

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2235 -2 REV:05/03/88

ASSEMBLY :PNL C3A7				CRIT.FUNC: 1R
P/N RI :ME452-0061-4133				CRIT. HDW: 2
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-PASS B-N/A C-PASS

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES R PHILLIPS	DES <u>[Signature]</u>	SSM <u>[Signature] 5/12/88</u>
REL M HOVE	REL <u>[Signature] 5-6-88</u>	REL <u>[Signature] 5/12/88</u>
QE J COURSEN	QE <u>[Signature] 5/6/88</u>	QE <u>[Signature]</u>

ITEM:

SWITCH, PUSHBUTTON - EXTERNAL TANK SEPARATION

FUNCTION:

ENABLES CREW TO INITIATE EXTERNAL TANK SEPARATION MANUALLY, WHEN REQUIRED, DURING THE PROPER BOOST EVENT PERIOD. THIS FUNCTION IS NOT A NORMAL MISSION EVENT - USED ONLY DURING ASCENT EMERGENCY.
35V73A3A7S4

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 EXTERNAL TANK SEPARATION INITIATION FUNCTION.

(B) LOSS OF EXTERNAL TANK SEPARATION INITIATION REDUNDANCY.

(C,D) FIRST FAILURE - NO EFFECT. DURING BOOST, PRIOR TO EXTERNAL TANK SEPARATION, IF AERODYNAMIC PARAMETERS ARE OUT OF LIMITS THEN AN INHIBIT EXISTS TO SEPARATION. THE CREW WILL MANUALLY TRY TO FLY THE VEHICLE BACK INTO LIMITS. IF THIS IS NOT POSSIBLE THEN THE CREW WILL ATTEMPT TO MANUALLY SEPARATE THROUGH THE USE OF EXTERNAL TANK SEPARATION SWITCHES (I.E. P.B. AND TOGGLE). IF EITHER OF THE SWITCHES FAILS OPEN THEN MANUAL SEPARATION CANNOT OCCUR AND COULD RESULT IN LOSS OF CREW/VEHICLE. THE CREW CAN INITIATE SEPARATION VIA KEYBOARD ENTRY USING OVERRIDE SPEC #51, ALLOWING AUTOMATIC EXTERNAL TANK SEPARATION TO OCCUR.

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SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2235 -2 REV:05/03/88

EFFECT(S) ON (CONTINUED):

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

(E) POSSIBLE LOSS OF CREW/VEHICLE WITH SECOND FAILURE (OVERRIDE SPEC
#51 FAILURE) DUE TO LOSS OF CONTROL/ELECTRICAL POWER NECESSARY FOR
SEPARATION FUNCTION. "B" SCREEN IS N/A BECAUSE SEPARATION SWITCH
(PUSHBUTTON) IS AN EMERGENCY FUNCTION ONLY, AND FAILURES ARE NOT
DETECTABLE UNTIL MOMENTARY SWITCH ACTIVATION IS PERFORMED WITH
EXTERNAL TANK SEPARATION AUTO-MANUAL MODE SELECT SWITCH IN THE MANUAL
POSITION.

DISPOSITION & RATIONALE:

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

(A,B,C,D) DISPOSITION & RATIONALE

REFER TO APPENDIX A, ITEM NO. 3 - PUSHBUTTON SWITCH

(1) GROUND TURNAROUND TEST

VERIFY EXTERNAL TANK SEPARATION MANUAL SWITCH FUNCTION. MONITOR
"AUTO" AND "MANUAL" COMMAND STIMULI. TEST IS PERFORMED FOR ALL
FLIGHTS.

(2) OPERATIONAL USE

FLIGHT CREW REQUIRED TO PERFORM SPEC #51 ITEM 39 ENTRY OVERRIDE IN THE
EVENT THAT PUSHBUTTON SWITCH FAILS.