

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CIL HARDWARE

NUMBER: 05-6BA-2586-IM -X

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

REVISION: 6 - 07/27/97

PART DATA

	PART NAME	PART NUMBER
	VENDOR NAME	VENDOR NUMBER
LRU	: FWD PCA 3	V070-763360
SRU	: RELAY, LATCHING	MC455-0128-0001

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
RELAY, LATCHING, LANDING GEAR DOWN CONTROL CIRCUIT (4P2P)

REFERENCE DESIGNATORS: 83V76A24K9
83V76A24K10

QUANTITY OF LIKE ITEMS: 2
TWO, FPCA 3

FUNCTION:

THE LANDING GEAR DOWN RELAYS ALONG WITH THE ARM RELAYS INITIATE PYRO UPLOCK RELEASE CIRCUITS FOR RELEASING LANDING GEAR UPLOCK HOOKS IF SYSTEM HYDRAULIC MALFUNCTION. THESE RELAYS ALSO USE TO INITIATE NOSE LANDING GEAR EXTENSION PYRO ASSIST CIRCUITS.

EDITORIALLY APPROVED : BNA
EDITORIALLY APPROVED : JSC
TECHNICAL APPROVAL : VIA APPROVAL FORM

: J.K. Kumura 7/27/97
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: 96-CIL-011_05-6BA

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CRITICAL FAILURE MODE

NUMBER: 05-6BA-2586-IM - 01

REVISION# 5 05/18/94

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

LRU: FWD PCA 3

ITEM NAME: RELAY, LATCHING

CRITICALITY OF THIS FAILURE MODE: 1R3

FAILURE MODE:

OPEN, FAILS TO CONDUCT, FAILS TO TRANSFER (TO SET POSITION)

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 STRESS

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN

A) PASS
B) FAIL
C) PASS

PASS/FAIL RATIONALE:

A)

B)

FAILS "B" SCREEN BECAUSE RELAY FAILURE IS NOT FLIGHT DETECTABLE DUE TO PARALLEL REDUNDANCY.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:

FIRST FAILURE - NO EFFECT

(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - NO EFFECT

(C) MISSION:

FIRST FAILURE - NO EFFECT

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

FIRST FAILURE - NO EFFECT

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6BA-2586-IM - 01

(E) FUNCTIONAL CRITICALITY EFFECTS:

POSSIBLE LOSS OF CREW/VEHICLE WITH THE LOSS OF NOSE LANDING GEAR
EXTENSION POWERED ASSIST WHICH MAY BE REQUIRED IN ORDER TO ASSURE THE
NOSE LANDING GEAR IS FULLY EXTENDED PRIOR TO LANDING. REQUIRES MULTIPLE
FAILURES (E.G., THREE LATCHING RELAYS) BEFORE NOSE LANDING GEAR EXTENSION
POWERED ASSIST IS LOST.

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX C, ITEM NO. 3 - LATCHING RELAY

(B) TEST:

REFER TO APPENDIX C, ITEM NO. 3 - LATCHING RELAY

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH
OMRSD.

(C) INSPECTION:

REFER TO APPENDIX C, ITEM NO. 3 - LATCHING RELAY

(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 DATABASE.

(E) OPERATIONAL USE:

NONE

- APPROVALS -

PAE MANAGER : K. L. PRESTON
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DESIGN ENGINEERING : G. M. ANDERSON
NASA SSMA :
NASA SUBSYSTEM MANAGER :
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