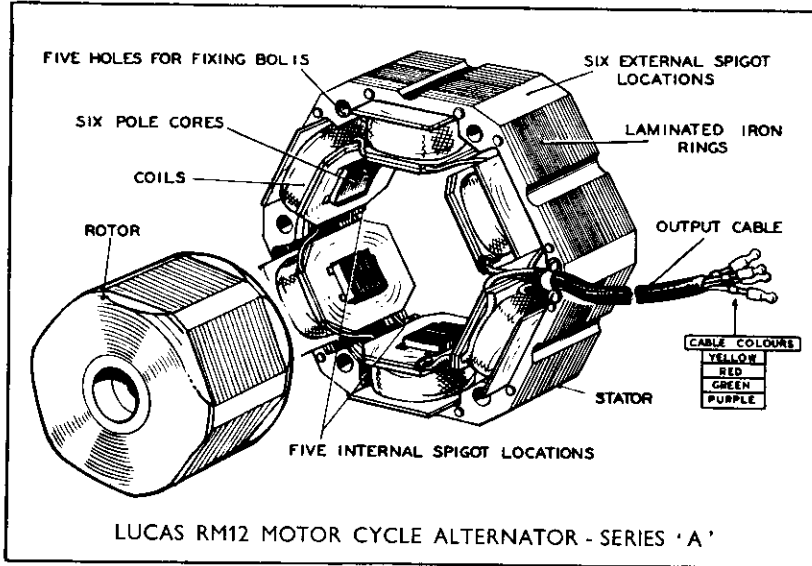
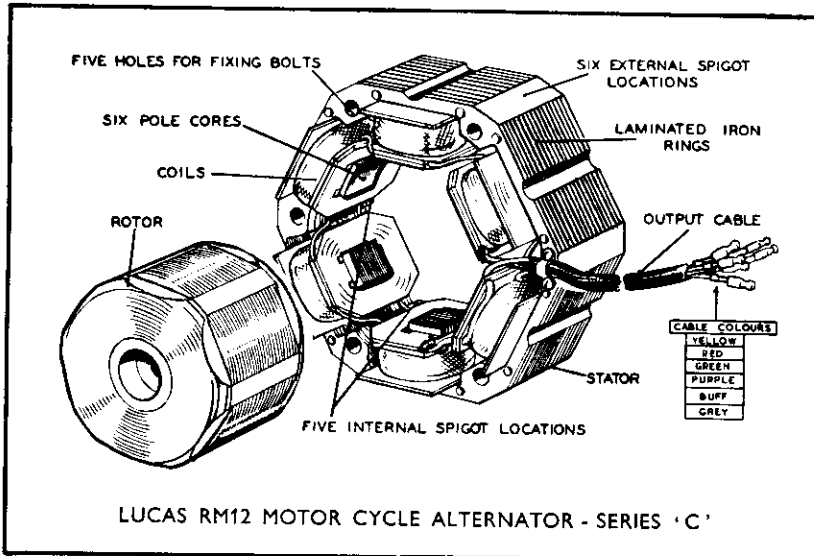


TEST PROCEDURE

SERIES 'A'



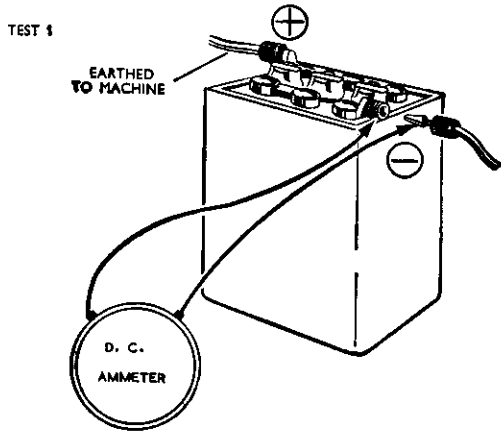
SERIES 'C'



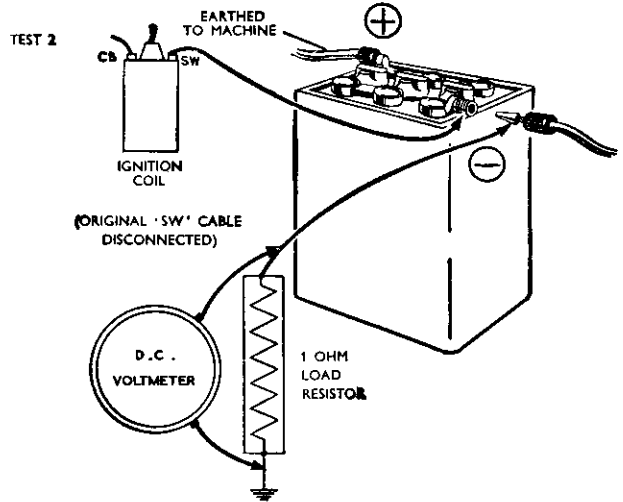
RM12 ALTERNATOR SET

Checking D.C. Input to Battery

TEST 1. Ammeter connected in series with main lead and battery.



TEST 2. Disconnect main lead from battery. Connect 1 ohm resistor in place of battery. Feed ignition coil separately from battery. Turn ignition switch to IGN position.



If battery is in poor condition or low state of charge use TEST 2.

Test	Switch Position	Reading Amps. at 3,000 r.p.m.
1	OFF	2.5 (min.)
	LOW	2.5 (min.)
	HIGH	3.5 (min.)

Test	Switch Position	Reading Volts at 3,000 r.p.m.
2	OFF	2.0 (min.)
	LOW	3.0 (min.)
	HIGH	4.0 (min.)

CONCLUSIONS FROM THESE TESTS

Test 1. If meter readings are as stated, the charging circuit and alternator are satisfactory.

No reading; check the alternator.

A high reading can be due to a short-circuited battery cell.

A low reading can be caused by a faulty battery. Proceed with Test 2. If readings still low check battery with hydrometer and discharge tester.

Test 2. If meter readings are lower or higher than values stated, check the alternator.

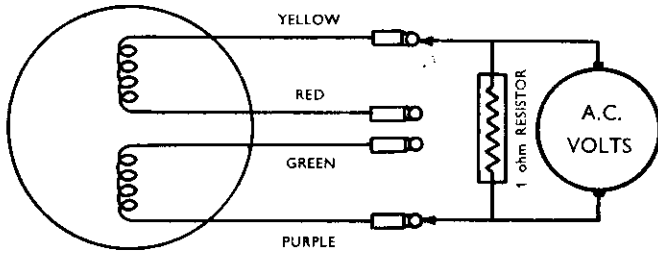
No reading on meter, check the rectifier.

IMPORTANT

Inaccurate readings can be due to faulty wiring, bad connections at the snap connectors. Make a quick visual check of all connections before proceeding with the tests.

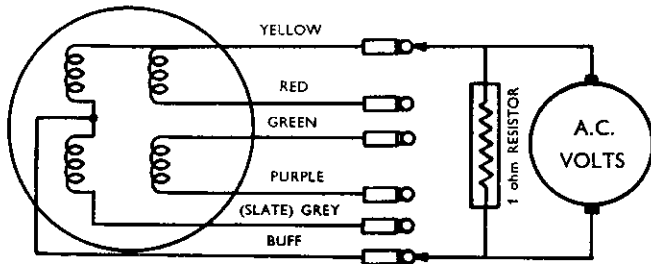
Remember it is no use carrying out Test 1 if the battery is faulty or in a low state of charge, if in doubt proceed with Test 2.

Testing the RM12, Series "A" or Series "C" Alternator on the Machine,
using an A.C. voltmeter and 1 Ohm Load Resistor



SERIES 'A' (Four Lead)

Test	Voltmeter and Resistor Connected Across	Reading Volts at 3,000 r.p.m.
1	YELLOW AND RED	8.0 (min.)
2	GREEN AND PURPLE	8.0 (min.)
3	YELLOW AND PURPLE WITH GREEN AND RED JOINED TOGETHER	6.0 (min.)
4	PURPLE AND GREEN WITH RED AND YELLOW JOINED TOGETHER	5.5 (min.)
5	ANY ONE LEAD AND GENERATOR STATOR (EARTH)	NO READING



SERIES 'C' (Six Lead)

Test	Voltmeter and Resistor Connected Across	Reading Volts at 3,000 r.p.m.
1	YELLOW AND RED	7.25 (min.)
2	YELLOW AND BUFF	7.25 (min.)
3	GREY AND BUFF	7.25 (min.)
4	GREEN AND PURPLE	7.25 (min.)
5	ANY ONE LEAD AND GENERATOR STATOR (EARTH)	NO READING

CONCLUSIONS FROM THESE TESTS

Low reading on any coil indicates partially earthed or shorted turns. Zero reading will indicate open-circuit or earthed coil.

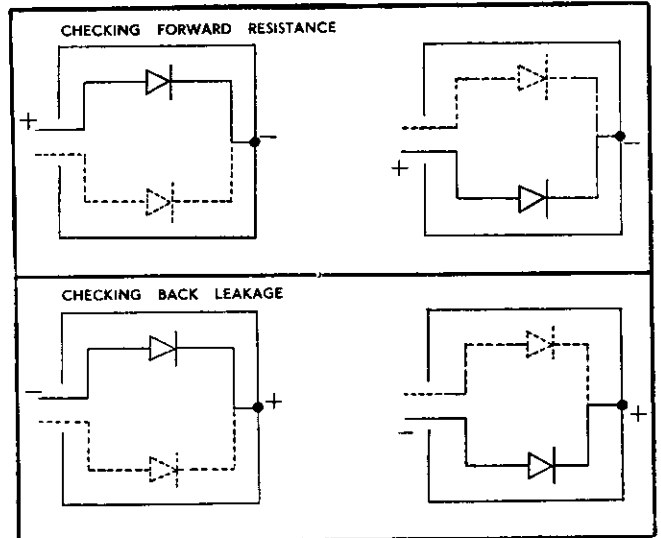
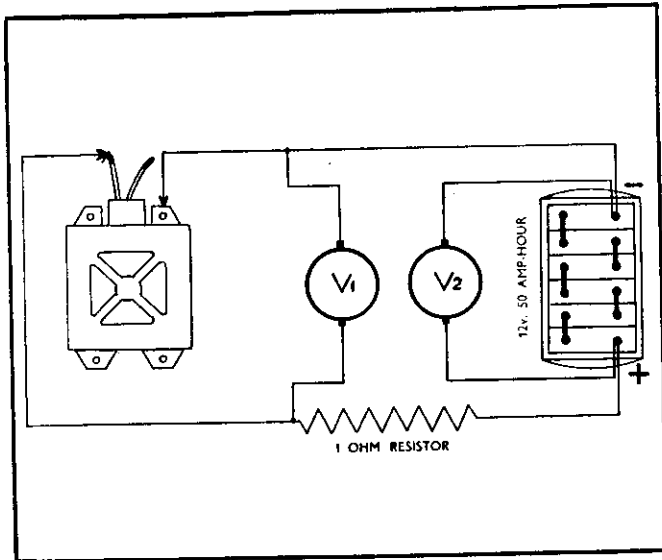
If all coils read low, partial de-magnetisation of rotor may have occurred as a result of faulty rectifier. Check rectifier, and battery earth polarity before replacing rotor.

A reading between any one lead and the generator stator indicates an earthed coil. Replace stator or locate the earth fault by isolating and testing the individual coils.

IMPORTANT

With the engine running at 3,000 rev./min. approx., the output voltages are steady, and even if the engine is running a few r.p.m. faster or slower the values stated in the tests will be obtained from a good alternator.

Rectifier—Bench Testing



- V1 — will measure the volt drop across the rectifier cell, which should not be greater than 2.5 volts.
 V2 — must be checked when testing the rectifier cell, to make certain the supply voltage is 12 volts on load.

It is essential that the supply is kept at 12 volts for these tests.

FORWARD RESISTANCE TEST

Test 1. Connect negative lead to rectifier case. Connect positive lead to each cable connector in turn; reading on V1 should not be greater than 2.5 volts. Keep the testing time as short as possible to avoid overheating the rectifier cell.

BACK LEAKAGE TEST

Test 2. Connect positive test lead to case; negative test lead to each cable connector in turn. Reading on V1 should not be below 10 volts.

CONCLUSIONS FROM THESE TESTS

If the voltage reading, in Test 1, is exceeded on either rectifier cell, the unit is aged and should be replaced.

If the reading in Test 2 is well below 10 volts, on either or both cells, the rectifier is shorted internally and should be replaced.

DOUBLE BANK RECTIFIER (47094) USED WITH THE RM12 SERIES "A"

The test procedure and figures for this rectifier are as quoted in the above tests. But it will be necessary to disconnect the two leads which are connected to the rectifier fixing bolts, before testing the two units separately.

IMPORTANT

There are two types of Westinghouse rectifiers in service on LUCAS sets. The original having low voltage plates being identified by the figures 2L stamped on the case, the other which has high voltage plates being identified by the figures 12L.

The values quoted in the above tests are for the high voltage rectifiers 12L. When testing a low voltage rectifier 2L the Forward Resistance reading should be the same but the Back Leakage figure can be down to 9-volts.

Testing the External Wiring Circuit on RM12 Series 'C' Sets

USING D.C. VOLTMETER WITH 1 OHM LOAD IN PARALLEL

1. Connect red test lead to EARTH.
2. Disconnect six alternator cables from main harness (located under saddle).

Test Alternator Wiring through Ignition Switch

3. With ignition switch OFF connect black test lead to each of the six main harness cables.
Voltmeter should read zero on all six cables.
4. With ignition switch ON, repeat operation as above.
Voltmeter should read battery volts on GREEN cable.
Remainder zero.

Test Alternator Wiring through Headlamp Switch

5. With ignition switch still ON, operate lighting switch to "Head" position. Battery volts should also register at BUFF cable.

Test Alternator Wiring through Switch in "Emergency Start" position

6. Turn ignition switch to emergency position when there should be no voltage reading at any of the six connections.

NOTE

These tests are to be carried out in the case of "No Charge" or "No Emergency Start" if previous tests have been carried out and all is in order.

Testing the 'High' and 'Low' Charge Switch Circuits

USING D.C. VOLTMETER WITH 1 OHM LOAD IN PARALLEL

1. With the alternator leads still disconnected, disconnect the battery.
2. Connect the red lead to positive terminal of battery.
3. Connect a wander lead to negative battery terminal.
4. Use the negative lead from voltmeter and wander lead to make the following continuity test.

TEST A

Continuity through light switch cables and light switch in the "OFF" and "LOW" positions, with the ignition switched on.

Connect test leads to yellow and grey cables which should be common and register approximately battery volts.

TEST B

Continuity through cables and light switch in the "HEAD" position, with the ignition switched on.

Connect test leads to grey and purple cables. If correct, meter should register battery volts.

TEST C

Continuity through cables and ignition switch in the "EMERGENCY START" position.

Connect test leads to purple and grey, purple and red, grey and red leads from resistance which should all be common and register approximately battery volts.

TEST D

Repeat the operation for red and blue leads from resistance which should read battery volts if correct.

NOTE

Incorrect switching of these cables will cause incorrect charging rates, i.e., failure of yellow and grey to link together will cause high charge rate with headlight switch off.

In the case of incorrect switch it is necessary to remove the switches from panel and check connections and if necessary the switch itself.