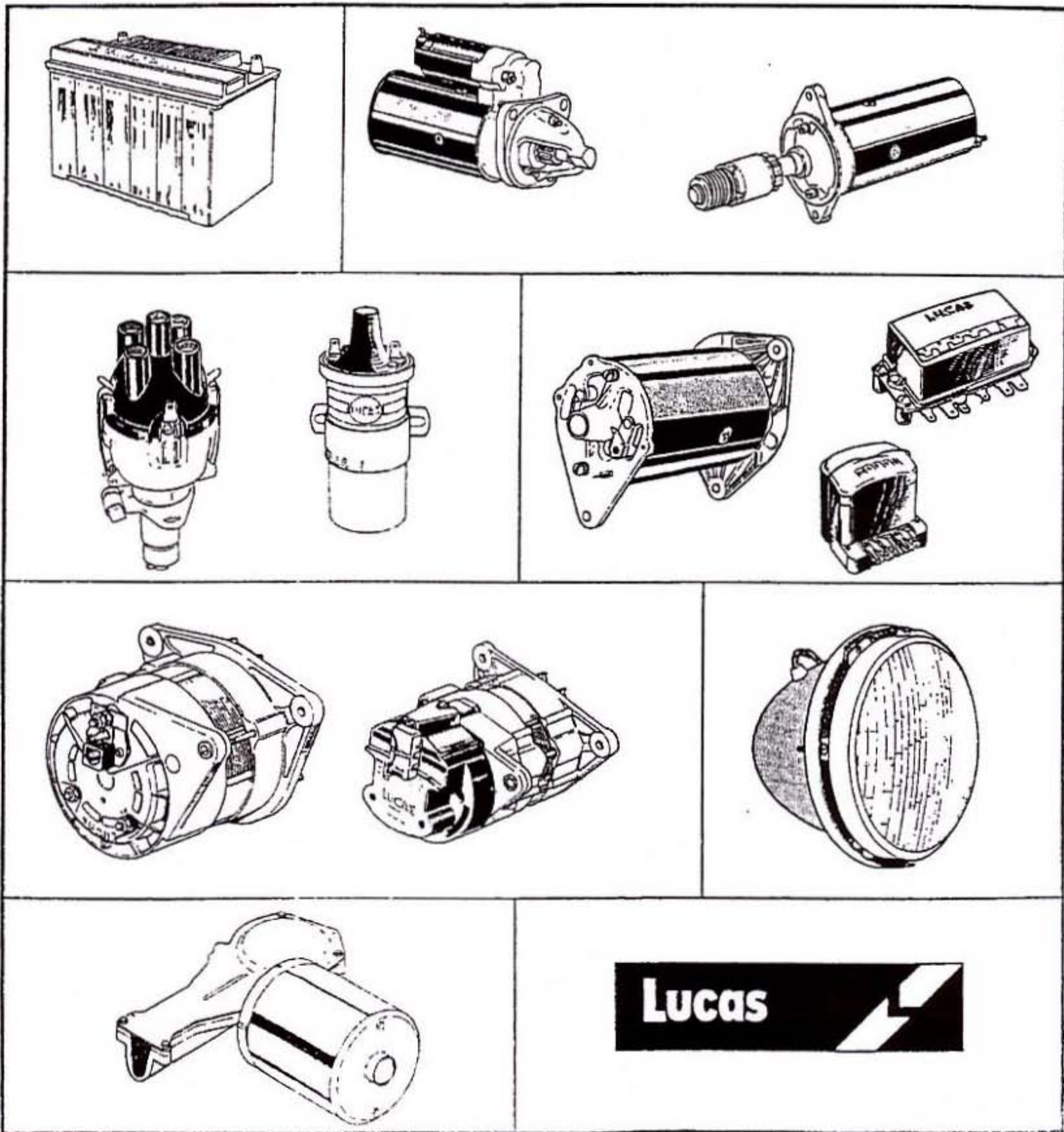


LUCAS

Fault Diagnosis Service Manual



Introduction

Fault diagnosis is the method of locating faults while the electrical equipment is still in situ. In the interests of efficiency and economy, the diagnosis must be accurate and must be carried out in the shortest possible time using the minimum amount of equipment. It is the aim of this book to present a logical sequence of tests that may be carried out on the various sections of the equipment in order to achieve this objective.

The majority of procedures involve circuit testing and the principle used will be that of checking for "voltage drop" where a voltmeter is connected in parallel with the particular circuit to be tested.

As voltage drop exists only when current is flowing and varies according to the amount of current it is essential that the circuit is checked "under load", i.e. whilst passing its normal current. In certain instances this current will be measured using a test ammeter.

The acceptable volt drop figure for most circuits is 10% of system voltage (1-2 volts on a 12 volt system) but there are exceptions to this rule as in the case of the starter circuit where the maximum voltage drop allowed is 0.5 volts.

Throughout the procedures wherever an exception applies this figure will be clearly stated.

The following is the minimum equipment necessary to carry out this fault diagnosis:

1. D.C. voltmeter (moving coil) 4" open scale 0-40 volts.
2. D.C. ammeter (moving coil) 4" open scale 10-0-100 amp.
Note: The voltmeter and ammeter can be obtained in a test box form as shown.
3. Hydrometer (Fig. 1)
4. Heavy duty battery discharge tester (Fig. 2).
5. Ohmmeter.

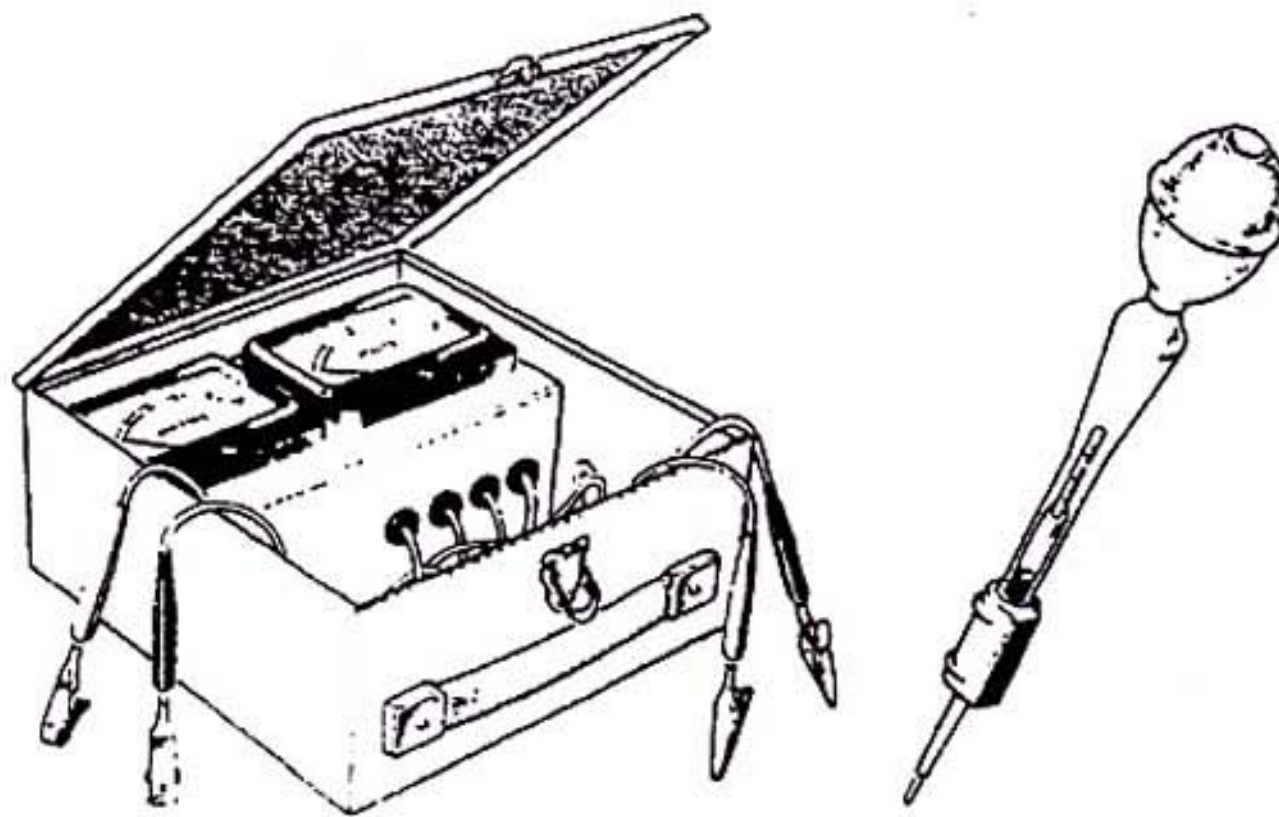


Fig. 1 Typical test box and hydrometer

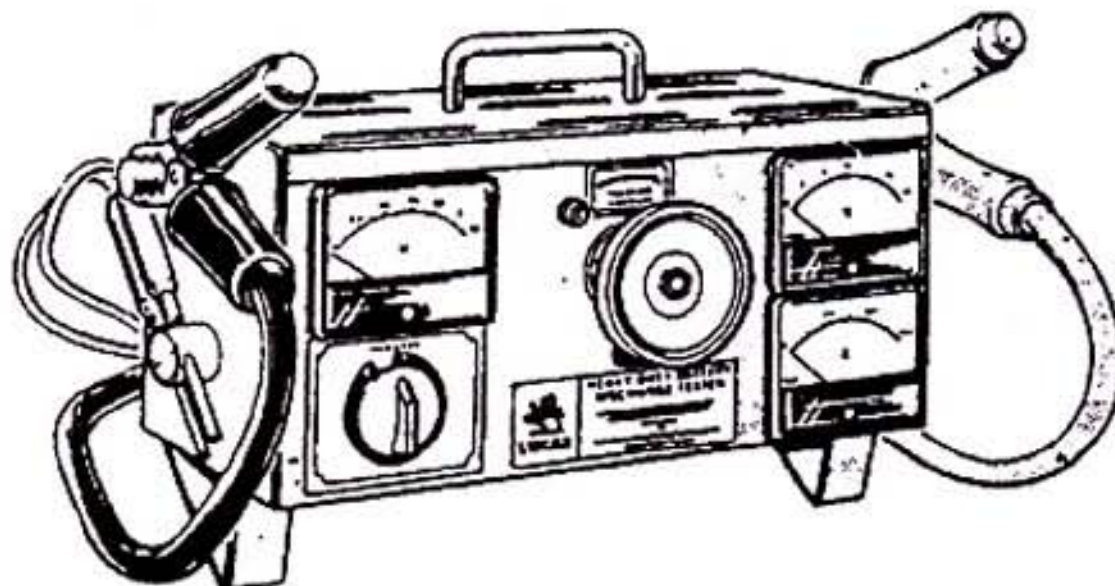


Fig. 2 Heavy duty battery discharge tester