

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2701 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C CRIT.FUNC: 1R  
P/N RI :RWR00S1211FR CRIT. HDW: 2  
P/N VENDOR: VEHICLE 102 103 104  
EFFECTIVITY: X X X  
QUANTITY :3 PHASE(S): PL LO X OO X DO X LS  
:THREE  
:

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS  
PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES R PHILLIPS DES *R. Berman* SSM *W.C. Starn 5/12/88*  
REL M HOVE REL *M. Hove 5-6-88* RELD *M. Hove 5/12/88*  
QE J COURSEN QE *J. Coursem 5/14/88* QE *R. Berman*

ITEM:

RESISTOR, CURRENT LIMIT, WIRE WOUND, 1.2K OHM - APT MCA 1, 2 AND 3 DC BUS A, B AND C CONTROL CIRCUIT

FUNCTION:

PROVIDES CURRENT LIMITING/CIRCUIT PROTECTION FOR THE CONTROL CIRCUITS FOR DC BUSES A, B AND C RELAY LOGIC POWER INPUTS TO APT MOTOR CONTROL ASSEMBLIES 1, 2 AND 3 FOR VENT DOOR AND EXTERNAL TANK UMBILICAL DOOR MOTORS. 85V73A129A1R4, A3R2 AND A4R4

FAILURE MODE:

OPEN

CAUSE(S):

STRUCTURAL FAILURE (VIBRATION, MECHANICAL SHOCK), THERMAL STRESS, ELECTRICAL STRESS, PROCESSING ANOMALY

EFFECT(S) ON:

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

(A) LOSS OF MAIN DC BUS RELAY LOGIC POWER INPUT TO THE ASSOCIATED APT MOTOR CONTROL ASSEMBLY.

(B) LOSS OF INTERFACE REDUNDANCY. NO EFFECT FOR FIRST FAILURE - RESULTS IN LOSS OF ONE OF TWO MOTORS FOR ET UMBILICAL DOOR CLOSE AND LATCH OR VENT DOOR FUNCTIONS.

(C,D) FIRST FAILURE - NO EFFECT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT MOTOR OR POWER/CONTROL CIRCUIT) DUE TO LOSS OF ET UMBILICAL DOOR CLOSE/LATCH CAPABILITY (RESULTS IN EXCESSIVE AERODYNAMIC HEATING DURING ENTRY) OR LOSS OF VENT DOOR OPEN CAPABILITY (RESULTS IN VEHICLE STRUCTURAL DAMAGE DUE TO PRESSURE DIFFERENTIALS DURING DESCENT). LEFT

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EFFECT(S) ON (CONTINUED):

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

AND RIGHT VENT DOORS ARE NOT CONSIDERED TO BE REDUNDANT TO EACH OTHER.  
"B" SCREEN PASSES SINCE THE FAILURE CAN BE DETECTED BY CREW MONITORING  
DOOR OPERATION TIMES OR BY LOSS OF MCA OPERATIONAL STATUS MEASUREMENTS  
AVAILABLE TO GROUND PERSONNEL.

DISPOSITION & RATIONALE:

(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE

A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX E, ITEM NO. 3 - RESISTOR, WIRE WOUND

B) GROUND TURNAROUND TEST

VERIFY MCA OPERATIONAL STATUS INDICATORS ARE "ON" (ALL MOTOR CONTROL  
RELAYS RESET) DURING NO OPERATION OF THE AC MOTOR MECHANISMS. THE  
TEST IS PERFORMED FOR ALL FLIGHTS.

E) OPERATIONAL USE

FOR LOSS OF REDUNDANT VENT DOOR OPEN CAPABILITY, OPEN VENT DOORS PRIOR  
TO ENTRY.