

The Simple Sixer

You don't need a complicated antenna to work exciting 6-meter DX. Build this rotatable dipole and use it outdoors or in your attic. It's also a good "take along" antenna for portable operating!



They don't call 6 meters the "Magic Band" for nothing. It can be silent for hours, then suddenly burst wide open for DX from hundreds or thousands of miles away. As we near the peak of the current solar cycle, you can even expect episodes of global DX! (We're already seeing some transatlantic and transpacific openings.)

A big beam on a tall tower is a definite asset for 6-meter work, but the other "magical" aspect of the band is that just about any antenna will send your signal bouncing around the continent or the world when conditions are right. If you don't have the budget for a tower or roof-mounted beam, something as basic as a dipole will let you enjoy much of the fun. Although a wire dipole is adequate, I prefer something more rugged. My Simple Sixer meets this requirement with its aluminum and PVC design. It assembles easily, and comes apart just as easily. If you're going roving during this month's VHF QSO Party, you can toss this antenna in the trunk of your car and get on the air from any location within minutes.

Cutting and Soldering

Begin by cutting a $\frac{3}{8}$ -inch notch in each of the two pieces of $\frac{1}{2}$ -inch diameter, 1 $\frac{1}{2}$ -inch long schedule-40 PVC tubing (see the "Bill of Materials"). A bench clamp will help hold them in place while you make the cuts. With a hacksaw cut two lateral slits about $\frac{3}{4}$ inches long in the ends of each of the two $\frac{1}{2} \times 24$ -inch pieces of aluminum tubing.

To prepare the coax, strip about 2 $\frac{1}{2}$ inches of the outer insulation from one end. RG-58 is fine for most applications, but consider low-loss cable if you plan to install the antenna more than about 50 feet from your radio. Separate the braid from the center conductor, strip $\frac{1}{2}$ inch of insulation from the center conductor and apply some solder to center conductor and the braid.

Assembly

Insert the notched pieces of the 1 $\frac{1}{2}$ -inch long PVC tubes into the PVC T (see Figure 1) and secure with PVC cement. After they are dry, slide the $\frac{3}{8}$ -inch wood dowel into the unslit end of one of the pieces of $\frac{1}{2}$ -inch diameter aluminum tubing. Push this tube and dowel through either of the notched pieces of 1 $\frac{1}{2}$ -inch long PVC and continue pushing until the dowel goes through the PVC T and out the other side (the dowel should protrude about an inch or so). Now slide the other $\frac{1}{2}$ -inch aluminum tube onto the protruding end of the dowel.

Use stainless-steel hose clamps on either side of the T to secure the aluminum tubes in place. As you're tightening the clamps, insert the coax center conductor and braid to opposite sides of the T and make sure the clamp will hold them in contact

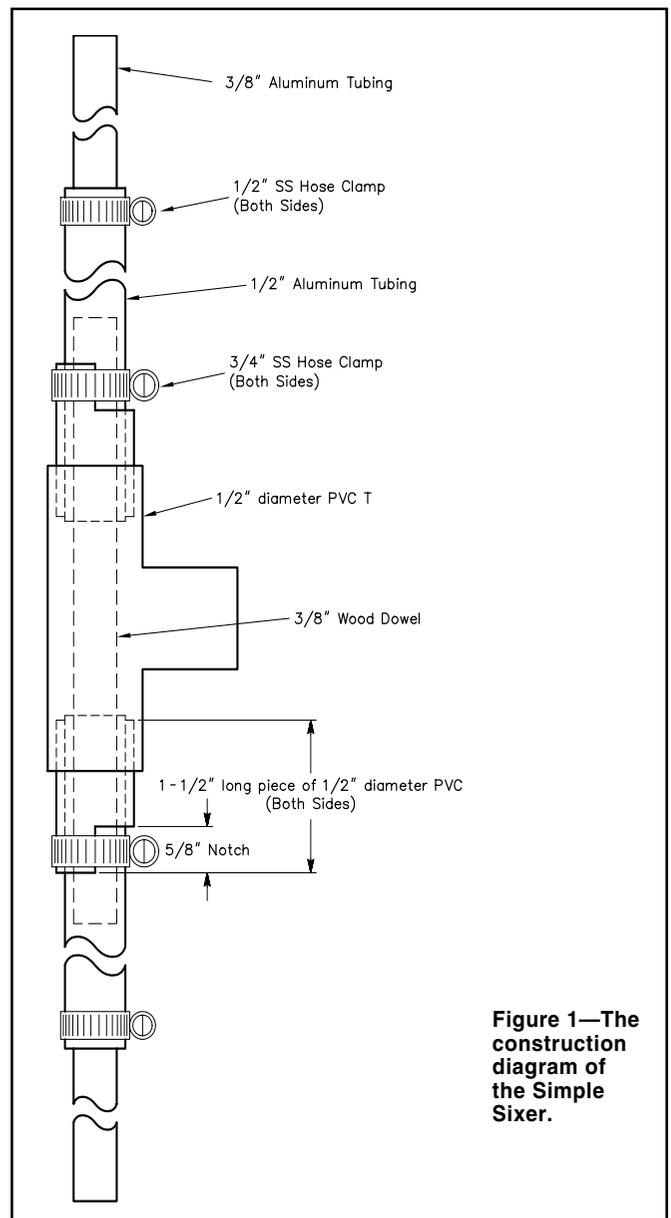


Figure 1—The construction diagram of the Simple Sixer.



Figure 2—Use hose clamps to secure the aluminum tubing to the PVC T and to attach the coax conductors.



Figure 3—Tape the coax to the mast below the T to keep the connections from flexing in the wind. The remaining coax is shown rolled up and attached to the antenna in preparation for portable operation.

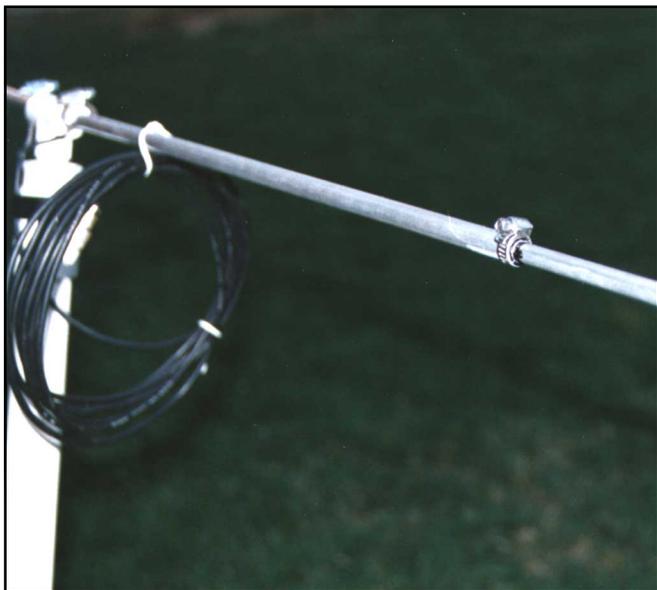


Figure 4—Complete the Simple Sixer by sliding in the narrower aluminum tubes and tightening the hose clamps.

The 10-Meter Version

You can convert the Simple Sixer into the Simple Tenser by adding two 48-inch long, $\frac{1}{4}$ -inch diameter, aluminum tubes to each end of the antenna. Cut slots in the ends of the Simple Sixer's $\frac{3}{8}$ -inch aluminum tubes and use hose clamps to hold the extensions in place. Adjust the tubes until both legs of the dipole are about 8 feet long. Now attach your SWR meter and fine-tune the antenna for resonance!

Bill of Materials

- 2 pieces $\frac{1}{2}$ -inch \times 24-inch aluminum tubing—0.058 inch wall
- 2 pieces $\frac{3}{8}$ -inch \times 36-inch aluminum tubing—0.058 inch wall
- 2 $\frac{3}{4}$ -inch diameter stainless steel hose clamps
- 2 $\frac{1}{2}$ -inch diameter stainless steel hose clamps
- 1 $\frac{1}{2}$ -inch diameter PVC T
- 2 pieces of $\frac{1}{2}$ -inch diameter, 1 $\frac{1}{2}$ -inch-long schedule-40 PVC tubing
- 1 $\frac{3}{8}$ -inch-diameter wood dowel
- 1 Metal, wood or PVC mast

with the aluminum tubing when it's fully tightened (Figure 2). If you intend to use the Simple Sixer for a permanent outdoor installation, I recommend attaching the coax to the tubes with something more durable, such as soldered ring terminals secured with sheet metal screws, and carefully waterproofing the connections. In either case you should tightly tape the coax to the mast just below the T to prevent the connections from flexing in the wind (Figure 3).

Finally, slide the $\frac{3}{8}$ -inch aluminum tubes into the slit ends of the $\frac{1}{2}$ -inch aluminum tubes. Use two more stainless steel hose clamps to hold these tubes into place (Figure 4).

Tune-up

This is the easiest part of the whole project. With an accurate VHF SWR meter, slide the $\frac{3}{8}$ -inch aluminum tubes in or out as necessary to obtain the lowest possible SWR. Make sure you move both tubes equal distances prior to each measurement. You can adjust the Simple Sixer while using a chair or step ladder to support the antenna's mast, but keep it well away from large pieces of metal such as vehicles or aluminum siding—if they are too close, they will detune the antenna.

1542 Mellow Lane
Simi Valley, CA 93065
ke6ldx@arrl.net

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