

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE
NUMBER: 05-6VF-2253 -X

SUBSYSTEM NAME: EPD&C - LIFE SUPPORT: SMOKE & FIRE (06-2)
REVISION: 1 11/10/87

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: FWD LCA 1	MC450-0054-0001
LRU	: FWD LCA 1	MC450-0054-0002
LRU	: FWD LCA 2	MC450-0055-0001
LRU	: FWD LCA 2	MC450-0055-0002
LRU	: FWD LCA 3	MC450-0056-0001
LRU	: FWD LCA 3	MC450-0056-0002
SRU	: DIODE	JANTXV1N5551

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
DIODE, ISOLATION (3 AMP), FIRE SUPPR "ARM" CMD, PRE-FLIGHT

REFERENCE DESIGNATORS: 81V76A16A28CR8
82V76A17A28CR12
83V76A18A28CR8

QUANTITY OF LIKE ITEMS: 3
ONE PER FLCA-1,2,3

FUNCTION:
PROVIDES CIRCUIT ISOLATION FOR THE REMOTE 'ARM' CIRCUIT FROM THE ON-BOARD ARM CIRCUIT FOR THE FIRE SUPPRESSANT PYROTECHNIC INITIATOR CONTROLLER (PIC).

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NUMBER: 05-6VF-2253-X

- APPROVALS -

PAE MANAGER : K. L. PRESTON
PRODUCT ASSURANCE ENGR : T. K. KIMURA
DESIGN ENGINEERING : D. D. SOVEREIGN
BNA SSM : R. L. PHAN

K.L. Preston 1-23-98
T. Kimura 1-22-98
D. D. Sovereign
R. Phan

SHUTTLE CRITICAL ITEMS LIST - ORBITER

UBSYSTEM : EPD&C - SMK DET/FIRE SUP FMEA NO 05-6VF-2253 -2 REV:03/08/88

ASSEMBLY : FLCA-1,2,3	CRIT. FUNC: 1R
P/N RI : JANTXV1N5551	CRIT. HDW: 2
P/N VENDOR:	VEHICLE 102 103 104
QUANTITY : 3	EFFECTIVITY: X X X
: ONE PER FLCA-1,2,3	PHASE(S): PL LO X OO DO X LS

REDUNDANCY SCREEN: A-FAIL B-N/A C-PASS

PREPARED BY:	APPROVED BY:	APPROVED BY (NASA):
DES <i>JWB</i> J BROWN	DES <i>R.V. Burns</i>	SSM <i>W. K. ... 3/21/88</i>
REL M HOVE	REL <i>Michael G. ... 3-5-88</i>	REL <i>John ... 7/1/88</i>
QE J COURSEN	QE <i>...</i>	QE <i>...</i>

ITEM: DIODE, ISOLATION (3 AMP), FIRE SUPPR "ARM" CMD, PRE-FLIGHT

FUNCTION: PROVIDES CIRCUIT ISOLATION FOR THE REMOTE 'ARM' CIRCUIT FROM THE ON-BOARD ARM CIRCUIT FOR THE FIRE SUPPRESSANT PYROTECHNIC INITIATOR CONTROLLER (PIC). 82V73A16 CR, 82V73A17 CR, 83V73A18 CR.

FAILURE MODE: SHORT (END-TO-END)

CAUSE(S): STRUCTURAL FAILURE, ELECTRICAL STRESS, THERMAL STRESS, PROCESSING ANOMALY, CONTAMINATION

EFFECT(S) ON:

- (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE
- (A) LOSS OF ISOLATION BETWEEN ONBOARD AND GROUND "ARM" COMMAND CIRCUITS
- (B) AN ONBOARD "ARM" COMMAND WOULD SUPPLY POWER THROUGH THE FAILED DIODE TO THE PREFLIGHT BUS FOR THE DURATION OF THE "ARM" COMMAND.
- (C,D) NO EFFECT FIRST FAILURE.
- (E) FUNCTIONAL CRITICALITY EFFECT - POSSIBLE LOSS OF CREW/VEHICLE. FAILURE OF THE REMOTE "FIRE" DRIVER (SHORTED) IN CONJUNCTION WITH THIS FAILURE WOULD PREVENT FIRING THE PIC IN THE CASE OF A FIRE. SCREEN A FAILS BECAUSE SHORTED DIODE CANNOT BE DETECTED DURING GROUND TEST. SCREEN B IS 'N/A' BECAUSE GROUND ARM CIRCUIT IS IN STANDBY.

DISPOSITION & RATIONALE: (A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) DISPOSITION AND RATIONALE REFER TO APPENDIX F, ITEM NO. 4 - DIODE

(B) GROUND TURNAROUND TEST NONE.

(E) OPERATIONAL USE NONE.