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PRINT DATE: 09/01/93

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE
NUMBER: 05-6N-2034-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) START/RUN INJECTOR COOL CIRCUIT

REFERENCE DESIGNATORS: 32V73A2F21

32V73A2F22

32V73A2F23

32V73A2F24

32V73A2F55

32V73A2F56

QUANTITY OF LIKE ITEMS: 6

SIX

FUNCTION:

TO PROTECT APU START/RUN INJECTOR COOL CIRCUITS FROM OVER CURRENT.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE
NUMBER: 05-6N-2034-01**

REVISION# 1 08/30/93

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT

LRU: PANEL R2

ITEM NAME: FUSE

CRITICALITY OF THIS

FAILURE MODE: 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 DUE TO PARALLEL REDUNDANCY OF
START/RUN, INJECTOR COOL CONTROL CIRCUIT OF AN APU CONTROLLER.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF REDUNDANCY

(B) INTERFACING SUBSYSTEM(S):

LOSS OF INTERFACE REDUNDANCY - ONE OF TWO INDEPENDENT CIRCUITS FOR
START/RUN AND INJECTOR COOL COMMANDS TO AN APU CONTROLLER IS
INTERRUPTED. NO EFFECT - THE REDUNDANT CIRCUIT WILL COMPLETE THE
FUNCTION.

(C) MISSION:

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6N-2034-01**

NO EFFECT - FIRST FAILURE

(D) CREW, VEHICLE, AND ELEMENT(S):

NO EFFECT - FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF VEHICLE AND CREW AFTER TWO OTHER FAILURES (FUSE OPENS IN REDUNDANT CIRCUIT, RESULTING IN LOSS OF START/RUN COMMANDS TO AN APU CONTROLLER AND LOSS OF ONE APU, LOSS OF SECOND APU) DUE TO LOSS OF TWO OF THREE APUS.

-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
EDITORIALLY APPROVED
TECHNICAL APPROVAL

: RI
: JSC
: VIA CR

Handwritten signature and date:
9/4/93
S602/01