

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2655 -1 REV:05/03/88

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

REDUNDANCY SCREEN: A-PASS B-PASS C-PASS
PREPARED BY: APPROVED BY: APPROVED BY (NASA):
DES R PHILLIPS DES *R. B...* SSM *W.C. Stang 5/12/88*
REL M HOVE REL *M. J. Chatter 5/12/88* REL *D. J. ... 5/12/88*
QE J COURSEN QE *J. Courson 5/16/88* QE *R...*

ITEM:
SWITCH, TOGGLE, SP2P - MID MCA 1 AND 3 DC BUS B "ON/OFF" CONTROL

FUNCTION:
PROVIDES THE "ON/OFF" MANUAL CAPABILITY TO CONTROL MAIN DC BUS B INPUTS TO MIDBODY MOTOR CONTROL ASSEMBLIES (MCA'S) #1 AND #3 FOR LEFT VENT DOOR 5 MOTOR 2 AND RIGHT VENT DOOR 4/7 MOTOR 2, RESPECTIVELY.
85V73A129S6, S8

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 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 BY A DIFFERENT SWITCH COMPLETES THE FUNCTION.
(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 INABILITY TO OPEN VENT DOOR DURING DESCENT (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

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EFFECT(S) ON (CONTINUED):

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

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. TEST IS
PERFORMED FOR ALL FLIGHTS.

E) OPERATIONAL USE

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