

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE

NUMBER: 05-6BA-2575 -X

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

REVISION: 0

08/15/88

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: FWD LCA 2	MC450-0055-0001
LRU	: FWD LCA 2	MC450-0055-0002
LRU	: FWD LCA 3	MC450-0056-0001
LRU	: FWD LCA 3	MC450-0056-0002
SRU	: CONTROLLER, PYRO INITIATOR	MC450-0018-0005

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

CONTROLLER, PYRO INITIATOR, PIC, FIRING CIRCUIT FOR NOSE LANDING GEAR, LEFT MAIN GEAR AND LIGHT MAIN GEAR BACKUP UPLOCK RELEASE 1 AND 2

REFERENCE DESIGNATORS: 83V76A18-PIC(3)
82V76A17-PIC(3)

QUANTITY OF LIKE ITEMS: 6
THREE PER FLCA - 2 & -3

FUNCTION:

REDUNDANT PIC'S PROVIDE ELECTRICAL OUTPUT (AFTER RECEIVING ARM, FIRE 1 AND FIRE 2 STIMULI) TO DUAL NSI'S IN EACH OF NOSE LANDING GEAR, LEFT MAIN GEAR AND RIGHT MAIN GEAR BACKUP UPLOCK RELEASE IN THE EVENT OF HYDRAULIC SYSTEM 1 FAILURE. PROVIDES MONITOR SIGNALS AND SELF TESTS.

FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE

NUMBER: 05-6BA-2575- 01

REVISION#: 1 07/02/99

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

LRU: FWD LCA 2

CRITICALITY OF THIS

ITEM NAME: CONTROLLER, PYRO INITIATOR

FAILURE MODE: 1R3

**FAILURE MODE:
LOSS OF OUTPUT**

MISSION PHASE: DO DE-ORBIT

VEHICLE/PAYLOAD/KIT EFFECTIVITY:

102	COLUMBIA
103	DISCOVERY
104	ATLANTIS
105	ENDEAVOUR

CAUSE:

PIECE PART FAILURE, CONTAMINATION, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY, THERMAL SHOCK

CRITICALITY 1/1 DURING INTACT ABORT ONLY?

REDUNDANCY SCREEN

A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:

A)

B)

FAILS "B" SCREEN BECAUSE PIC FAILURE IS NOT DETECTABLE IN FLIGHT.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

FIRST FAILURE - LOSS OF REDUNDANT PIC CAPABILITY TO COMPLETE FIRING STIMULUS TO EITHER NOSE LANDING GEAR, LEFT MAIN GEAR OR RIGHT MAIN GEAR BACKUP UPLOCK THRUSTERS

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(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - LOSS OF REDUNDANT PIC CAPABILITY TO COMPLETE FIRING STIMULUS TO EITHER NOSE LANDING GEAR, LEFT MAIN GEAR OR RIGHT MAIN GEAR BACKUP UNLOCK THRUSTERS

(C) MISSION:

FIRST FAILURE - NO EFFECT

(D) CREW, VEHICLE, AND ELEMENT(S):

FIRST FAILURE - NO EFFECT

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW/VEHICLE AFTER THREE FAILURES (LOSS OF HYDRAULIC GEAR EXTENSION PLUS LOSS OF DUAL BACKUP PIC'S) PREVENTING EXTENSION OF LANDING GEARS.

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX H, ITEM NO. 1 - PYRO INITIATOR CONTROLLER

(B) TEST:

REFER TO APPENDIX H, ITEM NO. 1 - PYRO INITIATOR CONTROLLER

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:

REFER TO APPENDIX H, ITEM NO. 1 - PYRO INITIATOR CONTROLLER

(D) FAILURE HISTORY:

CURRENT DATA ON TEST FAILURES, FLIGHT FAILURES, UNEXPLAINED ANOMALIES, AND OTHER FAILURES EXPERIENCED DURING GROUND PROCESSING ACTIVITY CAN BE FOUND IN THE PRACA DATA BASE.

(E) OPERATIONAL USE:

NONE

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- APPROVALS -

EDITORIALLY APPROVED : BNA : J. Kimura 7/6/99
TECHNICAL APPROVAL : VIA APPROVAL FORM : 96-CIL-011_05-6BA(2)