

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - OMS FMEA NO 05-6L -2089 -2 REV:10/30/87

ASSEMBLY : AFT LCA 1,2,3 CRIT. FUNC: 2R
 P/N RI : RWR80S1211FR CRIT. HDW: 3
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY : 24 EFFECTIVITY: X X X
 : TWENTY-FOUR PHASE(S): PL LO OO X DO LS
 : (THREE PARALLEL PAIRS PER HEATER GROUP)

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
 PREPARED BY: DES D SOVEREIGN APPROVED BY: DES D.S. Brown APPROVED BY (NASA): SSM John Tarran for CH
 REL F DEFENSOR REL W. H. ... REL ...
 QE J COURSEN QE DM/... QE ...
 EPD&C SSM ...

ITEM:
 RESISTOR, CURRENT LIMIT, 1.2 K OHM, 2 W - LEFT AND RIGHT OMS, GROUP 1 AND 2 HEATER CONTROL LOGIC CIRCUITS.

FUNCTION:
 PROVIDES CURRENT LIMITING/CIRCUIT PROTECTION FOR THERMAL SWITCH/LOGIC CIRCUIT CONTROLS FOR THE LEFT AND RIGHT OMS, GROUP 1 AND 2 HEATERS.
 54V76A121R (J3-101, 113, 118, 127). 54V76A121R (J4-8). 55V76A122R (J3-101, 113, 127). 55V76A122R (J4-8). 56V76A123R (J4-8). 56V76A123R (J3-101, 113).

FAILURE MODE:
 FAILS SHORT.

CAUSE(S):
 STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, THERMAL STRESS.

EFFECT(S) ON:
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE (E) FUNCTIONAL CRITICALITY

(A) LOSS OF CIRCUIT PROTECTION IF SHORTED. FIRST FAILURE HAS NO EFFECT. THE UPSTREAM FUSE PROVIDES COMBINED CIRCUIT PROTECTION.

(B) FIRST FAILURE HAS NO EFFECT.

(C,D) FIRST FAILURE HAS NO EFFECT.

(E) POSSIBLE LOSS OF MISSION OBJECTIVES DUE TO THE LOSS OF ELECTRICAL POWER FOR COMPLETION OF FUNCTION OF THERMAL SWITCH/LOGIC CIRCUIT CONTROLS. REQUIRES TWO OTHER FAILURES (SHORT IN HEATER CIRCUIT - BLOWS THE FUSE, LOSS OF REDUNDANT HEATER GROUP) BEFORE EFFECT IS MANIFESTED. FAILURE IS NOT DETECTABLE DURING FLIGHT BECAUSE OF 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. 3 - RESISTOR, WIRE WOUND.

(B) GROUND TURNAROUND TEST

V43CAO.070 - REDUNDANT CIRCUIT VERIFICATION (PERIODIC) - ORB/POD;
PERFORMED FOR FIRST FLIGHT AND AT 5 FLIGHT INTERVALS OR FOR LRU RETEST
PER FIGURE V43200.000 OR FOR ORBITER DISRUPTED COPPER PATHS. FUNCTIONAL
CHECKOUT OF HEATER CONTROL CIRCUIT PER FIGURE V43CAO.070-6.

V43CAO.075 - ELECTRICAL INTERFACE VERIFICATION ORB/POD; PERFORMED ON A
CONTINGENCY BASIS (POD REMOVAL AND REPLACEMENT). COPPER PATH
VERIFICATION OF HEATER CONTROL CIRCUIT INTERFACES.

(E) OPERATIONAL USE

NO ACTION - NOT DETECTABLE.