About this Article

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Mast is just 26.5 inches when collapsed, very convenient for transport.

Some portable stations may even use the radio itself as the antenna mount. Backpack portable and lightweight antenna systems using vertical collapsible elements can use the antenna mount as the attachment.

For those areas where stakes are forbidden, rocks, weights, water bottles, or even gear bags can be used to hold guy and element lines where they need to be located. Be sure to flag your guy wires, stakes, tripod, antenna elements, radials, and coax if other people or animals are present. They might pose a tripping hazard. Ground radials especially can blend into the grass and be tripping hazards to pedestrians walking through the area. There would be nothing worse than someone passing through and getting caught up in your antenna system, bringing it crashing down while you are in the middle of a lively pileup.

If possible, rope off an area around your antenna at waist height to discourage people from getting tangled up in your antenna system. Ultimately it is your responsibility to make sure you are operating a safe portable radio station and that you don't create a hazard for others in the area. Unlike the home station, there are many more variables (people, pets, vehicles, and so forth) that may be out of your control.

Getting the Antenna Aloft

Weighted tennis balls or throw bags can be used to send a line over a branch.

Another option for setting up your antenna is to hang it aloft from trees or other elevated structures. While you might be able to climb a tree or structure yourself to get the line where you want it, that's not recommended because you increase your chances of injury by falling. Getting lines aloft from the ground is much preferred and safer.

As with antenna masts, there are several ways to get your antenna aloft while standing on the ground. The easiest method is to throw a line over a branch using what is available at the site. Rocks, your water bottle, even a large stick can be put into use.

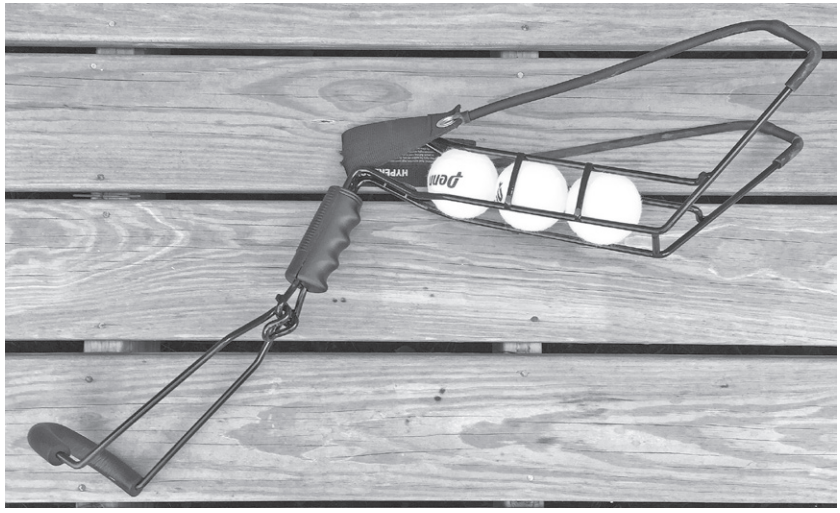
If none of those items are

available, bringing your own throw weight with you might be necessary. I like to use old tennis balls filled with pennies or fishing weights. Tennis balls are easily obtained and a small loop can be fastened to allow for quick attachment. Adding a breakable line or rubber band between the loop and your throw line gives you a weak point in case the ball gets stuck in a tree. With enough force, that sacrificial line will break and drop your ball and line back to the ground.

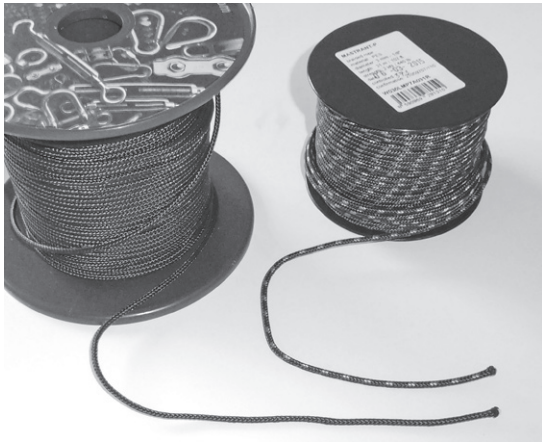
A more expensive but common item in the arborist community is the throw bag. These bags are small nylon or vinyl sacks filled with lead shot and can weigh from 8 to 20 ounces. A common size is around 12 ounces. As with the tennis ball approach, adding a weak link between the throw bag and throw line might be worthwhile depending on how thick the trees are where you are attempting to get a line aloft.

The throw line should be a small diameter line with low friction. An example is ⅛ inch diameter polypropylene line, typically found in hardware stores. Another common throw line is small diameter nylon line often called mason's line or twisted nylon line. This line is around 18 gauge and is very inexpensive and easily obtained locally. Nylon line should be considered as a one-time-use, disposable item. Trying to coil it after use is inefficient as it tends to tangle very easily.

Another commonly used line is military paracord. While exceptionally strong, paracord has high friction when dragged across branches and can slow your throw bag or even prevent it from dropping back down.



If throwing a line is difficult or won't get the antenna support rope high enough, consider a tennis ball launcher.



Strong, lightweight rope is needed for throw lines and antenna supports.

With these caveats in mind, paracord is also plentiful and inexpensive, making it another option to use as your throw line.

Finally, many amateurs use lightweight fishing line, often on a reel. It's commonly available, quite slippery, and can be purchased in high visibility colors so you can see where the line went. Fishing line is available in various weights; look for one with a high breaking strength.

When tossing the throw bag and line, you need to examine the ground around you. If you are in an area with lots of debris on the ground such as leaves, sand, snow, or grass, put down a blanket or Tyvek sheet and loosely lay out your throw line on the ground cloth. That will reduce snags or hangups of your line when throwing.

Before throwing your weight, verify that no one is near or in the area beyond your target. You don't want to hit anyone with your weight. Then simply throw the weight and line over the desired branch. Height achieved will be based on your throwing arm strength and the weight of the throw bag. Another option is a circular swinging technique. This requires practice to pull off successfully.

If throwing a line is difficult or won't get the antenna support rope high enough, another technique is employing a slingshot. Using a slingshot and small weight with a fishing line attached you can get you some decent height in a tree. A variation of a slingshot is a tennis ball launcher for dogs. Using tennis balls with line attached is another way to get lines aloft.

There are also techniques using powered devices. Pneumatic guns (aka "potato guns") have been used for years in the amateur community. These devices are made out of schedule 40 PVC pipe that's glued together. They use a combustible gas as a propellant to shoot a tennis ball or other projectile quite a distance. Extreme care must be taken in the construction and use of these devices. Misuse and poor craftsmanship may result in propellant burns or serious injury from plastic breaking apart. Also, the projectile itself can damage property or injure people. That said, if care is observed, pneumatic guns can launch your throw line to incredible heights not easily achieved with manual methods.

Another option is a crossbow or bow and arrow. Applying common

sense and taking precaution so that nobody is on the receiving end of your arrow are important. Be aware that in some jurisdictions a slingshot, pneumatic gun, or bow and arrow may be illegal to possess and/or use. Verify your local laws concerning these devices before going out to your selected site. You're not exempt from the law just because you are using the device for an alternative purpose (hanging antennas) or don't know the rules.

Antenna Types

What types of antennas can you use for portable operations? You can use any antenna that you can carry, set up and that works with your radio. The antenna qualities listed near the beginning of this chapter should be used as a guide, but ultimately it is the operator's choice. It is fine to ask other operators what they are using and solicit suggestions, but after looking at options, select an antenna that meets *your* needs — after all you will be the one using it.

This section will present an overview of popular portable antenna types and some suggestions. There many more qualities of antennas that can be discussed, and many books have been written about them. If you are looking for ideas for portable radio antennas, check out the *ARRL's Portable Antenna Classics*, *ARRL's Wire Antenna Classics* (three volumes), or *ARRL's Vertical Antenna Classics*. The *ARRL Antenna Book* is another comprehensive resource. These titles are all available from the ARRL website (**www.arrl.org/shop**).

HF antennas commonly used for portable activations range from the most basic antennas such as the dipole to verticals, random wire/end feds, and magnetic loops. Some suppliers of antennas suitable for portable operation are shown in **Table 6.1**.

Table 6.1
Portable Antenna Sources

AlexLoop: **www.alexloop.com**
Alpha Antennas: **alphaantenna.com**
Arrow Antennas: **www.arrowantennas.com**
Buddipole: **www.buddipole.com**
Chameleon Antenna: **www.chameleonantenna.com**
Diamond Antenna: **www.diamondantenna.net**
LNR Precision: **www.lnrprecision.com**
MFJ: **www.mfjenterprises.com**
MyAntennas: **myantennas.com**
Pacific Antenna: **www.qrpkits.com**
PackTenna: **packtenna.com**
QRP Guys: **qrpguys.com**
SOTABEAMS: **www.sotabeams.co.uk**
Wolf River Coils: **wolfrivercoils.com**