

Pocket Antenna Tuner

Boris Popov, UN7CI

This article is described a small (almost pocket) Antenna Tuner that can work with 100- Watt transceiver.

The antenna tuner is a small version of the legendary "Ultimate Transmatch" introduced by Lew McCoy, W1ICP. However at the Lew McCoy's transmatch is used a roller inductor and all capacitors are variable ones. It is very nice for matching but it is not real for pocket design. At this version the roller inductor changed to tapped one and a coupling variable capacitor changed to row of the fixed ones. **Figure 1** shows schematic of the tuner.

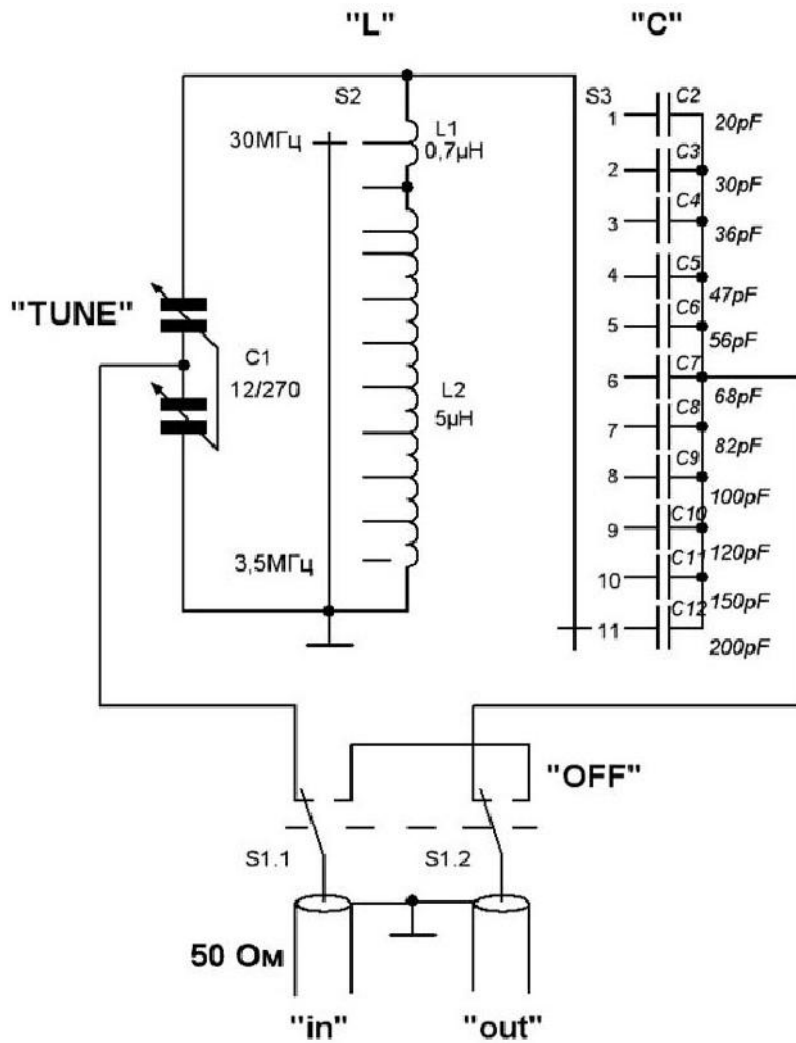


Figure 1 Pocket Antenna Tuner

Antenna and transmitter sockets (to decrease the sizes of the box) did not use at the design. SWR- meter (or RF-Meter) as well did not used here for the reason. Variable tank capacitor had simple inbuilt vernier 1:3. The tuner could match antenna impedance up to 300-Ohm. Limitation is only to working voltage of the row capacitors and input variable capacitor. **Figure 2** shows (for reference) schematic of the Lew McCoy's "Ultimate Transmatch."

Note from I.G.: The Ultimate Transmatch was described in the "Beginner and Novice" section of the July 1970 QST (Page 24). The circuit was very popular that it was also published in several of the ARRL Handbook from the 1970s. I have seen one "Real McCoy Transmatch" (as a seller sad to me) at one of Ontario Hamfests. When I decided if I heed to buy this one or not, another person bought it.

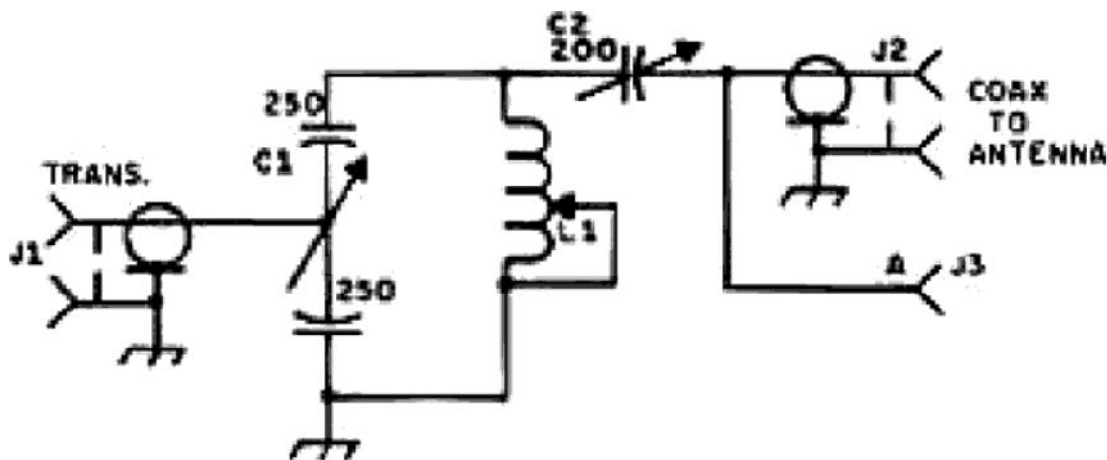


Figure 2 "Ultimate Transmatch" by Lew McCoy, W1ICP

Simple broadband transformer, connected to the tuner, allows use the tuner with symmetrical antennas fed through ladder line and with generation of the wire antennas. The transformer provides 1:4 and 1:9 transformation ratio.



Lew McCoy, W1ICP

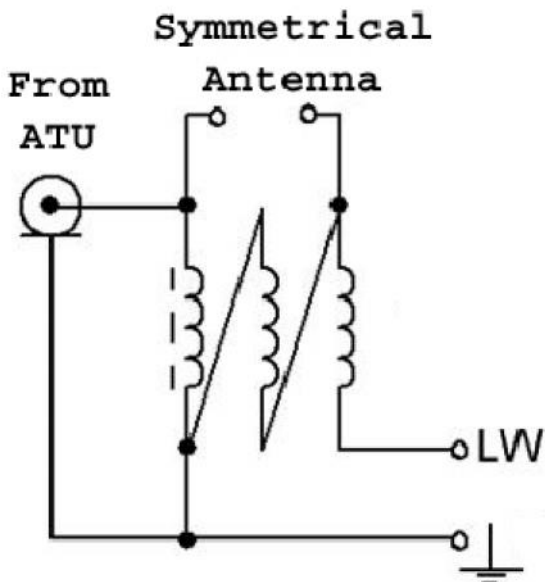


Figure 3 Broadband Transformer

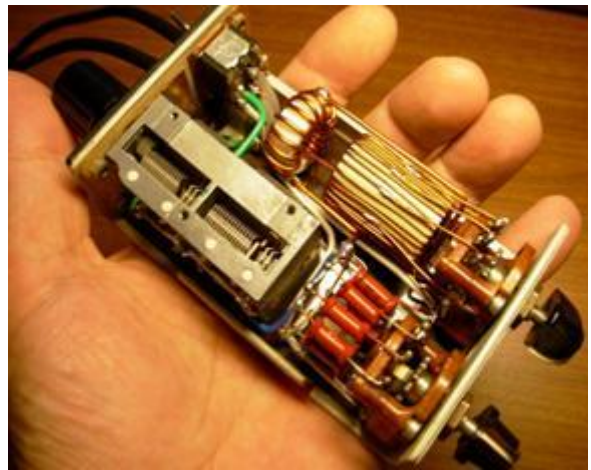
Figure 3 shows schematic of the transformer. Transformer is wound on to ferrite ring in 30- mm OD and permeability 20 by triple wires in diameter 1- mm (18-AWG) in Teflon insulation. Pictures show design of the tuner.

Parts List

- C1:** Variable Capacitor 12/495- pF from old tube receiver.
- C2- C12:** Ceramic Capacitors, 250- V
- S1:** Toggle Switch.
- S2, S3:** Small Rotary Switch for 11- position.
- L1:** Coiled on to plastic ring (from plastic water-pipe tube) in diameter 20- mm and height 8- mm. Contains 15 turns, tap from the middle. It was used wire in diameter 1.5- mm (15- AWG).
- L2:** Coiled on to plastic ring (from plastic water-pipe tube) in diameter 20- mm and height 40- mm. Contains 32 turns, tap made from each fourth turn. It was used wire in diameter 0.8- mm (20- AWG).

Antenna matching very conveniently may be made in receiving mode. At first, Switch S3 installed at Position 1 (Coupling Capacitor C2). Then with help of C1 and S2 tune tank resonator to resonance (on maxima receiving signals). After that find optimal antenna coupling by S3 and consistently tuning C1 and may be switching S2. May be in transmitting mode the tuner would be need some small tuning on minimal SWR.

73! UN7CI



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