

80 M - 6 Foot EH Antenna

WB5CXC



This is a picture my EH antenna for 80 meters. It has two cylinders made from aluminum flashing 30 1/2" long, wrapped around 2" (2.375") PVC pipe. Below the pipe are two coils for matching and developing the EH fields. This antenna is described in the Demonstration # 5 at the EH Antenna Web Site - <http://www.eh-antenna.com>

Building the antenna is very easy and inexpensive. It has outperformed my other antennas (dipole made from two mobile whip antennas up 20 feet and a vertical w/o radials). The first test was when I checked into the weekly ARES net. I usually have to be checked in from an alternate net control due to a weak signal. The first night the net control heard me the first time without any repeats. I next checked into the Southwest Traffic Net with the net control in Hot Springs Arkansas without any trouble. I like the performance of this antenna. For a limited space antenna it appears to be doing a tremendous job.

Aluminum Flashing - 30.5"

80 Meters

Phasing Coil 4 turns

Tuning Coil * 32 turns

Source Coil 7 turns

* Tuning Coil is tapped at 2 turns from bottom

All coils use # 14 enamel wire

2" PVC Pipe

Phasing Coil

2" PVC Coupling

Connection is on the top of the bottom cylinder - 180 degrees from the tap of the top cylinder

Aluminum Flashing - 30.5"

Spacing

Phasing Coil is at least 1/2" above top of bottom cylinder.

Tuning Coil is 1 cylinder diameter (2 3/8") below bottom cylinder.

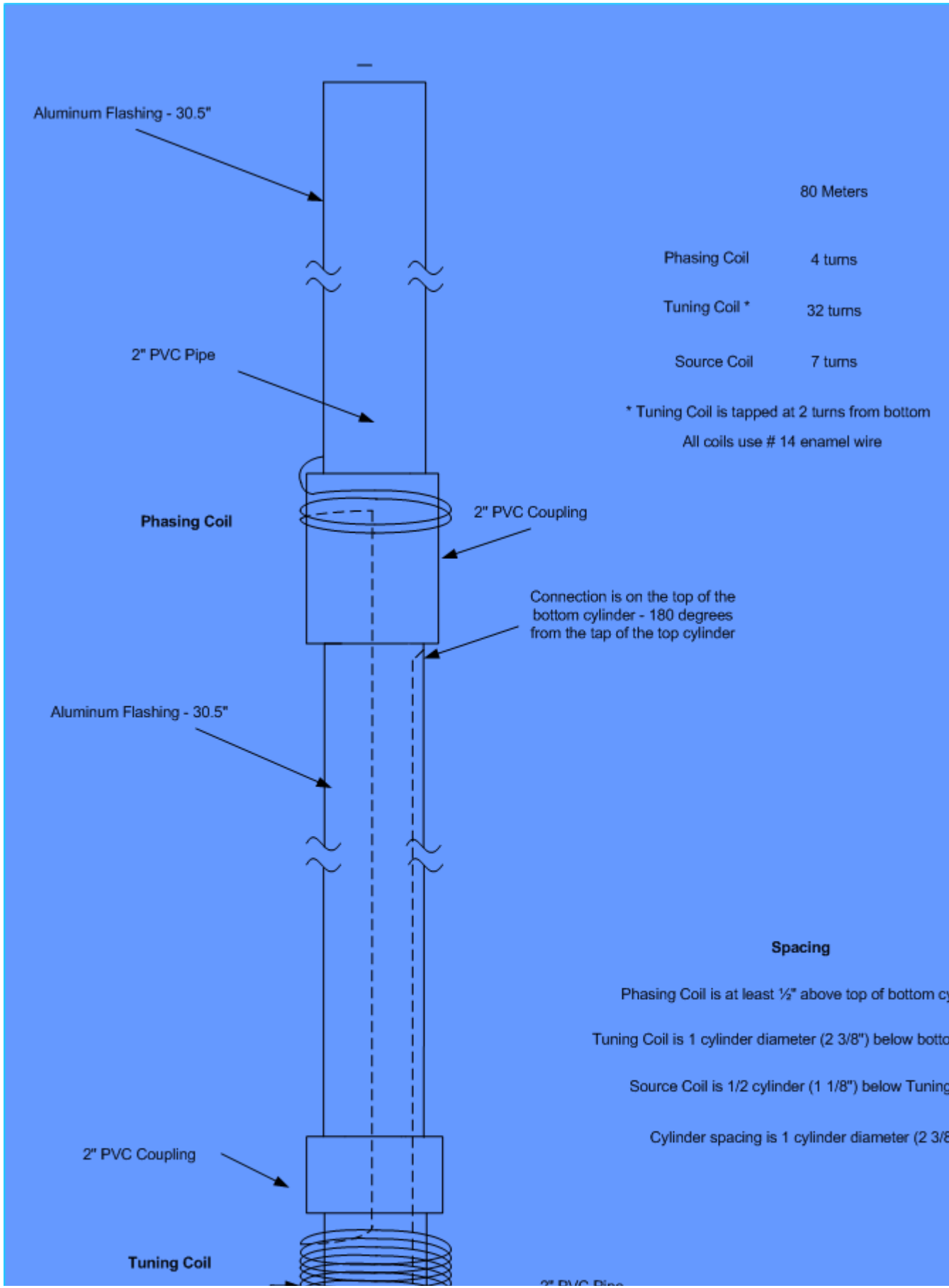
Source Coil is 1/2 cylinder (1 1/8") below Tuning Coil.

Cylinder spacing is 1 cylinder diameter (2 3/8").

2" PVC Coupling

Tuning Coil

2" PVC Pipe



Down Load 80M antenna Drawing

[Dwg 80M.pdf](#)

Bill of Materials

2" PVC 10' schd. 40	\$ 4.24	Home Depot/Lowes
2" PVC Cap	\$ 1.05	Home Depot/Lowes
Alum. Flashing 10" X 10'	\$ 4.57	Home Depot/Lowes
2" PVC Coupling Short (2)	\$ 0.88	Home Depot/Lowes
# 14 enamel wire (~ 40')	\$ 0.09/ft	The Wireman - see links

Construction

I drilled a small hole to start winding the Phasing coil on one of the 2" PVC Couplings. The hole will also be used to place the wire down the middle of the cylinder, making sure the wire will reach the bottom of the Tuning Coil (I left 5 feet). Secure the winding using hot glue. I made each item (cylinders, coils) and then assembled them. It is easier to handle the smaller pieces.



Component parts before assemble

I cut a 24 inch piece of the 2" PVC pipe to be used for winding the Tuning and Source Coils. I wound the Tuning coil about 2 1/2" below the top of the pipe (when assembling the antenna this will be cut to maintain the dimensions of the antenna). Wind 34 (the source coil will be installed later) turns on this PVC. An extra two turns are used to fine tune resonance of the antenna (it is easier to remove "turns"

than to add them).



Phasing Coil



Tuning and Source Coil

I cut two pieces of the aluminum flashing 8 1/2" X 30 1/2". This is used to make the cylinders. Cut 2 pieces of PVC pipe 36 inches. On one of the pieces mark the pipe 3/4" from the end. Bend the flashing around the pipe starting at the mark. This will be for the top cylinder. Secure the flashing with self tapping screws. Drill a hole and mount a 8 x 32 bolt 1/4" above the end of the cylinder. This will be the bottom end of the top cylinder.

Mark the other PVC 1 3/8" from the end. This will be the top of the bottom cylinder. Secure the flashing to the PVC pipe using the self tapping screws. Mount a 8 X 32 bolt 1/4" below the mark. Drill a small hole just above the bolt (this will be used to route the # 14 enamel wire to the inside of the tube). Run the # 14 enamel wire down the inside of the bottom tube. This wire should be as close to the PVC as possible. Route the wire through the hole and mount to the bolt.

Install the top cylinder to the 2" PVC coupling with the Phasing coil using PVC cement. Ensure that the end of the coil is lined up with the bolt. Scrape the enamel off the wire and install on the bolt. Put the bottom cylinder into the coupling for measurement. The two cylinders should be 2 3/8" apart. After cutting the bottom cylinder to the correct dimensions it is time to glue it into the coupling. The tap on the bottom cylinder should be mounted 180 degrees from the tap on the top cylinder. Measure the bottom end of the bottom cylinder and cut it off so that the flashing is flush against the bottom coupling. Glue the coupling in place. Measure the pipe containing the tuning coil. The top of the coil should be 2 3/8" from the bottom of the bottom cylinder. Glue into place. Now you are ready for the tuning procedure.

Using the instructions in the Demonstrations documents, tune the antenna. After the antenna is tuned, the source coil should be wound on the pipe and tuned per instructions.