

**FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE**  
**NUMBER: 05-6G-2131 -X**

**SUBSYSTEM NAME: EPD&C - HYDRAULICS (02-6)**

**REVISION: 2      10/07/91**

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**PART DATA**

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	<b>PART NAME</b>	<b>PART NUMBER</b>
	<b>VENDOR NAME</b>	<b>VENDOR NUMBER</b>
LRU	: AFT MCA-1	V070-785410
LRU	: AFT MCA-1	V070-785630
SRU	: CONTROLLER, HYBRID DRIVER	MC477-0263-0002

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
 CONTROLLER, HYBRID DRIVER, HDC TYPE 3 - LANDING GEAR EXTEND ISOLATION VALVE

**REFERENCE DESIGNATORS:** 54V76A114(J5-F)

**QUANTITY OF LIKE ITEMS:** 1  
 ONE

**FUNCTION:**  
 WHEN COMMANDED, THE ASSOCIATED DRIVER CONNECTS BUS "A" VOLTAGE TO THE RELATED SOLENOID COIL OF THE LANDING GEAR EXTEND ISOLATION VALVE INITIATING THE "OPEN" FUNCTION.

**FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE**

**NUMBER: 05-6G-2131- 01**

**REVISION#: 3 10/08/98**

**SUBSYSTEM NAME: EPD&C - HYDRAULICS (02-6)**

**LRU: AFT MCA-1**

**ITEM NAME: CONTROLLER, HYBRID DRIVER**

**CRITICALITY OF THIS  
FAILURE MODE: 1R2**

**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)**

**VALVE HAS POSITION INDICATION**

**C)**

**- FAILURE EFFECTS -**

**(A) SUBSYSTEM:**

**LOSS OF FUNCTION**

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

LOSS OF INTERFACE FUNCTION - LOSS OF "OPENING" DRIVER OUTPUT PRECLUDES ISOLATION VALVE OPENING RESULTING IN THE LOSS OF HYDRAULIC LANDING GEAR DEPLOY CAPABILITY.

**(C) MISSION:**

FIRST FAILURE - NO IMPACT WITHOUT SUBSEQUENT FAILURE.

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

FIRST FAILURE - NO IMPACT WITHOUT SUBSEQUENT FAILURE. LOSS OF REDUNDANT HYDRAULIC SUPPLY FOR NOSEWHEEL STEERING.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

POSSIBLE LOSS OF CREW/VEHICLE AFTER TWO FAILURES - 1) THIS HYBRID DRIVER FAILS TO CONDUCT LOSING ALL COMMAND CAPABILITY OF THE ISOLATION VALVE, AND 2) FAILURE OF A BACKUP LANDING GEAR UPLOCK PYRO CARTRIDGE RESULTING IN THE LOSS OF CAPABILITY TO DEPLOY THE LANDING GEAR.

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**-DISPOSITION RATIONALE-**

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**(A) DESIGN:**

REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

**(B) TEST:**

REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

**GROUND TURNAROUND TEST**

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

**(C) INSPECTION:**

REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER

**(D) FAILURE HISTORY:**

CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

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(E) OPERATIONAL USE:  
NONE

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- APPROVALS -

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EDITORIALLY APPROVED	: BNA	: <u>J. Kamura 10-8-98</u>
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 95-CIL-009_05-6G