

**FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL HARDWARE
NUMBER: 05-6-2265 -X**

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL

REVISION: 1 07/26/99

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: PANEL O13	V070-730393
SRU	: CIRCUIT BREAKER	MC454-0026-2030

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
BREAKER, CIRCUIT, 3 AMP - AC BUS 1, 2 AND 3 SENSOR CONTROL

REFERENCE DESIGNATORS: 33V73A13CB3
33V73A13CB11
33V73A13CB17

QUANTITY OF LIKE ITEMS: 3
THREE, ONE PER EACH SENSOR CIRCUIT

FUNCTION:
PROVIDES CIRCUIT PROTECTION TO ESSENTIAL BUSES FROM AC SENSOR CONTROL CIRCUIT.

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE

NUMBER: 05-6-2265-02

REVISION#: 1 07/26/99

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL

LRU: PANEL 013

CRITICALITY OF THIS

ITEM NAME: CIRCUIT BREAKER

FAILURE MODE: 1R3

FAILURE MODE:

FAILS CLOSED, FAILS TO OPEN (MECHANICALLY)

MISSION PHASE: OO ON-ORBIT
 DO DE-ORBIT

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

CAUSE:STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK,
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 IS "N/A" BECAUSE FAILURE OF AT LEAST TWO REMAINING PATHS IS READILY
DETECTABLE IN FLIGHT.

C)

- FAILURE EFFECTS -**(A) SUBSYSTEM:**

LOSS OF ABILITY TO REMOVE POWER TO AC SENSOR "AUTO/OFF/MONITOR" SWITCH

**FAILURE MODES EFFECTS ANALYSIS (FMEA) – NON-CIL FAILURE MODE
NUMBER: 05-6-2266- 02**

(B) INTERFACING SUBSYSTEM(S):
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 AFTER FOURTH FAILURE VIA THE FOLLOWING
SCENARIO:

- (1) CIRCUIT BREAKER FAILED CLOSED.
- (2) AC SENSOR SWITCH FAILED CLOSED IN "AUTO" POSITION.
- (3) FAULT ON ONE PHASE OF THE ASSOCIATED AC BUS RESULTING IN LOSS OF THAT AC BUS DUE TO INABILITY TO RESTORE REMAINING TWO AC PHASES AFTER CLEARING THE FAULT.
- (4) LOSS OF ANOTHER THREE-PHASE AC BUS.

THIS RESULTS IN LOSS OF TWO AC BUSES REQUIRED FOR THE OPERATION OF CRITICAL LOADS.

- APPROVALS -

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