

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - AFT-RCS FMEA NO 05-6KA-2111 -1 REV: 11/03/87

ASSEMBLY : AFT PCA 1,2 CRIT. FUNC: 1R
 P/N RI : RLR42C1201GM OR RWRB0S1211FR CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 2 EFFECTIVITY: X X X
 : TWO PHASE(S): PL LO X OC 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. [Signature] SSM
 REL J BEEKMAN REL [Signature] REL [Signature]
 QE P.R. [Signature] QE P.R. [Signature]

ITEM:
 CURRENT LIMIT RESISTOR (1.2 KILO OHM) - LEFT AND RIGHT AFT RCS REACTION
 JET DRIVER AFT 1 AND 2 POWER (MANIFOLD L5/R5) LATCHING CIRCUIT.

FUNCTION:
 CONDUCTS CIRCUIT CURRENT AND PROVIDES CURRENT LIMITING FOR THE REACTION
 JET DRIVER AFT 1 AND 2 POWER (MANIFOLD L5/R5) LATCHING CIRCUITS.
 OV-102 - 54V76A131A1R47. 55V76A132A1R46.
 OV-103 & SUBS - 54V76A131A1R18. 55V76A132A1R16.

FAILURE MODE:
 OPEN, ELEMENT OPENS, HIGH RESISTANCE

CAUSE(S):
 STRUCTURAL FAILURE, 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, 1 ELECTRIC POWER DIODE OPEN, 2 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 E, ITEM NO.
1 OR 3 - RESISTOR.

(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.