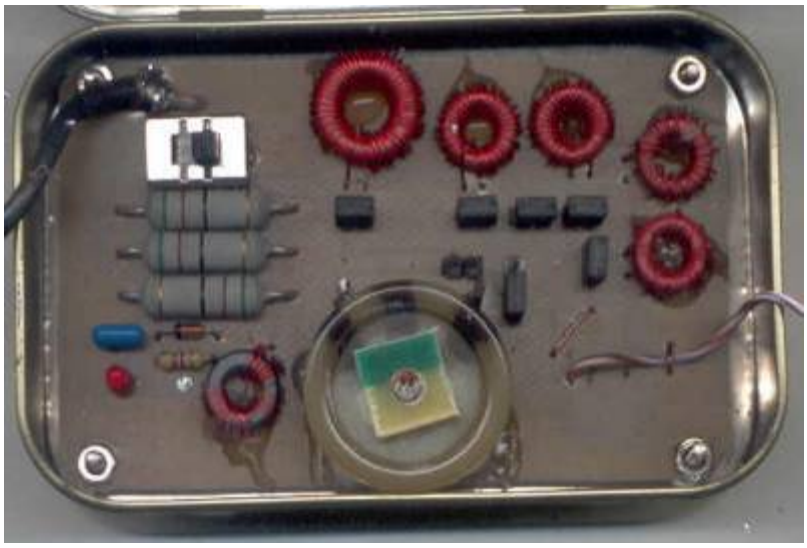
ALT - Altoids L Tuner

NOTE: a kit version of this tuner is available from qrpkits.com

Versatile L tuner for end feed wire antennas, fits in an Altoids tin. A compact and light weight system for use in the field by campers and backpackers.



A basic resistive bridge SWR meter with LED indicator is included on the board for adjusting the tuner. The L tuner is a series L, shunt C configuration. The L consists of five toroids, with the values 8 uH, 4 uH, 2 uH, 1 uH and 0.5 uH. Shunt plugs allow shorting out each inductor, so a wide range of inductance values can be achieved, from 0.5 uH to 15.5 uH.

The polyvariable cap was salvaged from a cheap AM/FM radio, which is about the only source for these things these days. There are two sections, one ranges from a few pfd to 100 pfd, the other up to 170 pfd. The higher range section is normally used for tuning, though the other section can be paralleled if extra capacitance is needed. The cap can also be switched from across the output (wire) side of the L, (for high impedance loads) or across the input or transmitter side, for low impedance loads. (Note. matching to low impedance loads doesn't seem to work!)

The RG-174 coax to connect to the rig is attached to the board, as is a short length of wire to go to the antenna wire spool. These wires do not come out

holes drilled in the tin, so that they can be stored inside the tin. The knob for the tuning cap is made from a large shirt button.

The frequency range of the tuner is 40M and up to at least 15M. The best results, antenna length should be close to, but not exactly 1/2 wave long on the lowest frequency. For example, a 51 foot wire can be matched on 40, 20 and 15. A 45 foot length of wire matches on 40, 30 and 20 (and maybe on 15), though the match on 40 is not quite exact. Using a counterpoise of 16 feet is recommended.

Its a good idea to figure out the tuner settings using an antenna analyzer first, such as the KD1JV Tenna Dipper, one of the MFJ units or similar. Note the settings for each band for future reference. Use the built in resistive SWR bridge for fine tuning out in the field.

This tuner is designed to match the high impedance of 1/2 wave, end feed antennas. To match low impedance antennas, such as wires less than 1/4 wave, much smaller inductances and much higher capacitances need to be used.