FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE
NUMBER: 05-6BA-2580 -X

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL
REVISION: 0 06/26/00

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: FWD PCA 1	VO70-763320
SRU	: DIODE	JANTX1N1204RA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
DIODE, BLOCKING (12 AMP)

REFERENCE DESIGNATORS: 81V76A22CR42

QUANTITY OF LIKE ITEMS: 1
ONE, FPCA 1

FUNCTION:
ISOLATES GROUND DC BUS FROM ORBITER MAIN DC BUS DURING GROUND EXTENSION OF THE LANDING GEARS.

FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE

NUMBER: 05-6BA-2580-02

REVISION#: 0 06/27/00

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL
LRU: FWD PCA 1
ITEM NAME: DIODE

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
SHORT (END TO END)

MISSION PHASE: LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:
MECHANICAL STRESS, VIBRATION, THERMAL STRESS, ELECTRICAL STRESS, STRUCTURAL FAILURE, CONTAMINATION, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:
A)

B)
FAILS "B" SCREEN BECAUSE DIODE FAILURE IS NOT FLIGHT DETECTABLE.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
FIRST FAILURE – LOSS OF DIODE ISOLATION CAPABILITY. NO EFFECT- GSE TEST CONNECTION IS NOT USED IN FLIGHT.

(B) INTERFACING SUBSYSTEM(S):
FIRST FAILURE –LOSS OF DIODE ISOLATION CAPABILITY. NO EFFECT- GSE TEST CONNECTION IS NOT USED IN FLIGHT. .

(C) MISSION:
NO EFFECT.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE DUE TO THE FOLLOWING SCENARIO:
1.) DIODE SHORT (END-TO-END).
2.) SAME DIODE, SHORT TO STRUCTURE (GROUND). LOSS OF CAPABILITY TO DEPLOY LANDING GEAR HYDRAULICALLY.
3.) LOSS OF PYRO BACKUP TO EXTEND LANDING GEARS.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX F, ITEM NO. 2 - DIODE

(B) TEST:
REFER TO APPENDIX F, ITEM NO. 2 - DIODE

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX F, ITEM NO. 2 - DIODE

(D) FAILURE HISTORY:
REFER TO APPENDIX F, ITEM NO. 2 - DIODE

CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

(E) OPERATIONAL USE:
NONE

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- APPROVALS -

S & R ENGINEERING	: M. D. DUMETZ / G. T. TATE	:
S & R ENGINEERING ITM	: P. A. STENGER	:
DESIGN ENGINEERING	: J. L. PECK	:
EPD&C SUBSYSTEM MANAGER	: R. L. PHAN	:
SR&QA	:	:
NASA DCE	:	:
MOD	:	:
USA SAM	:	:
USA ORBITER ELEMENT	:	:

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