

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE  
 NUMBER: 05-6BB-2246 -X

SUBSYSTEM NAME: EPD&C - BRAKE/ANTI SKID

REVISION: 2 03/08/90

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: FWD PCA 1	V070-763320
LRU	: FWD PCA 2	V070-763340
SRU	: FUSE	ME451-0009-1021

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
 FUSE, 5 AMP, BRAKE SUB BUS ANTI/SKID POWER

REFERENCE DESIGNATORS: 81V76A22F28  
 82V76A23F8

QUANTITY OF LIKE ITEMS: 2  
 ONE PER BUS, TWO PER VEHICLE

FUNCTION:  
 PROVIDES CURRENT PROTECTION IN CONTROL CIRCUIT FOR SWITCHING DC POWER  
 BETWEEN THE BRAKE SUB-BUSES (B/C, C/A) AND THE ANTI-SKID BUSES (B/C,C/A).

FAILURE MODES EFFECTS ANALYSIS FMEA - NON-CIL FAILURE MODE  
NUMBER: 05-6BB-2246-01

SUBSYSTEM NAME: EPD&C - BRAKE/ANTI SKID  
LRU: FWD PCA 1  
ITEM NAME: FUSE

REVISION#: 3 08/20/97

CRITICALITY OF THIS  
FAILURE MODE: 1R3

FAILURE MODE:  
FAILS OPEN, FAILS TO CONDUCT

MISSION PHASE: DO DE-ORBIT

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

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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REDUNDANCY SCREEN      A) PASS  
                                  B) PASS  
                                  C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

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- FAILURE EFFECTS -

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(A) SUBSYSTEM:  
FIRST FAILURE - LOSS OF SKID AND LOCKED WHEEL PROTECTION ON HALF OF ALL  
BRAKES.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL FAILURE MODE  
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**(B) INTERFACING SUBSYSTEM(S):**

FIRST FAILURE - LOSS OF SKID AND LOCKED WHEEL PROTECTION ON HALF OF ALL BRAKES.

**(C) MISSION:**

FIRST FAILURE - NO EFFECT

**(D) CREW, VEHICLE, AND ELEMENT(S):**

FIRST FAILURE - LOSS OF SKID AND LOCKED WHEEL PROTECTION ON HALF OF ALL BRAKES.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES:

- 1) FUSE OPENS - LOSS OF SKID AND LOCKED WHEEL PROTECTION ON HALF OF ALL BRAKES.
- 2) BRAKE ISOLATION VALVE OPENS PREMATURELY.
- 3) UNCOMMANDED BRAKE PRESSURE BEFORE MAIN WHEELS TOUCHDOWN CAUSING TIRE/WHEEL FAILURE AND UNCONTROLLABLE YAWING FORCE.

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**-DISPOSITION RATIONALE-**

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**(A) DESIGN:**

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

**(B) TEST:**

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

**GROUND TURNAROUND TEST**

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

**(C) INSPECTION:**

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

**(D) FAILURE HISTORY:**

CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

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(E) OPERATIONAL USE:  
NONE

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- APPROVALS -

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EDITORIALLY APPROVED	: BNA	: <u>J. Komura 8/20/97</u>
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