

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2614 -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  
QUANTITY :2 EFFECTIVITY: X X X  
:TWO PHASE(S): PL LO OO X DO X LS  
:

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES R PHILLIPS	DES <u>SM R. Buss</u>	SSM <u>N.C. Steg 5/6/88</u>
REL M HOVE	REL <u>M. D. O'Hara 5/6/88</u>	REL <u>DD [Signature] 5/6/88</u>
QE J COURSEN	QE <u>J.D. Courser 5/6/88</u>	QE <u>[Signature]</u>

ITEM:

CIRCUIT BREAKER, 3 PHASE, 3 AMP - AC1 (AC3) BUS FEED TO MID MCA 3 (2)

FUNCTION:

PROVIDES OVERCURRENT PROTECTION FOR 3 PHASE FEEDER CIRCUITS FROM AC1 (AC3) BUS TO MIDBODY MOTOR CONTROL ASSEMBLY (MCA) NO. 3 (2) FOR VENT DOOR, PAYLOAD BAY DOOR LATCH, RADIATOR DEPLOY/LATCH, REMOTE MANIPULATOR LATCH AND KU-BAND ANTENNA STOW/DEPLOY MOTORS.  
85V73A129CB3 AND CB12

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 AC VOLTAGE TO AFFECTED CIRCUIT.

(B) LOSS OF INTERFACE REDUNDANCY. NO EFFECT FOR FIRST FAILURE - THE REDUNDANT MOTOR SUPPLIED BY ANOTHER CIRCUIT BREAKER COMPLETES FUNCTION.

(C) POSSIBLE EARLY MISSION TERMINATION DUE TO LOSS OF PAYLOAD BAY DOOR LATCH REDUNDANCY.

(D) FIRST FAILURE - NO EFFECT.

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EFFECT(S) ON (CONTINUED):

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

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT MOTOR OR POWER/CONTROL CIRCUIT) DUE TO INABILITY TO LATCH PAYLOAD BAY DOORS (RESULTING IN AERODYNAMIC STRUCTURAL DAMAGE DURING ENTRY) AND/OR TO OPERATE VENT DOORS DURING DESCENT (DOOR FAILED CLOSED 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.

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

CONSIDERATION WILL BE GIVEN TO STOWING MECHANISMS WITH THE LOSS OF REDUNDANCY. LOSS OF REDUNDANCY FOR CLOSING CENTERLINE PLBD LATCHES INVOKES A MINIMUM DURATION FLIGHT IF LATCH GANG ACCESSIBLE BY EVA, OTHERWISE ENTER TO NEXT PRIMARY LANDING SITE. FOR LOSS OF REDUNDANT VENT DOOR OPEN CAPABILITY, OPEN VENT DOORS PRIOR TO ENTRY.