SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS FMEA NO 05-6KA-2103 -1 REV:11/03/87

ASSEMBLY :AFT MCA 1,2,3
P/N RI :RWR80S1211FR
P/N VENDOR:
QUANTITY :12
:TWELVE
:

CRIT. FUNC: 1R
CRIT. HDW: 2

VEHICLE EFFECTIVITY:	102 X	103 X	104 X

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

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

PREPARED BY:
DES D SOVEREIGN
REL J BEERMAN
QE

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
CURRENT LIMIT RESISTOR (1.2 KILO OHM, 2 WATT) - LEFT AND RIGHT AFT RCS FUEL AND OXIDIZER CROSSFEED ISOLATION VALVE 1/2 AND 3/4/5 LOGIC/POSITION INDICATOR CIRCUIT.

FUNCTION:
THE RESISTOR CONDUCTS CIRCUIT POWER AND PROVIDES CURRENT LIMITING TO THE FUEL AND OXIDIZER CROSSFEED ISOLATION VALVES 1/2 AND 3/4/5 POSITION SWITCHES FOR INHIBIT LOGIC AND POSITION INDICATION MEASUREMENTS.
OV-102 - 54V76A114A3R8,9,10. 54V76A114A4R7,8,9.
56V76A116A3R4,5,6. 56V76A116A4R4,5,6.
OV-103 & SUBS - 54V76A114A4R7,8,9. 54V76A114A3R16,18,20.
56V76A116A4R7,9,11. 56V76A116A4R8,10,12

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 VOLTAGE TO THE AFFECTED CIRCUITS.

(B) LOSS OF FUNCTION IN THE AFFECTED INTERFACE CIRCUIT. CONTINUOUS POWER WILL BE APPLIED IN THE MANUAL SWITCH POSITIONS "OPEN" AND "CLOSE".

(C,D) NO EFFECT.

(E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE DUE TO CONTINUOUS DRIVE MOTOR OPERATION IN CONJUNCTION WITH A BELLOWS LEAK LEADING TO VALVE RUPTURE AND PROPELLANT RELEASE. REQUIRES ONE OTHER FAILURE (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.

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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 - WIRE WOUND RESISTOR.

(B) GROUND TURNAROUND TEST
COMPONENT CHECKED OUT EVERY FLIGHT DURING GROUND TURNAROUND. THE TESTING CONSISTS OF CYCLING VALVE MANUAL SWITCHES AND/OR SENDING GENERAL PURPOSE COMPUTER (GPC) COMMANDS TO CYCLE VALVES OR HEATERS WHILE MONITORING VEHICLE INSTRUMENTATION TO DETERMINE IF COMPONENTS HAVE FAILED.

(E) OPERATIONAL USE
REMOVE POWER FROM RELAY BY PLACING MANUAL SWITCH IN GPC POSITION.