

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT.POWER DIST & CONT FMEA NO 05-6 -2654 -2 REV:05/03/88

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

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS  
PREPARED BY: APPROVED BY: APPROVED BY (NASA):  
DES R PHILLIPS DES *[Signature]* SSM *[Signature]* 5/16/88  
REL M HOVE REL *[Signature]* 5/16/88 REL *[Signature]* 5/16/88  
QE J COURSEN QE *[Signature]* 5/16/88 QE *[Signature]*

ITEM:  
SWITCH, TOGGLE, SP2P - MID MCA 3 AND 2 DC BUS A AND C "ON/OFF" CONTROL

FUNCTION:  
PROVIDES THE "ON/OFF" MANUAL CAPABILITY TO CONTROL DC BUS A AND C INPUTS TO MIDBODY MOTOR CONTROL ASSEMBLIES (MCA'S) #3 AND #2 FOR VENT DOOR, PAYLOAD BAY DOOR LATCH, RADIATOR DEPLOY/LATCH, AND REMOTE MANIPULATOR LATCH MOTORS. 85V73A129S3, S12

FAILURE MODE:  
FAILS CLOSED, SHORTS (CONTACT TO CONTACT)

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) UNABLE TO DE-ENERGIZE ONE MCA LOGIC BUS.  
(B) LOSS OF REDUNDANCY TO PROTECT AGAINST INADVERTENT PAYLOAD BAY DOOR LATCH OPERATION.  
(C,D) FIRST FAILURE - NO EFFECT.  
(E) POSSIBLE LOSS OF CREW/VEHICLE DUE TO INADVERTENT COMMANDING OF A PAYLOAD BAY DOOR LATCH CLOSE/OPEN WHICH MAY RESULT IN AERODYNAMIC STRUCTURAL DAMAGE DURING ASCENT OR ENTRY VIA THE FOLLOWING SCENARIO:  
(1) FAILURE OF RELAY LOGIC POWER SWITCH CLOSED.  
(2) FAILURE OF PAYLOAD BAY DOOR ARMING SWITCH CLOSED.  
(3) FAILURE (PSYCHOTIC GPC) CAUSING INADVERTENT PAYLOAD BAY DOOR LATCH CLOSURE WITH DOORS NOT FULLY CLOSED OR OPEN DURING ASCENT OR

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EFFECT(S) ON (CONTINUED):

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

(3 CONTINUED) ENTRY, RESULTING IN INABILITY TO CLOSE PAYLOAD BAY  
DOORS.

FAILS "B" SCREEN SINCE SWITCH NORMALLY CLOSED DURING 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 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. TEST IS  
PERFORMED FOR ALL FLIGHTS.

E) OPERATIONAL USE

NONE