

DIY

Worthwhile projects you can build on your own



Roll-up dual-band J-pole antenna

Seems there has been so much interest recently in making a roll-up J-pole antenna, that it deserves a re-print. This one is from the [April 2016 issue of UVARC Shack](#), which was in turn taken from [QST, September 1994, p. 61-62](#).

Many are interested in an antenna like this because it's a half-wave (and so performs very well), very light and portable, and simple to make. It's convenient to be able to pull out a high-performance 2-meter / 70-cm antenna for your HT while you're out hiking in the back country.

Parts list

- 5 feet of 300-ohm [twin-lead TV antenna wire](#)
- 6 feet of RG-58 coaxial cable, terminated with an [SMA Female connector](#) or [SMA Male connector](#) or [BNC connector](#)
- 1 clip-on [ferrite bead](#)
- Appropriate heat shrink tubing, hot glue, some paracord

Strip off 1/2" of insulation from one end of the TV twin-lead and solder the exposed wires together (Figure 2) to make the bottom of the antenna.

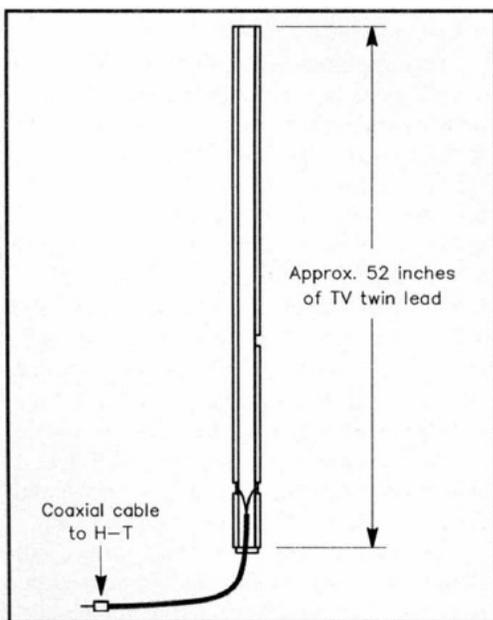


Figure 1—The J-pole antenna is approximately 52 inches long and may be hung from just about anywhere.

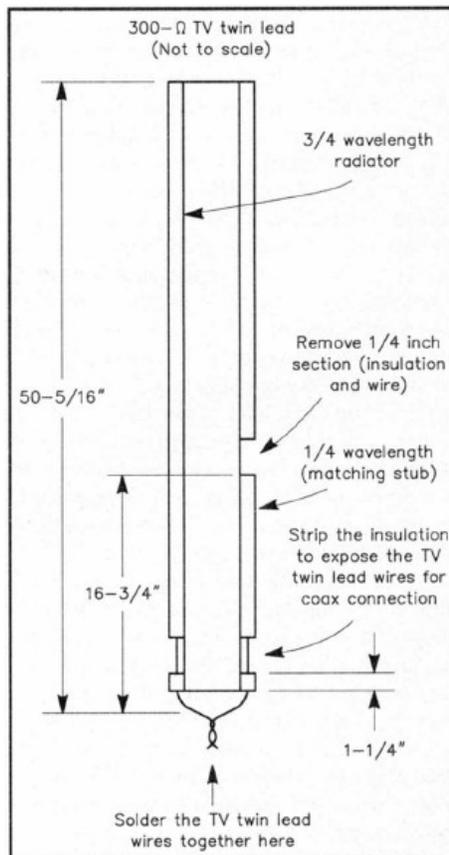


Figure 2—The basic J-pole layout. Note the areas where insulation and/or wire must be trimmed.

Measure up 1 1/4" from the soldered wires and carefully remove about 1/4" of insulation from the twin-lead on both sides. These exposed wires are your coax feed line connection point.

Measure up 50 5/16" from the soldered wires and cut the twin-lead even, to make the top of the antenna.

On the other side of the twin-lead measure up 16 3/4" from the soldered wires and remove 1/4" of both wire and insulation from that side of the twin-lead to form the matching stub.

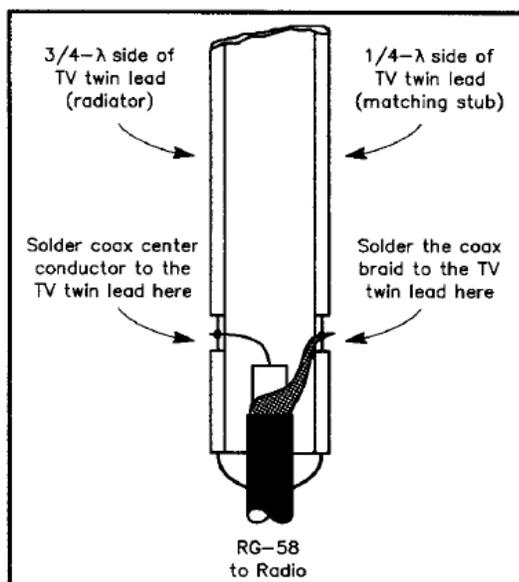
Strip the end of the coax without the connector, and separate the center conductor from the braided shield. Solder the coax center conductor to the exposed 1/4" wire of the longer twin-lead element and the coax shield to the exposed 1/4" wire of the other side.

DIY, continued

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Punch a hole near the top of the twin-lead insulation; hang it vertically with some paracord or other non-metallic line; and measure the SWR for 146 MHz. Tune the antenna in 3.0:1 ratio increments by cutting 1/8" off the 1/4-wave matching stub and 3/8" off the radiator, until you measure between 1.5:1 and 1.1:1 SWR.



This antenna design is unfortunately prone to RF coupling with the feed line, creating a possible buzzing sound heard by others during transmissions. To get around this side-effect, attach a ferrite bead around the coax a couple of inches from the bottom of the antenna, and secure the ferrite bead from sliding on the coax.

Finally, spread hot glue over the exposed coax, to prevent moisture from entering the jacket. Tape or heat-shrink the coax to the twin-lead to relieve the strain on the soldered joint. Test it by getting on the air with it and asking for a signal report from a variety of locations. After testing, just coil it up and put it in a re-sealable bag, to be stashed in your backpack.

When it's time to use your antenna, simply connect it to your HT, hang it from a tree or tall bush, and you're good to go. During transmissions, try to keep your antenna at least a foot from nearby dirt, metal, or your own body.

Can't wait to hear how you sound on the air with this little gem!

Figure 3—The coaxial feed line is connected directly at the antenna. Be careful to observe that the center conductor is soldered to the side of the TV twin lead with the longer conductor. The braid is connected to the side with the shorter conductor.

