

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE

NUMBER:05-60-200700 -X

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

REVISION: 0 06/28/88

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:PANEL 014	V070-730394
LRU	:PANEL 015	V070-730395
LRU	:PANEL 016	V070-730396
SRU	:SWITCH, TOGGLE	ME452-0102-7301

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, ASA POWER, 3PST

REFERENCE DESIGNATORS: 33V73A14S10
33V73A15S9
33V73A18S8
33V73A16S9

QUANTITY OF LIKE ITEMS: 4
FOUR REQUIRED

FUNCTION:
PROVIDES CAPABILITY FOR SWITCHING ASA POWER ON AND OFF, INCLUDING
ISOLATION VALVE DRIVER POWER.

FAILURE MODES EFFECTS ANALYSIS FMEA - CIL FAILURE MODE

NUMBER: 05-60-200700-01

REVISION#: 1 01/22/96

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

LRU: PANEL 014, 015, 016

CRITICALITY OF THIS

ITEM NAME: SWITCH, TOGGLE

FAILURE MODE: 1R2

FAILURE MODE:

FAILS TO TRANSFER, 3 POLES OPEN OR SHORTED TO GROUND.

MISSION PHASE: LO LIFT-OFF
DO DE-ORBITVEHICLE/PAYLOAD/KIT EFFECTIVITY: 102 COLUMBIA
103 DISCOVERY
104 ATLANTIS
105 ENDEAVOUR

CAUSE:

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

LOSS OF CONTROL POWER TO ONE OF FOUR ASA'S AND ASSOCIATED ISOLATION VALVE DRIVER.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF ONE OF FOUR ASA'S AND ASSOCIATED ISOLATION VALVE DRIVER

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(C) MISSION:
NO EFFECT.

(D) CREW, VEHICLE, AND ELEMENT(S):
FIRST FAILURE-NO EFFECT. SECOND FAILURE (LOSS OF ADDITIONAL ASA AND ASSOCIATED ISOLATION VALVE DRIVER DUE TO A SECOND SWITCH FAILURE) MAY CAUSE LOSS OF CREW/VEHICLE. SINGLE POLE FAILURE ON ASA 4 ISOLATION VALVE DRIVER IS 1R3.

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

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX A, ITEM #1 - TOGGLE SWITCH.

(B) TEST:
REFER TO APPENDIX A, ITEM #1 - TOGGLE SWITCH.

GROUND TURNAROUND TEST
SWITCH FUNCTIONS ARE VERIFIED DURING GROUND TURNAROUND TESTING.

(C) INSPECTION:
REFER TO APPENDIX A, ITEM #1 - TOGGLE SWITCH.

(D) FAILURE HISTORY:
REFER TO APPENDIX A, ITEM #1 - TOGGLE SWITCH.

(E) OPERATIONAL USE:
NONE

- APPROVALS -

EDITORIALLY APPROVED	: RJ	: <u>Jim D. 2/1/96</u>
EDITORIALLY APPROVED	: JSC	: <u>Steve Seaman 2-10-96</u>
TECHNICAL APPROVAL	: APPROVAL FORM	: 95-CIL-004-R1