

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2266 -1

REV: 11/03/87

ASSEMBLY : FORWARD PCA 1
 P/N RI : JANTX1N1204RA
 P/N VENDOR:
 QUANTITY : 2
 : TWO
 :

VEHICLE	102	103	104
EFFECTIVITY:	X	X	X
PHASE(S):	PL	LO X OO	DO LS

CRIT. FUNC: 1R

CRIT. HDW: 3

PREPARED BY:

DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

APPROVED BY:

DES *D.S. Beeman*
 REL *William C. Stone 11-14-87*
 QE *11/14/87*

APPROVED BY (NASA):

SSM *[Signature]*
 REL *[Signature]*
 QE *[Signature]*

ITEM:

BLOCKING DIODE (12 AMP) STUD MOUNTED - FORWARD RCS REACTION JET DRIVER 2, MANIFOLD 3.

FUNCTION:

PROVIDES BUS ISOLATION FOR THE FORWARD REACTION JET DRIVER (RJD) 8CX 2, MANIFOLD 3 WHICH IS ENERGIZED FROM BOTH MAIN A AND MAIN C BUSES. REDUNDANCY ADDED TO ASSURE NECESSARY DOWNFIRING JETS FOLLOWING A REACTION JET DRIVER FORWARD INPUT FAILURE DURING AN RTLS. 81V76A22CR47,48.

FAILURE MODE:

OPEN, FAILS TO CONDUCT, HIGH RESISTANCE, SHORT TO GROUND.

CAUSE(S):

THERMAL STRESS, MECHANICAL SHOCK, VIBRATION.

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) LOSS OF REDUNDANCY.

(B) THE AFFECTED JET DRIVER CANNOT BE ENERGIZED AND ASSOCIATED THRUSTERS CANNOT BE FIRED. NO EFFECT - REDUNDANT THRUSTERS WILL COMPLETE THE REQUIRED FUNCTION.

(C,D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO PERFORM EXTERNAL TANK SEPARATION FOLLOWING LOSS OF MORE THAN THREE MANIFOLDS. REQUIRES 4 OTHER FAILURES (DIODE OPENS, THRUSTER, THRUSTER) BEFORE THE EFFECT IS MANIFESTED. FIRST FAILURE OF STRING NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2266 -1

REV: 11/03/87

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) FOR DISPOSITION AND RATIONALE REFER TO APPENDIX F, ITEM NO. 2 - DIODE, POWER - STUD MOUNTED.

(B) GROUND TURNAROUND TEST

COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND VIA THE GUIDANCE, NAVIGATION, AND CONTROL (GN&C) ORBITER MAINTENANCE REQUIREMENTS AND SPECIFICATIONS DOCUMENT (OMRSD) REQUIREMENTS FOR CHECKING THE PRIMARY AND VERNIER REACTION JET DRIVER POWER. THE TESTING CONSISTS OF CYCLING THRUSTER REACTION JET DRIVER LOGIC AND DRIVER SWITCHES WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE

NO ACTION FOR FIRST FAILURE - NOT DETECTABLE. IF REDUNDANT POWER FAILS, USE REDUNDANT THRUSTERS TO COMPLETE FUNCTION.