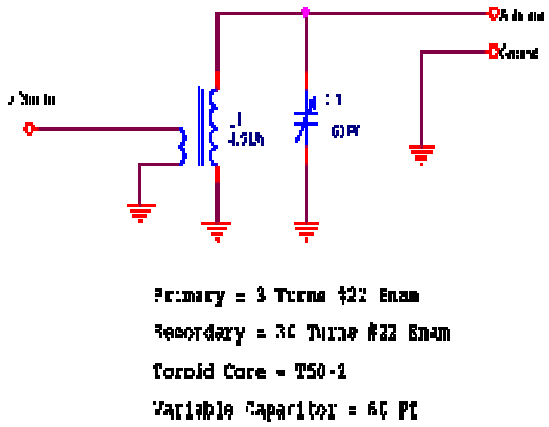
W7JI - Hi Z Tuner
For Use With 1/2 Wavelength End-Fed Wire Antennas



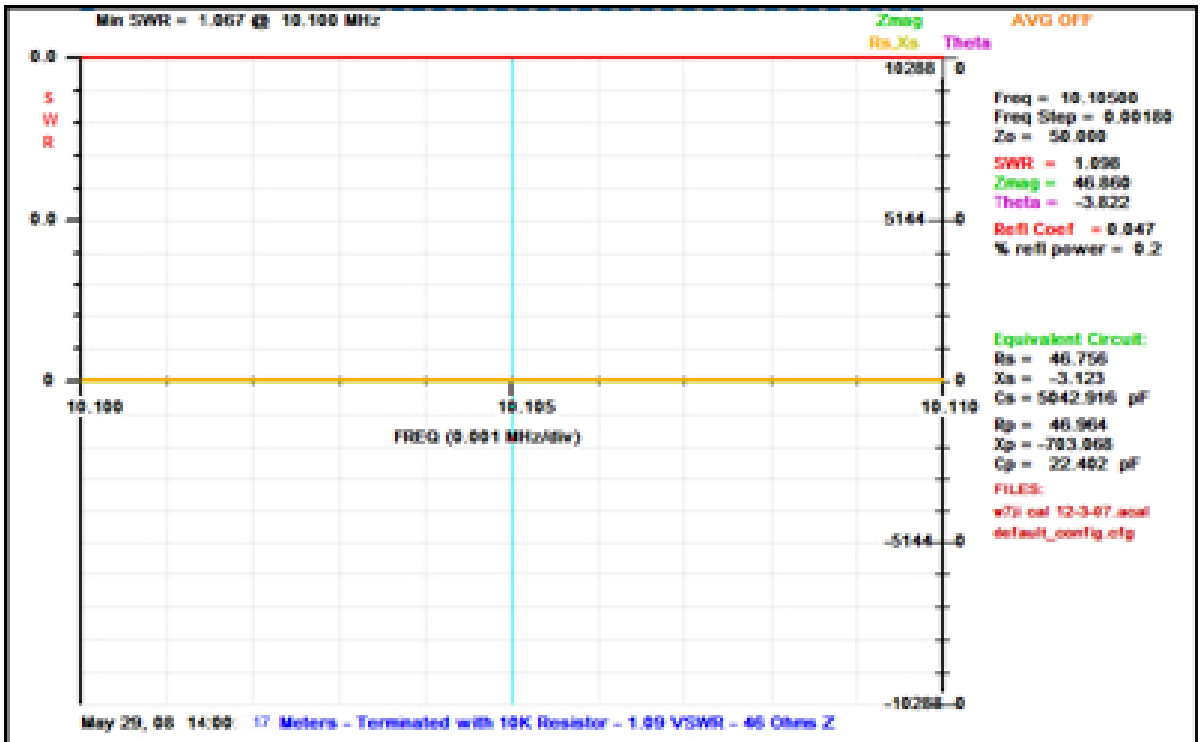
This tuner is about as simple as it gets. It's just a resonant parallel tuned circuit designed to match a High Impedance antenna to a 50 Ohm source impedance at the frequency of interest.. Unlike a Un-Un, Balun or Transformer Matching Device, turns ration is not a factor. The only requirement is to resonant a parallel tuned circuit with a reasonable "Q" so as to be able to tune the circuit while watching a reflectometer for minimum reflected power or VSWR

I used a T50-2 with 30 turns of #22 enameled wire to provide 4.5 Uh of inductance. The lowest frequency I was interested in was 10.100 (17 Meters) so the design values were chosen for operation on that band. The capacitor is approximately 60 Pfd. I had a variable cap that had some of the rotor plates that were bent and so I removed them and ended up with sufficient capacity to use in this project.

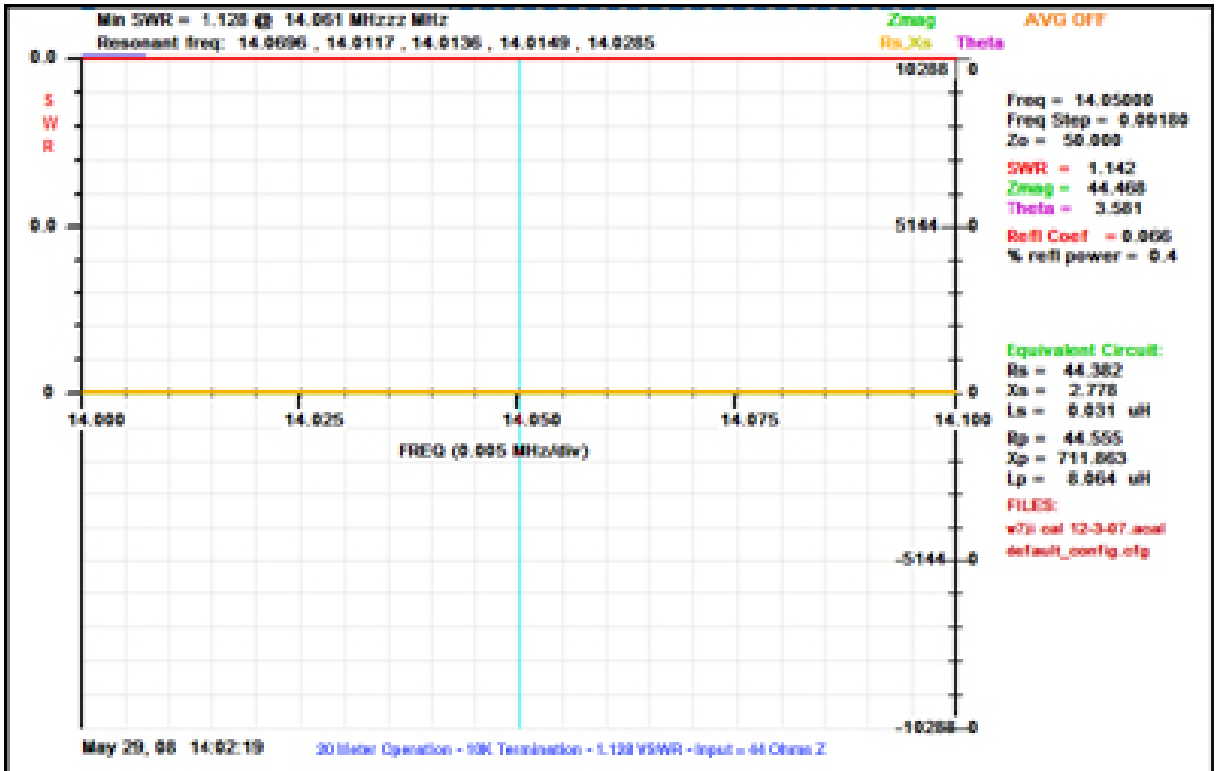
The input is simply a three turn link of #22 enameled wire would around the T50-2 core over the secondary winding.

Proper operation was verified by terminating the output banana jack with a 10K resistor and tuning the capacitor for minimum VSWR. I am including copies of the graphs produced by my Array Solutions 4170 Analyzer which shows the operating frequency , VSWR and input impedance under these conditions.

In actual use, you can tune the VSWR using a meter in line with the output of the transmitter or by using the SWR indicator on the transmitter. In either case , it is possible to tune an end fed 1/2 wave length wire where no reflected power is visible on a bridge or the transmitter. I use a 4



On 17 Meters The VSWR is 1.06 and the input impedance is 46 Ohms resistive. Of course the tuner works across the entire band.



On 20 Meters The VSWR is 1.12 and the input impedance is 44 Ohms resistive. I have not tried to use the tuner on any other bands but I'm sure it will work just fine.