SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS FMEA NO 05-6KA-2265 -1 REV:11/03/87

ASSEMBLY :AFT PCA 1,2,3
P/N RI :JANTX1N1204RA
P/N VENDOR:
QUANTITY :8
:EIGHT
:

CRIT. FUNC: 1R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

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

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

PREPARED BY:
DES D SOVEREIGN
REL J BEEKMAN
QE

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
BLOCKING DIODE (12 AMP) STUD MOUNT - LEFT AND RIGHT AFT RCS REACTION JET DRIVER 1 AND 2 POWER SUPPLY/LOGIC AND DRIVER POWER.

FUNCTION:
PROVIDES ISOLATION FOR REDUNDANT POWER SUPPLIES FEEDING THE LEFT AND RIGHT AFT REACTION JET DRIVER ASSEMBLIES 1 AND 2 POWER SUPPLY/LOGIC INPUTS.
OV-102 - 54V76A131A3CR7,8. 55V76A132A2CR7,8.
56V76A133A3CR5,7,8,13.
OV-103 & SUBS - 54V76A131A3CR8,9. 55V76A132A2CR10,11.
56V76A133A3CR5,7,8,13.

FAILURE MODE:
OPEN, FAILS TO CONDUCT, HIGH RESISTANCE, SHORT TO GROUND.

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) REDUNDANT POWER LOST TO REACTION JET DRIVER. NO EFFECT - REDUNDANT POWER PERMITS COMPLETION OF FUNCTION.

(C,D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO PERFORM EXTERNAL TANK SEPARATION OR ENTRY CONTROL FOLLOWING LOSS OF MORE THAN TWO MANIFOLDS. REQUIRES 3 OTHER FAILURES (DIODE OPEN, 2 REACTION JET DRIVER BUS CONTROL CIRCUIT FUSES) 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. 2 - DIODE, POWER - STUD MOUNTED.

(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.