

ALERT SERVICE BULLETIN

Bell Helicopter **TEXTRON**
A Subsidiary of Textron Inc.

NO. 430-02-24

DATE 02-12-02

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DATE

REV

MODEL AFFECTED: 430

SUBJECT: ISOLATION OF FADEC-ECU POWER SUPPLIES

HELICOPTERS AFFECTED: Model 430 helicopters serial number 49001 through 49088.

[Model 430 helicopters serial numbers 49089 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: No later than December 31, 2002.

DESCRIPTION:

DC power is supplied to each FADEC-ECU from the No.1 DC Emergency Bus and the No.2 DC Emergency Bus. If there is a failure of one of the Emergency Busses there is a possibility that the failed bus may now be supplied with electrical power from the serviceable Emergency Bus via the FADEC-ECU, causing the FADEC-ECU circuit breakers to trip.

This bulletin revises the system wiring to isolate the two DC power inputs to the FADEC-ECU.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada approved.

MANPOWER:

Approximately 8 man-hours are required to complete this bulletin. Man-hours are based on hands-on time, and may vary with personnel and facilities available.

WARRANTY:

Owners/operators of 430 helicopter's who comply with the instructions outlined in this bulletin will receive a special 100% warranty credit for the replacement kit contained in the "Required Material" section of this bulletin.

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AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOG BOOK UPON ACCOMPLISHMENT
IF OWNERSHIP OF AIRCRAFT HAS CHANGED PLEASE FORWARD TO NEW OWNER

To receive this credit:

- Purchase the required kit from an approved BHTI supply source.
- Comply with the instructions contained in this bulletin no later than December 31, 2002.
- Submit a completed malfunction report to BHTI Warranty no later that 30 days after completion of this bulletin.

-NOTE-

Customers who fail to comply with the instruction in this bulletin, after December 31, 2002 are not eligible for the special warranty credit provisions listed above.

MATERIAL:

Required Material:

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Helicopter Textron Supply Center.

Material can be procured as kit P/N CA-430-02-24 and consists of the following:

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
30-251-1CC	Diode Assembly	4
30-266-1	End Cap	4
140-039-22	Wire	2 foot
M39029/22-191	Contact	8
M81824/1-1	Splice	3

The following wires will also be required and should be locally fabricated using 140-039-22 wire.

<u>Wire Number</u>	<u>Length</u>	<u>Wire Spec</u>
E414A22	6 Inches	M22759/41-22-9
E415A22	6 inches	M22759/41-22-9

SPECIAL TOOLS:

- M22520/5-100 Die with M22520/5-103 Die Assy. or an AD-1377 Crimping Tool
- M22520/7-01 Crimping Tool
- M22520/7-11 Positioner
- M81969/14-01 Insertion/Extraction Tool
- M81969/14-10 Insertion/Extraction Tool

WEIGHT AND BALANCE:

No change

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-430-MM-10 Maintenance Manual
BHT-430-MM-12 Maintenance Manual
BHT-SPM-ELEC

PUBLICATIONS AFFECTED:

BHT-430-MM-10 (IPB)
BHT-430-MM-12

ACCOMPLISHMENT INSTRUCTIONS:

(Refer to Wiring Diagrams in Figure 1 and Figure 2)

1. Prepare the helicopter for maintenance.
2. Ensure all power is removed from the helicopter.
3. Disconnect the aircraft battery.
4. Remove the fifteen (15) screws and two (2) dzus fasteners holding the aft overhead console circuit breaker panel. Carefully lower the panel.
5. At Sta 171.67, locate terminal block TB1. Using an extraction tool, P/N M81969/14-01, remove wire, E427C22, from module N, position A. Cut off the contact and cap the wire using end cap, P/N 30-266-1.
6. At terminal block TB1, remove diode, (1CR25), from between module K, position Z and module N, position E, using an extraction tool, P/N M81969/14-01. Discard the diode.
7. Insert the new diode assembly (1CR25), P/N 30-251-1CC, into TB1, between module K, position Z and module N, position E, using an insertion tool, P/N M81969/14-01. (Insert the cathode (grey or silver line) into position NE).
8. At terminal block TB1, remove diode, (1CR26), from between module N, position D and module N, position F, using an extraction tool, P/N M81969/14-01. Discard the diode.
9. Insert the new diode assembly (1CR26), P/N 30-251-1CC, into TB1, between module N, position D and module N, position F, using an insertion tool, P/N M81969/14-01. (Insert the cathode (grey or silver line) into position NF).

10. Using an extraction tool, P/N M81969/14-01, remove diode, 1CR98 from terminal block TB1, module P, position Y, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB1, module N, position L.

- NOTE -

It may be necessary to extend wires E129C22 and E420B22. Use wire, P/N 140-039-22, and splice P/N M81824/1-1 to extend the wire.

11. Using an extraction tool, P/N M81969/14-01, remove wire, E129C22, from terminal block TB1, module K, position Y, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB1, module P, position T.
12. Using an extraction tool, P/N M81969/14-01, remove wire, E420B22, from terminal block TB1, module N, position H, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB1, module P, position Y.
13. Using an extraction tool, P/N M81969/14-01, remove wire, E422A22, from terminal block TB1, module P, position Z, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB1, module N, position M.
14. Using a crimping tool, P/N M22520/7-01, and positioner P/N M22520/7-11, crimp qty 2 new contact, P/N M39029/22-191, on to new wire E415A22.
15. Using an insertion tool, P/N M81969/14-01, insert wire, E415A22, into terminal block TB1, between module N position H and module P position W.
16. At Sta 171.67, locate terminal block TB2. Using an extraction tool, P/N M81969/14-01, remove wire, E428C22, from module P, position P. Cut off the contact and cap the wire using end cap, P/N 30-266-1.
17. At terminal block TB2, remove diode, (1CR23), from between module P, position N and module P, position T, using an extraction tool, P/N M81969/14-01. Discard the diode.
18. Insert the new diode assembly (1CR23), P/N 30-251-1CC, into TB2, between module P, position N and module P, position T, using an insertion tool, P/N M81969/14-01. (Insert the cathode (grey or silver line) into position PT).
19. At terminal block TB2, remove diode, (1CR24), from between module K, position L and module P, position W, using an extraction tool, P/N M81969/14-01. Discard the diode.
20. Insert the new diode assembly (1CR24), P/N 30-251-1CC, into TB2, between module K, position L and module P, position W, using an insertion tool, P/N M81969/14-01. (Insert the cathode (grey or silver line) into position PW).

- NOTE -

It may be necessary to extend wires E130C22. Use wire, P/N 140-039-22, and splice P/N M81824/1-1 to extend the wire.

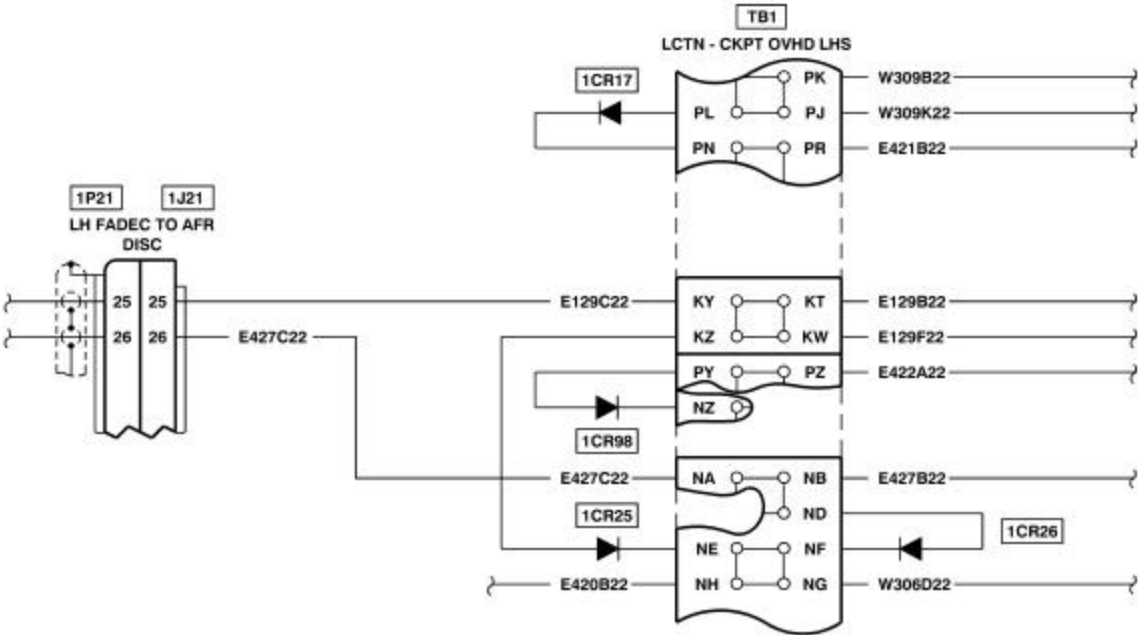
21. Using an extraction tool, P/N M81969/14-01, remove wire, E130C22, from terminal block TB2, module K, position K, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB2, module P, position F.
22. Using an extraction tool, P/N M81969/14-01, remove wire, E420A22 (S/N 49052 to 49094) or E420C22 (S/N 49001 to 49051), from terminal block TB2, module P, position Y, and using an insertion tool, P/N M81969/14-01, insert in terminal block TB2, module P, position H.
23. Using a crimping tool, P/N M22520/7-01, and positioner P/N M22520/7-11, crimp qty 2 new contact, P/N M39029/22-191, on to new wire E414A22.
24. Using an insertion tool, P/N M81969/14-01, insert wire, E414A22, into terminal block TB2, between module P position E and module P position Y.
25. Carefully install the aft overhead control console circuit breaker panel and re-secure the two (2) dzus fasteners and fifteen (15) screws.
26. At the LH FADEC connector (1J21), using an extraction tool, P/N M81969/14-10, remove wire, E427C22, from position 26. Cut off the contact and cap the wire using end cap, P/N 30-266-1.
27. At the RH FADEC connector (1J20), using an extraction tool, P/N M81969/14-10, remove wire, E428C22, from position 26. Cut off the contact and cap the wire using end cap, P/N 30-266-1.
28. Reconnect the aircraft battery.
29. Carry out an operational check of the FADEC-ECU system as follows:

- NOTE -

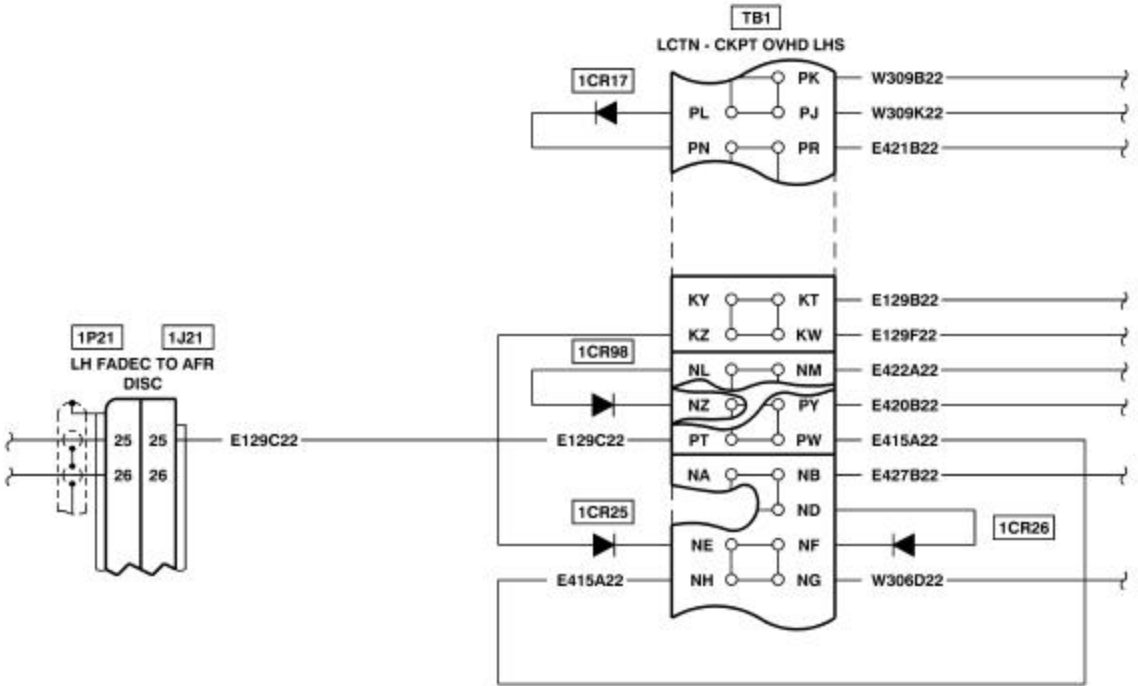
Use external power during ground maintenance procedures to prevent battery depletion.

- a. Apply a 28 Vdc power source to the aircraft. (BHT-430-MM-10).
- b. Open the engine No.1 FADEC circuit breakers (CB-F5 and CB-F13) and the engine No.2 FADEC circuit breakers (CB-F6 and CB-F14). Verify that the red ECU warning light above the engine No.1 torque display and above the engine No.2 torque display, on the IIDS primary screen, is on.
- c. Close the engine No.1 FADEC circuit breaker (CB-F5). Verify that the red ECU warning light above the engine No.1 torque display, on the IIDS primary screen, goes off.
- d. Open the engine No.1 FADEC circuit breaker (CB-F5) and close the engine No.1 FADEC circuit breaker (CB-F13). Verify that the red ECU warning light above the engine No.1 torque display, on the IIDS primary screen, stays off.

- e. Close the engine No.1 FADEC circuit breaker (CB-F5).
 - f. Close the engine No.2 FADEC circuit breaker (CB-F6). Verify that the red ECU warning light above the engine No.2 torque display, on the IIDS primary screen, goes off.
 - g. Open the engine No.2 FADEC circuit breaker (CB-F6) and close the engine No.2 FADEC circuit breaker (CB-F14). Verify that the red ECU warning light above the engine No.2 torque display, on the IIDS primary screen, stays off.
 - h. Close the engine No.2 FADEC circuit breaker (CB-F6).
 - i. Remove the DC power source from the aircraft.
30. Annotate the helicopter records to reflect compliance with this bulletin.
31. Return the helicopter to flight status.



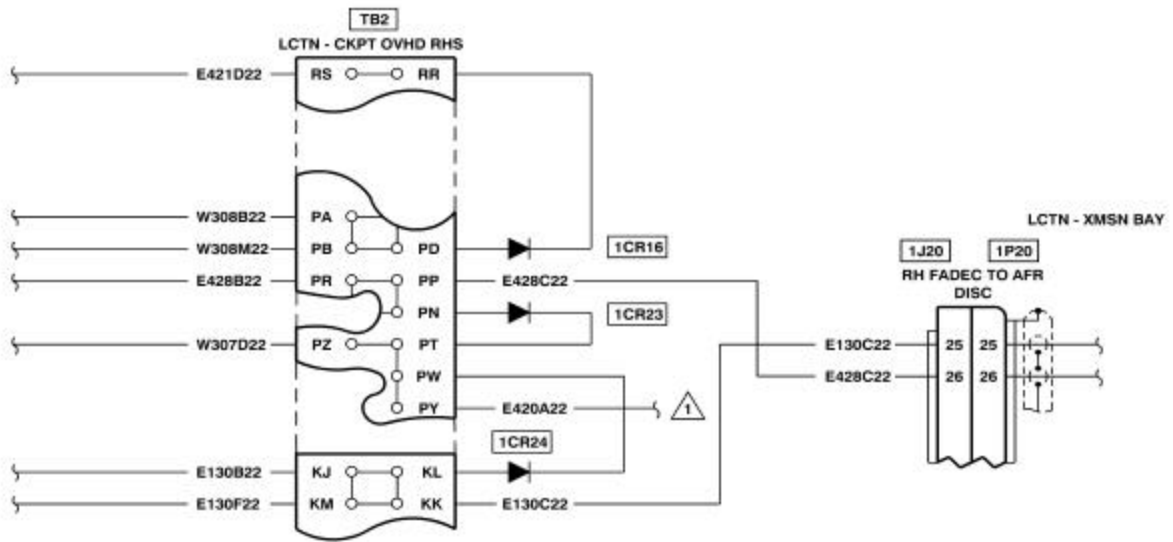
PRE MODIFICATION



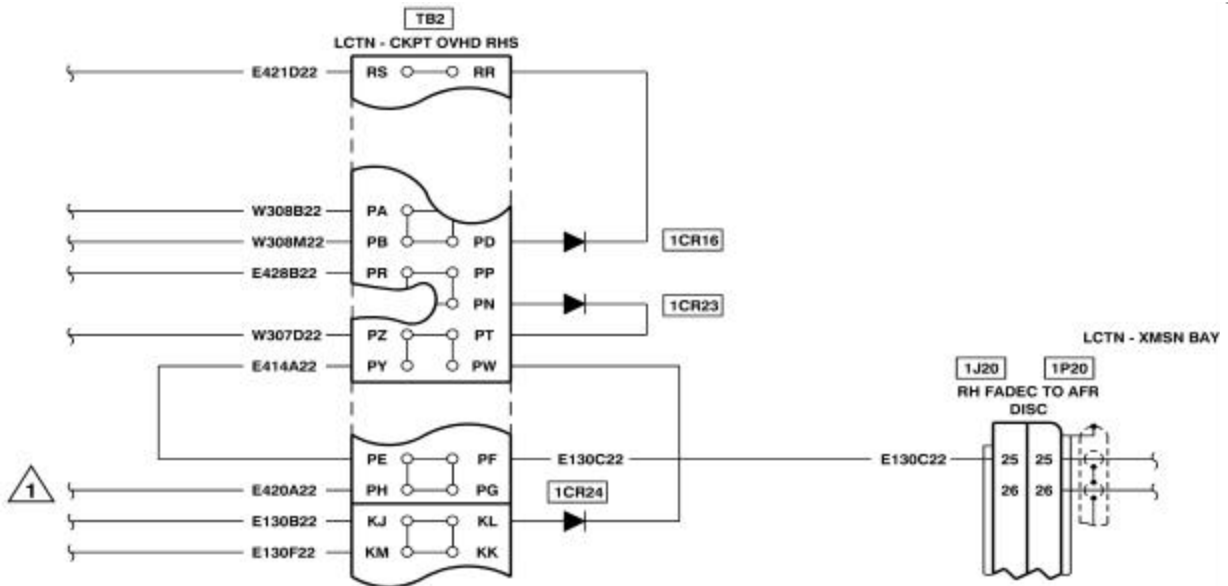
POST MODIFICATION

No.1 FADEC-ECU Power Supply Wiring Diagram

Figure 1



PRE MODIFICATION



NOTE



Wire E420A22 effective on 49052 - 49094.
Wire E420C22 effective on 49001 - 49051.

POST MODIFICATION

No.2 FADEC-ECU Power Supply Wiring Diagram

Figure 2