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PRINT DATE: 01/13/94

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE
NUMBER: 05-6N-2043-X**

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT

REVISION: 2 01/14/94

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL A12	V070-730385
SRU	: FUSE	ME451-0018-0100

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
FUSE (1 AMP) - AUXILIARY POWER UNIT (APU) HEATERS, LUBE OIL LINE 1, 2, AND 3
POWER CIRCUITS

REFERENCE DESIGNATORS: 36V73A12F8
36V73A12F25
36V73A12F32

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

FUNCTION:
PROVIDES OVERLOAD PROTECTION IN THE CONTROL/LOGIC CIRCUITS FOR APU LUBE
OIL LINE HEATERS.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
NUMBER: 05-6N-2043-01**

REVISION# 2 01/13/94

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT

LRU: PANEL-A12

ITEM NAME: FUSE

CRITICALITY OF THIS
FAILURE MODE: 2R3

FAILURE MODE:
FAILS OPEN, FAILS TO CONDUCT

MISSION PHASE:
OO ON-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

REDUNDANCY SCREEN A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:
A)

B)
FIRST FAILURE NOT DETECTABLE IN FLIGHT DUE TO THE PARALLEL REDUNDANCY OF
CONTROL POWER SOURCES FOR THE LUBE OIL LINE HEATER CONTROL CIRCUITS.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF REDUNDANCY, LOSS OF REDUNDANT COMMAND TO HDC TYPE 3 OR 4
CIRCUIT DRIVER.

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT - FIRST FAILURE. REDUNDANT CIRCUIT WILL OPERATE TO ENERGIZE THE
SAME HEATER.

(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-2043-01**

(E) FUNCTIONAL CRITICALITY EFFECTS:

LOSS OF MISSION AFTER ONE OTHER FAILURE (RESISTOR FAILED OPEN) WHERE BOTH LUBE OIL LINE HEATERS TO SAME APU CANNOT BE ENERGIZED. ABORT DECISION REQUIRED.

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX D, ITEM NO. 4 - FUSE, PLUG-IN TYPE

(B) TEST:

REFER TO APPENDIX D, ITEM NO. 4 - FUSE, PLUG-IN TYPE

GROUND TURNAROUND TEST - APU 1/2/3 LUBE OIL HEATER CIRCUIT TESTS PERFORMED EVERY OMDP OR AFTER CIG RETEST.

(C) INSPECTION:

REFER TO APPENDIX D, ITEM NO. 4 - FUSE, PLUG-IN TYPE

(D) FAILURE HISTORY:

REFER TO APPENDIX D, ITEM NO. 4 - FUSE, PLUG-IN TYPE

(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]
: ORB/CR 550270J 1/20/94