

Stacked 5/8 Wave VHF Antenna Project

Parts:

1. (1) 10 ft. section of 3/4" PVC pipe
2. (2) Ground lugs made from aluminum ground bars found at Home supply stores. Each piece needs to have two lugs each, you will have to cut these from the lug strip.
3. 14.5 ft of 10 or 12 gauge aluminum wire. Found at radio shack in 25' foot coils.
4. Zip ties to attached to pipe.
5. Alternate: (1) 3/4" PVC coupling to facilitate folding the antenna in half for travel in a car.

Construction:

1. If this antenna is to travel in a car for deployment then cut the pvc at the 5 foot mark and insert the coupling, and put the section of pvc back together. **DO NOT GLUE THIS JOINT!**
2. Measure 47.51" inches down from the top of antenna and make a mark with a sharpie. This is where you will drill your first hole straight thru the pipe.
3. Measure 1" inch down from the first hole make a mark, this is where you will drill your second hole straight thru the pipe in line with the first.
4. Measure 66" inches down from the second hole center to center make a mark, this is where your will drill your third hole straight thru the pipe in line with the second.
5. Measure and cut 14.5' Feet of the aluminum wire.
6. Measure and mark with a sharpie pen on the wire in the following order: 47.51" inches, (The phasing stub is a 3/8 wave total so distance so mark this way 13.75" inches, after that 1" inch, after that 13.75" inches), after that 66" inches. Or you could do it this way 47.51", 61.26", 62.26", 76.01", 142.01", if you have a long enough measuring tape to stretch along the wire. Keep the wire as straight as possible during this time.
7. Take the upper half of the wire and feed thru the upper hole until the first mark just comes thru, bend 90 degrees upwards along the pvc pipe and attach against the pipe with the zip ties.
8. Take the lower half of the antenna and feed thru the lower hole until the fourth mark just comes thru, bend the wire 90 degrees downward and zip tie to the pvc pipe in line with the upper wire, BUT remember to check and make sure you have the two 28.51" runs of wire with 1" separation, form those up neatly (see drawing).
9. Now take the lower part of the wire and push on one of the ground lugs you cut, (use the outer most lug slide it up past the 5th mark and lightly tighten.
10. Now push the wire thru the lowest and third hole until the 5th mark is against the pipe, take the remaining stub of wire and slide the other lug on, again use the outer most lug hole, line up the lugs and lightly tighten.
11. Fold the last bit of wire up vertically against the pipe on the opposite side of the other wire and zip tie both against the pipe.
12. Construction is done!

Tuning:

Attach coax feed line to remaining unused lug holes, center conductor to the element side (ie long side) and the braid to the stub (ie short side). Tuning is accomplished using your radio, or antenna bridge, or MFJ antenna analyzer and by sliding the lugs up and down and squeezing the parallel wires at the bottom closer and farther apart.

A decoupling choke can be made by coiling 5 or 6 turns in the coax either around the bottom of the pipe or in a 2" dia. And then tape to the pipe. Remember J-Pole type antennas are very sensitive to their environment so try to place the antenna in its location for final tuning, and step away from it during tuning. Once you are happy with the tuning just use some RTV cement on the stub wires and pipe to lock it in.