SHUTTLE CRITICAL ITEMS LIST - ORBITER

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

ASSEMBLY :AFT PCA 1,2
P/N RI :JANTXV1N4246
P/N VENDOR:
QUANTITY :2
:TWO
:

CRIT. FUNC: 1R
CRIT. HDW: 3

	102	103	104
VEHICLE	102	103	104
EFFECTIVITY:	X	X	X

PHASE(S): PL LO X OO X DO X LS

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

PREPARED BY:		APPROVED BY:		APPROVED BY (NASA):	
DES	D SOVEREIGN	DES	D. S. Q Buun	SSM	[signature]
REL	J BEEKMAN	REL	[signature] 11-16-87	REL	[signature]
QE		QE	[signature]	QE	[signature]

EPD&C SSM [signature]

ITEM:
BLOCKING DIODE (1 AMP) - LEFT AND RIGHT AFT RCS REACTION JET DRIVER 1 AND 2 POWER (MANIFOLD L5/R5) LATCHING CIRCUIT.

FUNCTION:
CONDUCTS CIRCUIT CURRENT AND PROVIDES CIRCUIT COMPONENT PROTECTION BY BLOCKING RELATED STIMULI VOLTAGES.
OV-102 - 54V76A131A1CR7, 55V76A132A1CR7.
OV-103 & SUBS - 54V76A131A1CR3, 55V76A132A1CR3.

FAILURE MODE:
OPEN, FAILS TO CONDUCT, FAILS OPEN, HIGH RESISTANCE

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) LOSS OF INTERFACE REDUNDANCY - NO EFFECT, REQUIRES ADDITIONAL FAILURES TO LOSE MANIFOLD 5 INDIVIDUAL OPERATION.

(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 AND ENTRY MANEUVERS, AFTER LOSS OF ALL REACTION JET DRIVER POWER. REQUIRES 5 OTHER FAILURES (TWO DRIVER REMOTE POWER CONTROLLER DIODES OPEN, POWER DIODE OPEN, 2 PRIMARY THRUSTERS 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'S (GN&C) OPERATIONAL 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.