

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2236 -2 REV:05/03/88

ASSEMBLY :PNL C3A7 CRIT.FUNC: 1
 P/N RI :ME452-0061-4133 CRIT. HDW: 1
 P/N VENDOR: VEHICLE 102 103 104
 QUANTITY :1 EFFECTIVITY: X X X
 :ONE PHASE(S): PL LO X'OO DO LS
 :

REDUNDANCY SCREEN: A-N/A B-N/A C-N/A
 PREPARED BY: APPROVED BY: APPROVED BY (NASA):
 DES R PHILLIPS DES *R. B...* SSM *W.C. ... 5/10/88*
 REL M HOVE REL *M. ... 5-1-88* REL *D. ... 5/10/88*
 QE J COURSEN QE *J. ... 5/10/88* QE *D. ... 5/10/88*

ITEM:
 SWITCH, PUSHBUTTON - SRB SEPARATION

FUNCTION:
 EMERGENCY SYSTEM ENABLES CREW TO INITIATE SRB SEPARATION MANUALLY WHEN REQUIRED, DURING THE PROPER BOOST EVENT PERIOD. THIS FUNCTION IS NOT A NORMAL MISSION EVENT - USED ONLY DURING BOOST PHASE EMERGENCY.
 35V73A3A7S2

FAILURE MODE:
 FAILS OPEN, FAILS TO CONDUCT (ALL CONTACT SETS)

CAUSE(S):
 PIECE PART STRUCTURAL FAILURE, MECHANICAL SHOCK, VIBRATION, CONTAMINATION, PROCESSING ANOMALY

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

(A) LOSS OF MANUAL OVERRIDE FUNCTION FOR SRB SEPARATION INHIBIT CONDITION.

(B) LOSS OF MANUAL CONTROL FOR INITIATING THE SRB SEPARATION COMMAND IN AN INHIBIT STATE. DURING BOOST PRIOR TO SRB SEPARATION, IF THE VEHICLE BODY RATES (PITCH, YAW, ROLL) OR DYNAMIC PRESSURES ARE OUT OF LIMITS THEN AN INHIBIT TO SRB SEPARATION EXISTS. THE FCS WILL TRY TO FLY THE VEHICLE BACK INTO LIMITS. IF THIS IS NOT POSSIBLE THEN THE CREW WILL ATTEMPT TO MANUALLY SEPARATE THROUGH USE OF THE SRB SEPARATION SWITCHES (I.E., PUSHBUTTON AND TOGGLE). IF EITHER OF THE SWITCHES FAIL OPEN THEN MANUAL SEPARATION CANNOT OCCUR. IF THE FCS CANNOT BRING THE VEHICLE BACK INTO LIMITS, THIS WOULD RESULT IN LOSS OF CREW/VEHICLE.

(C,D) POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF CONTROL/ELECTRICAL POWER NECESSARY FOR SEPARATION FUNCTION. CRITICALITY 1 BECAUSE SRB SEPARATION SWITCH (PUSHBUTTON) IS AN EMERGENCY FUNCTION.

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SYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2236 -2 REV:05/03/88

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. 3 - PUSHBUTTON SWITCH

(B) GROUND TURNAROUND TEST

VERIFY SRB SEPARATION MANUAL SWITCH FUNCTION. MONITOR "MANUAL/AUTO"
AND "AUTO" COMMAND STIMULI. TEST IS PERFORMED FOR ALL VEHICLE FLOWS.

(E) OPERATIONAL USE

NONE