**FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL HARDWARE**
**NUMBER: 05-6N-2035-X**

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

| | | PART NAME<br>VENDOR NAME | PART NUMBER<br>VENDOR NUMBER |
|---|---|---|---|
| LRU | : | PANEL R2 | V070-730277 |
| SRU | : | SWITCH, TOGGLE | ME452-0102-7253 |

**PART DATA**

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**
SWITCH, TOGGLE, 2 POLE 3 POSITION - AUXILIARY POWER UNIT (APU) START INJECTOR COOL CONTROL CIRCUIT

**REFERENCE DESIGNATORS:** 32V73A2S16
32V73A2S17
32V73A2S18

**QUANTITY OF LIKE ITEMS:** 3
THREE

**FUNCTION:**
PROVIDES START/RUN, INJECTOR COOL COMMAND TO APU CONTROLLER.

**FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE**
**NUMBER: 05-6N-2035-01**

**REVISION#** 1 08/30/93

**SUBSYSTEM NAME:** EPD&C - AUXILIARY POWER UNIT
**LRU:** PANEL R2
**ITEM NAME:** SWITCH, TOGGLE

**CRITICALITY OF THIS FAILURE MODE:** 1R2

**FAILURE MODE:**
FAILS OPEN, SHORT-TO-CASE (GROUND)

**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:**
PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

**CRITICALITY 1/1 DURING INTACT ABORT ONLY?** NO

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**REDUNDANCY SCREEN**
**A)** PASS
**B)** PASS
**C)** PASS

**PASS/FAIL RATIONALE:**
**A)**

**B)**

**C)**

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**- FAILURE EFFECTS -**

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**(A) SUBSYSTEM:**
LOSS OF APU START/RUN AND INJECTOR COOL COMMAND

**(B) INTERFACING SUBSYSTEM(S):**
LOSS OF APU

**(C) MISSION:**
ABORT DECISION REQUIRED - LOSS OF ONE OF THREE APU'S

**(D) CREW, VEHICLE, AND ELEMENT(S):**
NO EFFECT ON LOSS OF FIRST APU

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE**
**NUMBER: 05-6N-2035-01**

**(E) FUNCTIONAL CRITICALITY EFFECTS:**
POSSIBLE LOSS OF CREW/VEHICLE AFTER LOSS OF SECOND APU.

**-DISPOSITION RATIONALE-**

**(A) DESIGN:**
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

**(B) TEST:**
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

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 A, ITEM NO. 1 - TOGGLE SWITCH

**(D) FAILURE HISTORY:**
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

**(E) OPERATIONAL USE:**
REMAINING APU'S COMMANDED TO HIGH SPEED AND AUTOMATIC SHUTDOWN IS INHIBITED TO PROTECT AGAINST NEXT FAILURE.

**- APPROVALS -**

EDITORIALLY APPROVED : RI
EDITORIALLY APPROVED : JSC
TECHNICAL APPROVAL : VIA CR :S50270L