

George Plans for field antenna extendable pole.

I needed to have a fairly high antenna pole that I could put up and take down myself without damage to the pole or myself and easily transport. I look at a few commercial options, but decided against them due to cost. I figured I could make some myself. What follows is the result of some experimenting. I have several pole assemblies. Most are portable for use in the field or with my camp trailer. Some are mounted against my house. Heights vary from about 20' to 40'. The height of the pole shown here is a little over 20 ft extended, about 6 ¾ ' collapsed and weighs about 20 pounds and costs about \$50 (without the brown/cameo paint). Another criteria is that the poles would fit in my vehicle. I have variations that are 40' but are braced against my house, not free standing.

For the field versions, you will need to secure the pole assembly with three ropes or two if you use the antenna wire as the third support. You can attach a pulley for the antenna side. The length of rope needed depends on the height of the pole you select. Space the stakes about 120 degrees apart for a balanced guy system. You can attach the ropes to the stakes and the pole before raising so when it is up it is already braced so you can set it up yourself while standing on the ground.

Generally a 45 degree angle is best for the guy ropes so figure 1.44 times the height of your extended assembly plus a few feet to use for the stakes and knots.

I use Conduit in the following sizes: 1 ½", 1 ¼", Fence Top Rail, and 1 ".

1" is \$7, 1 ¼" is \$10.50, 1 ½" is \$12.70, Top rail is \$11. Total cost of poles is about \$42. You will need the 3 pins (1/4" by 2" for poles listed here) at about \$3 each or use bolts. I have tried many things, but the wire lock pins are the best for me in a portable unit.

(You can extend the length of the assembly by using ¾", 1/2" conduit or the next larger 1 ¾", 2 1/8" 2 ½" or all.. for some you will need to construct a shim for the pole to fit and slide easily. Call me for details. I do have some 40' field versions.

The sizes fit inside each other (you have to cut off the small end of the top rail). They come in 10 lengths and you can cut to your needed length.

I cut the poles so that I can extend them from a standing position.

1 ½" section 66", 1 ¼" section 71", Fence Top Rail section 76" and 1" section 81".

For a ground mount that will be fastened to the house or if you are going to have a ladder and use a 'permanent' assembly, leave the pieces in their 10' lengths. You can easily make a 40' pole this way. See pictures below. The base mount uses a concrete block with a hole in the middle. I pounded in a conduit through the hole into the ground and left high enough conduit out of the block to place the pole over it. Also note the grounding to an 8' copper clad rod.

Drill a hole in the 1 ½ " piece at the bottom of the field versions and use a ¼ inch eye bolt so that you can easily stake the bottom of the assembly (see photos) and keep the other pieces from falling through the bottom.

I drill one larger hole through all the sections so that a pin can secure the sections together for transport.

Drill holes so that each segment overlaps by at least 12" for strength.

Use clips (see photos), or bolts to secure segments when raising assembly. You can also use hose clamps or self tapping metal screws for the more permanent antennas.



Pins used to secure sections



Extended section held in position by pin



Pole Extended



Top of collapsed pole



Bottom of pole



Top of pole



Base for permanent mounting, note service loop in conduit and ground wire to 8' copper clad ground rod



Mounting to house and avoiding gutter



Mounting to house of 40' pole. Fastens to house in two locations, one at the lower roof (shown here) and a second on the second story roof..