

PAGE: 1

PRINT DATE: 06/08/90

5050250L
ATTACHMENT -
Page 71 of 152

FAILURE MODES EFFECTS ANALYSIS (FMEA) — CRITICAL HARDWARE

NUMBER: MO-AA2-335-X

SUBSYSTEM NAME: STABILIZED PAYLOAD DEPLOYMENT SYSTEM

REVISION : 2 06/08/90

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
■ ASSEM :	PANEL A7A3	V790-773001
■ SRU :	SWITCH, TOGGLE	MC452-0102-7352

PART DATA

■ REFERENCE DESIGNATORS: 36V73A7A3 - S7
: 36V73A7A3 - S8

■ QUANTITY OF LIKE ITEMS: 2

■ FUNCTION:
PROVIDES SWITCH CONTROL OF "FIRE" SIGNAL TO THE ASSOCIATED PYROTECHNIC
INITIATOR CONTROLLER. S7 CONTROLS SYSTEM A AND S8 CONTROLS SYSTEM B FOR
TRANSFER OF PEDESTAL DRIVE TO THE SECONDARY PEDESTAL.

PAGE: 2

PRINT DATE: 06/08/90

S050250L
ATTACHMENT -
Page 72 of 152

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA2-335-01

REVISION# 2 06/08/90
SUBSYSTEM: STABILIZED PAYLOAD DEPLOYMENT SYSTEM

ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS
FAILURE MODE: 1R2

- FAILURE MODE:
OPEN, FAILED OPEN, ANY SINGLE SET OF CONTACTS.

MISSION PHASE:
00 ON-ORBIT

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

- CAUSE:
PIECE PART STRUCTURAL FAILURE; CONTAMINATION; VIBRATION; MECHANICAL,
ELECTRICAL OR THERMAL STRESS; PROCESSING ANOMALY

- CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

- REDUNDANCY SCREEN A) PASS
■ B) FAIL
■ C) PASS

PASS/FAIL RATIONALE:

- A)
PRELAUNCH CHECKOUT
- B)
CAPACITOR CHARGE/DISCHARGE CAN BE MONITORED BY CREW - CAN NOT CONFIRM
SWITCH FAILURE.
- C)
PHYSICAL AND ELECTRICAL ISOLATION OF REDUNDANT ELEMENTS.

- FAILURE EFFECTS -

- (A) SUBSYSTEM:
LOSS OF "FIRE" SIGNAL TO ONE PEDESTAL DRIVE TRANSFER PYRO INITIATOR
CONTROLLER.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA2-335-01

- (B) INTERFACING SUBSYSTEM(S):
LOSS OF ONE PIC ACTUATED PEDESTAL TRANSFER CIRCUIT. REDUNDANT FIRE SWITCH WILL COMPLETE FUNCTION.
- (C) MISSION:
NO EFFECT. FIRST FAILURE
- (D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT. FIRST FAILURE.
- (E) FUNCTIONAL CRITICALITY EFFECTS:
LOSS OF ALL ABILITY TO TRANSFER FROM PRIMARY TO SECONDARY PEDESTAL COULD RESULT IN A PARTIAL PAYLOAD DEPLOYMENT PREVENTING PAYLOAD BAYDOOR CLOSURE. RESULTING IN POSSIBLE LOSS OF CREW AND VEHICLE.

- DISPOSITION RATIONALE -

- (A) DESIGN:
REFER TO APPENDIX A, ITEM 1.
- (B) TEST:
REFER TO APPENDIX A, ITEM 1.

OMRSD: GROUND TURNAROUND
FREQUENCY OF CHECKOUT IS MISSION DEPENDENT. PIC BITE CIRCUITRY,
VERIFIES ENERGY OUTPUT OF THE PIC'S. 50790A.230-I, -J, -K, -L.
- (C) INSPECTION:
REFER TO APPENDIX A, ITEM 1.
- (D) FAILURE HISTORY:
REFER TO APPENDIX A, ITEM 1.
- (E) OPERATIONAL USE:
NONE.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MD-AA2-335-01

- APPROVALS -

RELIABILITY ENGINEERING: W. R. MARLOWE
 DESIGN ENGINEERING : T. TAUFER
 QUALITY ENGINEERING : M. F. MERGEN
 NASA RELIABILITY : G.E.
 NASA SUBSYSTEM MANAGER :
 NASA EPD&C RELIABILITY :
 NASA QUALITY ASSURANCE :
 NASA EPD&C SUBSYS MGR :

Handwritten signatures and dates:
 2/28/90
 6/14/90
 6/14/90
 9/12/90
 9/25/90
 M.S. Dilman for T. Woodward
 9/25/90
 9/20/90