SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2703 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C
P/N RI :RWR80S1211FR
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 DO 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:
RESISTOR, CURRENT LIMIT, WIRE WOUND, 1.2K OHM - MID MCA 1, 2 AND 4 DC BUS A, B AND C CONTROL CIRCUIT

FUNCTION:
PROVIDES CURRENT LIMITING/CIRCUIT PROTECTION FOR THE CONTROL CIRCUITS FOR MAIN DC BUSES A, B AND C RELAY LOGIC POWER INPUTS TO MIDBODY MOTOR CONTROL ASSEMBLIES #1, 2 AND 4 FOR VENT DOOR, PAYLOAD BAY DOOR, KU-BAND ANTENNA DEPLOY/STOW, RADIATOR DEPLOY/LATCH AND REMOTE MANIPULATOR DEPLOY/LATCH MOTORS. 85V73A129A1R2, A2R3, A3R1 AND A4R3

FAILURE MODE:
OPEN

CAUSE(S):
STRUCTURAL FAILURE (VIBRATION, MECHANICAL STRESS), 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 ONE OF TWO MAIN DC BUS RELAY LOGIC POWER INPUTS TO THE ASSOCIATED MID MOTOR CONTROL ASSEMBLY.

(B) LOSS OF INTERFACE REDUNDANCY. NO EFFECT FOR FIRST FAILURE - THE REDUNDANT MOTOR CONTROLLED THROUGH A DIFFERENT RESISTOR COMPLETES THE FUNCTION.

(C) POSSIBLE EARLY MISSION TERMINATION DUE TO LOSS OF REDUNDANCY FOR CLOSING PAYLOAD BAY DOORS.

(D) FIRST FAILURE - NO EFFECT.

UBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2703 -1 REV:05/03/88

FFECT(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 OPEN 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 OR BY LOSS OF MCA OPERATIONAL STATUS MEASUREMENTS AVAILABLE TO GROUND PERSONNEL.

ISPOSITION & 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. TEST IS 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.