

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE**  
**NUMBER: 05-6BA-2116 -X**

**SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL**  
**REVISION: 2**      **03/19/90**

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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	: PANEL A12	V070-730365
SRU	: SWITCH, TOGGLE	ME452-0102-7256

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**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:**  
SWITCH, TOGGLE, 2P2P, LANDING GEAR ARM/DOWN RESET, (MOM)

**REFERENCE DESIGNATORS:**    36V73A12S13

**QUANTITY OF LIKE ITEMS:**    1  
ONE

**FUNCTION:**  
PROVIDES MANUAL MAINTAINED OFF AND MOMENTARY ON POWER TO THE LANDING GEAR ARM/DOWN RESET CIRCUIT (RESETS LATCHING RELAYS IN APPLICABLE CIRCUITS). ONE POLE OF SWITCH IS USED IN INPUT LINE WITH THE OTHER IN THE RETURN LINE. USE OF RESET CIRCUIT IS NORMALLY A GROUND FUNCTION.

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

**NUMBER: 05-6BA-2116- 03**

**REVISION#: 3 06/28/99**

**SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL**

**LRU: PANEL A12**

**CRITICALITY OF THIS**

**ITEM NAME: SWITCH, TOGGLE**

**FAILURE MODE: 1R2**

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**FAILURE MODE:**

**FAILS CLOSED (BOTH POLES)**

**MISSION PHASE: DO DE-ORBIT**

**VEHICLE/PAYLOAD/KIT EFFECTIVITY:**

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

**CAUSE:**

**PIECE PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY**

**CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO**

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**REDUNDANCY SCREEN**

A) PASS
B) FAIL
C) PASS

**PASS/FAIL RATIONALE:**

**A)**

**B)**

**FAILS "B" SCREEN BECAUSE SWITCH FAILURE IS NOT FLIGHT DETECTABLE SINCE THE CIRCUIT BREAKER IS NORMALLY OPEN.**

**C)**

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**- FAILURE EFFECTS -**

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**(A) SUBSYSTEM:**

**FIRST FAILURE - NO EFFECT**

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

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FIRST FAILURE - NO EFFECT. SECOND FAILURE (CIRCUIT BREAKER 60 ON PANEL R15 FAILS CLOSED WHERE IT IS NORMALLY OPEN) - CAUSES LANDING GEAR ARM AND DOWN RELAYS TO BE PERMANENTLY RESET.

**(C) MISSION:**  
FIRST FAILURE - NO EFFECT

**(D) CREW, VEHICLE, AND ELEMENT(S):**  
FIRST FAILURE - NO EFFECT. SECOND FAILURE (CIRCUIT BREAKER 60 ON PANEL R15 FAILS CLOSED WHERE IT IS NORMALLY OPEN) - CAUSES LANDING GEAR ARM AND DOWN RELAYS TO BE PERMANENTLY RESET. THIS PREVENTS EXTENSION OF LANDING GEARS AND CAUSES LOSS OF CREW/VEHICLE BECAUSE ARM AND DOWN SWITCHES CAN NOT SET THE ARM AND DOWN RELAYS REQUIRED FOR GEAR EXTENSION.

**(E) FUNCTIONAL CRITICALITY EFFECTS:**

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**-DISPOSITION RATIONALE-**

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**(A) DESIGN:**  
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

**(B) TEST:**  
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

GROUND TURNAROUND TEST  
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

**(C) INSPECTION:**  
REFER TO APPENDIX A, ITEM NO. 1 - TOGGLE SWITCH

**(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.

**(E) OPERATIONAL USE:**  
NONE

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- APPROVALS -

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EDITORIALLY APPROVED	: BNA	: <u>J. Kamura 7/6/99</u>
TECHNICAL APPROVAL	: VIA APPROVAL FORM	: 96-CIL-011_05-6BA(2)