

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER:05-6QA-BRPC5 -X**

SUBSYSTEM NAME: EPD&C - MEDS

REVISION: 0 01/19/95

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: FWD PCA 1	VO70-763320
LRU	: FWD PCA 2	VO70-763340
LRU	: FWD PCA 3	VO70-763360
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-X100

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
REMOTE POWER CONTROLLER (RPC), 10 AMPS**

REFERENCE DESIGNATORS: 81V76A22RPC36
82V76A23RPC50
83V76A24RPC45
83V76A24RPC46

QUANTITY OF LIKE ITEMS: 4
FOUR

FUNCTION:
PROVIDES REMOTE CONTROL OF POWER APPLICATION TO THE INTEGRATED DISPLAY PROCESSOR (IDP) POWER SUPPLY. THE MAIN BUS VOLTAGE (28VDC) IS APPLIED TO THE IDP WHEN THE RPC IS ENERGIZED BY THE "CRT" POWER SWITCH.

REFERENCE DOCUMENTS: VS70-730182D
SSD90D0009B, CP#1
MC409-0185D, AMENDMENT E01
SSD92D0643D, CP#2

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

NUMBER: 05-6QA-BRPC5-01

REVISION#: 1 04/26/98

SUBSYSTEM NAME: EPD&C - MEDS

LRU: FWD PCA 1, 2, 3

ITEM NAME: CONTROLLER, REMOTE POWER

CRITICALITY OF THIS

FAILURE MODE: 1R3

FUNCTIONAL CRITICALITY/**REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE:1R/2/2****FAILURE MODE:**

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

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:

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO**CRITICALITY 1R2 DURING INTACT ABORT ONLY (AVIONICS ONLY)? NO**

REDUNDANCY SCREEN

A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

METHOD OF FAULT DETECTION:

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VISUAL; ASSOCIATED MDU'S WILL DISPLAY ERROR MESSAGE AFTER COMMUNICATION BETWEEN IDP & MDU ARE LOST. ASSOCIATED GPC WILL ANNUNCIATE ERROR MESSAGE IF COMMUNICATION BETWEEN IDP AND GPC IS LOST.

MASTER MEAS. LIST NUMBERS: NONE

CORRECTING ACTION: AUTOMATED

CORRECTING ACTION DESCRIPTION:

IF MANUAL CONFIGURATION IS SELECTED, THE MDU DISPLAYS AN ERROR MESSAGE INDICATING PORT FAILURE AFTER THREE POLL-LISTENING ATTEMPTS AND CONTINUE TO LISTEN FOR THE VALID COMMANDS OVER THE SAME PORT UNTIL COMMANDED BY THE CREW TO SWITCH PORT. IF AUTOMATIC CONFIGURATION IS SELECTED, THE MDU SWITCHES TO OTHER PORT IN AN ATTEMPT TO COMMUNICATE WITH THE ALTERNATE IDP AFTER THREE UNSUCCESSFUL POLL-LISTENING ATTEMPTS. IF COMMUNICATION WITH ALTERNATE IDP IS SUCCESSFUL, THAT IDP WILL PROVIDE AN INDICATION TO CREW ON THIS MDU OF THE FAILURE ENCOUNTERED ON THE ORIGINAL PORT. IF COMMUNICATION WITH ALTERNATE PORT IS NOT SUCCESSFUL, THE MDU WILL DISPLAY AN I/O ERROR MESSAGE AND TOGGLE FROM PORT TO PORT UNTIL SUCCESSFUL COMMUNICATION IS ACHIEVED, OR CREW ACTION.

REMARKS/RECOMMENDATIONS:
NONE

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF POWER TO THE IDP

(B) INTERFACING SUBSYSTEM(S):
NO EFFECT FIRST FAILURE

(C) MISSION:
NO EFFECT FIRST FAILURE

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

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(E) FUNCTIONAL CRITICALITY EFFECTS:

CRITICALITY 1R3:

POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES (LOSS OF RPC OUTPUT,
LOSS OF SECOND IDP, AND LOSS OF THIRD IDP) DUE TO INABILITY TO
MONITOR/RESPOND TO SYSTEM FAILURES AND LAND THE VEHICLE SAFELY.

NOTE: HEAD UP DISPLAY IS NOT A USABLE SOURCE OF INFORMATION PRIOR TO MAJOR
MODE 305.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

TIME FROM FAILURE OCCURRENCE TO DETECTION: SECONDS

TIME FROM DETECTION TO COMPLETED CORRECTING ACTION: SECONDS

IS TIME REQUIRED TO IMPLEMENT CORRECTING ACTION LESS THAN TIME TO EFFECT?
YES

RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:

N/A (CORRECTIVE ACTION CAN BE COMPLETED BEFORE CRITICAL EFFECT)

HAZARD REPORT NUMBER(S):

HAZARD(S) DESCRIPTION:

- APPROVALS -

SS&PAE ENGR

: N. D. NGUYEN

MEDS SYSTEM

: M. B. WARNER

MEDS HARDWARE

: R. M. SITAPARA

N. D. Nguyen
M. B. Warner
Rammith Sitapara 4/28/98