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PRINT DATE: 02/24/95

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE  
 NUMBER: 05-6-2393 -X

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION &amp; CONTROL

REVISION: 1 02/06/95

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: AFT PCA 1	V070-765200
LRU	: AFT PCA 2	V070-765220
LRU	: AFT PCA 4, 5, 6	V070-765280
LRU	: AFT PCA 1	V070-765310
LRU	: AFT PCA 2	V070-765320
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-1100
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-2100
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-3100
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-4100

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PART DATA

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EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
 CONTROLLER, REMOTE POWER, 10 AMP - MEC 1 AND 2 INPUT POWER

REFERENCE DESIGNATORS: 54V76A131RPC5  
 55V76A132RPC3  
 54V76A134RPC47  
 55V76A135RPC47  
 56V76A136RPC47  
 55V76A136RPC52

QUANTITY OF LIKE ITEMS: 6  
 SIX

FUNCTION:  
 PROVIDES MAIN DC BUS A, B AND C POWER TO MASTER EVENTS CONTROLLERS 1  
 AND 2.

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- APPROVALS -

PRODUCT ASSURANCE MGR : K. L. PRESTON  
 PRODUCT ASSURANCE ENGR : N. HAFEZ ZADEH  
 DESIGN ENGINEERING : R. L. PHAN  
 NASA SUBSYSTEM MANAGER :  
 NASA EPD&C SUBSYS MGR :  
 NASA EPD&C SSMA :  
 NASA SSMA :

*V.L. Preston* - 4/2/95  
*N. Hafez Zadeh*  
*R. L. Phan*  
 CIA  
*David B. ...* 3/14/96  
*David B. ...* 3-19-96  
 N/A

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6-2393-01

REVISION# 1 03/22/94

SUBSYSTEM NAME: ELECTRICAL POWER DISTRIBUTION AND CONTROL

LRU: AFT PCA 1

CRITICALITY OF THIS

ITEM NAME: CONTROLLER, REMOTE POWER

FAILURE MODE: 1R3

FAILURE MODE:

LOSS OF OUTPUT, FAILS TO CONDUCT, FAILS TO TURN "ON"

MISSION PHASE:

LO LIFT-OFF

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

CAUSE:

PIECE PART 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 BECAUSE THE STATUS OF THE SINGLE RPC SUPPLYING THE CORE A  
POWER SUPPLY AND PIC DRIVER HAS NO PROVISIONS FOR MONITORING THE STATUS  
IN FLIGHT.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF POWER TO CORE A FOR ONE OF TWO MASTER EVENTS CONTROLLERS. NO  
EFFECT - CORE B WILL PROVIDE OUTPUT FOR CRITICAL FUNCTIONS.

(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - NO EFFECT. THERE ARE REDUNDANT RPC'S AND REDUNDANT MEC'S  
FOR THE SAME FUNCTION.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-6-2393-01

## (C) MISSION:

FIRST FAILURE - NO EFFECT. ~~THERE ARE REDUNDANT RPC'S AND REDUNDANT MEC'S FOR THE SAME FUNCTION.~~

## (D) CREW, VEHICLE, AND ELEMENT(S):

FIRST FAILURE - NO EFFECT. ~~THERE ARE REDUNDANT RPC'S AND REDUNDANT MEC'S FOR THE SAME FUNCTION.~~

## (E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES FOR CRITICAL MEC FUNCTIONS (SRB IGNITION, SRB SEPARATION OR ET/ORS STRUCTURAL SEPARATION) DUE TO LOSS OF POWER TO CORE B AND FAILURE OF THE REDUNDANT INITIATOR FIRED BY THE OTHER MEC.

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-DISPOSITION RATIONALE-

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## (A) DESIGN:

REFER TO APPENDIX B, ITEM NO. 2 - REMOTE POWER CONTROLLER

## (B) TEST:

REFER TO APPENDIX B, ITEM NO. 2 - REMOTE POWER CONTROLLER

## GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

## (C) INSPECTION:

REFER TO APPENDIX B, ITEM NO. 2 - REMOTE POWER CONTROLLER

## (D) FAILURE HISTORY:

FAILURE HISTORY IS TRACKED IN THE PRACA SYSTEM.

## (E) OPERATIONAL USE:

NONE

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- APPROVALS -

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PAE MANAGER : K. PRESTON  
PRODUCT ASSURANCE ENGR : T. KIMURA  
DESIGN ENGINEERING : J. GULSBY  
NASA SSMA :  
NASA SUBSYSTEM MANAGER :

*K. L. Preston 3/29/94*  
*T. Kimura 3/22/94*  
*J. Gulsky 3/29/94*  
*Michael [unclear] 6/30/94*  
*Michael [unclear] 6/30/94*