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July 20, 2001

TO: Recipients of Enstrom Helicopter Service Directive Bulletins.

SUBJECT: CANCELLATION OF SERVICE DIRECTIVE BULLETIN NO. 0086, ELECTRICAL SYSTEM MAINTENANCE AND INSPECTION FOR PROPER OPERATION, 12 VOLT.

This letter transmits the cancellation of Service Directive Bulletin No. 0086. This SDB is superseded by Service Directive Bulletin No. 0090. SDB 0090 is approved by the FAA as an alternate means of compliance with AD 97-20-04.

TECHNICAL PUBLICATIONS
ENSTROM HELICOPTER CORPORATION

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SERVICE DIRECTIVE BULLETIN

DATE: March 31, 1996

1. SUBJECT: : Electrical System Maintenance and Inspection for Proper Operation, 12 Volt

2. MODELS: Enstrom F-28A, 280, F-28C and 280C Models

3. EFFECTIVITY: All Models Noted That Were Manufactured Prior To April 18, 1980 Must Comply With This Service Directive Bulletin

4. BACKGROUND:

Enstrom has had 14 reported incidents of electrical control system problems in the past 21 years. This compilation of incidents is based on reported FAA service difficulty reports. Further investigation revealed at least four ships claimed no over-voltage relay protection was installed. Ten other ships claimed failure of either the voltage regulator or the over-voltage relay. We have had at least one verified report of a system over-voltage failure with an over-voltage relay installed.

5. GENERAL INFORMATION:

All of the failed systems used a Prestolite #VSF7203 voltage regulator and any of the following over-voltage relays, P/N #X17621, #X16799 or FOC-4002A. The voltage regulator #VSF7203 fails in the closed or shorted position resulting in a massive voltage increase. The over-voltage relay is electro-mechanical and trips fast enough to protect the circuit when it is functioning correctly. These control systems become more unreliable with service and time because of increased degradation of the electro-mechanical relay and the sensing connections to ground and the bus bar.

6. COMPLIANCE:

Within the next five hours of service, all owners and operators must accomplish the following:

6.1) Review the emergency section of the flight manual for the correct procedures to take when smoke is detected in the cabin or when the amp meter indicates an electrical problem.

6.2) Conduct an inspection of the electrical system to determine the part numbers of the voltage regulator and the over-voltage relay that are installed.

6.3) If the inspection reveals Prestolite components, the following must be accomplished:

6.3.1) Determine if the system is operational by starting the engine and observing the amp meter at 2200 rpm.

6.3.2) Using a D.C. voltmeter, check the alternator output voltage. This voltage should read 14.2 + .2 to -.4 volts. If out of tolerance, correct by removing cap on regulator face and adjust as required, if voltage cannot be adjusted replace regulator.

6.3.3) The over-voltage relay, Prestolite part numbers X17621, X16799 or FOC-4002A, should be tested per page 3, Figure 1. Relays that do not pass the test must be replaced. The replacement part number is FOC-4002A for a 12-volt system.

6.3.4) Helicopters found without any over-voltage relay protection must have one installed. Please use part number FOC-4002A for a 12-volt system. Installation information is shown on page 3, Figure 2.

6.4) Owners and operators wishing to update their helicopters to a fully transistorized voltage control system can do so by installing an ECD-069-11 controller and modifying the wiring to the schematic on page 4, Figure 3. Note: The failure mode of this system is "0" volts output.

6.5) Components noted in paragraphs 6.3.3 and 6.4 may be acquired through Enstrom Customer Service Department.

7. MAN-HOURS: 1.5 hours

8. WARRANTY: None

9. WEIGHT: N/A

10. LOG BOOK: Entry Required

11. REPETITIVE INSPECTIONS:

11.1 Check amp meter for correct system operation all pre-flight run-ups per paragraph 6.3.1.

11.2 The Prestolite electro-mechanical over-voltage control relays should be tested per paragraph 6.3.3 at all annual inspections for correct operation.

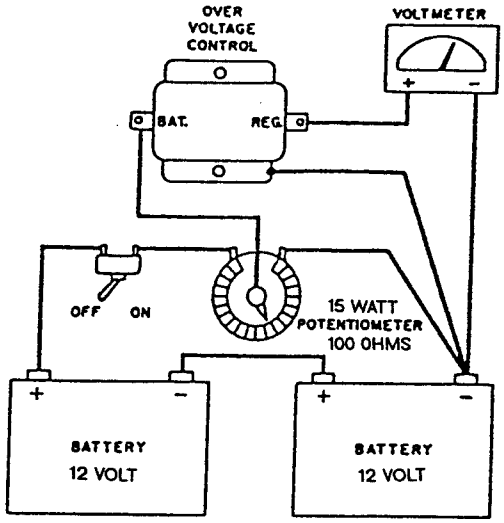

Figure 1. Over-Voltage Relay Test

TEST FIGURES ARE AT 75°F

12 v system — Relay contacts open between 16.2 and 16.8 volts. Use 18 or 24 volts to test.

NOTE:

1. These units are not adjustable. Replace the overvoltage control if it does not test to specifications.
2. Most aircraft electrical shops can perform this test.
3. A variable D.C. power pack can be used in place of the batteries and potentiometer.

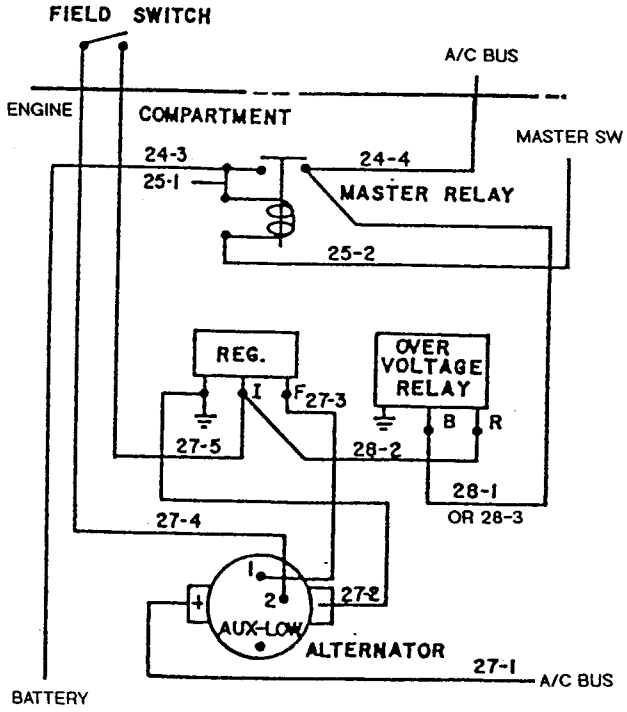

Figure 2. Installation Schematic For Over-Voltage Relay

Schematic showing installation of Prestolite #FOC-4002A for a 12-volt system.

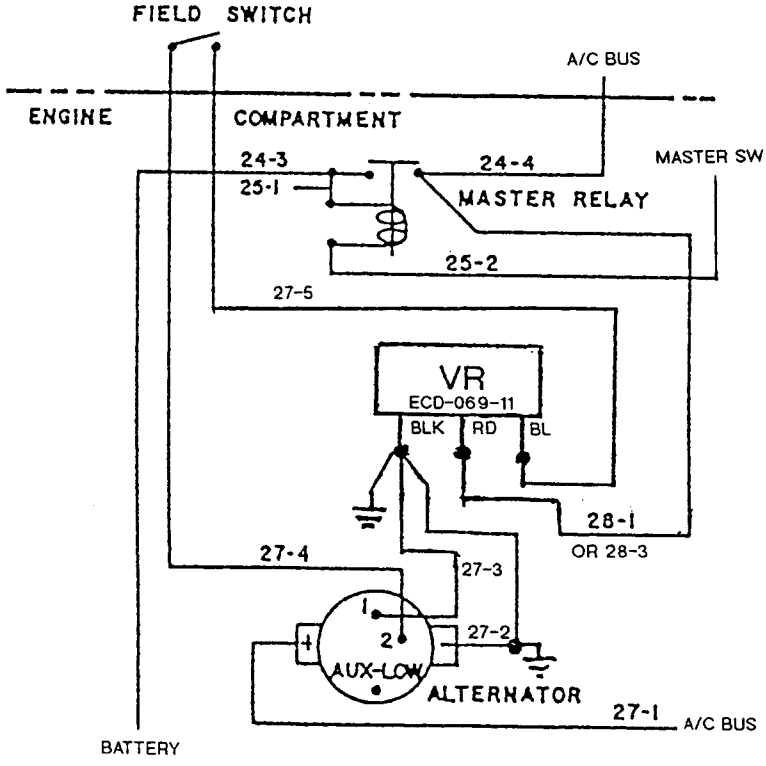

Figure 3. Installation Schematic For ECD-069-11 Voltage Control

1. Remove over-voltage relay.
2. Remove XSR-7203 voltage regulator.
3. Install ECD-069-11 voltage controller.
4. Hook red wire from regulator to wire 28-3 (or 28-1).
5. Hook blue wire to wire 27-5 to field SW.
6. Ground wires (27-2)(27-3) and the black wire to the bolt at base of controller.

NOTE:
1. ECD-069-11 voltage controller has built in over-voltage protection.
2. This schematic is representative of wire numbers used on page MM-9-14 of the "C" Supplement.