SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2613 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C
P/N RI :MC454-0032-3030
P/N VENDOR:
QUANTITY :4
:FOUR
:

CRIT.FUNC: 1R
CRIT. HDW: 2

VEHICLE	102	103	104
EFFECTIVITY:	X	X	X

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

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

PREPARED BY:			APPROVED BY:	APPROVED BY (NASA):
DES	R	PHILLIPS	DES	SSM
REL	M	HOVE	REL	REL
QE	J	COURSEN	QE	QE

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 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 FIRST FAILURE - THE REDUNDANT MOTOR SUPPLIED BY ANOTHER CIRCUIT BREAKER COMPLETES FUNCTION.

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

(D) FIRST FAILURE - NO EFFECT.

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2613 -1 REV:05/03/88

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 CLOSE 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 REDUNDANT PAYLOAD BAY DOOR CLOSE CAPABILITY INVOKES A MINIMUM DURATION FLIGHT. FOR LOSS OF REDUNDANT VENT DOOR OPEN CAPABILITY, OPEN VENT DOORS PRIOR TO ENTRY.