

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE
NUMBER: 05-6Q-2103B -X

SUBSYSTEM NAME: EPD&C - DISPLAYS & CONTROLS

REVISION: 1 01/06/98

PART DATA

PART NAME	PART NUMBER
VENDOR NAME	VENDOR NUMBER
LRU : PANEL O15	V070-730395
LRU : PANEL O16	V070-730396
SRU : CIRCUIT BREAKER	MC454-0026-2075

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CIRCUIT BREAKER, 7.5A - POWER CIRCUIT, PILOT'S DISPLAY DRIVER UNIT.

REFERENCE DESIGNATORS: 33V73A15CB30
33V73A16CB22

QUANTITY OF LIKE ITEMS: 2
TWO PER DISPLAY DRIVER UNIT

FUNCTION:

PRE-MEDS:

PROVIDES CIRCUIT OVERLOAD PROTECTION FOR MN BUSES B AND C. ALSO DISTRIBUTES DC POWER TO DISPLAY DRIVER UNIT 2 WHICH PROVIDES CONTROL INFORMATION TO THE ADI, HSI, AVVI & AMI AND PROVIDES SUPPLY VOLTAGE TO THE ADI, RPTA, SBTC, RHC, BFC, AND NWS AT THE PILOT STATION.

MEDS CONFIGURATION:

PROVIDES CIRCUIT OVERLOAD PROTECTION FOR MN BUSES B & C. ALSO DISTRIBUTES DC POWER TO DRIVER DISPLAY UNIT 2 WHICH PROVIDES SUPPLY VOLTAGE TO THE RPTA, SBTC, RHC, BFC, AND NWS AT THE PILOT STATION.

- APPROVALS -

SS&PAE MANAGER : P. STENGER-NGUYEN
SS&PAE : T. AI
DESIGN ENGINEERING : T. NGUYEN
MEDS SYSTEM : M. B. WARNER
MEDS HARDWARE : R. SITAPARA

P. Stenger-Nguyen
T. Nguyen 1-12-98
M. B. Warner 1-9-98
Ramin Sitapara 1-8-98

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JSC MOD

David J. Hunt 4-10-98

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-6Q-2103B-01

REVISION#: 1 09/07/97

SUBSYSTEM NAME: EPD&C - DISPLAYS & CONTROLS

LRU: PANEL O15

CRITICALITY OF THIS

ITEM NAME: CIRCUIT BREAKER

FAILURE MODE: 1R3

FAILURE MODE:

FAILS OPEN

MISSION PHASE:	PL	PRE-LAUNCH
	LO	LIFT-OFF
	OO	ON-ORBIT
	DO	DE-ORBIT
	LS	LANDING/SAFING

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

CAUSE:

CONTAMINATION, INTERNAL STRUCTURAL FAILURE, VIBRATION, THERMAL AND MECHANICAL SHOCK

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN	A) PASS
	B) FAIL
	C) PASS

PASS/FAIL RATIONALE:

A)

B)

FAILURE NOT DETECTABLE IN FLIGHT DUE TO PARALLEL REDUNDANCY OF THE POWER SOURCES.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

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LOSS OF CAPABILITY TO CONDUCT POWER.

(B) INTERFACING SUBSYSTEM(S):
LOSS OF REDUNDANT POWER TO AFFECTED DDU.

(C) MISSION:
FIRST FAILURE - NO EFFECT.

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
THE FIRST FAILURE HAS NO EFFECT. THE FAILURE OF THE SECOND CIRCUIT BREAKER WILL CAUSE LOSS OF ALL POWER TO THE PILOT'S DDU AND LOSS OF POWER TO ALL THE PILOT'S CONTROLLERS. THE FLIGHT CONTROL FUNCTION WILL BE TRANSFERRED TO THE COMMANDER'S STATION. THE SUBSEQUENT FAILURE OF POWER TO THE COMMANDER'S STATION DDU WOULD CAUSE LOSS OF ALL POWER TO THOSE CONTROLLERS LEAVING ONLY THE AUTOMATIC FLIGHT CONTROL MODE AVAILABLE TO THE CREW.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX D, ITEM #1, CIRCUIT BREAKER.

(B) TEST:
REFER TO APPENDIX D, ITEM #1, CIRCUIT BREAKER.

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX D, ITEM #1, CIRCUIT BREAKER.

(D) FAILURE HISTORY:

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CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

(E) OPERATIONAL USE:

AFTER FAILURE OF THE SECOND CIRCUIT BREAKER FOR THE PILOT'S DDU, THE FLIGHT CONTROL FUNCTION WILL BE TRANSFERRED TO THE COMMANDER'S STATION.

- APPROVALS -

EDITORIALLY APPROVED	: BNA	: <u>J. Kamusa 9/7/97</u>
EDITORIALLY APPROVED	: JSC	: <u>ed. Harvey 10/1/97</u>
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-024_05-6Q