

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- NON-CIL HARDWARE
NUMBER:05-3A-B25-1 -X

SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM
REVISION: 0 01/19/95

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: PANEL 06	VO70-730294
SRU	: SWITCH, TOGGLE	ME452-0102-7102

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
SWITCH, IDP LOAD, 1P2P, TOGGLE, MOMENTARY, "OFF-LOAD"

REFERENCE DESIGNATORS: 33V73A6S16
33V73A6S17
33V73A6S18
33V73A6S19

QUANTITY OF LIKE ITEMS: 4
FOUR

FUNCTION:
PROVIDES THE MEANS FOR RE-LOADING THE INTEGRATED DISPLAY PROCESSORS (IDP'S) WITH CRITICAL FORMAT DATA FOR CRT DISPLAYS.

REFERENCE DOCUMENTS: VS70-730182D
SSD90D0009B, CP#1
MC409-0185D, AMENDMENT E01
SSD82D0643D, CP#2

FAILURE MODES EFFECTS ANALYSIS FMEA -- NON-CIL FAILURE MODE
NUMBER: 05-3A-B25-1-02

REVISION#: 1 04/26/98
SUBSYSTEM NAME: MULTIFUNCTION ELECTRONIC DISPLAY SUBSYSTEM
LRU: PANEL 06
ITEM NAME: SWITCH, TOGGLE
CRITICALITY OF THIS FAILURE MODE: 1R3

FUNCTIONAL CRITICALITY:
REQUIRED FAULT TOLERANCE/ACHIEVED FAULT TOLERANCE:1R/2/4

FAILURE MODE:
 FAILS CLOSED, PREMATURE CLOSURE, 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:
 PIECE-PART STRUCTURAL FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK,
 PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

A)	PASS
B)	N/A
C)	PASS

PASS/FAIL RATIONALE:

A)

B)

THIS SWITCH IS IN STANDBY UNTIL THERE IS A FAILURE THAT REQUIRES IPL
 INITIALIZATION.

C)

METHOD OF FAULT DETECTION:

VISUAL; IDP WILL NOT INITIALIZED AS COMMANDED.

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MASTER MEAS. LIST NUMBERS: V72X5648B
V98X4355X
V73K2006E
V73K2009E
V72X5718B
V98X4365X
V73K2016E
V73K2019E
V72X5808B
V98X4375X
V73K2026E
V73K2029E
V72X5908B
V98X4385X
V73K2056E
V73K2057E

CORRECTING ACTION: MANUAL

CORRECTING ACTION DESCRIPTION:
CREW CAN UTILIZE REMAINING IDP'S AND MDU'S.

REMARKS/RECOMMENDATIONS:
BEFORE THE IDP REQUEST A LOAD, THE SWITCH HAS TO RETURN TO THE "OFF"
POSITION AFTER BEING MOMENTARILY SWITCHED TO "LOAD".

- FAILURE EFFECTS -

(A) SUBSYSTEM:
NO EFFECT UNLESS THE CRITICAL FORMATS NEED TO BE RELOADED. IF UNABLE TO
RELOAD CRITICAL FORMAT, DPS DISPLAY CAPABILITY IS LOST

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

(C) MISSION:
NO EFFECT FIRST FAILURE

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

(E) FUNCTIONAL CRITICALITY EFFECTS:
CRITICALITY 1R3:

CASE 1:

POSSIBLE LOSS OF CREW/VEHICLE IF A FAILURE CAUSES CORRUPTION OF CRITICAL
FORMAT LOAD IN CONJUNCTION WITH IDP LOAD SWITCH FAILURE, AND ADDITIONAL
FAILURES OF A SECOND AND THIRD IDP RESULTING IN LOSS OF DPS DISPLAY
CAPABILITY.

CASE 2:

POSSIBLE LOSS OF CREW/VEHICLE IF REQUIRED TO RE-IPL BFS GPC ON-ORBIT AND
ADDITIONAL THREE FAILURES (IDP LOAD SWITCH FAILS OPEN, FAILURE OF BFS CRT
SELECT SWITCH, AND SUBSEQUENT LOSS OF PASS) RESULTING IN THE INABILITY TO
LAND THE VEHICLE SAFELY.

- TIME FRAME -

TIME FROM FAILURE TO CRITICAL EFFECT: MINUTES

TIME FROM FAILURE OCCURRENCE TO DETECTION: N/A

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

: *[Signature]*
: *[Signature]*
: *Ramon M. Sitapara 4/28/98*