

PAGE: 1

PRINT DATE: 06/08/90

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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.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA2-335-02

SUBSYSTEM: STABILIZED PAYLOAD DEPLOYMENT SYSTEM

REVISION# 2 06/08/90

ITEM NAME: SWITCH, TOGGLE

CRITICALITY OF THIS
FAILURE MODE:1R3

■ FAILURE MODE:
SHORTED, FAILED CLOSED, 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)
CANNOT CONFIRM THAT FAILURE RESIDES IN THE SWITCH.

■ C)
PHYSICAL AND ELECTRICAL ISOLATION OF REDUNDANT ELEMENTS.

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
A SIMULTANEOUS ARM/FIRE SIGNAL WILL BE GIVEN TO THE PYRO INITIATOR
CIRCUIT WHENEVER THE ASSOCIATED CIRCUIT BREAKER IS CLOSED.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
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- (B) INTERFACING SUBSYSTEM(S):
LOSS OF PRIMARY TO SECONDARY PEDESTAL TRANSFER PIC CIRCUIT. REDUNDANT FIRE SWITCH AND PIC CIRCUIT WILL COMPLETE TRANSFER FUNCTION.
- (C) MISSION:
NO EFFECT. FIRST FAILURE
- (D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT. FIRST FAILURE.
- (E) FUNCTIONAL CRITICALITY EFFECTS:
LOSS OF ALL PRIMARY TO SECONDARY PEDESTAL TRANSFER CAPABILITY OR SUBSEQUENT LOSS OF THE SECONDARY PEDESTAL CAPABILITY FOLLOWING A SUCCESSFUL TRANSFER COULD RESULT IN A PARTIALLY DEPLOYED PAYLOAD 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.
- (C) INSPECTION:
REFER TO APPENDIX A, ITEM 1.
- (D) FAILURE HISTORY:
REFER TO APPENDIX A, ITEM 1.
- (E) OPERATIONAL USE:
NONE.

- APPROVALS -

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

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9/25/90
A.S. Dunbar for T. Woodward 9/10/90
9/20/90
9/20/90