PRINT DATE: 03/22/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NONCRITICAL HARDWARE
NUMBER: 05-6-2359-X

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION AND CONTROL
REVISION: 1 03/22/94

		PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:	PANEL O17	VO70-730397
SRU	:	RESISTOR, WIRE WOUND	RWR80S1211FR

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RESISTOR, LIMITING, 1.2K, 2W, WIRE WOUND - MEC NO. 1 AND 2 CONTROL POWER

REFERENCE DESIGNATORS: 33V73A17A8R1
33V73A17A8R2
33V73A17A8R3
33V73A17A9R1
33V73A17A9R2
33V73A17A9R3

QUANTITY OF LIKE ITEMS: 6
SIX, THREE PER MEC CONTROL SWITCH

FUNCTION:
PROTECTS CONTROL BUS FROM MASTER EVENTS CONTROLLER'S (MEC'S) NO. 1 AND 2 POWER CONTROL CIRCUIT OVERLOAD BY LIMITING CURRENT FLOW. ONE RESISTOR BETWEEN A CONTROL BUS AND EACH SWITCH POLE FOR CONTROL POWER TO THE RPC'S WHICH PROVIDE MAIN DC BUS POWER TO EACH MEC'S TWO POWER SUPPLIES.

REFERENCE DOCUMENTS:
VS70-760503

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NONCRITICAL FAILURE MODE
NUMBER: 05-6-2359-01

REVISION# 1 03/22/94

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION AND CONTROL
LRU: PANEL O17 CRITICALITY OF THIS
ITEM NAME: RESISTOR FAILURE MODE: 1R3

FUNCTIONAL CRITICALITY/
REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE: 1R/2/2

FAILURE MODE:
OPEN

MISSION PHASE:
PL PRELAUNCH
LO LIFT-OFF

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

CAUSE:
THERMAL STRESS, STRUCTURAL FAILURE (VIBRATION, MECHANICAL STRESS), ELECTRICAL 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)

METHOD OF FAULT DETECTION:
RPC POWER OUTPUT SCAN

CORRECTING ACTION: NONE

REMARKS/RECOMMENDATIONS:
NONE

FAILURE MODES EFFECTS ANALYSIS (FMEA) – NONCRITICAL FAILURE MODE
NUMBER: 05-6-2369-01

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF ONE OF THREE REDUNDANT POWER SOURCES TO THE ASSOCIATED MEC. ALSO, LOSS OF CORE A OUTPUT DRIVERS OR ONE OF TWO MAIN DC BUS POWER SOURCES FOR CORE B OUTPUT DRIVERS IN ASSOCIATED MEC.

(B) INTERFACING SUBSYSTEM(S):
FIRST FAILURE - NO EFFECT. POSSIBLE LAUNCH DELAY AFTER FIRST FAILURE DURING PRELAUNCH.

(C) MISSION:
FIRST FAILURE - NO EFFECT. POSSIBLE LAUNCH DELAY AFTER FIRST FAILURE DURING PRELAUNCH.

(D) CREW, VEHICLE, AND ELEMENT(S):
FIRST FAILURE - NO EFFECT. POSSIBLE LAUNCH DELAY AFTER FIRST FAILURE DURING PRELAUNCH.

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE DUE TO FAILURE TO PERFORM CRITICAL MEC FUNCTIONS SUCH AS SRB SEPARATION AND ORB/ET SEPARATION VIA THE FOLLOWING SCENARIO:

(1) FAILURE OF RESISTOR IN POWER CONTROL CIRCUIT FOR CORE A OUTPUT DRIVERS (33V73A17A8R1, A9R1) FOR EITHER MEC.
(2) FAILURE OF THE CORE B OUTPUT DRIVER IN THE SAME MEC.
(3) FAILURE OF THE ASSOCIATED PIC IN THE OTHER MEC OR SRB INTEGRATED ELECTRONIC ASSEMBLY (IEA) (FORWARD OR AFT).

THE RESISTORS (33V73A17A8R2, R3 AND 33V73A17A9R2, R3) IN THE CONTROL CIRCUIT FOR REDUNDANT POWER FOR CORE B OUTPUT DRIVER ARE HARDWARE CRITICALITY 3 FOR ALL MEC FUNCTIONS.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: SECONDS

TIME FROM FAILURE OCCURRENCE TO DETECTION: SECONDS

TIME FROM DETECTION TO COMPLETED CORRECTIVE ACTION: N/A

TIME REQUIRED TO IMPLEMENT CORRECTIVE ACTION LESS THAN TIME TO EFFECT?N/A

HAZARDS: NONE

PRINT DATE: 03/22/94

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NONCRITICAL FAILURE MODE
NUMBER: 05-6-2359-01

- APPROVALS -

PRODUCT ASSURANCE ENGR : T. KIMURA
DESIGN ENGINEERING : J. GULSBY

T. Kimura 3/30/94
J. Gulsby 3/30/94