

is now the regulation voltage which is maintained constant by the regulator, and it should lie between 13.8 and 14.8 Volts when the generator is cold.

5. If no voltage is shown on the meter, the generator is not being energized.

In order to ascertain whether the generator is defective, the generator must be operated as an electric motor for a short time. To do this, remove the fan belt. Then connect the terminal DF to the terminal D— at the reg-

ulator and also the terminal B + (51) to the terminal D + (61).

The generator must now turn smoothly, operating as an electric motor, in its rated direction of rotation. At the same time, the generator is polarized. Then repeat the check of the regulation voltage.

6. If the voltage is too low the fault may lie in the generator or in the regulator. If the voltage is too high, the fault lies in the regulator.

### C. Testing Current Regulation of Generator in Vehicle

1. Disconnect the ground cable at the negative terminal of the battery.

2. Disconnect the red cable (Lead No. 54, Cable Sheaf 85) of the Main Wiring Harness from the terminal B + (51) at the regulator and connect a suitable ammeter between the terminal 51 and the cable (see Fig. 15—16/1).

Re-connect the ground cable to the negative terminal of the battery.

3. Run the engine at high r.p.m. and switch on the normal permanent current-consuming units.

**Note:** The normal permanent current-consuming units are the parking light, the upper

beam, the license plate lights and the tail lights.

4. The ammeter must now indicate the current delivered by the generator. If the ammeter indicates no current, the switch in the regulator is defective. The regulator must be replaced if this is the case.

5. Slow the engine gradually down to idle speed. The pointer of the ammeter must now cross slowly over the zero of the instrument and enter the negative part of the scale. This means the current is flowing from the battery to the generator. The greatest negative value obtained is the reverse current. Shortly before the engine reaches idle speed, the switch must switch off, that is to say, the instrument must return to 0 and the charging light must light up.

### D. Testing Voltage Regulation and Current Regulation of Generator on the Test Stand or with a Tester

The testing of the voltage and current regulation of the generator described in Sections B and C are make-shift tests which are in general adequate for normal practice. If an accurate check is required, particularly if the output is to be measured, the generator, together with the regulator, must be tested on a test stand which allows a resistive load to be used.

A number of testers have recently appeared on the market, which allow the generator and the regulator to be properly tested whilst still installed in the vehicle. When these testers are used, attention must in each case be paid to the instructions for use issued by the makers.

When the test is made, the specified test values must be obtained.

## Test Values for Generator and Regulator

Generator LJ GEG 160 12 - 2500 R 8				Regulator RS/UA 160/12/15	
Regulation voltage Volts	Cut-in engine speed r. p. m.	Load at rated output Watts	Engine speed r. p. m.	Cut-in of current regulator at rated output (battery and shunt load) Amps.	Reverse current Amps.
at idle speed without battery 13.8 — 14.8	2050	160	2560	17.5 — 20.5 cold 19.5 — 22.5 warm	2.5 — 7.5

**Note:** When the generator is tested, the carbon brushes must be well run-in. At normal working engine speeds and rated load there must be no arcing at the collector.