

ENGINE SPEEDS FOR TESTING

For the main tests using the AC voltmeter and DC voltmeter the engine must be run at 4,000 rpm (approx.) At this speed the output voltages are steady and even if the engine is running a few hundred rpm faster or slower the values stated in the tests will be obtained from a good alternator.

For the emergency bulb test the engine should be run at only 1,000 rpm (equivalent to fast idling) otherwise the bulb will burn out.

1 OHM LOAD RESISTANCE

A centre tapped 1 ohm resistance is required and this must be accurate otherwise correct voltages (or currents) will not be obtained; the resistance should be capable of carrying 8 amps without overheating.

A suitable resistance can be made from 4 yds 18 swg (.048" dia.) Nichrome wire together with 3 flexible leads and suitable crocodile clips.

TO CALIBRATE: Bend the wire into two equal parts.

- Fix a flexible lead to centre bend of the wire, and connect this lead to the positive terminal of a 6 volt battery.
- Connect a voltmeter across the battery terminals.
- Connect an ammeter to the battery negative post.
- Take a lead from the other terminal of the ammeter, connect a crocodile clip to it and connect to the free ends of the wire (which should be twisted together).
- Move the clip along the wire, making contact with both wires until the discharge reading on the ammeter exactly equals the number of volts shown on the voltmeter (the resistance is then 1 ohm).

- Cut the wire at this point, twist the two ends together and fix the second flexible lead.
- Fit the remaining flexible lead exactly in the centre of the wire (to give $\frac{1}{2}$ ohm resistance).
- Wind the wire on to an asbestos former 2" dia. (approx).

The resistance is now calibrated at 1 ohm. It has a flexible lead at each end, and a centre tapping which gives two resistances each of $\frac{1}{2}$ ohm for rectifier testing. It is ready for use.

FAULT LOCATION

Tests 1 and 3 check the alternator output only. Follow these up with Tests 2 and 4 which check the circuits for faulty wiring, switches and rectifiers.

TEST 1. USING AC VOLTMETER AND 1 OHM RESISTANCE

If readings are different for the two coils replace stator assembly. If readings are low, check with new rotor before replacing stator assembly.

TEST 3

Proceed as in Test 1—results will, of course, be less accurate.

TEST 2. USING DC VOLTMETER AND 1 OHM LOAD RESISTANCE

Disconnect battery from circuit and connect 1 ohm resistance in its place. Disconnect 'SW' terminal of coil from wiring and take a separate lead to it from the battery so that the engine can be run. Leave ignition switch in 'IGN' position during tests. If readings are incorrect, check switch connections and wiring.

TEST 4

If the forward and reverse currents are substantially different from the values given replace the complete unit.