

OPERATING INSTRUCTIONS

When measuring high a.c. and d.c. voltages (say above 800 V.) unless the common positive terminal is either earthy or connected to earth, errors will be introduced if the instrument is touched during a reading.

On d.c. ranges, the meter consumes only 50 microamps at full scale deflection, this sensitivity corresponding to 20,000 Ω/V . In the case of a.c. ranges above 10 V., full scale deflection is obtained with a consumption of 0.5mA. (2,000 Ω/V). The 10 V. range is 1000 Ω/V . The 2.5 V. a.c. range consumes 10 mA at full scale deflection. The meter maintains a high degree of accuracy for audio frequency tests up to 15 kHz on ranges up to 250 V. a.c. Whilst discussing the problem of measuring voltage, it would be well to draw attention to the fact that in certain circuits where the current is limited because of the presence of a resistance between the source and the point at which a measurement is to be made, it is possible for the actual voltage to be higher normally than when the meter is connected. All current consuming voltmeters, however sensitive, draw current to varying degrees from the circuit under test, thus causing a higher volts drop in the resistances mentioned, and thereby causing the voltage to fall at the point of measurement.

Owing to the high sensitivity of the Model 8 on d.c. ranges, this effect is unlikely to be of importance except in a very few instances. A practical example of where it might be taken into account is in the measurement of e.h.t. voltage on a television set or the tapping on a potential divider,

where the resistances are so high as to be comparable with the resistance of the meter on the range in use. It is generally possible to use a meter on a higher range than absolutely necessary, and in such a case the higher meter resistance causes less disturbance than would otherwise be the case. At the same time adequate pointer deflection for reasonable accuracy should be attained.

When it is essential to obtain an accurate indication of the voltage developed across a high resistor it is sometimes preferable to insert the meter in series with it, and to measure the current flowing. The reading given upon the meter, in milliamps, multiplied by the value of the resistance in thousands of ohms, will give the developed voltage.

RESISTANCE MEASUREMENT

There are three self-contained ranges covering from 0.5 ohms to 20 megohms, and provision is also made for both upward and downward extension of these limits. The self-contained ranges make use of the usual series circuit, and successive ranges are on 100:1 ratio, which permits of very wide coverage with three ranges.

On resistance ranges, the meter must not merely start from its normal instrument zero, but must have, in addition, a resistance zero corresponding to the full scale deflection of the meter. Before carrying out tests for resistance a check and, if necessary, adjustment should be carried out to