FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER:05-3A-B26-1 -X

SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM

REVISION: 0   01/19/95

PART DATA

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
LRU	: PANEL C2A2	VO70-730280
LRU	· PANEL R12A2	VO70-730335
SRU	: SWITCH, TOGGLE	ME452-0102-7106

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, "CRT" MAJOR, FUNCTION SELECT 1P3P "GNC-SM-PL" (GUIDANCE NAVIGATION
AND CONTROL-SYSTEM MANAGEMENT-PAYLOAD)

REFERENCE DESIGNATORS: 35V73A2A2S2
35V73A2A2S3
35V73A2A2S4
32V73A12A2S2

QUANTITY OF LIKE ITEMS: 4
THREE FRONT
ONE AFT

FUNCTION:
PROVIDES MEANS FOR CONTROLLING AND SELECTING THE IDP, OR "CRT" MDU MAJOR
FUNCTION. THE SWITCH INTERFACES WITH THE GENERAL PURPOSE COMPUTER (GPC)
THROUGH THE INTEGRATED DISPLAY PROCESSOR (IDP).

REFERENCE DOCUMENTS: VS70-730182D
SSD90D0009B, CP#1
MC409-0185D, AMENDMENT E01
SSD92D0643D, CP#2

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE
                                    NUMBER: 05-3A-B26-1-01

                                    REVISION#:   1   04/26/98
SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM
LRU: PANEL C2A2, R12A2   **CRITICALITY OF THIS**
ITEM NAME: SWITCH, TOGGLE   **FAILURE MODE: 1R3**

FUNCTIONAL CRITICALITY/
REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE: 1R/2/3

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)

METHOD OF FAULT DETECTION:

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VISUAL

MASTER MEAS. LIST NUMBERS: V72X5643B
V98J4349C
V73K2003E
V73K2004E
V73K2005E
V72X5713B
V98J4359C
V73K2013E
V73K2014E
V73K2015E
V72X5803B
V98J4369C
V73K2023E
V73K2024E
V73K2025E
V72X5903B
V98J4379C
V73K2053E
V73K2054E
V73K2055E

CORRECTING ACTION: MANUAL

CORRECTING ACTION DESCRIPTION:
THE CREW CAN USE REMAINING MDU'S COMMANDED BY DIFFERENT IDP TO DISPLAY
INFORMATION ESSENTIAL FOR THE MISSION OR PHASE(S). IDP POWER CYCLING WILL
RECOVER MDU IN THE GN&C MAJOR FUNCTION.

REMARKS/RECOMMENDATIONS:
ALL REMAINING IDP'S PROVIDE ADEQUATE BACKUP.

- FAILURE EFFECTS -

(A) SUBSYSTEM:
IDP WILL NOT HAVE THE PROPER MAJOR FUNCTION IDENTIFICATION FOR GPC
PROCESSING. AN ALTERNATE IDP WILL HAVE TO BE SELECTED FOR MAJOR FUNCTION
RELATED KEYBOARD INPUTS TO THE GPC. THE MULTIFUNCTION DISPLAY UNIT (MDU)
CONTINUES TO UPDATE DATA OF THE PREVIOUS COMMANDED MAJOR FUNCTION.

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(B) INTERFACING SUBSYSTEM(S):
NO EFFECT FIRST FAILURE

(C) MISSION:
NO EFFECT FIRST FAILURE

(D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT FIRST FAILURE

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES (SWITCH FAILS OPEN WILL
RESULT IN IDP STUCK IN PREVIOUS COMMANDED MAJOR FUNCTION, LOSS OF THE
OTHER TWO IDP'S) DUE TO 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.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

TIME FROM FAILURE OCCURRENCE TO DETECTION: IMMEDIATE

TIME FROM DETECTION TO COMPLETED CORRECTING ACTION: SECONDS

IS TIME REQUIRED TO IMPLEMENT CORRECTING ACTION LESS THAN TIME TO EFFECT?
YES

RATIONALE FOR TIME TO CORRECTING ACTION VS TIME TO EFFECT:
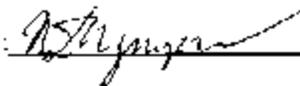N/A (CORRECTIVE ACTION CAN BE COMPLETED BEFORE CRITICAL EFFECT)

HAZARD REPORT NUMBER(S):

HAZARD(S) DESCRIPTION:

- APPROVALS -

SS&PAE ENGR   : N. D. NGUYEN

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NUMBER: 05-3A-B26-1-01

MEDS SYSTEM   : M. B. WARNER   : _____
MEDS HARDWARE   : R. M. SITAPARA   : _____