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PRINT DATE 02/24/95

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL HARDWARE

NUMBER: 05-6R-320602 -X

SUBSYSTEM NAME: EPD&C - INSTRUMENTATION

REVISION: 1 02/06/95

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: AFT PCA 2	V070-765220
LRU	: AFT PCA 2	V070-765320
LRU	: AFT PCA 3	V070-765240
LRU	: AFT PCA 3	V070-765330
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-1050
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-2050
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-3050
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-4050

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

REMOTE POWER CONTROLLER, RPC, 5A

REFERENCE DESIGNATORS: 55V76A132RPC33

56V76A133RPC6

54V76A131RPC7

QUANTITY OF LIKE ITEMS: 3

THREE

FUNCTION:

UPON SWITCH COMMAND, THE RPC'S PROVIDE BUS POWER TO DEDICATED SIGNAL CONDITIONERS (DSC) OL1 (RPC-33, RPC 7) AND OL2 (RPC 6, RPC 7)

- APPROVALS -

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

K.L. Preston 4/2/95  
N. Hafezizadeh  
R. L. Phan  
Product Engr F. Alandis 3/4/95  
N/A  
John B. Bulger 3-19-95  
N/A

**SHUTTLE CRITICAL ITEMS LIST - ORBITER**

SUBSYSTEM : EPD&C - INSTRUMENTATION FMEA NO 05-6R - 320602-1 REV: 8/16/88

ASSEMBLY	: APT-PCA 2,3			CRIT. FUNC:	1R
P/N RI	: MC450-0017-1050			CRIT. HDW:	3
P/N VENDOR:		VEHICLE	102	103	104
QUANTITY	: 3	EFFECTIVITY:	X	X	X
	: THREE	PHASE(S):	PL X	LO X	OO X
	1			DO X	LS X

PREPARED BY:		REDUNDANCY SCREEN:	A-PASS	B-FAIL	C-PAS
DES	W S MCKEE	APPROVED BY:	APPROVED BY (NASA):		
REL	R GREGORIAN	DES	<i>[Signature]</i>		
QE	E GUTIERREZ	REL	<i>[Signature]</i>		
		QE ENG	<i>[Signature]</i>		

SSMO *[Signature]* 9/1/88  
 REL *[Signature]* 9/7/88  
 QE *[Signature]* 9/1/88  
 SPC *[Signature]* 9/1/88  
 SPM *[Signature]* 9/1/88

ITEM: REMOTE POWER CONTROLLER RPC, SA.

FUNCTION:  
 UPON SWITCH COMMAND, THE RPC'S PROVIDE BUS POWER TO DEDICATED SIGN. CONDITIONERS (DSC) OL1 (RPC-33, RPC 7) AND OL2 (RPC 6, RPC 7)  
 REFERENCE DESIGNATOR: 55V76A133RPC33, 56V76A133RPC6, 54V76A131RPC7.

FAILURE MODE:  
 LOSS OF OUTPUT, FAILS TO CONDUCT, FAILS TO TURN "ON".

CAUSE(S):  
 PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL STRESS.

EFFECT(S) ON:  
 (A) SUBSYSTEM (B) INTERFACES (C) MISSION (D) CREW/VEHICLE

(A) LOSS OF ONE OF TWO REDUNDANT POWER PATHS TO SIGNAL CONDITIONERS OL1 OR OL2.

(B,C) FIRST FAILURE : NO EFFECT.

(D) FIRST FAILURE : NO EFFECT  
 SECOND FAILURE: LOSS OF LIKE RPC IN REDUNDANT PATH TO DSC OL1 OR OL2 CAUSES LOSS OF ASSOCIATED DSC MEASUREMENTS.  
 THIRD FAILURE : LOSS OF DSC MEASUREMENT MAY CONCEAL A CRITICAL SUBSYSTEM FAILURE WHICH MAY CAUSE LOSS OF CREW/VEHICLE.

FAILS SCREEN "B" BECAUSE THE FIRST RPC FAILURE IS UNDETECTABLE.

SHUTTLE CRITICAL ITEMS LIST - ORBITER

SUBSYSTEM : EPD&C -- INSTRUMENTATION FMEA NO 05-6R -320602-1 REV: 8/16/88

DISPOSITION & RATIONALE:

(A) DESIGN (B) TEST (C) INSPECTION (D) FAILURE HISTORY (E) OPERATIONAL USE

(A-D) DISPOSITION AND RATIONALE

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

(B) GROUND TURNAROUND TEST

POWER REDUNDANCY TEST ON ALL DSC'S ARE PERFORMED DURING GROUND TURNAROUND.

(E) OPERATIONAL USE

NONE