

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER: 05-6-2280 -X

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL

REVISION: 1 07/26/99

PART DATA

PART NAME	PART NUMBER
VENDOR NAME	VENDOR NUMBER
LRU : MDCA 1	V070-764200
LRU : MDCA 2	V070-764220
LRU : MDCA 3	V070-764230
SRU : FUSE	ME451-0009-1006

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

FUSE, 15 AMP, CARTRIDGE TYPE - MAIN DC BUSES TO PANELS A14 AND A6

REFERENCE DESIGNATORS: 40V76A31F22
 40V76A32F22
 40V76A33F22

QUANTITY OF LIKE ITEMS: 3
 THREE-ONE PER EACH MDCA

FUNCTION:

PROVIDES CIRCUIT PROTECTION FOR FEEDER CIRCUITS FROM MAIN BUS A, B, C TO PANEL A14 AND MAIN BUS A AND B TO PANEL A6 THRU SEPARATE CABLES AND CONNECTORS.

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE
NUMBER: 05-6-2280-01

REVISION#: 1 07/26/99

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL
LRU: MDCA 1, 2, 3
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, MECHANICAL SHOCK, VIBRATION, CONTAMINATION, THERMAL STRESS, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

- A) PASS
- B) PASS
- C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF REDUNDANCY

(B) INTERFACING SUBSYSTEM(S):

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LOSS OF INTERFACE REDUNDANCY TO RCS/OMS HEATER CIRCUITS FOR FORWARD RCS JETS 1 THRU 5 AND PAYLOAD LATCH FUNCTION. NO EFFECT - OTHER BUS CIRCUITS AVAILABLE TO POWER HEATERS FOR REDUNDANT JETS.

(C) MISSION:
POSSIBLE LOSS OF MISSION OBJECTIVES

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO COMPLETE RELEASE OF A PARTIALLY-DEPLOYED OR OVERWEIGHT PAYLOAD AFTER THE FAILURE OF BOTH 40V76A31F22 AND 40V76A32F22. LOSS OF FORWARD RCS HEATERS IS FUNCTIONAL CRITICALITY 2R.

DESIGN CRITICALITY (PRIOR TO DOWNGRADE, DESCRIBED IN (F)): 1R2

(F) RATIONALE FOR CRITICALITY DOWNGRADE:
THE DESIGN CRITICALITY OF 1R2 HAS BEEN DOWNGRADED TO 1R3 AFTER WORKAROUNDS CONSIDERATION (ALLOWED PER CR S050107W) BECAUSE EVA CAN BE USED TO MANUALLY DRIVE THE PAYLOAD RETENTION LATCH ACTUATORS OPEN OR CLOSED TO PROVIDE THE THIRD SUCCESS PATH IN EVENT OF LOSS OF BOTH FUSES.

- APPROVALS -

EDITORIALLY APPROVED	: BNA	: <i>J. Kimura 7-26-99</i>
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-025_05-6