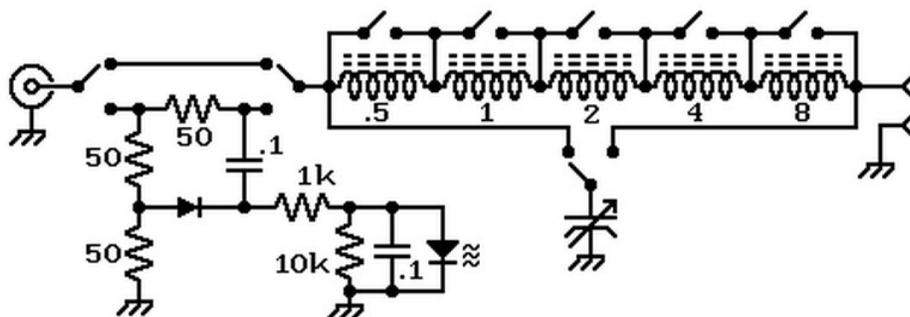


A QRP Portable Long Wire Antenna Tuner

This tuner is based upon a Low Pass L network, and will match either low impedance or high impedance loads with a wide range of reactance. My prototype has travelled extensively on several continents and never failed to produce a good match on the HF bands. Typically the long wire, with one end supported by a line thrown in a tree and worked against a counterpoise wire laid on the ground, is between 50 and 74 feet long. Whatever fits the space I have at the time.



The Variable Inductance is obtained by switching in or out fixed inductors with values in a binary sequence, giving half microHenry accuracy to a maximum of 15.5 microHenrys. The switches are miniature toggle switches rated at 120V and 5A.

The Variable Capacitor is a broadcast type 365pF or 410pF maximum, rated at several hundred volts. It is switched between either side of the inductor so that Low Z or High Z loads may be matched.

The SWR indicator circuit is the familiar 50Ω resistor bridge, where the L Network forms one bridge arm. When the L Network presents a 50Ω load to the bridge the two sides are matched and as no current flows in the detector diode the LED goes out. Simple and effective. Once a match is found the SWR indicator circuit is bypassed with a DPDT toggle switch. I use an external QRP SWR meter.



Front and back of the Tuner. This version has an extra 8μH inductor, that has never been needed, and is used with an external SWR metering circuit. The variable capacitor is a 30pF to 440pF unit.

Using FT50-2 ferrite cores, the following number of turns and lengths of 24 enamel wire are required: 0.5μH - 10T ~9"; 1.0μH - 14T ~12"; 2.0μH - 20T ~16"; 4μH - 28T ~24"; 8μH - 40T ~32".

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