

# SPLIT PROBE MEASURES CURRENT

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**W**HENEVER it's necessary to measure load current or battery voltage without removing batteries or disconnecting the battery holder, the split probe is a useful device. The split probe (Fig. 1) is a sandwich of two  $\frac{1}{4}$ " x  $1\frac{1}{4}$ " strips of brass shim stock separated by a strip of thin paper. While the sandwich should be as thin as possible, it must be stiff enough to permit its insertion between the battery terminals and the contact strips of the battery holder.

When 0.006-inch brass shim stock and 0.002-inch paper are used, the 0.014-inch sandwich will be stiff enough to push between the cell's positive terminal and its contact strip in the battery holder. (Before cementing the layers together, solder a short length of red insulated wire to one end of one of the brass strips; and a black insulated wire to the other. Later, these two leads will be used for metering purposes.) Care should be taken to assure the leakage resistance from shim to shim is higher than 1 megohm to avoid measurement errors in sensitive circuits. In addition, twist the black and red leads from the probe assembly together to minimize noise pickup. Additionally, alligator clips may be soldered to the wires to facilitate meter connections.

Although the split probe falls in the general category of a "home brew" device, its many applications will benefit service and laboratory technicians alike. For example, the load current of many types of portable electronic entertainment equipment exceeds the battery capacity. Some small transistor radios have load current ranges of 6 to 10 mA. The electronics in transistorized tape recorders draws about the same current—but when the motor is operating, the load is increased 50 to 200 mA. ▲

Fig. 1. Brass shim stock with fish paper in between makes a good probe for metering battery-powered devices.

