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PRINT DATE: 02/24/85

## FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: 05-60-200602 -X

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

REVISION: 1 02/05/85

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: AFT PCA 2	V070-765220
LRU	: AFT PCA 4, 5, 6	V070-765280
LRU	: AFT PCA 2	V070-765320
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-1030
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-2030
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-3030
SRU	: CONTROLLER, REMOTE POWER	MC450-0017-4030

## PART DATA

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:  
RPC, MN BUSES A, B, & C/ATVC MPS & SRB ISO1 VLV DRIVERS

REFERENCE DESIGNATORS: 54V76A134RPC7  
54V76A134RPC7  
55V76A132RPC1  
55V76A132RPC36  
55V76A135RPC7  
55V76A135RPC17  
56V76A136RPC7  
56V76A136RPC17

QUANTITY OF LIKE ITEMS: 8  
EIGHT, 2 PER AFT PCA

FUNCTION:  
TRANSMITS AND LIMITS ELECTRICAL POWER TO THE ATVC MPS & SRB ISOLATION VALVE DRIVERS.

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FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE  
NUMBER: 05-60-200602 -X

- APPROVALS -

PAE 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	:	

<u>K. L. Preston 4/24/95</u>
<u>N. Hafezizadeh</u>
<u>L. Bartlow</u>
<u>F. ALVARIS 3/16/95</u>
<u>N/A</u>
<u>J. Bartlow 3-16-95</u>
<u>N/A</u>

FAILURE MODES EFFECTS ANALYSIS FMEA - NON-CIL FAILURE MODE

NUMBER: 05-60-200602-01

REVISION#: 1 01/22/96

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

LRU: AFT PCA 2, 4, 5, 6

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: LO LIFT-OFF

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

CAUSE:

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

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REDUNDANCY SCREEN      A) PASS  
    B) N/A  
    C) PASS

PASS/FAIL RATIONALE:

A)

B)

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

C)

CORRECTING ACTION: NONE

CORRECTING ACTION DESCRIPTION:

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- FAILURE EFFECTS -

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(A) SUBSYSTEM:

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL FAILURE MODE  
NUMBER: 05-60-200602-01

LOSS OF CONTROL POWER TO ONE OF FOUR MPS OR SRB ISOLATION VALVE DRIVER.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF MPS OR SRB ISOLATION VALVE DRIVER FOR ONE OF FOUR ATVC CHANNELS.

(C) MISSION:

NO EFFECT

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

FIRST FAILURE NO EFFECT. SECOND FAILURE (LOSS OF ATVC CHANNEL ASSOCIATED WITH FAILED ISOLATION VALVE DRIVER) RESULTS IN THREE AGAINST ONE FORCE FIGHT CONDITION. FLIGHT CONTROL SUBSYSTEM TOLERATES THIS CONDITION. THIRD FAILURE (ADDITIONAL ATVC CHANNEL FAILURE) RESULTS IN TWO AGAINST ONE FORCE FIGHT CONDITION WHICH COULD RESULT IN LOSS OF VEHICLE.

(E) FUNCTIONAL CRITICALITY EFFECTS:

CRITICALITY 1R BECAUSE LOSS OF MPS OR SRB THRUST VECTOR CONTROL MAY CAUSE LOSS OF CREW/VEHICLE.

- APPROVALS -

EDITORIALLY APPROVED	: RI	<i>[Signature]</i> 1/31/96
EDITORIALLY APPROVED	: JSC	<i>[Signature]</i> 2-12-96
TECHNICAL APPROVAL	: APPROVAL FORM	95-CIL-004-RI