

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2291 -1 REV:05/03/88

ASSEMBLY :AFT PCA 4,5,6 CRIT.FUNC: 1R
P/N RI :ME451-0009-1019 CRIT. HDW: 3
P/N VENDOR: VEHICLE 102 103 104
QUANTITY :3 EFFECTIVITY: X X X
:THREE - ONE PER AFT PCA PHASE(S): PL LO X OO DO LS
:

REDUNDANCY SCREEN: A-PASS B-FAIL C-PASS
PREPARED BY: APPROVED BY: APPROVED BY (NASA):
DES R PHILLIPS DES *R. Phillips* SSM *R. C. Stapp 5/12/88*
REL M HOVE REL *Thomas M. 5-6-88* REL *Robert W. ...*
QE J COURSEN QE *J. Courson 5/6/88* QE *R. ...*

ITEM:
FUSE, AXIAL LEAD/CARTRIDGE TYPE, 7.5 AMP - ESSENTIAL BUS APCA-TO-ALCA

FUNCTION:
CONDUCTS CIRCUIT CURRENT AND PROVIDES OVERCURRENT PROTECTION FOR THE ESSENTIAL BUS 1BC (2CA, 3AB) BETWEEN AFT POWER CONTROLLER ASSEMBLY 4 (5, 6) AND AFT LOAD CONTROLLER ASSEMBLY 1 (2, 3). 54V76A134F10, 55V76A135F10, 56V76A136F10

FAILURE MODE:
FAILS OPEN, FAILS TO CONDUCT

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

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

- (A) LOSS OF FUNCTION TO CONDUCT ESSENTIAL BUS POWER FROM AFT POWER CONTROLLER ASSEMBLY TO THE AFT LOAD CONTROLLER ASSEMBLY.
- (B) LOSS OF REDUNDANCY FOR CONTROL OF SPACE SHUTTLE MAIN ENGINE (SSME) PROPELLANT VALVES.
- (C,D) FIRST FAILURE - NO EFFECT.
- (E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE DUE TO LOSS OF CAPABILITY TO CLOSE SSME PRE-VALVES AT MAIN ENGINE CUT-OFF. FAILS "E" SCREEN BECAUSE PATH IS NOT MONITORED.

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DISPOSITION & RATIONALE:

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

,B,C,D) DISPOSITION AND RATIONALE

REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD/CARTRIDGE TYPE

) GROUND TURNAROUND TEST

VERIFY SSME PREVALVE MDM COMMAND REDUNDANCY. TEST PERFORMED FOR ALL FLIGHTS.

) OPERATIONAL USE

NONE