

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
 NUMBER: M5-6MB-2261-G-X

SUBSYSTEM NAME: ELECTRICAL POWER GENERATION - CRYO, GENERIC
 REVISION : 9 09/09/92

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: MID PCA 1	V070-764400
LRU	: MID PCA 2	V070-764430
SRU	: DIODE	JANTXVIN4246

- PART DATA -

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

DIODE, ISOLATION, 1 AMP - O2 MANIFOLD 1 AND 2 ISOLATION VALVES - OPE
 POSITION

REFERENCE DESIGNATORS: 40V76A25A1CR15
 : 40V76A25A1CR17
 : 40V76A26A1CR16
 : 40V76A26A1CR18

QUANTITY OF LIKE ITEMS: 4
 FOUR, TWO PER O2 MANIFOLD VALVE CIRCUIT

FUNCTION:

PROVIDES CIRCUIT ISOLATION FROM GROUND INITIATED COMMANDS AND CONDUCTS CRI
 INITIATED COMMANDS CONTROLLING OPENING OF THE O2 MANIFOLD 1 AND 2 ISOLATIO
 VALVES.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
 NUMBER: M5-6MB-2261-G-01

SUBSYSTEM: ELECTRICAL POWER GENERATION - CRYO, GENERIC
 LRU MID PCA 1
 ITEM NAME: DIODE

REVISION# 9 09/09/92
 CRITICALITY OF THIS
 FAILURE MODE: 2/2

FAILURE MODE:
 OPEN, FAILS TO CONDUCT

MISSION PHASE:
 OO ON-ORBIT

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) N/A
 B) N/A
 C) N/A

PASS/FAIL RATIONALE:

A)
 B)
 C)

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
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- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF ABILITY TO CONDUCT THE O2 MANIFOLD VALVE "OPEN" SWITCH COMMAND.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF ABILITY TO MANUALLY OPEN THE O2 MANIFOLD VALVE WITH THE PANEL SWITC

(C) MISSION:

POSSIBLE LOSS OF MISSION DUE TO ASSOCIATED MANIFOLD VALVE FAILING CLOS
RESULTING IN ONE TANK BEING ISOLATED TO A SINGLE FUEL CELL. MISSI
TERMINATED WHEN THE OXYGEN IN THAT TANK IS CONSUMED.

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

NO EFFECT - FIRST FAILURE

- DISPOSITION RATIONALE -

(A) DESIGN:

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

(B) TEST:

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

DIODE IS FUNCTIONALLY VERIFIED IN FLIGHT. PERFORM GROUND TURNAROUND TE
WHEN VALID VERIFICATION IS UNOBTAINABLE IN FLIGHT OR AFTER LRU REPLACEME

(C) INSPECTION:

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

(D) FAILURE HISTORY:

REFER TO APPENDIX F, ITEM NO. 3 - DIODE

(E) OPERATIONAL USE:

| . CREW WILL REMOVE ASSOCIATED TANK FROM PAIRED HEATER OPERATION

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- APPROVALS -

PRODUCT ASSURANCE MGR	:	T. J. EAVENSON	:	<u>T.J. Eavenson</u> 9/14/92
PRODUCT ASSURANCE ENG	:	T. K. KIMURA	:	<u>T.K. Kimura</u> 9/14/92
DESIGN ENG TEAM LEADER	:	G. M. ANDERSON	:	<u>G.M. Anderson</u> 9/15/92
DESIGN ENGINEERING	:	T. D. NGUYEN	:	<u>T.D. Nguyen</u> 9/15/92
NASA RELIABILITY	:		:	<u>W.H. [unclear]</u> 12/16/92
NASA SUBSYSTEM MANAGER	:		:	<u>Robert D. [unclear]</u> 12/16/92
NASA EPD&C RELIABILITY	:		:	<u>David Casper For J. Woodward</u> 12/14/92
NASA QUALITY ASSURANCE	:		:	<u>HP KO [unclear]</u> 10/2/92
NASA EPD&C SUBSYS MGR	:		:	<u>[unclear]</u> 14/16/92