

73 Tests The Knight RF Z-Bridge

Larry Levy WA2INM



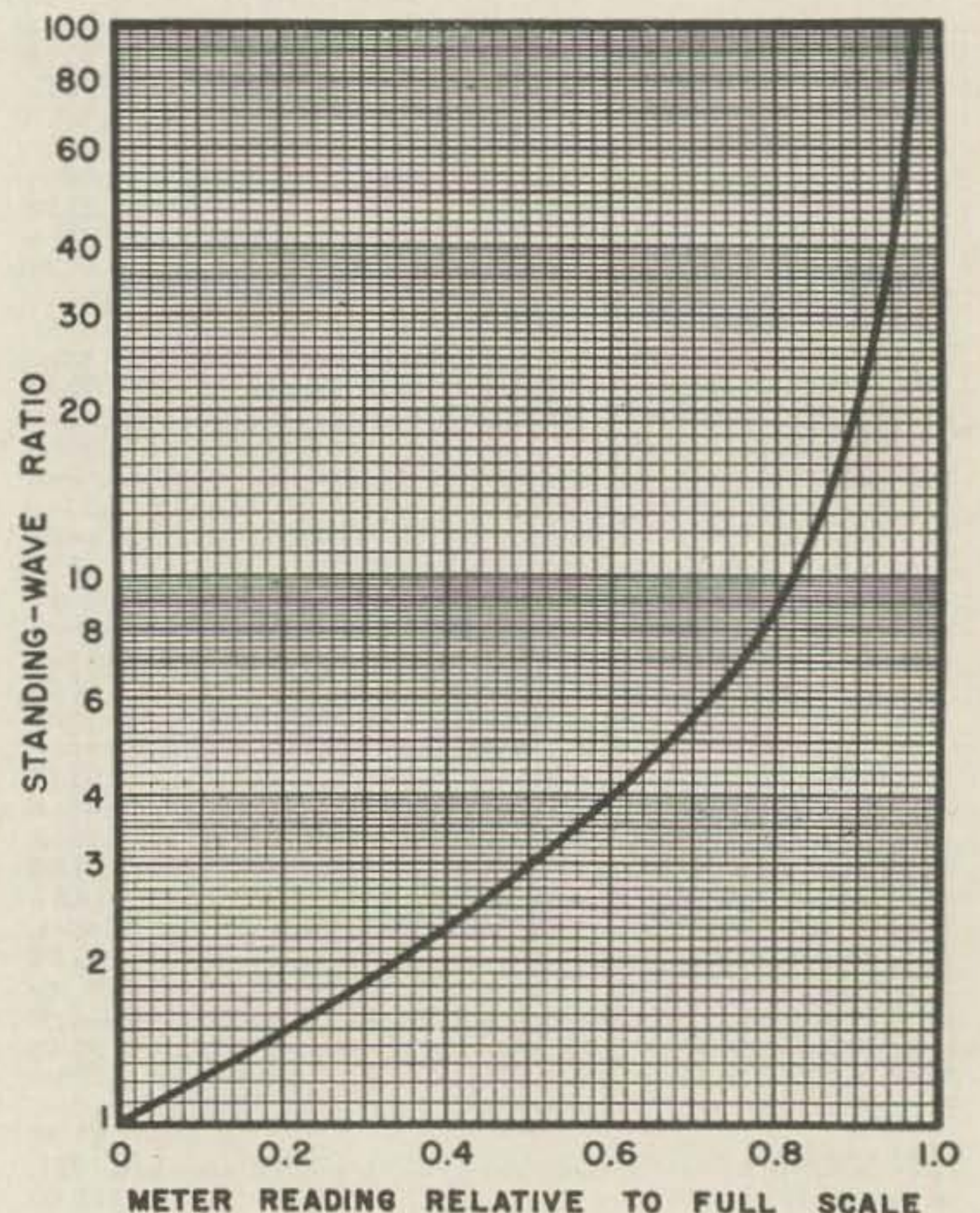
The Knight "Z" bridge is a very useful and inexpensive piece of test equipment. This is a necessity to anyone who wants to tune his antenna. The "Z" bridge can be used to measure antenna impedance, adjust antenna couplers, matching networks, and tune antennas to resonance. It can be used from 100 kc to 144 mc, therefore covering the 160, 80, 75, 40, 20, 15, 10, 6, and 2 meter amateur bands. It requires the use of a VOM or VTVM measuring 0-2½ or 0-5 vdc. If a VOM is used it should have a sensitivity of at least 5000 ohms/volt. It is also necessary to have a source of rf at the frequency that the antenna will be operating on. This should be about 1 watt in order to prevent damage to the bridge, which is not an instrument that can be used with any power. Just loosely coupled to the xmtr should suffice.

One of the most useful, and probably the most popular, uses of the bridge is to measure SWR. Most hams would like to have an SWR bridge, but usually don't buy them because of the cost. If that is your trouble, the "Z" bridge is the ideal answer, as it only costs \$5.85 for the complete do-it-yourself-antenna tuning, matching, and SWR measuring kit. Figure 1 shows the relation between forward and reflected power to SWR. By using this

chart with the bridge it is possible to measure SWR accurately. There is a plastic chart included with the kit that can be used for a long time before it falls apart.

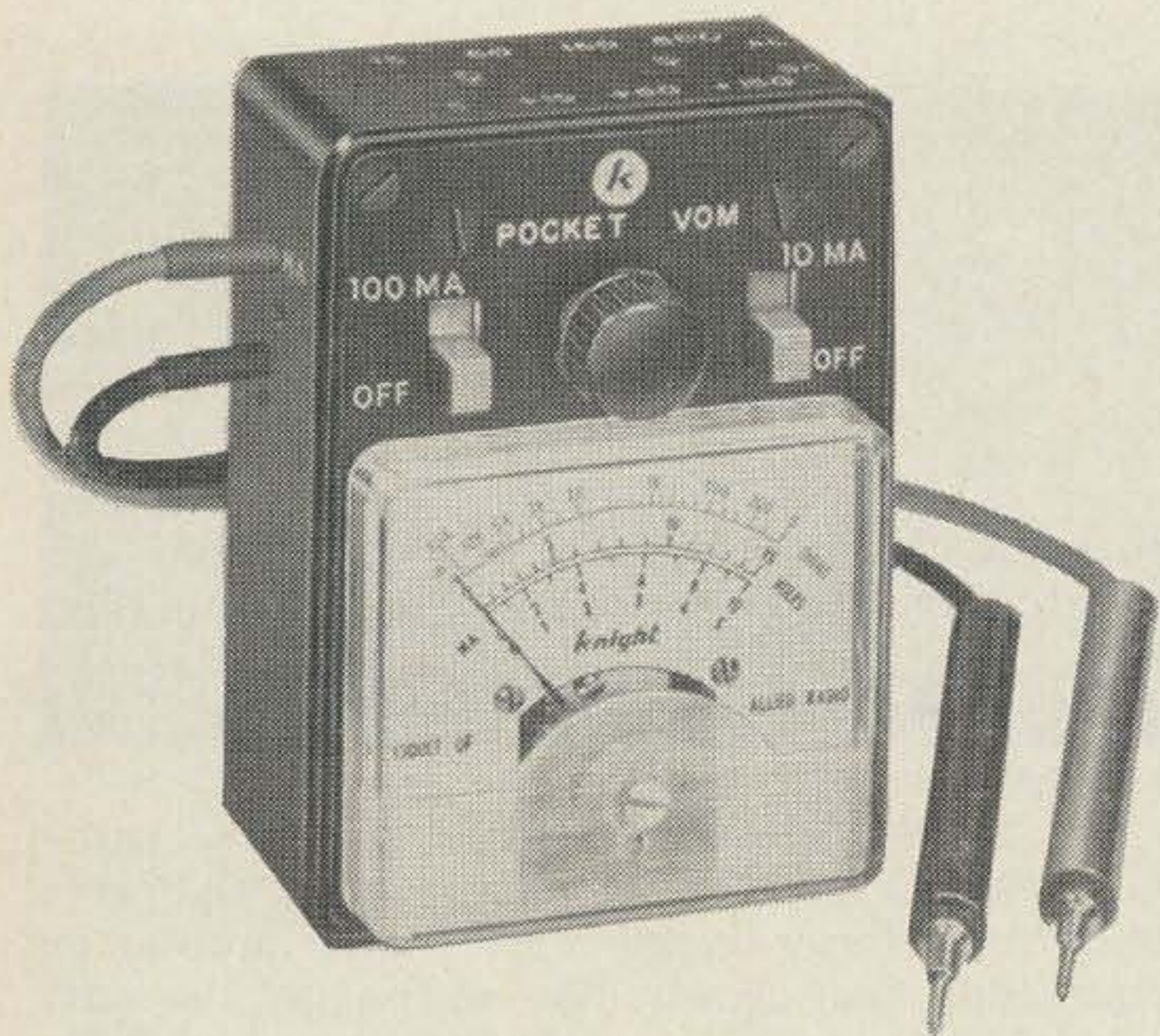
The kit can be put together in about a half hour, as there are no critical steps or extensive mountings. Included with the kit is wire, solder, hardware, a 72 ohm precision resistor (for calibration) and, of course, the parts. The instruction book is well written and the manual contains step by step instructions for wiring each part. There are a few large, easy to see, pictorials to help the inexperienced builder, and even the experienced constructor can use them to save time and make a neater job. The last half of the manual contains detailed instructions on how to use the bridge for impedance measurements, SWR, tuning the antenna to resonance, obtaining the best match, measuring the standing wave ratio on parallel lines, measuring impedance on parallel lines, and other uses. There is, at no extra cost, a section on how to solder. This is definitely an instrument that can be used by any ham for many things and, at the low price of \$5.85, an instrument that you surely cannot afford to be without.

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73 Also Tests The Knight Pocket VOM

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The Knight pocket VOM is a 1000 ohm per volt VOM that is both inexpensive and compact. The dimensions are about 2½ x 3-¾ x 1½ inches, small enough to actually fit in your pocket. Even though it is small, it is a high quality instrument. The ranges are: dc volts 0-5, 15, 150, and 500; ac volts 0-5, 15, 50, 150, and 500. dc ma. 0-1, 10, and 100. Ohms, 0-30k. There is no crowding of parts because of the novel arrangement of range switching. Instead of a switch, there is a jack for each range. This not only simplifies construction, but also accounts for its small size and low cost. The VOM costs \$9.95 complete with probes and battery. It features a large, easy to read 2½ inch meter. The construction takes about an hour and the result is a handy, compact, and portable instrument. This is just the thing to have if you have to climb a tower to check for a break in the coax (you can also qualify for a life subscription at the same time if you do it habitually).

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