

FAILURE MODES EFFECTS ANALYSIS (FMEA) - CIL HARDWARE
NUMBER: 05-6BA-2401 -X

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL
REVISION: 0 02/25/88

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, HYBRID DRIVER	MC477-0261-0002

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:

CONTROLLER, HYBRID DRIVER (HDC), TYPE I, NOSE LANDING GEAR UPLOCKED AND NOSE LANDING GEAR DOOR UPLOCKED SENSOR OUTPUT

REFERENCE DESIGNATORS: B2V76A17AR
B3V76A18AR

QUANTITY OF LIKE ITEMS: 2
ONE EACH: FLCA-2, FLCA-3

FUNCTION:

UPON RECEIPT OF NOSE LANDING GEAR UPLOCKED SIGNAL FROM PROXIMITY SENSOR ELEC. PKG 2 THE HDC: CONNECTS MAIN BUS POWER FOR ARMING PIC #2 FOR NOSE LANDING GEAR BACKUP UPLOCK RELEASE; PROVIDES FOR INHIBITING NOSE LANDING GEAR EXTENSION PYRO POWERED ASSIST PIC #2; PROVIDES POWER TO MDM FOR HDC STATUS; AND ENABLES NOSE LANDING GEAR UP EVENT INDICATOR.

UPON RECEIPT OF NOSE LANDING GEAR DOOR UPLOCKED SIGNAL FROM PROXIMITY SENSOR ELEC. PKG. 1 THE HDC: CONNECTS MAIN BUS POWER FOR ARMING PIC #1 FOR NOSE LANDING GEAR BACKUP UPLOCK RELEASE; PROVIDES FOR INHIBITING NOSE LANDING GEAR EXTENSION PYRO POWERED ASSIST PIC #1; PROVIDES POWER TO MDM FOR HDC STATUS; AND ENABLES NOSE LANDING GEAR UP EVENT INDICATOR.

FAILURE MODES EFFECTS ANALYSIS FMEA -- CIL FAILURE MODE

NUMBER: 05-6BA-2401-03

REVISION#: 1 06/28/99

SUBSYSTEM NAME: EPD&C - LANDING GEAR CONTROL

LRU: FWD LCA 2

CRITICALITY OF THIS

ITEM NAME: CONTROLLER, HYBRID DRIVER

FAILURE MODE: 1R2

FAILURE MODE:

INADVERTENT OUTPUT, CONDUCTS PREMATURELY, FAILS ON

MISSION PHASE: DO DE-ORBIT

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

CAUSE:

PIECE PART FAILURE, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS,
CONTAMINATION, 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:

FIRST FAILURE - PERMITS PYRO FIRING OF NOSE LANDING GEAR BACKUP UPLOCK
RELEASE AND POWERS INHIBIT CIRCUITS OF NOSE LANDING GEAR EXTENSION PYRO
POWERED ASSIST.

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(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - LOSS OF REDUNDANCY. FALSE INHIBIT PRECLUDES FIRING OF ONE OF TWO PIC'S FOR NOSE LANDING GEAR EXTENSION PYRO POWERED ASSIST.

(C) MISSION:

FIRST FAILURE - NO EFFECT. SECOND FAILURE (REMAINING HYBRID DRIVER) - LOSS OF CAPABILITY TO ASSIST NOSE LANDING GEAR EXTENSION WITH POSSIBLE LOSS OF CREW/VEHICLE UPON LANDING IF AIR LOADS PRECLUDE NOSE LANDING GEAR TO FULLY EXTEND IN REQUIRED TIME.

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

FIRST FAILURE - NO EFFECT. SECOND FAILURE (REMAINING HYBRID DRIVER) - LOSS OF CAPABILITY TO ASSIST NOSE LANDING GEAR EXTENSION WITH POSSIBLE LOSS OF CREW/VEHICLE UPON LANDING IF AIR LOADS PRECLUDE NOSE LANDING GEAR TO FULLY EXTEND IN REQUIRED TIME.

(E) FUNCTIONAL CRITICALITY EFFECTS:

-DISPOSITION RATIONALE-

(A) DESIGN:

REFER TO APPENDIX B, ITEM 1 - HYBRID DRIVER

(B) TEST:

REFER TO APPENDIX B, ITEM 1 - HYBRID DRIVER

GROUND TURNAROUND TEST

ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:

REFER TO APPENDIX B, ITEM 1 - HYBRID DRIVER

(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 PRACTICE DATA BASE.

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(E) OPERATIONAL USE:
NONE

- APPROVALS -

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