

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2238 -1 REV:05/03/88

ASSEMBLY :PANEL C3A7	CRIT.FUNC: 1
P/N RI :ME452-0102-7301	CRIT. HDW: 1
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY :1	EFFECTIVITY: X X X
:ONE	PHASE(S): PL X 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 <i>[Signature]</i>	SSM <i>[Signature]</i> 5/12/88
REL M HOVE	REL <i>[Signature]</i> 5/12/88	REL <i>[Signature]</i> 5/12/88
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ITEM:
SWITCH, TOGGLE, 3P2P - SRB SEPARATION SELECT

FUNCTION:
EMERGENCY SYSTEM PROVIDES CAPABILITY FOR THE CREW TO SELECT EITHER "AUTO" (GPC CONTROL) OR "MANUAL/AUTO" (CREW OVERRIDE FOR GPC CONTROL) FOR THE ORBITER AND ET SEPARATION FROM THE SRB'S. THIS FUNCTION IS NOT A NORMAL EVENT - USED ONLY DURING BOOST PHASE, EMERGENCY CRIT 1. 35V73A3A7S1

FAILURE MODE:
FAILS TO CONDUCT, FAILS TO CLOSE (TRANSFER), FAILS OPEN, INADVERTENTLY OPENS, SHORTS TO GROUND (MULTIPLE CONTACT SETS)

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 MANUAL OVERRIDE FUNCTION FOR SRB SEPARATION INHIBIT CONDITION.
- (B) LOSS OF MANUAL CONTROL FOR INITIATING THE SRB SEP 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 SEP SWITCHES (I.E., PUSHBUTTON AND TOGGLE). IF EITHER OF THE SWITCHES FAIL OPEN THEN MANUAL SEP CANNOT OCCUR. IF THE FCS CANNOT BRING THE VEHICLE BACK INTO LIMITS, THIS WOULD RESULT IN LOSS OF CREW/VEHICLE.

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EFFECT(S) ON (CONTINUED):

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

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

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

1) GROUND TURNAROUND TEST

VERIFY SRB SEPARATION MANUAL SWITCH FUNCTIONS. TEST IS PERFORMED FOR
ALL FLIGHTS.

2) OPERATIONAL USE

NONE