SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - FWD-RCS FMEA NO 05-6KF-2259 -1 REV:11/03/87

ASSEMBLY :FWD PCA 1,2,3
P/N RI :JANTXV1N4246
P/N VENDOR:
QUANTITY :5
:FIVE
:

CRIT. FUNC: 1R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

PHASE(S): PL LO X OO DO LS

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

PREPARED BY:		APPROVED BY:	APPROVED BY (NASA):
DES	D SOVEREIGN	DES	SSM
REL	J BEEKMAN	REL	REL
QE		QE	QE R/

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

FUNCTION:
PROVIDES BLOCKING BETWEEN REMOTE POWER CONTROLLER (RPC) DUAL COMMAND INPUTS (MANUAL SWITCH AND/OR ENERGIZED DRIVER POWER CIRCUIT) CONTROLLING POWER TO THE REACTION JET DRIVER FORWARD (RJDF) 1 AND 2 (MANIFOLD 1 THROUGH 5) POWER SUPPLY AND LOGIC CIRCUITS.
81V76A22A1CR15,20. 82V76A23A1CR6. 83V76A24A1CR8,10.

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 MANUAL SWITCH "ON" REMOTE POWER CONTROLLER COMMAND.

(B) RESULTS IN LOSS OF THE AFFECTED MANIFOLD OPERATION WHEN REINITIATING THE FUNCTION, SINCE AFTER THE REMOTE POWER CONTROLLER TURN-ON IS ESTABLISHED, IT IS "MAINTAINED ON" FROM THE DRIVER POWER INPUT CIRCUITRY

(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 THA ONE MANIFOLD. 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.