

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2084 -1

REV: 11/03/87

ASSEMBLY : FWD MCA 1
 P/N RI : RWR80S1211FR
 P/N VENDOR:
 QUANTITY : 3
 : THREE
 :

VEHICLE 102 103 104
 EFFECTIVITY: X X X
 PHASE(S): PL X LO X CO X DO X LS X

CRIT. FUNC: 1R
 CRIT. HDW: 3

PREPARED BY:
 DES D SOVEREIGN
 REL J BEEKMAN
 QE

REDUNDANCY SCREEN: A-FAIL B-FAIL C-PASS
 APPROVED BY:
 DES *D. J. L. Burns*
 REL *Michael Clifton 11-19-87*
 QE *11/24/87*

APPROVED BY (NASA):
 SSM *[Signature]*
 REL *[Signature]*
 QE *[Signature]*
 EPD&C SSM *[Signature]*
 # 52 - C. 2 05-6KF-2084

ITEM:

CURRENT LIMIT RESISTOR (1.2 KILO OHM, 2 WATT) - FORWARD RCS FUEL AND OXIDIZER TANK ISOLATION VALVES 3/4/5 LOGIC AND MEASUREMENT CIRCUIT POWER.

FUNCTION:

THE THREE PARALLEL RESISTORS CONDUCT CIRCUIT POWER AND PROVIDE CURRENT LIMITING TO THE FUEL AND OXIDIZER TANK ISOLATION VALVES 3/4/5 POSITION SWITCHES. 81V76A111A1R1,2,3.

FAILURE MODE:

OPEN, ELEMENT OPENS, HIGH RESISTANCE (1 OF 3 IN PARALLEL).

CAUSE(S):

STRUCTURAL FAILURE, VIBRATION AND MECHANICAL SHOCK.

EFFECT(S) ON:

(A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) DEGRADATION OF REDUNDANCY.

(B,C,D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO CONTINUOUS POWER TO VALVE RESULTING IN POSSIBLE VALVE RUPTURE AND PROPELLANT RELEASE. REQUIRES 3 OTHER FAILURES (RESISTOR, RESISTOR, BELLOWS LEAK) BEFORE EFFECT IS MANIFESTED. A BELLOWS LEAK IS UNDETECTABLE EXCEPT BY PERFORMING A SNIFF CHECK OF THE VALVE'S ACTUATOR ON THE GROUND.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C - FWD-RCS

FMEA NO 05-6KF-2084 -1

REV:11/03/87

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

CANNOT CHECK OUT ON THE GROUND WITHOUT DESTRUCTIVE TESTING. BENCH LEVEL TEST IS REQUIRED.

(E) OPERATIONAL USE

NO ACTION FOR FIRST FAILURE - NOT DETECTABLE. IF CONTINUOUS POWER SITUATION EXISTS, REMOVE POWER FROM RELAY BY PLACING MANUAL SWITCH IN GPC (GENERAL PURPOSE COMPUTER) POSITION.