DMM ADD-ON

In reference to the "DMM Add-On" ("New Ideas," October 1982 issue), I must admit that, for me, the article does not compute. There was no rationale given for the "divide 4000 by the meter reading."

By my logic, I would consider the simplified circuit to be as you see it in Fig. 1.

Consider Rx to be 100 megs; then R total = 100 + 0.5025 = 100. 5025 megs. Total current =

$$\frac{E}{R} = \frac{8}{100{,}502{,}500} =$$

0.0000000796 amperes.

The DMM should read the voltage drop across 0.5025 megs. E = IR = 0.0000000796 × 502,500 = 0.039999005 volts; that rounds out to 0.04 volts (meter reading).

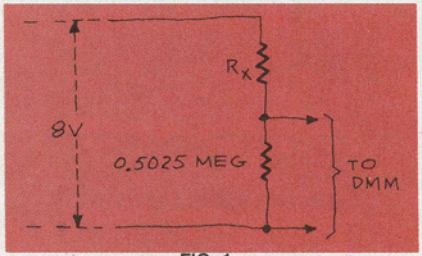

FIG. 1

According to the article,

$$Rx = \frac{4000}{0.04} = 100{,}000\ \Omega$$

That is not 100 megohms!

100 megohms can be derived by first determining the voltage drop across Rx = 8V − 0.040V = 7.96V. Then

$$R = \frac{E}{I} = \frac{7.96}{0.0000000796} = 100{,}000{,}000$$

or 100 megohms. Or the formula could be used:

$$Rx = \frac{E_{RX}}{E_{DMM}} \times \frac{0.5025\ megs}{1}$$

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In the 200-millivolt range, the meter reading is 40—not 0.04. To obtain the correct resistance in megohms, divide 4000 by the actual meter reading—not the voltage value.—Editor.

AGREEMENT

I agree with Mr. Joseph W. Miller's suggestion in the "Letters" section of the January