FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL HARDWARE
NUMBER: 05-6N-2079-X

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT
REVISION: 2 08/30/93

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	MODULAR ASSEMBLY	V070-765455
SRU	:	DIODE	JANTXV1N5551

PART DATA

EXTENDED DESCRIPTION OF ITEM UNDER ANALYSIS:
DIODE, 3 AMP - AUXILIARY POWER UNIT (APU) 1, 2, AND 3 LATCHING PATH FOR THE FUEL ISOLATION VALVE CIRCUIT

REFERENCE DESIGNATORS: 54V76A226R1
54V76A226R2
55V76A227R1
55V76A227R2
56V76A228R1
56V76A228R2

QUANTITY OF LIKE ITEM: 6
TWO PER APU

FUNCTION:
PROVIDES ISOLATION AND CONDUCTS THE SIGNAL TO LATCH ON TO EITHER THE OVERSPEED OR UNDERSPEED SIGNAL FROM THE APU CONTROLLER.

PRINT DATE: 09/02/93

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE
NUMBER: 05-6N-2079-01

REVISION# 2 08/30/93

SUBSYSTEM NAME: EPD&C - AUXILIARY POWER UNIT
LRU: MODULAR ASSEMBLY
ITEM NAME: DIODE

CRITICALITY OF THIS FAILURE MODE: 1R2

FAILURE MODE:
OPEN, FAILS TO CONDUCT

MISSION PHASE:
PL PRELAUNCH
LO LIFT-OFF
OO ON-ORBIT
DO DE-ORBIT
LS LANDING SAFING

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

CAUSE:
STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY.

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN
A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:
A)

B)
REDUNDANCY SCREEN "B" FAILS IN FLIGHT BECAUSE THE FAILED OPEN DIODE CANNOT BE DETECTED UNTIL AN OVERSPEED/UNDERSPEED CONDITION EXISTS AND LATCHING DID NOT OCCUR UPON A SIGNAL FROM THE CONTROLLER.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF ABILITY OF THE CIRCUIT TO LATCH ON TO EITHER THE OVERSPEED OR UNDERSPEED SIGNAL FROM THE APU CONTROLLER.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CRITICAL FAILURE MODE
NUMBER: 05-6N-2079-01

(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 ONE OTHER FAILURE (EXTERNAL LEAKAGE OF FUEL BETWEEN THE FUEL ISOLATION VALVE AND THE GGVM) DUE TO ADDITIONAL HAZARDOUS FUEL LEAKING INTO THE AFT FUSELAGE WHEN THE CREW STARTS THE NORMAL APU SAFING PROCEDURE.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(B) TEST:
REFER TO APPENDIX F, ITEM NO. 4 - DIODE

OMRSD: ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(D) FAILURE HISTORY:
REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(E) OPERATIONAL USE:
NONE

- APPROVALS -

EDITORIALLY APPROVED	: RI	:
EDITORIALLY APPROVED	: JSC	: 9/7/93
TECHNICAL APPROVAL	: VIA CR	:SS0270AF