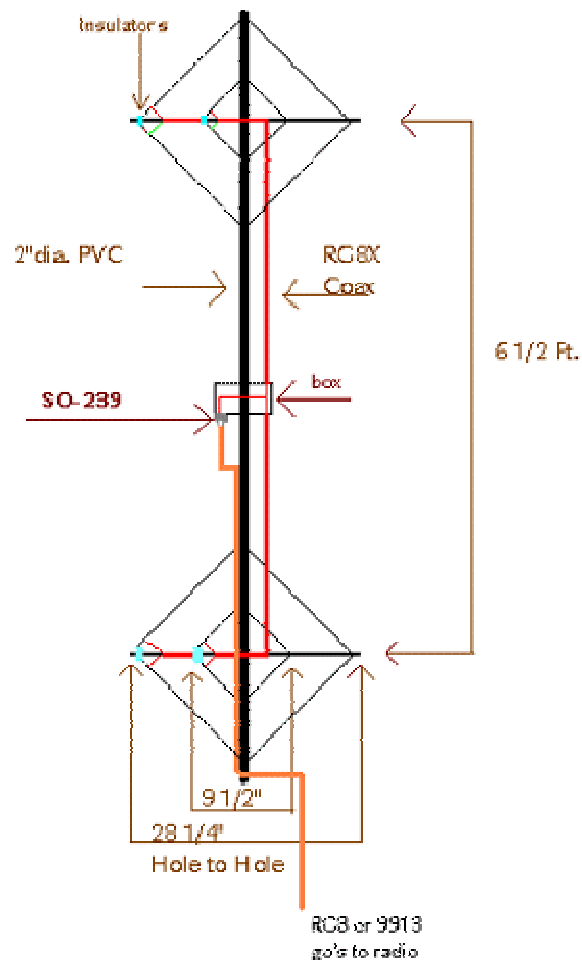


Specifications for antenna at bottom of diagram



## KE4UYP's Biquad

144/440 MHz

### *Specifications*

This is a vertically polarized Broadside and Collinear Array each Loop is a vertically polarized Broadside Array both the right and the left side of the Loop is a bent 1/2 wave dipole working 180 degrees out of phase with the other one and that gives you 4.15dbi of gain The two Loops are Stacked one above the other this makes a Collinear Array at one wavelength at 2m that gives you 5.15dbi of gain so the Total gain of the Antenna is 9.15dbi all this from four

pieces of wire and some PVC pipe.

One of the easiest construction techniques for building this antenna is to use 3/8" fiberglass rods for the horizontal spreaders that pass straight through the two inch PVC pipe you can hold them in place with two nylon tie wraps one on each side of the two inch PVC pipe pulled tight around the fiberglass rod.

You can make insulators from half-inch diameter PVC pipe 3 inches long. Drill a 3/8" hole 1 1/2" from one end of the pipe all the way through both sides of the pipe, then drill two 1/8" holes near the ends of the PVC pipe for the antenna element wire to go through. Then you can slide this pipe on to the fiberglass rod.

If you solder the coax connections then seal it with epoxy tape it will be 100 percent reliable and weather proof, also make sure you extended the two inch pipe twelve inches past one of the loops you can U bolt that part of the pipe to your mast, of course this would be for FM operation. See attached drawing.

This is a inherently broadbanded antenna so fine-tuning the elements is not necessary the reason why these elements are shorter than a standard element is because when you connect two driven elements in parallel with each other this creates and an excessive amount of inductive reactance and the easiest way to remove this is to simply make each element shorter normally these elements would be three

inches longer on 2 meters.

The impedance of one loop is 100 ohms so when you put the two loops in parallel you get 50 ohms this makes a perfect match for coax cable. If you are using this for 2 meter SSB then of course you need horizontal polarity and the loops would be side-by-side this puts the feed points at the bottom corners of each loop. the antenna would then be mounted on the mast from the center.

The formula for calculating the overall loop lengths is  $11665.4$  divided by  $\text{xxx.xx Mhz's}$  the answer will be in inches.

