

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - NON-CIL HARDWARE**  
**NUMBER:05-60-GN0804 -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	:AFT PCA 3	V070-765240
LRU	:AFT PCA 4, 5, 6	V070-765280
LRU	:AFT PCA 3	V070-765330
SRU	:DIODE	JANTX1N1204RA

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

**REFERENCE DESIGNATORS:** 54V76A134A3CR6  
54V76A134A3CR7  
56V76A133A3CR9  
56V76A133A3CR10

**QUANTITY OF LIKE ITEMS:** 4  
**FOUR-TWO PER MAIN BUS**

**FUNCTION:**  
**PERMITS ONE WAY CONDUCTION AND PROVIDES MAIN BUS ISOLATION OF ELECTRICAL CURRENT FROM ORBITER MAIN BUS A AND C THROUGH RPC'S TO SRB RGA 3 AND 4.**

## FAILURE MODES EFFECTS ANALYSIS FMEA - NON-CIL FAILURE MODE

NUMBER: 05-60-GN0804-02

REVISION#: 1 01/22/98

SUBSYSTEM NAME: EPD&amp;C-GUIDANCE, NAVIGATION, &amp; CONTROL (05-1)

LRU: AFT PCA 3, 4

CRITICALITY OF THIS

ITEM NAME: DIODE

FAILURE MODE: 1R3

FAILURE MODE:  
SHORT (END TO END).

MISSION PHASE: LO LIFT-OFF

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

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

PASS/FAIL RATIONALE:

A)

B)

B SCREEN NOT APPLICABLE DUE TO REDUNDANT POWER PATHS TO RGA'S. LOSS OF ANY OF THE FOUR RGA'S IS READILY APPARENT DURING FLIGHT USE.

C)

CORRECTING ACTION: NONE

CORRECTING ACTION DESCRIPTION:

- FAILURE EFFECTS -

(A) SUBSYSTEM:

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LOSS OF MAIN BUS ISOLATION.

(B) INTERFACING SUBSYSTEM(S):  
NO EFFECT. RGA STILL HAS POWER.

(C) MISSION:  
NO EFFECT.

(D) CREW, VEHICLE, AND ELEMENT(S):  
NO EFFECT FIRST FAILURE. SECOND FAILURE (LOSS OF MAIN BUS CAUSES RPC OF REDUNDANT PATH TO TRIP OFF CAUSING LOSS OF TWO OF FOUR RGA'S). REDUNDANCY MANAGEMENT TOLERATES THIS CONDITION. THIRD FAILURE (LOSS OF A THIRD RGA) RESULTS IN LOSS OF VEHICLE AS REDUNDANCY MANAGEMENT CAN NOT TOLERATE THIS CONDITION.

(E) FUNCTIONAL CRITICALITY EFFECTS:  
CRITICALITY 1R BECAUSE LOSS OF RATE FEEDBACK INFORMATION MAY CAUSE LOSS OF VEHICLE.

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- APPROVALS -

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EDITORIALLY APPROVED	: RI	: <u>John D. 1/31/96</u>
EDITORIALLY APPROVED	: JSC	: <u>Leon Stevens 2-12-96</u>
TECHNICAL APPROVAL	: APPROVAL FORM	: 95-CIL-004-R1