FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL HARDWARE
NUMBER: 05-6N-2073 -X

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT (04-2)
REVISION: 2 01/13/94

PART DATA

	PART NAME **VENDOR NAME**	**PART NUMBER** **VENDOR NUMBER**
LRU	: AFT LCA 1	MC450-0057-0001
LRU	: AFT LCA 2	MC450-0058-0001
LRU	: AFT LCA 3	MC450-0059-0001
SRU	: CONTROLLER, HYBRID DRIVER	MC477-0263-0002

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CONTROLLER, HYBRID DRIVER, HDC TYPE 3 - AUXILIARY POWER UNIT (APU) HEATERS, GAS GENERATOR 1, 2, AND 3 POWER CIRCUITS

REFERENCE DESIGNATORS:
54V76A121AR(J10-I)
54V76A121AR(J10-AA)
55V76A122AR(J10-I)
55V76A122AR(J10-AA)
56V76A123AR(J10-I)
56V76A123AR(J10-AA)

QUANTITY OF LIKE ITEMS: 6
SIX

FUNCTION:
CONDUCTS POWER TO APU 1, 2, AND 3 GAS GENERATOR HEATERS.

FAILURE MODES EFFECTS ANALYSIS FMEA – NON-CIL FAILURE MODE
NUMBER: 05-6N-2073- 02

REVISION#: 03 08/01/96

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT (04-2)
LRU: AFT LCA 1, 2, 3 **CRITICALITY OF THIS**
ITEM NAME: CONTROLLER, HYBRID DRIVER **FAILURE MODE:** 1R3

FAILURE MODE:
INADVERTENT OUTPUT, FAILS "ON", FAILS TO TURN "OFF"

MISSION PHASE:
PL PRE-LAUNCH
LO LIFT-OFF
DO DE-ORBIT
LS LANDING/SAFING

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

CAUSE:
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN
A) PASS
B) N/A
C) PASS

PASS/FAIL RATIONALE:
A)

B)
"DRIVER IS 2-FAULT TOLERANT WITH 2 REMAINING LEGS VERIFIABLE IN FLIGHT. INJECTOR COOLING OPERABILITY IS VERIFIABLE IN FLIGHT (THOUGH NOT PERFORMED). STATUS OF REMAINING APUS IS VERIFIABLE IN FLIGHT."

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

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

(C) MISSION:
NO EFFECT - FIRST FAILURE

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE OTHER FAILURES (HDC-4 FAILED ON, INJECTOR COOLING FAILED, LOSS OF SECOND APU) DUE TO LOSS OF TWO OF THREE APU'S.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

(B) TEST:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

GROUND TURNAROUND TEST APU 1/2/3 FUEL PUMP AND GAS GENERATOR HEATER CIRCUIT TESTS PERFORMED EVERY OMDP.

(C) INSPECTION:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

(D) FAILURE HISTORY:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

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(E) OPERATIONAL USE:
NONE

- APPROVALS -

EDITORIALLY APPROVED	: RI	: James E. Jones 8/27/96
EDITORIALLY APPROVED	: JSC	: Sam Searcy 8-27-96
TECHNICAL APPROVAL	: VIA JSC	: 96-CIL-010