FAILURE MODES EFFECTS ANALYSIS (FMEA) – CIL HARDWARE
NUMBER: 05-6BA-2407 -X

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

PART DATA

	PART NAME VENDOR NAME	PART NUMBER 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 - LEFT/RIGHT MAIN GEAR NO WEIGHT-ON-WHEEL AND MDM POWER INPUT

REFERENCE DESIGNATORS: 82V76A17AR
83V76A18AR

QUANTITY OF LIKE ITEMS: 2
TWO, ONE PER FLCA - 2 & 3 FOR EACH LEFT/RIGHT MAIN LANDING GEAR

FUNCTION:
WHEN EITHER LEFT/RIGHT MAIN GEAR NO-WEIGHT-ON-WHEELS SIGNAL, THROUGH A PROXIMITY SENSOR ELECT. PACKAGE, DROPS LOW, THE HDC REMOVES BRAKE INHIBIT INPUTS TO THE BRAKE/SKID CONTROL BOX AND ENABLES ANTI-SKID BRAKING.

FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE

NUMBER: 05-6BA-2407- 02

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:** 1R3

FAILURE MODE:
INADVERTENT OUTPUT, FAILS "ON", FAILS TO TURN "OFF" (INDICATES FALSE NO WEIGHT-ON-WHEEL)

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 FAILURE IS NOT DETECTABLE DURING FLIGHT.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
FIRST FAILURE - POWER PREMATURELY CONDUCTED TO THE MONITORING MDM.

(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - ASSOCIATED RELAY WOULD BE CLOSED BUT NO BRAKE INHIBIT SIGNAL IS APPLIED UNTIL TWO ADDITIONAL RELAYS ARE CLOSED.

(C) MISSION:
FIRST, SECOND, AND THIRD FAILURE - BRAKE INHIBIT IS APPLIED TO ONE OF TWO ANTI-SKID/BRAKE BOXES. NO EFFECT TO NORMAL LANDING

(D) CREW, VEHICLE, AND ELEMENT(S):
FIRST, SECOND, AND THIRD FAILURE - BRAKE INHIBIT IS APPLIED TO ONE OF TWO ANTI-SKID/BRAKE BOXES. NO EFFECT TO NORMAL LANDING

(E) FUNCTIONAL CRITICALITY EFFECTS:
POSSIBLE LOSS OF CREW/VEHICLE IF VEHICLE BRAKING CAPABILITY IS LOST. REQUIRES FIVE FAILURES (THREE HDCS IN SERIES PLUS MAIN AND BACKUP HYDRAULIC SYSTEMS) BEFORE EFFECT IS MANIFESTED.

-DISPOSITION RATIONALE-

(A) DESIGN:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER CONTROLLER

(B) TEST:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER CONTROLLER

GROUND TURNAROUND TEST
ANY TURNAROUND CHECKOUT TESTING IS ACCOMPLISHED IN ACCORDANCE WITH OMRSD.

(C) INSPECTION:
REFER TO APPENDIX B, ITEM NO. 1 - HYBRID DRIVER 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:

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AFTER ANTI-SKID/BRAKE FAILURE (LOSS OF BRAKES WITH ANTI-SKID ON), COMMANDER CAN SWITCH ANTI-SKID OFF TO OBTAIN ONE HUNDRED PERCENT MANUAL BRAKING WITHOUT ANTI-SKID PROTECTION.

- APPROVALS -

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