

6 + 2 = 1

Enjoy 6 and 2 meters with a single antenna you can build in less than 30 minutes.



The 6/2 dipole up and running at Field Day. I used it for CW and SSB with good results.

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Last year *QST* Technical Editor Joel Hallas, W1ZR, exploited the venerable skeleton sleeve antenna design to create some nifty dual band HF dipoles that anyone could put together with minimal effort. All that was needed was an appropriate length of 450 Ω windowed ladder line. The designs were published initially in the May 2011 *QST*, and then expanded in the October 2011 issue of *QST*, page 48. ("A Folded Skeleton Sleeve on Other Ham Bands.")

Joel's antennas were so easy to build, and worked so well, I started calling them the "W1ZR Miracle Antennas," much to Joel's chagrin. I imagined TV infomercials offering the amazing antennas for sale. ("You've got a problem? We've got a *Miracle Antenna!*") Everyone seemed to love Joel's dipoles and I never let him forget it.

But Then I Needed a Miracle

Field Day 2012 was looming and I suddenly realized that I had nothing in the air for 6 or 2 meters. Time was running short. I needed a quick-to-construct 6 and 2 meter combo antenna that I could feed with a single coaxial line — anything simple and omnidirectional would do.

I humbly approached Joel and requested a miracle.

"Of course," he replied with a satisfied smile. "There is no reason why my dual band HF models can't be rescaled to a 6 and 2 meter design."

Minutes later Joel supplied the dimensions,

which you can see in Figure 1. All I needed was about a 110 inch hunk of 450 Ω line. Luckily I already had this on hand. If you aren't as fortunate, you can purchase 450 Ω window line from several *QST* advertisers. Window line is great stuff to have around and it is relatively inexpensive, too. It never hurts to stock up since you never know where your antenna adventures may take you.

Wire Cutters, a Blade and Solder

Follow the diagram in Figure 1. First cut the entire transmission line to about 109 inches. This will give you 3 inches at each end to wrap into the insulators, leaving the total length of 103 inches. It never hurts to go a little longer so you can trim the length for best SWR.

Pick one wire and install an SO-239 or Type N coaxial connector at the exact center of the antenna. Now make two cuts in the wire *opposite* the one you've chosen for the connector. Make one cut 17 $\frac{3}{4}$ inches to the left of center and another 17 $\frac{3}{4}$ inches to the right (35 inches total length). This creates the coupled resonator 2 meter element.

With a sharp box cutter or other implement of your choosing, *carefully* slice through the plastic insulation that separates the two wires, working from the ends back toward center and stopping as you reach the cuts in the 2 meter wire. Be careful not to cut through to the wire. Throw away this unneeded insulation and wire. Your goal is

to end up with the 2 meter element uniformly separated from the 6 meter wire and supported by the remaining insulation.

It's a Miracle!

By golly it worked. I hauled up the antenna and quickly swept it with an analyzer. The SWR on 6 meters was well below 2:1 from 50 to 52 MHz. On 2 meters I enjoyed an SWR below 2:1 across the entire band. No need to trim the antenna at all. For best results put a few ferrite beads on the coax transmission line adjacent to the plug on the antenna end.

Although this dipole is terrific for portable applications (it quickly rolls up and packs into almost any container), it can also function as a permanent antenna. If your interests run more toward FM operating, you may want to trim the antenna a bit shorter to move the low SWR point higher in the band. Cut about an inch from each end of the 6 meter wire and then check the SWR, trimming more wire if necessary. Chances are you won't need to trim the 2 meter element at all.

For FM you should hang the dipole vertically with the coaxial feed line running perpendicular to the antenna for at least 5 feet. Vertical polarization is the custom for FM on VHF frequencies and being in sync with your fellow hams makes a big difference in signal strength at both ends of the path (as much as 20 dB).

Joel's antenna worked well for me, even at relatively low heights. After Field Day I simply packed it away in a small box for future use. For sheer frugality and ease of assembly, this little VHF dipole is indeed a miracle.

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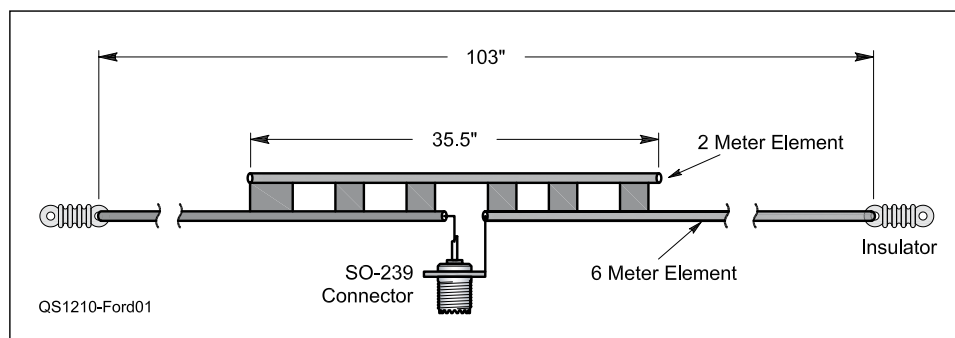


Figure 1 — The W1ZR skeleton sleeve dipole with dimensions for 6 and 2 meters.