

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE**  
**NUMBER: 05-6-2008B-X**

**SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION AND CONTROL**  
**REVISION: 1 03/22/94**

	<b>PART NAME</b>	<b>PART NUMBER</b>
	<b>VENDOR NAME</b>	<b>VENDOR NUMBER</b>
LRU	: MDCA 2	VO70-764220
LRU	: APCA 5	VO70-765280
SRU	: FUSE, 200 AMP	ME451-0016-2200

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**PART DATA**

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
**FUSE, 200 AMP FUSE - MAIN DC BUS B TO AFT MAIN DC BUS B**

**REFERENCE DESIGNATORS:** 40V76A32F15  
 40V76A32F16  
 55V76A135F1  
 55V76A135F2

**QUANTITY OF LIKE ITEMS: 4**  
**FOUR**

**FUNCTION:**  
**PROTECTS MAIN DC BUS B FROM OVERLOADS IN THE FEEDER TO THE AFT DC BUS B,**  
**AND PROTECTS FEEDER FROM POSSIBLE OVERLOAD WHEN SUPPLIED BY GSE.**

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE  
NUMBER: 05-6-2008B-01

REVISION# 1 03/22/94

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION AND CONTROL  
LRU: MDCA 2  
ITEM NAME: FUSE, 200 AMP  
CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:  
OPEN

MISSION PHASE:  
PL PRELAUNCH  
LO LIFT-OFF  
OO ON-ORBIT  
DO DE-ORBIT  
LS LANDING SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA  
103 DISCOVERY  
104 ATLANTIS  
105 ENDEAVOUR

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS  
B) FAIL  
C) PASS

PASS/FAIL RATIONALE:  
A)  
B)  
SCREEN "B" IS FAILED BECAUSE OF THE PARALLEL CIRCUIT DESIGN.  
C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:  
LOSS OF MAIN DC BUS B TO AFT MAIN DC BUS B FEEDER REDUNDANCY.

(B) INTERFACING SUBSYSTEM(S):  
LOSS OF REDUNDANCY TO LOADS ON AFT MAIN DC BUS B. NO EFFECT FOR FIRST FAILURE. THE REDUNDANT AFT DC BUS B FEEDER CAN SUPPLY THE REQUIRED APCA 5 LOADS.

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(C) MISSION:  
FIRST FAILURE - NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):  
FIRST FAILURE - NO EFFECT

(E) FUNCTIONAL CRITICALITY EFFECTS:  
POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF CRITICAL EQUIPMENT  
NECESSARY FOR CREW/VEHICLE SAFETY (e.g., ET UMBILICAL DOOR CLOSURES) IS  
LOST VIA THE FOLLOWING SCENARIO:

- (1) LOSS OF FUSE.
- (2) LOSS OF REDUNDANT AFT MAIN DC BUS B FEEDER.
- (3) LOSS OF ANOTHER MAIN DC BUS.

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-DISPOSITION RATIONALE-

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(A) DESIGN:  
REFER TO APPENDIX D, ITEM NO. 3 - FUSE, HIGH CURRENT

(B) TEST:  
REFER TO APPENDIX D, ITEM NO. 3 - FUSE, HIGH CURRENT

GROUND TURNAROUND TEST  
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH  
OMRSD.

(C) INSPECTION:  
REFER TO APPENDIX D, ITEM NO. 3 - FUSE, HIGH CURRENT

(D) FAILURE HISTORY:  
FAILURE HISTORY IS TRACKED IN THE PRACA SYSTEM.

(E) OPERATIONAL USE:  
NONE

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- APPROVALS -

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PAE MANAGER : K. PRESTON  
PRODUCT ASSURANCE ENGR : T. KIMURA  
DESIGN ENGINEERING : J. GULSBY  
NASA SSMA :  
NASA SUBSYSTEM MANAGER :

*K.L. Preston 3/29/94*  
*J. Kimura 3/27/94*  
*J. Gulsby 3/26/94*  
*David Lynn 6/20/94*  
*Mike [unclear] 6/20/94*