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PRINT DATE: 01/13/94

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE
NUMBER: 05-6N-2044-X**

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT

REVISION: 2 01/14/94

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL A12	V070-730365
SRU	: RESISTOR	RER65F2150M

PART DATA

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RESISTOR, LIMIT (215 OHM, 10 W) - AUXILIARY POWER UNIT (APU) HEATERS, LUBE OIL
LINE 1, 2, AND 3 POWER CIRCUITS**

**REFERENCE DESIGNATORS: 36V73A12R1
36V73A12R2
36V73A12R3
36V73A12R4
36V73A12R5
36V73A12R6**

**QUANTITY OF LIKE ITEMS: 6
SIX (2 PER APU)**

**FUNCTION:
TO LIMIT CURRENT TO THE APU HEATER, LUBE OIL LINES 1, 2, AND 3 CONTROL
CIRCUITS.**

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6N-2044-02**

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT (04-2)
LRU: PANEL A12
ITEM NAME: RESISTOR

REVISION# 2 01/13/94
CRITICALITY OF THIS
FAILURE MODE: 2R3

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) FAIL
 B) FAIL
 C) PASS

PASS/FAIL RATIONALE:
A)

B)
FIRST FAILURE NOT DETECTABLE IN FLIGHT SINCE THE REDUNDANT POWER SOURCE
CIRCUITS ARE STILL INTACT BUT WITH DECREASED RESISTANCE IN ONE OF THE
SOURCES.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
NO EFFECT - FIRST FAILURE. LOSS OF CONTROL BUS ISOLATION AFTER ONE OTHER
FAILURE (DIODE FAILS SHORT).

(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-2044-02**

(E) FUNCTIONAL CRITICALITY EFFECTS:

LOSS OF MISSION AFTER TWO OTHER FAILURES (DIODE SHORTS IN SAME POWER SOURCE CIRCUIT, ASSOCIATED CONTROL BUS SHORTS TO GROUND CAUSING FUSE TO OPEN CAUSING LOSS OF BOTH LUBE OIL HEATERS) WHEN BOTH LUBE OIL LINE HEATER SYSTEMS TO THE SAME APU CANNOT BE ENERGIZED. ABORT DECISION REQUIRED.

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX E, ITEM NO. 5 - RESISTOR, FIXED, POWER WIRE WOUND

(B) TEST:

REFER TO APPENDIX E, ITEM NO. 5 - RESISTOR, FIXED, POWER WIRE WOUND

GROUND TURNAROUND TEST - NO OMRSD

(C) INSPECTION:

REFER TO APPENDIX E, ITEM NO. 5 - RESISTOR, FIXED, POWER WIRE WOUND

(D) FAILURE HISTORY:

REFER TO APPENDIX E, ITEM NO. 5 - RESISTOR, FIXED, POWER WIRE WOUND

(E) OPERATIONAL USE:

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

- APPROVALS -

EDITORIALLY APPROVED
EDITORIALLY APPROVED
TECHNICAL APPROVAL

: RI
: JSC
: VIA CR

[Handwritten Signature]
[Handwritten Signature] 1/20/94
: 05-6N-2044-02 3502700