

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 VENDOR NAME	PART NUMBER 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
: A. Seary
: 96-CIL-011_05-6BA

FAILURE MODES EFFECTS ANALYSIS (FMEA) -- CRITICAL FAILURE MODE
NUMBER: 05-6BA-2586-IM - 03

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: 1R2

FAILURE MODE:
SHORT TO STRUCTURE (GROUND)

MISSION PHASE:
DO DE-ORBIT

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

CAUSE:
PIECE PART FAILURE, VIBRATION, MECHANICAL SHOCK, PROCESSING ANOMALY

CRITICALITY 1/1 DURING INTACT ABORT ONLY? NO

REDUNDANCY SCREEN A) PASS
B) PASS
C) PASS

PASS/FAIL RATIONALE:

- A)
- B)
- C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
LOSS OF REDUNDANT LANDING GEAR BACKUP UPLOCK RELEASE AND REDUNDANT NOSE LANDING GEAR EXTENSION PYRO POWERED ASSIST.

(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 - 03

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE AFTER SECOND FAILURE (LOSS OF REMAINING NLG
EXTENSION BACKUP PYRO POWERED ASSIST) RESULTING IN LOSS CAPABILITY TO
EXTEND NOSE LANDING GEAR IN REQUIRED TIME.

-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 :
NASA EPD&C SUBSYS MGR :
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