

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT PMEA NO 05-6 -2613 -2 REV:05/03/88

ASSEMBLY :PANEL MA73C CRIT.FUNC: 1R  
P/N RI :MC454-0D32-3030 CRIT. HDW: 3  
P/N VENDOR:  
QUANTITY :4 VEHICLE 102 103 104  
EFFECTIVITY: X X X  
:FOUR PHASE(S): PL LO OO X DO X LS  
:

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS  
PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES R PHILLIPS DES W. C. Burns SSM R. C. Stang 5/12/88  
REL M HOVE REL Richard Clifton 5/12/88 REL DD [Signature] 5/12/88  
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ITEM:

CIRCUIT BREAKER, 3 PHASE, 3 AMP - AC1 BUS FEED TO MID MCA 1, AC2 BUS FEED TO MID MCA 2, AC2 AND AC3 BUS FEEDS TO MID MCA 4

FUNCTION:

PROVIDES OVERCURRENT PROTECTION FOR 3 PHASE FEEDER CIRCUITS FROM AC1, AC2 AND AC3 BUSES TO MIDBODY MOTOR CONTROL ASSEMBLIES (MCA'S) 1, 2 AND 4, FOR VENT DOOR, PAYLOAD BAY DOOR, KU-BAND ANTENNA DEPLOY/STOW, RADIATOR DEPLOY/LATCH, REMOTE MANIPULATOR DEPLOY/LATCH AND PAYLOAD RETENTION LATCH MOTORS. 85V73A129CB2, CB7, CB9 AND CB13

FAILURE MODE:

FAILS CLOSED, FAILS TO OPEN

CAUSE(S):

STRUCTURAL FAILURE, MECHANICAL SHOCK, CONTAMINATION, VIBRATION, PROCESSING ANOMALY

EFFECT(S) ON:

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

(A,B,C,D) FIRST FAILURE - NO EFFECT. CIRCUIT BREAKER IS NORMALLY CLOSED.

(E) POSSIBLE LOSS OF CREW/VEHICLE DUE TO INADVERTENT PAYLOAD BAY DOOR CLOSURE RESULTING IN PAYLOAD BAY DOOR STRUCTURAL DAMAGE FROM CONTACT WITH A PAYLOAD, KU-BAND ANTENNA, OR DEPLOYED RMS VIA THE FOLLOWING SCENARIO:

- (1) CIRCUIT BREAKER FAILED CLOSED.
- (2) DC LOGIC POWER SWITCH OR RPC FAILED "ON".
- (3) PAYLOAD BAY DOOR ARM SWITCH FAILS "ON".
- (4) PSYCHOTIC GPC FAILURE THAT COMMANDS PAYLOAD BAY DOORS CLOSED.

STRUCTURAL DAMAGE TO THE PAYLOAD BAY DOOR MAY PREVENT ITS BEING CLOSED AND LATCHED FOR DESCENT RESULTING IN A LOSS OF ORBITER VEHICLE STRUCTURAL STIFFNESS AND CONSEQUENT VEHICLE STRUCTURAL DAMAGE DUE TO AERODYNAMIC FORCES DURING DESCENT.

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EFFECT(S) ON (CONTINUED):

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

FAILS "B" SCREEN BECAUSE CIRCUIT BREAKERS NORMALLY CLOSED ALL MISSION  
PHASES.

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

3) GROUND TURNAROUND TEST

VERIFY STARBOARD AND PORT RADIATOR DEPLOY AND STOW MOTOR 1 AND MOTOR 2  
OPERATION INDEPENDENTLY WITH CIRCUIT BREAKERS OPEN/CLOSED TO RESTRICT  
MOTOR OPERATION TO SINGLE MOTOR. TEST IS PERFORMED FOR ALL FLIGHTS.

5) OPERATIONAL USE

NONE