

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	PART NUMBER
	VENDOR NAME	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-2580-03

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

REVISION#: 0 08/28/00

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:
SHORT TO STRUCTURE (GROUND)

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 –NO EFFECT. DIODE ISOLATION CAPABILITY STILL INTACT TO ISOLATE LANDING GEAR DOWN COMMAND SIGNAL FROM STRUCTURE (GROUND).

(B) INTERFACING SUBSYSTEM(S):
FIRST FAILURE – NO EFFECT.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL FAILURE MODE
NUMBER: 05-6BA-2580- 03

(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 TO STRUCTURE.
2.) DIODE SHORT END-TO-END. 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

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL FAILURE MODE
 NUMBER: 05-6BA-2580-03

- APPROVALS -

S & R ENGINEERING	:	M. D. DUMETZ / G. T. TATE	:	<i>M. Dumetz 6/24/00</i>
S & R ENGINEERING ITM	:	P. A. STENGER	:	<i>P. Stenger 6/24/00</i>
DESIGN ENGINEERING	:	J. L. PECK	:	<i>J. L. Peck 6/29/00</i>
EPD&C SUBSYSTEM MANAGER	:	R. L. PHAN	:	<i>R. L. Phan 6/29/00</i>
SR&QA	:		:	<i>Thompson 7/5/00</i>
NASA DCE	:		:	<i>John Thompson 6/30/00</i>
MOD	:		:	<i>Steve Elser 6/30/00</i>
USA SAM	:		:	
USA ORBITER ELEMENT	:		:	<i>Elizabeth Little 6/30/00</i>

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CH. FAILURE MODE

NUMBER: 05-6RA-2580-03

- APPROVALS -

S & R ENGINEERING	:	M. D. DUMETZ / G. T. YATE:	<i>[Signature]</i> 6/11/00
S & R ENGINEERING ITM	:	P. A. STENGER	<i>[Signature]</i> 6/12/00
DESIGN ENGINEERING	:	J. L. PECK	<i>[Signature]</i> 6/29/00
EP&D SUBSYSTEM MANAGER:	:	R. L. PHAN	<i>[Signature]</i> 6/29/00
SR&QA	:		
NASA DCE	:		
MOD	:		
USA SAM	:		
USA ORBITER ELEMENT	:		

[Signature] 6/30/00
[Signature] 7/6/00
[Signature] 6/30/00