SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2704 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C
P/N RI :RWR80S1211FR
P/N VENDOR:
QUANTITY :2
:TWO
:

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:
DES R PHILLIPS
REL M HOVE
QE J COURSEN

APPROVED BY:
DES
REL
QE

APPROVED BY (NASA):
SSM
REL
QE

ITEM:
RESISTOR, CURRENT LIMIT, WIRE WOUND, 1.2K OHM - MID MCA 3 AND 2 DC BUS A AND C CONTROL CIRCUIT

FUNCTION:
PROVIDES CURRENT LIMITING/CIRCUIT PROTECTION FOR THE CONTROL CIRCUITS FOR DC BUSES A AND C RELAY LOGIC POWER INPUTS TO MIDBODY MOTOR CONTROL ASSEMBLY #3 AND #2 FOR VENT DOOR, PAYLOAD BAY DOOR LATCH, RADIATOR DEPLOY/LATCH, REMOTE MANIPULATOR LATCH AND KU-BAND ANTENNA STOW/DEPLOY MOTORS. 85V73A129A1R3 AND A4R2

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 LATCHING PAYLOAD BAY DOOR CENTERLINE LATCHES.

(D) FIRST FAILURE - NO EFFECT.

UBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2704 -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 LATCH 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 REDUNDANCY FOR CLOSING CENTERLINE PLBD LATCHES INVOKES A MINIMUM DURATION FLIGHT. FOR LOSS OF REDUNDANT VENT DOOR OPEN CAPABILITY, OPEN VENT DOORS PRIOR TO ENTRY.