

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
 NUMBER:05-50-200301 -X

SUBSYSTEM NAME: EPD&C-GUIDANCE, NAVIGATION, & CONTROL (05-1)
 REVISION: 1 01/22/98

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:MID PCA 3	V070-764450
LRU	:AFT PCA 1	V070-765200
LRU	:AFT PCA 1	V070-765310
SRU	:DIODE	JANTX1N1204RA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
 DIODE 12 AMP

REFERENCE DESIGNATORS: 40V76A27A2CR7
 40V76A27A2CR8
 54V76A131A2CR15
 54V76A131A2CR16

QUANTITY OF LIKE ITEMS: 4
 TWO PER ASSY.

FUNCTION:
 PERMITS CONDUCTION OF ELECTRICAL CURRENT AND PROVIDES MAIN BUS
 ISOLATION FROM MAIN BUS A, B, & C THROUGH RPC'S TO THE ORBITER RGA'S 1 AND 4
 POWER SUPPLY.

FAILURE MODES EFFECTS ANALYSIS FMEA – NON-CIL FAILURE MODE

NUMBER: 05-60-200301-01

REVISION#: 2 06/20/97

SUBSYSTEM NAME: EPD&C-GUIDANCE, NAVIGATION, & CONTROL (05-1)

LRU: MID PCA 3, AFT PCA 1

**CRITICALITY OF THIS
FAILURE MODE: 1R3**

ITEM NAME: DIODE

FAILURE MODE:

OPEN, FAILS TO CONDUCT

MISSION PHASE:

**LO LIFT-OFF
DO DE-ORBIT**

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

**102 COLUMBIA
103 DISCOVERY
104 ATLANTIS
105 ENDEAVOUR**

CAUSE:

**MECHANICAL STRESS, VIBRATION, THERMAL STRESS, ELECTRICAL STRESS,
PROCESSING ANOMALY.**

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

**A) PASS
B) N/A
C) PASS**

PASS/FAIL RATIONALE:

A)

B)

**B SCREEN NOT APPLICABLE DUE TO POWER PATH REDUNDANCY TO THE RGA. LOSS
OF ANY OF THE FOUR RGA'S IS READILY APPARENT DURING FLIGHT USE.**

C)

CORRECTING ACTION: NONE

CORRECTING ACTION DESCRIPTION:

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- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF REDUNDANT POWER TO ONE RGA.

(B) INTERFACING SUBSYSTEM(S):

NO EFFECT. RGA STILL HAS REDUNDANT POWER PATH.

(C) MISSION:

NO EFFECT.

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

NO EFFECT, FIRST FAILURE. FOR THE SECOND FAILURE (LOSS OF ASSOCIATED BUS CAUSING LOSS OF TWO OF FOUR RGA'S), REDUNDANCY MANAGEMENT (RM) WILL IDENTIFY AND RECONFIGURE AS REQUIRED. THE THIRD FAILURE (LOSS OF A THIRD RGA) RESULTS IN BAD SELECTED RATE FEEDBACK DATA, CAUSING LOSS OF VEHICLE.

(E) FUNCTIONAL CRITICALITY EFFECTS:

CRITICALITY 1R BECAUSE OF POSSIBLE LOSS OF CREW/VEHICLE DUE TO LOSS OF VEHICLE CONTROL CAUSED BY BAD SELECTED RGA RATE FEEDBACK DATA.

- APPROVALS -

EDITORIALLY APPROVED
EDITORIALLY APPROVED
TECHNICAL APPROVAL

: RI
: JSC
: APPROVAL FORM

: *Robert Stell* 6/25/97
: *A. J. Jancy 9-9-97*
: 96-CIL-022/05-60