

Zed Zed's Workbench

Amateur Radio Projects & More!

🔧 Coil-loaded 40/80 Meter Inverted V Dipole Antenna

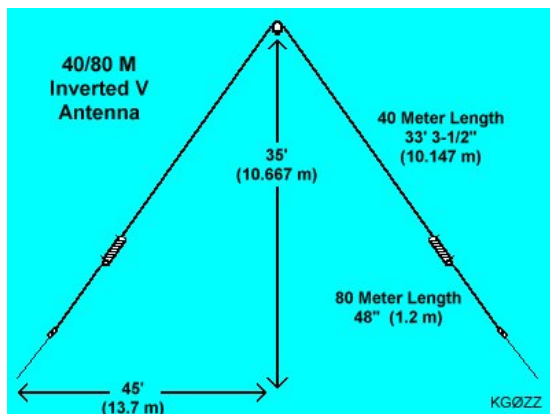
This 40 and 80 meter inverted V antenna is made with loading coils. It is a full size antenna on 40 meters and a shortened 80 meter antenna. The antenna is resonant on both bands and does not require an antenna tuner. It's a great HF antenna for the ham radio operator with a smaller backyard!

The goal in this video is to focus on construction rather than theory and to help the antenna builder with their first set of loading coils. Also in this video I am converting the [40 meter inverted V antenna](#) that I built in a previous video. How to make the [feed-point connector](#) is also explained in another video.

The loading coils used in making this antenna are from a [diagram](#) by IK1ZOY based on a project by I2CN. I simply used the dimensions from the diagram, added my own style of making coils and antennas, and turned it into an inverted V antenna.

The original diagram is that of a dipole antenna but it does not indicate the use of a balun. If this antenna is to be mounted as a horizontal dipole then I would recommend using a 1:1 air core or current balun for a better impedance match. Mounted as an Inverted V antenna the impedance is near 50 ohms without using a balun.

I did make some changes from the original design to the lengths of the antenna elements. The 40 meter length that I used is 33' 3-1/2" (10.147 m) and the 80 meter length is 48" (or about 1.2 m). In the video I start with a length of 35' (10.668 m) for the 40 meter elements and 5' 4-1/2" (162 cm) for 80 meter elements.

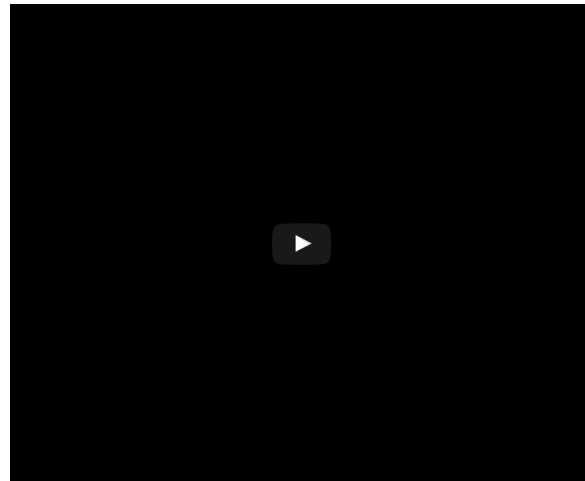


The forms for the loading coils are made of 1-1/2" (50 mm outside diameter) Schedule 40 PVC pipe. You will also need some 18 gauge magnet wire (available on the internet in one pound spools) and some number six stainless steel hardware. There are 78 turns of magnet wire on each loading coil.

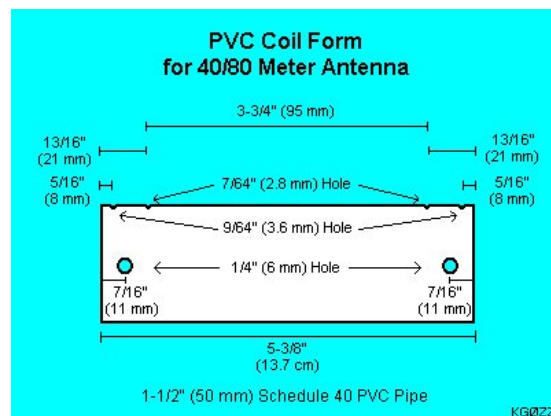


📺 Video Instructions

Watch the video to learn how to make the loading coils.



G+1



🔧 Tuning

Changes to the 40 meter length should not be necessary. Adjustments to the 80 meter length will affect the 40 meter length but only slightly. Tune 80 meters by adjusting the length of the 80 meter wire sections.

As built above the antenna can be adjusted to work from about 3.650 MHz to 3.700 MHz. To lower the resonate frequency, for working the 80 meter CW portion of the band, the PVC pipe forms will need to be made slightly longer and six extra turns added to each coil. To increase the resonate frequency remove three to six turns from each coil. After adjusting the number of turns on the coils adjust and tune the 80 meter wire length making it either longer or shorter for working lower or higher in frequency.

🔧 Parts List for Loading Coils -- All #6 Stainless Steel Hardware

- | | |
|--|---|
| 2 ea. 1-1/2" (50 mm O.D.) Schedule 40 PVC Pipe, 5-3/8" (13.7 cm) long. | 4 ea. #6 x 1/2" (13 mm) Pan head screw. |
| 1 ea. 18 Gauge magnet wire (about a half pound). | 12 ea. #6 Flat washer. |
| 4 ea. #6 x 32 x 3/4" (20 mm) Machine screw. | 4 ea. #6 Split lock washer. |
| | 4 ea. #6 External tooth lock washer. |
| | 8 ea. #6 x 32 Nut. |

Comments:

Hi Dave, I just wanted to take a minute to thank you for your great instructional videos on YouTube. I know it takes a lot of time and dedication and I certainly appreciate what you do. My QTH is on a fairly small lot and I don't have room for a full size 80m dipole. I used to use a tuner but, as we both know, a tuner doesn't turn a bad antenna into a good one. I just finished winding my coils, one set for the CW portion of the 80m band at 3.550Mhz, and one set for the 75m phone portion on 3.902Mhz. My

coils came out just as you said...I added 6 turns for the CW portion for a total of 82 turns, and subtracted 6 turns for the phone portion for a total of 72 turns. It took very little experimentation to arrive at perfect SWR on both even without an antenna analyzer. I'll now be able to get back on 80 without a tuner!!! Again, Thanks and 73. Maybe we'll cross paths on the air someday. Chuck, KM9U

[Click here](#) for another version of IK1ZOY's coil-loaded antenna tuned for 3.875 MHz.

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