

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE

NUMBER: 05-6BA-2205-IM -X

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

REVISION: 6

03/30/92

PART DATA

| | PART NAME | PART NUMBER |
|-----|--------------------|----------------------|
| | VENDOR NAME | VENDOR NUMBER |
| LRU | : FWD PCA 1 | V070-763320 |
| SRU | : DIODE | JANTXV1N5551 |

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

DIODE, TRANSIENT SUPPRESSION, LANDING GEAR CONTROL VALVE

REFERENCE DESIGNATORS: 81V76A22A1CR13
81V76A22A1CR14

QUANTITY OF LIKE ITEMS: 2
TWO PER FPCA-1

FUNCTION:

PROVIDES TRANSIENT SUPPRESSION TO SOLENOID COILS OF LANDING GEAR CONTROL VALVE FOR LANDING GEAR EXTENSION AND NOSE WHEEL STEERING 1 (NWS1).

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-6BA-2205-IM-02

REVISION#: 7 07/01/99

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

LRU: FWD PCA 1

CRITICALITY OF THIS

ITEM NAME: DIODE

FAILURE MODE: 1R3

FAILURE MODE:

SHORT (END TO END)

MISSION PHASE: DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

| | |
|-----|-----------|
| 102 | COLUMBIA |
| 103 | DISCOVERY |
| 104 | ATLANTIS |
| 105 | ENDEAVOUR |

CAUSE:

**STRUCTURAL FAILURE (MECHANICAL STRESS, VIBRATION), CONTAMINATION,
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)

**FAILS "B" SCREEN BECAUSE DIODE SHORTS (END TO END) IS NOT MONITORED, AND
THERE IS NO DEGRADATION FROM NORMAL FUNCTION FOR THE FIRST FAILURE.**

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

FIRST FAILURE - NO EFFECT

(B) INTERFACING SUBSYSTEM(S):

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FIRST FAILURE - NO EFFECT

(C) MISSION:

FIRST FAILURE - NO EFFECT

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

FIRST FAILURE - NO EFFECT

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO EXTEND LANDING GEARS. REQUIRES TWO ADDITIONAL FAILURES (SERIAL DIODE SHORTS END-TO-END, AND LOSS OF BACKUP PYRO UPLOCK RELEASE) BEFORE EFFECT IS MANIFESTED.

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(B) TEST:

REFER TO APPENDIX F, ITEM NO. 4 - DIODE

GROUND TURNAROUND TEST

NONE

(C) INSPECTION:

REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(D) FAILURE HISTORY:

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:

CORRECTIVE ACTION IN THE EVENT OF A FAILURE IS NONE

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- APPROVALS -

EDITORIALLY APPROVED

: BNA

: J. Kamura 7/6/99

TECHNICAL APPROVAL

: VIA APPROVAL FORM

: 96-CIL-011_05-6BA(2)