

A. Checking Battery Acid Level and Acid Density

1. The acid level and the acid density should be checked every 4,000 km according to the instructions on the service book sheets. The battery should be topped up with pure, distilled water.

A clean glass vessel and glass funnel should always be used for topping up with distilled water. The acid should be 10 mm above the top edge of the separators and 15 mm above the top edge of the plates. Topping-up with small quantities of distilled water can also be done with the hydrometer (Fig. 54 — 10/1).



Fig. 54 — 10/1

Note: The work should never be carried out near a naked light owing to the danger of explosion due to the battery releasing oxy-hydrogen gas.

2. Check the state of charge of the battery by measuring the acid density.

Acid should be sucked out of the battery for this purpose by means of the hydrometer (areometer). The specific gravity of the battery acid can be read off on the scale marked on the float which is suspended in the acid. A fully-charged battery should give a specific gravity reading of $1.285 = 32^{\circ}$ Bé (Fig. 54 — 10/2).

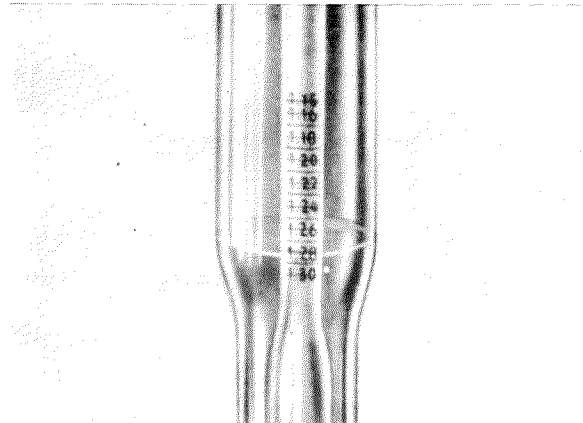


Fig. 54 — 10/2

3. The specific gravities of the battery acid, corresponding to the state of charge of the battery, are shown in the following table.

Acid Density

Acid density, Beaumé Scale	Specific gravity	State of charge
32° Be	1.285	fully-charged
$27-25^{\circ}$ Bé	1.23—1.21	half-charged
$18-14^{\circ}$ Bé	1.14—1.11	discharged

(The specific gravities given are calculated at a temperature of $+ 20^{\circ}$ C.)

Acid Density (Tropics)

Specific gravity at			State of charge
20° C.	40° C.	60° C.	
1.23	1.215	1.200	fully-charged
1.16	1.148	1.136	half-charged
1.09	1.080	1.070	discharged

B. Testing of Battery on Load

The individual cells of the battery are tested with the aid of Cell Tester 000 589 00 27 or some other suitable cell tester. These testers are fitted with a fixed resistance or sometimes with an adjustable resistance so that the cells can be tested individually at a high amperage (generally 100 to 200 Amperes). For an accurate test, the load should be suited to the size of the battery and adjusted with the aid of a variable resistance. But in workshop practice it is sufficient to use an available cell tester with a fixed resistance. The voltmeter which is incorporated in the cell tester can be used to read off the voltage drop of the individual cells under load. In the case of a fully-charged battery which is in good condition the voltage must not drop below 1.8 Volts. For the rest, the operating instructions given by the manufacturers of the tester should be adhered to.

In general, the test should be carried out in the following way:

1. Press the contact prods of the cell tester firmly on the two terminals of a cell (Fig. 54 — 10/3).
2. After a period of at most 10 seconds under load, read off the voltage on the voltmeter.

Note: If the battery is fully charged and is in good condition, the voltage must not drop below 1.8 Volts.

3. Check all the cells in this way.

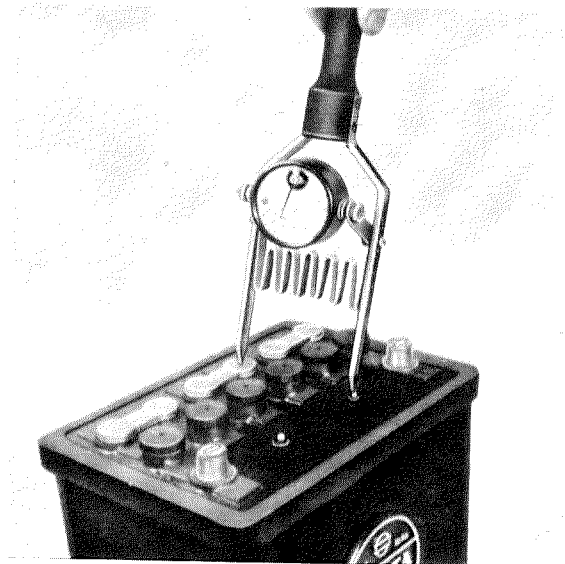


Fig. 54 — 10/3