

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER: 05-6-2620 -X

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL

REVISION: 1 07/26/99

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: PANEL R13A2	V070-730338
SRU	: FUSE	ME451-0018-0100

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

FUSE, 1 AMP, SUBMINIATURE PLUG-IN TYPE - PAYLOAD BAY MECHANICAL POWER CONTROL CIRCUIT

REFERENCE DESIGNATORS: 32V73A13A2F5
 32V73A13A2F6
 32V73A13A2F27
 32V73A13A2F28

QUANTITY OF LIKE ITEMS: 4
 FOUR

FUNCTION:

PROVIDES CIRCUIT PROTECTION FOR CONTROL BUSES BC1 AND BC2 FOR THE CONTROL OF PAYLOAD BAY MECHANICAL (PLBM) POWER BUS AC2 IN MID MCA'S 2, 3 AND 4. FUNCTIONS POWERED BY P/L BAY MECHANICAL BUS AC2 INCLUDE P/L RETENTION LATCHES, FREON RADIATOR LATCHES, REMOTE MANIPULATOR SYSTEM (RMS) DEPLOY AND LATCH AND KU-BAND ANTENNA DEPLOY.

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SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL
 LRU: PANEL R13A2
 ITEM NAME: FUSE

CRITICALITY OF THIS
 FAILURE MODE: 1R3

FAILURE MODE:
 FAILS OPEN

MISSION PHASE: OO ON-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
 103 DISCOVERY
 104 ATLANTIS
 105 ENDEAVOUR

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
 B) PASS
 C) PASS

PASS/FAIL RATIONALE:
 A)

B)
 PASSES "B" SCREEN BECAUSE FAILURE CAN BE DETECTED WHEN USE OF THE PAYLOAD
 BAY MECHANICAL BUS IS REQUIRED.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
 LOSS OF PLBM AC2 POWER TO ONE OR TWO MCA'S.

(B) INTERFACING SUBSYSTEM(S):
 DISABLES ONE OF TWO SERIES RELAYS FOR PLBM AC2 IN MID MCA'S 3 AND 4 OR MID
 MCA 2.

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(C) MISSION:
POSSIBLE EARLY MISSION TERMINATION.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REDUNDANT PLBM AC BUS OR REDUNDANT MOTOR) DUE TO THE INABILITY TO SAFELY LATCH/RELEASE PAYLOADS. KU-BAND ANTENNA DEPLOY/STOW AND RMS DEPLOY AND LATCH ARE CRIT 1R3 BASED UPON JETTISON CAPABILITIES.

DESIGN CRITICALITY (PRIOR TO DOWNGRADE, DESCRIBED IN (F)):

(F) RATIONALE FOR CRITICALITY DOWNGRADE:
THE DESIGN CRITICALITY OF 1R2 HAS BEEN DOWNGRADED TO 1R3 AFTER WORKAROUNDS CONSIDERATION (ALLOWED PER CR 5050107W) BECAUSE AFTER THE SECOND FAILURE, EVA CAN BE PERFORMED TO MANUALLY LATCH/RELEASE THE PAYLOAD LATCHES.

- APPROVALS -

EDITORIALLY APPROVED : BNA : J. Kimura 7-26-89
TECHNICAL APPROVAL : VIA APPROVAL FORM : 96-CIL-025_05-6