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PRINT DATE:11/09/93

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE  
NUMBER: 05-6N-2046-X**

**SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT**

**REVISION: 2 01/13/94**

	<b>PART NAME VENDOR NAME</b>	<b>PART NUMBER VENDOR NUMBER</b>
LRU	: PANEL A12	V070-730365
SRU	: DIODE	JANTXV1N4246

**PART DATA**

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**

DIODE, ISOLATION (1 AMP) - AUXILIARY POWER UNIT (APU) HEATERS, LUBE - LINE 1, 2,  
AND 3 POWER CIRCUITS

**REFERENCE DESIGNATORS:** 36V73A12A4CR2  
36V73A12A5CR2  
36V73A12A8CR2

**QUANTITY OF LIKE ITEMS: 3**  
THREE (1 PER APU)

**FUNCTION:**  
TO PROVIDE CONTROL BUS ISOLATION.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6N-2045-02**

REVISION# 1 08/30/93

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT  
LRU: PANEL A12  
ITEM NAME: DIODE

CRITICALITY OF THIS  
FAILURE MODE: 2F3

FAILURE MODE:  
SHORT (END TO END)

MISSION PHASE:  
OO ON-ORBIT

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

CAUSE:  
STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATION,  
ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS  
B) FAIL  
C) PASS

PASS/FAIL RATIONALE:  
A)

B)  
FIRST FAILURE NOT DETECTABLE IN FLIGHT SINCE THE SHORT FAILURE MODE OF  
THIS DIODE DOES NOT AFFECT THE FUNCTIONAL OPERATION OF THE SYSTEM  
UNLESS THERE ARE ADDITIONAL ASSOCIATED FAILURES.

C)

**- FAILURE EFFECTS -**

(A) SUBSYSTEM:  
LOSS OF ISOLATION BETWEEN CONTROL BUSES.

(B) INTERFACING SUBSYSTEM(S):  
NO EFFECT - FIRST FAILURE

(C) MISSION:  
NO EFFECT - FIRST FAILURE

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

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6N-2045-02**

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

POSSIBLE LOSS OF MISSION AFTER ONE OTHER FAILURE (ASSOCIATED CONTROL BUS SHORTED TO GROUND) DUE TO LOSS OF LUBE OIL LINE HEATERS.

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**-DISPOSITION RATIONALE-**

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**(A) DESIGN:**

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

**(B) TEST:**

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

GROUND TURNAROUND TEST - "APU LUBE OIL LINE HEATER CIRCUIT TEST"  
PERFORMED EVERY OMDP.

**(C) INSPECTION:**

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

**(D) FAILURE HISTORY:**

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

**(E) OPERATIONAL USE:**

PERFORM ON-ORBIT THERMAL CONDITIONING TO MAINTAIN LUBE OIL TEMPERATURE.

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**- APPROVALS -**

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EDITORIALLY APPROVED  
EDITORIALLY APPROVED  
TECHNICAL APPROVAL

: RI  
: JSC  
: VIA CR

*[Handwritten signature]* 9/1/93  
*[Handwritten signature]* 9/7/93  
: S507/OL