

PAGE: 1

PRINT DATE: 06/08/90

SC502506
ATTACHMENT -
Page 35 of 152

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL HARDWARE

NUMBER: MO-AA1-705-X

SUBSYSTEM NAME: STABILIZED PAYLOAD DEPLOYMENT SYSTEM

REVISION : 2 06/08/90

	PART NAME VENDOR NAME	PART NUMBER VENDOR NUMBER
ASSEM :	MID JTSN CONT ASSY NO.1	V082-764360
SRU :	PYRO INITIATOR CONTROLLER	V080-764373

PART DATA

■ EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

- REFERENCE DESIGNATORS: 40V76A137 - PIC 6
: 40V76A137 - PIC 10
: 40V76A137 - PIC 17
: 40V76A137 - PIC 21

QUANTITY OF LIKE ITEMS: 4

FUNCTION:

PROVIDES THE CAPABILITY TO TRANSFER THE PEDESTAL DRIVE FROM THE PRIMARY PEDESTAL DRIVE TRAIN TO THE SECONDARY PEDESTAL DRIVE TRAIN. THIS XFER FUNCTION CAPABILITY IS ADDRESSED ONLY WHEN AN EARLIER MALFUNCTION IN THE PRIMARY PEDESTAL HAS OCCURRED. PIC 17 AND PIC 21 ARE FOR SYSTEM A; PIC 6 AND PIC 10 ARE FOR SYSTEM B.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA1-705-03

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

ITEM NAME: PYRO INITIATOR CONTROLLER
CRITICALITY OF THIS FAILURE MODE:1R3

■ FAILURE MODE:
PREMATURE OR INADVERTENT OUTPUT

MISSION PHASE:
00 ON-ORBIT

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

■ CAUSE:
PIECE PART STRUCTURAL FAILURE, MECHANICAL SHOCK, VIBRATION, THERMAL SHOCK, 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 ISOLATE COMPONENT FAILURE.

■ C)
PHYSICAL AND ELECTRICAL ISOLATION OF REDUNDANT ELEMENTS.

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
INADVERTENT PIC ACTIVATION FOLLOWING THREE FAILURES

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- (B) INTERFACING SUBSYSTEM(S):
POSSIBLE INADVERTENT PARTIAL PEDESTAL TRANSFER: LOSS OF PEDESTAL TRANSFER REDUNDANCY.
- (C) MISSION:
LOSS OF PEDESTAL REDUNDANCY
- (D) CREW, VEHICLE, AND ELEMENT(S):
CREW ACTION REQUIRED TO COMPLETE PEDESTAL TRANSFER.
- (E) FUNCTIONAL CRITICALITY EFFECTS:
THIS FAILURE MODE REQUIRES THREE PIC/AVIONICS FAILURES, INADVERTENT TRANSFER AND SUBSEQUENT LOSS OF SECONDARY PEDESTAL RESULTING IN PAYLOAD IN MID DEPLOYMENT WOULD CAUSING INABILITY TO CLOSE PAYLOAD BAY DOORS. RESULTING IN POSSIBLE LOSS OF CREW AND VEHICLE.

- DISPOSITION RATIONALE -

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

OMRSD: GROUND TURNAROUND
FREQUENCY OF CHECKOUT IS MISSION DEPENDENT.
PIC BITE CIRCUITRY VERIFIES ENERGY OUTPUT OF THE PIC'S UPON RECEIVING THE 'FIRE' COMMAND.
S070A.230-I
S070A.230-J
S070A.230-K
S070A.230-L
- (C) INSPECTION:
REFER TO APPENDIX H, ITEM 1.
- (D) FAILURE HISTORY:
REFER TO APPENDIX H, ITEM 1.
- (E) OPERATIONAL USE:
NONE.

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NUMBER: MO-AA1-705-03

- 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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