

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2006 -1 REV:05/03/88

ASSEMBLY :FPCA & MDCA	CRIT.FUNC: 1R
P/N RI :ME451-0016-2150	CRIT. HDW: 3
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY :14	EFFECTIVITY: X X X
:FOURTEEN	PHASE(S): PL X LO X OO X DO X LS X
:	

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

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES R PHILLIPS	DES <i>R. Burns</i>	SSM <i>D. C. Stang 5/12/88</i>
REL M HOVE	REL <i>M. D. G. Stan 5-6-88</i>	REL <i>D. C. Stang 5/14/88</i>
QE J COURSEN	QE <i>J. J. Courson 5-6-88</i>	QE <i>J. J. Courson</i>

ITEM:

FUSE, HIGH CURRENT, 150 AMP - MAIN DC BUS IN THE MDCA AND FPCA

FUNCTION:

PROTECTS THE MAIN DC BUS IN THE MAIN DISTRIBUTION CONTROL ASSEMBLY FROM OVERLOADS ON ITS ASSOCIATED BUS IN THE FORWARD POWER CONTROL ASSEMBLY. 40V76A31F11, F12, F13; 40V76A32F11, F12, F13; 40V76A33F11, F12; 81V76A22F6, F7, F8; 82V76A23F5, F6, F7

FAILURE MODE:

OPEN

CAUSE(S):

STRUCTURAL FAILURE, VIBRATION, MECHANICAL SHOCK, THERMAL STRESS, CONTAMINATION, PROCESSING ANOMALY

EFFECT(S) ON:

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

(A,B) FIRST FAILURE - NO EFFECT. LOSS OF A REDUNDANT POWER FEED TO A MAIN DC BUS IN A FORWARD POWER CONTROL ASSEMBLY. SECOND FAILURE (LOSS OF OTHER MAIN BUS C FUSE) CAUSES LOSS OF MAIN DC BUS C POWER TO FORWARD POWER CONTROL ASSEMBLY #3. FORWARD POWER CONTROL ASSEMBLIES #1 AND #2 HAVE THREE POWER FEEDS AND THEREFORE REQUIRE A THIRD FAILURE FOR LOSS OF THEIR RESPECTIVE MAIN DC BUSES.

(C,D) FIRST FAILURE - NO EFFECT.

(E) POSSIBLE LOSS OF CREW/VEHICLE AFTER THIRD FAILURE (LOSS OF ANOTHER MAIN DC BUS) DUE TO LOSS OF ELECTRICAL POWER NECESSARY FOR SAFE OPERATION OF CREW/VEHICLE FUNCTIONS. FAILS "B" SCREEN BECAUSE PARALLEL FUSE FAILURES CANNOT BE DETECTED IN FLIGHT.

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SUBSYSTEM :ELECT POWER DIST & CONT FMEA NO 05-6 -2006 -1 REV:05/03/88

DISPOSITION & RATIONALE:

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

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

REFER TO APPENDIX D, ITEM NO. 3 - FUSE, HIGH CURRENT.

(B) GROUND TURNAROUND TEST

VERIFY THE INTEGRITY OF THE FUSES IN REDUNDANT PATHS BETWEEN THE FORWARD POWER CONTROL ASSEMBLY MAIN DC BUS AND THE CORRESPONDING MAIN DISTRIBUTION CONTROL ASSEMBLY MAIN DC BUS. USE CLAMP-ON AMMETER WHERE NECESSARY TO VERIFY REDUNDANT PATHS. TEST WILL BE PERFORMED FOR ALL FIRST FLIGHTS, 102-FLT 8, 103-FLT 7, 104-FLT 3, AND ALL VEHICLES AT 10 FLIGHT INTERVALS THEREAFTER.

(E) OPERATIONAL USE

NONE