

# REDESIGNED MEGOHMMETER SIMPLIFIES INSULATION RESISTANCE MEASUREMENT

Users of the TYPE 1862-B Megohmmeter<sup>1</sup> who were kind enough to return questionnaires describing their use of the instrument and their suggestions as to how it could be improved will be pleased to know that they have had a hand in redesigning this popular instrument to make what should be an even more satisfactory unit. The new TYPE 1862-C, shown in Figure 1, has incorporated

most of the ideas suggested and a couple we thought up ourselves. However, we could not add everything asked for, because we felt (and users agreed) that the small size and modest cost of the instrument were among its important features.

The most noticeable change is in the packaging. The new model is housed in the Flip-Tilt case, which has won wide approval, particularly for its ability to support the instrument with its panel at

<sup>1</sup>A. G. Bousquet, "New Model of Megohmmeter Has Two Test Voltages," *General Radio Experimenter*, 29, 9, December, 1954.

Figure 1. View of the Type 1862-C Megohmmeter.





almost any angle. Correct viewing angle is important for any instrument whose output is a meter reading. The Flip-Tilt case is especially versatile in this respect\* and offers as well the added features of easy portability and protection for both transit and storage. Prominent also in the appearance is the large panel meter, the new GR design with its maximum-length, open scale. Further, for easy reading and interpolation, the movement is reversed, so that resistance values increase from left to right.

A new feature is the separate, 3-position DISCHARGE-CHARGE-MEASURE toggle switch. This is important for those who use the instrument to make repetitive measurements on a given range. With the older instrument, the MULTIPLIER switch had to be used for discharging, and, if the measurements were made on a high resistance range, this resulted in a lot of switch rotating for each measurement. The DISCHARGE position on the MULTIPLIER switch is still provided.

The voltage is removed from the unknown terminals if either switch is set to DISCHARGE. An indicator lamp, located near the measurement terminals, is lit when the test voltage is applied. The lamp, which is especially bright

when 500 volts are applied, provides a warning to the operator, for, although the instrument current itself is not dangerous, a charged capacitor on the terminals is dangerous and could be lethal.

One change repeatedly asked for was the new, 100-volt test voltage, which is a standard for many measurements. This replaces the 50 volts provided on the older instrument. The accuracy is the same for both 100 and 500 volts, in contrast to the poorer accuracy on the 50-volt range of the older model. Internal changes include the use of semiconductor rectifiers and a "premium" tube in the meter circuit, whose low grid current improves the stability of measurements of very high resistances.

Our survey indicated that over 80% of the instruments were used for insulation resistance measurements, and the rest were used to measure volume and surface resistivity or high-valued resistors. The insulation resistance measurements were on cables, capacitors (leakage), transformers, connectors, relays, printed circuits, motors, and switches. With the new model these measurements can be made with even more ease than in the past.

— H. P. HALL

\* For details, see page 7.

## SPECIFICATIONS

**Range:** 0.5 to 2,000,000 megohms at 500 volts and to 200,000 megohms at 100 volts. There are six decade steps selected by a multiplier switch.

**Scale:** Each resistance scale up to 500,000 megohms utilizes 90% of the meter scale. Center-scale values are 1, 10, 100, 1000, 10,000, and 100,000 megohms for 500-volt operation.

**Accuracy:** From  $\pm 3\%$  at the low-resistance end of each decade to  $\pm 12\%$  (accuracy to which the scale can be read) at the high-resistance end up to 50,000 megohms. There can be an additional  $\pm 2\%$  error at the top decade.

**Voltage on Unknown:** 100 or 500 volts, as selected by switch on front panel. Indicator lamp is

lighted when voltage is applied. Current available limited to safe value. Voltage across unknown is 500 volts  $\pm 10$  volts, or it is 100 volts  $\pm 4$  volts. This voltage source is regulated for operation from 105- to 125- (or 210- to 250-) volt lines.

**Terminals:** Unknown, ground, and guard terminals. All but the ground terminals are insulated. The voltage is removed from the terminals in the DISCHARGE position of either switch.

**Calibration:** Switch position is provided for standardizing the calibration at 500 volts.

**Power Requirements:** 105 to 125 (or 210 to 250) volts, 40 to 60 cps, 25 watts. Instrument will operate satisfactorily on power-supply frequencies up to 400 cps.



SPECIFICATIONS (Cont.)

**Accessories Supplied:** Spare fuses, two color-coded test leads.

**Cabinet:** Flip-Tilt; relay-rack model also is available.

**Dimensions:** Portable model, case closed — width 11½, height 8¼, depth 7½ inches (295

by 210 by 190 mm), over-all; rack model — panel 19 by 5¼ inches (485 by 135 mm); depth behind panel 5 inches (130 mm).

**Net Weight:** Portable model, 9 pounds (4.1 kg); rack model, 10 pounds (4.6 kg).

**Shipping Weight:** Portable model, 16 pounds (7.5 kg); rack model, 23 pounds (10.5 kg).

Type		Code Number	Price
1862-C	Megohmmeter, Portable Model . . . . .	1862-9703	\$310.00
1862-9844	Megohmmeter, Rack Model . . . . .	1862-9844	310.00

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