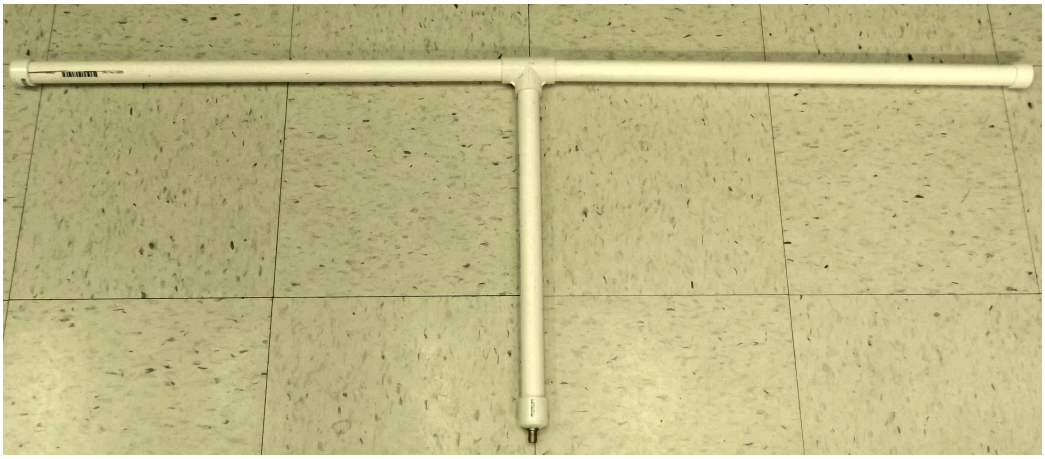
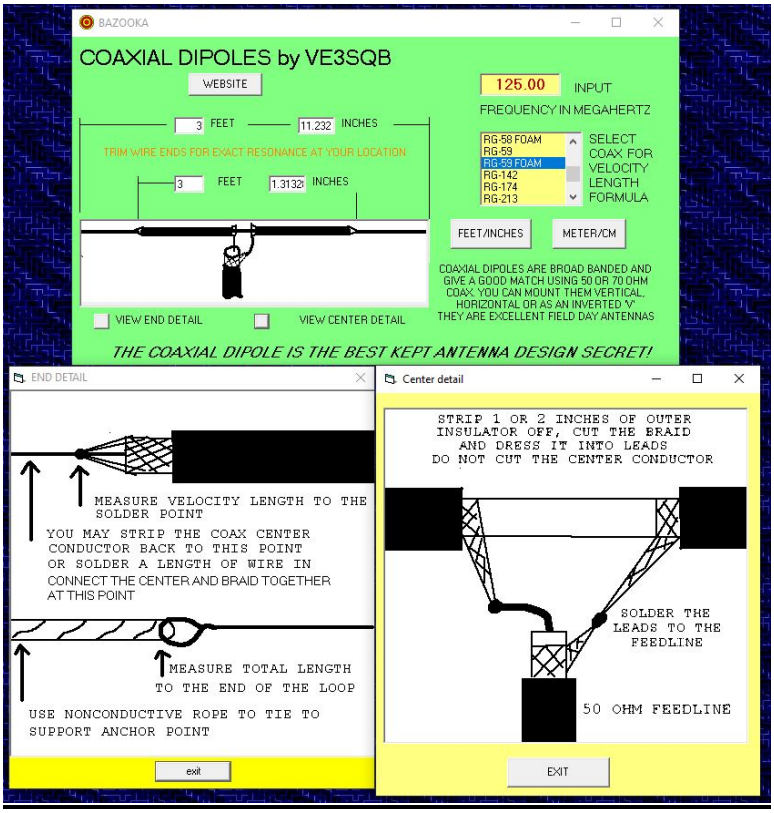
A suggested waterproof antenna for 125MHz



VE3SQB Coaxial Dipole

The PlaneTalk receiver will work with a simple whip but for about $5 in parts and some old coax you can build a much higher performance waterproof antenna for the receiver. Either mount it outside or in the attic, and feed it with standard 50Ω coax. This coaxial dipole antenna for the aircraft band is designed with a center frequency of 125 MHz. The specific dimensions and configuration for the driven elements are taken from a program written by VE3SQB, and must be downloaded and configured for the specific coaxial cable you are going to use. I chose to use RG59 (foam). I had a piece lying around, it is flexible, and has a solid wire center conductor. The specific lengths for this particular coax is shown below.



If you chose to use a different coaxial cable, download the design program from http://www.ve3sqb.com/, look for “coaxial dipole”. Run the program for the particular coax you wish to use for the specific lengths. The pictures and construction technique reflect the RG-59 (foam) I chose.

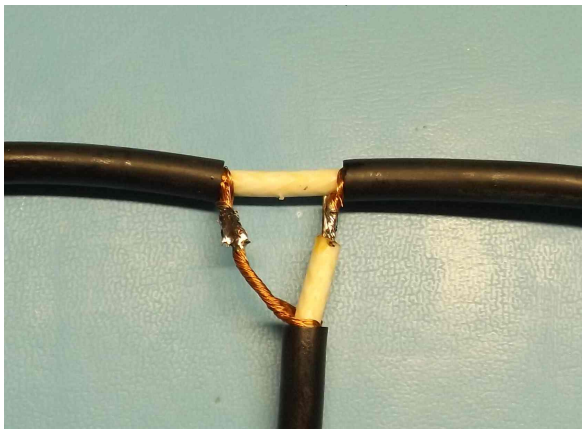
Housing Parts

1 – 3/4” PVC tee
3 – 3/4” PVC cap
~64” – 3/4” PVC SCH40 tubing
1 – BNC female panel mount connector
6’ – coaxial cable of your choice

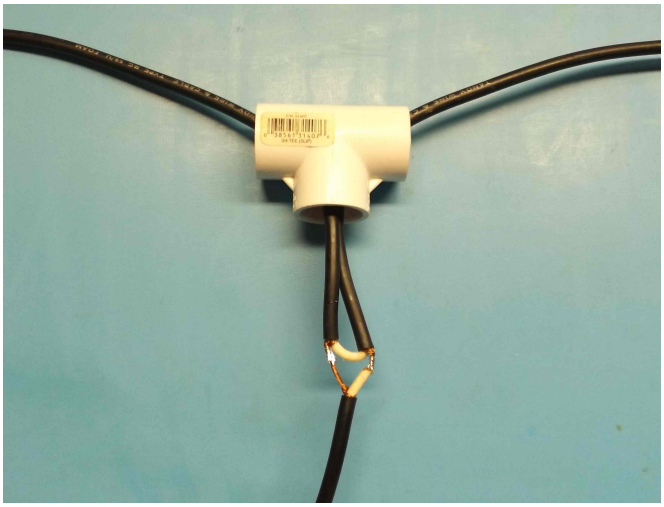
Cut the element according to the program parameters, and strip 3/4” of the outer plastic cover, not cutting any of the outer braid, in the center of the length.

Cut the braid only, twist and tin as shown.

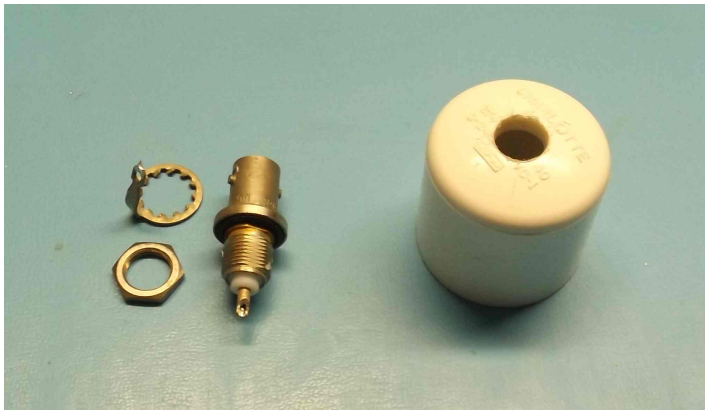
Strip and solder an 18” long of the same cable as shown. Note: This length can be whatever you need for the vertical piece of 3/4” PVC to mount the antenna.



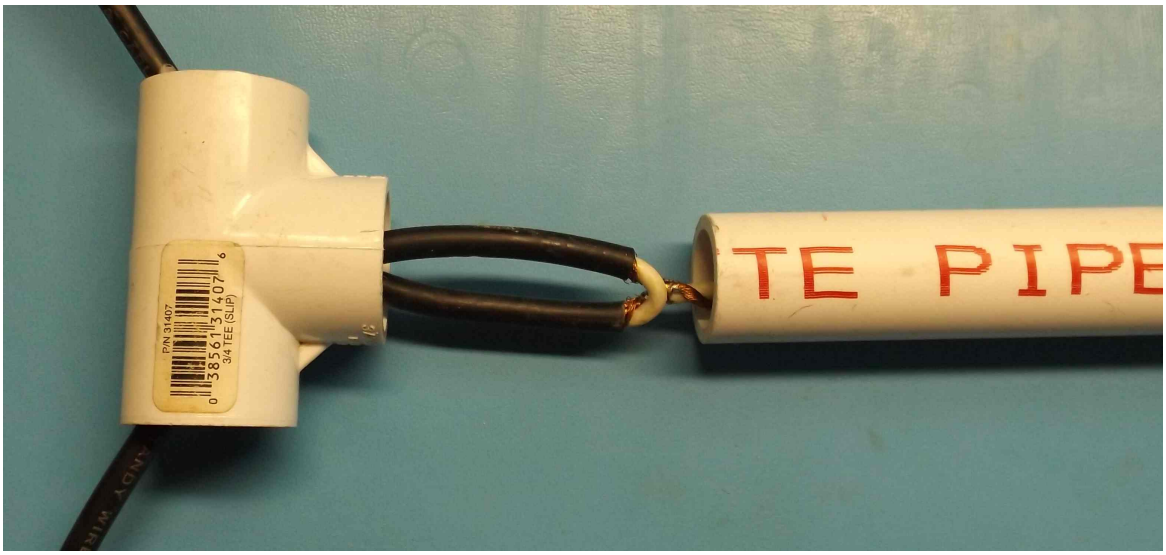
Feed the two legs of the driven element up through the 3/4” PVC tee as shown.



Drill a clearance hole in one of the 3/4” pipe caps to mount the particular bnc connector you chose. Secure the connector to the pipe cap.

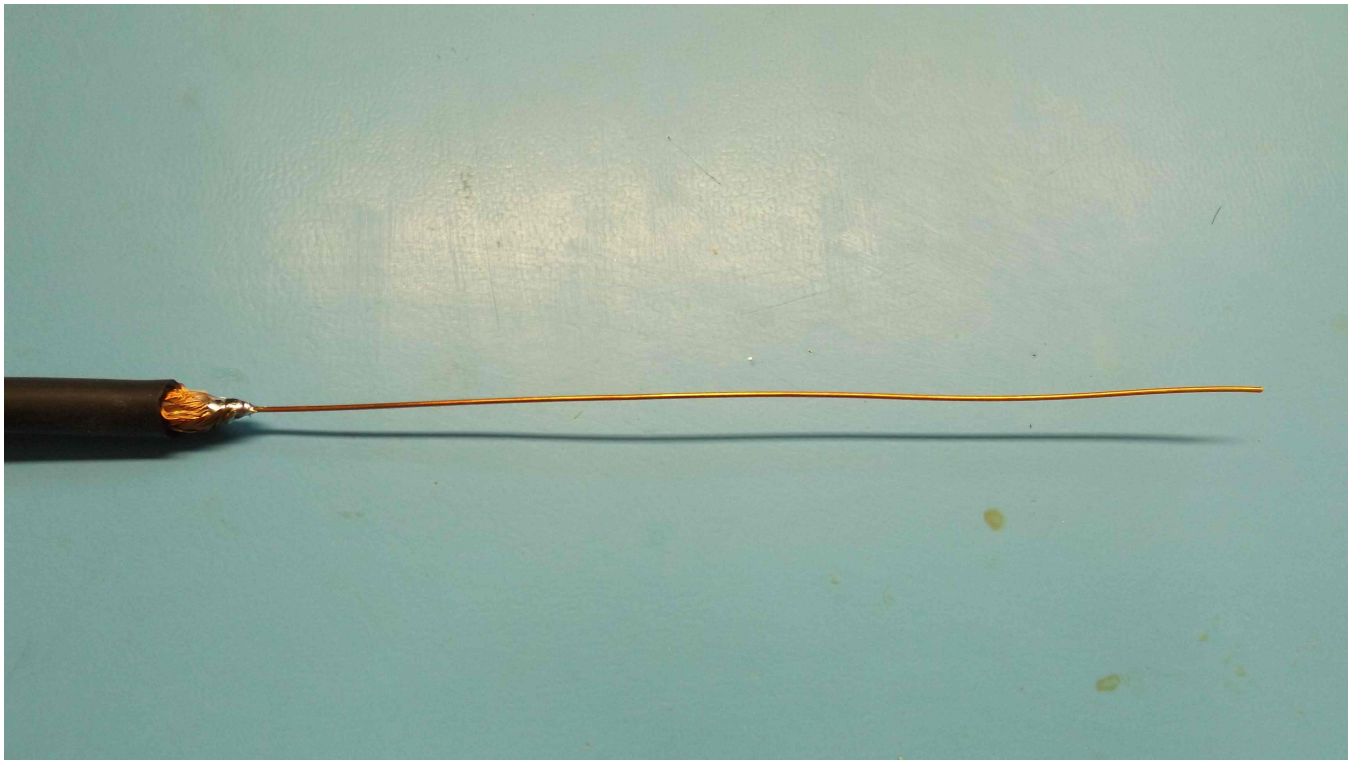


Cut a piece of 3/4” PVC tubing 2” shorter than the vertical piece of coax you decided to use. In my case it was 16”, and slide it over the feed coax.

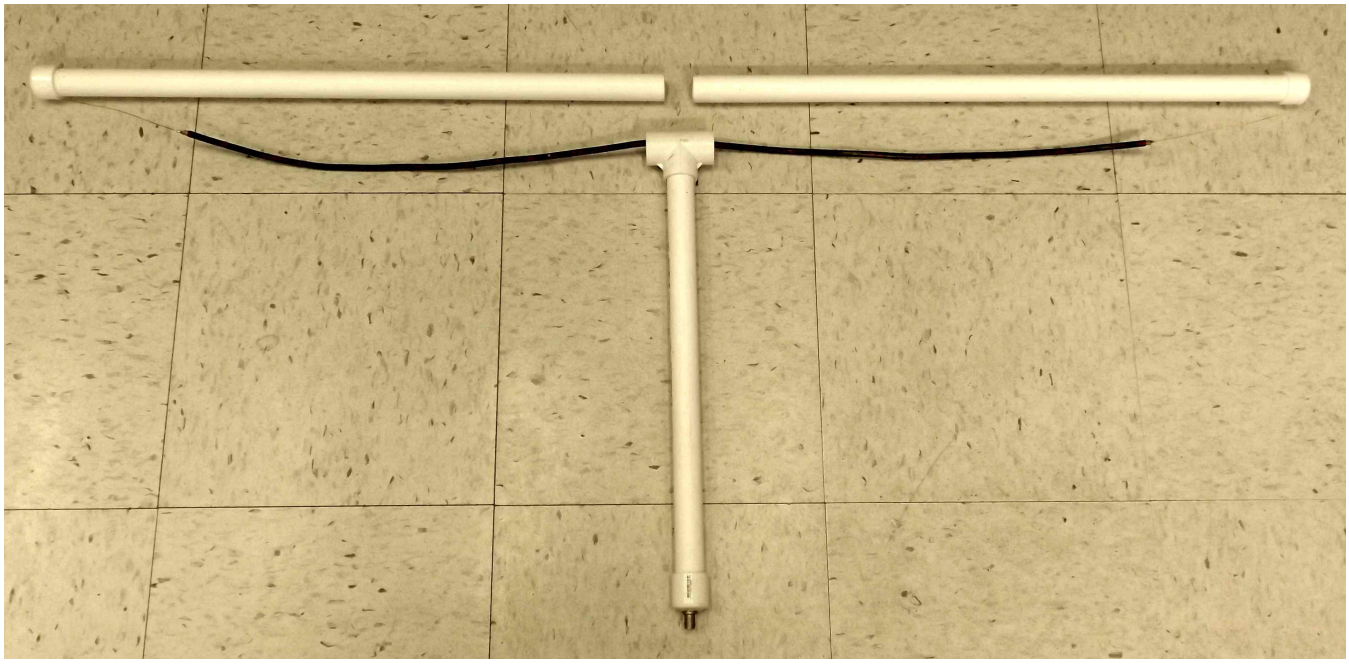


Strip ~1/2” of the outer jacket from the feed end of the vertical coax, twist the braid, tin it, and solder it to the ground lug of the BNC connector. Solder the center conductor to the center of the BNC onnector.

Prepare each end of the driven element as described and dimensioned in the VE3SQB earlier graphic as shown below.

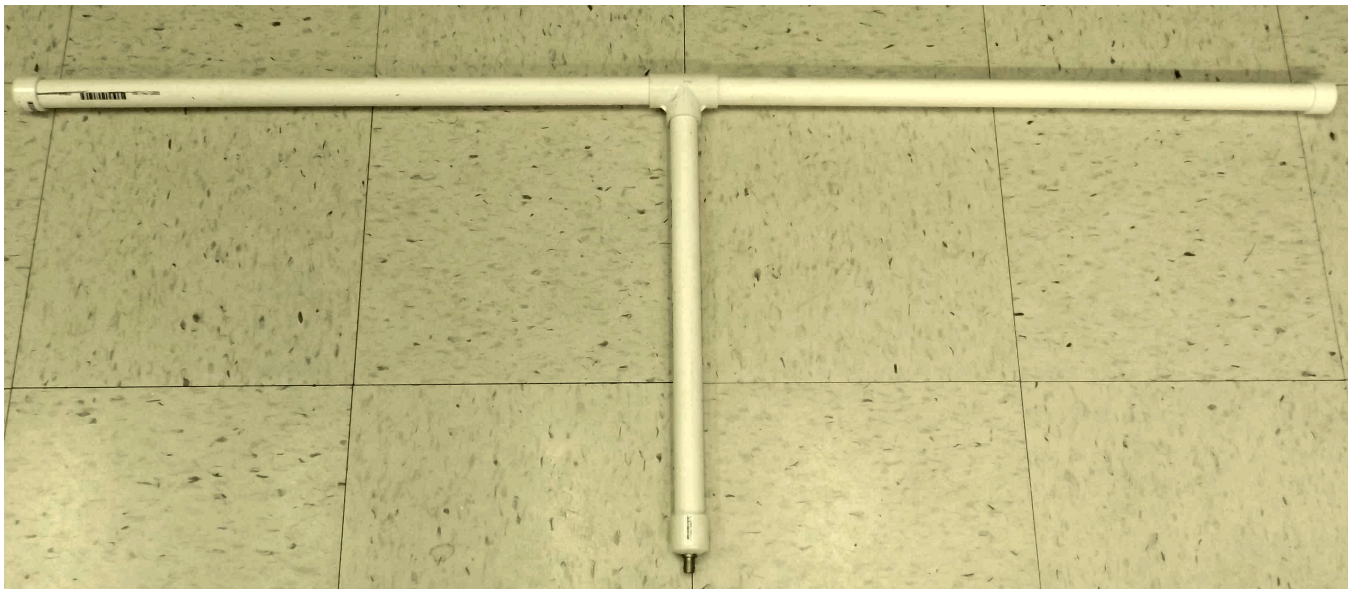


You can now gently pull the two ends of the driven element, to the outside, while pushing up from the connecting coax, and temporarily slip in the PVC tubing to the tee and bottom cap with the BNC connector. Now it should look like the picture below.



Cut two pieces of 3/4” PVC, and slip a 3/4” cap on each piece. Slide each tube into both sides of the tee.

It is recommended the you test the assembly before you use PVC cement, making it waterproof. The antenna when sealed can be used outdoors, or just hung in the attic. It can be mounted for vertical or horizontal polarization.



Mount the antenna outside or in the attic. Higher is always better, and feed it with 50Ω coaxial cable.

Notes: