIEF VALVE SHALL OPEN AT 26PSIG MAXIMUM

2. RELIEF VALVE SHALL CLOSE AT 10PSIG MINIMUM

3. WHEN PRESSURIZED TO 5PSIG, THE INTERNAL PRESSURE LOSS SHALL NOT EXCEED 0.1PSIG IN 5 MINUTES.

4. A RELIEF VALVE TEST SHALL BE PERFORMED AT THE FINAL COVERING OF THE BATTERY.

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F N. TOTAL WEIGHT SHALL BE 8.5+-0.3 POUNDS.

F O. FINAL OPEN-CIRCUIT VOLTAGE PRIOR TO INSTALLATION IN THE VEHICLE SHALL BE 16.2VDC MINIMUM ON BATTERY SECTIONS A AND B.

F P. AFTER INSTALLATION IN THE VEHICLE OPEN CIRCUIT VOLTAGE OF BATTERY SECTION A SHALL BE MONITORED THROUGH TELEMETRY INSTRUMENTATION.

F Q. BATTERY POTTING REQUIREMENTS

80C 1. THE BATTERY CELL TERMINALS AND CONNECTORS SHALL BE POTTED WITH KOH RESISTANT COATING (SCOTCH CAST NO 8 OR EQUIVALENT)

HF 4.5.8.3.12 REQUIRED SQUIB SIMULATOR CURRENTS.

THE SQUIB SIMULATOR CURRENTS SHALL MEET THE REQUIREMENTS OF TABLE 4.5.4.2.4.

F 4.5.8.3.13 SQUIB CIRCUIT RESISTANCE.

SQUIB CIRCUIT RESISTANCE SHALL BE MEASURED AT THE PYRO FEED INTERFACES DEFINED IN TABLE 4.5.8.3.13-1 WITH PYROS INSTALLED

CIRCUIT RESISTANCE VALUES SHALL MEET THE FOLLOWING REQUIREMENTS.

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TABLE 4.5.8.3.13-1 CIRCUIT RESISTANCE

FUNCTION	A-NO.	INTERFACE CONNECTOR	RESISTANCE (OHMS) MINIMUM	MAXIMUM
1. WIRECUTTER	A1705*	1527	0.2	0.65
2. PRESSURE BOTTLE NO. 1	A1740*	1527		
3. PRESSURE BOTTLE NO. 2	A1741*	1527		
4. TM BATTERY	A1811	1527	3.5	5.5
5. THERMAL BATTERY NO. 1	A1604**	1527	2.25	2.6
6. THERMAL BATTERY NO. 2	A1605**	1527	2.25	2.6
7. SPIN NO.1	A1606	1652	0.35	0.85
8. SPIN NO.2	A1606	1652	0.35	0.85
9. ENGINE	A1607	1652	0.30	1.00
10. DESPIN NO. 1	A1608	1652	0.35	0.85
11. DESPIN NO. 2	A1608	1652	0.35	0.85
12. FOREWARD IFD NO. 1	A1601	1652	0.95	1.35
13. FOREWARD IFD NO. 2	A1602	1652	0.95	1.35
14. EXPLOSIVE BOLTS NO. 1	A1609	1652	0.30	0.70
15. EXPLOSIVE BOLTS NO. 2	A1610	1652	0.30	0.70
16. PISTON NO.1	A1728/29	1576	0.9	1.1
17 PISTON NO.2	A1730/31	1576	0.9	1.1

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18. IFD NO.1	A725	1527	0.65	0.98
19. IFD NO. 2	A726	1527	0.65	0.98
20. GROUND		1527	0.0	1.0

* ONLY ONE MEASUREMENT REQUIRED DUE TO PARALLEL CONNECTIONS.

** TWO MEASUREMENTS REQUIRED DUE TO REDUNDENT WIRING.

HF 4.5.8.3.14 HEATER AND THERMOSWITCH REQUIREMENTS

THE HEATER AND THERMOSWITCH RESISTANCE SHALL MEET THE FOLLOWING REQUIREMENTS.

A. ORBITAL HEATERS.	RESISTANCE - OHMS. MIN	MAX
1) A1621	41	47
2) A1634	140	175
3) A1635	140	175
4. A1724	16	32

B. GROUND HEATERS	RESISTANCE (OHMS) MIN	MAX
1) A1622	167	193
2) A1726	75	105

C. THERMOSTAT OPERATION OF THE AC AND DC HEATERS SHALL BE VERIFIED .

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HF 4.5.9 SV INTERNAL ENVIRONMENTAL CONTROL SUBSYSTEM

HF 4.5.9.1 SUBSYSTEM FUNCTIONS

THE ABILITY OF THE INTERNAL ENVIRONMENTAL CONTROL SUBSYSTEM TO MAINTAIN A SUITABLE OPERATING TEMPERATURE FOR THE COMPONENTS OF OTHER SUBSYSTEMS AS WELL AS TO MAINTAIN THE OVER-ALL SYSTEM TEMPERATURE ENVIRONMENT SHALL BE VERIFIED ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

HF 4.5.9.2 DETAILED REQUIREMENTS

76A HF 4.5.9.2.1 COMPARTMENT HEATERS

HF A. VERIFY THE CIRCUITRY OF COMPARTMENT HEATERS IS OPERATING.

HF B. THE PROPORTIONAL TEMPERATURE CONTROLLERS SHALL DEMONSTRATE THAT EACH CONTROLLER(S) DUTY CYCLE--
1) INCREASES FROM 0 PCT TO 100 PCT FOR DECREASING TEMPERATURES.
2) DECREASES FROM 100 PCT TO 0 PCT FOR INCREASING TEMPERATURES.

75B HF C. THE SECTION 5 TEMPERATURE CONTROLLERS SHALL BE OPERATING WITHIN THEIR INDIVIDUAL PROPORTIONAL BANDS WITH DUTY CYCLES OF 50 PERCENT +- 40 PERCENT DURING ALL NON-MECHANICALLY MATED SYSTEM TESTS, EXCEPT FOR THE FOLLOWING.

75A HF 1. PROPORTIONAL TEMPERATURE CONTROLLER VERIFICATION WITH PRIME FLIGHT TEMPERATURE CONTROLLER BRIDGE.

76A F 2. CONTROLLER OPERATION IS NOT REQUIRED DURING BUYOFF MISSION PROFILE.

HF 4.5.9.2.2 HEATER AND THERMOSWITCH ASSEMBLIES

HF UNDER KNOWN AMBIENT TEMPERATURE SOAK CONDITIONS, ALL OUTPUTS OF TEMPERATURE SENSORS THAT SENSE PASSIVE ELEMENTS SHALL INDICATE THE SAME AMBIENT TEMPERATURE WITHIN THE ACCURACY OF THE TELEMETRY READOUT.

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HF OPERATION OF THE AC POWER CONTROLLER AND HEATERS ON THE STA. 84 BULKHEAD SHALL BE VERIFIED. OPERATION OF AIR INLET AND OUTLET TUNNEL HEATERS SHALL BE VERIFIED.

HF 4.5.9.2.3 FREON TANK HEATERS

H VERIFY THE FREON TANK HEATER CIRCUITRY OPERATION.

F WITH 115 +- 5 VAC, 60-CPS GROUND POWER APPLIED TO EACH FREON TANK HEATER, EACH TANK HEATER ASSEMBLY SHALL DRAW CURRENT SO THAT AN INCREASE IN TEMPERATURE IS OBSERVED. MAXIMUM TEMPERATURE SHALL BE 125 DEG.F. VERIFY THAT THE DC HEATER CUTS ON AND OFF.

80A HF 4.5.9.2.4 CONTROLLED ABSORPTIVE/EMISSIVE COATINGS

H THE THERMAL COATING STANDARD OF THE VEHICLE (I.E., THE COATING SAMPLE SUPPLIED WITH EACH VEHICLE) SHALL MEET THE ABSORPTIVITY/EMISSIVITY REQUIREMENTS SPECIFIED IN THE INDIVIDUAL DRAWING.

80A HF EXTERNAL AND INTERNAL SURFACES THAT HAVE COATINGS FOR CONTROLLING RADIANT HEAT ABSORPTION, EMISSION, AND REFLECTION SHALL BE CLEAN AND FREE FROM SURFACE DAMAGE, AND SHALL RETAIN THEIR ORIGINAL COLOR AND TEXTURE.

80A HF REFLECTANCE READINGS SHALL BE MADE ON THE ADAPTER PATCH AND ON VEHICLE SECTION 6 PATCHES 1A, 1B AND 1C (REFER TO FIGURE 4.5.9.2.4.) EACH REFLECTANCE MEASUREMENT SHALL AGREE WITHIN +- 0.05 OF THE STANDARD PROVIDED FOR COMPARISON.

F 4.5.9.2.5 SUPER-INSULATION AND HEATING/COOLING BLANKETS

F F A. SUPER-INSTALLATION BLANKETS-EACH BLANKET SHALL BE FREE OF RIPS, TEARS OR CRUSHING.REPAIR PROCEDURES IF REQUIRED SHALL BE ACCOMPLISHED PER SVS 4427B. HANDLING OF THE BLANKETS SHALL BE DONE WITH EXTREME CARE. ALL SURFACES OF THE BLANKETS SHALL BE FREE OF DIRT OR STAINS.

F B. HEATING/COOLING BLANKETS-- INNER SURFACES OF THE BLANKETS SHALL BE WASHED PRIOR TO USE ON A SV. WHEN NOT IN USE, THE BLANKETS SHALL BE STORED IN NEW, CLEAN, THROW-AWAY PLASTIC BAGS. WHEN FOLDED, THE BLANKETS INSIDE SURFACES SHALL NOT TOUCH ITS OUTSIDE SURFACES.

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HF 4.5.9.2.6 AIR COOLING DOORS

INSPECTION SHALL BE PERFORMED ON THE GASKET SEALS TO ENSURE THEY ARE FREE FROM SPLITS OR CRACKS. EACH DOOR SHALL BE FREE MOVING AND SHALL SEAT FLUSH WITH ITS MOUNTINGS. THE ACTION OF THE AIR COOLING DOORS SHALL BE TESTED. WITH BOTH DOORS IN THE OPEN POSITION, THE INLET DOOR SHALL BE CLOSED AND AN INSPECTION MADE OF THE CLOSING OF THE VALVE IN THE OUTLET DOOR. THE OPERATION OF THE DOOR LATCH AND SOLENOID SHALL BE CHECKED. THE SWITCHES ON THE INLET DOOR SHALL BE DEPRESSED WHENEVER THE OUTLET DOOR IS NOT CLOSED.

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80A HF 4.5.9.2.7 INNER SHIELD REQUIREMENTS

76A HF 4.5.9.2.7.1 PRIMARY MODE

THE INNER SHIELD SHALL MEET THE FOLLOWING REQUIREMENTS WHEN ACTUATED IN THE PRIMARY MODE WITH EITHER, VEHICLE ROLL AXIS HORIZONTAL AND GRAVITY EFFECT ON THE SHIELD PARTIALLY COUNTERBALANCED, OR VEHICLE ROLL AXIS VERTICAL.

76B HF 4.5.9.2.7.1.1 COMPUTER PHASE A (CPA)

THE INNER SHIELD SHALL MOVE FROM THE COMPUTER PHASE B POSITION AND CLOSE THE PHASE A SWITCH WITHIN 10 SECONDS OF COMPUTER PHASE A COMMAND, AND SHALL COMPLETE THE COMPUTER PHASE A OPERATION WITHIN 10+2-5 SECONDS OF COMPUTER PHASE A COMMAND EXECUTION. A COMPUTER PHASE A OPERATION IS DEFINED AS A MOVEMENT OF THE INNER SHIELD FROM THE PHASE B POSITION TO THE PHASE A POSITION INCLUDING ACTUATOR MOTOR TURN OFF.

76B HF 4.5.9.2.7.1.2 COMPUTER PHASE B (CPB)

THE INNER SHIELD SHALL MOVE FROM THE COMPUTER PHASE A POSITION AND CLOSE THE PHASE B SWITCH WITHIN 10 SECONDS OF COMPUTER PHASE B COMMAND, AND SHALL COMPLETE THE COMPUTER PHASE B OPERATION WITHIN 10+2-5 SECONDS OF COMPUTER PHASE B COMMAND EXECUTION. THE COMPUTER PHASE B OPERATION IS DEFINED AS A MOVEMENT OF THE INNER SHIELD FROM PHASE A POSITION TO PHASE B POSITION INCLUDING ACTUATOR MOTOR TURN OFF.

76A HF 4.5.9.2.7.2 BACKUP MODE

76A HF 4.5.9.2.7.2.1 LOGIC BOX TIMER REQUIREMENTS

THE INNER SHIELD SHALL MEET THE FOLLOWING REQUIREMENTS WHEN ACTUATED IN THE BACK UP MODE WITH THE RETRACTABLE PIN ASSEMBLY RETRACTED, AND WITH EITHER THE VEHICLE ROLL AXIS HORIZONTAL AND GRAVITY EFFECT ON THE SHIELD PARTIALLY COUNTER BALANCED, OR WITH THE THE VEHICLE ROLL AXIS VERTICAL.

A. WITH THE INNER SHIELD PREVENTED FROM COMPLETING A COMPUTER PHASE A OR B COMMANDED OPERATION (COMPUTER PHASE A OR B SWITCHES CLOSURE DOES NOT OCCUR), THE LOGIC BOX TIMER SHALL FIRE THE SIMULATED

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PYRO WITHIN 18+-2 SECONDS OF COMPUTER PHASE A OR B COMMAND EXECUTION. THE BACKUP ACTUATOR SHALL START IMMEDIATELY AFTER THE SIMULATED PYRO HAS BEEN FIRED.

B. WITH THE INNER SHIELD AT THE COMPUTER PHASE B STOP, A COMPUTER PHASE A COMMAND SHALL MOVE THE INNER SHIELD TO THE COMPUTER PHASE A STOPS, AND THE BACKUP ACTUATOR MOTOR SHALL CEASE OPERATION, WITHIN 11+-2 SECONDS AFTER THE SIMULATED PYRO HAS FIRED. SUBSEQUENT COMPUTER PHASE A OPERATIONS SHALL REQUIRE 22+-4 SECONDS.

C. WITH THE INNER SHIELD AT THE COMPUTER PHASE A STOP, AND WITH A COMPUTER PHASE A OPERATION HAVING BEEN EXECUTED PREVIOUSLY USING THE BACKUP ACTUATOR, A COMPUTER PHASE B COMMAND SHALL MOVE THE INNER SHIELD TO THE COMPUTER PHASE B STOPS, AND THE BACKUP ACTUATOR MOTOR SHALL CEASE OPERATION WITHIN 22+-4 SECONDS AFTER COMPUTER PHASE B COMMAND EXECUTION. IF THE COMPUTER PHASE B OPERATION IS PERFORMED BEFORE ANY COMPUTER PHASE A OPERATION (I.E., THE BACKUP ACTUATOR LINKAGE IS STILL IN ITS NEUTRAL POSITION) THIS TIME SHALL BE 11+-2 SECONDS AFTER SIMULATED PYRO FIRING.

D. A COMPUTER TIMER BYPASS ON COMMAND SHALL FIRE THE SIMULATED SQUIB IMMEDIATELY AFTER EXECUTION OF THE COMMAND AND THE BACKUP ACTUATOR SHALL START.

76A HF 4.5.9.2.7.3 OTHER INNER SHIELD REQUIREMENTS

80A HF 4.5.9.2.7.3.1 SHIELD TORQUE REQUIREMENTS

THE FOLLOWING TORQUE REQUIREMENTS SHALL BE MET IN THE FACTORY. THEY SHALL ALSO BE MET IN THE FIELD IF THE INNER SHIELD OR ITS HEATER HARNESS HAS BEEN REMOVED AND THEN REINSTALLED OR REPLACED.

WITH THE VEHICLE ROLL AXIS VERTICAL, THE RETRACTABLE PIN ASSEMBLY RETRACTED AND THE SPRING DETACHED, AND WITH THE ELECTRICAL HARNESS ATTACHED TO THE INNER SHIELD IN THE FLIGHT CONFIGURATION, THE TORQUE REQUIRED TO MOVE THE INNER SHIELD SHALL MEET THE FOLLOWING REQUIREMENTS.

A. FROM FREE POSITION TO CPB STOP 4.5 INCH-POUNDS MAXIMUM

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B. FROM FREE POSITION THROUGH CPA SWITCH TO CPA STOP 4.5 INCH-POUNDS MAXIMUM.

83A HF 4.5.9.2.7.3.2 SHIELD CLEARANCE

THE MINIMUM CLEARANCE BETWEEN THE INNER SHIELD AND ANY FIXED POINT ON THE VEHICLE THAT MAY INTERFERE WITH ANY MOVEMENT OF THE SHIELD SHALL BE 0.015 IN. THE MINIMUM CLEARANCE BETWEEN THE INNER SHIELD AND ANY FIXED HARNESS SHALL BE 0.25 IN. THE CLEARANCE BETWEEN THE EDGE OF THE INNER SHIELD AND THE PROXIMITY SWITCH ASSEMBLY SHALL BE 0.090 IN. MIN 0.375 IN. MAX.
THE CLEARANCE BETWEEN THE OUTER SURFACE OF THE MAGNET CLAMP AND THE TOP SURFACE OF THE PROXIMITY SWITCH ASSEMBLY SHALL BE 0.090 IN MIN, 0.50 IN. MAX.

76A HF 4.5.9.2.7.3.3 PRIMARY MODE TORQUE REQUIREMENTS

WITH THE VEHICLE ROLL AXIS VERTICAL AND THE INNER SHIELD IN THE FLIGHT CONFIGURATION, THE SUBSYSTEM SHALL MEET THE FOLLOWING REQUIREMENTS.

A. COMPUTER PHASE B TORQUE REQUIREMENT
WITH THE INNER SHIELD COMMANDED TO CPB BY MEANS OF THE PRIMARY ACTUATOR, THE TORQUE REQUIRED TO STOP THE SHIELD SHALL BE 65+-25 INCH-POUNDS.

B. COMPUTER PHASE A TORQUE REQUIREMENT
WITH THE INNER SHIELD COMMANDED TO CPA BY MEANS OF THE PRIMARY ACTUATOR. THE TORQUE REQUIRED TO STOP THE SHIELD SHALL BE 65+-25 INCH-POUNDS.

83 HF 4.5.9.2.7.3.4 BACKUP MODE TORQUE REQUIREMENTS

A. WITH THE VEHICLE ROLL AXIS VERTICAL AND THE INNER SHIELD IN THE FLIGHT CONFIGURATION. EXCEPT WITH THE RETRACTABLE PIN RETRACTED, THE SUBSYSTEM SHALL MEET THE FOLLOWING REQUIREMENTS

1. COMPUTER PHASE B TORQUE REQUIREMENTS
WITH THE INNER SHIELD COMMANDED TO CPB BY MEANS OF THE BACKUP ACTUATOR, THE TORQUE REQUIRED TO STOP THE SHIELD SHALL BE 125+-35 INCH-POUNDS.

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2. COMPUTER PHASE A TORQUE REQUIREMENTS
WITH THE INNER SHIELD COMMANDED TO CPA BY MEANS OF THE BACKUP ACTUATOR, THE TORQUE REQUIRED TO STOP THE SHIELD SHALL BE 125+-35 INCH POUNDS.

B. WITH THE VEHICLE ROLL AXIS HORIZONTAL, THE 1G FIELD NOT COUNTER BALANCED AND THE INNER SHIELD IN THE FLIGHT CONFIGURATION EXCEPT WITH THE RETRACTABLE PIN RETRACTED, THE CAPABILITY OF THE BACKUP ACTUATOR TO MOVE THE INNER SHIELD FROM PHASE B TO PHASE A AND FROM PHASE A TO PHASE B SHALL BE DEMONSTRATED AT LEAST ONCE.

83A HF 4.5.9.2.7.3.5 PRIMARY ACTUATOR CHAIN TENSION

WITH THE INNER SHIELD COMMANDED TO COMPUTER PHASE A AND COMPUTER PHASE B BY THE PRIMARY ACTUATOR, AND PRESSURE IS APPLIED TO THE CENTER OF THE CHAINS SLACK SIDE PERPENDICULAR TO THE CHAIN SPROCKETS AXES OF ROTATION, THE FOLLOWING REQUIREMENTS SHALL BE MET (WHEN USING FINGER PRESSURE)

H A. THE CHAIN SHALL MOVE 7/16+-3/32 OF AN INCH FROM THE RELAXED POSITION.

F A. THE CHAIN SHALL MOVE 7/16+-1/8 OF AN INCH FROM THE RELAXED POSITION.

76B HF 4.5.9.2.7.3.6 COMPUTER PHASE T/M REQUIREMENTS

COMPUTER PHASE TELEMETRY SHALL BE PER APPENDIX C.

80A HF 4.5.9.2.7.3.7 COMPUTER PHASE A AND B REDUNDANT SWITCHES REQUIREMENTS

A. COMPUTER PHASE B PROXIMITY SWITCH OPERATION
1)MAKE REQUIREMENTS
ALL SEVEN REED SWITCHES SHALL BE CLOSED WHEN OUTER SURFACE OF MAGNET IS MOVED FROM CPA POSITION AND POSITIONED AT 15/32+-3/32 IN. FROM THE TOP SURFACE OF THE PROXIMITY SWITCH ASSEMBLY.

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2)BREAK REQUIREMENT
ALL SEVEN REED SWITCHES SHALL BE OPEN WHEN OUTER SURFACE OF MAGNET IS MOVED FROM THE CPB POSITION AND POSITIONED AT 4.0+-0.25 IN. FROM THE TOP SURFACE OF THE PROXIMITY SWITCH ASSEMBLY.

B. COMPUTER PHASE A REDUNDANT SWITCHES OPERATION-BOTH COMPUTER PHASE A SWITCHES SHALL BE SET TO CLOSE WITHIN 0.5 INCHES OF EACH OTHER AS MEASURED AT THE OUTER EDGE OF THE INNER SHIELD. SUBSEQUENT MEASUREMENT AFTER BONDING, THE SWITCHES SHALL CLOSE WITHIN 0.75 INCHES OF EACH OTHER AS MEASURED AT THE OUTER EDGE OF THE INNER SHIELD.

80A HF 4.5.9.2.7.3.8 BACKUP ACTUATOR OPERATIONAL REQUIREMENTS

THERE SHALL BE CONTINUITY THROUGH THE SEPARATION CONTINUITY LOOP WHEN THE INNER SHIELD IS IN THE PHASE B POSITION. THERE SHALL BE NO CONTINUITY WHEN THE INNER SHIELD IS 15 DEGREES OR MORE FROM THE PHASE B POSITION.

83A 4.5.9.2.7.4 LAUNCH REQUIREMENTS

THE BACK-UP ACTUATOR SHALL BE SET SO THAT IT MEETS THE FOLLOWING LAUNCH REQUIREMENTS AFTER ITS LAST TEST OPERATION HAS BEEN PERFORMED.

1. WITH THE INNER SHIELD IN THE CPB POSITION THE CLEARANCE BETWEEN THE BACK-UP ACTUATOR COUPLING AND THE INNER SHIELD COUPLING SHALL BE 0.035 INCHES MINIMUM.

2. THERE SHALL BE NO INTERFERENCE FROM THE BACK-UP ACTUATOR WHEN THE INNER SHIELD IS MOVED FROM THE CPA TO CPB POSITION AND FROM THE CPB TO CPA POSITION.

HF 4.5.9.2.7.5 ACTUATOR LIMITATION

THE PRIMARY AND BACKUP ACTUATORS SHALL NOT EXCEED A COMPLETE CYCLE (E.G., PHASE B TO PHASE A TO PHASE B) RATE GREATER THAN ONE PER MINUTE.

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H 4.5.9.3 ADDITIONAL ACCEPTANCE REQUIREMENTS

H A. GROSS TYPE SUBSYSTEM CHECK SHALL BE MADE TO VERIFY THAT THE ENVIRONMENTAL CONTROLLERS ACTUATE.

H B. ALL VEHICLE SURFACES WITH COATINGS FOR CONTROLLED ABSORPTIVE/ EMISSIVE PROPERTIES SHALL RECEIVE EXTREME CARE IN HANDLING.

HF 4.5.9.4 GENERAL REQUIREMENTS

A. THE RADIANT ENERGY SENSORS AND TEMPERATURE CONTROLLER ASSEMBLIES SHALL BE MATCHED SETS.

B. THERMAL SWITCHES ARE PRESET BY THE VENDOR. NO ADJUSTMENT OR ATTEMPT TO OPEN THEM IN ANY WAY SHALL BE MADE.

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HF 4.5.10 BACK-UP STABILIZATION SUBSYSTEM (BUSS)

HF 4.5.10.1 SUBSYSTEM FUNCTION

THE ABILITY OF BUSS TO STABILIZE THE SV, ORIENT THE SV ROLL AXIS TO THE LOCAL EARTH MAGNETIC VECTOR, AND TO INITIATE THE SRV DE-ORBIT SEQUENCE SHALL BE VERIFIED ONLY WHEN THE FOLLOWING REQUIREMENTS HAVE BEEN MET.

THE BUSS AXES DEFINITION AND PNEUMATIC VALVE ORIENTATION SHALL BE AS SHOWN IN FIGURE 4.5.10.1.

HF 4.5.10.2 DETAILED REQUIREMENTS

HF 4.5.10.2.1 BUSS PNEUMATICS
THE SUBSYSTEM TEMPERATURE SHALL NOT EXCEED 150 DEG. F OR GO BELOW 40 DEG F. THE BUSS PNEUMATIC THRUST VALVE SHALL NOT BE ENERGIZED WITHOUT GAS FLOW.

H A.PROOF PRESSURE - UPSTREAM THE BUSS PNEUMATICS UPSTREAM OF THE N/C SQUIB VALVE AND REGULATOR SHALL WITHSTAND A PROOF PRESSURE OF 4320 +- 20 PSIG. FOR 5 MINUTES. THE PRESSURIZING FLUID SHALL BE FREON 114.

F B. HIGH PRESSURE LEAKAGE - UPSTREAM (COMPONENTS UPSTREAM OF THE N/C SQUIB VALVE, INCLUDING FILL LINE TO SHUT-OFF SOLENOID VALVE). USING HELIUM/NITROGEN MIXTURE LEAKAGE SHALL NOT EXCEED 40 SCC/HOUR OF EQUIVALENT FREON 14 GAS AT A SYSTEM PRESSURE OF 2000 +- 40 PSIG, OR 100 SCC/HOUR AT 3500 +- 100 PSIG.

H B. HIGH PRESSURE LEAKAGE - UPSTREAM (COMPONENTS UPSTREAM OF THE N/C SQUIB VALVE,INCLUDING FILL LINE TO SHUT-OFF SOLENOID VALVE). NITROGEN GAS WITH HELIUM TRACER SHALL BE USED TO PRESSURIZE THE SYSTEM AT THE FILL VALVE TO 3500 +- 100 PSIG IN 500 PSIG INCREMENTS. TOTAL LEAKAGE UPSTREAM OF THE N/C VALVE SHALL BE LESS THAN 40.0 SCC/HOUR OF EQUIVALENT FREON 14 GAS. PRESSURE TRANSDUCER READINGS SHALL BE VERIFIED AGAINST THE INLET PRESSURE GAUGE READINGS AT FIVE EQUALLY SPACED TANK-PRESSURE READINGS DURING THE TEST.

H C. PROOF PRESSURE - DOWNSTREAM THE BUSS PNEUMATICS DOWNSTREAM OF THE REGULATOR SHALL WITHSTAND A PROOF PRESSURE OF 180 PSIG OR LOWER

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(DEPENDING UPON THE RELIEF-VALVE SET POINT IN THE REGULATOR.)PRESSURE UPSTREAM OF THE REGULATOR SHALL BE MAINTAINED EQUAL TO,OR GREATER THAN THE REGULATOR DOWNSTREAM PRESSURE AT ALL TIMES. THE PRESSURISING GAS SHALL BE NITROGEN.

HF D. LOW PRESSURE LEAKAGE - DOWNSTREAM WITH THE SYSTEM CHARGED THROUGH THE SECONDARY FILL VALVE, THE TOTAL LEAKAGE DOWNSTREAM OF THE N/C VALVE INCLUDING THE THRUST VALVES SHALL MEET EITHER OF THE FOLLOWING REQUIREMENTS

PRESSURE AT THE CHARGING VALUES.	MAX. LEAKAGE ALLOWABLE.
A. 1000 +- 100 PSIG.	2700 SCC/HOUR
B. 110 PSIG MIN.	20 PSIG/HOUR

WHENEVER A POSITIVE PRESSURE IN EXCESS OF 3600 PSIG IS APPLIED AT THE DOWNSTREAM SIDE OF THE N/C SQUIB VALVE (TEST POINT), THE SAME PRESSURE SHALL BE APPLIED AT THE PRIMARY FILL POINT FROM A PRESSURE SUPPLY THROUGH PARALLEL TUBING. SUBSYSTEM PRESSURE DOWNSTREAM OF THE REGULATOR SHALL ALWAYS BE VENTED VIA THE THRUST VALVES. BACK PRESSURE ACROSS THE REGULATOR BY DUMPING AT THE TEST POINT FIRST SHALL NOT BE PERMITTED.

H E. REGULATOR--THE INITIAL REGULATOR LOCK-UP PRESSURE SHALL BE 135 +-15 PSIG AND THE RATE OF PRESSURE RISE AFTER LOCK-UP SHALL NOT EXCEED 0.5 PSIG/MINUTE WHEN PRESSURIZED WITH NITROGEN GAS AT 1500 +- 100 PSIG

H F. PURGE REQUIREMENTS--THE BUSS PNEUMATICS SHALL BE PURGED (CLEANED) AND SAMPLED AFTER EACH PRESSURE TEST. CLEAN DRY GAS AS SPECIFIED IN PARAGRAPH 4.5.5.3.4A AND FIRST PARAGRAPH OF 4.5.5.3.4B SHALL BE UTILIZED FOR CLEANING AND SAMPLING OPERATIONS. THE TIME OF FLUSHING FOR EACH VALVE (VALVES 1 TO 6) AT RATED FLOW (RATED REGULATOR LOCK-UP PRESSURE) SHALL BE 60 SECONDS WITH FOUR 15-SECOND BURSTS.

H G. CONTAMINATION REQUIREMENTS--THE BUSS PNEUMATICS, CONTAMINATION FOR 10 CUBIC FEET OF GAS THROUGH EACH NOZZLE AT RATED FLOW, SHALL MEET THE REQUIREMENTS OF TABLE 4.5.10.2.1

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TABLE 4.5.10.2.1 PARTICLE COUNT LIMITS FOR BUSS

MAXIMUM COUNT METALLIC/ NONMETALLIC)	PARTICLE SIZE (MICRONS) EQUAL TO OR GREATER THAN					
ITEM	0	26	51	101	151	350
AVERAGE (ALL NOZZLES)	UNLIMITED	33/415	13/115	3/15	1/0	0/0
INDIVIDUAL NOZZLES	UNLIMITED	59/415	29/115	9/15	3/0	0/0

80A HF 4.5.10.2.2 BUSS COMMAND SUB-SYSTEM REQUIREMENTS

88 HF 4.5.10.2.2.1 ZEKE COMMAND OPERATIONAL REQUIREMENTS

HF A. THE BUSS RECEIVER FREQUENCY SHALL BE 137.64 M. C. +- 0.01 PERCENT.

HF B.THE BUSS ANTENNA SHALL OPERATE AT A NOMINAL CENTER FREQUENCY OF 137.64 M. C. THE V.S.W.R. (IN RESPECT TO 50 OHMS) SHALL BE LESS THAN 2 TO 1 OVER A BANDWIDTH OF +- ONE (1) M. C.

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HF C. THE ZEKE COMMAND STRUCTURE AND OPERATION SHALL BE VERIFIED TO BE

1) UNSECURE COMMANDS

COMMAND	TONE FIRST	TONE SECOND	RESULT
ZEKE 26	E (4.9 K.C.)	G (5.3 K.C.)	ENABLE S.A. J BOX FOR THE UNSECURE COMMAND.
ZEKE 23	F (5.1 K.C.)	G (5.3 K.C.)	MODE 1 ARM BUSS REAL TIME
ZEKE 21	G (5.3 K.C.)	E (4.9 K.C.)	MODE 2 ARM BUSS NEXT STATION
ZEKE 22	G (5.3 K.C.)	F (5.1 K.C.)	MODE 3 ARM BUSS NEXT ORBIT
ZEKE 24	F (5.1 K.C.)	E (4.9 K.C.)	MODE 5 ARM BUSS REAL TIME NO GAS
ZEKE 25	E (4.9 K.C.)	F (5.1 K.C.)	MODE 6 BUSS MODE DETERMINATION

2) SECURE COMMANDS

COMMAND	TONE	RESULT
ZEKE 31 OR 32	A (4.3 K.C.)	APPLY POWER TO TYPE IX DECODER
	B (4.1 K.C.)	LOGICAL 1
	C (4.5 K.C.)	LOGICAL 0
	D (4.7 K.C.)	RESETS STORAGE REG. IN THE TYPE IX DECODER.
ABE	STORED COMMAND	ENABLE BUX TO BE EXECUTED
BUX	STORED COMMAND	EXECUTE MODE 4 (BUSS REMOTE EXECUTE.)

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F D. ALL BUSS SYSTEM TESTS SHALL BE CONDUCTED AT 23.5 TO 29.5 VDC.

H E. THE CAPABILITY OF THE BUSS SYSTEM TO PROPERLY EXECUTE ALL OF ITS FUNCTIONS AT LESS THAN 24.0 VDC MEASURED AT THE SUB-SYSTEM VOLTAGE BUS UNDER LOAD SHALL BE VERIFIED.

HF F. A ZEKE 26 ADDRESS COMMAND SHALL ENABLE THE BUS SUB-SYSTEM TO RECEIVE A ZEKE 21, 22, 23, 24, OR 25 UNSECURE COMMAND WHEN THE ZEKE 26 TRANSMISSION STARTS 3.8 SECONDS OR LESS, PRIOR TO THE TRANSMISSION OF THE OTHER UNSECURE COMMANDS.

HF G. A ZEKE 26 ADDRESS COMMAND SHALL NOT ENABLE THE BUSS SUB-SYSTEM TO RECEIVE A ZEKE 21, 22, 23, 24, OR 25 UNSECURE COMMAND WHEN ITS TRANSMISSION STARTS NINE (9) SECONDS OR MORE, PRIOR TO THE TRANSMISSION OF AN UNSECURE COMMAND.

HF H. THE SV SHALL NOT RESPOND TO A ZEKE 21, 22, 23, 24, OR 25 UNSECURE COMMAND WHEN THAT COMMAND IS PRECEDED BY ANY COMMAND OTHER THAN A ZEKE 26

HF I. A ZEKE 25 COMMAND WHEN PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND SHALL HAVE NO EFFECT WHEN THE BUSS SUB-SYSTEM IS IN THE RESET MODE OR WHEN THE TWENTY (20) MINUTE TIMER (A TIMER) HAS TIMED OUT.

HF J. AFTER THE BUSS SUB-SYSTEM HAS BEEN ENERGIZED IN AN APPROPRIATE MODE AND A KIK ZEKE 31 OR REMOTE EXECUTE COMMAND HAS BEEN EXECUTED, TRANSMISSION OF AN UNSECURE COMMAND PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND, PRIOR TO THE TIME OUT OF THE B TIMER SHALL NOT ALTER THE ORIGINAL STATUS OF THE BUSS SUB-SYSTEM.

88 HF K. AFTER THE B TIMER TM ON EVENT (T3, T6, OR T9 REFERENCE TABLE 4.5.10.2.2.3), A PRIMARY COMMAND TO TERMINATE TELEMETRY TRANSMISSION OR ANY POWER CONTROLLER TIMER ACTION TO TERMINATE TLM TRANSMISSION SHALL HAVE NO EFFECT UNTIL THE A TIMER HAS TIMED OUT.

HF L. WHEN THE ACA OFF/BUSS ENABLE (ABE) COMMAND IS IN THE DISABLE STATE A BUSS REMOTE EXECUTE (PRIMARY) COMMAND (BUX) SHALL HAVE NO EFFECT.

HF M. AN ABE ENABLE COMMAND SHALL NOT OF ITSELF CAUSE THE BUSS S/S TO EXECUTE.

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HF N. A KIK ZEKE 31 COMMAND TRANSMITTED 30 SECONDS OR MORE AFTER A PREVIOUS KIK ZEKE 31 COMMAND AND PRIOR TO THE TIME OUT OF THE B TIMER SHALL HAVE NO EFFECT.

HF O. TIME OUT OF THE B TIMER SHALL RE-ENABLE THE BUSS COMMAND SUB-SYSTEM.

83A 4.5.10.2.2.2 UNSECURE COMMAND REQUIREMENTS

HF A. A ZEKE 21, 22, 23, OR 24 UNSECURE COMMAND WHEN PROCEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND SHALL.

1) SET THE BUSS SUB-SYSTEM IN THE APPROPRIATE MODE AND INITIATE THE A TIMER.

2) APPLY POWER TO THE BUSS RATE GYRO, THE FLIGHT CONTROL ELECTRONICS, BUSS GAS PRESSURE TRANSDUCER, AND THE MAGNETOMETER FOR TWENTY (20) +- 0.5 MINUTES.

83A 3) INITIATE THE VERLORT BEACON, THE ORBITAL REAL TIME SCO S BASES, DELTA TWO (2) AND DELTA THREE (3) TRANSMITTERS. RESET THE POWER CONTROLLER TIMER AND TURN THE RECORDER PLAYBACK OFF.

83A 4) THE SV TELEMETRY (DELTA 2 AND 3) AND THE VERLORT BEACON SHALL TURN OFF AFTER THE POWER CONTROLLER TIMER TIMES OUT.

5) EACH SUBSEQUENT ZEKE 21, 22, 23, OR 24 UNSECURE COMMAND WHEN PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND SHALL REINITIALIZE THE EVENTS DELINEATED IN ITEMS 1 THRU 4 ABOVE.

HF B. A ZEKE 25 COMMAND, WHEN PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND, AFTER THE EXECUTION OF A ZEKE 21, 22, 23, OR 24 UNSECURE COMMAND PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND SHALL.

1) ENERGIZE THE R/V TELEMETRY FOR 20 +- 0.5 MINUTES. THIS TIME MEASURED FROM THE TIME OF EXECUTION OF THE ZEKE 21, 22, 23, OR 24 COMMAND.

2) INDICATE, VIA TELEMETRY, (APPENDIX C) THE APPROPRIATE BUSS MODE AS PREVIOUSLY SELECTED BY THE UNSECURE COMMAND TRANSMITTED TO ENABLE EXECUTION OF THE ZEKE 26 AND THE ZEKE 25 SEQUENCE.

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83A 4.5.10.2.2.3 SECURE COMMAND REQUIREMENTS

H A. DURING THE TRANSMISSION OF THE -A- TONE (4.3 K.C.), THE OUTPUT OF THE TYPE VIII DECODER SHALL BE DISABLED AND THE TYPE IX DECODER IS ENABLED.

HF B. KIK ZEKE 32 REQUIREMENTS

1) A KIK ZEKE 32 COMMAND SHALL TURN ON THE PPD IN THE PRIMARY COMMAND SUB•SYSTEM.

2) EACH EXECUTION OF A ZEKE 32 COMMAND SHALL ADVANCE THE SECURE COUNT BY ONE COUNT.

3) THE BUSS SUB-SYSTEM SHALL EXECUTE SUCCESSIVE KIK ZEKE 32 COMMANDS WHEN SUCH COMMANDS ARE TRANSMITTED AT LEAST THIRTY (30) SECONDS APART.

4) ZEKE 21, 22, 23, 24, OR 25 UNSECURE COMMANDS, PRECEDED BY A PROPERLY SPACED ZEKE 26 ADDRESS COMMAND SHALL BE EXECUTED WHEN THEY ARE SENT AFTER A KIK ZEKE 32 SECURE COMMAND AND THE BUSS SUB-SYSTEM HAS NOT YET BEEN RESET.

HF C. KIK ZEKE 31 REQUIREMENTS
A KIK ZEKE 31 COMMAND SHALL EXECUTE A SERIES OF EVENTS, AS DEFINED IN TABLE 4.5.10.2.2.3.

HF D. BUSS REMOTE EXECUTE COMMAND REQUIREMENTS
A BUX COMMAND SHALL EXECUTE BUSS MODE 4 SERIES OF EVENTS AS DEFINED IN TABLE 4.5.10.2.2.3 WHEN THE ABE COMMAND IS IN THE ENABLE STATE.

E. BUSS TIMER REQUIREMENT

83A HF THE BUSS TIMER SHALL BE OPERATED AT LEAST ONCE AT NORMAL SPEED (TIME ONE MODE) IN ANY ONE OF THE BUSS MODES, AND MUST MEET THE TIME REQUIREMENT OF TABLE 4.3.10.2.2.3. ANY OTHER TIME,THE BUSS TIMER MAY BE OPERATED IN THE TIMES TEN MODE WHEN THE TIME BETWEEN EVENTS IS 1000 SECONDS OR MORE. IN THIS MODE OF OPERATION (X10), THE TIME AT WHICH EVENTS OCCUR SHALL BE WITHIN +- 10 SECONDS OF TRANSPOSED EVENT TIME BUT TIME BETWEEN T1 THRU T5, T6 THRU T8 AND T9 THRU T11 SHALL BE +- 0.1 PERCENT OR 0.5 SECONDS, WHICHEVER IS GREATER.

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TABLE 4.5.10.2.2.3 BUSS MODES AND TIMER EVENTS

	BUSS MODE.		1(BRT)	2(BNO)	3(BTO)	4(BREX)	5(BRTNG)
	EXECUTE CMD.		KIK ZEKE31	KIK ZEKE31	KIK ZEKE31	ABE+ BUX+	KIK ZEKE31
	EVENT TIME SEC	TIME BETW EV.SEC					
T0	0		BUSS SEP CMD-1 INITIATE -B-TIMER DIS PRIM PNEU.	BUSS SEP CMD-1 INITIATE -B-TIMER DIS PRIM PNEU.	BUSS SEP CMD-1 INITIATE -B-TIMER DIS PRIM PNEU.	BUSS SEP CMD-1 INITIATE -B-TIMER DIS PRIM PNEU.	BUSS SEP CMD-1 INITIATE -B-TIMER
		2 +-0.5					
T1	2+-0.5		BUSS SEP CMD-2	BUSS SEP CMD-2	BUSS SEP CMD-2	BUSS SEP CMD-2	BUSS SEP CMD-2
		2 +-0.5					
T2	4+-0.5		BUSS SEP CMD-3 BUSS 1C-24 OFF	BUSS SEP CMD-3 BUSS 1C-24 OFF	BUSS SEP CMD-3 BUSS 1C-24 OFF	BUSS SEP CMD-3 BUSS 1C-24 OFF	BUSS SEP CMD-3 BUSS 1C-24 OFF
		2 +-0.5					

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TABLE 4.5.10.2.2.3 BUSS MODES AND TIMER EVENTS CONTINUED

	BUSS MODE.		1(BRT)	2(BNO)	3(BTO)	4(BREX)	5(BRTNG)
	EXECUTE CMD.		KIK ZEKE31	KIK ZEKE31	KIK ZEKE31	ABE+ BUX+	KIK ZEKE31
	EVENT TIME SEC	TIME BETW EV.SEC					
T3	6+-0.5		INITIATE- -A-TIMER INIT-TM. ENAB BUSS PNEU. BUSS SEP CMD-4			INITIATE- -A-TIMER INIT-TM ENAB BUSS PNEU. BUSS SEP CMD-4	INITIATE- -ATIMER INIT-TM BUSS SEP CMD-4
		99.5 +-0.5					
T4	105.5 +-0.5		BUSS SEP CMD-5			BUSS SEP CMD-5	BUSS SEP CMD-5
		2.5 +-0.5					
T5	108 +-0.5		BUSS SEP CMD-6			BUSS SEP CMD-6	BUSS SEP CMD-6
		383 +-0.5					

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88 HF TABLE 4.5.10.2.2.3 BUSS MODES AND TIMER EVENTS CONTINUED

	BUSS MODE.		1(BRT)	2(BNO)	3(BTO)	4(BREX)	5(BRTNG)
	EXECUTE CMD.		KIK ZEKE31	KIK ZEKE31	KIK ZEKE31	ABE+ BUX+	KIK ZEKE31
	EVENT TIME SEC	TIME BETW EV. SEC					
T6	491 +-0.5			INITIATE -A-TIMER INIT-TM. ENAB BUSS PNEU BUSS SEP CMD-4			
		99.5 +-0.5					
T7	590.5 +-0.6			BUSS SEP CMD-5			
		2.5 +-0.5					
T8	593 +-0.6			BUSS SEP CMD-6			
88		4505 +-5.0					

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TABLE 4.5.10.2.2.3 BUSS MODES AND TIMER EVENTS CONTINUED

	BUSS MODE.	1(BRT)	2(BNO)	3(BTO)	4(BREX)	5(BRTNG)
	EXECUTE CMD.	KIK ZEKE31	KIK ZEKE31	KIK ZEKE31	ABE+ BUX+	KIK ZEKE31
EVENT TIME SEC	TIME BETW EV. SEC					
T9 5098 +-5.1				INITIATE -A-TIMER INIT-TM. ENAB BUSS PNEU BUSS SEP CMD-4		
	99.5 +-0.5					
T10 5197.5 +-5.2				BUSS SEP CMD-5		
	2.5 +-0.5					
T11 5200 +-5.2				BUSS SEP CMD-6		
	600 +-1.0					
T12 5800 +-5.8		BUSS-J-BOX RESET. ENABLE BUSS-CMD.	BUSS-J-BOX RESET. ENABLE BUSS-CMD.	BUSS-J-BOX RESET. ENABLE BUSS-CMD.	BUSS-J-BOX RESET. ENABLE BUSS-CMD.	BUSS-J-BOX RESET. ENABLE BUSS-CMD.

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HF 4.5.10.2.3 BUSS ATTITUDE CONTROL REQUIREMENTS

H SUBSYSTEM TESTS SHALL BE CONDUCTED AT 23.5 VDC, MEASURED AT THE SUBSYSTEM 28-V BUS UNDER LOAD.

F ALL TESTS SHALL BE CONDUCTED AT 23 TO 29.5 VDC, MEASURED AT THE SUB-SYSTEM 28-VOLT BUS.

H A. SUBSYSTEM POLARITY AND GAIN

1. P CHANNEL NULL GAIN WITH A TRIANGULAR WAVE INPUT PER FIGURE 4.5.10.2.3-1 INTO THE P CHANNEL, AND A CONSTANT 0 VDC (+0.04,-0) INTO THE R CHANNEL, THE CONDITIONS OF FIGURE 4.5.10.2.3-1 SHALL BE MET.

2. Q CHANNEL NULL GAIN WITH A TRIANGULAR WAVE INPUT PER FIGURE 4.5.10.2.3-2 INTO THE Q CHANNEL AND A CONSTANT 0 VDC (+0.04 -0) INTO THE R CHANNEL, THE CONDITIONS OF FIGURE 4.5.10.2.3-2 SHALL BE MET.

H B. RATE GAIN AND ATTITUDE LIMITS

1) MAGNETIC FIELD SIMULATION-- THE MAGNETOMETER SHALL BE MOUNTED IN A SINUSOIDALLY VARYING MAGNETIC FIELD WITH ITS P AXIS SENSOR COLINEAR WITH THE MAGNETIC FIELD. FOR THESE TESTS, THE THRUST VALVES SHALL BE SIMULATED BY APPROPRIATE IMPEDANCES. THE MAGNETIC FIELD SHALL BE SET AT A PEAK AMPLITUDE OF 550+-5 MILLIGAUSS VARYING SINUSOIDALLY AT A RATE OF 5.0+-0.25 DEGREES/SECOND. THE SIMULATED VALVES SHALL OPERATE PER FIGURE 4.5.10.2.3-3 FOR A POSITIVE SIMULATED R MAGNETOMETER OF 0.00 (+0.04,-0.00) VDC, AND PER FIGURE 4.5.10.2.3-4 FOR A NEGATIVE SIMULATED R MAGNETOMETER SIGNAL OF -0.26 +-0.04 VDC. THE MAGNETIC FIELD MAGNETOMETER OUTPUTS AND SIMULATED VALVE COMMAND SIGNALS SHALL BE RECORDED, AS WELL AS VALVE AND MAGNETOMETER TELEMETRY SIGNALS. THE Q AXIS SENSOR SHALL MEET THIS SAME REQUIREMENT.

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H 2. R MAGNETOMETER SWITCHING REQUIREMENT-- THE MAGNETOMETER SHALL BE MOUNTED IN A SINUSOIDALLY VARYING MAGNETIC FIELD WITH ITS R AXIS SENSOR COLINEAR WITH THE MAGNETIC FIELD. THE MAGNETIC FIELD SHALL BE SET AT A PEAK AMPLITUDE OF 550+-5 MILLIGAUSS VARYING SINUSOIDALLY. IT SHALL BE VERIFIED THAT THE P AND Q RATE SIGNALS CHANGE POLARITY AT 93.5+-3.5 DEGREES AND AT 266.5+-3.5 DEGREES WHERE 0 DEGREE IS AT 550+-5 MILLIGAUSS (PEAK VALUE OF THE MAGNETIC FIELD).

H C. ROLL RATE CONTROL-- THE ROLL RATE CONTROL CHANNEL SHALL BE CHECKED FOR RATE THRESHOLD, POLARITY, AND HYSTERESIS. WITH THE GYRO CW ARROW INDICATING A CW (CLOCKWISE) ROTATION,THE GYRO SHALL MEET THE FOLLOWING REQUIREMENTS

1. ROLL RATE THRESHOLD

CW = +0.84+-0.59 DEGREES/SECOND.

CCW = -0.84+-0.59 DEGREE/SECOND.

2. ROTATION CW (POSITIVE RATE) CONTROL VALVE 6 ON.

3. ROTATION CCW (NEGATIVE RATE) CONTROL VALVE 5 ON.

HF D. ROLL RATE CONTROL FUNCTIONAL REQUIREMENT--ROLL RATE GYROS WHEN INSTALLED IN THE VEHICLE SHALL MEET THE FOLLOWING REQUIREMENTS

1)VEHICLE ROTATION CLOCKWISE (CW) SHALL CONTROL VALVE 5 ON.

2)VEHICLE ROTATION COUNTERCLOCKWISE (CCW) SHALL CONTROL VALVE 6 ON.

H E. ROLL CONTROL CHANNEL HYSTERESIS. WITH THE ROLL RATE INCREASED TO 7 DEGREES/SECOND FOR CW RATE AND THEN SLOWLY DECREASED TOWARD A RATE OF ZERO, THE VALVE ON COMMAND SHALL DISAPPEAR AT +0.84+-0.59 DEGREES/SECOND. WITH THE ROLL RATE INCREASED TO -7 DEG. PER SECOND FOR CCW RATE, AND THEN SLOWLY DECREASED TOWARD A RATE OF ZERO, THE VALUE ON COMMAND SHALL DISAPPEAR AT -0.84 +-0.59 DEGREES PER SECOND

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F F. MAGNETOMETER COMPENSATION--THE MAGNETOMETER SHALL BE COMPENSATED IN ALL THREE AXIS SUCH THAT WHEN THE ASSEMBLED VEHICLE IS POSITIONED FOR THE P, Q, OR R SENSOR TO GIVE A NULL (SENSOR PERPENDICULAR TO THE AMBIENT MAGNETIC FIELD), THE FOLLOWING REQUIREMENTS SHALL BE MET

P-SENSOR SIGNAL TO BIAS 0 +- 0.120 VDC.

Q-SENSOR SIGNAL TO BIAS 0 +- 0.120 VDC.

R-SENSOR SIGNAL TO BIAS 0 +- 0.120 VDC.

F G. END-TO-END POSITION AND PHASING REQUIREMENTS--SOLENOID VALVE SIMULATORS SHALL BE USED FOR THIS TEST

VERIFY THAT WHEN THE POSITIVE ROLL AXIS OF THE VEHICLE IS DISPLACED FROM A MAGNETIC NORTH HEADING, THE APPROPRIATE VALVE OPERATIONS OCCUR THAT WOULD KEEP THE VEHICLE IN A MAGNETIC NORTH HEADING. THE VALVES SHALL INDICATE ON BEFORE THE DISPLACEMENT ANGLE EXCEEDS 15.3 DEGREES. THE VALVES SHALL INDICATE OFF BEFORE THE DISPLACEMENT ANGLE BECOMES LESS THAN 6.5 DEGREES. THE ON-OFF OPERATION OF VALVES 1, 2, 3, AND 4 SHALL BE VERIFIED.

WHEN THE VEHICLE IS POSITIONED WITH THE POSITIVE ROLL AXIS POINTING SOUTH (180 DEGREES) AND VALVE 1 IS UP, UPON A SLOW ROTATION OF THE VEHICLE AT A CONSTANT RATE FROM SOUTH TO NORTH IN A CLOCKWISE DIRECTION, (1) VALVE 4 SHALL INDICATE ON BETWEEN 180 DEGREES AND 270 DEGREES, (2) BETWEEN 270 DEGREES AND 360 DEGREES, VALVE 4 SHALL INDICATE OFF AND VALVE 2 SHALL INDICATE ON.

WHEN THE VEHICLE IS POSITIONED WITH THE POSITIVE ROLL AXIS POINTING SOUTH (180 DEGREES) AND VALVE 2 IS UP, UPON A SLOW ROTATION OF THE VEHICLE AT A CONSTANT RATE FROM SOUTH TO NORTH IN A CLOCKWISE DIRECTION, (1) VALVE 1 SHALL INDICATE ON BETWEEN 180 DEGREES AND 270 DEGREES, (2) BETWEEN 270 DEGREES AND 360 DEGREES, VALVE 1 SHALL INDICATE OFF AND VALVE 3 SHALL INDICATE ON.

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88 HF 4.5.10.2.4 BUSS SV INTERFACE REQUIREMENTS

HF A. A ZEKE 21, 22, 23, 24, OR 25 UNSECURE COMMAND WHEN PRECEDED BY A PROPERLY SPACED ZEKE 26 COMMAND SHALL NOT INTERFERE WITH THE OPERATION OF THE PRIMARY COMMAND SUBSYSTEM.

HF B. A ZEKE 21, 22, 23, OR 24 UNSECURE COMMAND WHEN PROCEDED BY A PROPERLY SPACED ZEKE 26 COMMAND SHALL.

1)INITIATE BUSS STATUS TRANSMISSION.

2)TURN THE RECORDER PLAYBACK OFF.

3)HAVE NO EFFECT ON THE RECORDER WHEN THE RECORDER IS IN THE RECORD MODE. ANY ADDITIONAL NOISE ON THE RECORDED TLM CHANNELS CAUSED BY THIS EVENT SHALL NOT BE CONSIDERED AN ANOMALY.

HF C.THE BUSS VOLTAGE STEPDOWN MODULE SHALL REDUCE THE VOLTAGE TO THE BUSS S/S TO WITHIN 23 TO 29.5 VDC WHEN THE PRIMARY BUS VOLTAGE IS WITHIN 26 TO 33 VDC EXCEPT WHEN ONLY THE BUSS TIMER, DECODER TYPE VIII, TYPE V AND RECEIVER ARE ON, IN WHICH CASE THE STEPDOWN MODULE SHALL REDUCE THE VOLTAGE TO 31 VDC OR LESS.

88 HF D. THE BUSS VOLTAGE STEPDOWN MODULE SHALL BE BYPASSED BY
1) REAL TIME COMMAND SIX (RTC 6)
2) A ZEKE 26-21, -22, -23 OR -24 COMMAND WHEN THE SV IS IN THE BUSS MODE 6 (BMD) MODE.

HF E. THE VOLTAGE STEPDOWN MODULE SHALL NOT BE BYPASSED WHEN THE SV POWER BUSS IS GREATER THAN 29.5 VDC.

HF F. WHEN THE TELEMETRY IS COMMANDED ON IN THE REAL TIME MODE AND THE PLAYBACK RECORDER IS OFF, THE MAGNETOMETER, FLIGHT CONTROL ELECTRONICS AND THE BUSS GAS PRESSURE TRANSDUCER SHALL BE POWERED UNTIL THE SIX (6) MINUTE TIMER TIMES OUT OR REAL-TIME TELEMETRY IS COMMANDED OFF.

HF G. THE BUSS TELEMETRY RESPONSE SHALL BE IN ACCORDANCE WITH APPENDIX C.

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HF H. THE BUSS OPERATIONAL HEATERS AND THERMOSTATS SHALL BE FUNCTIONALLY CHECKED.

HF I. THE BUSS/SEPARATION INTERFACE SHALL MEET THE FOLLOWING REQUIREMENTS.

1) SV SEPARATION COMMAND 2 IN ADDITION TO THE REQUIREMENT DEFINED IN TABLE 4.5.4.2.4 SHALL CAUSE THE FOLLOWING FUNCTIONS TO OCCUR ONLY WHEN THE BAROSWITCH IS CLOSED OR ELECTRICALLY BYPASSED.

FUNCTIONS	TIME AFTER EXECUTION OF SV PRIMARY SEPARATION COMMAND 2
FIRE MAG. FAIRING SQUIB NO. 2	15 TO 28 SECONDS
FIRE ANTENNA FAIRING NO. 2	15 TO 28 SECONDS
FIRE MAG. FAIRING SQUIB NO. 1	34 TO 60 SECONDS
FIRE ANTENNA SQUIB NO. 1	34 TO 60 SECONDS

2) THE BUSS SEPARATION COMMANDS (TABLE 4.5.10.2.2.3) SHALL BE OF CONSTANT AMPLITUDE AND DURATION AND MEET THE FOLLOWING REQUIREMENTS

88 A. BUSS SEPARATION COMMAND SHALL OPERATE 1-C-24 (+) AND 1-C-25(-)

88 B. BUSS SEPARATION COMMAND 2 THRU 6 SHALL EXECUTE SV PRIMARY SEP. COMMAND AS DEFINED IN TABLE 4.5.4.2.4.

HF J. THE ABILITY TO COMMAND THE SV THROUGH THE PRIMARY COMMAND S/S, WHEN THE PRIMARY COMMAND S/S HAS BEEN COMMANDED ON BY BUSS, SHALL BE VERIFIED.

HF K. A TM OFF COMMAND OR AGE HARDWIRE MANUAL INITIALIZE COMMAND SHALL TURN OFF BUSS MODE 6.

86 HF 4.5.11 FLIGHT EXPERIMENT

NO REQUIREMENT

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88 H 4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS

THE SV SHALL MEET THE FOLLOWING E.M.I. REQUIREMENTS.

A. MONITOR POINTS AND MAXIMUM ALLOWABLE LEVELS SHALL MEET THE FOLLOWING REQUIREMENTS.

NOTE
THESE SYMBOLS REPRESENT THEIR USE IN THIS PARAGRAPH.

* INDICATES MORE THAN

** INDICATES LESS THAN

*= INDICATES EQUAL TO OR MORE THAN

**= INDICATES EQUAL TO OR LESS THAN

$ INDICATES LOWER CASE LETTER
(EXAMPLE T$ = SMALL T)

MONITOR POINT	MAXIMUM ALLOWABLE LEVEL	
	AMPLITUDE	FREQ. OR DURATION
+6V SWITCHES, COMMAND DECODER P375 +J, RET. P	A) 200 MV.P/P	10KC
	B) +3V.P.,	1 USEC.
	C) -3V.P.,	1 USEC.
	D) BUSS DIP 1VP,	1 USEC.
-6V SWITCHES, COMMAND DECODER, P375 +K, RET. P.	A) *2V P/P,	AUDIO
	B) +5V.P.,	1 USEC.
	C) -5V.P.,	1 USEC.
	D) BUS DIP. 1VP,	1 MSEC.
+6V CONTINUOUS, COMMAND DECODER, P375, +S RET. P	A) 2.0V P/P	AUDIO
	B) +1.05 VP	0.2 USEC
	C) -1.05 VP	0.2 USEC

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88 H 4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)

MONITOR POINT	MAXIMUM ALLOWABLE LEVEL AMPLITUDE	FREQ. OR DURATION
-6V CONTINUOUS, COMMAND DECODER, P375, +T, RET. P	A) 1.8V P/P B) +1.75V*= C)-1.6V*=	RF .2 USEC. PULSE .2 USEC. PULSE
+28V,CMD PROG P367 + M RET K	A) +35V B) -25V C) BUS DIP 10V	4 USEC 10 MSEC 5 MSEC
CLOCK HOLD, COMMAND PROGRAMMER P367, +BB, RET. K$	A.+10 V. B.-10V	5 MSEC 5 MSEC
ACCEPT AT COMMD. PROGRAMMER, P368, +B$, RET. X$	A.+0.5V.P., B.)-0.5V	1 USEC. PULSE 1 USEC. PULSE
+28V,PWR. CONTR. P408 + R VET. P	A	
+ 28V,6VDC PWR.SUPPLY P410 + S RET C	A)0.5 VRMS B) + 25V C) -7.5V	15 KC-50KC 10 USEC 5 USEC
-6V, PPD P350, +B RET. C	A) 400 MV RMS B) 175 MV RMS C) 300 MV P/P D) 450 MV P/P	400 KC 4 KC 60 CPS - 5 KC 5 KC - 15 KC
AC DISPOSABLE,RACA P970 + E RET T$	A) +3V B)12.5V C)-10V	1 MSEC PULSE .1 MSEC PULSE 1 MSEC

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88 H 4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)

MONITOR POINT	MAXIMUM ALLOWABLE LEVEL	
	AMPLITUDE	FREQ. OR DURATION
-10V.RACA P970 + H RET K	A)0.5 VRMS B)210 M VRMS C) 1V PK-PK	12 MC 7MC AUDIO
+28V.STAB.DC PWR SUP. P1010A+D RET E	A.11 VRMS B)1 VRMS	15 KC-50KC AUDIO
+26V SCANNER P1009 + F$ RET Y$	A)400 M VRMS B)100 M VRMS C)+ 7.5 V D) -5V	560 KC-40MC 18-20 MC 1 USEC PULSE 1 USEC PULSE
400 CPS PWR. SCANNER P1506+A RET B (FLTG)	A) 0.5 VRMS B)300M VRMS.	14MC,33MC 240KC - 4MC
+28V.SEP.CONTR. P760 + T$ RET E$	A)+25V B)-87.5V	10 VSEC 10 USEC
1C15 P1497 + S$ RET P$1499J$	A) + 5V B) 2.1V C)0.5V D)+400 MV E) -2.5 V	.8 MSEC PULSE 2 MSEC PULSE 16 MSEC PULSE CONTINUOUSLY .1 USEC PULSE
1C21A P1499+W RET Y$	A) +20V B) +10V C)+5V D)4V	1 MSEC PULSE 2 MSEC PULSE 4 MSEC PULSE CONTINUOUSLY

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88 H 4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)

MONITOR POINT	MAXIMUM ALLOWABLE LEVEL	
	AMPLITUDE	FREQ. OR DURATION
+28V, LOW I PIG CONTROLLER P2101, + H RET.J$	A) +25V B) -15V	4 MSEC PULSE 3 MSEC PULSE
+28V BUSS S/S P1931, + U RET. N	A)+25V B)-7.5V	10 USEC,PULSE 4 USEC.PULSE
BUS S REMOTE EXECUTE P1931, + F, RET. N	A)+5V B)-5V	5 MSEC. 5 MSEC
RTC 10,REDUND.PNEU. P1036+H $ RET A	A)+25V B)-12.5V	10 USEC 10 USEC
+28V,REDUND.PNEU. P1036+A RET B	A)+30V B)-12.5V	
+28V,30X5 MULTIPLEX P124+19 RET 37		
+28V, SERVICE FUNCT. POWER SUPPLY P401 + G RET V		

B. GROUND STATION MONITORING SHALL BE CONTINUOUS FOR THE FOLLOWING ITEMS TO VERIFY THAT THE SYSTEM IS OPERATIONAL

1. ACCEPT/REJECT
2. LINE FULL MONITORS
3. PPD COUNT
4. WORD STORAGE LINE MONITOR

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C. THE S.V. SYSTEM SHALL BE IN THE FOLLOWING CONFIGURATION AND THE FOLLOWING AGE UTILIZED FOR THIS E.M.I. TEST

1. ALL VEHICLE SECTIONS ELECTRICALLY MATED

2. AIR LINK T/M

3. PYRO SIMULATED

4. BATTERY POWER SUPPLIED THROUGH BATTERY WELL DOORS/AGE CABLING

5. STAB AND BUSS GAS
SOLENOID VALVE SHALL BE ELECTRICALLY MATED.

6. BUSS/SEP BACK UP BATTERY SHALL BE ELECTRICALLY SIMULATED

7. G.F.E.

D. INSTRUMENTATION AND CALIBRATION

1. TEST CABLE LENGTHS SHALL BE MINIMIZED

2. EACH TEST CABLE SHALL BE ELECTRICALLY ISOLATED

3. ALL MONITORING EQUIPMENT INPUT CIRCUITS SHALL BE ELECTRICALLY ISOLATED.

4. TRANSIENTS DETECTORS SHALL UTILIZE AC POWER LINE FILTERS.

5. AC POWER TO OSCILLOSCOPES, TRANSIENT DETECTORS AND RECORDERS SHALL BE UNGROUNDED.

6. A CALIBRATION CHECK SHALL BE RUN ON ALL INSTRUMENTATION EVERY TWELVE (12) HOURS. CALIBRATION RECORDS SHALL BECOME A PART OF THE DATA PACKAGE. TEST CABLES, PROBES, ETC. SHALL BE CONSIDERED PART OF THE MONITORING EQUIPMENT AND SHALL BE INCLUDED IN EVERY CALIBRATION CHECK.

7. NOISE LEVELS THAT APPROACH OR EXCEED THE MAX ALLOWABLE LEVEL OF A MONITOR POINT SHALL BE RECORDED VIA OSCILLOSCOPE PHOTOGRAPH.

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HF 4.6 SV SYSTEM ACCEPTANCE REQUIREMENT

HF 4.6.1 SYSTEM TEST REQUIREMENTS

HF 4.6.1.1 INTEGRATED SYSTEM TEST REQUIREMENTS

HF THE TEST REQUIREMENTS GIVEN IN THE FOLLOWING PARAGRAPHS SHALL BE MET TO ASSURE THAT THE SUBSYSTEMS WILL PERFORM SUCCESSFULLY AS AN INTEGRATED SYSTEM. SIMULATORS SHALL BE USED IN PLACE OF ONE-SHOT DEVICES. THE INTEGRATED SYSTEM TESTS SHALL REPRESENT THE SEQUENCE OF OPERATION FOR THE VEHICLE FROM LAUNCH THROUGH RECOVERY. THIS TEST, PRIOR TO BEING PERFORMED, SHALL BE FULLY INTEGRATED WITH THE FACTORY SYSTEM TEST GROUP, FIELD SYSTEM TEST GROUP, AND FLIGHT SYSTEMS ENGINEERING. THE INTEGRATED SYSTEM TESTS RUN AT THE FACTORY AND AT THE FIELD SHALL BE IDENTICAL FOR ANY SPECIFIC VEHICLE. THE TESTS SHALL CONTAIN THE SAME TESTING SEQUENCE, COMMAND SEQUENCE, ORDER OF COMMAND SEQUENCE, AND TIME LABELS.

HF ANY PROPOSED TESTING PROCEDURE CHANGES TO BE PERFORMED BY THE FIELD SHALL BE FORWARDED TO FACTORY SYSTEM TEST GROUP, TO BE REFLECTED IN THE FACTORY TESTING CYCLE AT THE EARLIEST PRACTICAL DATE, CONSISTENT WITH THE VEHICLE CONFIGURATION. THE SAME SHALL APPLY TO THE FACTORY SYSTEM TEST GROUP. IN ALL CASES TEST PROCEDURE CHANGES SHALL BE CONCURRED WITH PRIOR TO THEIR INCORPORATION, BY BOTH TESTING AGENCIES.

80C HF 4.6.1.1.1 GENERAL REQUIREMENTS

HF A. THE TEST SEQUENCES SHALL VERIFY AS MANY FUNCTIONS AND WIRES IN THE SYSTEM AS PRACTICAL.

HF B. THE TEST SHALL INCLUDE BOTH POSITIVE AND NEGATIVE MODE TESTS.

HF C. THE TEST SHALL REMAIN WITHIN HARDWARE SPECIFICATIONS AND OPERATIONAL REQUIREMENTS.

HF D. THE TEST SHALL BE CONDUCTED WITH THE SV ELECTRICALLY MATED. A MECHANICALLY MATED TEST AT THIS TIME IS OPTIONAL, EXCEPT FOR VEHICLE SECTION 7 WHICH SHALL BE MECHANICALLY MATED TO SECTION 6.

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HF E. FLIGHT BATTERY POWER SHALL BE SIMULATED AT EACH FLIGHT BATTERY HARNESS CONNECTION.

80C HF F. 1) THE SV PRIMARY BUS VOLTAGE SHALL BE SET AT 33 +0- 0.5 VDC MEASURED AT THE LLCB AND REDUCED DURING THE TEST TO A LOW VOLTAGE OF 26.5 +- 0.5 VDC.

2) THE BUSS/SEPARATION BUS VOLTAGE SHALL BE SET AT 31.5 +- .5 VDC MEASURED AT THE LLCB AND REDUCED DURING THE TEST TO A LOW VOLTAGE OF 26.0 + 0 - 0.5 VDC.

80C THREE DISTINCT AND COMPLETE BUSS TERMINAL EVENT SEQUENCES SHALL BE PERFORMED AT FOLLOWING VOLTAGE CONDITIONS.

	VEHICLE PRIMARY BUS	BUSS/SEP BUS
EVENT SEQUENCE NO. 1	32 +0, -0.5	31 +- 0.5
EVENT SEQUENCE NO. 2	23.5 +- 0.5	25+0-0.5
EVENT SEQUENCE NO. 3	0	25+0-0.5

80C DURING EVENT SEQUENCE NO.2 AND NO.3,SEPARATION CONTROLLER FUNCTION, SEPARATION NO.5 (SRV TLM ON) IS NOT REQUIRED TO OCCUR.

HF G. IF THE TEST IS PERFORMED WITH THE SV ELECTRICALLY MATED ONLY, NO PRECISE VEHICLE ALIGNMENT SHALL BE REQUIRED EXCEPT THAT THE TARS MUST BE ALIGNED ON THE IR SIMULATOR TO WITHIN +-1 DEGREE.

HF H. NO PRECISE VEHICLE ORIENTATION IS REQUIRED.

HF I. NO COMPONENTS SHALL BE REMOVED FROM THE VEHICLE.

HF J. IR SIMULATOR (HEAT STIMULUS) SHALL BE USED.

HF K. PHASE A AND B OPERATIONS SHALL BE PERFORMED.

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88 HF 4.6.1.1.2 FUNCTIONAL TEST REQUIREMENTS

THE SYSTEM TEST SHALL FOLLOW SEQUENCES OF OPERATION FOR THE VEHICLE FROM LAUNCH THROUGH RECOVERY. IT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING FUNCTIONS

A. COMMAND SUBSYSTEM
1. LINE FULL.
2. LINE ERASE.
3. TIMER MODE.
4. SIMULTANEOUS READOUT OF TWO WORDS.
5. A/B RECORDER PARAMETERS.
6. REDUNDANT CROSS COMMANDS.
7. CLOCK ACCURACY.
8. PRF 5 REJECTION.
9. TD 13 REJECTION.
10. SECURE COUNT MATCH AND MISMATCH.
11. ALL REALTIME COMMANDS.
12. ALL TYPES OF STORED COMMANDS.
13. LOAD (AIR LINK AND HARDWIRE)

HF B. SEPARATION SUBSYSTEM
1. SOLO COMMAND SEQUENCE.
2. BUSS COMMAND SEQUENCE.
3. OUT-OF-SEQUENCE COMMANDS.
4. INHIBIT TIMER FUNCTIONS.

HF C. ORBIT ADJUST SUBSYSTEM
1. OCV PRESSURIZATION.
2. ENGINES ON-OFF, SEPARATELY AND TOGETHER.

HF D. BUSS SUBSYSTEM
1. BUSS TELEMETRY ON.
2. BUSS MODES.
3. EXECUTE KIK ZEKE 31.
4. EXECUTE KIK ZEKE 32.
5. 20-MINUTE TIMER.
88 6. BYPASS STEPDOWN MODULE WITH RTC 6 WITH BMD

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HF E. STABILIZATION SUBSYSTEM
1. RESPOND TO SELECTED COMMANDS THAT WILL EXERCISE ALL FUNCTIONS.
2. OPERATE ALL COMPONENTS IN ALL MODES OF OPERATION.
3. TELEMETRY RESPONSE TO EVENTS AND AMBIENTS.
88 4. THE CAPABILITY OF EACH REDUNDANT PORTION OF THE REDUNDANT PNEUMATIC TO PERFORM ALL ITS FUNCTIONS SHALL BE DEMONSTRATED

HF F. ENVIRONMENTAL CONTROL
1. PROPER OPERATION.
2. COMPUTER PHASE A AND B OPERATION

HF G. GFE
1. CHECK OF ALL FUNCTIONS.
2. RECEPTION OF TIMING SIGNALS.
3. CHECK OF TELEMETRY SIGNAL.

HF H. TELEMETRY
1. TELEMETRY AMBIENT CHECK.
2. TELEMETRY QUALITY (CONTINUOUS AND MULTIPLEX CHANNELS).

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HF 4.6.1.1.3 ADDITIONAL REQUIREMENTS

DURING THE FUNCTIONAL SYSTEM TEST SPECIFIED IN PARAGRAPH 4.6.1.1.2 OR OTHER SYSTEM TESTS, THE FOLLOWING ADDITIONAL FUNCTIONS SHALL BE VERIFIED

HF A. COMMAND SUBSYSTEM
1. NON-EXISTENT DECODER ADDRESS.
2. BAD BIT COUNT.
3. BAD BIT PARITY.
4. CONTINUOUS 1, 0, OR S PULSE.
5. NON-EXISTENT REAL TIME COMMAND.

HF B. BUSS SYBSYSTEM
H 1. BACKUP MODE OPERATION.
H 2. NOZZLE POLARITY CHECKED.
H 3. VALVE OPERATION.

B. BUSS SUBSYSTEM
F 1. BACKUP MODE OPERATION.
F 2. VALVE OPERATION (FUNCTIONAL TEST ONLY).

H C. ENVIRONMENTAL CONTROL
1. TEMPERATURE CONTROLLER DUTY CYCLE.

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80A FF 4.6.1.2 MISSION PROFILE

80C F 4.6.1.2.1 IN-HOUSE MISSION PROFILE

A FINAL MISSION PROFILE SHALL BE PERFORMED PRIOR TO VEHICLE BUYOFF. THIS TEST SHALL FOLLOW AS CLOSELY AS PRACTICAL THE ACTUAL SEQUENCES OF OPERATION OF THE VEHICLE FROM LAUNCH TO RECOVERY, AND SHALL MEET THE FOLLOWING REQUIREMENTS.

1) SV VOLTAGES REQUIREMENTS

A) THE VEHICLE PRIMARY BUS VOLTAGE SHALL BE SET AT 33 + 0 - .5 VDC (MEASURED AT THE LLCB) AND DECREASED DURING THE TEST TO A LOW VOLTAGE OF 26.5 +- 0.5 VDC.

B) THE BUSS/SEPARATION BUS SHALL BE SET AT 31.5 +- 0.5 VDC (MEASURED AT THE LLCB) AND REDUCED DURING THE TEST TO A LOW VOLTAGE OF 26 +- 0.5 VDC.

80C 2) BUSS TERMINAL EVENT REQUIREMENTS.

THREE DISTINCT AND COMPLETE BUSS TERMINAL EVENT SEQUENCES SHALL BE PERFORMED AT FOLLOWING VOLTAGE CONDITIONS.

	VEHICLE PRIMARY BUS	BUSS/SEP B.U. BATT.PWR.FEEDLINE
EVENT SEQUENCE NO. 1	32 +0, -0.5	31 +- 0.5
EVENT SEQUENCE NO. 2	23.5 +- 0.5	25+0-0.5
EVENT SEQUENCE NO. 3	0	25+0-0.5

DURING EVENT SEQUENCE NO.2 AND NO.3, SEPARATION CONTROLLER FUNCTION, SEPARATION NO.5 (SRV TLM ON) IS NOT REQUIRED TO OCCUR.

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8OC HF 4.6.1.2.1 MAB MISSION PROFILE

A FINAL MISSION PROFILE SHALL BE PERFORMED IN THE MAB WITH THE VEHICLE IN THE FINAL MECHANICALLY MATED CONFIGURATION PRIOR TO FINAL SV FLIGHT PREPARATIONS. THIS TEST SHALL FOLLOW AS CLOSELY AS PRACTICAL THE ACTUAL SEQUENCE OF OPERATION OF THE VEHICLE FROM LAUNCH TO RECOVERY AND MEET THE FOLLOWING REQUIREMENTS.

1) SV VOLTAGES REQUIREMENTS

A) THE VEHICLE PRIMARY BUS VOLTAGE SHALL BE SET AT 33 + 0, - .5 VDC (MEASURED AT THE LLCB) AND DECREASED DURING THE TEST TO A LOW VOLTAGE OF 26.5 +- 0.5 VDC.

B) THE BUSS/SEPARATION BUS SHALL BE SET AT 31.5 +- 0.5 VDC (MEASURED AT THE LLCB) AND REDUCED DURING THE TEST TO A LOW VOLTAGE OF 26 +- 0.5 VDC.

8OC 2) BUSS TERMINAL EVENT REQUIREMENTS.

THREE BUSS TERMINAL EVENT SEQUENCES SHALL BE PERFORMED AT THE FOLLOWING VOLTAGE CONDITIONS.

	VEHICLE PRIMARY BUS	BUSS/SEP B.U. BATT.PWR.FEEDLINE
EVENT SEQUENCE NO. 1	32 +0, -0.5	31 +- 0.5
EVENT SEQUENCE NO. 2	23.5 +- 0.5	25+0-0.5
EVENT SEQUENCE NO. 3	0	25+0-0.5

DURING EVENT SEQUENCE NO.2 AND NO.3, SEPARATION CONTROLLER FUNCTION, SEPARATION NO.5 (SRV TLM ON), IS NOT REQUIRED TO OCCUR.

3) OPERATION OF ALL ONE-SHOT PYRO-ACTUATED DEVICES EXCEPT FOR RV RECOVERY EVENTS, SHALL BE VERIFIED BY THE USE OF SIMULATORS.

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81 F 4.6.1.3 GENERAL EXCITATION TEST (DELETED)

80A H 4.6.1.4 THERMAL VACUUM REQUIREMENTS

74A H 4.6.1.4.1 GENERAL REQUIREMENTS

A THERMAL VACUUM TEST SHALL BE PERFORMED ON THE MECHANICALLY MATED SV. THIS TEST SHALL BE TO PROVIDE FURTHER CONFIDENCE SUBSEQUENT TO THE NORMAL IN-HOUSE SYSTEM TESTING IN THE OPERABILITY OF THE SV IN ITS INTENDED ENVIRONMENTS. INSOFAR AS POSSIBLE, ALL VEHICLE FUNCTIONS SHALL BE VERIFIED. ALL MONITORING SHALL BE DONE WITH FLIGHT TELEMETRY AND PRESENT HARDWIRE UMBILICAL MONITORED BY THE TEST SET USED TO SUPPORT VEHICLE OPERATION.

THERE SHALL BE A FLIGHT SIMULATION OF NOMINALLY 32 REV. AFTER ALTITUDE AND INITIAL CANISTER TEMPERATURE LEVELS HAVE BEEN REACHED. THE NOMINAL PERIODICITY OF OPERATION OF THE VARIOUS SV SUBSYSTEMS SHALL BE AS DEFINED IN PARAGRAPH 4.6.1.4.2.

80A H 4.6.1.4.2 OPERATIONAL REQUIREMENT

80A H 4.6.1.4.2.1 CHARACTERISTIC OPERATIONAL PROFILE

THE REVOLUTION BY REVOLUTION CHARACTERISTIC OPERATIONAL PROFILE SHALL BE AS SHOWN IN TABLE 4.6.1.4.2.1

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TABLE 4.6.1.4.2.1

DAY 1		DAY 2	
REVOLUTION	TYPE OF REV.	REVOLUTION	TYPE OF REV.
0	LIFTOFF		
1	HEALTH CHECK	16	HEALTH CHECK
2	AVERAGE	17	AVERAGE
3	SHORT	18	SHORT
4	LONG	19	LONG
5	AVERAGE	20	AVERAGE
6	AVERAGE	21	AVERAGE
7	SHORT	22	SHORT
8	DEAD	23	DEAD
9	DEAD	24	DEAD
10	AVERAGE	25	AVERAGE
11	SHORT	26	SHORT

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TABLE 4.6.1.4.2.1 (CONT)

DAY 1		DAY 2	
REVOLUTION	TYPE OF REV.	REVOLUTION	TYPE OF REV.
12	LONG	27	SHORT
13	AVERAGE	28	AVERAGE
14	AVERAGE	29	HEALTH CHECK
15	SHORT	30 31	SRV DEBOOST SEQUENCE (PRIM. SYS.)
			OCV DEBOOST
		32	SRV DEBOOST SEQUENCE (BUSS)

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80A H 4.6.1.4.2.2 OPERATIONAL PERIODICITY REQUIREMENTS

THE NOMINAL PERIODICITY PARAMETERS FOR THE SIGNIFICANT SV OPERATIONAL AND THE REVOLUTION TYPE DEFINITION SHALL BE AS SHOWN IN TABLE 4.6.1.4.2.2.

TABLE 4.6.1.4.2.2

ITEM	PARAMETER	TYPE OF REVOLUTION			
		SHORT	AVERAGE	LONG	DEAD
1	SV COMMAND LOAD UPDATE		AS REQUIRED.		
2	*NO. OF STATION CONTACTS PER REV.	1	2	3	1 WHEN REQUIRED FOR LOADING
3	MINIMUM TIME BETWEEN STATION CONTACT PER REV.	N/A	900 SEC.	200 SEC.	0
	*WHERE NECESSARY TO UPDATE THE COMMAND LOAD ADDITIONAL STATION PASSES MAY BE INSERTED.				
4	NOMINAL LENGTH OF STATION CONTACT I.E., DURATION OF T+, S+ AND C+ (UNLESS COMMANDED OFF BY AN RTC)	650SEC.	400SEC. 400SEC.	250SEC. 400SEC. 250SEC.	150SEC. WHEN REQ. FOR LOAD• ING
5	PPD ON AT LEAST ONCE A REV. WHEN REQUIRED (50SEC AFTER S+) **BY BUSS COMMAND	YES	YES	**YES	YES WHEN REQUIRED

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TABLE 4.6.1.4.2.2 (CONTINUED)

ITEM	PARAMETER	TYPE OF REVOLUTION			
		SHORT	AVERAGE	LONG	DEAD
6	PPD OFF (BY REAL TIME CMD) (GIVEN...SEC AFTER PPD ON)	375SEC.	250SEC.	200	150SEC WHEN REQ.
7	COMPUTER PHASING (NO. OF COMMANDS)	3	2	4	2
8	TIME INTERVAL (DURATION PER REV.)	200SEC	800SEC	2200SEC	800SEC
9	ROLL MANEUVER PER REV.	5	8	15	12
10	DURATION OF ROLL MANEUVER SEQUENCE	1200SEC	1600SEC	2250SEC	1600SEC
11	NUMBER OF RECORDER ON (R1+) COMMANDS PER REV. (ALL ROLL MANEUVERS TRANSIENTS SHALL BE RECORDED)	3	6	10	6
12	DURATION OR RECORDER PLAYBACK PER TYPE OF REV. (MINIMUM)	350SEC	350SEC	350SEC	N/A
13	RECORDER PLAYBACK				
	ON	SPC	RTC	SPC OR RTC	N/A
	OFF	RTC OR BUSS	BUSS	SPC OR BUSS	N/A

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TABLE 4.6.1.4.2.2 (CONTINUED)

ITEM	PARAMETER	TYPE OF REVOLUTION			
		SHORT	AVERAGE	LONG	DEAD
14	NUMBER OF COMPUTER POWER TURNON COMMANDS PER REV.	5	7	11	6
15	PB PO/PP (MINIMUM NO. OF CMDS PER REV. GIVEN WITHIN TIME INTERVAL OF R1 + TO R1 -)	N/A	1	1	1
16	PB PS (MINIMUM NO. OF CMDS PER REV.)	1	NONE	NONE	NONE
	PR (MINIMUM NO. OF CMDS. PER REV.) GIVEN WITHIN TIME INTERVAL OF R1 + TO R1 -	AT LEAST ONCE A DAY			
17	TIME BETWEEN LAST STATION CONTACT IN REV. AND BEGINNING OF RECORD SEQUENCE	2700SEC	1000SEC	240SEC	N/A

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TABLE 4.6.1.4.2.2 (CONTINUED)

ITEM	PARAMETER	TYPE OF REVOLUTION			
		SHORT	AVERAGE	LONG	DEAD
18	BUSS-SV FUNCTIONAL HEALTH CHECK (RTC TO TURNOFF PPD)	N/A	N/A	YES	N/A
19	NOMINAL CONDITION OF	YES	YES	YES	YES
	A) CH -				
	B) EP +				
	C) F +				
	D) IR +				
	E) I -				
	F) TM GFE 1-C-16				
	G) PZ				
20	COMPUTER PHASING				
	PRIMARY/BACK-UP MODES	APPROXIMATELY 50 PERCENT OF THE TOTAL OPERATION IN PRIMARY MODE, THE REMAINING IN BACK-UP MODE.			

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74A H 4.6.1.4.3 DETAILED SUBSYSTEM OPERATIONAL REQUIREMENTS
88 H 4.6.1.4.3.1 COMMAND SUBSYSTEM

COMMANDING SHALL BE VIA AIR LINK WITH A HARDWIRE BACKUP CAPABILITY. AS A MINIMUM THE FOLLOWING FUNCTION SHALL BE VERIFIED.

1. LINE FULL

2. LINE ERASE

3. TIMER MODE (6 AND 12 MINUTE)

4. A/B RECORDER PARAMETERS

5. CLOCK ACCURACY

9. COMMAND REJECTION WITH CD BUSY

10. SECURE COUNT MATCH AND MISMATCH

11. SELECTED REAL TIME COMMANDS

12. ALL TYPES OF STORED COMMANDS

88 13. DELETED

74B H 4.6.1.4.3.2 SEPARATION SUBSYSTEM

THE VALIDATION HARNESS SHALL BE INSTALLED IN THE VEHICLE. THE BAROSWITCH OPERATION SHALL BE SIMULATED. ALL CONTINUITY LOOPS SHALL BE COMPLETE. PYROS SIMULATOR SHALL BE USED TO SIMULATE ALL PYROS EXCEPT THAT THE A1390 EXPLOSIVE PISTON SHALL BE INSTALLED. COMPUTER BYPASS SHALL BE USED TO TRANSFER FROM PRIMARY MODE TO BACK-UP MODE. THE SEPARATION SUBSYSTEM OPERATION SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING SEPARATION FUNCTIONS.

1. ALL SEPARATION FUNCTIONS VIA PRIMARY COMMAND.

2. BUSS SEPARATION COMMAND SEQUENCE.

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74A H 4.6.1.4.3.3 ORBIT ADJUST

THE FUEL, OXIDIZER, AND GN2 TANKS SHALL BE PRESSURIZED TO THE REQUIREMENTS OF PARAGRAPH 3.12.1D. THE OA VALVES SHALL HAVE SIMULATORS. AS A MINIMUM THE FOLLOWING FUNCTIONS SHALL BE VERIFIED.

1. OCV PRESSURIZATION

2. ENGINES ON-OFF. AT LEAST ONCE SIMULTANEOUSLY AT OCV DEBOOST SEQUENCES

80A H 4.6.1.4.3.4 BUSS SUBSYSTEM

THE ANTENNA AND THE MAGNETOMETER BOOMS SHALL REMAIN FOLDED. MAGNETOMETER AND ANTENNA FAIRINGS SHALL NOT BE INSTALLED. COMMANDING SHALL BE PERFORMED VIA AIR LINK OR HARDWIRE. THE BUSS PNEUMATICS SUBSYSTEM SHALL BE PRESSURED TO THE REQUIREMENTS OF PARAGRAPH 3.12.1B. BUSS GAS SOLENOIDS SHALL BE SIMULATED. AS A MINIMUM THE FOLLOWING FUNCTIONS SHALL BE VERIFIED.

1. OCV TELEMETRY ON VIA BUSS

2. ALL BUSS UNSECURE MODES

3. EXECUTE KIK ZEKE 32

4. BYPASS STEP DOWN MODULE

5. EXECUTE KIK ZEKE 31, WITH BUSS IN REAL TIME MODE, SUBSEQUENT TO ORBIT ADJUST ENGINE BURN OCV DEBOOST SEQUENCE

6. BUSS MODE DETERMINATION

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88 H 4.6.1.4.3.5 STABILIZATION SUBSYSTEM

THE STABILIZATION PNEUMATICS SUBSYSTEM SHALL BE PRESSURIZED TO THE REQUIREMENTS OF PARAGRAPH 3.12.1A. THE SUBSYSTEM SHALL BE OPERATED CAGED DURING MANEUVERS. THE IR SCANNERS SHALL BE STIMULATED (EARTH•SKY SIMULATION) AT ALL TIMES EXCEPT DURING MANEUVERS. THE PITCH YAW AND ROLL NOZZLES SHALL BE SIMULATED.

AS A MINIMUM, THE FOLLOWING FUNCTIONS SHALL BE VERIFIED.

1. RESPONSE TO SELECTED COMMANDS THAT WILL EXERCISE ALL FUNCTIONS

2. TELEMETRY RESPONSE TO EVENT AND AMBIENTS

3. STAB INHIBIT FUNCTIONAL OPERATION

88 4. THE CAPABILITY OF EACH REDUNDANT PNEUMATIC TO PERFORM ITS FUNCTION SHALL BE DEMONSTRATED.

84 H 4.6.1.4.3.6 ENVIRONMENTAL CONTROL REQUIREMENTS

PRESENT VEHICLE ENVIRONMENTAL CONDITIONING REQUIREMENTS AND LIMITATIONS DURING TRANSPORTATION MUST BE MAINTAINED. ALL PRIME FLIGHT BLANKETS MUST BE INSTALLED. SIMULATED ORBITAL CONDITIONS SHALL BE FOR A NOMINAL ALTITUDE OF 90 NAUTICAL MILES FOR THE HOT AND COLD CASES. AFTER ALTITUDE VACUUM CONDITIONS HAVE BEEN REACHED, THE FOLLOWING TABLE DELINEATES THE ORBIT SIMULATION CONDITIONS THAT ARE TO BE IMPOSED ON THE VEHICLE.

TIME (SEC.)	ORBITAL SIMULATION (HOT AND COLD)
0 - 28,299	HOT
28,300 - 56,599	COLD
56,600 - 84,899	HOT
84,900 - 113,199	COLD
113,200 - 141,499	HOT
141,500 - 180,000	COLD

IN ALL CASES, THE SIGMA VALVES ARE STATISTICAL RATHER THAN MATHEMATICAL EXTREMES. THE + AND - 1.7 SIGMA CONDITIONS (CANISTER TEMPERATURES) ARE AS DEFINED IN APPENDIX G.

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THE THERMAL DISSIPATION OF THE OPERATIONAL BATTERIES SHALL BE SIMULATED. AS A MINIMUM, THE FOLLOWING FUNCTIONS SHALL BE VERIFIED.

74B 1. COMPUTER PHASE A AND B (PRIMARY AND BACK-UP MODE).

74A 2. TEMPERATURE CONTROLLER DUTY CYCLE MONITORING

74A H 4.6.1.4.3.7 GFE

AS A MINIMUM, THE FOLLOWING REQUIREMENTS SHALL BE MET.

1. ALL ELECTRICAL INTERFACES SHALL BE SIMULATED
2. CHECK OF FUNCTIONS
3. CHECK OF TELEMETRY SIGNALS

88 H 4.6.1.4.3.8 TELEMETRY

WHERE POSSIBLE, ALL SENSORS SHALL BE INSTALLED AT THEIR FLIGHT LOCATION. THOSE SENSORS WHICH MUST BE SUBSEQUENTLY REMOVED TO FACILITATE LATER PROCESSING SHALL BE BONDED TEMPORARILY IN PLACE AND MARKED IN SOME MANNER TO SHOW THEIR NON-PRIME CONFIGURATION. THE CONFIGURATION OF ANY SENSOR THAT CANNOT BE INSTALLED IN THEIR FLIGHT LOCATION SHALL BE DEFINED PRIOR TO TEST. DUTY CYCLE OF THE TELEMETRY SYSTEM SHALL SIMULATE NOMINAL FLIGHT OPERATION. MONITORING OF SV TLM SHALL BE CONDUCTED ONLY DURING STATION PASSES. IF THE VEHICLE HEALTH IS QUESTIONABLE, THE TEST CONDUCTOR MAY AT HIS DISCRETION TURN TM ON.

IN ADDITION, THE FOLLOWING OPERATIONAL CHECKS SHALL BE PERFORMED.

1. TELEMETRY AMBIENT CHECK
2. TELEMETRY QUALITY ASSESSMENT (CONTINUOUS AND MULTIPLEX CHANNEL)
3. FLIGHT RECORDER RECORDING AND PLAYBACK
4. TM TRANSFER (TWICE MINIMUM DURING THE SIMULATED FLIGHT)

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74A H 4.6.1.4.3.9 STRUCTURE SUBSYSTEM

STRUCTURE SHALL BE PRIME EXCEPT FOR THE FOLLOWING.

1. NO EJECTABLE HARDWARE SHALL BE IN PLACE EXCEPT FOR THE M.E.U.
2. NON-PRIME BATTERY WELL DOORS IF THERMALLY COATED MAY BE USED
3. NECESSARY NON-PRIME ACCESS DOORS IN THE ADAPTER MAY BE USED
4. PYROS SHALL NOT BE INSTALLED, EXCEPT FOR A1390
5. VALIDATION HARNESSES SHALL BE INSTALLED
6. SPECIAL FRONT END POWER CABLE
7. AUXILIARY INTERFACE CABLES
8. TEST SECTION 7 ESPECIALLY PREPARED FOR USE DURING THE TV TEST
9. INSTALLATION OF THE FIBERGLASS TAPE USED TO PREVENT SECTION 7 BLANKET BULGE IS NOT REQUIRED
10. USE OF A THERMAL RADIATION BULKHEAD AT THE JUNCTION OF SECTIONS 5 AND 6

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80A H 4.6.1.4.3.10 EP AND SD SUBSYSTEM

PRIMARY FLIGHT BATTERY POWER SHALL BE SIMULATED AT EACH OF THE 8 OPERATIONAL BATTERY HARNESS CONNECTIONS. VEHICLE PRIMARY BUS VOLTAGE SHALL BE AT 33 +0 -.5 VOLTS DC, DECREASING, BEGINNING ONE REV. AFTER THERMAL ALTITUDE HAS BEEN REACHED, AT A RATE OF 0.5 VDC NOMINAL/REV. UNTIL A PLATEAU OF 27.0 +0 -.5 VOLTS IS REACHED. PRIMARY TERMINAL EVENTS SHALL BE PERFORMED AT A PRIMARY BUS VOLTAGE OF 27.0 +0 -0.5 VOLTS.

BUSS TERMINAL EVENTS SHALL BE PERFORMED WITH THE VEHICLE PRIMARY BUS VOLTAGE AT 23.0 +- 0.5 VOLTS AND THE BUSS/SEPARATION BACK-UP BATTERY AS THE PRINCIPAL POWER SOURCE.

THE BUSS/SEPARATION BACK-UP BATTERY SHALL BE SIMULATED AT ITS BATTERY HARNESS CONNECTION. THE SIMULATED POWER SUPPLY SHALL BE CAPABLE OF SUPPLYING THE CURRENT REQUIRED TO FIRE THE SIMULATED PYROS. THE BUSS TERMINAL EVENTS SHALL BE PERFORMED AT A BUSS/SEPARATION BACK-UP BATTERY VOLTAGE OF 26.0 +- 1VDC. IN THE EVENT THAT A PRIME BUSS/SEPARATION BACK-UP BATTERY IS USED AS THE SIMULATED POWER SUPPLY, THE VOLTAGE SHALL BE GREATER THAN 25 VDC AT THE TIME OF INITIATION OF THE SRV DEBOOST SEQUENCE VIA BUSS. ANY VEHICLE ANOMALOUS PERFORMANCE OBSERVED WITH THE VEHICLE PRIMARY BUS LESS THAN 25 VOLTS SHALL NOT BE CONSIDERED OUT OF SPECIFICATION EXCEPT FOR THE VEHICLE FUNCTION WHICH ARE POWERED BY THE BUSS/SEPARATION BUS.

80A H 4.6.1.4.3.11 SRV

THE SRV FLIGHT BATTERIES POWER SHALL BE SIMULATED AT EACH BATTERY HARNESS CONNECTION. PYROS SHALL BE SIMULATED. THE PARACHUTE AND BATTERIES ARE NOT REQUIRED TO BE INSTALLED. THE SRV PNEUMATICS SUBSYSTEM SHALL BE PRESSURIZED TO THE REQUIREMENTS OF PARAGRAPH 3.12.1C. PYROS SIMULATOR SHALL BE USED TO STIMULATE ALL PYROS.THE PRIME FLIGHT FOREBODY NEED NOT BE USED. THE PRIME FLIGHT FOREBODY SHALL NOT BE EXPOSED TO MORE THAN ONE COMPLETE THERMAL VACUUM TEST.

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74A H 4.6.1.4.4 TEST EQUIPMENT REQUIREMENTS

74A H 4.6.1.4.4.1 THERMAL REQUIREMENT

76A H 4.6.1.4.4.1.1 UMBILICAL

A TWO-FOOT SECTION OF THE UMBILICAL AS MEASURED FROM THE VEHICLE UMBILICAL PLUG SHALL BE HELD AT -1 DEGREE F +- 10 DEGREES F FOR THE +1 SIGMA FLUX CONDITION, AT -24 DEGREES F +- 10 DEGREES F FOR THE -1 SIGMA FLUX CONDITION. TEN FEET OF THE UMBILICAL CABLE INCLUDING ALL CONNECTORS THEREIN MEASURED FROM THE MEU CANISTER PENETRATION TOWARD THE CHAMBER PENETRATION SHALL BE WRAPPED WITH TWENTY (20) LAYERS OF 1/4 MIL ALUMIZED MYLAR (PART NUMBER 171A8220).

74A H 4.6.1.4.4.1.2 MONITORING EQUIPMENT REQUIREMENTS

ALL TEST BOXES INSIDE THE THERMAL CHAMBER SHALL BE KEPT AT 70 DEGREES F +- 10 DEGREES F. ALL CABLES, INCLUDING CONNECTORS, ENTERING OR LEAVING ANY OF THE TEMPERATURE CONTROL DEVICES WITHIN THE CHAMBER AND OUTSIDE OF THE CANISTER SHALL BE WRAPPED FOR A MINIMUM OF 10 FEET WITH 20 LAYERS OF 1/4 MIL ALUMINIZED MYLAR (PART NUMBER 171A8220). ALL TEST CABLING (WITHOUT GUARD HEATERS) EXITING THE VEHICLE, SHALL BE RUN INSIDE OF THE CANISTER FOR A MINIMUM OF 2 FEET BEFORE EXITING THE CANISTER.

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74A H 4.6.1.4.4.1.3 SECTION 7 REQUIREMENTS

A) A SPECIAL SECTION 7 STRUCTURE, SHALL BE USED DURING THERMAL ALTITUDE SIMULATION MEETING THE FOLLOWING REQUIREMENTS.

1) THE INBOARD SURFACE OF THE SECTION 7 SKIN SHALL BE COATED WITH A HIGH EMMISSIVITY (E IS MORE THAN OR EQUAL TO 0.55) MATERIAL.

2) THE IR STIMULATOR PATCHES SHALL BE THERMALLY ISOLATED FROM THE ADJACENT SKIN. LOW EMMISSIVITY TAPE (E IS LESS THAN OR EQUAL TO 0.15) SHALL BE APPLIED TO THE OUTBOARD SURFACE OF THE SKIN PATCH DIRECTLY BEHIND THE IR TARGET. THIS TAPE SHALL NOT BE IN THE FIELD OF VIEW OF THE IR SCANNERS.

74A H 4.6.1.4.4.1.4 SECTION 5/6 THERMAL RADIATION BULKHEAD REQUIREMENT

THE THERMAL ISOLATION BULKHEAD, INSTALLED AT SECTION 5/6 JUNCTION AND USED DURING THE THERMAL VACUUM TEST SHALL HAVE EMMISSIVITY OF LESS THAN 0.15 ON BOTH ITS FORWARD AND ITS AFT SURFACES.

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74A H 4.6.1.4.4.1.5 GROUND COOLING REQUIREMENTS

74A H 4.6.1.4.4.1.5.1 AMBIENT PRESSURE AND TEMPERATURE - TEST CONDITIONS

WITH THE VEHICLE IN THE MECHANICALLY MATED CONFIGURATION, THE FOLLOWING REQUIREMENTS SHALL BE MET.

A) WITHOUT COOLING AIR

VEHICLE POWER MAY BE ON IF ALL THE FOLLOWING REQUIREMENTS ARE MET.

74A 1) THE TEMPERATURE ON THE PROGRAMMER TEMPERATURE MONITOR IS LESS THAN 100 DEGREES F. THIS IS EQUIVALENT TO POWER ON FOR 2 HOURS IN A 2.5 HOUR PERIOD.

76A 2) THE TEMPERATURE OF THE TARS ELECTRONIC PACKAGE SHALL NOT EXCEED 100 DEGREES F.

B) WITH COOLING AIR

1) WITH COOLING AIR AS DEFINED IN ITEM 2 BELOW, THERE ARE NO SUBSYSTEM POWER LIMITATIONS.

2) COOLING AIR REQUIREMENTS

A) 40 +- 5 LBS/MIN OF COOLING AIR SHALL BE SUPPLIED TO THE ADAPTER DUCT.

B) 10 +- 2 LBS/MIN OF COOLING AIR SHALL BE SUPPLIED TO SECTION 7

C) WITH THE CANISTER INSTALLED, 20 +- 5 LBS/MIN OF COOLING AIR SHALL BE SUPPLIED ON SECTION 5/6 SKIN, SPLIT IN TWO FLOWS, FLOWING FROM AFT TO FORWARD, SUCH THAT ONE STREAM IMPINGES ON THE VEHICLE AT APPROXIMATELY 0 DEGREES AND THE OTHER STREAM IMPINGES AT APPROXIMATELY 180 DEGREES.

D) COOLING AIR TEMPERATURE SHALL BE 50 DEGREES F +- 10 DEGREES F AT 60 PERCENT OR LESS RELATIVE HUMIDITY.

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76A H 4.6.1.4.4.1.5.2 CHAMBER PUMP DOWN OR PUMP UP REQUIREMENTS

A) VEHICLE POWER MAY BE ON IF

74A 1) THE TEMPERATURE ON THE PROGRAMMER TEMPERATURE MONITOR IS LESS THAN 100 DEGREES F. THIS IS EQUIVALENT TO POWER ON FOR 2 HOURS IN A 2.5 HOUR PERIOD.

76A 2) THE TARS ELECTRONIC PACKAGE TEMPERATURE SHALL NOT BE ALLOWED TO EXCEED 100 DEGREES F.

74A 3) THE CANISTER ZONES SHALL BE BETWEEN 50 DEGREES TO 80 DEGREES F.

B) CHAMBER (WITH CYROGENIC COOLING)

74A 1) ALL CANISTER ZONES SHALL BE MAINTAINED BETWEEN 50 DEGREES TO 80 DEGREES F UNTIL THE CRYOGENIC WALLS ARE BELOW -100 DEGREES F.

74A 2) THERE SHALL BE NO CRYOGENIC COOLING WHENEVER THE PRESSURE IN THE CHAMBER IS ABOVE 1 MM OF MERCURY.

76A 3) VEHICLE POWER AND GYRO HEATER POWER SHALL BE APPLIED WHEN THE CANISTER ZONE FACING THE COMMAND PROGRAMMER REACHES -31 DEGREES F.

76A 4) POWER SHALL BE APPLIED TO THE STABILIZATION SUBSYSTEM UPON COMPLETION OF GYRO WARMUP.

80A 5) IN THE CASE OF TOTAL LOSS OF PRIMARY POWER FOR A PERIOD EXCEEDING 15 MINUTES ALL CANISTER ZONE TEMPERATURE SHALL BE MAINTAINED BETWEEN 50 DEGREES F TO 80 DEGREES F UNTIL PRIMARY POWER IS RE-ESTABLISHED.

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74B H 4.6.1.4.4.1.5.3 POST THERMAL VACUUM REQUIREMENTS

A. PRIMARY ACTUATOR DISCONNECT LINKAGE

THE FOLLOWING HARDWARE SHALL BE REMOVED.

EXPLOSIVE PISTON	A1390

THE FOLLOWING HARDWARE SHALL BE REPLACED.

SHEAR PIN	
WIRE - QQ-W-3218	.0250 1/2HD BRASS

THE FOLLOWING HARDWARE SHALL BE INSPECTED FOR DEGRADATION.

1. RETRACTABLE PIN ASSEMBLY (1)	134B1880
2. AFT BRACKET ASSEMBLY (1)	114C1822
3. ROCKER ARM (1)	114C1815
4. ROCKER SHAFT (1)	134B1868
5. FUSE MODULE (A 1379)	113C9399

76A H 4.6.1.5 VIBRATION TESTING

76A H 4.6.1.5.1 TEST OBJECTIVE

THE OBJECTIVE OF THE VIBRATION TEST IS TO ESTABLISH CONFIDENCE IN THE QUALITY AND WORKMANSHIP OF THE SATELLITE VEHICLE HARNESSES, ELECTRICAL CONNECTIONS AND COMPONENTS BLACK BOXES. SYSTEM ELECTRICAL CONFIDENCE TESTS SHALL BE CONDUCTED PRIOR TO, DURING AND SUBSEQUENT TO THE ACTUAL VIBRATION TEST. COMPARISONS OF PRE-VIBRATION SYSTEM PERFORMANCE WITH POST-VIBRATION SYSTEM PERFORMANCE SHALL BE MADE TO DETERMINE THE EFFECTS, IF ANY, OF THE VIBRATION TEST ON THE SATELLITE SYSTEM AND/OR ANY INTEGRAL PART OF THE SYSTEM.

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76A H 4.6.1.5.2 TEST PREPARATION

85 H 4.6.1.5.2.1 VEHICLE CONFIGURATION

VEHICLE CONFIGURATION FOR VIBRATION COMPONENT AND STRUCTURES NOT REQUIRED TO BE INCLUDED.

1. BATTERIES
2. GFE
3. RETRO-ROCKET
4. PARACHUTE
5. PROPELLANTS *
6. DUMMY BATTERY DOOR
7. ADAPTER ACCESS DOOR
8. SEPARATION PYROS OR DUMMIES
9. VEHICLE BLANKETS NOT INSTALLED FOR SYSTEM TEST

* FOR THE PURPOSE OF THIS TEST, THE HOT GAS SYSTEM, COLD GAS SYSTEM AND BUSS TANK SHALL BE PRESSURIZED TO 5 PSIG MINIMUM WITH GN2
ALL SOLENOIDS AND SQUIB VALVES WILL BE DISCONNECTED WITH CONNECTORS TIED DOWN.

PHYSICAL PROPERTIES OF VEHICLE

THERE SHALL BE NO REQUIREMENTS TO MEASURE EITHER VEHICLE WEIGHT, CG LOCATION AND/OR MOMENTS OF INERTIA.

76A H 4.6.1.5.2.1.1 INTERFACE ATTACHMENT

1. THE ASSEMBLED SV SHALL BE MOUNTED VERTICALLY AND VIBRATED ALONG ITS LONGITUDINAL AXIS.

2. THE SV SHALL BE ATTACHED TO THE VIBRATION FIXTURE USING THE SAME ATTACHMENTS AS USED TO SECURE THE VEHICLE TO THE AGENA. THE ATTACHMENT BOLTS SHALL BE NAS 1275-20 WITH AN INSTALLATION TORQUE OF 690 IN-LB. EIGHT (8) BOLTS SHALL BE USED.

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76A H 4.6.1.5.3 SIGNATURE TEST

76A H 4.6.1.5.3.1 LOW LEVEL SINUSOIDAL SURVEY

THE LOW LEVEL SINUSOIDAL SURVEY SHALL BE PERFORMED TO OBTAIN A GROSS RESPONSE SIGNATURE. THE SINUSOIDAL VIBRATION IS SWEPT FROM THE LOW FREQUENCY TO THE HIGH FREQUENCY AT 1 MINUTE/OCTAVE.

FREQUENCY RANGE	AMPLITUDE
(CPS)	G S (ZERO TO PEAK)
20 TO 2000	0.2

79A H 4.6.1.5.3.2 SINE SWEEP

THE SINE LEVEL SHALL BE SWEPT FROM THE LOW FREQUENCY TO THE HIGH FREQUENCY AT 1 MINUTE/OCTAVE.

FREQUENCY RANGE	AMPLITUDE SINE
(CPS)	G2RMS
20 TO 70	0.4
70 TO 80	0.4 TO 1.0*
80 TO 100	1.0
100 TO 300	1.5
300 TO 1200	2.5
1200 TO 2000	2.5

*LINEARLY INCREASE THE SINE INPUT FROM THE LOWER FREQUENCY TO THE HIGHER FREQUENCY.

TOTAL ACCUMULATED VIBRATION TIME PER TEST SHALL NOT EXCEED 7 MINUTES. THE SINE SWEEP SHALL BE PERFORMED WITH THE VEHICLE POWER , ON, STAB. ON, TT+C ON IN POWERED FLIGHT MODE, AND THE VEHICLE CLOCK SHALL BE RUNNING.

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82 H 4.6.1.5.3.3 TIP LIMITATIONS

THE FOLLOWING TIP LIMITATIONS SHALL BE APPLICABLE DURING THE TESTS AS DESCRIBED IN PARAGRAPHS 4.6.1.5.3.1 AND 4.6.1.5.3.2.

FREQUENCY RANGE (CPS)	MAXIMUM ALLOWABLE RESPONSE TO TIP (G) ZERO TO PEAK
20 TO 7C	0.894
71 TO 100	2.83

76A H 4.6.1.5.3.4 AMPLITUDE TOLERANCE

THE SINE AMPLITUDE SHALL BE CONTROLLED TO AT LEAST +- 10 PERCENT IN THE 20 CPS TO 150 CPS RANGE AND +- 15 PERCENT IN THE 150 CPS TO 2000 CPS RANGE OF THE SPECIFIED LEVELS INCLUDING THE DEVIATION PORTION OF THE ABOVE LEVELS.

LATERAL VIBRATION LEVELS AT THE INPUT STATION (VEHICLE/FIXTURE INTERFACE) SHALL NOT EXCEED THE LONGITUDINAL INPUT BY 50 PERCENT OF LONGITUDINAL INPUT IN THE FREQUENCY BAND FROM 20 TO 100 CPS OR REFERENCE 921 LATERAL LIMIT CURVE, WHICHEVER IS GREATER.

88 H 4.6.1.5.3.5 OPERATIONAL INTEGRITY - DELETED

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76A H 4.6.1.5.4 VIBRATION TEST WITH VEHICLE OPERABLE

88 H 4.6.1.5.4.1 ON AND OFF TEST RANDOM INPUT

RANDOM VIBRATION BURST SHALL BE APPLIED FOR SELECTED SHORT INTERVALS WHICH COINCIDE WITH SIGNIFICANT EVENTS DURING THE MISSION PROFILE. THE RANDOM VIBRATION BURSTS SHALL, IN GENERAL, BEGIN APPROXIMATELY TWO SECONDS BEFORE, AND CONTINUE UNTIL APPROXIMATELY TWO SECONDS AFTER EACH EVENT IN THE MISSION PROFILE.

SIGNIFICANT VEHICLE EVENTS SHALL BE THOSE EVENTS THAT EXERCISE ANY OR ALL OF THE FOLLOWING MISSION-CRITICAL COMPONENTS.

A) COMMAND PROGRAMMER
B) COMMAND DECODER
C) POWER SUPPLY, 6 VOLTS
D) POWER DISTRIBUTION BOX
E) COMMAND DECODER, RELAY BOX (A358)
F) POWER CONTROLLER
G) RECORDER
H) POWER SUPPLY, DC
I) TARS
J) PREDAC
K) RSA
L) SEPARATION CONTROLLER
M) LONG LIFE CONTROL BOX (LLCB)
N) PB
O) RAGS
P) HORIZON SENSOR
Q) HORIZON SENSOR MIXER BOX
R) RMA
S) REDUNDANT PNEUMATICS CONTROL BOX (RPCB)

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THE EVENTS SHALL BE COMMAND VIA AIR LINK FOR THE PRIMARY COMMAND SYSTEM AND HARDWIRE FOR BUSS AT ITS VEHICLE SKIN ANTENNA INTERFACE AND SHALL INCLUDE.

1. ORBIT ADJUST

   A) ENGINES ON/OFF

2. STABILIZATION

   A) FLY FORWARD/REVERSE
   B) PITCH ZERO/DOWN
   C) UNCAGE
   D) IR ON/OFF
   E) ROLL ANGLES
   F) REDUNDANT PNEUMATICS CONTROL FUNCTIONS

3. COMMANDS

   A) COMMAND DECODER ON/OFF
   B) S-BAND BEACON ON/OFF
   C) REAL-TIME COMMANDS
   D) COMMAND DECODER BUSY
   E) PPD ON/OFF
   F) AIRLINK COMMAND LOAD

4. TELEMETRY

   A) RECORDER ON/OFF
   B) RECORDER FAST/SLOW
   C) AMBIENT RADINGS

5. SEPARATION

   A) SEPARATION 1 THROUGH 8

6. BUSS

   A) COMMAND SECURE/UNSECURE

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82 7. RANDOM TEST LEVEL.

THE RANDOM TEST LEVEL SHALL BE AS FOLLOW.

FREQUENCY RANGE (CPS)	POWER SPECTRAL DENSITY (G2/CPS)
100 TO 300	0.015
301 TO 1200	0.03
1201 TO 2000	DECREASING 12 DB/OCTAVE

NOTE. DURING THESE FRECUENCIES, IN WHICH THE FIXTURE RESONANCE AMPLIFIES THE INPUT, THE INPUT SHALL BE ADJUSTED SO THAT THE G(RMS) (20 CPS FILTER BAND WIDTH TIMES THE POWER SPECTRAL DENSITY) 1/2 IS LESS THAN OR EQUAL TO 2.9 AT ANY OF THE MONITORED POINTS ON THE FIXTURE.

FREQUENCIES APPLICABLE (CPS)
150 -275,600-900

88 8. OPERATIONAL REQUIREMENTS (DELETED)

76A H 4.6.1.5.4.2 TOLERANCES

THE RANDOM VIBRATION SHALL BE ROLLED OFF AT THE RATE OF 12 DB/OCTAVE ABOVE 1200 CPS. THE TOLERANCE ON THE SPECTRAL DENSITY SHALL BE +- 3DB IN THE 300 CPS TO 1200 CPS RANGE. INCREASE TOLERANCE +- 0.1 DB FOR EACH DB OF ROLL OFF FROM 1200 TO 2000 CPS.

LATERAL VIBRATION LEVELS AT THE INPUT STATION (VEHICLE/FIXTURE INTERFACE) SHALL NOT EXCEED THE LONGITUDINAL INPUT BY 50 PERCENT OF LONGITUDINAL INPUT IN THE FREQUENCY BAND FROM 20 CPS TO 100 CPS OR REFERENCE 921 LATERAL LIMIT CURVE, WHICHEVER IS GREATER.

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76A H 4.6.1.5.5 POST VIBRATION

A) THE SATELLITE VEHICLE SHALL BE VISUALLY INSPECTED FOR ANY PHYSICAL DAMAGE OR ANY LOOSE CONNECTIONS OR COMPONENTS W/OUT MAJOR DISASSEMBLY.

B) A MISSION PROFILE TEST SHALL BE PERFORMED AND ALL EVENTS SHALL BE VERIFIED VIA TELEMETRY.

C) ENVIRONMENTAL HEATERS SHALL BE ELECTRICALLY CHECKED FOR ANY DEGRADATION.

76A H 4.6.1.5.6 TEST EQUIPMENT

76A H 4.6.1.5.6.1 VIBRATION INSTRUMENTATION

THE SV AND ADAPTER/FIXTURE SHALL BE INSTRUMENTED SUFFICIENTLY TO VERIFY THE SPECIFIED ENVIRONMENTAL INPUTS. ACCELEROMETERS, THEIR LOCATIONS AND METHOD OF ATTACHMENT SHALL BE AS SPECIFIED IN THE SPACECRAFT VEHICLE VIBRATION QA TEST PLAN.

76A H 4.6.1.5.6.2 RECORDING EQUIPMENT

THE ACCELEROMETER OUTPUTS SHALL BE FED INTO CHANGE OR CATHODE FOLLOWER-AMPLIFIER SYSTEM WHICH WILL FEED A TAPE RECORDER. THE ACCELERATION RECORDING SYSTEM SHALL BE FLAT TO AT LEAST 2500 CPS. THE REQUIRED ACCURACY OF THE RECORDED ACCELERATION MEASUREMENTS SHALL BE +- 10 PERCENT.

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5. LAUNCH REQUIREMENTS

5.1 GENERAL

5.1.1 REQUIREMENT CATEGORIES

THIS SECTION DEFINES THOSE REQUIREMENTS WHICH FALL INTO ONE OF THE FOLLOWING CATEGORIES.

A. THE REQUIREMENT IS PECULIAR TO THE LAUNCH CONFIGURATION OR CONDITION, I.E. IT CANNOT BE VERIFIED AT ANY PRIOR STAGE OF THE PROCESSING CYCLE, OR

B. THE CAPABILITY OF THE VEHICLE TO MEET THE REQUIREMENT, EVEN THOUGH ALREADY DEMONSTRATED IN PREVIOUS TESTING, MUST BE REVERIFIED DURING THE PERIOD FROM JUST PRIOR TO SV/AGENA FINAL MATING THROUGH LAUNCH.

5.1.2 GENERAL LIMITATIONS

THE REQUIREMENTS DEFINED HEREIN DO NOT LIMIT THE SCOPE OF TESTS THAT SHALL BE PERFORMED UNLESS SUCH A LIMITATION IS SO STATED.

5.1.3 SPECIFIC LIMITATIONS

5.1.3.1 PRIOR TO TERMINAL COUNTDOWN, ALL THE REQUIREMENTS SPECIFIED IN SECTION 4.0 SHALL HAVE BEEN MET.

5.1.3.2 ALL COMPONENTS SHALL BE WITHIN ESTABLISHED GREEN + RED LIMITS IN APPENDIX B.

5.1.3.3 THE VEHICLE LOG SHALL DOCUMENT THAT ALL FLIGHT ITEMS HAVE BEEN INSTALLED AND THAT ALL NON-FLIGHT ITEMS HAVE BEEN REMOVED.

5.1.3.4 FOR SV EQUIPMENT REQUIRING PERIODIC ADJUSTMENT (E.G., CALIBRATION, ALIGNMENT, ETC.), THE EFFECTIVE PERIOD OF ADJUSTMENT SHALL EXTEND BEYOND THE PLANNED DURATION OF THE MISSION.

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5.1.3.5 ELECTROMAGNETIC INTERFERENCE
THE SV SHALL BE FREE OF INTERFERENCE DIFFICULTIES RESULTING FROM OPERATION OF ANY RF OR OTHER ELECTROMAGNETIC SOURCE IN THE PAD AREA.

5.1.3.6 IT SHALL BE VERIFIED THAT ALL GROUP 1 + GROUP 2 LAUNCH PRIORITY ITEMS ARE WITHIN LIMITS AS SPECIFIED IN APPENDIX D, PRIOR TO LAUNCH.

88 5.1.3.7 HOLDTIME REQUIREMENTS
ALL SV EXPENDABIES SHALL BE CAPABLE OF A MINIMUM OF 12 DAYS HOLD BEYOND THE INITIAL PLANNED LAUNCH DATE.

5.2 AGE

5.2.1 AGE VALIDATION REQUIREMENT

ALL AGE SHALL BE VALIDATED PRIOR TO CONNECTING TO THE SV.

5.3 THERMAL BALANCE + I.E.C.

5.3.1 THERMAL BALANCE
THE SV SHALL MEET THE THERMAL BALANCE REQUIREMENTS OF FIG 4.2-1

88 5.3.2 THERMAL STABILIZATION

THE FOLLOWING TEMPERATURE POINTS SHALL BE STABILIZED TO THE TEMPERATURES SPECIFIED IN APPENDIX D, AT LEAST 24 HOURS BEFORE LAUNCH.

CAPSULE TEMPERATURE
ADAPTER STRUCTURE
VEHICLE TEMPERATURE, STA 82 (180 DEG ANGLE)
VEHICLE TEMPERATURE, STA 104.4 (25 DEG ANGLE)
VEHICLE TEMPERATURE, STA 104.4 (90 DEG ANGLE)
VEHICLE TEMPERATURE, STA 104.4 (180 DEG ANGLE)
VEHICLE TEMPERATURE, STA 104.4 (270 DEG ANGLE)
VEHICLE TEMPERATURE, STA 127.0 (60 DEG ANGLE)
STA 305 BULKHEAD TEMPERATURES

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THE INTERVALS OF TIME BETWEEN TELEMETRY READINGS OF CRITICAL TEMPERATURES SHALL NOT EXCEED THE FOLLOWING

	PERIOD	MAX TIME BETWEEN READINGS
	PRELAUNCH	
84	FROM SV POWER ON UNTIL LAUNCH, UMBILICALS 3 AND 4 WILL BE MONITORED EVERY ONE-HALF HOUR	
84	FROM LAUNCH - 24 HOURS TO BEGINNING OF COUNTDOWN.	4 HOURS
	DURING COUNTDOWN	READINGS TO BE TAKEN ON ALL TASKS REQUIRING SV TELEMETRY TO BE ON.

THE ABILITY OF THE TEMPERATURE CONTROLLERS TO MAINTAIN SECTION 5 TEMPERATURES SHALL BE VERIFIED.

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80A AS A MINIMUM CONDITION FOR LAUNCH ONE OF THE FOLLOWING SIX CONFIGURATIONS OF HEATER ZONES MUST BE IN DUTY CYCLE, I.E., THE CONTROLLERS FOR EACH OF THE ZONES OF A SPECIFIED COMBINATION MUST BE FUNCTIONING WITHIN THEIR SERVO LIMITS. AFTER A MINIMUM OF 12 HOURS OF THERMAL EQUILIBRIUM (GROUND CONDITIONING AIR TEMPERATURE FLOW RATE, AND BLANKET THERMISTOR TEMPERATURES WITHIN SPECIFIED LIMITS) HAS PASSED.

CONFIGURATION	MINIMUM ACTIVE HEATER ZONES
A	4,8 OR 10,9,11A AND 11B
B	4,8,9,10,11A OR 11B
C	4,8,10,11A AND 11B
D	1,2,3,8 OR 10,9,11A AND 11B
E	1,2,3,8,9,10,11A OR 11B
F	1,2,3,8,10,11A AND 11B

5.3.3 TARS AND RAGS TEMPERATURE REQUIREMENTS

TARS AND RAGS TEMPERATURES SHALL BE WITHIN THE FIELD REQUIREMENTS OF PARAGRAPH 4.5.5.2.11A.

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5.4 MECHANICAL REQUIREMENTS

88 5.4.1 REQUIRED CONFIGURATION PRIOR TO GANTRY REMOVAL.

A. TEST PLUGS 3 AND 4 REMOVED.

B. H-30 SKULL CAP BLANKET REMOVED.

C. THE MARKER ON THE LOWER BLANKET ALIGNED WITH THE VEHICLE

D. THE THREE BUNGEES IN THE UPPER BLANKET IN PLACE PER DRAWING

E. ALL LANYARD PINS ENGAGED.
F. THE FLYAWAY REQUIREMENTS DEFINED IN THE GE/LMSC INTERFACE DRAWING 241R777A SV AIR CONDITIONING INTERFACE PALC 2 PAD 4 SHALL BE VERIFIED

G. THE MARKER ON THE UPPER BLANKET ALIGNED WITH THE MARKER ON THE BELLY BAND.

H. ALL BELLY BAND FLAPS IN PLACE.

I. THE FLAPS ON THE AIR SUPPLY HOSE SECURED AND THE LOWER TIE STRINGS TIED.

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5.5 PNEUMATICS

5.5.1 ORBIT ADJUST

5.5.1.1 PRESSURANT

THE PROPELLANT PRESSURIZATION TANKS SHALL CONTAIN A MINIMUM WEIGHT OF 10 POUNDS OF GASEOUS NITROGEN (GN 2) PER MIL P27401B AT A MAXIMUM PRESSURE OF 4970 PSIG.

5.5.1.2 THE FUEL TANK SHALL CONTAIN 130.0 +-0.5 POUNDS OF 75 PCT. ANHYDROUS HYDRAZINE (N(2)H(4)) AND 25 PCT. MONOMETHYL HYDRAZINE (MMH) ((CH(3)) (NH) (NH(2)) AS SPECIFIED IN SVS 4200.

5.5.1.3 THE OXIDIZER TANK SHALL CONTAIN 186.0 +-1.0 POUNDS OF NITROGEN TETROXIDE (N(2)O(4)) MEETING THE REQUIREMENTS OF MIL-P-26539A.

5.5.2 H-30 TANKS

THE H-30 SPIN AND DESPIN TANKS SHALL CONTAIN A MIXTURE OF 74 PCT. GN(2) AND 26 PCT FREON GAS BY WEIGHT LOADED ON A CONSTANT DENSITY CURVE (FIGURE D-3 OF APPENDIX D). THE SPIN TANK SHALL CONTAIN A MINIMUM GAS WEIGHT OF 0.690 POUND AND SHALL NOT EXCEED A MAXIMUM PRESSURE OF 3000 PSIG AT 90 DEF F. THE H-30 DESPIN TANK SHALL CONTAIN A GAS WEIGHT OF 0.122 +-0.003 POUND OF GAS LESS THAN THE ACTUAL SPIN TANK GAS WEIGHT. SPIN AND DESPIN TANK PRESSURES SHALL NEVER EXCEED 3000 PSIG.

5.5.3 STABILIZATION PNEUMATICS

80A 5.5.3.1 PNEUMATIC VALVES

THE TIME DURING WHICH THE STABILIZATION PNEUMATIC VALVES ARE ENERGIZED SHALL NOT EXCEED 2 MINUTES OUT OF A 2-HOUR PERIOD WITHOUT GAS FLOW THROUGH THE VALVES.

88 F 5.5.3.2 N/C PRESSURIZATION SQUIB VALVES (DELETED)

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88 5.5.3.3 STABILIZATION TANKS
GAS MEETING THE REQUIREMENTS OF GE-MSD DWG 255E952D PROPELLANT LOADING PIPING INTERFACE. AT A MAXIMUM WHEN PERSONNEL ARE IN THE AREA,THE PRESSURE SHALL NOT EXCEED 3600 PSIG. REFER TO FIGURE D1 OF APPENDIX D.

THE STABILIZATION TANKS SHALL CONTAIN 252)-1 POUNDS OF FREON 14

80A 5.5.3.4 STABILIZATION GAS TANK HEATING

THE STABILIZATION SUBSYSTEM GAS TANK TEMPERATURE SHALL BE 100 DEG F, MINIMUM,125DEG F MAXIMUM.TANK PRESSURE SHALL NOT EXCEED 4775 PSIG.

80A F 5.5.3.5. PAD ABORT SQUIB VALVES

THE N/O PAD ABORT SQUIB VALVES SHALL NOT BE FIRED PRIOR TO LIFTOFF.

80A 5.5.3.6 PNEUMATIC FILLING QUICK DISCONNECT

THE PRESSURE ON THE FILL LINE SHALL BE 150 PSIG MINIMUM AT TIME OF DISCONNECT.

5.5.4 BUSS PNEUMATICS

88 5.5.4.1 BUSS TANKS

THE BUSS TANK SHALL BE LOADED TO A MINIMUM CHARGE WEIGHT OF 18.8 POUNDS OF FREON MEETING THE REQUIREMENTS OF GE-MSD DWG 255E952D PROPELLANT LOADING PIPING INTERFACE. (REFER TO THE BUSS GAS LOADING CURVE, FIGURE D2 OF APPENDIX D). THE PRESSURE AT ANY ONE TIME SHALL NOT EXCEED A MAXIMUM OF 2600 PSIG, AND THE TEMPERATURE SHALL NOT EXCEED 160 DEG. F WHEN PERSONNEL ARE IN THE AREA.

5.5.4.2 BUSS GAS TOP-OFF

THE BUSS TANK SHALL BE TOPPED-OFF TO A CHARGE WEIGHT OF 22.5 +-0.5 POUNDS (REFER TO BUSS GAS LOAD CURVE, FIGURE D-2 OF APPENDIX D). THE GAS PRESSURE SHALL NOT EXCEED 3600 PSIG.

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5.6 EP + SD

5.6.1 OCV BATTERIES

THE PERIOD OF TIME FROM ACTIVATION OF THE SV BATTERIES TO THE TIME OF LAUNCH SHALL BE IN ACCORDANCE WITH APPENDIX B.

5.6.2 INTERNAL POWER

THE VEHICLE SHALL BE ON INTERNAL POWER CONTINUOUSLY FROM IMMEDIATELY PRIOR TO INSERTION OF FINAL PAD COMMAND LOAD THROUGH LAUNCH.

88 5.6.3 ELECTRICAL POWER AND DISTRIBUTION SUBSYSTEM REQUIREMENTS

THE FOLLOWING SHALL BE VERIFIED

A. OPERATIONAL BUS VOLTAGE MONITOR SHALL READ WITHIN THE RANGE FROM 28.5 VDC TO 32.5 VDC, AS MEASURED BY AGE HARDWIRE.

B. INTERNAL EP + SD CONTINUITY LOOP SHALL INDICATE CONTINUOUS.

88 C. EIGHT (8) PRIMARY BATTERIES SHALL BE INSTALLED.

84 D. AS MONITORED ON TELEMETRY THE MAXIMUM CURRENT IMBALANCE BETWEEN EACH ACTIVE OPERATIONAL POWER FEED LINE SHALL BE LESS THAN 80 PERCENT OF THE AVERAGE CURRENT JUST AFTER BATTERY INSTALLATION IN THE VEHICLE AND LESS THAN 50 PERCENT AT TIME OF LAUNCH.

88 5.6.4 CONTINUITY LOOPS

THE FORWARD VEHICLE, SEPARATION, EP + D, AND ORBIT CORRECTION CONTINUITY LOOPS SHALL READ CONTINUOUSLY SUBSEQUENT TO FINAL PAT MATING.

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5.7 ATTITUDE CONTROL SUBSYSTEM

5.7.1 STABILIZATION SUBSYSTEM

FIRING OF ALL SOLENOID GAS VALVES SHALL BE DEMONSTRATED.

5.7.2 RAGS

IT SHALL BE VERIFIED THAT RAGS IS OPERATING BY MONITORING THE PITCH, ROLL AND YAW FINE RATE TELEMETRY OUTPUTS.

5.7.3 IR SCANNER

RESPONSE OF THE IR SCANNER TO ITS STIMULUS SHALL BE VERIFIED.

5.7.4 PITCH, ROLL, AND YAW LOOPS

OPERATION OF THE PITCH, ROLL, AND YAW LOOPS SHALL BE VERIFIED.

88 5.7.5 STABILIZATION SUBSYSTEM FUNCTIONAL STATE AT LIFTOFF

A.	YAW ATTITUDE	FLY FORWARD
B.	ACA OFF/REMOTE BUSS ENABLE	DISABLE
C.	IR + DISCONNECT	DISABLE
D.	PITCH ROLL + YAW GYROS	CAGED
E.	HIGH SECTION SV-2 OPEN AND LOW SECTION SV-1 OPEN	

5.7.6 PNEUMATIC VALVES

THE STABILIZATION SUBSYSTEM SHALL BE INITIALIZED AFTER COMPLETION OF ALL STEPS IN THE STABILIZATION SUBSYSTEM VERIFICATION THAT REQUIRE ENERGIZING OF THE SOLENOID VALVES, OR AFTER ANY INTERRUPTIONS OF POWER.

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5.8 TM SUBSYSTEM

5.8.1 RF CAPABILITY

THE SV TLM SYSTEM SHALL DEMONSTRATE OPEN-LOOP RF CAPABILITY.

88 5.8.2 LAUNCH HOLD-ABORT CRITERIA.

ALL GROUP 1 LAUNCH PRIORITY ITEMS SHALL BE WITHIN LIMITS AS SPECIFIED IN APPENDIX D UP TO LAUNCH. ALL GROUP 2 LAUNCH PRIORTY ITEMS SHALL BE WITHIN LIMITS AS SPECIFIED IN APPENDIX D UP TO START OF TERMINAL COUNT.

5.8.3 MONITORING

ALL TELEMETRY CHANNELS SHALL BE MONITORED AND RECORDED DURING COUNTDOWN (SEE APPENDIX C).

80A 5.8.4 AIRBORNE TAPE RECORDER

THE CAPABILITY OF THE AIRBORNE TAPE RECORDER TO RECORD AND PLAYBACK SHALL BE VERIFIED. THE RECORDER SHALL BE RUNNING FROM TIME OF LAUNCH

88 5.8.5 POWERED FLIGHT (DELETED)

5.9 COMMAND SUBSYSTEM

84 5.9.1 TABOO COMMANDS (DELETED)

5.9.2 REALTIME COMMANDS

REALTIME COMMANDS SHALL BE EXECUTED TO REVERSE THE REALTIME AND PLAYBACK DATA INPUTS TO BOTH TELEMETRY TRANSMITTERS.

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88 5.9.3 S-BAND BEACON

THE RESPONSE FREQUENCY OF THE S-BAND BEACON SHALL BE WITHIN THE LIMITS OF 2920 +- 2 MC+-1 PERCENT PER DEGREE ABOVE OR BELOW 70 DEGREES F WHEN INTERROGATED AT 2850 +- 2 MC=

5.9.4 STORAGE LINE

THE STORAGE LINE SHALL MEET THE REQUIREMENTS OF PARAGRAPH 4.5.3.2.3.4, ITEM B.

5.9.5 TIMERS

THE OPERATION OF THE 12-MINUTE TIMER AND THE 6-MINUTE TIMER SHALL BE IN ACCORDANCE WITH PARAGRAPH 4.5.3.2.3.5.

5.9.6 FLIGHT PAD COMMAND LOAD

THE FLIGHT PAD COMMAND LOAD SHALL BE INTRODUCED AFTER THE VEHICLE HAS BEEN SWITCHED TO INTERNAL POWER. SHOULD VEHICLE INTERNAL POWER BE INTERRUPTED, THE PRELAUNCH COMMAND LOAD MUST BE REINTRODUCED.

88 5.9.7 VEHICLE CLOCK

THE VEHICLE CLOCK SHALL BE CONTROLLED DURING THE TERMINAL COUNT SUCH THAT THE VEHICLE CLOCK READS 100 +- 5 SECONDS AT LAUNCH (LIFT OFF).

80A 5.9.8 MANUAL INITIALIZATION

MANUAL INITIALIZE SHALL BE EXECUTED DURING THE PERIOD THAT THE VEHICLE POWER IS BEING TRANSFERRED.

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5.9.9 COMMIT SEQUENCE

THE VEHICLE CLOCK SHALL BE RELEASED AT A PREDETERMINED TIME SUCH THAT THE VEHICLE CLOCK READS 100 +- 5 SECONDS AT LAUNCH.

5.9.10 SECURE FLIGHT PLUG

THE SECURE FLIGHT PLUG SHALL HAVE BEEN INSTALLED + THIS FACT DOCUMENTED IN THE VEHICLE LOG BOOK.

5.9.11 COMMAND VERIFICATION

THE COMMAND VERIFICATION WORD ACCEPT/REJECT MONITOR SHALL BE VERIFIED THROUGH THE 52.5-KC SUBCARRIER OSCILLATOR AND THROUGH THE BACKUP 70-KC SUBCARRIER OSCILLATOR. (SEE APPENDIX C)

88 5.9.12 SECURE WORD COUNT

THE NUMBER OF DIFFERENT SECURE WORDS USED DURING THE PRELAUNCH PERIOD SHALL NOT EXCEED TEN. THE SECURE WORD COUNT SHALL BE ZERO PRIOR TO TERMINAL COUNT. DURING THE TERMINAL COUNT, THE PPD SECURE WORD COUNT SHALL ADVANCE TO TEN (10) AND REMAIN THERE UNTIL LAUNCH (LIFT OFF).

5.10 SEPARATION SUBSYSTEM

5.10.1 CONTINUITY MONITORS

THE TOTAL OPERATING TIME OF THE CONTINUITY MONITORS AT LAUNCH SHALL NOT EXCEED 360 MILLIAMPERE HOURS, MAXIMUM CURRENT THROUGH THE SEPARATION CONTINUITY LOOP SHALL NOT EXCEED 10 MILLIAMPERES.

5.10.2 FLIGHT AND NONFLIGHT HARDWARE

ALL PYROTECHNIC DEVICES IN THE SV SHALL HAVE BEEN INSTALLED PER PARAGRAPH 4.5.4.2.7

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5.11 BUSS SUBSYSTEM

80A 5.11.1 BACK-UP STABILIZATION SUBSYSTEM (BUSS) REQUIREMENTS

THE FOLLOWING BUSS FUNCTIONAL CHECKS SHALL BE PERFORMED

A. BUSS TELEMETRY ON

B. RESET BUSS VIA AGE.

C. UNSECURE BUSS COMMAND LOOP

1. ZEKE 21 BNS
2. ZEKE 22 BNO.
3. ZEKE 23 BRT.
4. ZEKE 24 BRTNG.
5. ZEKE 25 BMD.

D. SECURE COMMAND KIK ZEKE 32 (PULSE POSITION DEMODULATOR ON)

E. SECURE COMMAND KIK ZEKE 31 IN BUSS MODE 5.THE BAROSWITCH MUST BE IN THE OPEN CONDITION WHEN THIS COMMAND IS EXECUTED.

5.11.2 BUSS RESET BEFORE LAUNCH

THE BUSS SUBSYSTEM SHALL BE IN THE RESET MODE.

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88 APPENDIX A DEFINITIONS

THE FOLLOWING IS PROVIDED AS INFORMATION. NOT AS REQUIREMENTS

SUBSYSTEM-IS ANY FUNCTIONALLY INTEGRATED PORTION OF THE SV. THE SUBSYSTEMS INCLUDE

A. ELECTRICAL POWER AND DISTRIBUTION (EP+D)

B. TELEMETRY (TM).

C. TRACKING AND COMMAND (T+C).

D. SEPARATION (SEP).

E. STABILIZATION (STAB), INCLUDING
ELECTRONICS.
PNEUMATICS.

F. SATELLITE RE-ENTRY VEHICLE (SRV).

G. ORBIT ADJUST (OA).

H. INTERNAL ENVIRONMENTAL CONTROL (IEC).

I BACK-UP STABILIZATION SUBSYSTEM (BUSS).

SECTION (SUB ASSEMBLY) - FOR THE PURPOSE OF THIS SPECIFICATION, IS DEFINED AS A UNIT REPRESENTING THE LARGEST ASSEMBLAGE OF PARTS WHICH, WHEN ATTACHED TO OTHER SUCH UNITS BY READILY REMOVABLE FASTENERS, FORM THE COMPLETE SATELLITE VEHICLE. THE SECTION DESIGNATIONS ARE

A. 1* (STA 19 TO 46.43) SPHERE-CONE FOREBODY WITH ABLATIVE HEAT SHIELD

B. 2* (CONTAINED BY 1) RECOVERABLE WATER-TIGHT CAPSULE WHICH HOUSES COMPONENTS OF THE SRV SUBSYSTEM.

C. 3* THRUST CONE, INCLUDING RETRO ROCKET AND COLD-GAS SPIN AND DESPIN SYSTEM.

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*NOTE

THE COMBINED 1, 2, AND 3 SECTIONS CONSTITUTE THE SRV.

D. 4 (STA 46.43 TO 83.38) ADAPTER AND THOSE COMPONENTS ATTACHED TO THE ADAPTER.

E. 5 (STA 83.38 TO 125.0) FORWARD SECTION SUBASSEMBLY OF THE OCV.

F. 6 (STA 125.0 TO 216) MID SECTION SUBASSEMBLY OF THE OCV.

G. 7 (STA 216 TO 235) AFT SECTION SUBASSEMBLY OF THE OCV.

SATELLITE RE-ENTRY VEHICLE (SRV) - DESIGNATES THE VEHICLE SYSTEM BETWEEN THE NOSE (STATION 19) AND THE SRV/ADAPTER ASSEMBLY POINT (STATION 47) PLUS THE THRUST CONE AND RETROROCKET ASSEMBLY WHICH EXTENDS 15 INCHES INTO THE ADAPTER (SECTIONS 1, 2 AND 3).

ADAPTER - DESIGNATES THE VEHICLE SYSTEM BETWEEN THE SRV/ADAPTER ASSEMBLY POINT (STATION 47) AND THE ADAPTER/OCV ASSEMBLY POINT (STATION 84). (SECTION 4).

ORBIT CONTROL VEHICLE (OCV) - IS THAT PORTION OF THE VEHICLE LOCATED BETWEEN THE ADAPTER OCV ASSEMBLY POINT (STATION 84) AND THE OCV/AGENA ASSEMBLY POINT (STATION 235). (SECTIONS 5, 6 AND 7.)

SATELLITE VEHICLE (SV) - IS THE COMPLETE GE-SUPPLIED SATELLITE VEHICLE (SRV, ADAPTER, AND OCV).

AFT END - IS THE STRUCTURE WHICH ADAPTS THE SV TO AGENA (STATION 216 TO STATION 235). IT REMAINS WITH THE AGENA AT SV/AGENA SEPARATION (SECTION 7).

COMPONENTS - ARE INDIVIDUAL BLACKBOX ITEMS WHICH, WHEN ASSEMBLED, FORM A SYBSYSTEM OR SYSTEM.

FUNCTIONAL TESTS - ARE PERFORMED TO DETERMINE THE ABILITY OF THE SATELLITE VEHICLES TO PERFORM THEIR DESIGNED MISSIONS. CONFORMANCE TO THE SYSTEM ACCEPTANCE SPECIFICATION WILL BE THE CRITERION FOR ACCEPTANCE

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OF THE PRIME EQUIPMENT.

TEST PROCEDURE (TP) - IS A DETAILED PROCEDURE WHICH, WHEN FOLLOWED IN EXERCISING THE SV WITH AEROSPACE GROUND EQUIPMENT, WILL DETERMINE THE CONFORMANCE OF THE EQUIPMENT TO THE SYSTEM ACCEPTANCE TEST SPECIFICATION.

FAILURE - IS DEFINED AS THE INABILITY OF ANY ITEM TO MEET THE REQUIREMENTS OF THE SYSTEM ACCEPTANCE TEST SPECIFICATION.

88 TEST CONDUCTOR(S) - REFERS TO THE PERSON(S) RESPONSIBLE TO THE COGNIZANT GE-SMSP AGENCY FOR THE PROPER CONDUCT OF THE TEST AND REPORTING OF THE TEST RESULTS IN ACCORDANCE WITH GE-SMSP PROCEDURES.

ALTERATION NOTICE (AN) - IS AN ENGINEERING DOCUMENT USED TO AUTHORIZE A CHANGE(S) TO FORMALLY RELEASED DRAWINGS AND/OR SPECIFICATIONS.

UNIT CHANGE INSTRUCTION (UCI) - IS AN ENGINEERING DOCUMENT USED TO AUTHORIZE PLANNED CHANGES TO ONE OR MORE UNITS, COMPONENT OR MATERIAL SUBSTITUTIONS FOR ONE OR MORE PARTS, AND ACCEPTANCE OF A SPECIFIED QUALITY OF PERFORMANCE SPECIFICATION DISCREPANCIES.

OPERABILITY ASSURANCE TESTS - ARE CONDUCTED UNDER LIMITED MISSION ENVIRONMENT CONDITIONS TO DETECT ANY MANUFACTURING DEFECTS WHICH MAY NOT BE REVEALED BY TESTS AT STATIC OR AMBIENT CONDITIONS.

STANDING INSTRUCTIONS (SI) - IS A STEP-BY-STEP TEST INSTRUCTION BASED ON THE APPLICABLE TEST SPECIFICATION AND DESIGNED TO PERMIT DEMONSTRATION OF COMPLIANCE WITH THE APPLICABLE SPECIFICATION. STANDING INSTRUCTIONS ARE FOR FACTORY USE.

END TO END TESTING - IS A TESTING MODE IN WHICH A STIMULUS OF A KNOWN INPUT IS APPLIED TO A SYSTEM OR A SUBSYSTEM IN ORDER TO CHECK A PREDICTED OUTPUT RESPONSE OF THAT SYSTEM OR SUBSYSTEM. IF A KNOWN INPUT PRODUCES THE DESIRED (PREDICTED) OUTPUT RESPONSE, THEN IT WILL BE ASSUMED THAT THE INTERNAL PERFORMANCE OF THE SYSTEM OR SYBSYSTEM IS CORRECT.

STANDARD CUBIC CENTIMETERS - ONE CUBIC CENTIMETER OF GAS AT ATMOSPHERIC PRESSURE (14.7 PSIA AND A TEMPERATURE OF 70 DEG F.

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MISSION MEAN CENTER OF GRAVITY - IS DEFINED AS THE AVERAGE CG LOCATION OF THE SATELLITE VEHICLE, I.E., THE AVERAGE OF CG WITH LAUNCH COLD GAS AND PROPELLANT WEIGHTS AND CG WITH ZERO COLD GAS AND ONE-HALF OF PROPELLANT WEIGHT REMAINING. THIS ALIGNMENT POINT WILL HAVE TO BE SPECIFIED BY WEIGHT AND BALANCE RESULTS FOR EACH VEHICLE.

88 POWERED FLIGHT MODE (DELETED)

ORBIT MODE

LINK 2 IS THE COMPOSITE OF BASES 1,2, AND 3
LINK 3 IS THE COMPOSITE OF BASES 6 AND 8
LINK 3 PLAYBACK IS THE COMPOSITE OF THE RECORDER PLAYBACK.
(THE COMPOSITE OF BASES 6 AND 8 IS SWITCHED OFF LINK 3 PLAYBACK, AND THE RECORDER PLAYBACK IS SWITCHED ON LINK 3 TO BECOME LINK 3 PLAYBACK.)

GYRO RUNDOWN TIME IS DEFINED AS THAT TIME REQUIRED FOR THE GYRO ROTATION TO DECREASE FROM 20 REVOLUTIONS PER SECOND TO 3 REVOLUTIONS PER SECOND AFTER POWER TURNOFF.

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80A SUBSYSTEM CURRENT MONITORS

CURRENT, COMMAND SUBSYSTEM TELEMETRY SENSOR MONITORS THE.

1) 6V PWR SUPPLY CONTINUOUS AND SWITCHED
2) PWR SEQUENCER
3) PRIMARY ACTUATOR
4) BACKUP ACTUATOR
5) EXPLOSIVE PISTON
6) COMMAND DECODER
7) COMMAND PROGRAMMER (FILTERED)

CURRENT, STAB SUBSYSTEM TELEMETRY SENSOR MONITORS THE.

1) DC PWR SUPPLY
2) SPACE HTR (SECT 7)
3) TARS ELECTRONICS
4) PREDAC
5) RAGS
6) TARS COMPENSATOR
7) RACA
8) PACA
9) YACA
10) INHIBIT TRANSFER MODULE
11) TARS GIMBAL ASSEMBLY

CURRENT, SEPARATION/BUSS TELEMETRY SENSOR MONITORS THE CURRENT SUPPLIED BY THE BUSS/SEPARATION BACKUP BATTERY TO THE.

1) BUSS COMPONENTS
2) SEPARATION COMPONENTS
3) SEPARATION PYROTECHNICS
4) DELTA 4 TLM
5) BUSS/SEP B/UP BATTERY HEATER
6) PB CONTROLLER

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88 APPENDIX B HOLDTIME LIMITATIONS GREEN AND RED LINE LIMITS

1. THE REQUIREMENTS CONTAINED IN THIS APPENDIX ARE PREPARED UNDER THE FOLLOWING ASSUMPTIONS

A. PAD CYCLE IS 3 DAYS.

B. MISSION IS 8 DAYS.

C. DELETED

2. THE TABLES ON THE FOLLOWING PAGES OUTLINE COMPONENT TIME CYCLE PHASES, WITH RESPECT TO VEHICLE SUBSYSTEMS. DEFINITIONS OF HEADINGS ON THE TABLES THAT FOLLOW ARE LISTED BELOW.

COLUMN	DEFINITION (INFORMATION ONLY)
1	COMPONENTS - THE ITEMS LISTED HERE ARE ITEMS THAT LIMIT THE PAD HOLD TIME TO LESS THAN 30 DAYS.
2	ITEM NUMBER - ITEM NUMBER IN THE SUBSYSTEM.
3	MAXIMUM TIME BETWEEN FUNCTIONAL TEST OR MAXIMUM STAND TIME OR LIFE TIME (EXCLUDING MISSION) - DEFINES THE MAXIMUM LIFE TIME AND/OR CYCLE AND/OR SHELF LIFE AND/OR CALIBRATION TIME A COMPONENT IS CAPABLE OF WITHSTANDING (EXCLUDING MISSION) BEFORE SUCH COMPONENTS SHOULD BE CHANGED.
4	CONDITION TO BE MAINTAINED BETWEEN TEST OR ACTION TO BE TAKEN - DEFINES THE CONDITION TO BE MAINTAINED OR MONITORED BETWEEN FUNCTIONAL TESTS.
5	FUNCTIONAL TEST WITH VEHICLE MATED - DEFINES WHETHER A FUNCTIONAL TEST CAN BE PERFORMED ON THE COMPONENT WHEN THE VEHICLE IS MATED TO THE S01A.

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88 HOLDTIME LIMITATION.

88 ELECTRICAL POWER AND DISTRIBUTION SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
OPER.BATT. 8	16 DAYS NOM. SEE FIGURE 4.5.1.2.2-1 MUST HAVE A MIN. WET STORAGE TIME OF 5 DAYS PRIOR TO INST IN THE VECH. 5 DAYS MIN. WET STORAGE ESTABLISHES DAY 1 FOR THE 16 DAYS MENTIONED ABOVE.	REPLACE BATT. IF NOT LAUNCHED WITHIN WET- STAND-TIME REQUIREMENTS SEE FIG. 4.5.1.2.2-1 MAINTAIN TEMP BELOW 80 DEG. F AFTER ACTIVATION.	LOG KEPT FOR AMPERE- HOURS, VOLT- AGE AND CURR. USED DURING TESTING MIN. OF 5 AMP HRS. CONSUMP. BEFORE LIFT- OFF IS REQ. MAX TOTAL AMPERE-HRS. CONSUMED SHALL NOT EXCEED 90. USUALLY ACTV. ABOUT 9 DAYS BEFORE LAUNCH	12 DAYS IF ACTIVATED 9 DAYS BEFORE LAUNCH. DECAY OF MISS ON SYSTEM BASIS, APPX. 0.6 ORBIT OF MISSION CAPABILITY IS LOST FOR EACH ADDT. DAY OF WET STORAGE. WOULD TAKE ABOUT 5 DAYS TO RECYCLE FOR BATTY. REPLACEMENT (COUNT.DOWN ASSUMED)

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88 ELECTRICAL POWER AND DISTRIBUTION SUBSYSTEM (CONT)

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
BUSS/SEP BACKUP BATT.	24 DAYS. MUST HAVE A MIN. WET STORAGE TIME OF 5 DAYS PRIOR TO INSTALL. IN THE VEHICLE. 5 DAYS MIN. WET STORAGE ESTABLISHES DAY 1 FOR THE 24 DAYS MENTIONED ABOVE.	REPL. BATT. IF NOT LAUNCHED WITHIN 27 DAYS OF ACTIVATION. MAINTAIN TEMP. BELOW 80 DEG. F	LOG KEPT. VOLTAGE MONT. DURING OPER. TESTS.	20 DAYS IF ACTIVATED 9 DAYS BEFORE LAUNCH. LESS DEGRAD. THAN FOR OPERATIONAL BATTERY.

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H-30 SRV SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
PARACHUTE	80 DAYS AFTER VENDOR PACKING	NONE	NONE. ABOUT 7 DAYS RECYCLE REQD. TO REPLACE (FINAL COUNT DOWN ASSUMED)	58 DAYS (ASSUMING LAUNCH IS 22 DAYS AFTER VENDOR PACKING)
H-30 RECOVERY BATTERY DWG 692D785	33 DAYS MUST HAVE A MIN. WET STORAGE TIME OF 2 DAYS PRIOR TO INSTALLATION IN THE VEHICLE. (2 DAYS MIN. WET STORAGE ESTABLISHES DAY 1 FOR THE 23 DAYS MENTIONED ABOVE.)	CHANGE BATTERY IF NOT LAUNCHED WITHIN 35 DAYS OF ACTIVATION. MAINTAIN TEMP. BELOW 80 DEG. F. ABOUT 7 DAYS RECYCLE REQD. TO REPLACE (FINAL COUNT DOWN ASSUMED)	LOG KEPT. MEASURE AND RECORD VOLTAGE. MAX. AMPERE-HOURS CON-SUMED WILL NOT EXCEED 0.30 AMP-HR. USUALLY ACTIVATED 12 DAYS BEFORE LAUNCH.	23 DAYS IF ACTIVATED 12 DAYS BEFORE LAUNCH. DECAY OF MISSION. MINOR CAPACITY AND REGULATION LOSS TO (-) 2 DAYS.

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88 H-30 SRV SUBSYSTEM (CONT)

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
COLD GAS TANKS (SPIN) AND DESPIN)	30 DAYS	TOP-OFF SHOULD BE PERFORMED PRIOR TO ADAPTER MATING, IF MATING IS PERFORMED MORE THAN 48 HOURS AFTER LOADING.	NONE USUALLY LOADED ABOUT 14 DAYS BEFORE LAUNCH.	16 DAYS (IF LOADED 14 DAYS BEFORE LAUNCH). DECAY OF MISSION. AFFECT RV RE-ENTRY LOADS AND DISPERSION. APPROX. 0.1 RPM LOST PER DAY OF HOLD BEYOND 16 DAYS.

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SEPARATION SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
PIN PULLER SQUIBS	36 HRS. AT 10 MA 72 HRS. AT 5 MA	TOTAL TIME CONTINUITY CURRENT CHECK SHOULD NOT BE EXCEEDED TO ENSURE NO DEGRADATION. ABOUT 5 DAYS RECYCLE REQD. TO REPLACE (COUNT DOWN ASSUME)	KEEP LOG, MONITOR CONTINUITY OF BRIDGE	NONE IF TOTAL CONTINUITY TIME IS WITHIN LIMIT STATED IN 3.
IFD SQUIBS	36 HOURS AT 10 MA 72 HOURS AT 5 MA	TOTAL TIME CONTINUITY CURRENT CHECK SHOULD NOT BE EXCEEDED TO ENSURE NO DEGRADATION ABOUT 5 DAYS RECYCLE REQD. TO REPLACE (COUNT DOWN ASSUME)	--	NONE IF TOTAL CONTINUITY TIME IS WITHIN LIMIT STATED IN 3.

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PROPULSION SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
PROPULSION TANK LOADS	10 DAYS WITHOUT TOP-OFF OR REFILL. 25 DAYS (WITH 2 TOP-OFFS OR REFILLS) TEMP. AND PRESSURE MEASUREMENTS EACH HALF HOUR.	EVERY 10 DAYS BLEED THE PRESSURANT SIDE OF THE OXIDIZER BLADDER TO REQD. LOAD. USUALLY LOADED ABOUT 18 HOURS BEFORE LAUNCH	MONITOR OXIDIZER AND FUEL PRESSURES AND AND TEMP. EVERY HALF HOUR. VERIFY NO LEAKAGE ABOUT 23 DAYS TO REPLACE TANK (COUNT DOWN ASSUMED)	25 DAYS EXPOSURE TO FUEL AND NTO. UNLOAD FUEL AND NTO AND RECHECK FOR BLADDER LEAKS. DECAY OF MISSION BLADDER FAILURE WOULD CAUSE LOSS OF IMPULSE.

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PROPULSION SUBSYSTEM (CONT)

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
PROPELLENT BLADDER FLEXURE	2 CYCLES ON PAD (2 FOR PAD ABORTS). ONE LIFE CYCLE REMAINS FOR MISSION) MAX NUMBERS OF FLEXURE FROM VENDOR TO LAUNCH (4) EXCLUDING (1) FOR MISSION.	UPSTREAM PRESSURE 10 PSI ABOVE BLADDER PRESSURE WILL CAUSE FLEXURE.	DURING LOADING CHECK FOR BLADDER LEAKS.	2 CYCLES. DECAY OF MISSION BLADDER FAILURE WOULD CAUSE LOSS OF IMPULSE.

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88 PROPULSION SUBSYSTEM (CONT)

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
GN2 TANK LOAD	10 DAYS WITH-OUT TOP-OFF.	MONITOR GN2 TANK PRESSURE AND LEAK RATE TO ESTABLISH NEED FOR TOP-OFF PRIOR TO A DELAYED LAUNCH.	MONITOR GN2 PRESSURE AND TEMP. CAN BE TOPPED-OFF ON THE PAD. ABOUT 23 DAYS TO REPLACE TANK (COUNT DOWN ASSUMED).	MIN. LAUNCH PRESSURE OF 3900 PSIA AT A TEMP. OF 70 DEG. F. DECAY OF MISSION 6000 LB SEC IMPULSE LOST PER 260 PSI BELOW 3900 PSIA AT 70 DEG. F (INCLUDES LEAKAGE ALLOWANCE). NOMINAL PRESSURE 4500 PSIA AT A TEMP. OF 70 DEG. F.

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COMMAND INSTRUMENTATION SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
RECORDER REPRODUCER ASSEMBLY	NONE OF THE FOLLOWING CONDITIONS SHOULD HAVE BEEN EXCEEDED AT TIME OF LAUNCH. 1) 100 HRS. USE ON TAPE AND DRIVE BELT 2) [illegible]00 HRS. USE ON THE CLUTCH ASSY.	MUST BE RUNNING DURING POWERED FLIGHT PHASE OF MISSION.	FUNCTIONAL TESTING MAY MAY BE MADE WHILE THE VEHICLE IS IS MATED	INDEFINITE AS LONG AS TEMP. CONDITIONS (120 DEG. F MAX.) AND MAXIMUM OPERATING TIME ARE MET.

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STABILIZATION ELECTRONIC SUBSYSTEM

1 COMPONENT OR EVENT	2 MAXIMUM TIME BETW. FUNCT. TEST OR MAX. STAND OR LIFE TIME (EX. MISSION)	3 COND TO BE MAINTD. BETW. TEST OR ACT. TO BE TAKEN	4 FUNCTIONAL TEST WITH VEHICLE MATED	5 MAXIMUM HOLD TIME CAPABILITY
TARS, RAGS GYROS	100 HRS. OF GYRO WHEEL TIME FROM LAST RUNDOWN	TEMP. REQUIREMENTS PER SECTION 4.5.5.2.10	AT LAUNCH, TEMP. MUST BE 165 DEG +- 3 DEG.F.	

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	COMPONENT	GREEN LINE LIMITS MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMITS MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUCNH
80A	BUSS		
	AUXILIARY TIMER		500 CYCLES
	MAGNETOMETER		325 HRS.
	VHF RECEIVER		1325 HRS
	DECODER, TYPE V		1325 HRS
	DECODER, TYPE VIII		1325 HRS
	DECODER, TYPE IX (BUSS)		1325 HRS
	DECODER, TYPE IX (COMMAND)		1325 HRS
	ELECTRONIC FLIGHT CONTROLLER		150 HRS.
	RATE GYRO		100 HRS.
	THRUST VALVE		100,000 CYCLES
	TANK		395 CYCLES
	JUNCTION BOX		1900 CYCLES
	DIFFERENTIAL PRESSURE TRANSDUCER		5000 CYCLES
	TEMPERATURE SENSOR (TANK)		525 HRS.
	JUNCTION BOX (SA)		1825 CYCLES
	FILL SOLENOID VALVE		500 CYCLES
	SIGNAL CONDITIONER		4825 HOURS
	MULTIPLEXER (30X2.5)		9825 HOURS
	SCO BASE 8		1325 HOURS

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		GREEN LINE LIMITS MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMITS MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH
88	COMPONENT		
80A	TRACKING AND COMMAND		
	VERLORT S-BAND BEACON	26 HRS.	555 HRS.
	COMMAND DECODER	35.6 HRS.	1885 HRS.
	POWER CONTROLLER	935 HRS.	44,800 CYCLES
	COMMAND PROGRAMMER	87 HRS.	1325 HRS.
	POWER SUPPLY, 6-VOLT	7.4 HRS.	1325 HRS.
	COMMAND DECODER RELAY BOX	2100 HRS.	97,750 CYCLES
	LATCHING CONTACTOR		48,000 CYCLES
	PULSE POSITION DEMODULATOR		9875 HRS.
	POWER SEQUENCER	12.5 HRS.	1885 HRS.
83	TELEMETRY		
	RF TRANSMITTER (DELTA 3)		2875 HRS.
	RF TRANSMITTER (DELTA 2)		2875 HRS.
	TRANSMITTER TRANSFER SWITCH ASSEMBLY		97,750 CYCLES
	MULTIPLEXER, DUAL 30X5		9890 HRS.

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	COMPONENT	GREEN LINE LIMITS MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMITS MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH
88			
83	TELEMETRY (CONT)		
	MULTIPLEXER, 30X2.5 (ORBITAL MODE)		9890 HRS.
	MULTIPLEXER, 90X1/18 (ORBITAL MODE)		9890 HRS.
83	SCO BASE 1 (5 UNIT)	3 HRS.	1440 HRS.
83	SCO BASE 2 (5 UNIT)	3 HRS.	1440 HRS.
83	SCO BASE 3 (5 UNIT)	3 HRS.	1440 HRS.
83	SCO BASE 6 (7 UNIT)	3 HRS.	1440 HRS.
	SIGNAL DATA RECORDER		210 HRS.
88	RECORDING TAPE, DRIVE BELTS AND CLUTCH		100 HRS.
	COMPONENT TEMP. DET. (80 DEG. F-200 DEG. F)		4250 HRS.
	COMPONENT TEMP. DET. (0 DEG. F-130 DEG.F)		4250 HRS.
	LINER TEMP. DET		4250 HRS.
	SEPARATION		
	RV OCV SEP. SPRING + GUIDE ASSEMBLY		195 CYCLES
	OCV SEPARATION SPRING AND GUIDE ASSEMBLY		195 CYCLES
	SEPARATION MICROSWITCH		990 CYCLES
	IN-FLIGHT DISCONNECT(SRV/ADAPTER)		70 CYCLES
	AUXILIARY CONTROLLER		90,000 CYCLES
83	SEPARATION CONTROLLER	70 CYCLES	90,000 CYCLES
	OCV INNER SHIELD MECHANISM AND ASSEMBLY		4990 CYCLES
	BAROSWITCH		990 CYCLES
	SEPARATION FUSE BOX		200 CYCLES

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88		GREEN LINE LIMITS	RED LINE LIMITS
		MINIMUM ACCUMULATED	MAXIMUM ACCUMULATED
		HOURS OR CYCLES AT	HOURS OR CYCLES AT
	COMPONENT	LAUNCH	LAUNCH
83	STABILIZATION ELECTRONICS		
83	TARS PLATFORM	99 HRS.	1325 HRS.
	RATE GYRO PACKAGE		1325 HRS.
	CONTROL AMPLIFIER- ROLL		1325 HRS.
	CONTROL AMPLIFIER- YAW,PITCH		1325 HRS.
83	ROLL MANEUVERING AMPLIFIER	12.5 HRS.	1325 HRS.
83	POWER SUPPLY, DC	38.4 HRS.	9325 HRS.
83	TARS ELECTRONICS	189 HRS.	1325 HRS.
83	RESOLVER SUMMING AMPLIFIER	14.1 HRS.	1325 HRS.
	COMPENSATOR ELECTRONICS		2325 HRS.
83	IR SENSOR SCANNER (BARNES)	21.5 HRS.	690 HRS.
	BARNES MIXER BOX		690 HRS.
83	PREDAC	35 HRS.	2325 HRS.
	INHIBIT BOX		1325 HRS.
83	STABILIZATION PNEUMATICS		
	STORAGE PRESS. TRANSDUCER, LOW RANGE(LOW PRESS. SYS)		500 CYCLES
	STORAGE PRESS.TRANSDUCER,HIGH RANGE(HIGH PRESS. SYS)		500 CYCLES
83	HIGH-PRESSURE REGULATOR	114 CYCLES	5000 CYCLES
	LOW-PRESSURE REGULATOR		7000 CYCLES
83	SOLENOID VALVE, HIGH FLOW	38 CYCLES	7000 CYCLES
83	SOLENOID VALVE, LOW FLOW	88 CYCLES	7000 CYCLES
	FREON TANKS		95 CYCLES
	PRESSURE SWITCH		830 CYCLES

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	COMPONENT	GREEN LINE LIMITS MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMITS MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH
88			
80A	STABILIZATION PNEUMATICS (CONT)		
	TEMPERATURE DETECTOR		4400 CYCLES
	NOZZLE- HIGH FLOW, HIGH PRESSURE		29,400 CYCLES
	NOZZLE- LOW FLOW, LOW PRESSURE		29,400 CYCLES
	NOZZLE- HIGH FLOW, LOW PRESSURE		29,400 CYCLES
	NOZZLE- LOW FLOW, HIGH PRESSURE		29,400 CYCLES
83	ENVIRONMENTAL CONTROL		
	COMPARTMENT HEATERS		7325 HRS.
	TEMPERATURE CONTROLLER (DIFFERENTIAL)		825 HRS.
	TEMPERATURE SENSOR		900 HRS.
	INLET PORT ASSEMBLY		225 CYCLES
	MICROSWITCH COMPUTER		8875 CYCLES
	EXHAUST PORT ASSEMBLY		225 CYCLES
	MAGNETIC SWITCH		1000 CYCLES
83	BACK UP ACTUATOR	4 CYCLES	4825 CYCLES
83	ELECTRO MECHANICAL ACTUATOR	4 CYCLES	4700 CYCLES
	RETRACTABLE PIN ASSEMBLY		150 CYCLES
	CONTROL LOGIC BOX		5200 CYCLES
	POSITION INDICATOR		8700 CYCLES
	THERMAL FUSE MODULE		5375 CYCLES
83	ORBIT ADJUST		
	PROPELLANT TANK FUEL BLADDER FLEXURE		4 CYCLES
	PRESSURANT TANK NO BLADDER FLEXURE		350 CYCLES
	PROPELLANT TANK FUEL NO BLADDER FLEXURE		350 CYCLES
	PROPELLANT TANK OXIDIZER BLADDER FLEXURE		4 CYCLES
	PRESSURANT TANK		350 CYCLES

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88		GREEN LINE LIMIT MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMIT MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH
	COMPONENT		
83	ORBIT ADJUST (CONT)		
	PNEUMATIC RELIEF VALVE		850 CYCLES
	PNEUMATIC REGULATOR		875 CYCLES
	PNEUMATIC CHECK VALVE		875 CYCLES
	PRESS. FILL VALVE, FUEL		25 CYCLES
	PRESS. FILL VALVE, OXIDIZER		25 CYCLES
	TEMPERATURE SENSOR		525 HRS.
	HIGH-PRESSURE TRANSDUCER		200 CYCLES
	LOW-PRESSURE TRANSDUCER		200 CYCLES
	QUICK-DISCONNECT PROPELLANT FILL, FUEL		40 CYCLES
	QUICK-DISCONNECT PROPELLANT FILL, OXIDIZER		40 CYCLES
83	OCV RELAY BOX	13 CYCLES	3940 CYCLES
	THRUST CHAMBER ASSEMBLY		4 CYCLES
80A	FORWARD SECTION		
	VCO AND AMPLIFIER ASSEMBLY		1490 HRS.
	CONVERTER CONTROLLER		49,950 CYCLES
	CONVERTER TRANSLATER		1495 HRS.
	TRANSLATOR, 0.6 G		1498 HRS.
	TRANSLATOR, 0.40 G		1496 HRS.
	TRANSMITTER		995 HRS.
	TRANSFER MODULE		3995 HRS.
	DIODE MODULE		470 HRS.
	ARM MODULE		3990 HRS.
	INERTIAL G SWITCH		984 CYCLES
	TEMP SENSOR, THRUST CONE		4325 HRS.
	SEPARATION SWITCH, THRUST CONE		995 CYCLES
	FLASHING LIGHT CONTROLLER		1950 HOURS
	TEMP SENSOR, FOREBODY		4400 HRS.

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COMPONENT	GREEN LINE LIMITS MINIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH	RED LINE LIMITS MAXIMUM ACCUMULATED HOURS OR CYCLES AT LAUNCH
80A FORWARD SECTION (CONT)		
EJECTION PROGRAMMER		1980 CYCLES
RECOVERY PROGRAMMER		1965 CYCLES
BEACON CONTROLLER		1950 HRS.
BEACON		50 HRS.
FLASHING LIGHTS		1450 HRS.
MECHANICAL TIMER		2495 CYCLES
RESISTOR MODULE		3995 CYCLES
FOREBODY (FROM TIME OF MFG. TO PROJECTED TIME OF RECOVERY USAGE)		18 MOS MAX.
ELECTRICAL POWER AND SIGNAL DISTRIBUTION		
UMBILICAL DISCONNECT RECEPTACLE		185 CYCLES
LLCB		2200 HRS.
RELAY, SHUT-OFF MODULE		19,000 CYCLES
RELAY, AGE INSTRUMENTATION		5425 HRS.
VOLTAGE STEP-DOWN MODULE (EP AND SD)		DELETED
VOLTAGE STEP-DOWN MODULE (BUSS)		2325 HRS.
PLUG, IN-FLIGHT DISCONNECT		70 CYCLES
RECEPTACLE, IN-FLIGHT DISCONNECT		70 CYCLES

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88 APPENDIX C SV TELEMETRY CHANNEL ASSIGNMENT SUMMARY

SATELLITE VEHICLE TELEMETRY CHANNEL ASSIGNMENTS SUMMARY

THIS APPENDIX PRESENTS THE TELEMETRY CHANNEL AND PIN ASSIGNMENTS.

83 IRIG CHANNEL 16* LINK 2*(RT) 40 KC* 30 X 5 MULTIPLEXER*

	PULSE	TELEMETRY MEASUREMENT	LIMITS
83	1	VOLTAGE, OCV BATTERIES PRIMARY	40-60
	2	VOLTAGE BUSS/SEP BACKUP BATT.	+-5 PCT BATT VOLTAGE SETTING
	3	D.C. PWR. SUPPLY VOLTAGE INPUT	75-90
	4	COMMAND DECODER VOLTAGE MONITOR	45-65
	5	10 PERCENT CALIBRATION	9-11
	6	CURRENT, OP. BATT. NO. 1	CALIBRATED TO
	7	CURRENT, OP. BATT. NO. 2	WITHIN +-7PCT OF
	8	CURRENT, OP. BATT. NO. 3	ACTUAL CURRENT
	9	CURRENT, OP. BATT. NO. 4	
	10	CURRENT. OP. BATT. NO. 5	
	11	CURRENT, OP. BATT NO 6	
	12	CURRENT, OP. BATT NO 7	
	13	CURRENT, OP. BATT NO 8	

* SEE SV TELEMETRY BLOCK DIAGRAM, FIGURE C-1.

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83 IRIG CHANNEL 16 LINK 2 (RT) 40 KC 30 X 5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
14	CURRENT, BUSS//SEP BACKUP BATTERY *	CALIBRATED TO WITHIN 7 PCT OF ACTUAL CURRENT
15	50 PERCENT CALIBRATION	48-52
16	AMPERE HOUR METER, (LSD) ZERO COND	-5+10
17	AMPERE HOUR METER, ZERO COND	-5+10
18	AMPERE HOUR METER, (MSD) ZERO COND	-5+10
19	P AXIS MAGNETOMETER	INITIAL SYSTEM CAL. WITHIN +-10 PERCENT OF CONVERTED VENDOR MAGNETOMETER CAL DATA, SUBSEQUENT SYSTEM MEASURE-MENT WITHIN +- 5 PCT OF SYSTEM CALI-BRATION CURVE
20	Q AXIS MAGNETOMETER	
21	R AXIS MAGNETOMETER	
22	PITCH DEMODULATOR ERROR (CAGED)	34-50
23	ROLL DEMODULATOR ERROR (CAGED)	34-50
24	YAW DEMODULATOR ERROR (CAGED)	34-50

* SEE APPENDIX A FOR BUSS/SEP BACKUP BATTERY CURRENT MONITOR LOAD DEFINITION.

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83 IRIG CHANNEL 16 LINK 2 (RT) 40 KC 30 X 5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
25	90 PERCENT CALIBRATION	89-91
26	TEMP S-BAND BEACON (INT.)	COMP CAL CURVE
27	S-BAND BEACON INTERROGATE	NOMINAL RANGE 20-40
28	S-BAND BEACON TRANSMIT	NOMINAL RANGE 20-40
29	FRAME SYNC	98-102
30	FRAME SYNC	98-102

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88 IRIG CHANNEL 15 LINK 2 (RT) 30 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS		
88	1	H-30 CONTINUITY AND SEP. EVENTS	TEST		FLIGHT
			PRIMARY	BUSS	(INFO ONLY)
		NO EVENT	18-28	18-28	18-28
		EVENT =1-DISC 1	69-79	69-79	69-79
		EVENT =2-DISC 2	18-28	69-79	69-79
		EVENT 3-ARM	0+-5	50-60	50-60
		EVENT 4-PIN PULLER	N/A	N/A	0+-5
88	2	SEP T/M. MONITOR NO 1			
		AMBIENT	24-44		
		BARO. CLOSURE	85-OBH		
		BABO/PB.1/PB.2 SWITCHES	50-70		
		BARO/PB1/PB2 AND SV AGENA SEP	30-50		
86	3	5 V BUS	95 TO 105		
86	4	5V. BUS	95 TO 105		
	5	10 PERCENT CALIBRATION	9-11		
	6	SECURE WORD COUNT 1 (L.S.D.) 0,1	105-125, -10 +10		
	7	SECURE WORD COUNT 2	105-125, -10 +10		
	8	SECURE WORD COUNT 3	105-125, -10 +10		
	9	SECURE WORD COUNT 4	105-125, -10 +10		
	10	SECURE WORD COUNT 5	105-125, -10 +10		
	11	SECURE WORD COUNT 6	105-125, -10 +10		

88 IRIG CHANNEL 15 LINK 2 (RT) 30 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	12	SECURE WORD COUNT 7 (M.S.D.)	105-125, -10 +10
	13	DELAY LINE 1 AND 2 FULL	88-108
		LINE 1 FULL	50-70
		LINE 2 FULL	30-50
		LINES 1 AND 2 NOT FULL	0-20
	14	DELAY LINE 3 AND 4 FULL	88-108
		LINE 3 FULL	50-70
		LINE 4 FULL	30-50
		LINES 3 AND 4 NOT FULL	0-20
	15	50 PERCENT CALIBRATION	48 TO 52
	16	PRESS, OCV N(2) REG. INLET	+-5PCT OF ACTUAL N(2) PRESSURE
	17	TEMP, COLD GAS TANK AT 38 DEG (STA 217) AT 70 DEG F.	33-43
	18	TEMP, COLD GAS TANK AT 321 DEG (STA 217) AT 70 DEG F.	33-43
	19	PRESSURE, ATTITUDE CONTROL STORAGE TANK	COMP CAL CURVE
84	20	COLD GAS PRESSURE SWITCH	
		GREATER THAN 1000 PSIA	23-43
		BETWEEN 750 AND 1000 PSIA	54-74
		LESS THAN 750 PSIA	90-110
	21	5 V BUS	95-105

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88	IRIG CHANNEL 15 LINK 2 (RT)		30 KC	30X2.5 MULTIPLEXER
	PULSE	TELEMETRY MEASUREMENT		LIMITS
88	22	REDUNDANT PNEUMATICS		
		HIGH/LOW SECTION OPEN AND BALANCE OFF		-5 +5
		HIGH SECTION CLOSE CMD.		55-65
		HIGH SECTION CLOSE		15-25
		HIGH SECTION CLOSE AND BALANCE ON		25 - 35
		HIGH/LOW SECTION CLOSE CMD.		85 - 100
		HIGH/LOW SECTION CLOSE		45 - 60
		HIGH/LOW SECTION OPEN CMD.		40 - 55
	23	GFE 1-11		
	24	GFE 1-26		
	25	90 PERCENT CALIBRATION		89-91
	26	GFE 1-28		
	27	GFE 2-2		
83	28	22 V MONITOR		
		22 V ON		84-94
	29	FRAME SYNC		98-102
	30	FRAME SYNC		98-102

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84 IRIG CHANNEL 14 LINK 2 (RT)/ LINK 3 (PB) 22 KC 30 X 5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
1	ROLL TORQUE MOTOR VOLTAGE (CAGED)	30-70
2	PITCH TORQUE MOTOR VOLTAGE (CAGED)	30-70
3	ROLL IR COMPUTER OUT (CAGED)	30-70
4	PITCH IR COMPUTER OUT (CAGED)	30-70
5	10 PERCENT CALIBRATION	9-11
6	GYRO, ROLL RATE OUTPUT, COARSE(CAGED)	40-60
7	GYRO PITCH RATE OUT, COARSE (CAGED)	40-60
8	GYRO YAW RATE OUT, COARSE (CAGED)	40-60
9	ROLL ATTITUDE ERROR, ACA (CAGED)	40-60
10	PITCH ATTITUDE ERROR, ACA (CAGED)	30-50
11	YAW ATTITUDE ERROR, ACA (CAGED)	40-60
84 12	ROLL ATTITUDE CONTROL AMP OUT	
	HIGH NEGATIVE THRUST	73-87
	HIGH POSITIVE THRUST	53-67
	LOW NEGATIVE THRUST	33-47
	LOW POSITIVE THRUST	13-27
84 13	PITCH ATTITUDE CONTROL AMP OUT	
	HIGH NEGATIVE THRUST	73-87
	HIGH POSITIVE THRUST	53-67
	LOW NEGATIVE THRUST	33-47
	LOW POSITIVE THRUST	13-27

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84 IRIG CHANNEL 14 LINK 2 (RT)/ LINK 3 (PB) 22 KC 30 X 5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
84	14	YAW ATTITUDE CONTROL AMP OUT	
		HIGH NEGATIVE THRUST	73-87
		HIGH POSITIVE THRUST	53-67
		LOW NEGATIVE THRUST	33-47
		LOW POSITIVE THRUST	13-27
	15	50 PERCENT CALIBRATION	48-52
	16	INHIBIT TRANSFER	
		SEARCH ON/INHIBIT ON	76-96
		SEARCH OFF/INHIBIT ON	53-73
		SEARCH ON/INHIBIT OFF	28-48
		SEARCH OFF/INHIBIT OFF	0-20
84	17	YAW TORQUE	
		ON	90-110
		OFF	-10+10
	18	CURRENT, STAB SUBSYSTEM*	REFER TO COMPONENT CALIBRATION CURVE
	19	GFE 1-13	
	20	GFE 1-14	
	21	GFE 1-17	
	22	GFE 1-20	

* SEE APPENDIX A FOR DEFINITION OF STAB SUBSYSTEM CURRENT MONITOR LOAD DEFINITION

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84 IRIG CHANNEL 14 LINK 2 (RT)/ LINK 3 (PB) 22 KC 30 X 5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
23	GFE1-27	
24	GFE 1-19	
25	90 PERCENT CALIBRATION	89-91
26	GFE 1-21	
27	GFE 1-22	
28	GFE 1-23	
29	FRAME SYNC	98-102
30	FRAME SYNC	98-102

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88 IRIG CHANNEL 12 *LINK 2 (RT)/ *LINK 3 (PB) 10.5 KC 30X2.5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
1	GFE 2-15	
2	GFE 1-16	
3	GFE 1-29	
4	GFE 1-18	
5	10 PERCENT CALIBRATION	9-11
6	GFE 1-12	
7	GFE 1-3	
8	GFE 1-33	
9	GFE 1-34	
10	GFE 1-35	
11	GFE 1-25	

*WHEN DSPC 5/2/12 IS 0.

88 IRIG CHANNEL 12 *LINK 2 (RT)/ *LINK 3 (PB) 10.5 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
88	12	COMPUTER PHASE	
		OUTER SHIELD ON	21-35
		PHASE B (0 DEGREES) (OUTER SHIELD OFF)	75-85
		TRANSITION PHASE B TO PHASE A SWITCH ACTIVATION 96 DEG. NOM.	RAMP
		PHASE A SWITCH OPEN (96 DEG NOMINAL)	27-37
		PHASE A SWITCH CLOSED (96 DEG NOMINAL)	19-29
		PHASE A SWITCH CLOSED TO PHASE A STOP	RAMP
		PHASE A STOP(110 DEG.NOMINAL)	10-20
		PHASE A STOP W/ PHASE B COMMANDED	20-30
		PHASE A TO PHASE B	RAMP
	13	COMPUTER EVENTS	
		PHASE B POSITION	13-27
		PHASE A COMMAND AND POSITION	67-81
		PHASE B COMMAND	33-47
		PHASE A COMMAND BACKUP	92-106
		PHASE B COMMAND BACKUP	59-73
	14	CURRENT COMMAND SUBSYSTEM **	REFER TO COMPONENT CALIBRATION CURVE
	15	50 PERCENT CALIBRATION	48-52

*WHEN DSPC 5/2/12 IS 0.

** SEE APPENDIX (A) FOR DEFINITION OF COMMAND SUBSYSTEM CURRENT MONITOR LOAD DEFINITION.

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88 IRIG CHANNEL 12 *LINK 2 (RT)/ *LINK 3 (PB) 10.5 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	16	PIGGYBACK NO. 1	
	17	PIGGYBACK NO. 2	
	18	TEMP. STAGNATION POINT AT 70 DEG F.	60-70
	19	PRESSURE, OCV OXIDIZER	+-5PCT OF ACTUAL PRESSURE
	20	PRESSURE, OCV FUEL	+-5PCT OF ACTUAL PRESSURE
86	21	5 V BUS	95-105
86	22	5 V BUS	95-105
86	23	5 V BUS	95-105
86	24	5 V BUS	95-105
	25	90 PERCENT CALIBRATION	89-91
83	26	RECORDER COUNTER (LSD) 0,1	95-120, -10+10
83	27	RECORDER COUNTER 0,1	95-120, -10+10
83	28	RECORDER COUNTER (MSD) 0,1	95-120, -10+10
	29	FRAME SYNC	98-102
	30	FRAME SYNC	98-102

*WHEN DSPC 5/2/12 IS 0.

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86 IRIG CHANNEL 10 LINK 2 (RT)/ LINK 3 (PB) 5.4 KC 90X1/3 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	1	10 PERCENT CALIBRATION	9-11
	2	50 PERCENT CALIBRATION	48-52
	3	90 PERCENT CALIBRATION	89-91
83	4	22 V MONITOR 22 V ON	84-94
	5	GFE 1-4	
	6	GFE 1-5	
	7	GFE 1-6	
	8	GFE 1-7	
	9	GFE - 1-8	
	10	GFE 1-9	
	11	GFE 1-10	
	12	GFE 1-26	
	13	GFE 2-2	
86	14	5 V BUS	95-105
86	15	5 V BUS	95-105
86	16	5 V BUS	95-105

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86 IRIG CHANNEL 10 LINK 2 (RT)/ LINK 3 (PB) 5.4 KC 90X1/3 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
86	17	5 VDC	95-105
86	18	5 VDC	95-105
86	19	5 VDC	95-105
86	20	5 VDC	95-105
86	21	5 VDC	95-105
86	22	5 VDC	95-105
	23	5 VDC	95-105
	24	5 VDC	95-105
86	25	5 VDC	95-105
83	26	TEMP, OCV OXIDIZER TANK (INT.) AT 70 DEG F.	45-60
83	27	TEMP, OCV FUEL TANK (INT.) AT 70 DEG F.	45-60
	28	TEMP. HOT GAS SOLENOID VALVE	44-54
	29	PRESS., OCV N(2) REG., INLET	+-5PCT OF ACTUAL PRESSURE
	30	PRESS. REG. LOW OUTPUT	+-5PCT OF ACTUAL GAS PRESSURE

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86 IRIG CHANNEL 10 LINK 2 (RT)/ LINK 3 (PB) 5.4 KC 90X1/3 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	31	PRESS. REG. HIGH OUTPUT	+-5PCT OF ACTUAL GAS PRESSURE
	32	TEMP. TARS ROLL GYRO	PER COMP CAL
	33	TEMP. TARS PITCH GYRO	PER COMP CAL
	34	TEMP. TARS YAW GYRO	PER COMP CAL
83	35	TEMP. TARS ELECTRONICS (INT.)	44-54
	36	VOLTAGE TARS GYRO 400 CYCLE	22.8 TO 29.2 VAC USING COMP CAL CURVE
	37	VOLTAGE RAGS GYRO 400 CYCLE	WITHIN 22.8 TO 29.2 VAC USING COMP CAL CURVE
83	38	TEMP. GYRO BLOCK - RAGS	+-5 PCT OF ACTUAL TEMP FROM COMP CAL CURVE
	39	DC POWER SUPPLY +-10 VDC	38-58
	40	DC POWER SUPPLY +28 VDC INPUT	75-90
	41	DC POWER SUPPLY +-26.5 VDC	40-60
	42	DC POWER SUPPLY +36 VDC	60-80
	43	DC POWER SUPPLY Q4 PEAK DETECTOR	60-80

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86	IRIG CHANNEL 10	LINK 2 (RT)/ LINK 3 (PB)		5.4 KC		90X1/3 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	44	D. C. PWR. SUPPLY Q3 TEMP	80PCT-OBH
	45	D. C. PWR. SUPPLY Q4 TEMP.	80PCT-OBH
	46	DC POWER SUPPLY +-24.5 V	35-55
83	47	DC POWER SUPPLY INT TEMP	20-50
	48	TEMP. 6 VOLT PWR SUP. BASE PLATE AT 70 DEG F	20-40
	49	TEMP. LINER, STA. 190 AT 240 DEG 70 DEG F.	33-43
83	50	TEMP. VEH. STRUC. STA. 190 AT 300 DEG 70 DEG	33-43
	51	TEMP. LINER, STA. 190 AT 2 DEG 70 DEG F.	33-43
	52	TEMP. OCV SKIN STA. 190 AT 60 DEG 70 DEG F.	33-43
	53	TEMP. OCV SKIN STA. 190 AT 120 DEG 70 DEG F.	33-43
	54	TEMP. LINER, STA. 190 AT 182 DEG 70 DEG F.	33-43
	55	TEMP. INSIDE INSUL. STA. 190 AT 60 DEG 70 DEG F.	44-54

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86 IRIG CHANNEL 10 LINK 2 (RT)/ LINK 3 (PB) 5.4 KC 90X1/3 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
56	TEMP. INSIDE INSUL. STA. 190 AT 180 DEG 70 DEG F	44-54
57	TEMP. INSIDE INSUL. STA. 190 AT 300 DEG 70 DEG F.	44-54
58	TEMP. VEHICLE STA. 127 AT 180 DEG 70 DEG F	44-54
59	TEMP. DECODER/PROGRAMMER PLATE AT 70 DEG F.	44-54
60	TEMP. OUTSIDE INSUL. BULKHEAD, STA. 209 70 DEG F	33-43
61	TEMP. SECT. V HTR.. STA. 84 AT 180 DEG 70 DEG F	44-54
62	TEMP. SECT. V HTR.. STA. 104 AT 25 DEG 70 DEG F	44-54
63	TEMP. SECT. V HTR., STA. 104 AT 90 DEG 70 DEG F	44-54
64	TEMP. SECT. V HTR., STA. 104 AT 180 DEG 70 DEG F	44-54
65	TEMP. SECT. V HTR.. STA. 104 AT 270 DEG 70 DEG F	44-54
66	TEMP. STA 64 AT 0 DEG AT 70 DEG F.	33-43
67	TEMP. STA. 64 AT 60 DEG AT 70 DEGF.	33-43

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86 IRIG CHANNEL 10 LINK 2 (RT)/ LINK 3 (PB) 5.4 KC 90X1/3 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	68	TEMP. STA. 64 AT 120 DEG AT 70 DEG F.	33-43
	69	TEMP. STA. 64 AT 180 DEG 70 DEG	33-43
	70	TEMP. STA. 64 AT 240 DEG AT 70 DEG F.	33-43
	71	TEMP. STA. 64 AT 300 DEG AT 70 DEG F.	33-43
	72	TEMP. STA. 77.5 (AFT. EQUIP. STRUCT.) 70DEG	33-43
	73	TEMP. ADAPTER STRUCTURE AT 70 DEG F.	44-54
	74	PIGGYBACK NO. 6	
83	75	TEMP. DELTA 3 TRANS. MOUNT PLATE	PER COMP CAL
83	76	TEMPERATURE, RECORDER AT 70 DEG F.	PER COMP CAL
83	77	TEMPERATURE THRUST CONE	PER COMP CAL
83	78	TEMP. CAPSULE 70 DEG F	44-54
83	79	TEMP. RECOVERY BATTERY	REFER TO COMP CAL. CURVE
83	80	VOLTAGE, REC. BATTERY NO. 1	+-5PCT OF ACTUAL BATT VOLTAGE
	81	TEMP. OP. BATTERY NO. 1	REFER TO COMP CAL CURVE

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86	IRIG CHANNEL 10	LINK 2 (RT)/ LINK 3 (PB)	5.4 KC	90X1/3 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS
82	TEMP. OP. BATTERY NO. 2	REFER TO COMP CAL CURVE
83	TEMP. OP. BATTERY NO. 3	REFER TO COMP CAL CURVE
84	TEMP. OP. BATTERY NO. 4	REFER TO COMP CAL CURVE
85	TEMP. OP. BATTERY NO. 5	REFER TO COMP CAL CURVE
86	TEMP. OP. BATTERY =6	REFER TO COMP CAL CURVE
87	TEMP OPER BATTERY NO. 7	REFER TO COMP CAL CURVE
88	TEMP. OP BATTERY NO. 8	REFER TO COMP CAL CURVE
89	FRAME SYNC	98-102
90	FRAME SYNC	98-102

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88 CONTINUOUS CHANNELS LINK 2 (RT)/
LINK 3 (PB)

	CHANNELS	FREQUENCY	FUNCTION	LIMITS
88	6	1.7 KC	COMMAND DEC/PROG BUSY SIGNAL	
			QUIESCENT	52-68
			POA	-8+8
			POA/CD. BUSY	12-28
			POA/PROG BUSY	32-48
			CD. BUSY	72-88
			PROG. BUSY	92-108
	7	2.3 KC	GYRO ROLL RATE OUTPUT FINE CAGED	42-58
	8	3.0 KC	GYRO PITCH RATE OUTPUT FINE (WITH PITCH BIAS) CAGED	90-110
	9	3.9 KC	GYRO YAW RATE OUTPUT FINE CAGED.	42-58
	*11	7.35 KC	DELAY LINE ERASE AND PROGRAMMER WORD LINE	
			LINE 4 SELECTED/ ERASED	11-21
			LINE 3 SELECTED/ ERASED	27-37
			LINE 2 SELECTED/ ERASED	43-53
			LINE 1 SELECTED/ ERASED	61-71

*DATA ON LINK 3 (PB) ONLY IF TM WAS ON DURING DATA RECORD CYCLE.

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CONTINUOUS CHANNELS LINK 2 (RT)/
LINK 3 (PB)

CHANNELS	FREQUENCY	FUNCTION	LIMITS
*12	10.5 KC	R. H. IR PRE-AMP (IF DSPC 5/2/12 IS 1)	SQUARE WAVE
		MULTIPLEXER (IF DSPC 5/2/12 IS 0)	COMMUTATED DATA

*DATA ON LINK 3 (PB) ONLY IF TM WAS OFF DURING DATA RECORD CYCLE.

CONTINUOUS CHANNELS LINK 2 (RT)

CHANNELS	FREQUENCY	FUNCTION	LIMITS
13	14.5 KC	CURRENT OPERATIONAL BTTY TOTAL	+-5PCT OF TOTAL CURRENT
17	52.5 KC	COMMAND VERIFICATION	
		QUIESCENT	0-10
		ACCEPT	40-60
		REJECT	80-100
18	70 KC	VEHICLE CLOCK TIME	CLOCK OUTPUT. (SEE NOTE)

NOTE -- THE FOLLOWING SHALL BE VERIFIED
1. CLOCK PULSE REP RATE IS 100+-10 MSEC
2. CLOCK PULSE DURATION IS 1+-0.1 MS
3. CLOCK BINARY READOUT APPROX. EVERY 800 MSEC
4. BINARY COUNT INCREASES FOR EACH READOUT

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CONTINUOUS CHANNELS LINK 3 (PB)

11*	7.35 KC	L. H. IR PRE-AMP IF DSPC 5/2/12 IS (1)	SQUARE WAVE
		TOTAL CURRENT, OPERATIONAL BATT IF DSPC 5/2/12 IS (0)	+-5 PCT OF TOTAL CURRENT.
13	14.5 KC	TAPE SPEED COMPENSATION	

*DATA ON LINK 3 (PB) ONLY IF TM WAS OFF DURING DATA RECORD CYCLE.

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88 IRIG CHANNEL 13 LINK 3 (RT) 14.5 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS	
88	1	SEPARATION T/M MON NO. 3		
		AMBIENT (BARO PWR OFF)	62-82	
		BAROSWITCH CLOSURE	85-OBH	
		PIGGYBACK SW. A1 - A2	50-70	
		PB. SW. SV/AGENA SEP	30-50	
		PB. SW. SV/AGENA SEP/SEP 8	8-30	
	2	ANTENNA/MAGNETOMETER ERECTION		
		ANTENNA FAIRING ON, (MAGNETOMETER BOOM CLOSED)	-10+10	
		ANTENNA FAIRING OFF (ANTENNA BOOM ERECTED) MAG. FAIR ON	13-27	
		MAG. FAIRING OFF, (MAGNETOMETER BOOM ERECTED) ANTENNA FAIR. ON	25-39	
		BOTH MAGNETOMETER AND ANT. BOOMS ERECTED	44-58	
			FLIGHT* LEVEL	TEST LEVEL
88	3	SEPARATION TM MONITOR NO. 2		
		AMBIENT	57-73	57-73
		UMBILICAL DISCONNECT	90-OBH	- -
		SEP 1	72-88	53-69
		SEP 1, 2	52-68	40-56
		SEP 1, 2, 3	32-48	32-45
		SEP 1, 2, 3, 4	12-28	12-28
88	4	SEPARATION TM MONITOR NO. 4		
		AMBIENT	0-20	
		SEP NO. 4	85-OBH	
		SEP 4, 5, 6	20-70	
		SEP 4, 5, 6, 7	0-20	
	5	10 PERCENT CALIBRATION	9-11	

* COMPONENT TEST DATA ACCEPTABLE AS VERIFICATION OF UMBILICAL DISCONNECT THROUGH SEPARATION 4 FLIGHT LEVEL.

88 IRIG CHANNEL 13 LINK 3 (RT) 14.5 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
88	6	SEPARATION MONITOR NO. 6	
		AMBIENT	-10 +10
		B+ TO SEP. SUBSYSTEM	9-29
		BUSS SEP CMD NO. 2	57-77
88	7	SEPARATION MONITOR NO. 7	
		AMBIENT	-10+10
		BUSS SEP CMD NO. 3	11-31
		BUSS SEP CMD NO. 5	41-61
		BUSS SEP CMD NO. 6	83-103
	8	5 VDC	95-105
	9	5 VDC	95-105
	10	BUSS GAS PRESSURE	+-5PCT ACTUAL PRESSURE
	11	BUSS GAS TEMPERATURE(AT 70 DEG F)	45-59
88	12	TEMP. 216 BULKHEAD AT 82 DEG (HIGH ROLL SOLENOID)	25-39
88	13	TEMP. 216 BULKHEAD AT 262 DEG (HIGH ROLL SOLENOID)	18-32
88	14	TEMP. BUSS BEAM AT 358 DEG (BALANCING VALVES)	19-33
	15	50 PERCENT CALIBRATION	48-52
	16	VOLTAGE MONITOR (BUSS)	+-5PCT OF ACTUAL VOLTAGE
	17	POWER MONITOR	
		MAGNETOMETER, F/C ON	20-40
		MAGNETOMETER, F/C, GYRO ON	80-100

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88 IRIG CHANNEL 13 LINK 3 (RT) 14.5 KC 30X2.5 MULTIPLEXER

	PULSE	TELEMETRY MEASUREMENT	LIMITS
	18	SELECTIVE ADDRESS MONITOR	
		AMBIENT	-10+10
		ADDRESS	40-60
87	19	MODE MONITOR*	
		UNSECURE MODES	
		RESET	40-60
		MODE 1 (BRT)	75-85
		MODE 2 (BNS)	85-95
		MODE 3 (BNO)	95-OBH
		MODE 5 (BRTNG)	65-75
		SECURE MODE	
		EXECUTE MODE 1 2 OR 3	20-38
		EXECUTE MODE 4 (BREX)	20-35
		EXECUTE MODE 5	0-5
	20	SECURE COMMAND MONITOR PPD ON	
		POWER OFF, TYPE IX DECODER	-10+10
		POWER ON, TYPE IX DECODER	40-60
		TYPE IX EXECUTE	90-110
83	21	SECURE COMMAND MONITOR-BUSS EXECUTE	
		POWER OFF, TYPE IX DECODER	-10+10
		POWER ON, TYPE IX DECODER	40-60
		TYPE IX EXECUTE	90-110

*LEVELS FOR ALL UNSECURE MODES, (1,2,3,5) SHALL BE RECORDED IN THE CAL BOOK WITH THE STEP DOWN NOT BYPASSED, WITH STEP DOWN BYPASSED AND IN BOTH CASES WITH THE SV BUS AT 28 VDC

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88 IRIG CHANNEL 13 LINK 3 (RT) 14.5 KC 30X2.5 MULTIPLEXER

PULSE	TELEMETRY MEASUREMENT	LIMITS MODE 1,2,3,4	MODE 5
22	EVENT MONITOR		
	T1	10-25	10-25
	T2	42-52	42-52
	T3, T6, T9	52-65	------
	T4, T7, T10	80-90	70-80
	T5, T8, T11	91-OBH	80-90
23	5 V BUS	95-105	
24	5 V BUSS	95-105	
25	90 PERCENT CALIBRATION	89-91	
26	5 V BUSS	95-105	
27	5 V BUS	95-105	
28	5 V BUS	95-105	
29	FRAME SYNC	98-102	
30	FRAME SYNC	98-102	

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CONTINUOUS CHANNELS LINK 3 (RT)

CHANNEL	FREQUENCY	FUNCTION	LIMITS
10	5.4 KC	P AXIS VALVE	
		NO POWER	-10+10
		4 ON	18-38
		2 ON	63-83
		BOTH OFF	88-108
11	7.35 KC	Q AXIS VALVE	
		NO POWER	-10+10
		1 ON	18-38
		3 ON	63-83
		BOTH OFF	88-108
12	10.5 KC	ROLL AXIS VALVE	
		NO POWER	-10+10
		5 ON	18-38
		6 ON	63-83
		BOTH OFF	88-108
14	22 KC	L. H. IR PRE-AMP	SQUARE WAVE
16	40 KC	R. H. IR PRE-AMP	SQUARE WAVE
17	52.5 KC	COMMAND VERIFICATION (BACK-UP)	
		QUIESCENT	-10+10
		ACCEPT	40-60
		REJECT	80-100

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E5 CONTINUOUS CHANNELS LINK 3(PF)

CHANNELS	FREQUENCY	FUNCTION	LIMITS

DELETED

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CONTINUOUS CHANNELS LINK 4

CHANNEL	FREQUENCY	FUNCTION	LIMITS
8	3.0 KC	PRIOR TO SPIN	0
		SPIN ACTIVATION	24 TO 34
		RETRO FIRE	47 TO 57
		DESPIN ACTIVATION	62-72
		THRUST CONE ELECTRICAL DISCONNECT	76-86
		RECOVERY BATTERY 2 VOLTAGE	72-82
		PISTON FIRE 2 SIGNAL	35-45
		PARACHUTE COVER OFF	88-98
9	3.9 KC	PRIOR TO TRANSFER	0
		THERMAL BATTERY VOLTAGE AT TRANSFER *	24-34
		IFD (ADAPTER/SRV)	37-47
		SPIN BREAKWIRE	48-58
		RETRO BREAKWIRE	64-74
		DESPIN BREAKWIRE	80-90
		RECOVERY BATTERY 1 VOLTAGE AT THRUST CONE SEP.	33-43
		INHIBIT TIMER - T(1)	53-63
		INHIBIT TIMER - T(2)	33-43
		3G SWITCH CLOSE	61-71
		3G SWITCH OPEN	33-43
		PISTON 1 FIRE SIGNAL	80-90
		FOREBODY SEPARATION	33-43

* VALUES ARE AT 30VDC AT THE THERMAL BATTERY. VALUES SHALL BE READ AT THE SIGME GROUND STATION AND SHALL BE LOGGED INTO THE CALIBRATION BOOK.

CONTINUOUS CHANNELS LINK 4

	CHANNEL	FREQUENCY	FUNCTION	LIMITS
80A	10	5.4 KC	BUSS MODE AND EVENT MONITOR	
			UNSECURE MODES	
			RESET	40-60
			MODE 1 (BRT)	75-85
			MODE 2 (BNS)	85-95
			MODE 3 (BNO)	95-OBH
			MODE 5 (BRTNG)	65-75
			SECURE MODE	
			EXECUTE MODE 1 2 OR 3	20-38
			EXECUTE MODE 4 (BREX)	20-35
			EXECUTE MODE 5	0-5
	12	10.5 KC	0-6G AXIAL ACCELERATION (PRIOR TO THRUST CONE SEP. 0-40G AXIAL ACCELERATION (AFTER THRUST CONE SEP.)	MODULATION PROPOR-TIONED TO Y LOADING

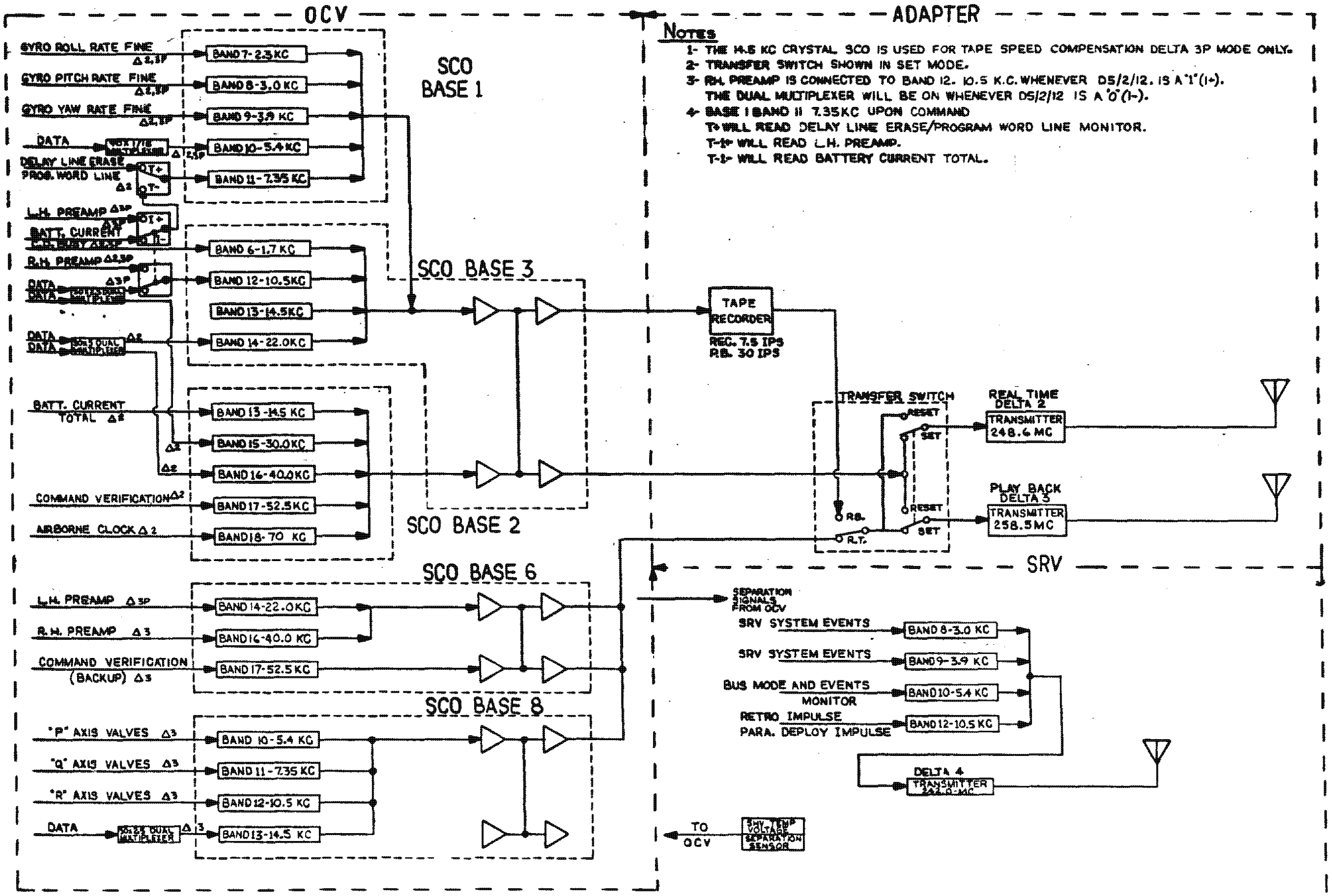

FIGURE C-1. SV TELEMETRY SUBSYSTEM, BLOCK DIAGRAM

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88 APPENDIX D SV LAUNCH + HOLD/ABORT CRITERIA

1. GENERAL

TO PROVIDE MAXIMUM ASSURANCE THAT THE SV FLIGHT TEST OBJECTIVES AND PERFORMANCE REQUIREMENTS WILL BE ACHIEVED FOR ALL FLIGHT PHASES (POWERED FLIGHT, OCV-SOLO, ETC.), THE FOLLOWING ACTION SHALL BE TAKEN DURING LAUNCH ACTIVITIES

A. DETERMINE THAT THE SV SYSTEM AND APPLICABLE SUBSYSTEMS WILL PERFORM TO ACHIEVE THE FLIGHT TEST OBJECTIVE(S), BY PLACING PRIMARY IMPORTANCE ON THOSE TM AND AGE FUNCTIONS WHICH INDICATE THAT THE SV IS OPERATING CORRECTLY.

B. DETERMINE THAT SUFFICIENT SV TELEMETRY IS AVAILABLE TO PERMIT ORBITAL OPERATIONS REQUIRED BY OPERATIONAL SYSTEM TO ACHIEVE THE OBJECTIVE.

C. DETERMINE THAT SUFFICIENT DIAGNOSTIC DATA WILL BE AVAILABLE TO PERMIT DETERMINATION OF WHETHER THE OBJECTIVE WAS ACHIEVED OR NOT.

TO FACILITATE ACHIEVEMENT OF ITEMS A, B, AND C ABOVE, SV, TM, AGE AND OTHER MEASUREMENTS ARE GROUPED BY RELATIVE IMPORTANCE HEREIN. THESE CATEGORIES DEFINE THE ACTION TO BE TAKEN DURING LAUNCH OPERATIONS IN THE EVENT THAT DIFFICULTIES CAUSE MEASUREMENT TO BE LOST OR OUT OF LIMITS.

2. DEFINITIONS

2.1 OBJECTIVES

REFER TO SYSTEM TEST OBJECTIVES, TOR-169(3123)-5 AND THE APPLICABLE REVISION FOR DEFINITION AND DELINEATION OF THE SV FLIGHT TEST OBJECTIVES.

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2.2 MEASUREMENTS

MEASUREMENTS ASSOCIATED WITH THE FLIGHT TEST OBJECTIVES AND SUBSYSTEM PERFORMANCE REQUIREMENTS ARE GROUPED INTO TWO CATEGORIES

GROUP I MEASUREMENTS THESE MEASUREMENTS ARE REQUIRED FOR DETERMINATION OF THE SV READINESS PRIOR TO LAUNCH. THESE REPRESENT THE MANDATORY TM AND UMBILICAL POINTS REQUIRED DURING THE OPERATION OF THE VEHICLE NECESSARY TO DETERMINE THE ULTIMATE DEGREE OF ACHIEVEMENT OF PRIMARY FLIGHT OBJECTIVES.

GROUP II MEASUREMENTS THESE MEASUREMENTS PROVIDE VALUABLE DATA DURING FLIGHT OPERATIONS IN SUPPORT OF THE PRIMARY OBJECTIVES OR CATEGORY 1 (REF. TOR-169(3123)-5) SECONDARY FLIGHT OBJECTIVES.

GROUP I AND II MEASUREMENT ASSIGNMENTS REQUIRE THE FOLLOWING ACTION DURING COUNTDOWN

GROUP I THESE MEASUREMENTS MUST BE MONITORED DURING COUNTDOWN. IF THE TM AND UMBILICAL MEASUREMENT LIMITS ARE EXCEEDED, THE SV DOES NOT MEET ACCEPTANCE REQUIREMENTS. THIS REQUIRES THAT THE GE REPRESENTATIVE RECOMMEND A HOLD TO ALLOW FURTHER INVESTIGATION. THE GE REPRESENTATIVE SHALL RECOMMEND AN ABORT IF HE CONSIDERS IT NECESSARY.

GROUP II STATUS OF THESE MEASUREMENTS SHALL BE CHECKED DURING COUNTDOWN. IF DISCREPANCIES ARE FOUND IN ANY MEASUREMENT, A HOLD MAY BE RECOMMENDED AT THE DISCRETION OF THE GE REPRESENTATIVE.

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2.3 DEFINITION OF ABORT AND DELAY

ABORT IS DEFINED AS A TERMINATION OF A COUNTDOWN PRIOR TO LAUNCH. (IT DOES NOT IMPLY A SPECIFIED TIME DURING WHICH CERTAIN TASKS MUST BE ACCOMPLISHED BEFORE A NEW COUNTDOWN MAY BEGIN, FOR EXAMPLE, A NEW COUNTDOWN MAY BE INITIATED WITHIN 24 HOURS.)

DELAY (OR HOLD) IS DEFINED AS A TEMPORARY INTERRUPTION FOR ANY REASON WHATSOEVER IN THE PROGRESS OF A COUNTDOWN. (THE LENGTH OF TIME INVOLVED IN SUCH AN INTERRUPTION IS NOT PERTINENT TO THE DEFINITION.) A DELAY MAY INVOLVE A RECYCLING OF A PORTION OF A COUNTDOWN ALREADY ACCOMPLISHED. (A DELAY CONVERTS TO ABORT WHEN A LAUNCH FOR THE PRIMARY TEST OBJECTIVE BECOMES IMPOSSIBLE WITHIN THE PREASSIGNED LAUNCH WINDOW.)

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3. EXPLANATION OF TABLES AND FIGURES

LAUNCH LIMITS ARE DEFINED AS THE MINIMUM AND MAXIMUM READING ALLOWABLE FOR THE MEASUREMENT DURING THE COUNTDOWN AND AT LAUNCH. FOR LIMITS DEFINED IN ENGINEERING UNITS, CONVERSION TO 0-5 VOLTS OR 0-100 PCT. FULL SCALE REQUIRES REFERENCE TO THE SV CALIBRATION BOOK FOR THE APPROPRIATE VEHICLE.

THE DESIGNATION UMB SHOWN IN THE LINK/CHANNEL/PULSE COLUMN INDICATES THE MEASUREMENT IS MADE BY THE LAUNCH AGE THROUGH THE UMBILICAL CONNECTOR P1210. FOR EXAMPLE UMB 3S (4T) MEANS THAT THE MEASUREMENT IS MADE ON UMBILICAL CONNECTOR PINS P1210-3S AND 4T (RETURN).

88 THE MAIN FUNCTION OF FIGURE D-1 IS TO ALLOW THE LAUNCH CONDUCTOR TO DETERMINE THE MINIMUM CHARGE WEIGHT FOR THE ATTITUDE CONTROL TANKS FOR BOTH THE UNHEATED AND HEATED CONDITIONS ON THE LAUNCH PAD. ACCORDING TO THE ESTABLISHED LOADING PROCEDURE THE UNHEATED FREON WILL VARY IN TEMPERATURE FROM 70 DEG TO 120 DEG F AND A MAXIMUM PRESSURE OF 3600 PSIG WHEN PERSONNEL ARE IN THE AREA. THE EXACT TEMP-PRESSURE COMBINATION DEFINES A POINT WHICH FALLS ON THE WEIGHT LINE. BY KNOWING THE EXACT TANK VOLUME, THE ACTUAL CHARGE WEIGHT IS OBTAINED AT THE INTERSECTION OF THE WEIGHT LINE WITH THE VOLUME. THE MINIMUM WEIGHT SUPPLIES THE NECESSARY IMPULSE TO FULFILL A FULL DURATION MISSION. THE CHARGE WEIGHT AND WEIGHT LINES MAY BE EXTRAPOLATED TO COVER THE CASES THAT DO NOT FALL RIGHT ON THE LINES. WHEN THE FREON GAS IS HEATED, THIS FIGURE ALLOWS THE LAUNCH CONDUCTOR TO DETERMINE THAT HE STILL HAS THE DESIRED MINIMUM CHARGE WEIGHT. FOR THE HEATED CONDITION, THE TEMPERATURE WILL VARY FROM 100 DEG TO 125 DEG F (110 DEG F NOMINAL) AND THE PRESSURE WILL VARY FROM 4110 TO 4800 PSIG. THE HEATED FREON TEMPERATURE AND PRESSURE DESCRIBE A WEIGHT LINE. THE INTERSECTION OF THIS WEIGHT LINE WITH THE TANK VOLUME DETERMINES THE ACTUAL WEIGHT FOR THE HEATED CONDITION. MAXIMUM ALLOWABLE PRESSURE AFTER GANTRY REMOVALIS 4800 PSIG.

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TABLE D-1. GROUP I MEASUREMENTS

LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
1	CONTINUITY SEP EVENT TM	UMB 3U*(3Q)	1.4VDC	1.8VDC	NOTE 1
2	FWD VEHICLE CONTINUITY LOOP	UMB 4B*(3Q)			NOTE 2
3	SEPARATION CONT LOOP	UMB 4F*(4G*)			NOTE 3
10	PRESSURE,BUSS FREON	UMB 3Z*(3Q)	3000 PSIG	3600 PSIG	NOTE 10
11	PRE-ARM POWER INDICATOR	UMB 4E*(3G*)	SEE NOTE 11		NOTE 11
22	COMMAND VERIFICATION OR COMMAND VERIFICATION BACKUP	2/17/CONT 3/17/CONT	0.5VDC 2.0VDC 4.5VDC	1.5VDC 3.2VDC 5.0VDC	NOTE 22
23	VEHICLE CLOCK TIME	2/18/CONT	OPERATING		NOTE 23

* INDICATES LOWER CASE LETTER

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88 TABLE D-1. GROUP I MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
	24	DELAY LINE 1 ERASE/ SELECT	2/11/CONT	61PCT	71PCT	NOTE 24
		DELAY LINE 2 ERASE/ SELECT		45PCT	55PCT	
		DELAY LINE 3 ERASE/ SELECT		30PCT	42PCT	NOTE 24
		DELAY LINE 4 ERASE/ SELECT		12PCT	22PCT	NOTE 24
82	25	DELAY LINE 1 FULL	2/15/13	55PCT	65PCT	
		DELAY LINE 2 FULL		35PCT	45PCT	
		DELAY LINE 1+2 FULL		95PCT	105PCT	
		DELAY LINE 1+2 NOT FULL		0PCT	25PCT	
82	26	DELAY LINE 3 FULL	2/15/14	55PCT	65PCT	
		DELAY LINE 4 FULL		35PCT	45PCT	
		DELAY LINE 3+4 FULL		95PCT	105PCT	
		DELAY LINE 3+4 NOT FULL		0PCT	25PCT	
82	28	PRESSURE, ATTITUDE CONTROL TANK OUTLET	2/15/19 UMB 3M (3Q)	SEE NOTE 28		NOTE 28
82	29	MODE + EVENT MONITOR	3/13/19	2.0VDC	3.0VDC	
82	31	TEMP, COLD GAS TANK 1 AT 38 DEG	2/15/17	OPERATING		NOTE 31
82	32	TEMP, COLD GAS TANK 2 AT 321 DEG	2/15/18	OPERATING		NOTE 31

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88 TABLE D-1. GROUP I MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
82	36	SECURE WORD COUNT	2/15/6 TO 12			NOTE 36
82	37	CURRENT, BATTERIES 1,2,3,4,5,6,7,8	2/16/6 THRU 13	1AMP	4AMP	NOTE 37
	38	VOLTAGE, OCV BUS	2/16/1	27.5VDC	33.0VDC	NOTE 38
82	44	AMP-HOUR METER(0-30AH)	2/16/16	0PCT	100PCT	NOTE 44
		AMP-HOUR METER(0-120AH)	2/16/17	0PCT	70PCT	
		AMP-HOUR METER(0-480AH)	2/16/18	0PCT	0PCT	
	45	PRESSURE, BUSS FREON	3/13/10	3000 PSIG	3600 PSIG	NOTE 45
82	59	H30 CONTINUITY + EVENTS	2/15/1	0.9 VDC	1.4 VDC	NOTE 59
82	60	VOLT,BUSS/SEP B/UP BATT	2/16/2	29VDC	33VDC	
88	60	REDUNDANT PNEUMATIC	2/15/22	-5 PCT	+5 PCT	NOTE 61

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88 REMARKS FOR TABLE D-1. GROUP I MEASUREMENTS

88	1	BASED ON 31 VDC TO CONT LOOP UMB 48*(3Q). SHOULD READ SAME AS TM 2/16/4.
	2	AGE INDICATES GREEN WITH 28VDC VALIDATION SENSOR POWER ON.
	3	AGE INDICATES GREEN.
	10	MAXIMUM PRESSURE BEFORE GANTRY REMOVAL IS 2600 PSIG (2.2 SAFETY FACTOR). REFER TO FIGURE D-2.
	11	SHALL INDICATE THE PRE-ARM NOT INHIBITED PRIOR TO LAUNCH. CAUTION PRE-ARM POWER, NOT INHIBITED , SHALL NOT BE ON MORE THAN 5 MINUTES CONTINUOUSLY PRIOR TO LAUNCH.
	22	QUIESCENT LEVEL. ACCEPT 23-MILLISECOND PULSE WIDTH. REJECT 9-MILLISECOND PULSE WIDTH.
	23	BINARY WAVE TRAIN REPEATING EVERY 0.8 SECOND. BINARY 1 = 5+-0.5V 0 = 0.5+-0.5V.
	24	66- MILLISECOND PULSE (ERASE) 45- MILLISECOND PULSE (SELECTED) (MAY BE ON 3P IF RECORDING WHEN TM IS ON)
80C	28	LIMIT FOR FREON UNHEATED CONDITION IS 3600 PSIG MAX. WHEN PERSONNEL ARE IN THE VICINITY AND PRIOR TO GANTRY REMOVAL. FOR LAUNCH LIMIT CALCULATE VALUE FROM FIGURE D-1. FOR FREON WEIGHT OF 252 +- 1 LB. MAXIMUM LAUNCH PRESSURE 4800 PSIG.
	31	AUTOMATIC HEATER CUTOUT AT 120 DEG F. LIMITS SHOWN ARE FOR HEATED CONDITION.
	36	COUNTER MUST ADVANCE ONE COUNT EACH TIME PPD IS ENERGIZED.
	37	LAUNCH LIMITS ARE DEPENDENT UPON AMOUNT OF LOAD IN SYSTEM WHEN MONITOR IS CHECKED.
	38	WHEN VEHICLE IS ON INTERNAL POWER.
	44	AMPERE-HOURS USED SHALL NOT EXCEED 90 AH AT LAUNCH.
	45	MAXIMUM PRESSURE BEFORE GANTRY REMOVAL IS 2600 PSIG (2.2 SAFETY FACTOR). REFER TO FIGURE D-2.
80A	59	BASED ON 31VDC TO CONT LOOP UMB48*(3Q). SHOULD READ SAME AS UMB 3U*(3Q).
88	61	DUE TO AGE INPUT VOLTAGE OF 8 VOLTS, THE TLM LEVEL WILL BE ERRONEOUS DURING LOADING AND BALANCING WHEN BALANCING VALVE IS CONTROLLED BY AGE.

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88 TABLE D-2. GROUP II MEASUREMENTS

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	LAUNCH LIMITS HIGH	REMARKS
82	1	VOLTAGE MON- ITOR (BACKUP BATTERY)	UMB 2D(1F)	27.0VDC	31.5VDC	NOTE 1
82	2	TARS TEMP MONITOR	UMB 3A*,G*,H* (3J*)	150F	180F	NOTE 2
82	3	RAGS TEMP MONITOR	UMB 3N*(3P*)	162F	168F	NOTE 3
88	4	SECTION5 TEMP CONTROLLER A1372 ZONE 11R	UMB 4V*(3E*)	1.0VDC	28VDC	NOTE 4
88	5	SECTION5 TEMP CONTROLLER A1132 ZONE 11L	UMB 4Z*(3E*)	1VDC	28VDC	NOTE 4
88	6	SECTION5 TEMP CONTROLLER A1131 ZONE 8	UMB 4Y*(3E*)	1VDC	28VDC	NOTE 4
88	7	SECTION5 TEMP CONTROLLER A1130 ZONE 9	UMB 4X*(3E*)	1VDC	28VDC	NOTE 4
88	8	SECTION5 TEMP CONTROLLER A1129 ZONE 10	UMB 4W*(3E*)	1VDC	28VDC	NOTE 4
88	9	SECTION5 TEMP CONTROLLER A1122 ZONE 1	UMB 4H*(3E*)	1VDC	28VDC	NOTE 4
88	10	SECTION5 TEMP CONTROLLER A1124 ZONE 3	UMB 4R*(3E*)	1VDC	28VDC	NOTE 4
88	11	SECTION5 TEMP CONTROLLER A1123 ZONE 2	UMB 4G*(3E*)	1VDC	28VDC	NOTE 4

* INDICATES LOWER CASE LETTER

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88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
88	12	SECTION5 TEMP CONTROLLER A1125 ZONE 4	UMB 4N*(3E*)	1VDC	28VDC	NOTE 4
88	13	CONTINUITY LOOP EP+D	UMB 3P*(4T*)			NOTE 13
88	14	CONTINUITY LOOP (TEST PLUGS AND INT POWER)	UMB 4S*(4T*)			NOTE 14
88	15	ORBIT CORRECTION CONT LOOP	UMB 3L(4T*)			NOTE 13
88	16	OP BATTERY BUS MONITOR	UMB 2B(1F)	28.5VDC	32.5VDC	NOTE 16
88	17	TEMP, FREON TANK 1	UMB 3Q*(3T*)	100F	125F	NOTE 17
88	18	TEMP, FREON TANK 2	UMB 3R*(3F*)	100F	125F	NOTE 17
88	19	PRESSURE,N(2) REGULATOR INLET	UMB 4M (3Q)	3900 PSIA	5000 PSIA	
82	20	TEMP, BUSS FREON	UMB 3*(Q)	70 F	120 F	
82	21	PRESSURE, OCV FUEL	2+3P/12/20 UMB 4H(3Q) UMB 4C(3Q)	NONE	75 PSIA	
82	22	PRESSURE, OCV OXIDIZER	2+3P/12/19	NONE	75 PSIA	
88	23	GYRO PITCH RATE OUTPUT (FINE)	2+3P/8/CONT	RANDOM		NOTE 23
88	24	GYRO YAW RATE OUTPUT (FINE)	2+3P/9/CONT	RANDOM		NOTE 23

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88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
88	25	ATTITUDE CONTROL GAS WEIGHT (PRIMARY SYSTEM) . (BASED ON HARDWIRE TEMP AVERAGES, TANK PRESSURE, AND LOADING CURVES.)		252 LB NOMINAL		NOTE 25
88	26	PRESSURE, LOW-PRESSURE REGULATOR OUTPUT	2+3P/10/30	65 PSIA	75 PSIA	NOTE 26
82	27	PRESSURE, HIGH-PRESSURE REGULATOR OUTPUT	2+3P/10/31	340PSIA	500 PSIA	
88	28	TEMP, TARS PLATFORM PITCH	2+3P/10/33	162 F	168 F	NOTE 28
82	29	+- 24.5 VDC	2+3P/10/46	35PCT	55PCT	
82	30	+- 26.5 VDC	2+3P/10/41	40PCT	60PCT	
82	31	CURRENT, CMD	2+3P/12/14	OPERATING		
82	32	CURRENT, STAB	2+3P/14/18	OPERATING		
82	33	CURRENT, B/UP BATT.	2/16/14	OPERATING		
82	34	ROLL TORQUE MTR VOLTAGE	2+3P/14/1	35 PCT	65 PCT	
82	35	PITCH TORQUE MTR VOLTAGE	2+3P/14/2	35 PCT	65 PCT	

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88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
88	36	TEMP, TARS PLATFORM ROLL	2+3P/10/32	162 F	168 F	NOTE 28
88	37	TEMP, TARS PLATFORM YAW	2+3P/10/34	162 F	168 F	NOTE 28
82	38	TEMP, STA 104.385 AT 25 DEG	2+3P/10/62	65 F	75 F	
82	39	ADAPTER INTERNAL COOLANT AIR TEMP	GROUND COOLING EQUIPMENT	34 F	40 F	
82	40	TEMP. VEHICLE STA 104.385 AT 180 DEG	2+3P/10/64	65 F	75 F	
88	41	AFT BAY INLET COOLING AIR TEMP	GROUND COOLING EQUIPMENT	34 F	40 F	NOTE 41
82	42	TEMP. BACKFACE STAGNATION POINT	2+3P/12/18	OPERATING		
82	43	TEMP. RECOVERY BATTERY	2+3P/10/79	OPERATING		
82	44	TEMP. CAPSULE	2+3P/10/78	OPERATING		
82	45	TEMP. STA 104.385 AT 90 DEG	2-3P/10/63	65 F	75 F	
82	46	TEMP. STA 104.385 AT 270 DEG	2+3P/10/65	65 F	75 F	

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88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/ PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
82	47	TEMP. BUSS FREON	3/13/10	OPERATING		
88	48	TAPE SPEED COMPENSATION	3P/13/CONT	OPERATING		
88	49	ROLL ATTITUDE ERROR ANGLE	2+3P/14/9	-0.3 DEG	+0.3 DEG	NOTE 49
88	50	PITCH ATTITUDE ERROR ANGLE (ACA)	2+3P/14/10	-0.3 DEG	+0.9 DEG	NOTE 49
88	51	YAW ATTITUDE ERROR ANGLE (ACA)	2+3P/14/11	-0.3 DEG	+0.3 DEG	NOTE 49
88	52	GYRO ROLL RATE OUTPUT (COARSE)	2+3P/14/6	-0.5 DEG/SEC	+0.5 DEG /SEC	NOTE 52
88	53	GYRO PITCH RATE OUTPUT (COARSE)	2+3P/14/7	-0.15 DEG/SEC	+0.15 DEG/SEC	NOTE 52
88	54	GYRO YAW RATE OUTPUT (COARSE)	2+3P/14/8	-0.15 DEG/SEC	+0.15 DEG/SEC	NOTE 52
88	55	GYRO ROLL RATE OUTPUT (FINE)	2+3P/7/CONT	RANDOM		NOTE 23
82	56	ANTENNA/MAGNETOMETER FAIRINGS	3/13/2	0 VDC	0.5 VDC	
88	57	PITCH ACA OUTPUT	2+3P/14/3	15 PCT	25PCT	NOTE 52

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88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
88	58	YAW ACA OUTPUT	2+3P/14/14	35 PCT	45 PCT	NOTE 58
88	59	ROLL ACA OUTPUT	2+3P/14/12	55 PCT	65 PCT	NOTE 58
88	60	YAW TORQUE ON/OFF	2+3P/14/17	SEE NOTE 60		NOTE 60
88	61	LH IR PRE-AMP/ CONTINUOUS CURRENT	3P/11/CONT	SEE NOTE 61		NOTE 61
88	62	RH IR PRE-AMP/CHANNEL 12 MULTIPLEXER DATA	2+3P/12/ CONT	SEE NOTE 62		NOTE 62
82	63	COMPUTER EVENTS	2+3P/12/13	0.8 VDC	1.2 VDC	
82	64	INHIBIT TRANSFER	2+3P/14/16	OPERATING		
82	65	ROLL IR COMPUTER OUTPUT	2+3P/14/3	RANDOM		
82	66	PITCH IR COMPUTER OUTPUT	2+3P/14/4	RANDOM		
82	67	PIGGYBACK I	2+3P/12/1	2.7 VDC	3.3 VDC	
82	68	+22 VDC MONITOR	2+3P/10/4	OPERATING		
82	69	EVENT MONITOR	3/13/22	0 VDC	0.5 VDC	
82	70	P-AXIS MAGNETOMETER	3/16/19	OPERATING		
82	71	Q-AXIS MAGNETOMETER	3/16/20	OPERATING		

88 TABLE D-2. GROUP II MEASUREMENTS (CONT)

	LINE NO.	MEASUREMENTS	LINK/ CHANNEL/PULSE	LAUNCH LIMITS LOW	HIGH	REMARKS
82	72	R-AXIS MAGNETOMETER	3/16/21 OR 2/15/26	OPERATING		
88	73	SEPARATION TM-MONITOR 2	3/13/3	0 VDC	0.25 VDC	
88	74	SEPARATION TM-MONITOR 4	3/13/4	2.4 VDC	3.0 VDC	
88	75	SEPARATION TM-MONITOR 3	3/13/1	0 VDC	0.25 VDC	NOTE 75
82	76	SEPARATION 6	3/13/6	0.8 VDC	1.2 VDC	
82	77	SEPARATION 7	3/13/7	0 VDC	0.25 VDC	
82	78	INNER SHIELD	2+3P/12/12	1.2 VDC	1.6 VDC	
82	79	LEFT-HAND PREAMPLIFIER	3/14/CONT.	SEE NOTE 20		NOTE 79
82	80	RIGHT-HAND PREAMPLIFIER	3/16/CONT.	SEE NOTE 20		NOTE 79

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REMARKS FOR TABLE D-2 GROUP II MEASUREMENTS

1 MONITORS VOLTAGE INPUT TO PROGRAMMER.
2 LIMITS SHOWN ARE FOR EARLY COUNT ONLY. TEMPERATURES CANNOT BE MONITORED WHEN POWER IS ON THE OCV BUS.
3 LIMITS SHOWN ARE FOR CONDITIONS WHEN POWER IS ON THE OCV BUS. AT OTHER TIMES, TEMP. SHOULD BE BETWEEN 135 DEG. F TO 180 DEG. F.
4 PAD CHECKOUT SHALL MEET THE LAUNCH REQUIREMENTS OF PARA. 5.3.2
88 13 AGE INDICATES GREEN.
88 14 AGE INDICATES GREEN (INTERNAL POWER).
88 16 LOW LIMIT SHOULD BE 22.5 V ON EXTERNAL POWER.
88 17 AUTOMATIC HEATER CUTOUT AT 120 DEG F. LIMITS ARE SHOWN FOR HEATED CONDITION.
88 23 RANDOM LIMITS ARE FOR GYRO CAGED CONDITION. LIMITS ARE +-0.05 DEG/SEC FOR UNCAGED CONDITION IN ALL CASES.
88 25 REFER TO FIGURES D-2 AND D-3 TO ESTABLISH ACTUAL WEIGHT. USING FREON TANK TEMP UMB 3Q(3F), 3R(3F) AND PRESSURE, ATTITUDE CONTROL TANK OUTLET TM2/16/27. THE MINIMUM AVAILABLE IMPULSE AT LAUNCH IS THAT WHICH IS NEEDED TO CARRY OUT THE FULL MISSION.
26 ATMOSPHERIC PRESSURE IS THE NORMAL LAUNCH CONDITION. HOWEVER, TRAPPED GAS FROM PREVIOUS TESTING CAN RESULT IN HIGHER PRESSURES.
28 WHEN POWER IS PUT ON OCV BUS, TEMPERATURE WILL REGULATE WITHIN THESE LIMITS.
41 35 LB/MINUTE (NOMINAL) TOTAL DELIVERED TO SYSTEM.
58 RANDOM ONE OF THE FOUR DISCRETE LEVELS SHOULD BE PRESENT PRIOR TO LAUNCH.
60 SHALL INDICATE YAW TORQUE OFF.
61 RECORDED ONLY WHEN TM IS NOT IN REAL TIME MODE AND COMMAND SELECTED BY DSPC 5, WORD 2, BIT 12.
(0) CONTINUOUS CURRENT
(1) LH PRE-AMPLIFIER (30PPS+-10 PCT)
IF TM IS IN REAL TIME MODE WHEN RECORDING, ITEM 24 OF GROUP 1 WILL BE RECORDED.
62 COMMAND SELECTED BY DSPC 5, WORD 2, BIT 12.
(0) CH.12 MULTIPLEXER DATA
(1) RH IR PRE-AMP (30 CPS +- 10 PCT)
49 LIMITS SHOWN ARE FOR GYRO CAGED CONDITION. LIMITS ARE +- 30 DEG UNCAGED CONDITION FOR ALL CASES.
52 VEHICLE SWAY MAY OBSCURE READINGS.

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29 30 CPS +- 10PCT PULSE TIME SHARED WITH PLAYBACK DATA.
86 75 BASED ON 28 VDC BUS VOLTAGE.

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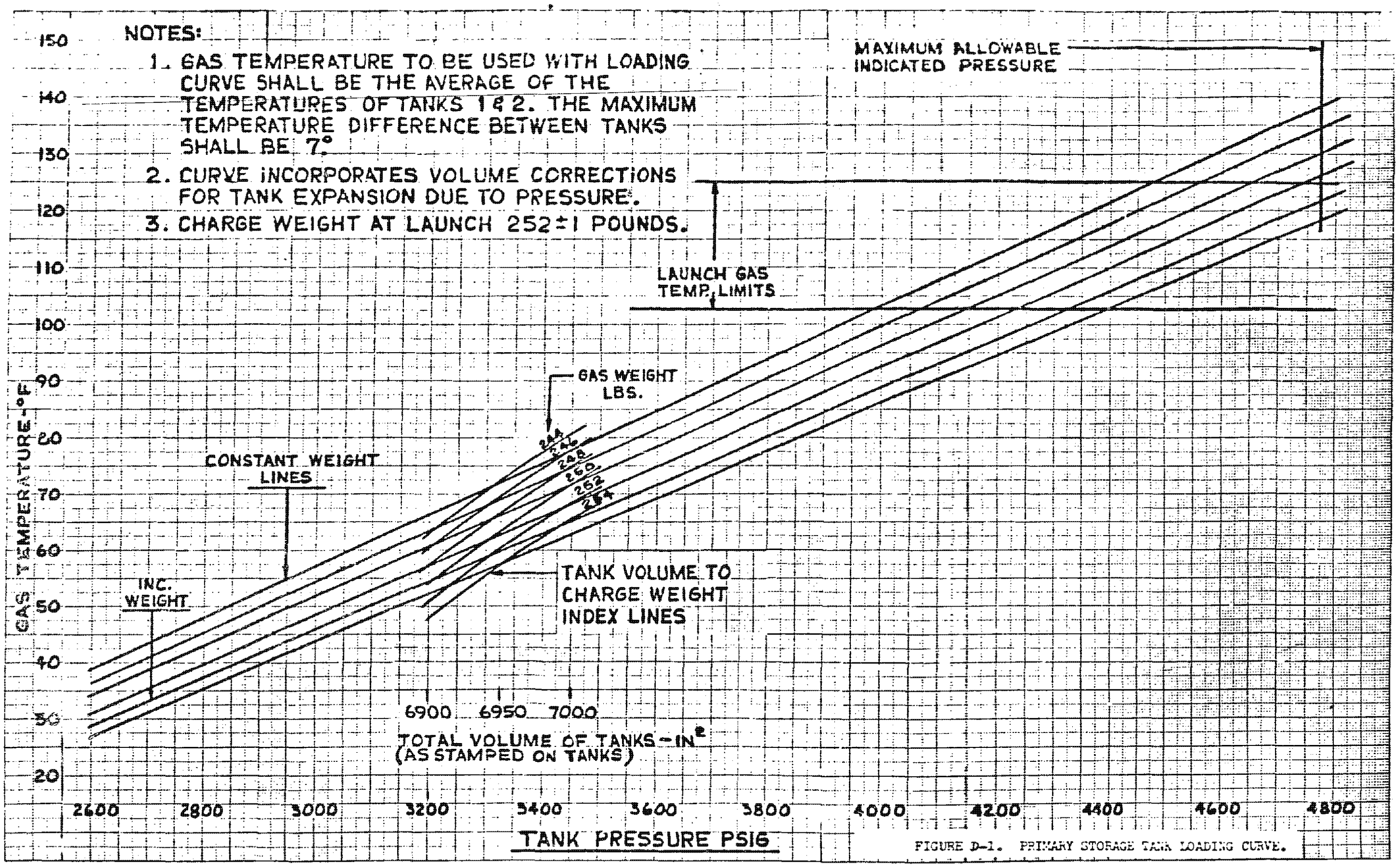

FIGURE D-1. PRIMARY STORAGE TANK LOADING CURVE.

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D-0018

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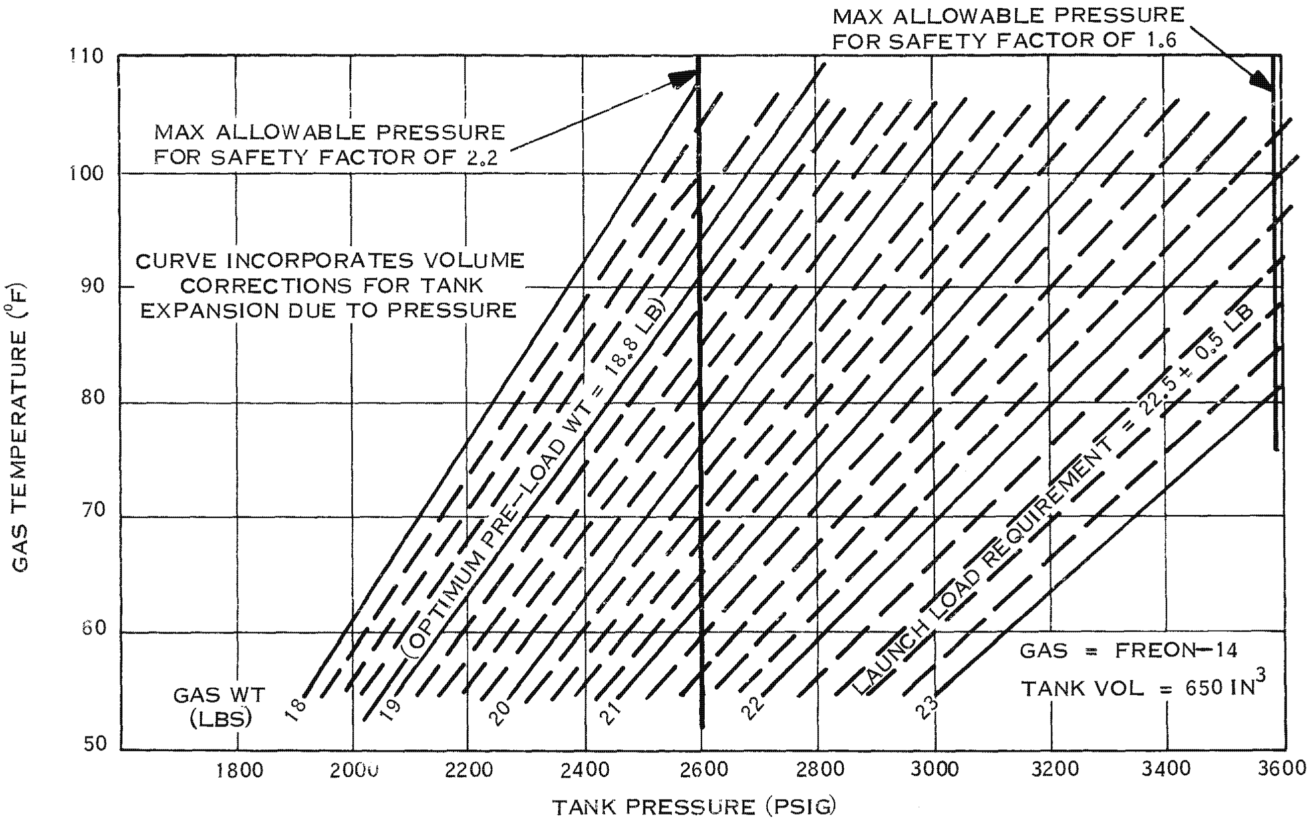

SVS 5388 Figure D-2. BUSS Gas Loading Curve D-0019

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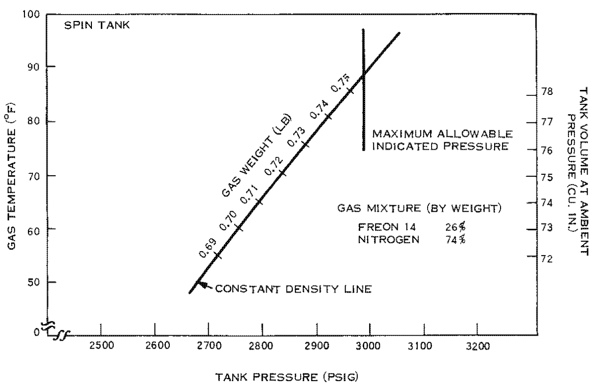

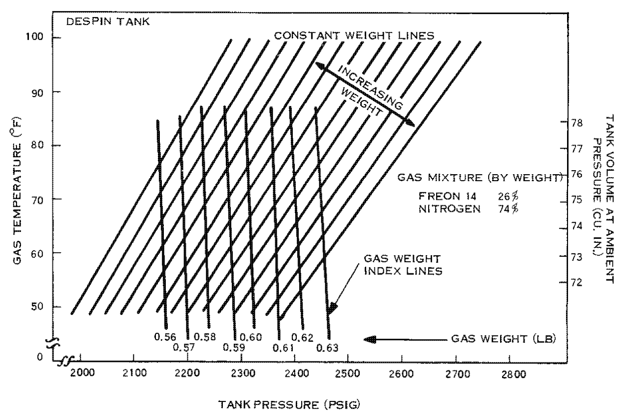

Figure D-3. Spin and Despin Tank Gas Loading Curves

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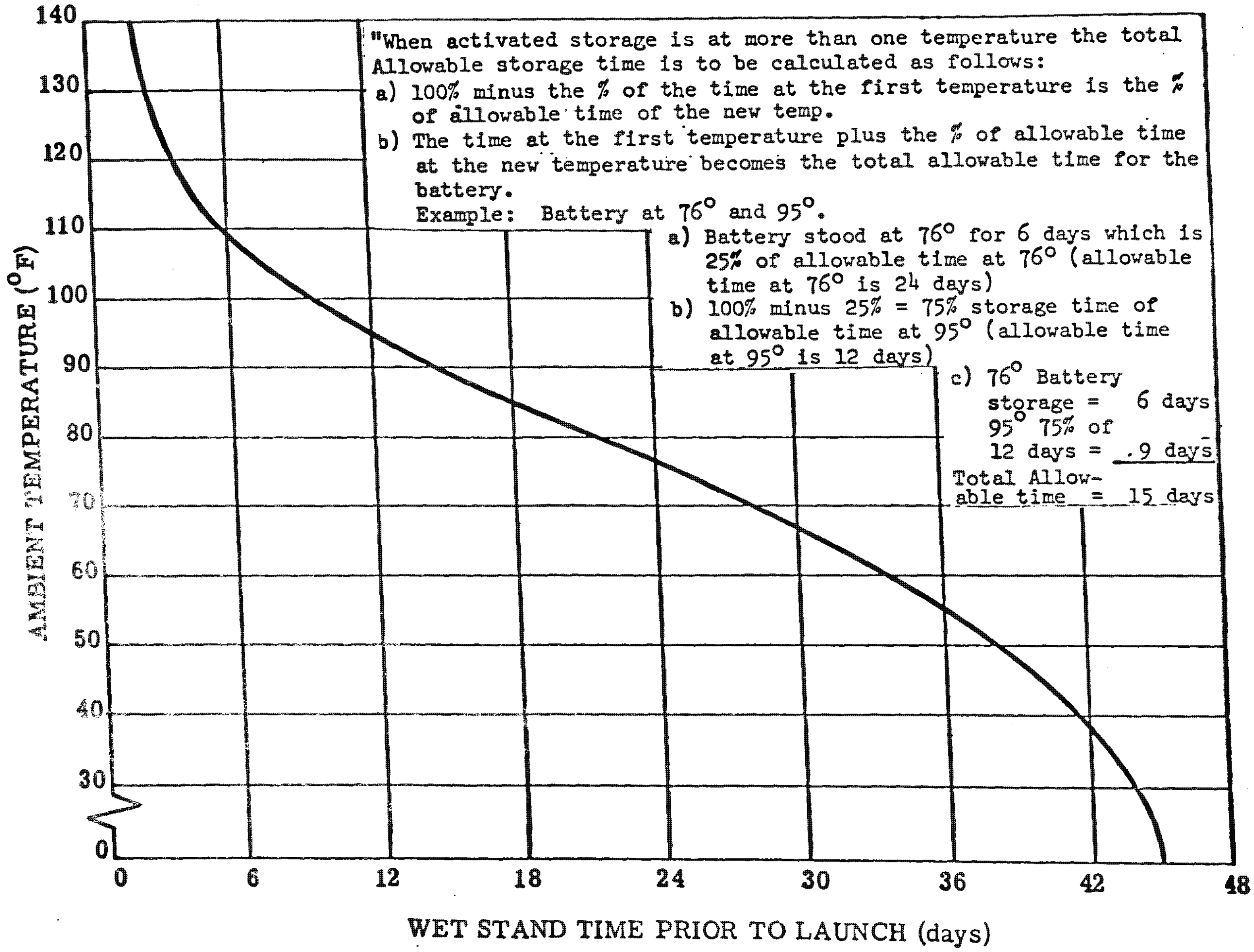

Figure D-4. Temperature vs Time Curve for Operational Battery, Drawing 888D354

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APPENDIX E FIGURES

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	Modes of Vehicle Area /Operation	SV Less GFE Power On	SV Less GFE Power Off	SV/GFE Power On In Controlled Environment	SV/GFE Power Off or Transportation	Erecting/Mating/Demating	SV/GFE at Pad Power Off	SV/GFE at Pad SV and Ground Conditioning Power On
SRV	CONTROL DEVICE	None	Max. SV Temp 125°F	Upper vehicle blanket with heaters	Upper vehicle transportation blanket	Upper vehicle blanket with heaters	Upper Vehicle Blanket	Upper vehicle blanket with heaters
	MAX DEW POINT (°F) (% RH) (See Note E)	59° (35% - 80%) Room	Min. SV Temp 0°F	59 (35%-80%) Room	Ambient (See Note B)		Ambient (See Note B)	Ambient (See Note B)
	SKIN TEMP (°F)	77.5 + 12.5	SV Temp must be maintained	77.5 + 12.5	70 + 5		70 ± 10	77.5 ± 12.5
ADAPTER	CONTROL DEVICE	Internal cooling air		Internal cooling air	Upper vehicle transportation blanket	Upper vehicle blanket with heaters	Upper Vehicle Blanket	Upper blanket with heaters and internal air (See Note C)
	AIR FLOW RATE (LB/MINUTE)	40 ± 5		40 ± 5	None		As required to maintain temp	12 ± 1.2
	TEMP OF COOLING (°F)	62.5 ± 2.5		62.5 + 2.5	None		70 ± 10	37 ± 3
	MAX DEW POINT (°F)	59(80%-95%) Cooling air		50(42%-59%) Cooling air	Ambient (See Note B)		20 (45%-55%) Cooling air	20 (45%-55%) Cooling air
	SKIN TEMP (°F)	77.5 ± 12.5		77.5 ± 12.5	70 ± 5		70 ± 10	77.5 ± 12.5
SECTION 5	CONTROL DEVICE	None		None	OCV transportation blanket		OCV Blanket	OCV blanket with heaters and air (Note C)
	AIR FLOW RATE (LB/MINUTE)	None		None	None		As required to maintain temp	20 ± 2
	TEMP OF COOLING AIR (°F)	None		None	None		70 ± 10	37 ± 3
	MAX DEW POINT (°F) (See Note E)	59(35%-80%) R		50(42%-59%) 20(45%-55%) Cooling air	Ambient (See Note B)		20 (45%-55%) Cooling air	20 (45%-55%) Cooling air
	OCV BLANKET THERMISTOR TEMP (1 reqd)						70 ± 10	61 ± 4
SECTION 6	CONTROL DEVICE	External cooling air		External cooling air	OCV transportation blanket		OCV Blanket	OCV blanket with heater and air (Note D)
	AIR FLOW RATE (LB/MINUTE	50 ± 5		50 ± 5	None		As required	20 ± 2
	TEMP OF COOLING AIR (°F)	62.5 ± 2.5		62.5 ± 2.5	None		70 ± 10	37 ± 3
	MAX DEW POINT (°F)	59 (80%-95% Cooling air		20 (45%-55%) Cooling air	Ambient (See Note B)		20 (45%-55%) Cooling air	20 (45%-55%) Cooling air
	OCV BLANKET THERMISTOR TEMPS (4 reqd)						70 ± 10	64 ± 2
SECTION 7	CONTROL DEVICE	Internal ai		Internal cooling air	OCV transportation blanket		Cooling air (if reqd) to maintain temp	Internal cooling air
	AIR FLOW RATE (LB/MINUTE)	10 ± 5		10 ± 5	None		As required	5 ± 0.5
	TEMP OF COOLING AIR (°F)	22.5 ± 2.5		22.5 ± 2.5	None		70 ± 10	37 ± 3
	MAX DEW POINT (°F)	59 (80%-95% Cooling air		20 (45%-55%) Cooling air	Ambient (See Note B)		20 (45%-55%) Cooling air	20 (45%-55) Cooling air
	SKIN TEMP (°F)	None		None			70 ± 10	None

*Cooling air temperature shall be controlled within ± 3°F of the nominal setting used.

NOTES

A. Controlled environment: A maximum temperature range of 65°F to 95°F at a maximum dew point of 59°F (35% to 80% RH).

B. Ambient air temperature shall not exceed 90°F with no sun, at maximum dew point of 64°F (44% RH); nor exceed 60°F with sun, at maximum dew point of 60°F (100% RH).

C. Internal air "on pad" for the adapter, aft bay (Section 7), and OCV blanket is to be supplied.

D. Air Disconnect, End Item 9, must be plugged in within 30 minutes of removal of transportation environment control.

E. Numbers in parentheses () at maximum dew point are % relative humidity ranges. Lowest % relative humidity corresponds with highest allowable temperature; highest % RH corresponds with lowest allowable temperature.

FIGURE 4.2-1. ENVIRONMENTAL CONTROL REQUIREMENTS

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Linearity = ± 2% maximum
deviation from best straight
line through test points

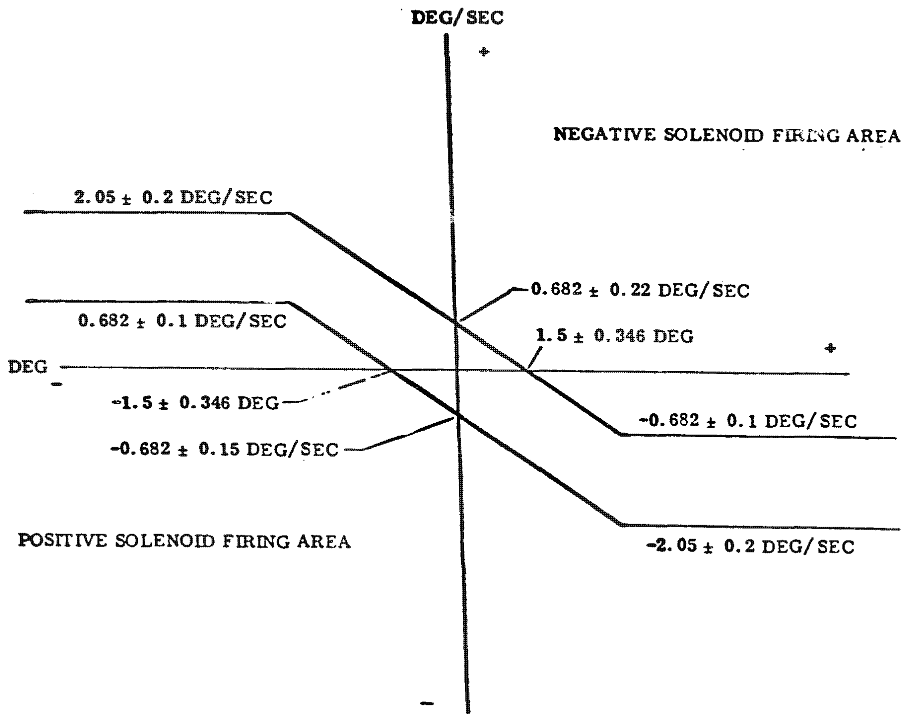

Figure 4.5.5.2.2-1. Coarse Limit Cycle

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E-0003

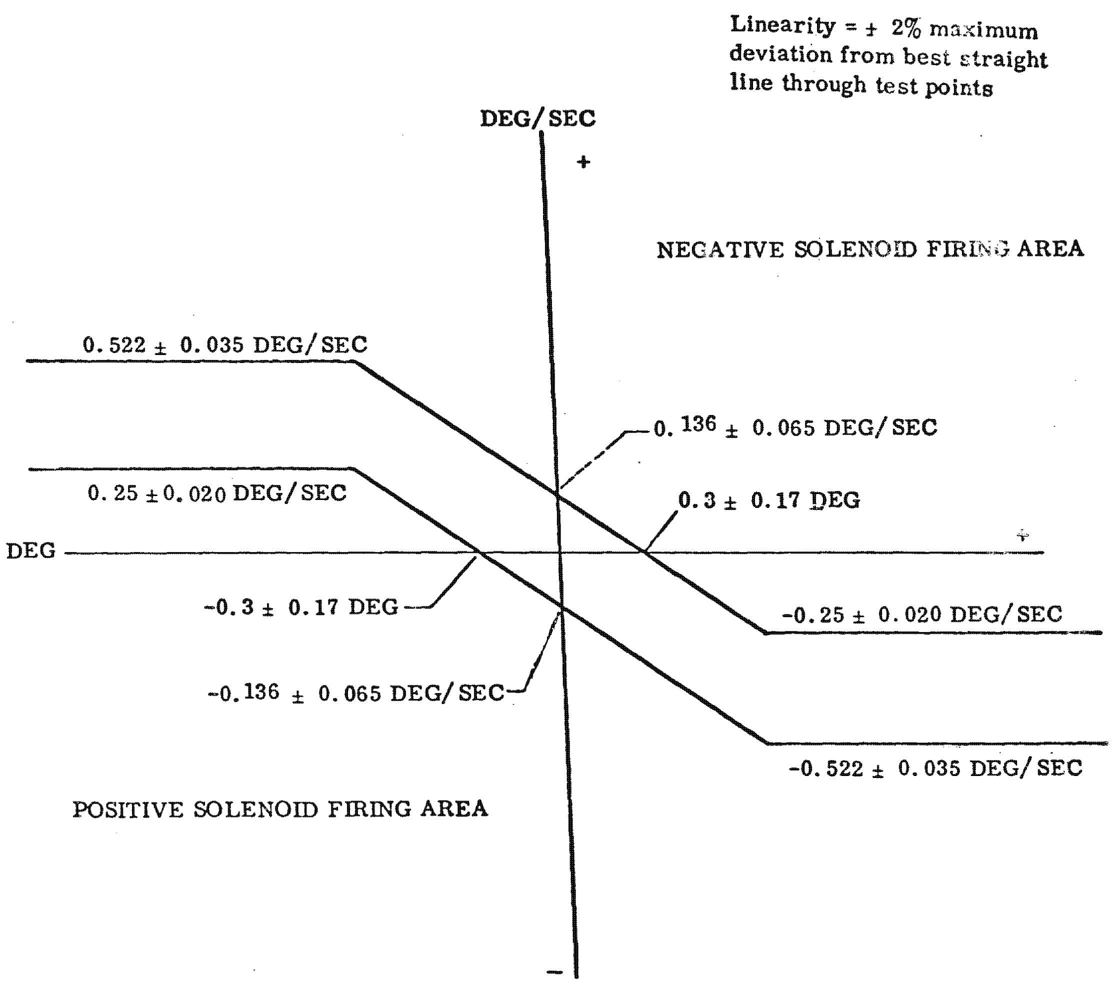

Figure 4.5.5.2.2-2. Fine Limit Cycle

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Linearity = ± 2% maximum deviation from best straight line through test points

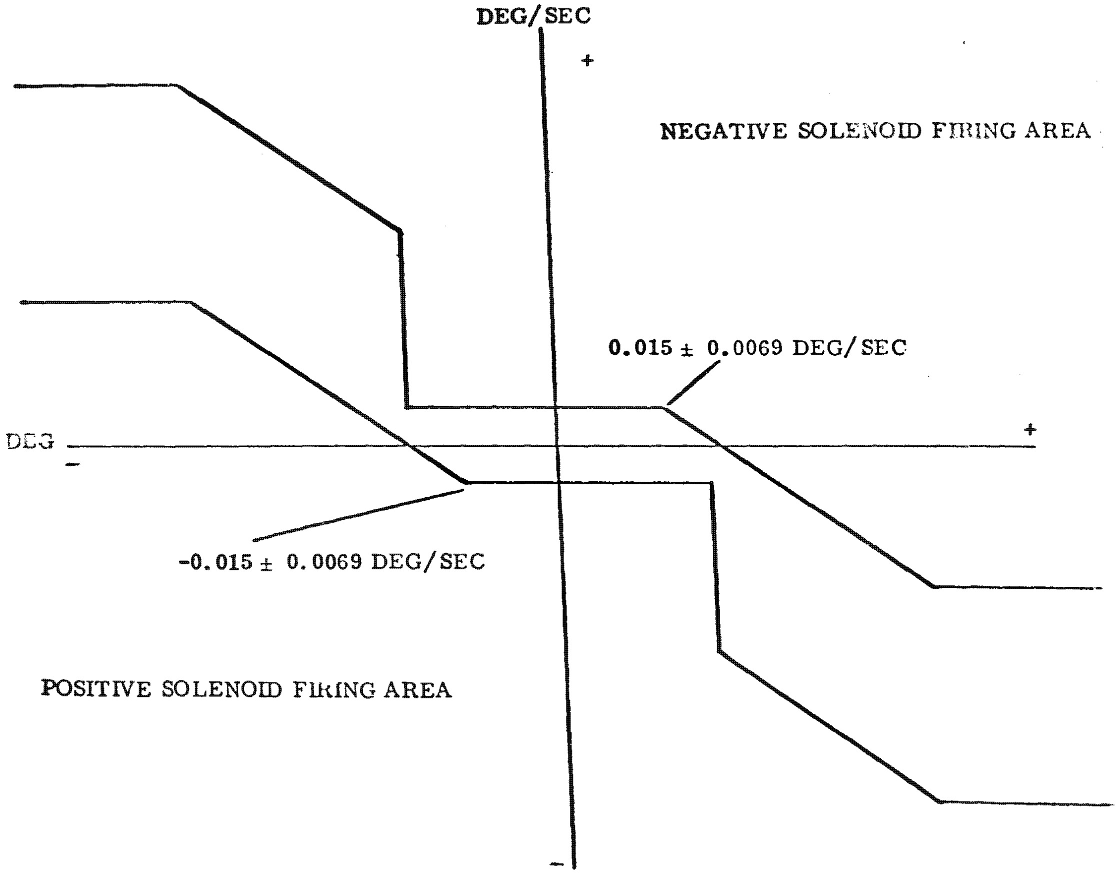

Figure 4.5.5.2.2-3. Rate Roofs

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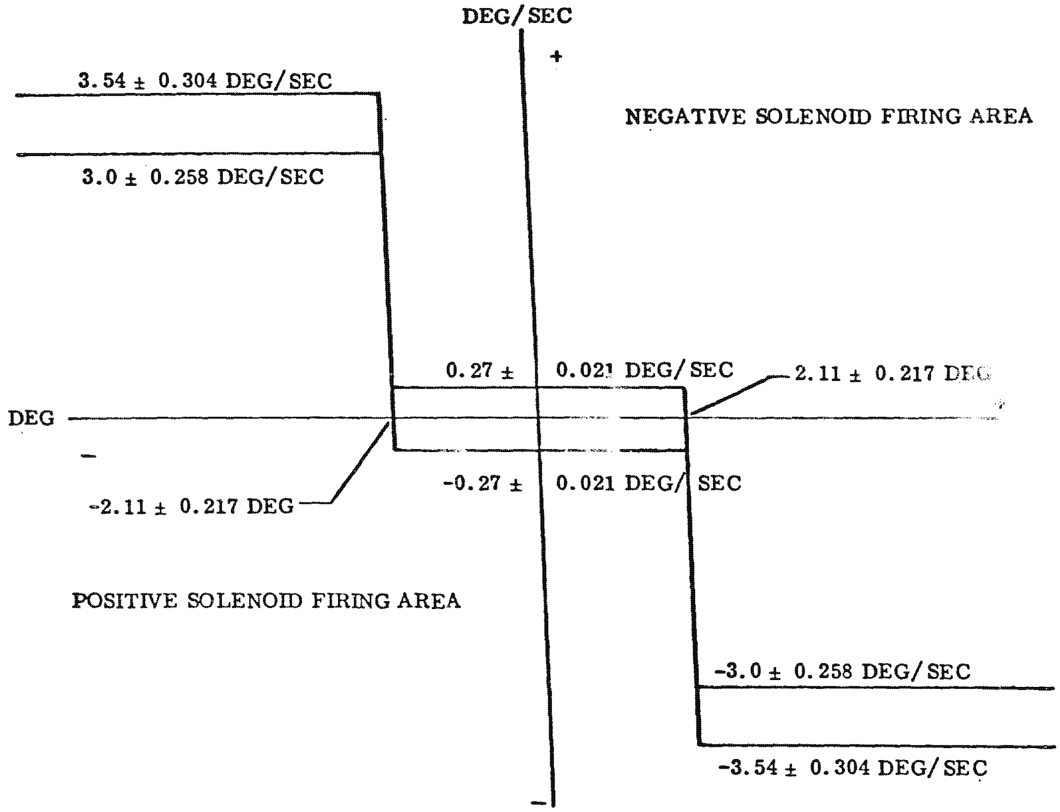
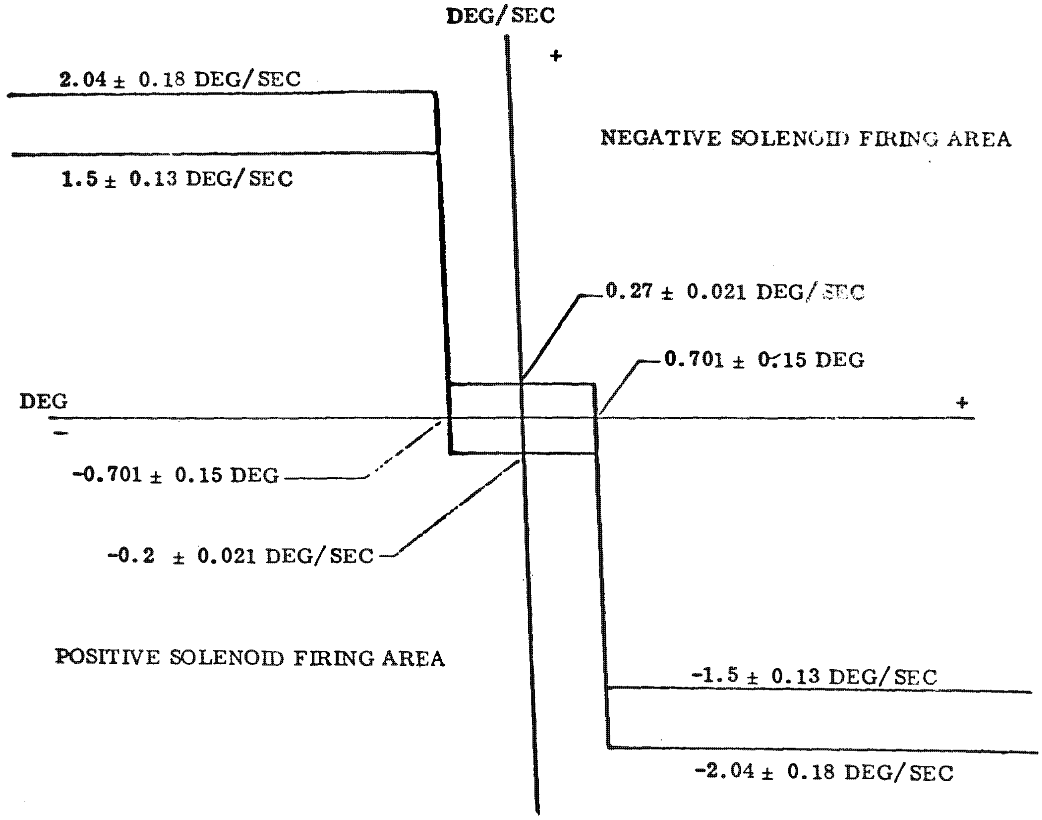


NOTE: The fine limit cycle minimum rate saturation line of +0.25 $\pm$0.02 deg/sec and the fine line limit cycle minimum rate saturation line of -0.25 $\pm$0.02 deg/sec (ref. Figure 4.5.5.2.2-) shall be inside the RMA rate limits of _0.27 $\pm$0.021 deg/sec and -0.27 $\pm$0.021 deg/sec respectively.

Figure 4.5.5.2.2-4. High Maneuver Rate



NOTE: The fine limit cycle minimum rate saturation line of +0.25 ±0.02 deg/sec and the fine line limit cycle minimum rate saturation line of -0.25 ±0.02 deg/sec (ref. Figure 4.5.5.2.2-) shall be inside the RMA rate limits of +0.27 ±0.021 deg/sec and -0.27 ±0.021 deg/sec respectively.

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Figure 4.5.5.2.2-5. Medium Maneuver Rate

E-0007

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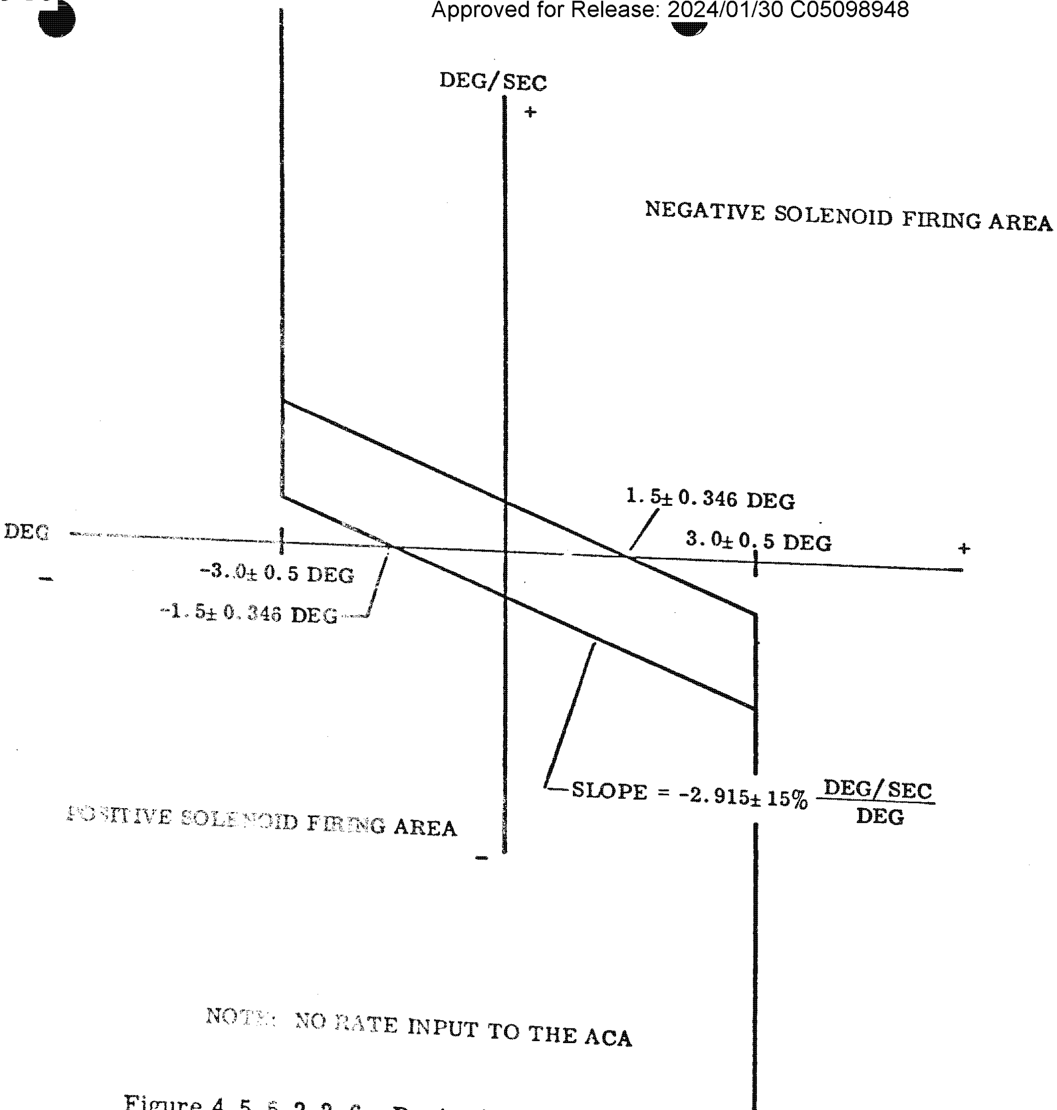

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Figure 4.5.5.2.2-6. Derived-Rate Coarse Limit Cycle

E-0008

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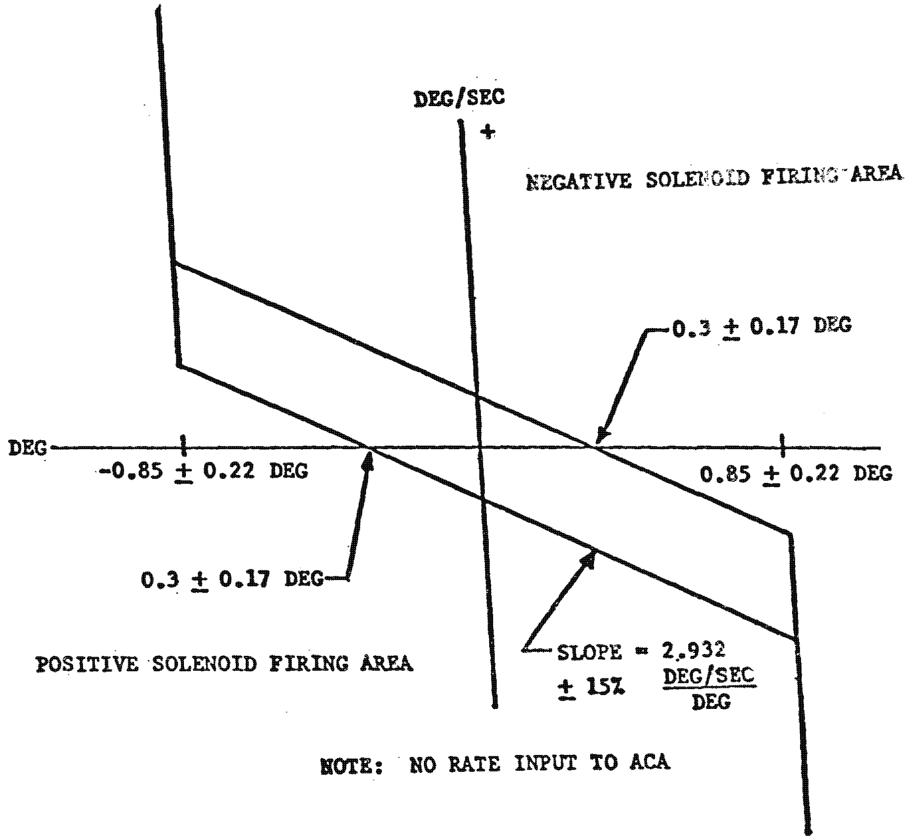

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FIGURE 4.5.5.2.2-7. FINE-RATE DERIVED LIMIT CYCLE

E-0009

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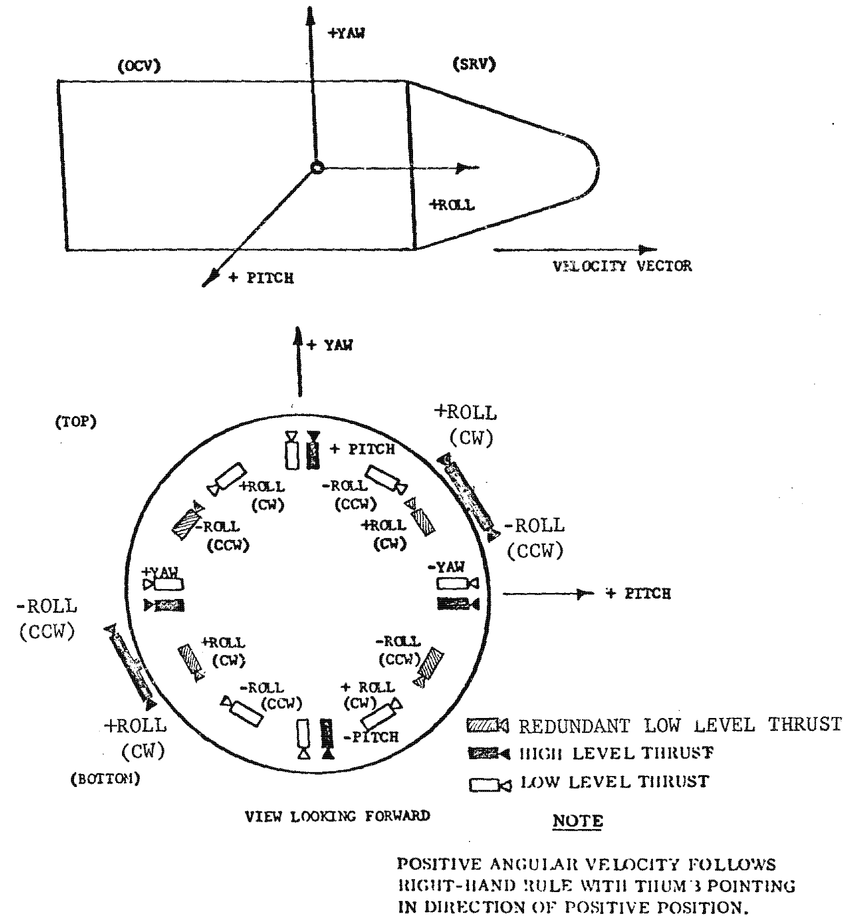

Figure 4.5.5.2.8. Attitude Control, Axis Definitions

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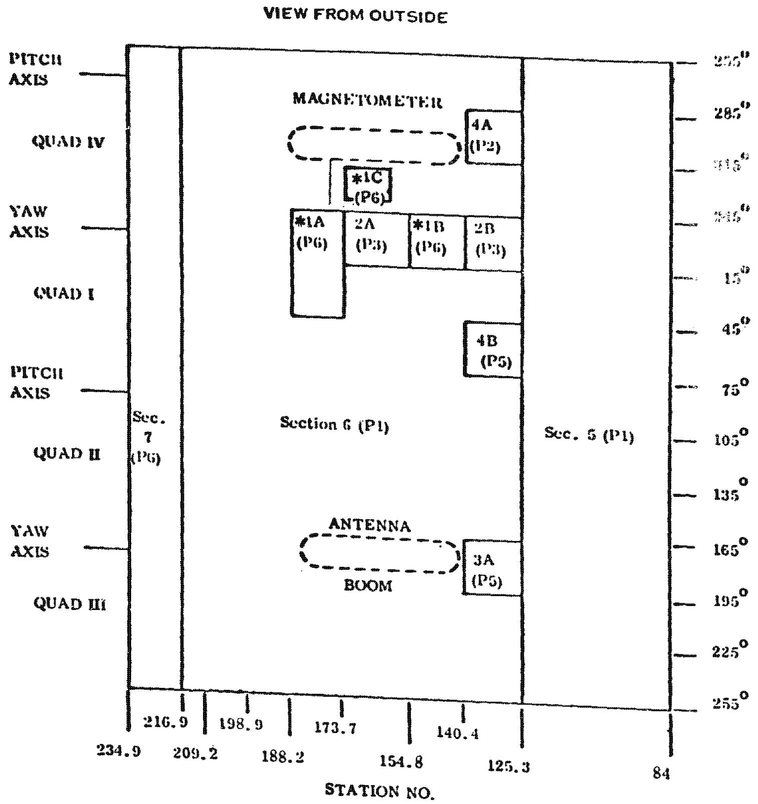

Note

(Px) designations refer to coating part numbers per GE Drawing 895D351.

*REFLECTANCE MEASUREMENT AREAS

Figure 4.5.9.2.4. OCV External Surfaces for Reflectance Measurements

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E-0011

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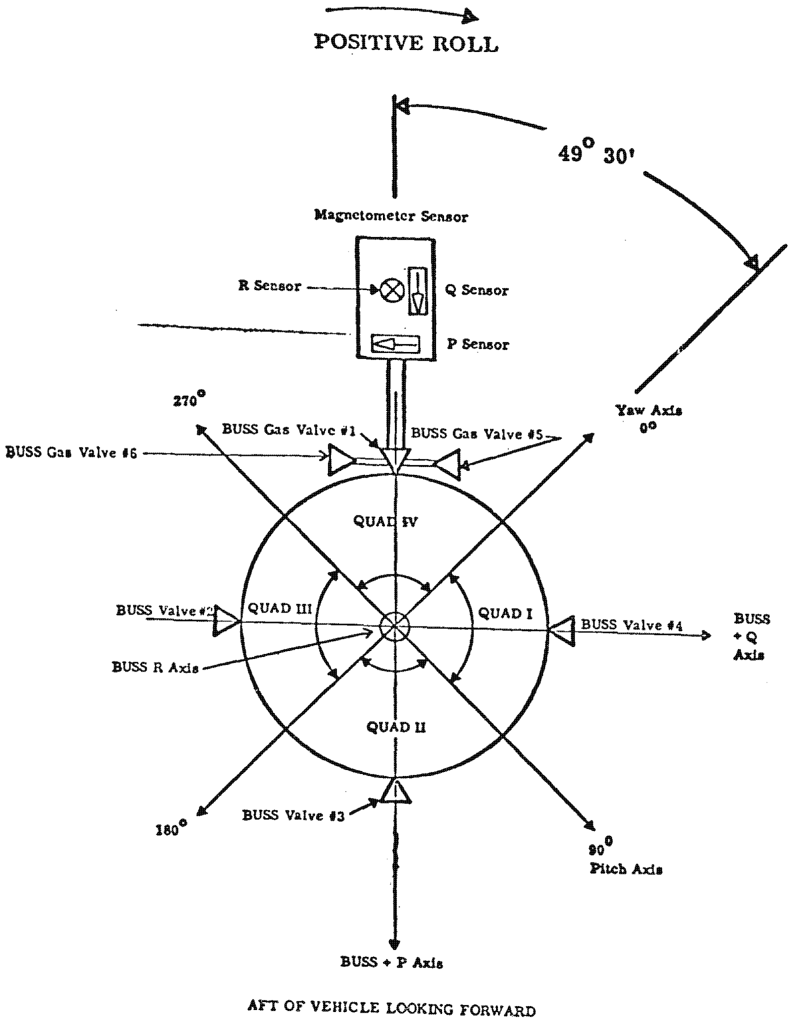

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Figure 4.5.10.1. BUSS Axis Definition

E-0012

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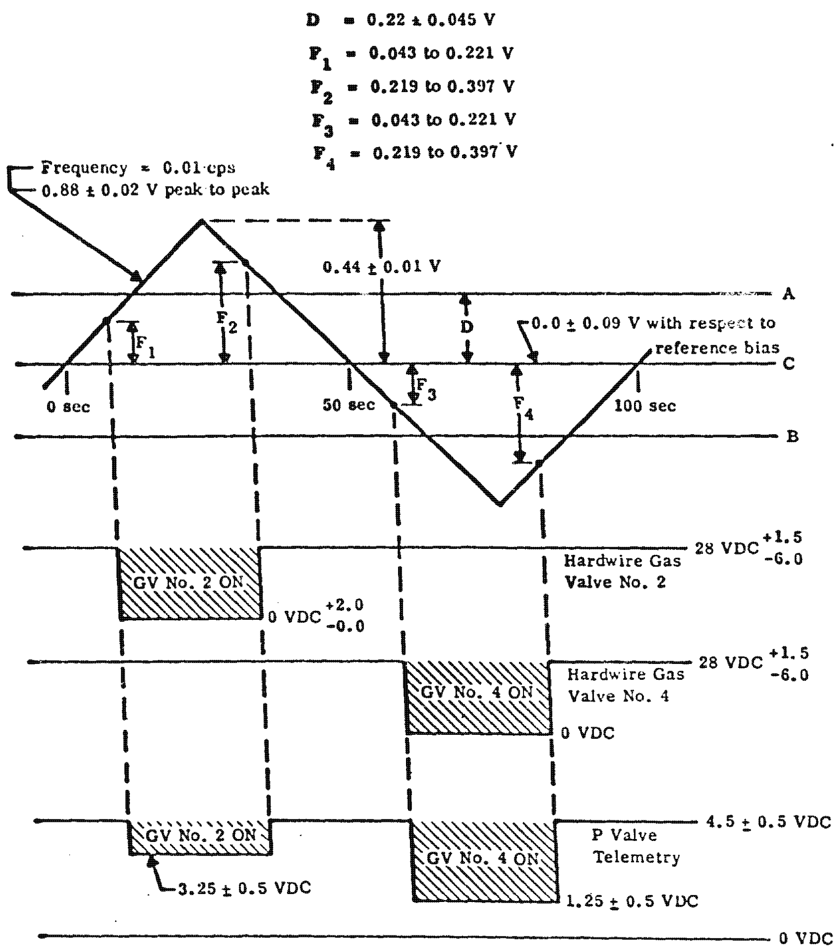

Figure 4.5.10.2.3-1. P-Channel Null Gain

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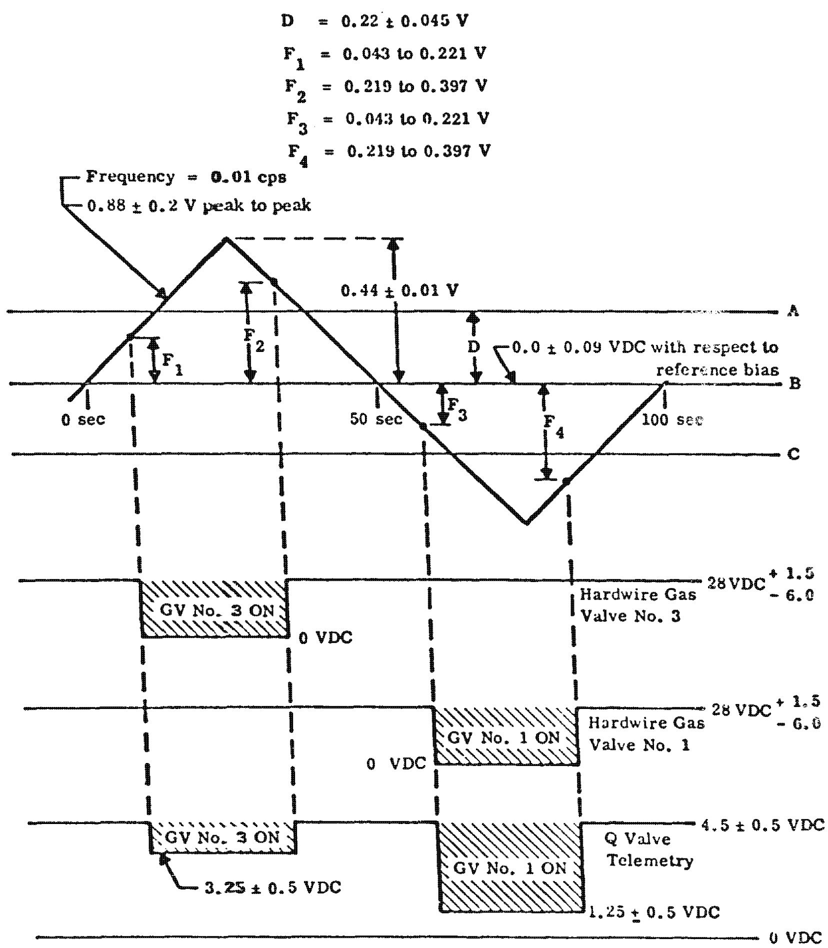

Figure 4.5.10.2.3-2. Q-Channel Null Gain

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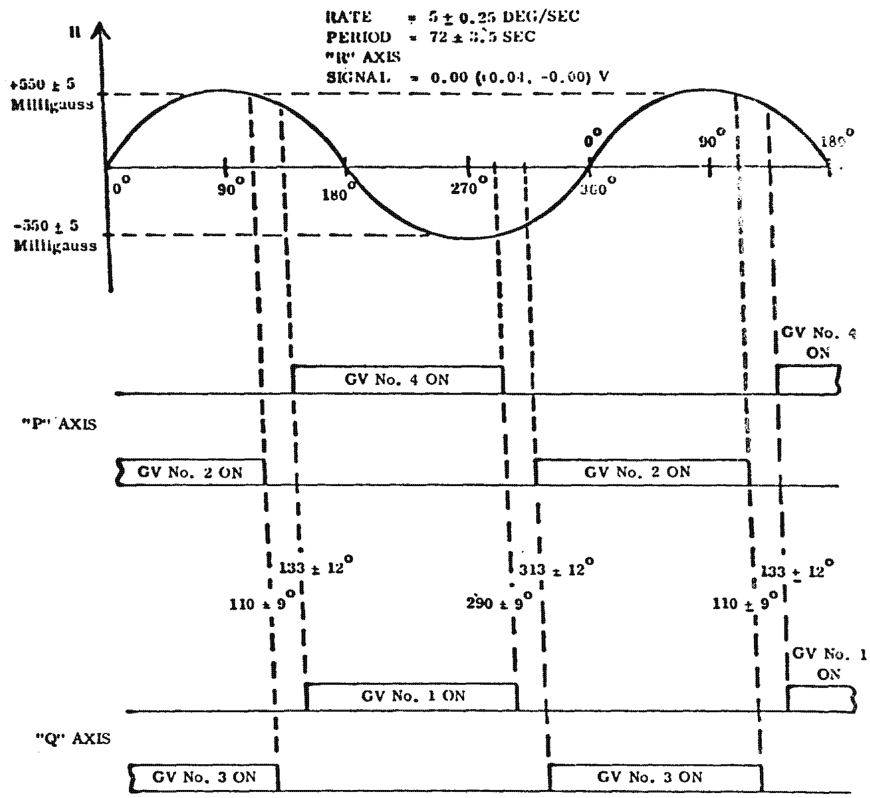

REQUIREMENTS

GV No. 1 ON, GV No. 4 ON } 133 ± 12° GV No. 2 ON, GV No. 3 ON } 313 ± 12°

GV No. 1 OFF, GV No. 4 OFF } 290 ± 9° GV No. 2 OFF, GV No. 3 OFF } 110 ± 9°

Figure 4.5.10.2.3-3. Magnetic Field Simulation with Positive "R" Axis Signal

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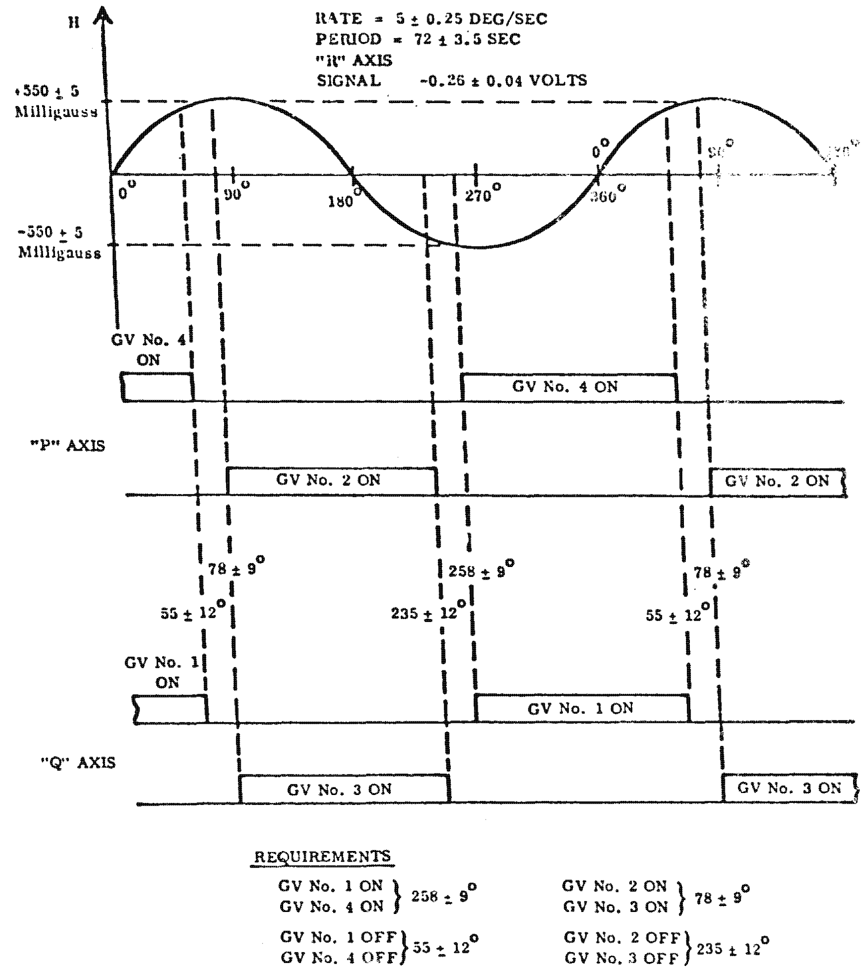

Figure 4.5.10.2.3-4. Magnetic Field Simulation with Negative "R" Axis Signal

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88 HF APPENDIX F - COMMAND ALLOCATIONS

A. STORED COMMANDS

THE FOLLOWING COMMAND ALLOCATIONS ARE BASED UPON THE COMMANDED WORD STRUCTURE AS DEFINED BELOW.

SSPC CONTAINS 1 WORD

DSPC CONTAINS 2 WORDS EXCEPT FOR DSPC NO. 6 WHICH CONTAINS ONE WORD

BITS.	1-23	1ST WORD	TIME LABEL
		2ND WORD	FUNCTION BITS
	24	1ST WORD	TIME PARITY (BITS 1-23)
		2ND WORD	FUNCTION PARITY (BITS 1-23)
	25	1ST WORD	WORD DEFINING BIT (0 FIRST WORD)
		2ND WORD	WORD DEFINING BIT (1 SECOND WORD)
	26-28	1ST WORD	DECODER INPUT ADDRESS
		2ND WORD	FUNCTION BITS
	29-36	1ST WORD	FUNCTION BITS
		2ND WORD	FUNCTION BITS
	37	1ST WORD	PARITY (BITS 1-36)
		2ND WORD	PARITY (BITS 1-36)

NOTE. 3 EXTRA BITS (PREAMBLE) ARE ADDED ON THE BEGINNING OF EACH WORD BY THE PROGRAMMER WHEN THE WORD IS STORED IN THE DELAY LINE.

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A. STORED COMMANDS(CONT.)

SPC FUNCTION BIT DEFINITION

COMMD. TYPE	**WORD	BIT **NUMBER	FUNCTION	STATES **1/0	ABBREV.	*STATES 1/0
SSPC	1	29	COMPUTER PHASE	A/B	CP	A/B
NO.1	1	30	RECORDER 1	ON/OFF	R1	+/-
	1	31-32	PB2	SET/RESET	PO, PP	00, 01
			PB3	SET/RESET	PS, PR	10/11
	1	33	GFE 1-C25	ON/OFF	CP	+/-
	1	34	YAW, DB	FINE/COARSE	Y	F/C
	1	35	PITCH, DB	FINE/COARSE	P	F/C
	1	36	ROLL, DB	FINE/COARSE	R	F/C

SUMMATION

* ACRONYM = SUMMATION OF FUNCTION ABBREVIATION + STATE, EXAMPLE. CPA = COMPUTER PHASE A

** FUNCTION DESCRIPTOR NUMBER IS A FOUR DIGIT NUMBER WHOSE FORMAT IS.

WORD	BIT NO.	STATE
X	XX	X

EXAMPLE. 1291 = COMPUTER PHASE A OR CPA.

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A. STORED COMMANDS(CONT.)

CMD TYPE	WORD	BIT NUMBER	FUNCTION	STATES 1/0	ABBREV.	STATES 1/0
SSPC	1	29	TM REAL, BUSS TM	ON/OFF	T	+/-
NO. 2	1	30	RECORDER 2	ON/OFF	R2	+/-
	1	31	VERLORT	ON/OFF	S	+/-
	1	32	SPARE			
	1	33	PPD	ON/OFF	C	+/-
	1	34	GFE 1-C25	ON/OFF	CP	+/-
	1	35-36	TIMER MODE	6R, 12 6, CD OFF	6R, 12 6, CD-	00,01 10,11
DSPC	1	29-36	SECURE KEY			
NO. 1	2	1-23	SECURE KEY			
	2	26-30	SECURE KEY			
	2	31	ARM	ON/NORM	ARM	
	2	32	ENGINE 1	ON/NORM	E1+	
	2	33	ENGINE 2	ON/NORM	E2+	
	2	34	DISCONNECT 1	ON/NORM	DS1	
	2	35	BUSS REMOTE EX	ON/NORM	BUX	
	2	36	SPARE			

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A. STORED COMMANDS(D.S.P.C.4 CONT)

CMD TYPE	WORD	BIT NUMBER	FUNCTION	STATES 1/0	ABBREV.	STATES 1/0
DSPC	1	29	SPARE			
NO. 4	1	30	SPARE			
	1	31	SPARE			
	1	32	SPARE			
	1	33	SPARE			
	1	34	SPARE			
	1	35	SPARE			
	1	36	SPARE			
	2	1	SPARE			
	2	2	SPARE			
	2	3	SPARE			
	2	4	SPARE			
	2	5	SPARE			
	2	6	SPARE			
	2	7	SPARE			
	2	8	SPARE			
	2	9	SPARE			
	2	10	SPARE			
	2	11	SPARE			
	2	12	SPARE			
	2	13	SPARE			
	2	14	SPARE			
	2	15	SPARE			
	2	16	RECORDER 1	ON/OFF	R1	+/-
	2	17	YAW LEVEL	LOW/HIGH	Y	L/H
	2	18	PITCH LEVEL	LOW/HIGH	P	L/H
	2	19	ROLL LEVEL	LOW/HIGH	R	L/H
	2	20	SPARE			
	2	21	YAW DB	FINE/ COARSE	Y	F/C
	2	22	IR OFF/DS1 ENABLE	ON/OFF	IDE	+/-

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A. STORED COMMANDS(D.S.P.C.4 CONT)

CMD TYPE	WORD	BIT NUMBER	FUNCTION	STATES 1/0	ABBREV.	STATES 1/0
DSPC NO.4	2	23	ACA OFF/BUSS ENABLE	ON/OFF	ABE	+/-
(CONT)	2	26	PITCH DB	FINE/ COARSE	P	F/C
	2	27	ROLL DB	FINE/ COARSE	R	F/C
	2	28	GFE 1-C15	ON/OFF	TC	+/-
	2	29	FLY. YAW GYRO UNCG.	FWD/NORM	F+	
	2	30	YAW TORQUE	ON/OFF	TQ	+/-
	2	31	1C20/1C21	ENA./DIS.	**	**
	2	32	FLY. YAW GYRO UNCG.	REV/NORM	F-	
	2	33	GFE,1C20	SET/RESET	**	**
	2	34	GFE 1C21	SET/RESET	**	**
	2	35	RATE ROOFS	OFF/ON	RT	-/+
	2	36	GFE 1C24	ON/OFF	CH	+/-

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A. STORED COMMANDS(D.S.P.C.4 CONT)

** 1C20/1C21 MODES

FUNCTION	ABV	BITS 31	33	34
DISABLE, 1C20 RESET 1C21 RESET,	0	0	0	0
ENABLE, 1C20 RESET 1C21 SET,	1	1	0	1
ENABLE, 1C20 SET 1C21 RESET,	2	1	1	0
ENABLE, 1C20 SET 1C21 SET,	3	1	1	1
ENABLE, 1C20 RESET 1C21 RESET,	4	1	0	0
	***	0	1	1

*** THIS STATE IS AN OPERATIONAL DEFINED FUNCTION. IT SHALL BE VERIFIED THAT 1C20 AND 1C21 DO NOT SET WHEN THIS STATE IS COMMANDED IN TEST.

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A. STORED COMMANDS(CONT)

CMD TYPE	WORD	BIT NUMBER	FUNCTION	STATES 1/0	ABBREV.	STATES 1/0
DSPC	1	29	SPARE			
NO. 5	1	30	OCV/AGENA	SEP/NORM	OVS	
	1	31	R + P GYRO	UNCAGE/ NORM	RPU	
	1	32	PREDAC BYPASS	ON/NORM	BY	
	1	33	FLY/YAW GYRO, UNCAG.	REV/NORM	F-	
	1	34	BATTERY RESET	ON/NORM	BR	
	1	35	COMPUTER PREARM	ON/NORM	CPR	
	1	36	PITCH ZERO	ON/NORM	PZ	
	2	1	PITCH DOWN	ON/NORM	PD	
	2	2	ENVIR. POWER ON	ON/NORM	EP+	
	2	3	ENVIR. POWER OFF	OFF/NORM	EP-	
	2	4	OCV TANKS	PRES/NORM	PTP	
80C	2	5	STAB FILL LINE	SEAL/NORM	SFS	
	2	6	SPARE			
	2	7	IR SIGNAL	ON/OFF	IR	+/-
	2	8	SEARCH MODE	OFF/NORM	SM-	
	2	9	GFE 1-C17	ON/NORM	R11	
	2	10	GFE 1-C18	ON/NORM	R12	

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A. STORED COMMANDS(D.S.P.C.5 CONT.)

CMD TYPE	WORD	BIT NUMBER	FUNCTION	STATES 1/0	ABBREV.	STATES 1/0
DSPC	2	11	SPARE			
NO. 5	2	12	IR PREAMP/TOTAL CURRENT RECORD	PREAMP/ TOTAL	I	+/-
	2	13	SPARE			
	2	14	SPARE			
	2	15	GFE 1-C16	ON/OFF	T	A/M
	2	16	SPARE			
	2	17	H30 TRANSFER	ON/NORM	TRA	
	2	18	GFE 1-C24	ON/OFF	CH	+/-
	2	19	AC	ON/OFF	AC	+/-
	2	20	SPARE			
	2	21	SPARE			
	2	22	SPARE			
	2	23	SPARE			
	2	26	SPARE			
	2	27	SPARE			
	2	28	SPARE			
	2	29	SPARE			
	2	30	COMPUTER TIMER BYPASS	ON/OFF	CT	
	2	31	SPARE			
	2	32	SPARE			
	2	33	RV/OCV SEP	ON/NORM	SEP	
	2	34	DISCONNECT 2	ON/NORM	DS2	
	2	35	SPARE			
	2	36	OCV ENG.	CUTOFF/ NORM	E-	

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A. STORED COMMANDS(CONT.)

DSPC NO. 2

EXAMPLE - AA/BB CC.C+-DD.DF+-DD.DEFF (GG.G/GG.G)

SUBFIELD	WORD	BITS	FUNCTION	REPRESENTATION
A	1	29-34	GFE 1-C1 TO 1-C6 - T1 TIME	TWO OCTAL DIGITS (BITS 29-31, 32-34) REPRESENTING CODED DECIMAL VALUES
B	2	15-20	GFE 1-C1 TO 1-C6 - T2 TIME	TWO OCTAL DIGITS (BITS 15-17, 18-20) REPRESENTING CODED DECIMAL VALUES
C			T4-T1	TIME PERIOD IN SECONDS (10.1 SEC TO 30.5 SEC.)
D	2 2 2	2-8 21-23 26-29	ROLL ANGLE ROLL ANGLE ROLL ANGLE	ROLL ANGLE IN DEGREES
E	2	9,10 30,31	ROLL RATE AT T2 TIME ROLL RATE AT T4 TIME	ROLL RATE-LOW (L) 00, MEDIUM (M) 01, OR HIGH (H) 11
F	2	32 36	GFE 1-C8 TO 1-C12 AT T4 TIME	TWO OCTAL DIGITS BITS 32-33, 34-36
G	2 1 2	11-14 35-36 1	(T2-T1/ T3-T2)	TIME PERIODS IN SECONDS

NOTE. 1C7A IS IMPLICIT WITH T1 AND T3 DSPC 2 ONLY
1C7B IS IMPLICIT WITH T2 AND T4 DSPC 2 ONLY

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A. STORED COMMANDS(CONT.)

DSPC NO. 3

EXAMPLE - AA CCC.C+-DD.DEFF

SUBFIELD	WORD	BITS	FUNCTION	REPRESENTATION
A	1	29-34	GFE 1-C1 TO 1-C6	TWO OCTAL DIGITS (BITS 29-31, 32-34 REPRESENTING DECIMAL VALUES
C	1	35,36	T2-T1	TIME PERIOD IN SECONDS (0.1 SEC TO 102.4 SEC)
	2	1-8		
D	2	21-23	ROLL ANGLE	ROLL ANGLE IN DEGREES
		26-29	ROLL ANGLE	
E	2	30,31	ROLL RATE	ROLL RATE, LOW (L) 00, MEDIUM (M) 01, OR HIGH (H), 11.
F	2	32-36	GFE 1-C8 TO 1-C12	TWO OCTAL DIGITS BITS 32-33, 34-36
	2	9-20	SPARE	

NOTE. 1C7A IS IMPLICIT WITH T1 DSPC 3 ONLY
1C7B IS IMPLICIT WITH T2 DSPC 3 ONLY

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B. REAL TIME COMMAND LIST

REAL TIME COMMAND CONTAINS 7 BITS. BIT 1 IS THE PARITY. BITS 2, 3, 4, 5 ARE THE FUNCTION BITS. BITS 6 AND 7 ARE NOT IMPLEMENTED. BIT 2 IS THE LEAST SIGNIFICANT DIGIT, BIT 7 IS THE MOST SIGNIFICANT DIGIT

THE FOLLOWING IS THE REAL TIME COMMAND ALLOCATION.

	CMD. NO.	COMMAND DESCRIPTOR	BIT NO. 1	2	3	4	5	6	7
	RTC								
	1	SELECT LINE 1	0	0	0	0	0	0	0
	2	SELECT LINE 2	1	1	0	0	0	0	0
	3	SELECT LINE 3	1	0	1	0	0	0	0
	4	SELECT LINE 4	0	1	1	0	0	0	0
88	5	BALANCE VALES OPEN	1	0	0	1	0	0	0
88	6	VOLTAGE STEPDOWN BYPASS	0	1	0	1	0	0	0
	7	TM TRANSMITTERS, NORMAL	0	0	1	1	0	0	0
	8	TM TRANSMITTERS, REVERSED	1	1	1	1	0	0	0
	9	PPD OFF	1	0	0	0	1	0	0
98	10	BALANCE VALVES CLOSE	0	1	0	0	1	0	0
98	11	SELECTOR VALVE 2 (CLOSE)	0	0	1	0	1	0	0
98	12	SELECTOR VALVE 1 (CLOSE)	1	1	1	0	1	0	0
	13	RECORDER PLAYBACK ON	0	0	0	1	1	0	0
	14	RECORDER PLAYBACK OFF	1	1	0	1	1	0	0
	15	SEARCH MODE ON	1	0	1	1	1	0	0
88	16	SELECTOR VALVES (SV1,SV2) OPEN	0	1	1	1	1	0	0

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84 H APPENDIX G. CANISTER ZONE TEMPERATURES FOR THE +1.7 SIGMA AND -1.7 SIGMA

A. CANISTER ZONE TEMPERATURES

THE FOLLOWING CANISTER TEMPERATURES SHALL BE MAINTAINED WITHIN +-2DEG. F CASE TO ACCOMPLISH THE +1.7 SIGMA AND -1.7 SIGMA CASE.

		ZONE LOC	CIRCUM	HOT CASE	COLD CASE
SECTION	ZONE	STA TO STA	DEG. TO DEG.	TEMP(DEG.F)	TEMP.(DEG. F)
	1	FORWD.END	0- 360	70	53
RV	2	19- 46	0- 120	29	108
	3	19- 46	120- 240	44	-27
	4	19- 46	240- 0	122	-48
ADAPTER	5	46- 84	330- 30	18	18
	6	46- 84	30- 90	-19	63
	7	46- 84	90- 150	14	43
	8	69- 84	150- 210	49	-22
	9	46- 84	210- 270	119	-40
	10	46- 84	270- 330	76	-109
	11	52.5- 65	130- 155	56	66
	12	46- 69	135- 225	45	-25
	13	84-125.4	330- 30	71	49
	14	84-125.4	30- 90	16	122
5	15	84-125.4	90- 150	12	89
	16	WALLS FOR ZONE 16A		57	-15
	16A	84-125.4	150- 210	57	-15
	17	84-125.4	210- 270	112	-2
	18	84-125.4	270- 330	131	-109

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A. CANISTER ZONE TEMPERATURES (CONTINUED)

SECTION	ZONE	STA TO STA ZONE LOC	DEG. TO DEG. CIRCUM	TEMP(DEG.F) HOT CASE	TEMP.(DEG. F) COLD CASE
	19	125.4-140.4	345- 30	39	-2
	20	125.4-173.4	15- 45	59	106
	21	125.4-140.4	45- 75	4	128
	22	125.4-216.1	30- 90	7	145
6	23	125.4-140.4	90- 150	-7	128
	24	125.4-216.1	150- 210	51	-18
	25	125.4-140.4	160.2- 195	62	-9
	26	125.4-140.4	225- 274	116	-23
	27	125.4-216.1	274- 345	129	-115
	28	125.4-140.4	285- 326	60	-164
	29	140.4-154.8	345- 15	-64	-87
	30	154.8-173.4	345- 15	39	-2
	31	173.4-188.2	345- 45	-66	-5
	32	140.4-188.2	86- 135	-32	65
	33	140.4-188.2	225- 274	62	-42
	34	188.2-216.1	345- 45	68	74
	43	159.6-166.6	315- 326	-17	-207
	35	216.1-243	330- 30	-7	-74
	36	216.1-243	30- 90	-101	-110
7	37	216.1-243	90- 150	-33	-51
	38	216.1-243	150- 210	-12	9
	39	216.1-243	210- 270	-13	-29
	40	216.1-243	270- 330	-37	-44
	41	AFT END	00- 360	70	53
	42	MATING RING	0- 0	POWER OFF	POWER OFF

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A REVISIONS PAGE

88		1. SCOPE	1-0001	1-0001
88		THIS DOCUMENT INCORPORATES THE FOLLOWING APPLICABLE DOCUMENT(S) AND RE-		1-0001
88		SVS 5373 SYSTEM ACCEPTANCE SPECIFICATION ADDENDUM 79		1-0001
88		SVS 5380 SYSTEM ACCEPTANCE SPECIFICATION		1-0001
88		SVS 5380 SYSTEM ACCEPTANCE SPECIFICATION ADDENDUM 87		1-0001
88		SPECIFICALLY THIS DOCUMENT INCORPORATES ALL REQUIREMENTS OF SVS5373,		1-0001
88		2.1.2 OTHER DOCUMENTS	2-0004	2-0004
88		GE241R777A SV AIR CONDITIONING INTERFACE PALC2 PAD 4		2-0004
88		GE 255E952D PROPELLANT LOADING PIPING INTERFACE		2-0005
88	HF	4.2.1 GENERAL GROUND CONDITIONING REQUIREMENTS	4-0004	4-0004
88	F	4.2.2 ADDITIONAL PAD OPERATION REQUIREMENTS	4-0004	4-0004
88	F	4.5.1.2.1 OPERATIONAL BATTERIES		4-0015
88		E. BATTERY ACTIVATION AND PREPARATION SHALL BE PERFORMED PER GE-MSP		4-0015
88	HF	4.5.1.2.3.2 REVERSE CURRENT ISOLATION CIRCUIT		4-0018
88	H	TABLE 4.5.2.2.5.1 SCO FREQUENCY LIMITS		4-0024
88	H	TABLE 4.5.2.2.5.1 SCO FREQUENCY LIMITS (CONT)		4-0025
88		SCO BASE 9 (POWERED FLIGHT MODE)--DELETED		4-0025
88	HF	4.5.2.2.5.2 PRE-EMPHASIS SCHEDULE		4-0026
88	HF	C.THE PRE EMPHASIS SCHEDULE OF BASE 6 AND 8 SHALL MEET THE		4-0026
88		D.DELETED		4-0026
88		E.DELETED		4-0026

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88	HF	4.5.2.2.6 MULTIPLEXERS	4-0029
88		F.DELETED	4-0030
88	HF	4.5.2.2.9 SUBSYSTEM PERFORMANCE REQUIREMENTS	4-0031
88	HF	E. DELETED	4-0032
88	HF	F. DELETED	4-0032
88	HF	G. DELETED	4-0032
88	HF	H. DELETED	4-0032
88	HF	4.5.3.2.3.2 REAL TIME COMMANDS (RTC)	4-0038
88		B. REALTIME COMMANDS SHALL MEET THE REQUIREMENTS OF PARAGRAPH	4-0038
88	HF	4.5.3.2.3.4 STORAGE LINES	4-0039
88		(C) RESET AND SWITCH TO 12-MINUTE RESETTABLE MODE BY A MODE	4-0039
88		(C) NOT BE AFFECTED BY A MODE 12 COMMAND.	4-0040
88	HF	4.5.3.2.4 COMMAND TIMING REQUIREMENTS	4-0043
88	HF	4.5.4.2.4 REQUIRED SQUIB SIMULATOR CURRENTS	4-0046
88		*MEASURED AT THE OUTPUT OF THE LLCB	4-0046
88	HF	TABLE 4.5.4.2.4 SEPARATION FUNCTION ,TIMING,AND REQUIRED SQUIB	4-0048
88		15-28 B. ZEKE ANTENNA A 1989 4.8 N/A	4-0048
88		34-60 C. MAGNETOMETER A 1983 4.6 N/A	4-0048

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88	HF	4.5.10.2.4 BUSS SV INTERFACE REQUIREMENTS		4-0125
88	HF	D. THE BUSS VOLTAGE STEPDOWN MODULE SHALL BE BYPASSED BY		4-0125
88		A. BUSS SEPARATION COMMAND SHALL OPERATE 1-C-24 (+) AND 1-C-25(-)		4-0126
88		BY BUSS SEPARATION COMMAND 2 THRU 6 SHALL EXECUTE SV PRIMARY SEP.		4-0126
88	H	4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS	4-0127	4-0127
88	H	4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)		4-0128
88	H	4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)		4-0129
88	H	4.5.12 SV SYSTEM E.M.I. TEST REQUIREMENTS (CONT)		4-0130
88	HF	4.6.1.1.2 FUNCTIONAL TEST REQUIREMENTS		4-0134
88		6. BYPASS STEPDOWN MODULE WITH RTC 6 WITH BMD		4-0134
88		4. THE CAPABILITY OF EACH REDUNDANT PORTION OF THE REDUNDANT		4-0135
88	H	4.6.1.4.3.1 COMMAND SUBSYSTEM		4-0146
88		13. DELETED		4-0146
88	H	4.6.1.4.3.5 STABILIZATION SUBSYSTEM		4-0148
88		4. THE CAPABILITY OF EACH REDUNDANT PNEUMATIC TO PERFORM ITS FUNCTION		4-0148
88	H	4.6.1.4.3.8 TELEMETRY		4-0149
88	H	4.6.1.5.3.5 OPERATIONAL INTEGRITY - DELETED		4-0159
88		8. OPERATIONAL REQUIREMENTS (DELETED)		4-0162

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82	44	AMP-HOUR METER(0-30AH)	2/16/16	0PCT 100PCT	NOTE 44		D-0007
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88	60	REDUNDANT PNEUMATIC	2/15/22	-5 PCT	+5 PCT	NOTE 61	D-0007
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80C	28	LIMIT FOR FREON UNHEATED CONDITION IS 3600 PSIG MAX. WHEN					D-0008
80A	59	BASED ON 31VDC TO CONT LOOP UMB4B*(3Q).					D-0008
88	61	DUE TO AGE INPUT VOLTAGE OF 8 VOLTS, THE TLM LEVEL WILL BE					D-0008
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82	2	TARS TEMP MONITOR	UMB 3A*,G*,H*	150F	180F	NOTE 2	D-0009
82	3	RAGS TEMP MONITOR	UMB 3N*(3P*)	162F	168F	NOTE 3	D-0009
88	4	SECTION5 TEMP CONTROLLER	UMB 4V*(3E*)	1.0VDC	28VDC	NOTE 4	D-0009
88	5	SECTION5 TEMP CONTROLLER	UMB 4Z*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	6	SECTION5 TEMP CONTROLLER	UMB 4Y*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	7	SECTION5 TEMP CONTROLLER	UMB 4X*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	8	SECTION5 TEMP CONTROLLER	UMB 4W*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	9	SECTION5 TEMP CONTROLLER	UMB 4H*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	10	SECTION5 TEMP CONTROLLER	UMB 4R*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88	11	SECTION5 TEMP CONTROLLER	UMB 4G*(3E*)	1VDC	28VDC	NOTE 4	D-0009
88		TABLE D-2. GROUP II MEASUREMENTS (CONT)					D-0010
88	12	SECTION5 TEMP CONTROLLER	UMB 4N*(3E*)	1VDC	28VDC	NOTE 4	D-0010
88	13	CONTINUITY LOOP EP+D	UMB 3P*(4T*)			NOTE 13	D-0010

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88	15	ORBIT CORRECTION CONT	UMB 3L(4T*)			NOTE 13	D-0010
88	16	OP BATTERY BUS MONITOR	UMB 2B(1F)	28.5VDC	32.5VDC	NOTE 16	D-0010
88	17	TEMP, FREON TANK 1	UMB 3Q*(3T*)	100F	125F	NOTE 17	D-0010
88	18	TEMP, FREON TANK 2	UMB 3R*(3F*)	100F	125F	NOTE 17	D-0010
88	19	PRESSURE,N(2) REGULATOR	UMB 4M (3Q)	3900	5000		D-0010
82	20	TEMP, BUSS FREON	UMB 3*(Q)	70 F	120 F		D-0010
82	21	PRESSURE, OCV FUEL	2+3P/12/20	NONE	75 PSIA		D-0010
82	22	PRESSURE, OCV OXIDIZER	2+3P/12/19	NONE	75 PSIA		D-0010
88	23	GYRO PITCH RATE OUTPUT	2+3P/8/CONT	RANDOM		NOTE 23	D-0010
88	24	GYRO YAW RATE OUTPUT	2+3P/9/CONT	RANDOM		NOTE 23	D-0010
88		TABLE D-2. GROUP II MEASUREMENTS (CONT)					D-0011
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88	26	PRESSURE, LOW-PRESSURE	2+3P/10/30	65 PSIA	75 PSIA	NOTE 26	D-0011
82	27	PRESSURE, HIGH-PRESSURE	2+3P/10/31	340PSIA	500 PSIA		D-0011
88	28	TEMP, TARS PLATFORM	2+3P/10/33	162 F	168 F	NOTE 28	D-0011
82	29	+- 24.5 VDC	2+3P/10/46	35PCT	55PCT		D-0011
82	30	+- 26.5 VDC	2+3P/10/41	40PCT	60PCT		D-0011
82	31	CURRENT, CMD	2+3P/12/14	OPERATING			D-0011
82	32	CURRENT, STAB	2+3P/14/18	OPERATING			D-0011
82	33	CURRENT, B/UP BATT.	2/16/14	OPERATING			D-0011

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88	36	TEMP, TARS PLATFORM	2+3P/10/32	162 F	168 F	NOTE 28	D-0012
88	37	TEMP, TARS PLATFORM YAW	2+3P/10/34	162 F	168 F	NOTE 28	D-0012
82	38	TEMP, STA 104.385 AT 25	2+3P/10/62	65 F	75 F		D-0012
82	39	ADAPTER INTERNAL	GROUND	34 F	40 F		D-0012
82	40	TEMP. VEHICLE STA	2+3P/10/64	65 F	75 F		D-0012
88	41	AFT BAY INLET COOLING	GROUND	34 F	40 F	NOTE 41	D-0012
82	42	TEMP. BACKFACE	2+3P/12/18	OPERATING			D-0012
82	43	TEMP. RECOVERY BATTERY	2+3P/10/79	OPERATING			D-0012
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82	45	TEMP. STA 104.385 AT 90	2-3P/10/63	65 F	75 F		D-0012
82	46	TEMP. STA 104.385 AT	2+3P/10/65	65 F	75 F		D-0012
88		TABLE D-2. GROUP II MEASUREMENTS (CONT)					D-0013
82	47	TEMP. BUSS FREON	3/13/10	OPERATING			D-0013
88	48	TAPE SPEED COMPENSATION	3P/13/CONT	OPERATING			D-0013
88	49	ROLL ATTITUDE ERROR	2+3P/14/9	-0.3	+0.3 DEG	NOTE 49	D-0013
88	50	PITCH ATTITUDE ERROR	2+3P/14/10	-0.3	+0.9 DEG	NOTE 49	D-0013
88	51	YAW ATTITUDE ERROR	2+3P/14/11	-0.3	+0.3 DEG	NOTE 49	D-0013
88	52	GYRO ROLL RATE OUTPUT	2+3P/14/6	-0.5	+0.5 DEG	NOTE 52	D-0013

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88	53	GYRO PITCH RATE OUTPUT	2+3P/14/7	-0.15	+0.15	NOTE 52	D-0013
88	54	GYRO YAW RATE OUTPUT	2+3P/14/8	-0.15	+0.15	NOTE 52	D-0013
88	55	GYRO ROLL RATE OUTPUT	2+3P/7/CONT	RANDOM		NOTE 23	D-0013
82	56	ANTENNA/MAGNETOMETER	3/13/2	0 VDC	0.5 VDC		D-0013
88	57	PITCH ACA OUTPUT	2+3P/14/3	15 PCT	25PCT	NOTE 52	D-0013
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88	59	ROLL ACA OUTPUT	2+3P/14/12	55 PCT	65 PCT	NOTE 58	D-0014
88	60	YAW TORQUE ON/OFF	2+3P/14/17	SEE		NOTE 60	D-0014
88	61	LH IR PRE-AMP/	3P/11/CONT	SEE		NOTE 61	D-0014
88	62	RH IR PRE-AMP/CHANNEL	2+3P/12/	SEE		NOTE 62	D-0014
82	63	COMPUTER EVENTS	2+3P/12/13	0.8 VDC	1.2 VDC		D-0014
82	64	INHIBIT TRANSFER	2+3P/14/16	OPERATING			D-0014
82	65	ROLL IR COMPUTER OUTPUT	2+3P/14/3	RANDOM			D-0014
82	66	PITCH IR COMPUTER	2+3P/14/4	RANDOM			D-0014
82	67	PIGGYBACK I	2+3P/12/1	2.7 VDC	3.3 VDC		D-0014
82	68	+22 VDC MONITOR	2+3P/10/4	OPERATING			D-0014
82	69	EVENT MONITOR	3/13/22	0 VDC	0.5 VDC		D-0014
82	70	P-AXIS MAGNETOMETER	3/16/19	OPERATING			D-0014
82	71	Q-AXIS MAGNETOMETER	3/16/20	OPERATING			D-0014
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88	73	SEPARATION TM-MONITOR 2	3/13/3	0 VDC 0.25 VDC		D-0015
88	74	SEPARATION TM-MONITOR 4	3/13/4	2.4 VDC 3.0 VDC		D-0015
88	75	SEPARATION TM-MONITOR 3	3/13/1	0 VDC 0.25 VDC	NOTE 75	D-0015
82	76	SEPARATION 6	3/13/6	0.8 VDC 1.2 VDC		D-0015
82	77	SEPARATION 7	3/13/7	0 VDC 0.25 VDC		D-0015
82	78	INNER SHIELD	2+3P/12/12	1.2 VDC 1.6 VDC		D-0015
82	79	LEFT-HAND PREAMPLIFIER	3/14/CONT.	SEE	NOTE 79	D-0015
82	80	RIGHT-HAND PREAMPLIFIER	3/16/CONT.	SEE	NOTE 79	D-0015

88		13 AGE INDICATES GREEN.		D-0016
88		14 AGE INDICATES GREEN (INTERNAL POWER).		D-0016
88		16 LOW LIMIT SHOULD BE 22.5 V ON EXTERNAL POWER.		D-0016
88		17 AUTOMATIC HEATER CUTOUT AT 120 DEG F. LIMITS ARE SHOWN FOR HEATED		D-0016
88		23 RANDOM LIMITS ARE FOR GYRO CAGED CONDITION. LIMITS ARE +-0.05 DEG/SEC		D-0016
88		25 REFER TO FIGURES D-2 AND D-3 TO ESTABLISH ACTUAL WEIGHT. USING FREON		D-0016
86		75 BASED ON 28 VDC BUS VOLTAGE.		D-0017
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88		FIGURE 4.6.1.3.2.1.3-1. VEHICLE SECTION ORIENTATION WITH IMPACT BLOCK		E-0017
88		FIGURE 4.6.1.3.2.1.5-1. PNEUMATICS SCHEMATIC AND HARDWARE REQUIREMENTS,		E-0017
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88	HF	APPENDIX F - COMMAND ALLOCATIONS	F-0001	F-0001

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B REVISIONS PAGE (CONTINUED)

80C	2 5	STAB FILL LINE SEAL/NORM SFS										F-0007
88	5	BALANCE VALES OPEN	1	0	0	1	0	0	0			F-0011
88	6	VOLTAGE STEPDOWN BYPASS	0	1	0	1	0	0	0			F-0011
88	10	BALANCE VALVES CLOSE	0	1	0	0	1	0	0			F-0011
88	11	SELECTOR VALVE 2 (CLOSE)	0	0	1	0	1	0	0			F-0011
88	12	SELECTOR VALVE I (CLOSE)	1	1	1	0	1	0	0			F-0011
88	16	SELECTOR VALVES (SV1,SV2) OPEN	0	1	1	1	1	0	0			F-0011
84 H		APPENDIX G. CANISTER ZONE TEMPERATURES FOR THE +1.7 SIGMA AND -1.7 SIGMA									G-0001	G-0001

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