FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL HARDWARE
NUMBER: 05-6N-2040-X

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT
REVISION: 1 08/30/93

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL R2	V070-730277
SRU	:	FUSE	ME451-0009-1001

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
FUSE (1 AMP) - AUXILIARY POWER UNIT (APU) AUTO SHUTDOWN INHIBIT CONTROL CIRCUIT

REFERENCE DESIGNATORS: 32V73A2F44
32V73A2F45
32V73A2F93
32V73A2F97
32V73A2F98
32V73A2F100

QUANTITY OF LIKE ITEMS: 6
SIX

FUNCTION:
PROVIDES OVERCURRENT PROTECTION FOR APU AUTO SHUTDOWN INHIBIT CONTROL CIRCUIT.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE
NUMBER: 05-6N-2040-01

REVISION# 1 06/30/93

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT
LRU: PANEL R2
ITEM NAME: FUSE

CRITICALITY OF THIS FAILUREMODE: 1R3

FAILURE MODE:
FAILS OPEN, FAILS TO CONDUCT

MISSION PHASE:

PL	PRELAUNCH
LO	LIFT-OFF
DO	DE-ORBIT
LS	LANDING SAFING

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 SINCE THE OPERATIONAL STATUS OF THIS FUSE IS NOT MONITORED.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF REDUNDANCY TO INHIBIT AUTOMATIC SHUTDOWN FROM AN OVERSPEED/UNDERSPEED CONDITION.

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT - FIRST FAILURE. REDUNDANT CIRCUIT WILL PROVIDE APU AUTO SHUTDOWN INHIBIT COMMAND.

(C) MISSION:

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NO EFFECT - FIRST FAILURE. ABORT DECISION REQUIRED AFTER THREE FAILURES (LOSS OF ONE APU).

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE OTHER FAILURES (FUSE OPENS, FALSE OVERSPEED/UNDERSPEED INDICATION ON APU, LOSS OF SECOND APU) DUE TO LOSS OF TWO OF THREE APU'S.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD/CARTRIDGE

(B) TEST:
REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD/CARTRIDGE

GROUND TURNAROUND TEST - APU 1/2/3 CONTROLLER TEST THROUGH GROUND CONNECTION PERFORMED EVERY FLOW OR AFTER LRU RETEST OF APU ASSEMBLY, AFTER LRU RETEST OF CONTROLLER ASSEMBLY OR AFTER CIG RETEST.

(C) INSPECTION:
REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD/CARTRIDGE

(D) FAILURE HISTORY:
REFER TO APPENDIX D, ITEM NO. 2 - FUSE, AXIAL LEAD/CARTRIDGE

(E) OPERATIONAL USE:
NONE

- APPROVALS -

EDITORIALLY APPROVED : RI
EDITORIALLY APPROVED : JSC
TECHNICAL APPROVAL : VIA CR :S503701