FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL HARDWARE
NUMBER: 05-6N-2042-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	:	SWITCH, TOGGLE	ME452-0102-7301

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, TOGGLE, 3 POLE 2 POSITION - AUXILIARY POWER UNIT (APU) AUTO SHUTODWN INHIBIT CONTROL CIRCUIT

REFERENCE DESIGNATORS: 32V73A2S22
32V73A2S60
32V73A2S61

QUANTITY OF LIKE ITEMS: 3
THREE

FUNCTION:
PROVIDES INHIBIT/ENABLE COMMAND SELECTION FOR APU AUTO SHUTDOWN INHIBIT CONTROL CIRCUIT

PRINT DATE: 09/01/93

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE
NUMBER: 05-6N-2042-01

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

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

CRITICALITY OF THIS FAILURE MODE: 1R3

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

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

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 SWITCH IS NOT MONITORED WITH SWITCH SCANS.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
INABILITY TO PROVIDE POWER TO APU AUTO SHUTDOWN INHIBIT CONTROL CIRCUIT.

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT - FIRST FAILURE. LOSS OF ABILITY TO OVERRIDE OVERSPEED/ UNDERSPEED PROTECTION ON APU AFTER TWO FAILURES.

(C) MISSION:
NO EFFECT - ABORT DECISION REQUIRED AFTER TWO FAILURES DUE TO LOSS OF ONE APU.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE NUMBER: 05-6N-2042-01

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF VEHICLE AND CREW AFTER TWO OTHER FAILURES (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 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:
NONE

- APPROVALS -

EDITORIALLY APPROVED	: RI	: 09/01/93
EDITORIALLY APPROVED	: JSC	: 9/7/93
TECHNICAL APPROVAL	: VIA CR	:SSQ/70L