

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS FMEA NO 05-6KF-2271 -1 REV: 11/03/87

ASSEMBLY : FWD PCA 3 CRIT. FUNC: 12
 P/N RI : JANTXVIN4246 CRIT. HDW: 3
 P/N VENDOR:
 QUANTITY : 1 VEHICLE 102 103 104
 : ONE EFFECTIVITY: X X X
 : PHASE(S): PL LO X OO DO LS

PREPARED BY: DES D SOVEREIGN APPROVED BY: DES D.S. R. Bunn REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 REL J BEEKMAN REL Melvin C. Lane 11-21-87 APPROVED BY (NASA): SSM [Signature]
 QE [Signature] QE [Signature]

ITEM:
 BLOCKING DIODE (1 AMP) - FORWARD RCS REACTION JET DRIVER 2 (MANIFOLD P5 POWER CIRCUIT) STIMULUS TO REMOTE POWER CONTROLLER (RPC) 37.

FUNCTION:
 CONDUCTS CIRCUIT CURRENT AND PROVIDES CIRCUIT COMPONENT PROTECTION BY BLOCKING RELATED STIMULI VOLTAGES. 83V76A24A1CR14

FAILURE MODE:
 OPEN, FAILS TO CONDUCT, FAILS OPEN.

CAUSE(S):
 CONTAMINATION, THERMAL STRESS, VIBRATION, MECHANICAL SHOCK.

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE
 (A) LOSS OF REDUNDANCY.
 (B) NO EFFECT FIRST FAILURE.
 (C,D) NO EFFECT.
 (E) FUNCTIONAL CRITICALITY EFFECT - PRIMARY USE IS FOR VERNIER THRUSTER OPERATION. IN ADDITION PROVIDES REDUNDANCY FOR PRIMARY THRUSTER USE. POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF CAPABILITY TO PERFORM EXTERNAL TANK SEPARATION AFTER LOSS OF ALL REACTION JET DRIVER POWER. REQUIRES 3 OTHER FAILURES (DRIVER RPC DIODE OPEN, TWO THRUSTERS FALL OFF BEFORE THE EFFECT IS MANIFESTED. FIRST FAILURE OF STRING NOT DETECTABLE IN FLIGHT DUE TO LACK OF MONITORING MEASUREMENTS.

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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. 3 - DIODE.

(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.