

Most solid-state transmitters are designed to look into a 50-ohm load. It is necessary, therefore, that we provide a correct 50-ohm load for the transmitter. This can be done by means of a "transmatch" (sometimes called an "antenna tuner"). The term "transmatch" stands for transmitter match, which means the transmitter is matched to the feed line. If the network were located between the antenna feed point and the transmission line, then it would be correct to call it an antenna tuner.

Some transmatches contain tapped coils. This poses a severe limitation under certain load conditions. That is, the coarse induction choice leaves gaps in the inductance resolution, and a 1:1 match can't be achieved at all times. A variable inductor yields a complete set of LC ratios for matching, and it is the best scheme to adopt when possible. Unfortunately, commercial roller inductors are bulky and expensive -- not suited to QRP work. Therefore, we need to fabricate our own variable inductors from available materials.

An example of a low-cost QRP Transmatch is given in Fig. 3-5. The circuit is for a modified L network. Depending on load conditions, the connections to J1 and J2 may be reversed to obtain an SWR of 1:1. The heart of the network is L1, a homemade 5-uH variable inductor. The pictorial drawing shows how this assembly can be made. A ferrite rod with a permeability of 125 is pushed into and pulled out of a fixed-value 1.5-uH coil, L1. The inductance range will be approximately 1.5 to 5 uH. This coil is in the circuit at all times, irrespective of the settings of S1 and S2. When S1 is closed, L2 is in parallel with L1 and L3. This reduces the effective inductance of L1 to permit easy matching at 15, 12 and 10 meters. S2 should be set at the **MIN** L position when S1 is closed. With S2 in the **Max** L position, and with S1 open, the Transmatch is set up for 80-meter use. S2 is adjusted to the other tap positions for operation on 40, 30 and 20 meters. In each case, L1 is the adjustable element for inductance. C1 and C2 are miniature, single-section transistor-radio tuning capacitors. You may substitute 150-pF variable capacitors if you wish. A large, surplus slug-tuned coil form may be used for L1 if the core material is suitable for HF use.

A T-network Transmatch is shown in Fig. 3-4. It uses the same group of components as the circuit of Fig. 3-3. The series and parallel inductors, plus the switches, serve the same purposes as they do in the modified L network. The T network has a good matching range, and need not be reversed under certain load conditions, as does the L network. Ferrite rods may be obtained from Amidon Assoc. You may also use a rod from a BC-band loop antenna. These transistor-radio loops are often available as surpluses.