

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE  
NUMBER:05-6PP-300RPC -X

SUBSYSTEM NAME: GPS THREE STRING

REVISION: 0

04/09/97

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**PART DATA**


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	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:FPCA 1	VO70-763320
LRU	:FPCA 2	VO70-763340
LRU	:FPCA 3	VO70-763360
SRU	:CONTROLLER. REMOTE POWER	MC450-0017-2050

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
REMOTE POWER CONTROLLER (RPC), 5 AMPS

REFERENCE DESIGNATORS: 81V76A22RPC55  
82V76A23RPC55  
83V76A24RPC55

QUANTITY OF LIKE ITEMS: 3  
THREE

**FUNCTION:**  
PROVIDES REMOTE CONTROL OF POWER APPLICATION TO THE GPS RECEIVER. IT ALSO PROVIDES OVER CURRENT PROTECTION AND WIRE PROTECTION FOR SHORT CIRCUITS. THE MAIN BUS VOLTAGE (28 VDC) IS APPLIED TO THE GPS RECEIVER WHEN THE RPC IS ENERGIZED BY CONTROL VOLTAGE FROM THE GPS RECEIVER POWER SWITCH.

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

**NUMBER: 05-6PP-300RPC-01**

**REVISION#: A 10/14/99**

**SUBSYSTEM NAME: GPS THREE STRING**

**LRU: FPCA 1, 2, & 3**

**ITEM NAME: CONTROLLER, REMOTE POWER**

**CRITICALITY OF THIS FAILURE MODE: 1R3**

**FAILURE MODE:**

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

**MISSION PHASE: DO DE-ORBIT**

<b>VEHICLE/PAYLOAD/KIT EFFECTIVITY:</b>	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**

**REDUNDANCY SCREEN**

- A) PASS
- B) PASS
- C) PASS

**PASS/FAIL RATIONALE:**

A)

B)

C)

**- FAILURE EFFECTS -**

**(A) SUBSYSTEM:**

LOSS OF POWER TO ONE GPS RECEIVER

**(B) INTERFACING SUBSYSTEM(S):**

LOSS OF ONE OF THREE GPS RECEIVER STRINGS. FAILED GPS OUTPUTS ARE IGNORED AND THE OUTPUTS OF THE REMAINING GPS' ARE USED.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL FAILURE MODE  
NUMBER: 05-6PP-300RPC-01

(C) MISSION:  
NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):  
NO EFFECT - FIRST FAILURE. OPERATIONS CONTINUE WITH TWO REMAINING GPS RECEIVERS. NO EFFECT - SECOND FAILURE. OPERATIONS CONTINUE WITH ONE REMAINING GPS RECEIVER. POSSIBLE LOSS OF CREW/VEHICLE DUE TO INABILITY TO MAKE LANDING SITE AFTER THIRD FAILURE RESULTING IN LOSS OF REMAINING GPS RECEIVER.

(E) FUNCTIONAL CRITICALITY EFFECTS:  
NO EFFECT

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- TIME FRAME -

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TIME FROM FAILURE TO CRITICAL EFFECT: N/A

TIME FROM FAILURE OCCURRENCE TO DETECTION: SECONDS

TIME FROM DETECTION TO COMPLETED CORRECTING ACTION: N/A

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

RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:  
N/A

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- APPROVALS -

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PRODUCT ASSURANCE ENGR : M. HOLTHAUS  
DESIGN ENGR : G.J. SCHWARTZ

*Mark Holthaus 10/19/99*  
*G.J. Schwartz 10-19-99*