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	MC477-0262-0002

EXTENDED DESCRIPTION OF PART UNDER ANALYSIS:
CONTROLLER, HYBRID DRIVER (HDC), TYPE II, NOSE LANDING GEAR EXTENSION POWERED ASSIST NO. 1 AND NO. 2

REFERENCE DESIGNATORS: 82V76A17AR(2)
83V76A18AR(2)

QUANTITY OF LIKE ITEMS: 4
FOUR, 2/ FLCA 2 & 3

FUNCTION:
WITH NOSE LANDING GEAR ARM AND DOWN STIMULI, THE HDC DELAYS ITS OUTPUT BY ONE SECOND TO THE FIRE 1 CIRCUIT AND SIGNALS SERIES HDC WHICH DELAYS FIRE 2 COMMAND ANOTHER SECOND TO THE ASSOCIATED PIC FOR NOSE LANDING GEAR EXTENSION POWERED ASSIST FUNCTION.

FAILURE MODES EFFECTS ANALYSIS FMEA – CIL FAILURE MODE
NUMBER: 05-6BA-2413- 02

REVISION#: 1 08/28/99

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

MISSION PHASE: DO DE-ORBIT

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

CAUSE:
PIECE PART FAILURE, CONTAMINATION, MECHANICAL SHOCK, VIBRATION, THERMAL STRESS, PROCESSING ANOMALY

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 HYBRID DRIVER FAILURE IS NOT FLIGHT DETECTABLE.

C)

- FAILURE EFFECTS -

(A) SUBSYSTEM:
FIRST FAILURE - NO EFFECT. SERIES SWITCHES, COMMANDS AND INHIBITS PROTECT AGAINST PREMATURE FAILURES.

(B) INTERFACING SUBSYSTEM(S):

FIRST FAILURE - NO EFFECT. SERIES SWITCHES, COMMANDS AND INHIBITS PROTECT AGAINST PREMATURE FAILURES.

(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 DUE TO FAILURE OF NOSE LANDING GEAR EXTENSION POWERED ASSIST PYRO AFTER MULTIPLE FAILURES (FAIL ON OF SERIES TYPE II HDC AND TYPE I HDC ASSOCIATED WITH THE FIRE 2 COMMAND FOR REDUNDANT PIC'S). THIS PREVENTS ARMING OF THE PIC'S BECAUSE ARM AND F2 COMMANDS NOW OCCUR AT THE SAME TIME WHEREAS F2 COMMAND SHOULD COME APPROXIMATELY 1 SECOND AFTER ARM COMMAND. LOSS OF PIC'S PREVENTS NOSE LANDING GEAR EXTENSION IN REQUIRED TIME.

-DISPOSITION RATIONALE-

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

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

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

(C) INSPECTION:
REFER TO APPENDIX B, ITEM NO. 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 PRACA DATA BASE.

(E) OPERATIONAL USE:
NONE

- APPROVALS -

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