Fast Made a Half - Wave Antenna for 80 Meters

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The antenna was made by me in one of the hot summer days near five years back. I was going for weekend to my bungalow and I decided to take my home- brew 80 – meters transceiver with myself. I had no antenna for the transceiver. So, I needed to do any antenna, but I had no time as no quality stuff for doing this one. I opened my box with old tips… and… Thirty minutes while I have had a new antenna that served me several years!

Figure 1 shows the all antenna system. I have done a half wave antenna with "bottle" matching device. As you can see a wire in long of 40 meters (a half wave antenna) is matched with 50-Ohm output of my transceiver with help of a parallel circuit ("bottle" matching device) – it is L1C1 in **Figure 1**. Spool L2 has not electrical connection with antenna circuit. RF energy is transferred from antenna to the spool only by magnetic field, that reduces the level of static interferences at receiving mode. The counterpoise has length of 20 meters of a naked copper wire in diameter of 1,5 millimeters (#14 AWG). I used a wire from an old burned down electrical transformer 220-V/12-V. The counterpoise serves as electrotechnical both as radio ground for the antenna. At operation time of the antenna the counterpoise is placed on the ground in any position (straight or bending). To short static electrical charge from antenna wire to ground is main task of the counterpoise. Not wise to use a long antenna in field without an electrotechnical ground, because in the first it is unsafe, and in the second, the antenna is very rustle on reception without an electrotechnical ground.

Figure 2 shows the construction of the matching device. I used a half - liter plastic bottle in diameter 60 millimeters from mineral water. C1 is attached at a side of the bottle with help of a strong copper wire in diameter of 1 millimeter (#18 AWG). L1 has 15 turns of copper wire in diameter of 1,5 millimeters (# 14 AWG), length of winding is 70 millimeters.

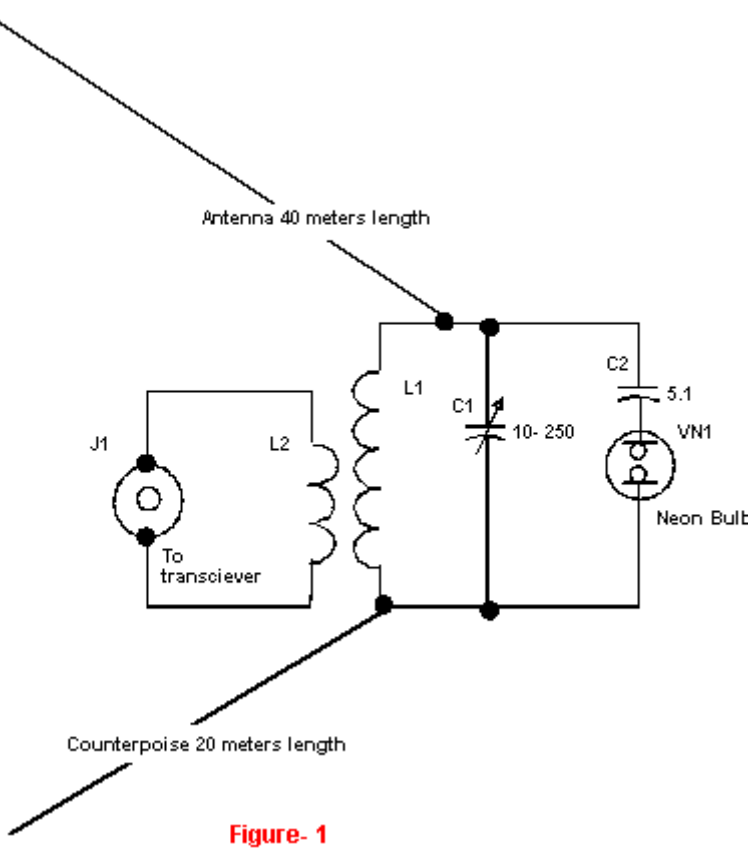

Figure- 1

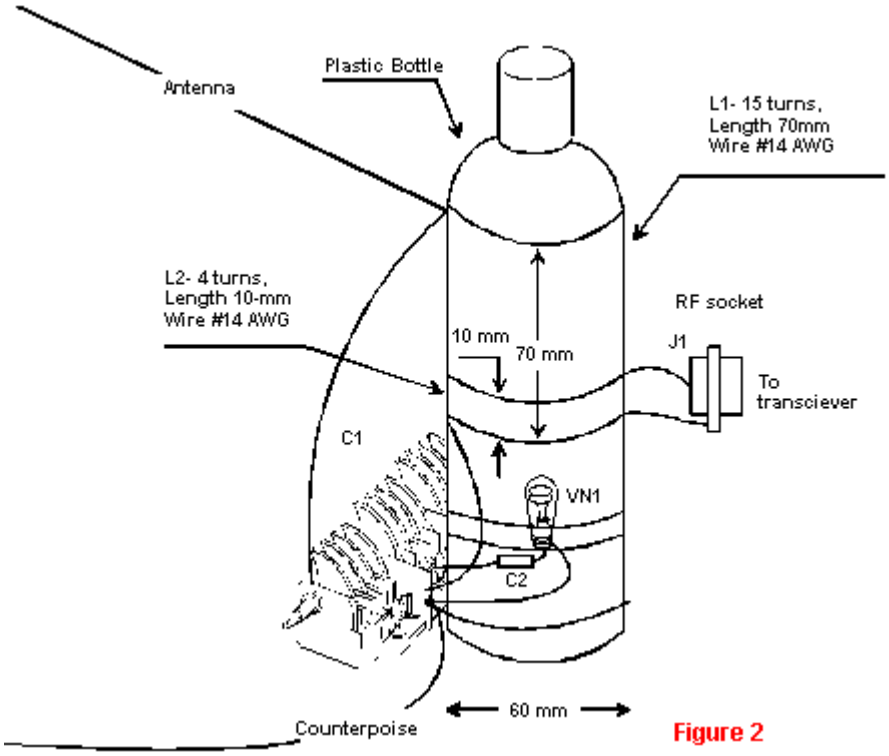

Figure 2

L2 is placed at the bottom of L1. L2 contains 4 turns of copper wire in diameter of 1,5 millimeters (# 14 AWG), length of winding is 10 millimeters. Ends of L2 are directly soldered to J1 RF – socket. VN1 is attached by a piece of Scotch to the bottle. Antenna is tuned by max glow of VN1.

The antenna works very effectively when the upper end of the antenna at lengths of five or more meters above the ground. I don't use an end antenna insulator. A long synthetic rope can simply be attached to the upper end of the antenna. The down end of the antenna could be just near the ground. A coaxial cable having any reasonable length can be between "bottle" ATU and a ham transceiver. **Figure 3** shows the antenna at field operation. Of course, it is very possible to use the antenna for stationary work from a ham shack.

The antenna works very well, and I recommend try it!

73/72!

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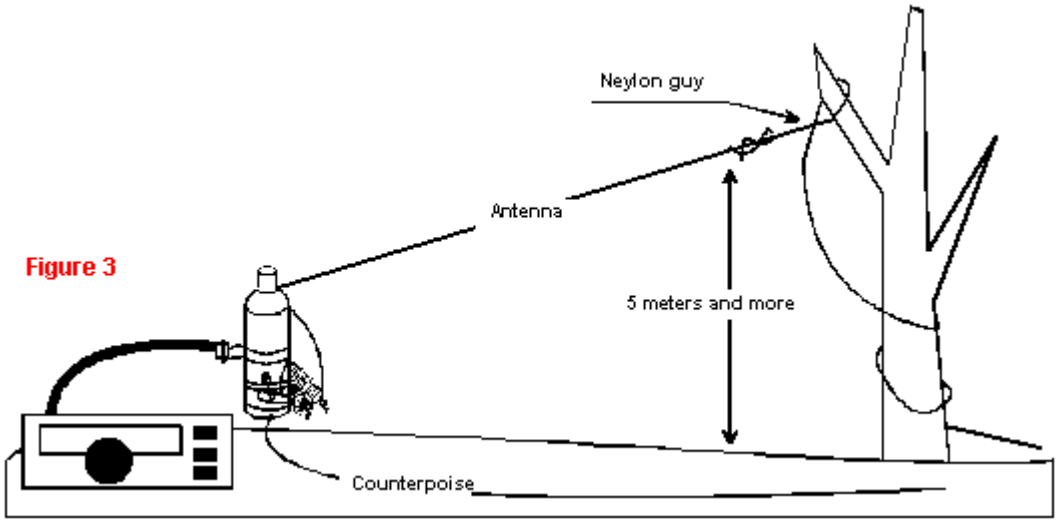

Figure 3