

73 Tests The Knight RF Z-Bridge

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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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