

**FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL HARDWARE**  
**NUMBER:05-60-200501 -X**

**SUBSYSTEM NAME: EPD&C-GUIDANCE, NAVIGATION, & CONTROL (05-1)**  
**REVISION: 1 01/22/96**

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**PART DATA**

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	<b>PART NAME</b>	<b>PART NUMBER</b>
	<b>VENDOR NAME</b>	<b>VENDOR NUMBER</b>
LRU	:FWD PCA 3	V070-783360
SRU	:DIODE	JANTX1N1204RA

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
**DIODE 12 AMPS**

**REFERENCE DESIGNATORS:** 83V76A24CR27  
83V76A24CR28  
83V76A24CR29  
83V76A24CR30

**QUANTITY OF LIKE ITEMS:** 4  
FOUR

**FUNCTION:**  
PERMITS CONDUCTION AND PROVIDES MAIN BUS ISOLATION OF ELECTRICAL CURRENT FROM MAIN BUS A,B & C RPC'S TO ACCELEROMETER ASSY'S NO. 3 & 4 SINGLE INPUT POWER SUPPLY.

FAILURE MODES EFFECTS ANALYSIS FMEA – NON-CIL FAILURE MODE  
 NUMBER: 05-60-200501-02

REVISION#: 2 06/20/97

SUBSYSTEM NAME: EPD&C-GUIDANCE, NAVIGATION, & CONTROL (05-1)  
 LRU: FWD PCA 3  
 ITEM NAME: DIODE

CRITICALITY OF THIS  
 FAILURE MODE: 1R3

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FAILURE MODE:  
 SHORT (ELECTRICAL, END TO END).

MISSION PHASE: LO LIFT-OFF  
 DO DE-ORBIT

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

CAUSE:  
 CONTAMINATION, THERMAL STRESS, VIBRATION, MECHANICAL STRESS, ELECTRICAL  
 STRESS, PROCESSING ANOMALY.

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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REDUNDANCY SCREEN A) PASS  
 B) N/A  
 C) PASS

PASS/FAIL RATIONALE:  
 A)

B)  
 B SCREEN NOT APPLICABLE BECAUSE POWER PATH TO AA'S IS REDUNDANT. LOSS OF  
 ANY OF THE FOUR AA'S IS READILY APPARENT DURING FLIGHT USE.

C)

CORRECTING ACTION: NONE

CORRECTING ACTION DESCRIPTION:

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- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF MAIN BUS ISOLATION.

(B) INTERFACING SUBSYSTEM(S):

NO EFFECT. AA STILL HAS POWER.

(C) MISSION:

NO EFFECT.

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

NO EFFECT. FIRST FAILURE. FOR THE SECOND FAILURE (LOSS OF MAIN BUS, CAUSES  
RPC OF REDUNDANT PATH TO TRIP OFF CAUSING LOSS OF TWO OF FOUR AA'S),  
REDUNDANCY MANAGEMENT (RM) WILL IDENTIFY AND RECONFIGURE AS REQUIRED.  
THE THIRD FAILURE (LOSS OF A THIRD AA) RESULTS IN LOSS OF VEHICLE AS RM  
CANNOT TOLERATE THIS CONDITION.

(E) FUNCTIONAL CRITICALITY EFFECTS:

CRITICALITY 1R BECAUSE OF POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF  
VEHICLE CONTROL CAUSED BY LOSS OF ACCELERATION FEEDBACK INFORMATION.

- APPROVALS -

EDITORIALLY APPROVED  
EDITORIALLY APPROVED  
TECHNICAL APPROVAL

: RI  
: JSC  
: APPROVAL FORM

: Robert Stell 6/25/97  
: A. Searcy 5/2/97  
: 96-CIL-022\_05-60