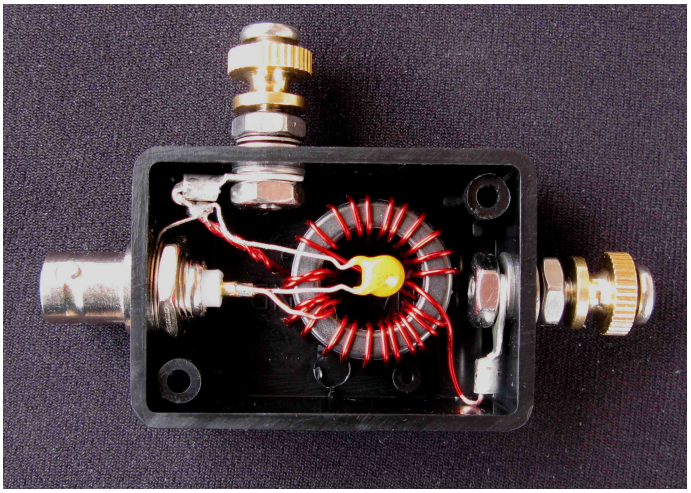
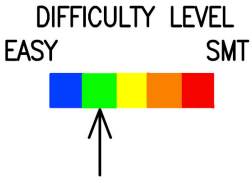
QRPGuys Mini No Tune End Fed Half Wave Antenna





First, familiarize yourself with the parts and check for all the components. If a part is missing, please contact us and we will send one. To request a part, please use qrpguys.parts@gmail.com.

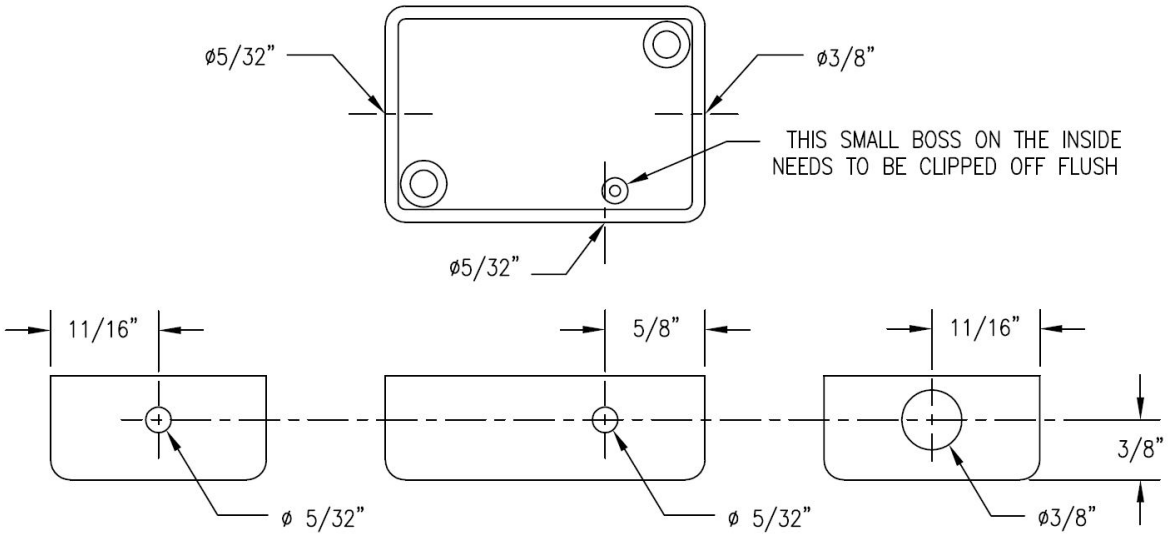
Please read all the instructions before starting the assembly.

Parts List

1 – T1, FT82-43 toroid core (black)
1 – 60” of 22AWG magnet wire (red)
1 – 150pF ceramic capacitor, marked 151, 150K, or 150P depending on manufacturer
1 – Female BNC connector, w/ mounting hardware
2 – 8-32 x 3/4”L SS Phillips pan head screw
4 – 8-32 SS nut
4 – #8 internal tooth SS lock washer
2 – #8 spade connectors
2 – Brass 8-32 thumb nuts, or S.S. wing nuts
1 – 2.00” x1.38” x .75” plastic case
1 – self adhesive label

Case preparation

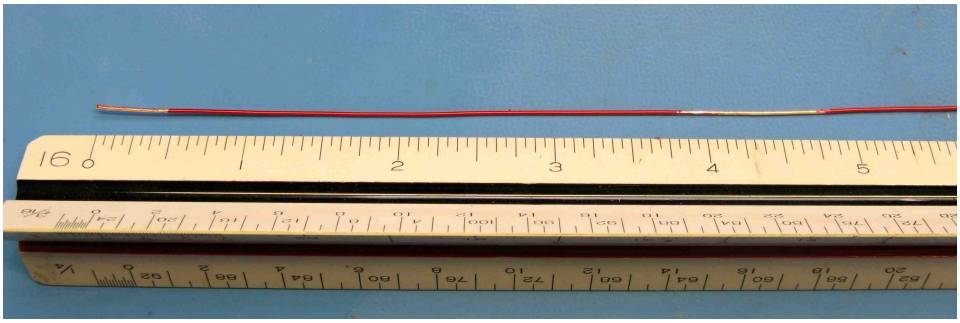
The plastic box is easily drilled with a step drill of from a pilot hole and tapered hand reamer. Either method is acceptable. A pilot hole is easily done with a hot soldering iron with a small point. Just mark the locations as shown below with a pencil and either drill or ream the locations shown.



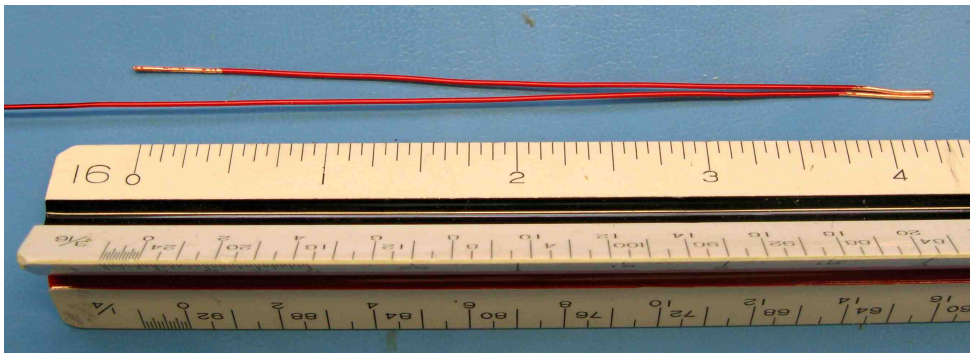
T1 preparation

Following the instructions below will allow the transformer to align with the pcb holes and perform properly.

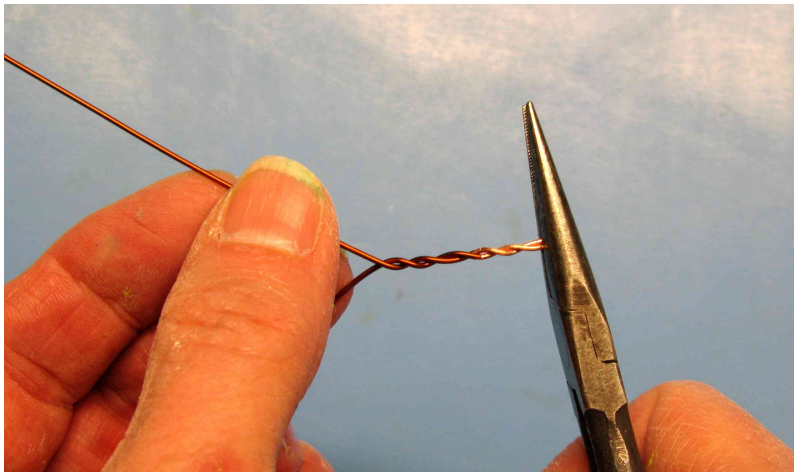
[ ] Start by scraping the insulation with a razor knife .50" from the end, and a space between 3.75" and 4.75", as shown in the picture below.



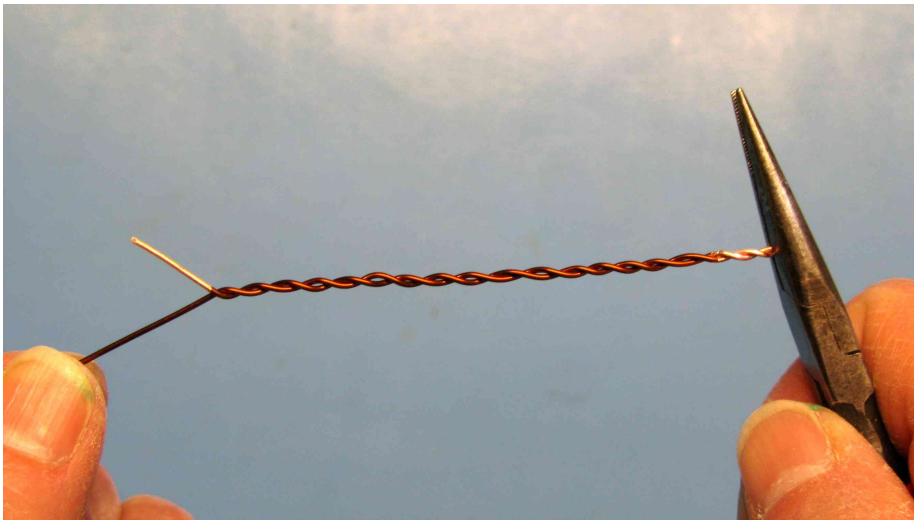
[ ] Fold back the wire 4.25", and pinch the loop. As shown below. This will leave .50" of exposed bare wire.



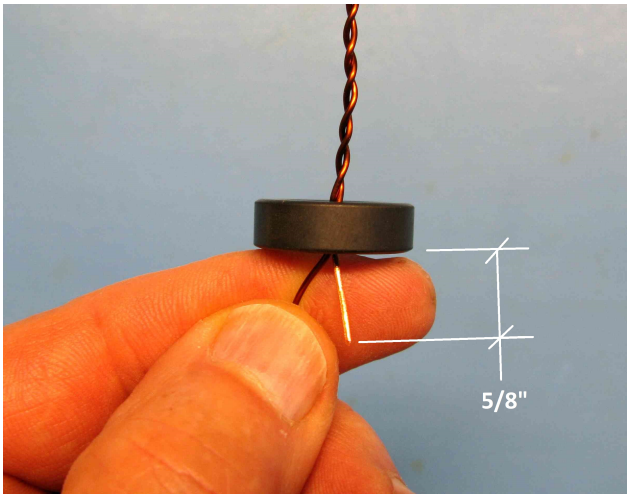
[ ] Hold the end of the loop, and twist the loop as shown.



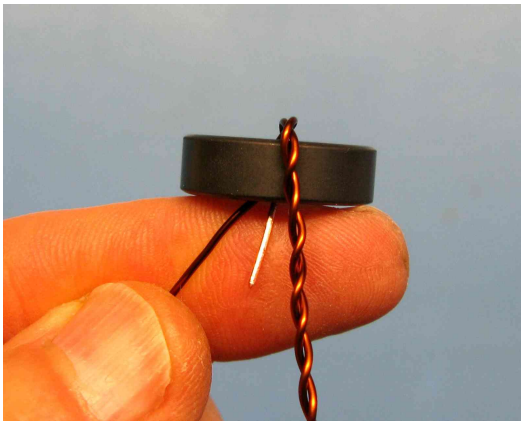
[ ] Twist the loop until you get to the beginning of the .50”scraped end.



[ ] Place the looped end of the wire up through the inside of the FT82-43 toriod as shown.



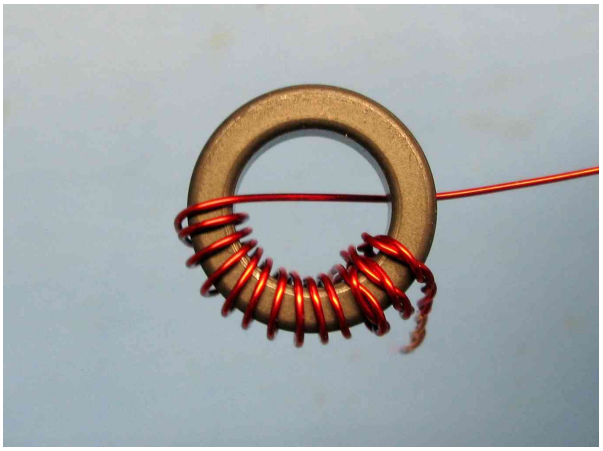
[ ] With the 5/8” exposed end of the wire just below the core, as shown, bend the wire down to form the first of the three primary turns and the first of the secondary turns. This is **turn one** of the primary and secondary.



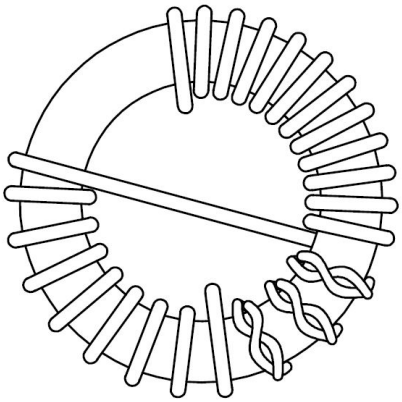
[ ] Pass the looped end of the wire **up** through the center of the toroid, and wind two more turns to the right (counterclockwise), for a total of a **three turns**. At this point the primary is finished

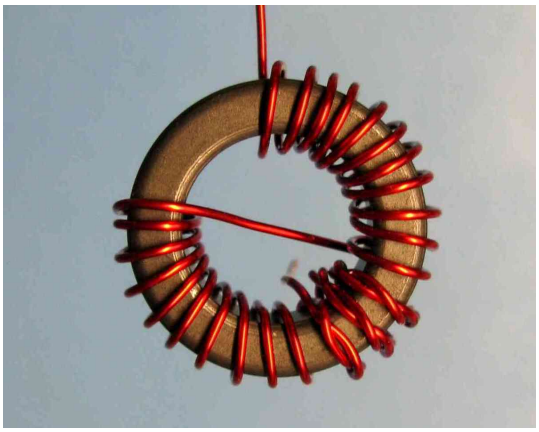
[ ] Continue winding the secondary with the loose end of the wire passing **down** through the center of the core, winding (clockwise). The picture below shows first 12 turns of what will be a total of 24 turns for the secondary

[ ] The next turn will cross down through the center of the core 180º and cross to the other side of the toroid as shown. Because it goes thru the center of the core, it counts as the **13th turn** of the secondary.

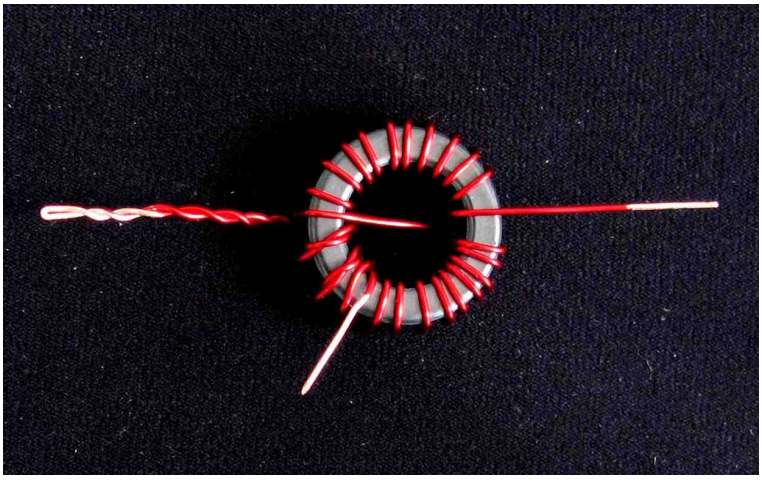


[ ] Now pass the wire **down** through the center of the core and wind in a counterclockwise Direction for another 11 turns. This will result in total of a **24 turn** secondary, as shown below.





[ ] Verify your total turn count and trim the loose end to 1” and scrape the enamel off of 1/4” from the end, and tin the three exposed leads.



The transformer is now pre-soldered and pre positioned as shown below, with all the connections soldered, except the center BNC pin.

[ ] Solder one of the #8 spade lug connectors to the end of the single red wire.

[ ] Bend a 45º angle on the solder lug for the BNC connector and slide it onto the red twisted pair.

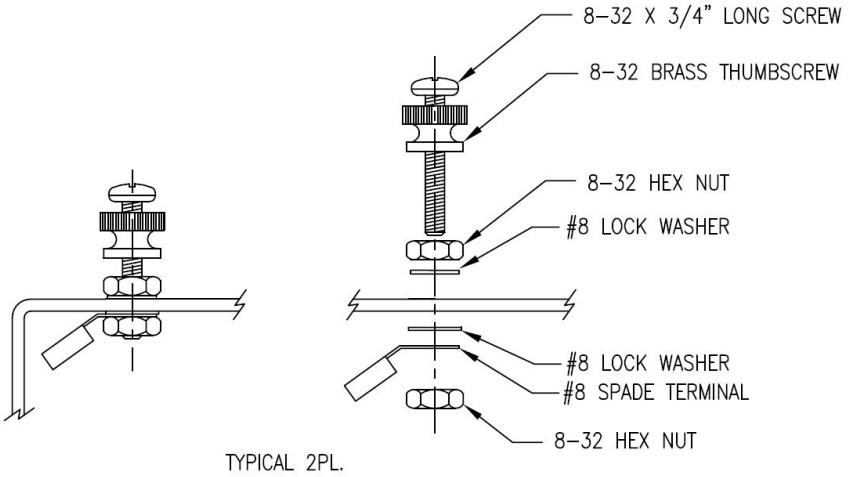
[ ] Solder the remaining #8 spade lug connectors to the end of the red twisted pair.

[ ] Solder the BNC lug connector as shown. Solder one leg of the 150pF capacitor as shown to the twisted red pair.

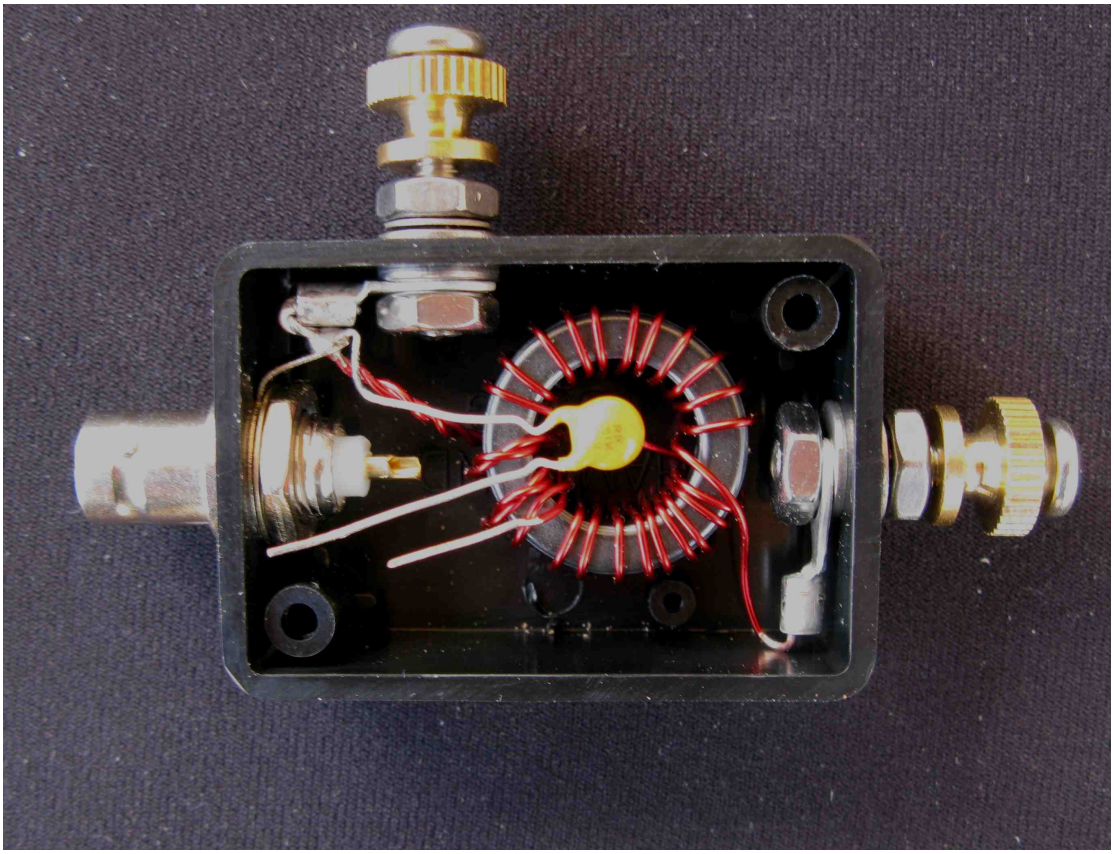
[ ] Bend the lugs as shown. Any pre-positioning you do will be helpful installing it into the case.

Final Assembly

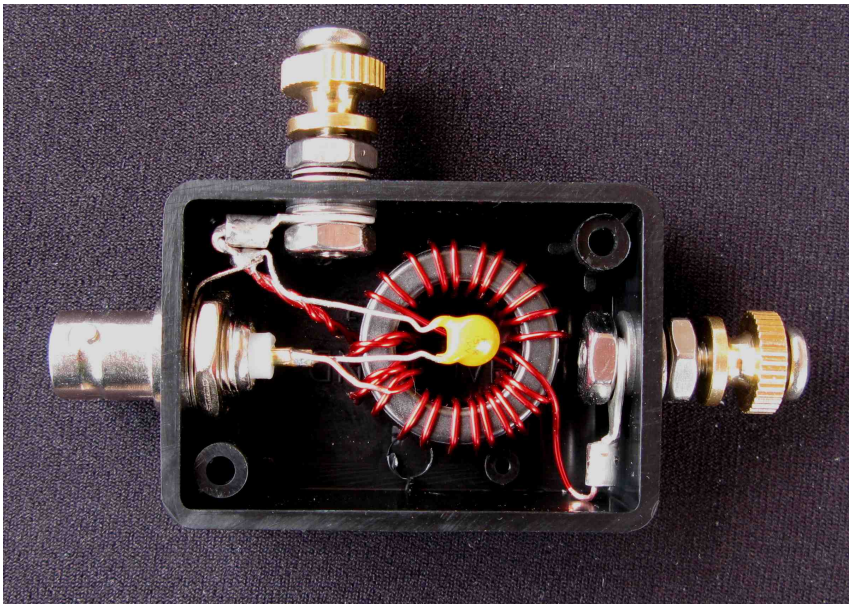
Shown below is the connection for the counterpoise and antenna wire points. Be sure to follow the sequence to keep from cracking the plastic case.



Using the picture below connect the two #8 lugs to the external wire connections. Next position the BNC lug on the inside centered on the Ø3/8" hole. Feed the BNC connector through the Ø3/8" hole and through the BNC lug. Place the lock washer on first, then thread the locking BNC nut onto the BNC threads and secure. The end of the #8 screws should be flush with the nut when everything is tightened up.



[ ] Solder the red lead and the leg of the capacitor to the center pin of the BNC connector.



[ ] Attach the self adhesive label to the cover, and secure with the two self tapping screws provided.

Using the antenna:

Use all the normal cautions throwing wires up in the air near power lines.

The QRPGuys Mini NoTune Half Wave Wire Antenna covers any single band from 80m – 10m with the correct length 1/2λ wire. The wire can be trimmed so the SWR is ≤ 1.2 for a given frequency, but may require a tuner to achieve that for the entire band. We have found when trimmed to the center of the band, the entire band is ≤ 2.0 SWR, with the exception of 80m. For 80m decide on which end of the band you need the lowest SWR, and trim accordingly. There is no additional counterpoise required, as the feed line acts as the counterpoise. Start by using the length of wire detailed on the pcb. It is best to cut your wire a little longer and fold it back on itself during the tuning process. You can use 20awg to 24awg depending what you have available. The driven element may be deployed horizontally, in a inverted V configuration, or vertically for the higher bands, if desired. There is a BNC female connector for the input from your radio or tuner. Below are starting points for your wire lengths.

80m – 125’0” wire, 3.550 MHz 1.3 SWR, 3.450-3.660MHz ≤ 2.0 SWR

60m – 81’0” wire, 5.350 MHz 1.2 SWR

40m – 61’6” wire, 7.100 MHz 1.1 SWR, 6.900-7.300MHz ≤ 2.0 SWR

30m – 42’6” wire, 10.100 MHz 1.1 SWR

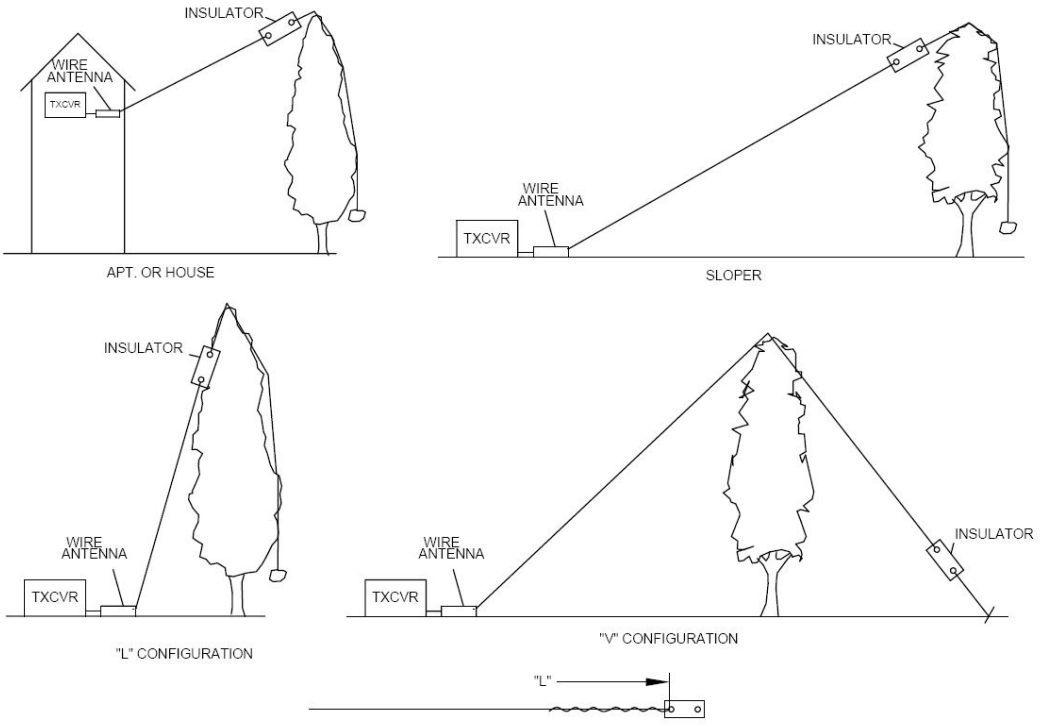
20m – 28’8” wire, 14.200 MHz 1.2 SWR, 13.700-14.600MHz ≤ 2.0 SWR

17m – 22’4” wire, 18.100 MHz 1.0 SWR, 17.500-18.600MHz ≤2.0 SWR

15m – 20’0” wire, 21.100 MHz 1.2 SWR, 20.500-21.900MHz ≤ 2.0 SWR

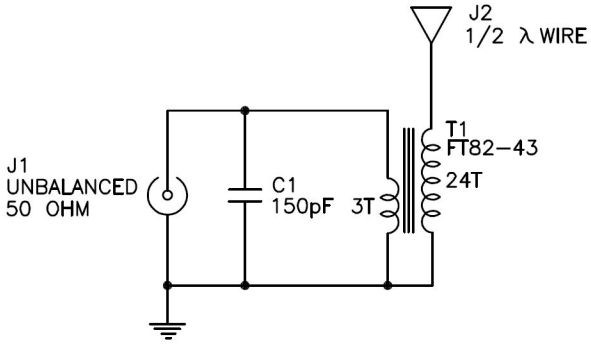
12m – 15’6” wire, 24.900 MHz 1.2 SWR, 23.600-26.400MHz ≤2.0 SWR

10m – 13’2” wire, 28.100 MHz 1.2 SWR, 26.400-31.700MHz ≤ 2.0 SWR



ALWAYS CUT YOUR ACTICE ELEMENT 1 OR 2 FT. LONGER AND WRAP IT BACK UPON ITSELF. THIS LEAVES SOME WIRE FOR ADJUSTMENT. IT STOPS RADIATING AT THE POINT OF THE BEND AT THE INSULATOR. THE INSULATOR CAN BE A SIMPLE 2" LONG PIECE OF PLASTIC TUBING WITH A COUPLE OF HOLES IN IT.

Schematic:



Notes: