

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-AA1-705-01

REVISION# 2 06/08/90
SUBSYSTEM: STABILIZED PAYLOAD DEPLOYMENT SYSTEM
ITEM NAME: PYRO INITIATOR CONTROLLER
CRITICALITY OF THIS FAILURE MODE: 1R2

■ FAILURE MODE:
LOSS OF OUTPUT OR WEAK OUTPUT

MISSION PHASE:
OO 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) PASS
C) PASS

PASS/FAIL RATIONALE:

- A)
PRELAUNCH CHECKOUT.
- B)
CAPACITOR CHARGE/DISCHARGE CAN BE MONITORED BY CREW.
- C)
PHYSICAL AND ELECTRICAL ISOLATION OF REDUNDANT ELEMENTS.

- FAILURE EFFECTS -

■ (A) SUBSYSTEM:
LOSS OF ABILITY TO FIRE ONE NSI.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA1-705-01

- (B) INTERFACING SUBSYSTEM(S):
LOSS OF PIC ACTIVATED PEDESTAL DRIVE TRANSFER REDUNDANCY.
- (C) MISSION:
NO EFFECT
- (D) CREW, VEHICLE, AND ELEMENT(S):
NO EFFECT
- (E) FUNCTIONAL CRITICALITY EFFECTS:
LOSS OF BOTH PICS THAT PERFORM THE SAME FUNCTION WILL RESULT IN LOSS OF ABILITY TO DO A PYRO ACTIVATED TRANSFER AND COULD RESULT IN PAYLOAD IN MID DEPLOYMENT WITH 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.
S0790A.230-I
S0790A.230-J
S0790A.230-K
S0790A.230-L
- (C) INSPECTION:
REFER TO APPENDIX H, ITEM 1.
- (D) FAILURE HISTORY:
REFER TO APPENDIX H, ITEM 1.
- (E) OPERATIONAL USE:
NONE.

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: MO-AA1-705-01

- APPROVALS -

RELIABILITY ENGINEERING:	W. R. MARLOWE	9/10/90	: <u>W. R. Marlowe</u> 9/10/90
DESIGN ENGINEERING	: T. TAUFER		: <u>T. Tauffer</u> 6/14/90
QUALITY ENGINEERING	: M. F. MERGEN		: <u>M. F. Mergen</u> 9/14/90
NASA RELIABILITY	:		: <u>G. E. [unclear]</u> 9/17/90
NASA SUBSYSTEM MANAGER	:		: <u>[unclear]</u> 9/25/90
NASA EPD&C RELIABILITY	:		: <u>M. S. [unclear] for J. Woodward</u> 9/25/90
NASA QUALITY ASSURANCE	:		: <u>[unclear]</u> 9/25/90
NASA EPD&C SUBSYS MGR	:		: <u>[unclear] for F. [unclear]</u> 9/20/90