

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2508 -1 REV:05/03/88

ASSEMBLY :FWD LCA 1, 2 CRIT.FUNC: 1R  
P/N RI :MC450-0018-0008 CRIT. HDW: 2  
P/N VENDOR: VEHICLE 102 103 104  
QUANTITY :2 EFFECTIVITY: X X X  
:TWO-ONE EACH FWD LCA1&2 PHASE(S): PL LO X-00 DO LS  
:

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

ITEM:  
CONTROLLER, PYRO INITIATOR (PIC) - ET/ORB FORWARD ATTACH RELEASE

FUNCTION:  
PROVIDES A SINGLE CHANNEL PYRO-FIRING CIRCUIT, AN INITIATOR RESISTANCE TEST CIRCUIT AND A PYRO-FIRING LOAD TEST CIRCUIT FOR THE CONTROL AND CHECKOUT OF THE EXTERNAL TANK/ORBITER FORWARD ATTACH/RELEASE (SEPARATION) FUNCTION. 81V76A16PIC(A), 82V76A17PIC(B)

FAILURE MODE:  
LOSS OF OUTPUT

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

EFFECT(S) ON:  
(A)SUBSYSTEM (B)INTERFACES (C)MISSION (D)CREW/VEHICLE (E)FUNCTIONAL CRITICALITY EFFECT:  
(A) LOSS OF CAPABILITY FOR AFFECTED PIC TO PERFORM ITS ASSIGNED FUNCTION.  
(B) LOSS OF REDUNDANCY FOR ET/ORB FORWARD ATTACH RELEASE.--  
(C,D) FIRST FAILURE - NO EFFECT.  
(E) LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT PIC OR INITIATOR) DUE TO INABILITY TO PERFORM ET/ORB FORWARD ATTACH RELEASE. "B" SCREEN FAILS BECAUSE PIC OUTPUT FUNCTION IS NOT INSTRUMENTED.

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POSITION & RATIONALE:

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

B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX H, ITEM NO. 1 - PYRO INITIATOR CONTROLLER

GROUND TURNAROUND TEST

VERIFY MEC 1 AND MEC 2 POWER REDUNDANCY FOR EACH MEC WITH THE LOSS OF TWO OF THREE POWER INPUTS. VERIFY THAT THE PRE-FLIGHT MEC BITE RESPONDS TO COMMANDS, THE ARM COMMANDS CHARGE THE PIC'S, AND THE GO / NO GO LOAD TESTS ARE SATISFIED. TEST IS PERFORMED FOR ALL FLIGHTS.

OPERATIONAL USE

NONE