

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2651 -1 REV:05/03/88

ASSEMBLY :PANEL MA73C CRIT.FUNC: 1R
P/N RI :ME452-0102-7101 CRIT. HDW: 2
P/N VENDOR: VEHICLE 102 103 104
QUANTITY :3 EFFECTIVITY: X X X
:THREE PHASE(S): PL LO X CO DO X LS
:

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
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ITEM:

SWITCH, TOGGLE, SP2P - AFT MCA 1, 2 AND 3 DC BUS A, B AND C "ON/OFF" CONTROL

FUNCTION:

PROVIDES "ON/OFF" CONTROL FOR APPLICATION OF MAIN DC BUS A, B AND C RELAY LOGIC INPUT POWER TO AFT MOTOR CONTROL ASSEMBLIES (MCA'S) 1, 2 AND 3 RESPECTIVELY FOR VENT DOOR AND EXTERNAL TANK UMBILICAL DOOR MOTORS. 85V73A129S4, S10, S14

FAILURE MODE:

FAILS OPEN, PREMATURELY OPENS, SHORTS TO GROUND

CAUSE(S):

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

EFFECT(S) ON:

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

(A) LOSS OF MAIN DC BUS RELAY LOGIC POWER INPUT TO THE ASSOCIATED AFT MOTOR CONTROL ASSEMBLY.

(B) LOSS OF INTERFACE REDUNDANCY. NO EFFECT FOR FIRST FAILURE - RESULTS IN LOSS OF ONE OF TWO MOTORS FOR EXTERNAL TANK UMBILICAL DOOR CLOSE AND LATCH OR VENT DOOR FUNCTIONS.

(C,D) FIRST FAILURE - NO EFFECT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT MOTOR OR POWER/CONTROL CIRCUIT) DUE TO LOSS OF EXTERNAL TANK UMBILICAL DOOR CLOSE/LATCH CAPABILITY (RESULTS IN EXCESSIVE AERODYNAMIC HEATING DURING ENTRY) OR LOSS OF VENT DOOR OPEN CAPABILITY (RESULTS IN VEHICLE STRUCTURAL DAMAGE DUE TO PRESSURE DIFFERENTIALS

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EFFECT(S) ON (CONTINUED):

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

DURING DESCENT). 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 DOOR OPERATION TIMES OR BY LOSS OF MCA
OPERATIONAL STATUS MEASUREMENTS AVAILABLE TO GROUND PERSONNEL.

DISPOSITION & RATIONALE:

(A)DESIGN (B)TEST (C)INSPECTION (D)FAILURE HISTORY (E)OPERATIONAL USE

A,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

B) GROUND TURNAROUND TEST

VERIFY MCA OPERATIONAL STATUS INDICATORS ARE "ON" (ALL MOTOR CONTROL
RELAYS RESET) DURING NO OPERATION OF THE AC MOTOR MECHANISMS. THE
TEST IS PERFORMED FOR ALL FLIGHTS.

E) OPERATIONAL USE

FOR LOSS OF REDUNDANT VENT DOOR OPEN CAPABILITY, OPEN VENT DOORS PRIOR
TO ENTRY.