

**FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE
NUMBER:05-3A-B24-1 -X**

**SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM
REVISION: 1 12/05/97**

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	:PANEL C2A2	V070-730280
SRU	:SWITCH, TOGGLE	ME452-0102-7201

**EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, "CRT" SELECT 2P2P, TOGGLE**

REFERENCE DESIGNATORS: 35V73A2A2S7
35V73A2A2S8

QUANTITY OF LIKE ITEMS: 2
TWO

FUNCTION:
PROVIDES MEANS FOR SWITCHING COMMANDER'S KEYBOARD FROM IDP1 TO IDP3 OR
PILOT'S KEYBOARD FROM IDP2 TO IDP3.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-3A-B24-1-01

REVISION#: 1 12/05/97

SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM

LRU: PANEL G2A2

CRITICALITY OF THIS

ITEM NAME: SWITCH, TOGGLE

FAILURE MODE: 1R2

FAILURE MODE:

FAILS OPEN, PREMATURE OPEN, SHORT TO CASE (GROUND)

MISSION PHASE:

- PL PRE-LAUNCH
- LO LIFT-OFF
- OO ON-ORBIT
- DO DE-ORBIT
- LS LANDING/SAFING

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:

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

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

CRITICALITY 1R2 DURING INTACT ABORT ONLY (AVIONICS ONLY)? NO

REDUNDANCY SCREEN

- A) PASS
- B) PASS
- C) PASS

PASS/FAIL RATIONALE:

A)

B)

C)

- FAILURE EFFECTS -

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(A) SUBSYSTEM:

LOSS OF INPUT CAPABILITY TO THE INTEGRATED DISPLAY PROCESSOR (IDP) FROM THE ASSOCIATED KEYBOARD IF THE SWITCH FAILED OPEN OR SHORT TO CASE (GROUND).

(B) INTERFACING SUBSYSTEM(S):

SWITCH FAILING OPEN HAS NO IMPACT TO DISPLAY STATUS (IDP CONTINUES TO UPDATE MDU'S). INPUT CAPABILITY FOR THE ASSOCIATED KEYBOARD IS LOST IF THE SWITCH FAILED OPEN OR SHORT TO CASE (GROUND).

(C) MISSION:

LOSS OF CDR SELECT SWITCH DURING ASCENT OR ON-ORBIT RESULTS IN RETURN TO NEXT PRIMARY LANDING SITE DUE TO LOSS OF CDR KEYBOARD FUNCTION. LOSS OF PLT KEYBOARD FUNCTION DUE TO LOSS OF PLT SELECT SWITCH IS RECOVERABLE BY USE OF IFM WITH NO MISSION TERMINATION IMPACT.

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

NO EFFECT FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF VEHICLE/CREW AFTER TWO FAILURES (LOSS OF SECOND SWITCH) DUE TO LOSS OF KEYSTROKE CAPABILITY FROM BOTH STATIONS DURING ASCENT/ENTRY. LOSS OF KEYSTROKE CAPABILITY WOULD RESULT IN THE LOSS OF ABILITY TO ADVISE ORBITER CONTROL SYSTEMS TO ACCEPT UPDATED STATE VECTOR DATA, NAVIGATIONAL AND AIR DATA INPUTS REQUIRED TO ASSURE SAFE VEHICLE CONTROL, AND MANUAL OPS MODE TRANSITIONS.

-DISPOSITION RATIONALE-

(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

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(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 DATABASE.

(E) OPERATIONAL USE:

1) THE AFT AND OTHER FORWARD KEYBOARD CAN BE USED TO INTERFACE WITH GPC'S DURING ORBIT OR LOW ACCELERATION PHASES. IF TIME ALLOWS, THE DEU EQUIVALENTS CAN BE UPLINKED FROM THE GROUND. 2) AN IDP SELECT SWITCH WHICH FAILS RESULTS IN THE INABILITY TO USE A FORWARD KEYBOARD; CONSEQUENTLY, THERE IS A POSSIBLE EARLY MISSION TERMINATION. HOWEVER, PLT KEYBOARD FUNCTION MAY BE RECOVERED BY USE OF HIP-POCKET IFM PROCEDURE JSC-18820 SECTION 4.5 "CRT 2 SWITCHES IFM".

- APPROVALS -

PAE MANAGER	: P.A. STENGER-NGUYEN	: <u>P.A. Stenger-Nguyen 5/12/98</u>
PRODUCT ASSURANCE ENGR	: N.D. NGUYEN	: <u>N.D. Nguyen 5/17/98</u>
DPS SYSTEM	: G.L. PRICE	: <u>G.L. Price 5/18/98</u>
MEDS SYSTEM	: M.B. WARNER	: <u>M.B. Warner 5/17/98</u>
MEDS HARDWARE	: R.M. SITAPARA	: <u>Ramnik Sitapara 5/18/98</u>
NASA SSMA	:	: <u>Cherita M. Jackson 5/20/98</u>
NASA SUBSYSTEM MANAGER	:	: <u>Janita Newcome 5/20/98</u>
NASA MOD	:	: <u>Michelle M. Anderson 5/20/98</u>