SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - FWD-RCS FMEA NO 05-6KF-2083 -1 REV:11/03/87

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

CRIT. FUNC: 1R
CRIT. HDW: 3

VEHICLE EFFECTIVITY:	102	103	104
	X	X	X

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

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

PREPARED BY:
DES D SOVEREIGN
REL J BEEKMAN
QE

APPROVED BY:
DES D.F. R Burns
REL Melvin C L Hove 11-19-87
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
CURRENT LIMIT RESISTOR (1.2 KILO OHM, 2 WATT) - FORWARD RCS FUEL AND OXIDIZER TANK ISOLATION VALVES 1/2, 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 1/2, POSITION SWITCHES FOR INHIBIT LOGIC AND MEASUREMENTS.
83V76A113A1R3,11,12.

FAILURE MODE:
FAILS OPEN, ELEMENT OPENS, HIGH RESISTANCE.

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 VALVE CONTINUOUS POWER IN CONJUNCTION WITH A BELLOWS LEAK LEADING TO 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-2083 -1 REV:11/03/87

DISPOSITION AND 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.