FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL HARDWARE
NUMBER: 05-6-2617 -X

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL
REVISION: 0 05/03/88

PART DATA

	PART NAME / **VENDOR NAME**	**PART NUMBER** / **VENDOR NUMBER**
LRU	: PANEL MA73C	V070-730383
SRU	: CIRCUIT BREAKER	MC454-0026-2030

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CIRCUIT BREAKER, SINGLE PHASE, 3 AMP - AC1, AC2 AND AC3 BUS FEEDS TO FORWARD MCA 1, 2 AND 3 (RCS BUSES)

REFERENCE DESIGNATORS:
85V73A129CB29
85V73A129CB30
85V73A129CB31
85V73A129CB32
85V73A129CB33
85V73A129CB34
85V73A129CB35
85V73A129CB36
85V73A129CB37

QUANTITY OF LIKE ITEMS: 9
NINE

FUNCTION:
PROVIDES INDIVIDUAL PHASE A, B AND C CIRCUIT PROTECTION FOR AC1, AC2 AND AC3 BUSES WHICH FEED RELATED BUSES IN THE FORWARD MOTOR CONTROL ASSEMBLIES (MCA'S) 1, 2 AND 3 FOR REACTION CONTROL SYSTEM AC MOTOR- DRIVEN ISOLATION VALVES.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE
NUMBER: 05-6-2617- 01

REVISION#: 1 07/26/99

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION & CONTROL
LRU: PANEL MA73C **CRITICALITY OF THIS**
ITEM NAME: CIRCUIT BREAKER **FAILURE MODE:** 1R3

FAILURE MODE:
FAILS OPEN, FAILS TO CLOSE, FAILS TO CONDUCT

MISSION PHASE:
LO LIFT-OFF
DO DE-ORBIT

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

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN
A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:
A)

B)
FAILS "B" SCREEN SINCE CIRCUIT BREAKER OPEN IS NOT CONSIDERED DETECTABLE.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF AC POWER TO ONE OF THREE PHASES OF ASSOCIATED RCS AC BUS

(B) INTERFACING SUBSYSTEM(S):
FIRST FAILURE - NO EFFECT. THE RCS AC MOTOR VALVES WILL OPERATE AS REQUIRED ON TWO PHASES.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL FAILURE MODE
NUMBER: 05-6-2617-01

(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 VIA THE FOLLOWING SCENARIO:

(1) FORWARD RCS LEAK DURING EARLY ASCENT PHASE REQUIRING CLOSURE OF ALL FORWARD RCS ISOLATION VALVES.
(2,3) FAILURE OF TWO CIRCUIT BREAKERS (OPEN) SUPPLYING AC BUS 3 POWER TO FORWARD MOTOR CONTROL ASSEMBLY #3 RESULTING IN LOSS OF CAPABILITY TO REOPEN ANY FORWARD RCS MANIFOLDS TO PROPELLANT FLOW FOR ET/ORB SEPARATION. ALSO, FAILURE OF TWO CIRCUIT BREAKERS (OPEN) SUPPLYING AC BUS 1 POWER TO FORWARD MOTOR CONTROL ASSEMBLY #1 IF THE PROPELLANT LEAK OCCURRED ON FORWARD RCS MANIFOLD 2.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER

(B) TEST:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER

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

(C) INSPECTION:
REFER TO APPENDIX D, ITEM NO. 1 - CIRCUIT BREAKER

(D) FAILURE HISTORY:
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.

FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL FAILURE MODE
NUMBER: 06-6-2617- 01

(E) OPERATIONAL USE:
NONE

- APPROVALS -

EDITORIALLY APPROVED	: BNA	: J. Kemura 7-26-99
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-025_05-6