CHEVROLET—CENTRAL OFFICE

DIVISION OF GENERAL MOTORS CORPORATION
DETROIT 2, MICHIGAN

TECHNICAL SERVICE BULLETIN

Technical Service Department

SUBJECT: REVISED DIAGNOSIS AND ADJUSTMENT PROCEDURE - 1963 DELCOTRON TWO UNIT VOLTAGE REGULATORS

BULLETIN NO. DR #594

SECTION VIy

TO: ALL CHEVROLET DEALERS

DATE May 13, 1963

A revised and greatly simplified procedure to diagnose 1963 Delcotron two unit voltage regulator problems and to properly adjust the regulator has been developed. Details of the new procedure are listed on the following pages.

To obtain satisfactory results when regulators are being adjusted, it is essential that the revised procedure be followed exactly as written.

This new procedure cancels and supersedes all previously published service adjustment procedures.

Flat Rate Time

Voltage Regulator - Test and Adjust .5 hrs.

Director, Technical Service Department

GGB/afm

INITIAL _____

TWO UNIT DELCOTRON REGULATOR DIAGNOSIS AND VOLTAGE ADJUSTMENT PROCEDURE

Before any tests are made on the regulator, the fan belt should be checked for proper tension, the electrical circuit wiring for tight connections and any possible breaks in the vicinity of the terminals. The battery posts and clamps should be clean and tight.

1. Connect a voltmeter from the hot terminal on the horn relay to ground on regulator base. (Be sure alligator clip does not touch a resistor or terminal extension under the regulator.)

2. Start engine and run at 1500 RPM or above. Turn on high beam headlights and high speed heater blower motor. If voltage is 12-1/2 volts or more, turn off electrical loads and stop engine, proceed directly to Step #3.

   If voltage is less than 12-1/2 volts:

   a. Check Delcotron output as shown in the "Delcotron Output Test Procedure - Voltmeter Method."

   b. If output test indicates Delcotron is functioning properly, remove four terminal regulator connector and regulator cover. Reinstall connector. Run engine at 1500 RPM or above, and turn on high beam headlights and high speed blower motor. Turn voltage adjusting screw clockwise (See Figure #1) until voltage is 12 1/2 volts or slightly higher. Turn off loads, stop engine, reinstall cover and proceed to step #3.

   NOTE: Voltage will not greatly exceed 12-1/2 volts until the battery develops a surface charge, a few minutes generally, unless the battery is severely discharged or is hot.

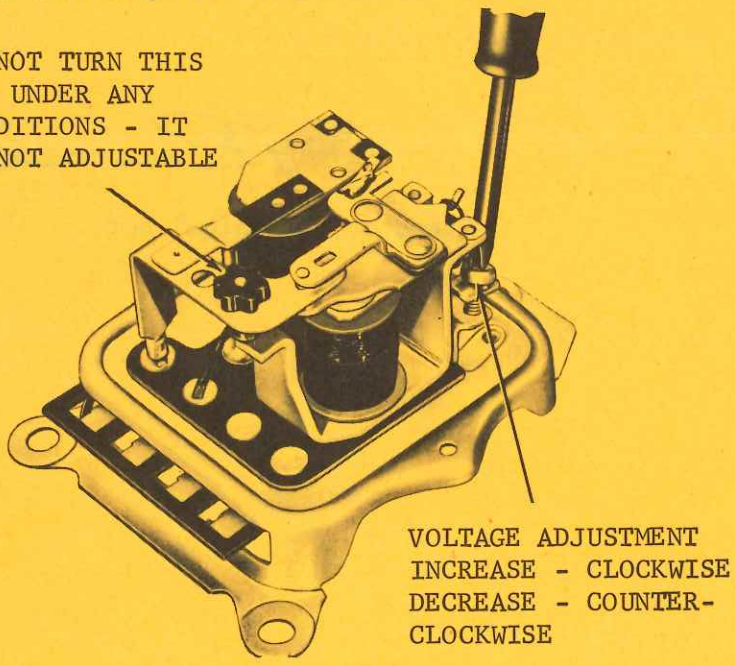

FIGURE I

c. If 12-1/2 volts cannot be obtained during previous step, install a new regulator and repeat Step #3.

3. Connect a 1/4 ohm 25 watt fixed resistor into the charging circuit at the hot terminal of horn relay, per Figure #2.

NOTE: A resistor can be made from production parts as is shown on Page 5 , or it can be purchased commercially.

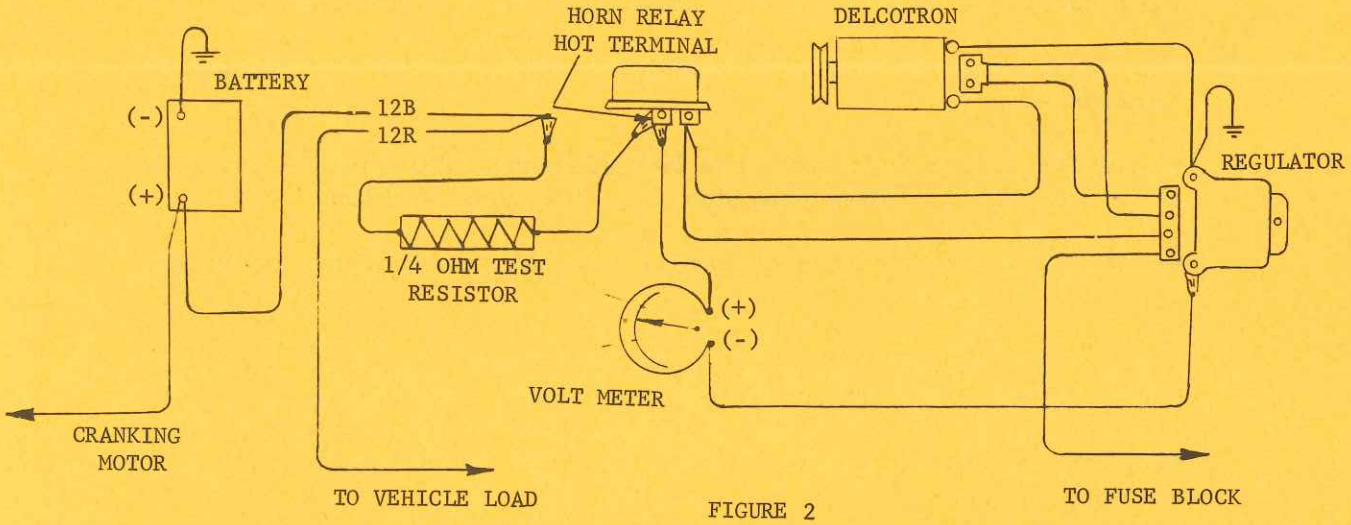

FIGURE 2

4. Run engine at 1500 RPM or above for at least 15 minutes of warm-up, then cycle regulator voltage control by stopping engine. Re-start engine and bring speed to 1500 RPM or above and read voltage. If voltage is 13.5 to 15.2, the regulator is functioning properly.

5. If voltage is not within 13.5 to 15.2 volts, leave engine running at 1500 RPM or above and:

   a. Remove four-terminal regulator connector and regulator cover.

   b. Re-connect four-terminal connector and adjust voltage to 14.2 to 14.6.

   c. Remove four-terminal connector and re-install regulator cover; re-install connector.

   d. Continue running engine at 1500 RPM or above for 5-10 minutes to re-establish regulator internal temperature.

e. Cycle regulator voltage control by stopping and re-starting engine and bringing engine speed back to 1500 RPM or above. Read voltage. A reading between 13.5 and 15.2 indicates a good regulator.

CAUTION: Be sure four-terminal regulator connector is disconnected when removing or installing cover. This is to prevent regulator damage by short circuits. The same effect can be obtained by stopping engine when removing or re-installing regulator cover.

Delcotron Output Test Procedure - Voltmeter Method

1. Disconnect the four-terminal connector from the regulator.

2. Disconnect the two-terminal connector from the Delcotron F and R terminals.

3. Connect a jumper wire from the Delcotron BAT terminal to the Delcotron F terminal. This provides full field excitation.

4. Connect a voltmeter from the Delcotron BAT terminal to the Delcotron GRD terminal.

5. Start engine and turn on high beam headlights and high speed heater blower motor. Run engine 1500 RPM or above and note whether voltage exceeds 12.5 volts. If voltage exceeds 12.5 volts within a few minutes, Delcotron output is satisfactory. Stop engine and reconnect wiring.

NOTE: If battery is in a normal state of charge, voltage will exceed 12.5 volts as soon as engine speed is increased.

6. If voltage is less than 12.5 volts, refer to the appropriate shop manual for trouble diagnosis aids, (Diodes, field circuit chects, etc.)

Test Resistor

A 1/4 ohm 25 watt fixed resistor is required to properly adjust the Delcotron regulator. Such a resistor may be procured locally or can be made up from production parts.

1. Procure two 1.8 ohm ignition circuit resistance wires. (This is the 55 inch resistance wire that is connected to the coil positive terminal. The wires may be obtained from new or scrap wiring harnesses.)

2. Cut each of the two wires in half.

3. Strip off about 1/2 inch of insulation from each end of the wires.

4. Parallel the four wires and crimp on a terminal at each end. The finished resistor is illustrated below.