

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :EPD&C - AFT-RCS

FMEA NO 05-6KA-2089 -1

REV:11/03/87

ASSEMBLY :AFT MCA 1,2,3

CRIT. FUNC: 1R

P/N RI :RWR80S1211FR

CRIT. HDW: 2

P/N VENDOR:

VEHICLE 102 103 104

QUANTITY :8

EFFECTIVITY: X X X

:EIGHT

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

PREPARED BY:

DES D SOVEREIGN

REL J BEEKMAN

QE

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

APPROVED BY:

DES *D.S. Quinn*

REL *M. D. Quinn 11-14-87*

QE *11/12/87*

APPROVED BY (NASA):

SSM *[Signature]*

REL *[Signature]*

QE *[Signature]*

ITEM:

CURRENT LIMIT RESISTOR (1.2 KILO OHM, 2 WATT) - LEFT AND RIGHT AFT RCS FUEL AND OXIDIZER MANIFOLD 1,2,3 AND 4 ISOLATION VALVE LOGIC AND MEASUREMENT CIRCUIT POWER.

FUNCTION:

THE INDIVIDUAL CIRCUIT RESISTORS CONDUCT CIRCUIT POWER AND PROVIDE CURRENT LIMITING TO THE FUEL AND OXIDIZER MANIFOLD 1,2,3, AND 4 ISOLATION VALVE LOGIC AND MEASUREMENT CIRCUIT POSITION SWITCHES.  
 OV-102 - 54V76A114A3R2,3. 55V76A115A3R1,2. 56V76A116A3R1C,11. 56V76A116A4R10,11.  
 OV-103 & SUBS - 54V76A114A3R4,6. 55V76A115A3R25,27. 56V76A116A4R19,21. 56V76A116A4R20,22.

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.