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PRINT DATE: 02/24/95

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE
NUMBER: 05-60-200709 -X

SUBSYSTEM NAME: EPD&C-GUIDANCE NAVIGATION, & CONTROL (05-1)
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
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

PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
MN DC BUS RPC (ASA #4)

REFERENCE DESIGNATORS: 55V76A132RPC6

QUANTITY OF LIKE ITEMS: 1
ONE REQUIRED

FUNCTION:
TRANSMITS AND LIMITS ELECTRICAL POWER TO ASA #4 SOLUTION VALVE DRIVER
POWER.

- APPROVALS -

P&E MANAGER	:	K. L. PRESTON
PRODUCT ASSURANCE ENGR	:	N. HAFEZIZADEH
DESIGN ENGINEERING	:	L. BARTLOW
NASA EPD&C SUBSYS MGR	:	
NASA SUBSYS MGR	:	
NASA EPD&C SSMA	:	
NASA SSMA	:	

K. L. Preston 4/2/95

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[Signature] 3/14/96

[Signature] 3-16-96

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FAILURE MODES EFFECTS ANALYSIS FMEA - NON-CIL FAILURE MODE

NUMBER: 05-60-200709-01

REVISION#: 1 01/22/95

SUBSYSTEM NAME: EPD&C-GUIDANCE, NAVIGATION, & CONTROL (J5-1)

LRU: AFT PCA 2

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
- DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

- 102 COLUMBIA
- 103 DISCOVERY
- 104 ATLANTIS
- 105 ENDEAVOUR

CAUSE:

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

- A) PASS
- B) N/A
- C) PASS

PASS/FAIL RATIONALE:

A)

B)

B SCREEN NOT APPLICABLE BECAUSE OF FUNCTIONAL REDUNDANCY OF THE ASA'S. LOSS OF ANY OF THE FOUR ASA'S IS READILY APPARENT DURING FLIGHT USE.

C)

CORRECTING ACTION: NONE

CORRECTING ACTION DESCRIPTION:

- FAILURE EFFECTS -

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - NON-CIL FAILURE MODE
NUMBER: 05-60-200709-01

(A) SUBSYSTEM:
LOSS OF POWER TO ISOLATION VALVE DRIVER OF ASA #4.

(B) INTERFACING SUBSYSTEM(S):
LOSS OF CAPABILITY TO ISOLATE FLIGHT CONTROL HYDRAULIC CHANNEL #4 IN THE
EVENT OF A SECOND FAILURE.

(C) MISSION:
NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT FIRST FAILURE. SECOND FAILURE (FAILURE OF ASA#4 ASSOCIATED WITH
FAILED ISOLATION VALVE DRIVER) RESULTS IN THREE AGAINST ONE ACTUATOR FORCE
FIGHT CONDITION, WHICH IS TOLERABLE BY FLIGHT CONTROL SUBSYSTEM. THIRD
FAILURE (LOSS OF ADDITIONAL ASA AND ISOLATION VALVE DRIVER RESULTING FROM
LOSS OF SWITCH) RESULTS IN A TWO ON TWO FORCE FIGHT CONDITION WHICH
COULD RESULT IN LOSS OF CREW/VEHICLE.

(E) FUNCTIONAL CRITICALITY EFFECTS:
CRITICALITY 1R BECAUSE LOSS OF AEROSURFACE CONTROL DURING ATMOSPHERIC
FLIGHT MAY CAUSE LOSS OF CREW/VEHICLE.

- APPROVALS -

EDITORIALLY APPROVED : RI
EDITORIALLY APPROVED : JSC
TECHNICAL APPROVAL : APPROVAL FORM

Jim D. Stalac
Avion Systems 2-12-96
95-CIL-004-RI