

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2618 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C CRIT.FUNC: 1R  
P/N RI :MC454-0032-3030 CRIT. HDW: 2  
P/N VENDOR: VEHICLE 102 103 104  
EFFECTIVITY: X X X  
QUANTITY :3 PHASE(S): PL LO X OO DO X LS  
:THREE/ONE PER F-MCA  
:

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS  
PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES R PHILLIPS DES *R. Burns* SSM *W.C. Starn 5/12/88*  
REL M HOVE REL *M.A. Ch. Ho 5-14-88* REL *DD. [unclear] 5/11/88*  
QE J COURSEN QE *J. [unclear] 5/6/88* QE *[unclear]*

ITEM:  
CIRCUIT BREAKER, 3 PHASE, 3 AMP - AC1, AC2, AC3 BUS FEEDS TO FORWARD MCA 1, 2 AND 3

FUNCTION:  
PROVIDES OVERCURRENT PROTECTION FOR 3 PHASE FEEDER CIRCUITS FROM AC1, AC2 AND AC3 BUSES WHICH SUPPLY RELATED BUSES IN THE FORWARD MOTOR CONTROL ASSEMBLIES (MCA'S) 1, 2 AND 3 FOR VENT DOOR, AIR DATA PROBE, AND STAR TRACKER MOTORS. 85V73A129CB1, CB5 AND CB11

FAILURE MODE:  
FAILS OPEN, FAILS TO CLOSE, FAILS TO CONDUCT

CAUSE(S):  
STRUCTURAL FAILURE, MECHANICAL SHOCK, THERMAL STRESS, VIBRATION, CONTAMINATION, PROCESSING ANOMALY

EFFECT(S) ON:  
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE (E)FUNCTIONAL CRITICALITY EFFECT:  
(A) LOSS OF REDUNDANCY - LOSS OF 3 PHASE AC VOLTAGE TO AN AFFECTED CIRCUIT.  
(B) LOSS OF INTERFACE REDUNDANCY. NO EFFECT FOR FIRST FAILURE - THE REDUNDANT MOTOR SUPPLIED BY ANOTHER CIRCUIT BREAKER COMPLETES FUNCTION.  
(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 INABILITY TO OPEN VENT DOOR DURING DESCENT (RESULTS IN VEHICLE STRUCTURAL DAMAGE DUE TO PRESSURE DIFFERENTIALS). LEFT 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 MECHANISM OPERATION TIMES.

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UBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2618 -1 REV:05/03/88

DISPOSITION & RATIONALE:

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

A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX D, ITEM NO. 1. - CIRCUIT BREAKER

B) GROUND TURNAROUND TEST

VERIFY CIRCUIT BREAKER CLOSED BY MONITORING MOTOR CURRENTS (ALL THREE PHASES) DURING VENT DOOR CLOSE TO OPEN AND OPEN TO CLOSE TESTS. TEST WILL BE PERFORMED FOR ALL FLIGHTS.

E) OPERATIONAL USE

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