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SERVICE INFORMATION

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ALTERNATOR REGULATOR CONNECTIONS USED ON 15, 16, 17, 18 ACR TYPE ALTERNATORS

The Lucas ACR type alternator (build-in regulator) has undergone various modifications. The two main areas presently affecting service is the vehicle harness plug connections and the regulator wiring connections.

The following illustrations show the two and one plug alternator connection arrangements, and the associate regulator connections.

REGULATOR TESTING — See Page 4.

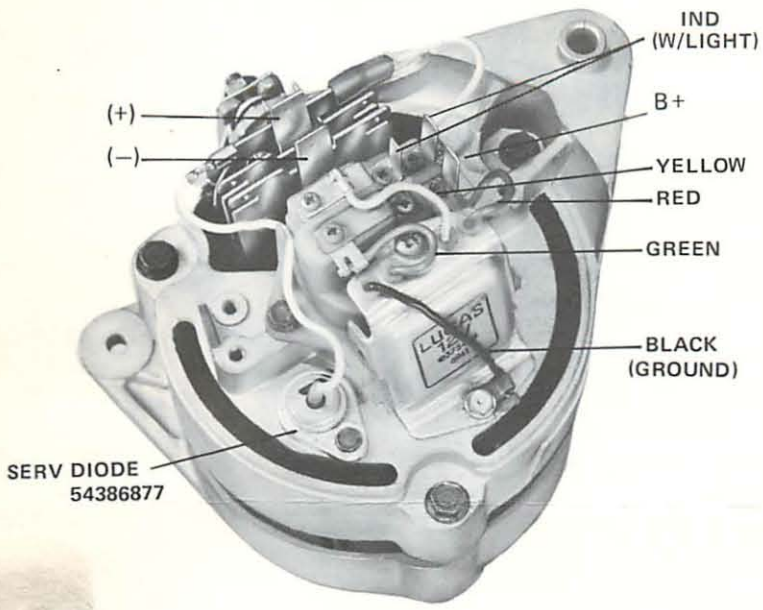
Regulator Sensing

The reason for the various regulator connections is the method employed to enable the alternator regulator "to sense" battery voltage, and thus control the alternator current output according to battery state of charge. The regulator is battery *sensed* when it is connected directly to the battery by a separate cable, and is *machine sensed* when no external battery cable is taken to the regulator — the regulator thereby sensing battery voltage from inside the alternator.

Regulators fitted to alternators in figures one through six are interchangeable with each other. When replacing regulators, make sure wiring connections are the same as illustrated. A four lead regulator can be substituted for a 2 and 3 lead regulator by joining the red and yellow wires together, and connecting to the yellow wire position.

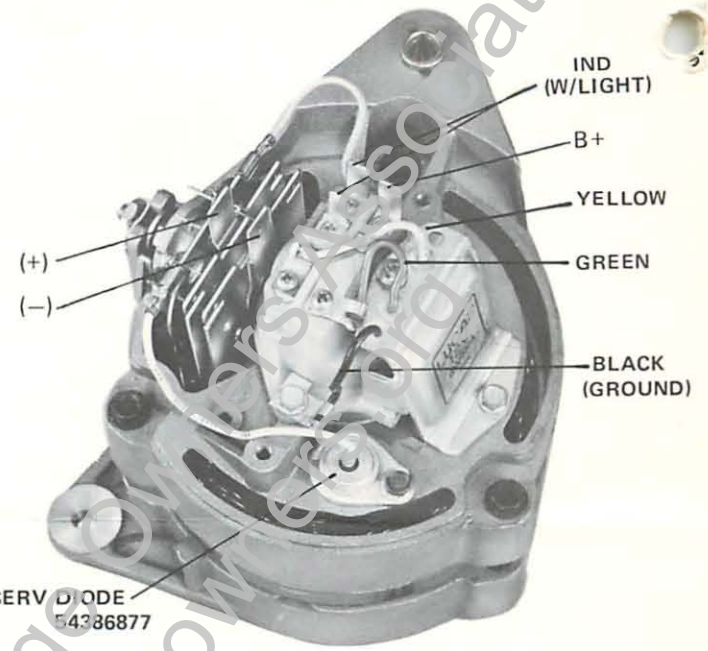
OVER.....

FIG. 1. Associate Cover Fig. 9



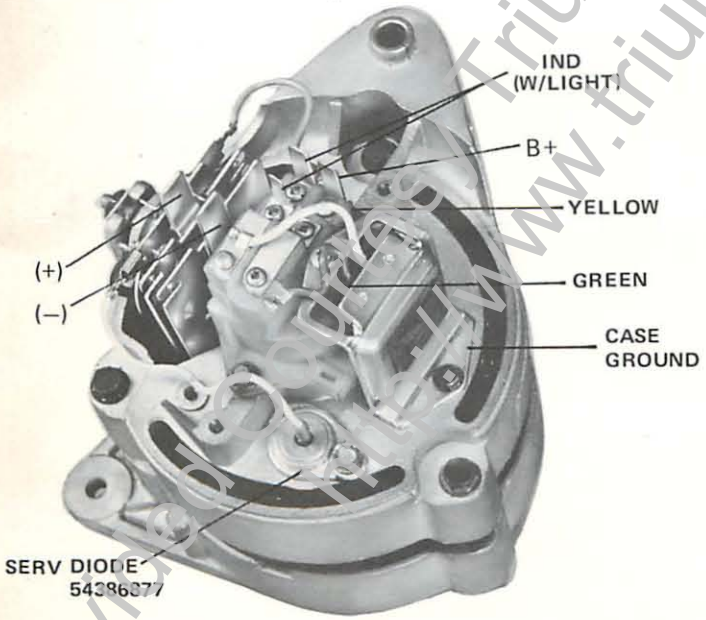
Two plug alternator with early 4 lead battery sensed regulator and service protection diode.

FIG. 2. Associate Cover Fig. 9



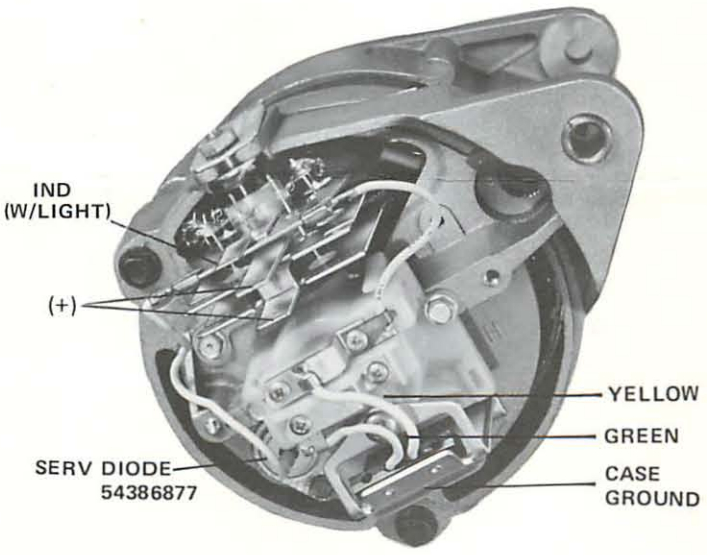
Two plug alternator with 3 lead machine sensed regulator and service protection diode.

FIG. 3. Associate Cover Fig. 9



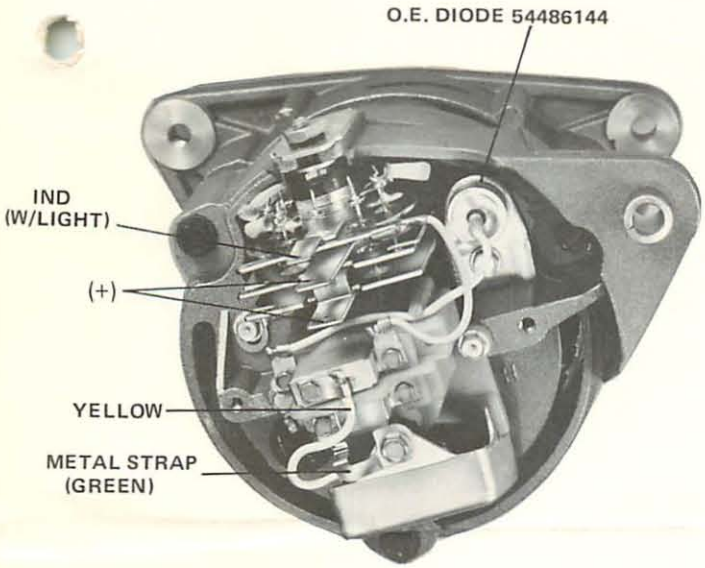
Two plug alternator with 2 lead machine sensed regulator and service protection diode.

FIG. 4. Associate Cover Fig. 10



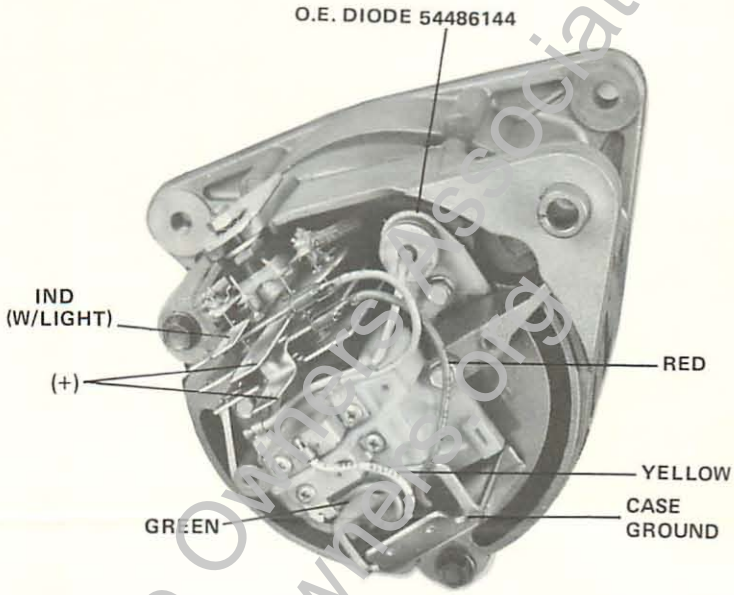
One plug alternator with 2 lead machine sensed regulator and service protection diode.

FIG. 5. Associate Cover Fig. 10



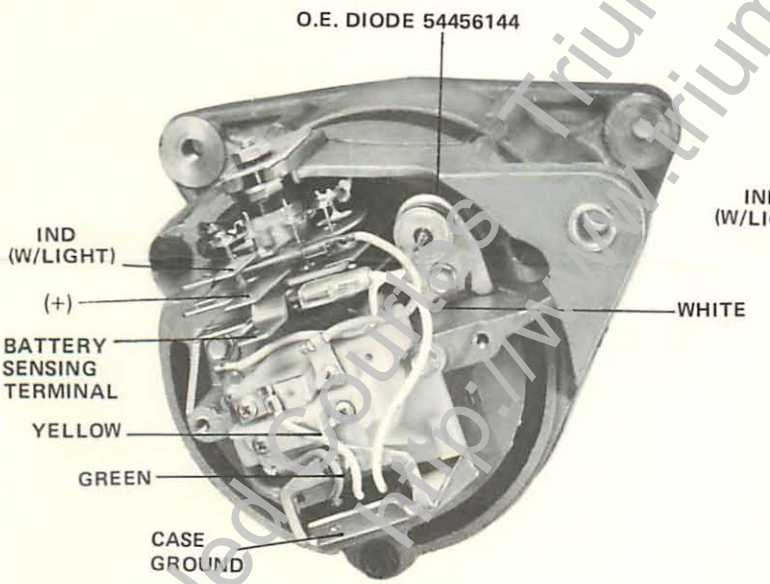
One plug alternator with machine sensed regulator and OE protection diode. Regulator has separate ground wire (black) secured at left hand brush box fixing bolt. Regulator case must not touch any ground point. (Type 14TR)

FIG. 6. Associate Cover Fig. 10



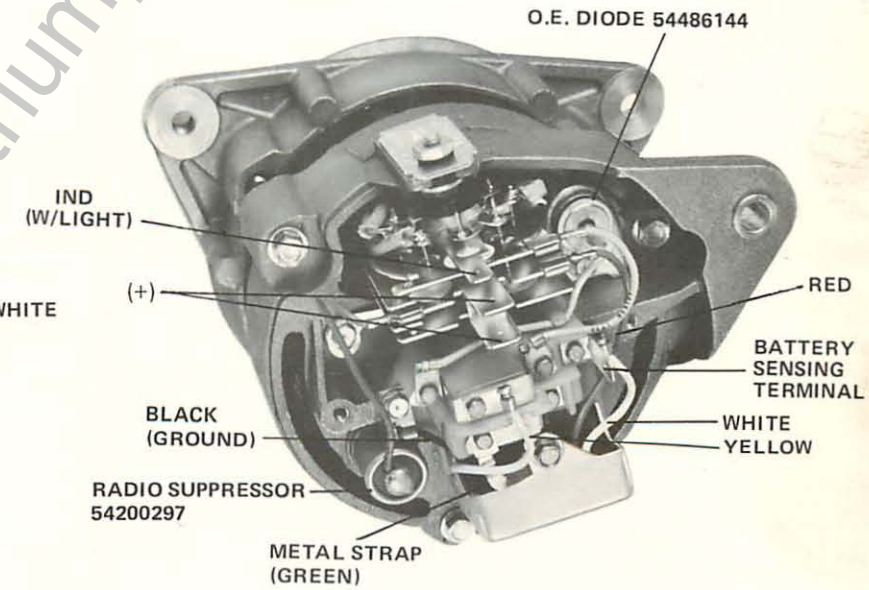
One plug alternator with 3 lead regulator. Red lead of regulator connected to rectifier positive plate (Positive Plate Sensing) O.E. Protection diode fitted.

FIG. 7. Associate Cover Fig. 10



One plug alternator with 3 lead regulator. White lead of regulator connected to bottom large blade on rectifier which is insulated from other large blade. External battery wire in cable harness connects to regulator white lead. Regulator battery sensed.

FIG. 8. Associate Cover Fig. 11



One plug alternator with extra battery sensing terminal. Regulator is externally battery sensed (white lead) and internally sensed red lead connected to rectifier positive plate. O.E. diode and radio suppressor fitted. Regulator case must not touch any ground point. (Type 14TR)

FIG. 9

FIG. 10

FIG. 11

Testing the Built-In Regulator

1. Remove Alternator harness plug(s) and turn ignition switch on. Battery voltage should be present on all plug(s) terminals (except ground wire if fitted) If not, check cables and warning light bulb.

2. Remove alternator cover, reconnected plug(s) and turn ignition switch on. Warning light should illuminate, if not:-

2A. Ground regulator green wire or case on 14TR regulator (Figs. 5 & 8); if warning light now illuminates, change regulator. If warning light does not then illuminate, remove alternator for bench examination for brush or rotor failure.

Voltage Setting of Regulator

Connect voltmeter across battery and run engine at 3000 rpm. After few mins. voltmeter should read between 13.6 — 14.4 volts., if not, change regulator.
Note:- Voltage reading only true if alternator is producing 10 amps or less.

If alternator is a battery sensed type as in Figure 8, it must have battery sensing lead connected from battery to extra sensing terminal on alternator, otherwise warning light will not come on and alternator will not charge.