

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2509 -1 REV:05/03/88

ASSEMBLY :MEC; BAYS-4, 5  
P/N RI :MC450-0018-0008  
P/N VENDOR:  
QUANTITY :4  
:FOUR-TWO EACH MEC

VEHICLE	102	103	104
EFFECTIVITY:	X	X	X
PHASE(S):	PL	LO X OO	DO LS

CRIT.FUNC: 1R  
CRIT. HDW: 2

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS

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

ITEM:  
CONTROLLER, PYRO INITIATOR (PIC) - RIGHT/LEFT ET/ORB AFT 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 RIGHT/LEFT EXTERNAL TANK/ORBITER AFT ATTACH/RELEASE (SEPARATION) FUNCTION. 54V76A13PIC7, PIC8; 55V76A14PIC7, PIC8

FAILURE MODE:  
LOSS OF OUTPUT

USE(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 AFT LEFT/RIGHT 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 AFT LEFT/RIGHT ATTACH RELEASE. "B" SCREEN FAILS BECAUSE PIC OUTPUT FUNCTION IS NOT INSTRUMENTED.

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DISPOSITION & RATIONALE:

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

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

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

(B) 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.

(E) OPERATIONAL USE

NONE