

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE

NUMBER:05-60-200606 -X

SUBSYSTEM NAME: EPD&C - GN&C

REVISION: 0 06/28/88

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:PANEL 017	V070-730397
SRU	:SWITCH, TOGGLE	ME452-0102-7301

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

REFERENCE DESIGNATORS: 33V73A17S1
33V73A17S2
33V73A17S3
33V73A17S4

QUANTITY OF LIKE ITEMS: 4
FOUR REQUIRED

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

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-60-200606-01

REVISION#: 1 01/22/96

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

LRU: PANEL 017

CRITICALITY OF THIS

ITEM NAME: SWITCH, TOGGLE

FAILURE MODE: 1R2

FAILURE MODE:

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

MISSION PHASE: LO LIFT-OFF

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

CAUSE:

MECHANICAL SHOCK, VIBRATION, 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 ATVC'S AND ASSOCIATED MPS ISOLATION VALVE DRIVER.

(B) INTERFACING SUBSYSTEM(S):

LOSS OF ONE OF FOUR ATVC'S AND ASSOCIATED MPS ISOLATION VALVE DRIVER.

(C) MISSION:

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NUMBER: 05-60-200606-01

NO EFFECT

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

FIRST FAILURE NO EFFECT. SECOND FAILURE (LOSS OF ADDITIONAL ATVC AND ASSOCIATED MPS ISOLATION VALVE DRIVER DUE TO A SECOND SWITCH FAILURE) CAUSES A TWO ON TWO FORCE FIGHT CONDITION FOR MPS TVC. FLIGHT CONTROL SUBSYSTEM CAN NOT TOLERATE THIS CONDITION.

(E) FUNCTIONAL CRITICALITY EFFECTS:

CRITICALITY 1R BECAUSE LOSS OF MPS AND SRB THRUST VECTOR CONTROL MAY CAUSE LOSS OF CREW/VEHICLE. SINGLE POLE (ISOLATION VALVE DRIVER POWER) SWITCH FAILURE IS CRITICALITY 1R3 AND UNDETECTABLE IN FLIGHT.

-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

: RI

EDITORIALLY APPROVED

: JSC

TECHNICAL APPROVAL

: APPROVAL FORM

: James 1/31/96
: James 2-12-96
: 95-CIL-0044R1