

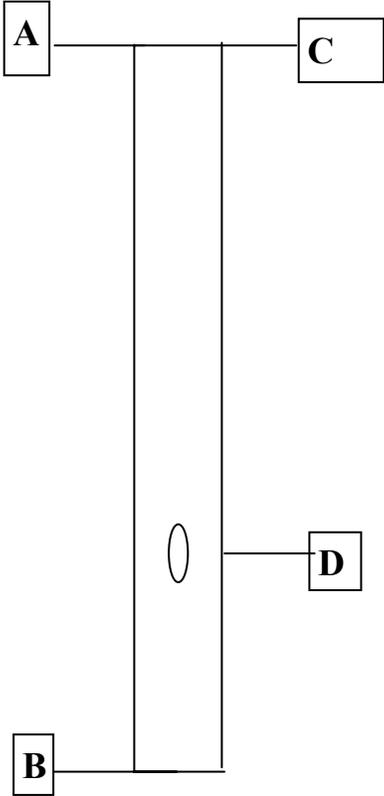
Building a Resonant Feed line Dipole for 2 Meters

By N5BOY



Material
3/4 Inch PVC
pipe

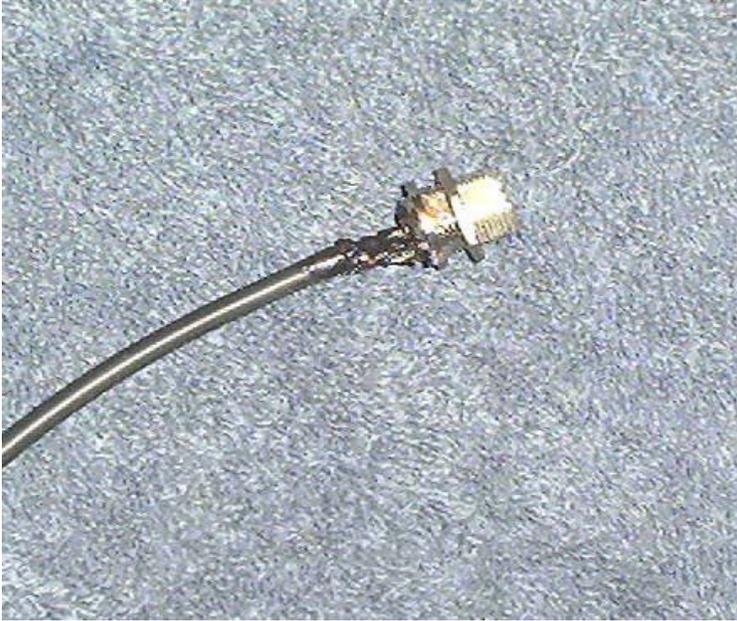
Cut dimension
A to B
23 or more
inches



Measure 16 Inches from the top of the pipe with a pencil or pen

Drill a hole at the 16 Inch Mark. Make the hole big enough for a piece of RG58 coax to pass through without binding.

After the drill bit passes into the pipe turn the drill so that the tip of the bit points to the top of the pipe. This will bevel the top inside and bottom outside of the hole to prevent the sharp edges of the hole from cutting into the coax



Solder the center conductor and shield of your coax to the SO239 connector. Seal the coax, especially the braid with hot glue, silicone, or liquid electrical tape. This keeps stray “hairs” from the braid from shorting out the center conductor and also keeps moisture out of the braid should you find yourself using the antenna outside.

Use solid dielectric RG58. Coax with a foam dielectric will NOT work. Using larger coax will make it hard to form the choke.



Prepare a $\frac{3}{4}$ inch pipe cap by drilling a hole in the center of the cap. The hole should be large enough to snugly mount the SO239.

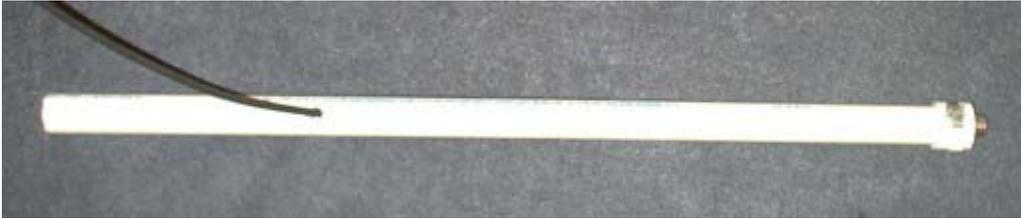
A flat cap is preferred but a round top cap may be used if the top is ground flat and thinned out enough to allow the SO239 to be mounted properly.



Mount the SO239 in the pipe cap and tighten the mounting nut.



Thread the free end of the RG58 coax through the top of the pipe and bring it out of the hole you drilled at the 16 inch mark. Actually it would be easier to thread the coax through the hole and out the top *before* you solder the SO239 on the coax. Either way will work.



Pull the slack out of the cable and secure the cap on top of the pipe. It is usually not necessary to glue the cap.



Pull the coax snug and secure it with a wire tie.

Form the choke by winding 9 turns of coax, snug against the pipe with no gap between the turns.

Secure the bottom of the coil with a wire tie.

To help secure the coax put another wire tie an inch or two below the tie at the bottom of the choke.



The choke may be covered, secured and weather proofed two ways.

- A) Tightly cover the choke and coax from two inches above and below with a good quality electrical tape. Tightly stretch the tape so that it will form to the choke.
- B) Cover it with heat shrink tubing.



Last step is to put a PL259 on the end of the coax.



Finished antenna bottom section on a pipe flange stand.

Building a $\frac{1}{4}$ Wave Top Section



Solder a 20 inch piece of welding rod or any stiff wire (coat hanger) to the center of a PL259. Set up the antenna about 5 feet off of the ground and trim the top of the wire until your lowest SWR is around 146.500. You should have no problem getting it down to 1.2:1 with SWR no higher than 1.5:1 across the entire 2 meter band. Fill the hole in the top of the PL259 with hot glue, silicone, or liquid electrical tape.

Newbie Tip

Remember if the best SWR is at the low end of the band, the antenna is too long. If the best SWR is at the high end of the band the antenna is too short. Start off with a wire you know is too long and trim a little at a time, it is very easy to cut off wire but very hard to ADD wire.



A loop in the top of the antenna will give you a way to hang it if you so desire and it will make the antenna a little more broad banded. To put a loop on your antenna first tune it to the lower end of the band, lowest SWR at about 144.500 Mhz. Now bend a loop in the top of the antenna. Bending the loop effectively shortens the antenna and should bring the point of best SWR up to something close to 146.00 Mhz. SWR at the top and bottom of the band is usually a point or so better with the loop on top.

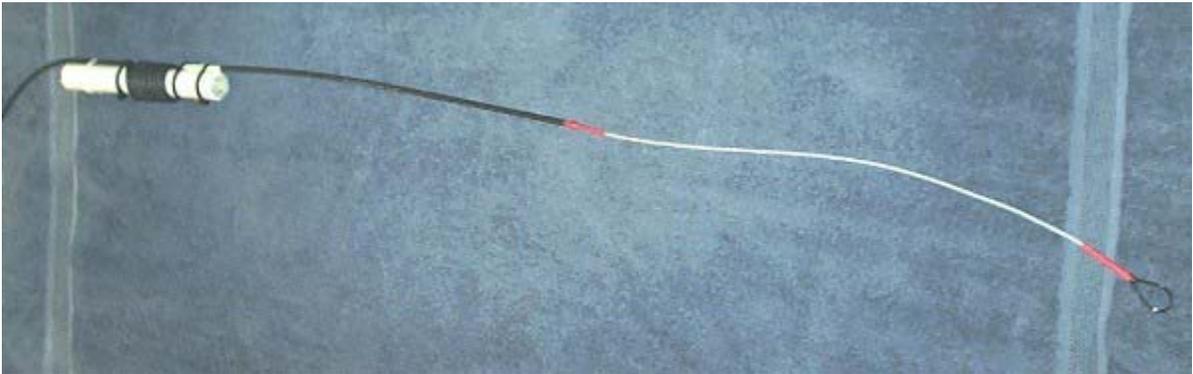
Other Ways to Top Your Antenna



With a BNC adapter you may use any HT antenna on top of the resonant shield base. The telescoping 5/8 wave antenna will give you some gain. The rubber duck will work better on the resonant shield base than it does on the HT but it will still radiate like a dummy load. Maybe more like a leaky dummy load.

A mobile antenna with a PL259 type mount may also be used on the resonant shield base.

Variations on a Theme



A rollup version made by stripping 19 inches of shield off the coax and winding a choke on a piece of scrap PVC. Trim the center conductor for best SWR and add a loop so that the antenna can be hung from a tree limb.



No drilling of the PVC pipe necessary for this version.





High



Higher



The whip slips neatly into the base for storage.



A PVC pipe cap keeps the whip inside.

WARNING: If you use an antenna other than the $\frac{1}{4}$ wave whip, do NOT leave the whip inside the base.

The End