

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS FMEA NO 05-6KF-2259A -1 REV: 11/03/81

ASSEMBLY : FWD PCA 1,2,3 CRIT. FUNC: 1R
P/N RI : JANTXV1N4246 CRIT. HDW: 3
P/N VENDOR: VEHICLE 102 103 104
QUANTITY : 5 EFFECTIVITY: X X X
:FIVE PHASE(S): PL LO X OO DO LS

PREPARED BY: DES D SOVEREIGN
REL J BEEKMAN
QE

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
APPROVED BY: APPROVED BY (NASA):
DES D.S. [Signature] SSM
REL [Signature] REL [Signature]
QE [Signature] QE [Signature]

ITEM:

BLOCKING DIODE (1 AMP) - FORWARD RCS REACTION JET DRIVER 1 AND 2 (MANIFOLD 1 THROUGH 5) REMOTE POWER CONTROLLER CONTROL CIRCUIT (LATCH CIRCUIT).

FUNCTION:

PROVIDES BLOCKING BETWEEN REMOTE POWER CONTROLLER DUAL COMMAND INPUTS (MANUAL SWITCH AND/OR LATCHING CIRCUIT) CONTROLLING POWER TO THE REACTION JET DRIVER FORWARD (RJDF) 1 AND 2 (MANIFOLD 1 THROUGH 5) POWER SUPPLY AND LOGIC CIRCUITS.
81V76A22A1CR16,19. 82V76A23A1CR7. 83V76A24A1CR9,11.

FAILURE MODE:

OPEN, FAILS TO CONDUCT, HIGH RESISTANCE

CAUSE(S):

THERMAL STRESS, MECHANICAL SHOCK, VIBRATION

EFFECT(S) ON:

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

(A) LOSS OF LATCHING CIRCUIT "MAINTAIN ON" REMOTE POWER CONTROLLER COMMAND.

(B) LOSS OF REDUNDANCY - FAILURE TO CONTINUE "MAINTAIN ON" HAS NO EFFECT AS LONG AS THE MANUAL SWITCH LOGIC INPUT IS PRESENT.

(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 3 OTHER FAILURES (LATCHING CIRCUIT DIODE OPEN 2 RJD BUS RELAYS FAIL 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. IF ASSOCIATED THRUSTERS FAIL OFF, USE REDUNDANT THRUSTERS TO MAINTAIN VEHICLE CONTROL.