

Wolf River Coils Silver Bullet 1000 and Silver Bullet Mini Antennas

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During the 2016 National Parks on the Air (NPOTA) event, I operated portable and mobile for more than 500 activations from National Park Service (NPS) units. The question I most frequently received from other amateurs was, “What equipment are you using to make contacts?” For about 80% of the year, my mobile station equipment consisted of an Elecraft KX3 with a maximum of 10 W on SSB and mono-band portable antennas (helically

wound short whips) for 20 and 40 meters.

Despite poor propagation from the declining solar cycle, I still made more than 6,000 contacts with this setup. As

Bottom Line

The Wolf River Coils antennas can be configured several different ways for portable or mobile operation. They cover multiple bands, but must be retuned manually at each band change.

the year went on, I wanted to increase my station effectiveness and contact totals — and more importantly, I didn’t want to spend a lot of money to accomplish this task.

Another factor I had to consider was that many of my NPOTA activation locations were in dense urban areas of Washington, DC, requiring a small antenna profile and footprint. Thus, I needed a portable, lightweight antenna that was simple to set up and take down.

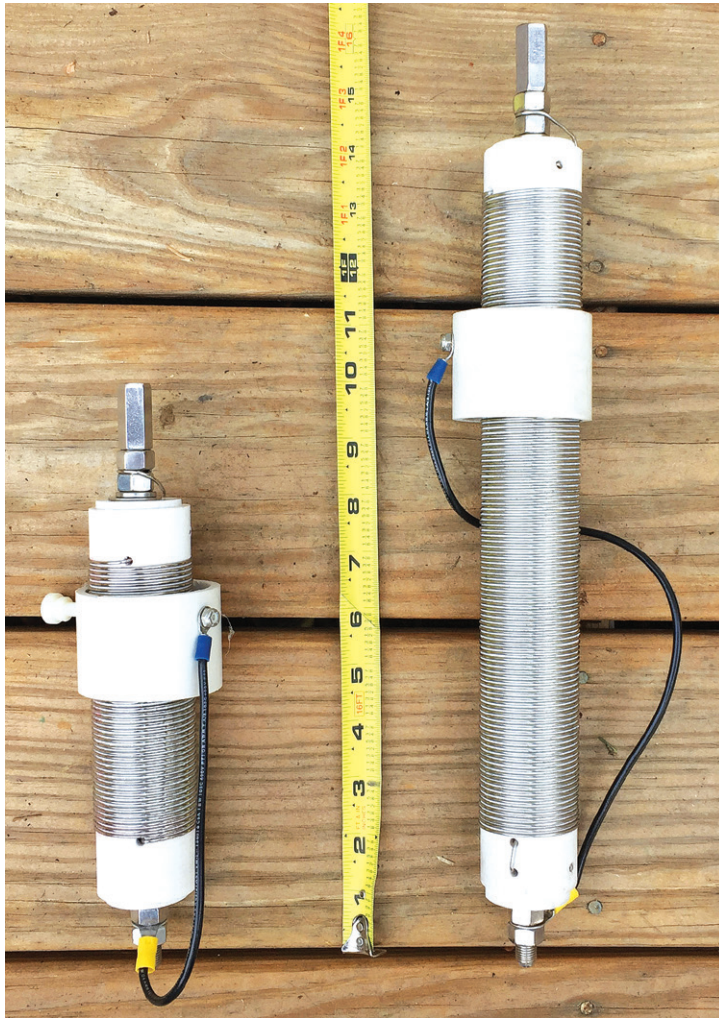


Figure 13 — The Wolf River Coils SB Mini (left) and SB 1000 are adjusted by sliding the collar up and down the coil.

After a lot of online research, I determined I wanted a multiband, resonant, vertical antenna that cost less than \$200 and could be used both for mobile and portable operation. I decided on an antenna made by the Wolf River Coils, an antenna company owned by Gary Hoehne, KB9AIT, and Terry Schilling, N9AOT. They sell several base-loaded vertical antennas that are similar in concept to the popular motorized “screwdriver” antenna design, but with the simplicity of few moving parts. In the Wolf River Coils antenna, tuning is accomplished by manually sliding a shorting ring up and down the coil at the antenna base (see Figure 13). The adjustable coil attaches to any standard $\frac{3}{8} \times 24$

antenna mount and requires a user-supplied whip, and the instructions recommend a standard 102-inch CB antenna whip for 80 – 15 meters, and a shorter whip for 12 and 10 meters.

I purchased the Silver Bullet 1000 (SB 1000) Take it Along Kit, which includes the SB 1000 base coil, a collapsible 102-inch whip, three 33-foot wire radials, and a “mini pod” tripod stand. The antenna covers nine bands (80 through 10 meters) and is rated for up to 400 W. With this combination, I could use the antenna with a mobile mount on my car, and by including the tripod in my pack, I could take it along for portable use. I specifically selected the SB 1000 because it included 80

meters, a band that I did not have access to with my other antennas.

Initial Setup

When I opened the shipping box, I was surprised at the weight of the antenna and its rugged construction. The SB 1000 base coil is made from a durable plastic and uses high quality stainless steel coil wire and fasteners, a feature that those in coastal environments will appreciate. The SB 1000 is 16 inches in length and weighs 1.8 pounds.

For those looking to use this antenna mobile, you should note that weight might be a factor deciding how stout the antenna mounting system needs to be. Once I set up the antenna on a Comet CP-5M lip mount on the hatch of my Subaru (see Figure 14), I felt that the weight of the antenna put a lot of stress on the hatch lip. Note that this is not a criticism of the antenna, but rather the mounting system and location I chose (Subaru SUVs have limited options for HF antenna mounting). If you have an antenna mount in a more durable location, then the antenna weight would not be an issue.

After a couple months of use, I decided to try the Silver Bullet Mini (SB Mini) as it is smaller in length at 10 inches and weighs only 15 ounces. The SB Mini covers only 40 through 10 meters, but I had found that I was not operating on 80 meters much, and I liked the SB Mini’s more compact profile. You will have to decide for yourself which antenna system is appropriate, depending on your mounting system and bands desired.

Using the Wolf River Coils Antennas

The SB 1000 antenna kit came with a rigid collapsible 102-inch whip that worked great for portable use, but I needed a different whip for mobile use. The element attachment is a standard $\frac{3}{8} \times 24$ coupler, allowing the operator to select the whip length that works best for them and to easily

change whips for different applications. This option was extremely handy, as I needed to store the antenna inside my vehicle when not in use.

The instructions indicate that the SB 1000 works with whips ranging from 102 inches down to 36 inches. For mobile operation, I used a 5-foot whip. While not the most efficient length, I could still tune the antenna for the bands I wanted to use. To tune the antenna for the desired frequency, I connected my RigExpert antenna analyzer and moved the collar on the coil up or down for best match.

Inside the collar is an angled metal contact that clicks along the coil as you move it. On the SB 1000 model, I found that the contact lacked tension and was loose enough that the collar sometimes shifted, changing the tuning. The SB Mini was the opposite, requiring firm pressure to move the collar up and down. I contacted Wolf River Coils via e-mail, and received a quick reply, indicating that I could very easily adjust the contact tension using a pair of pliers. I made the adjustment, and that corrected the problem with the SB 1000. Considering the few moving parts, knowing I can fix the antenna myself and having prompt customer service is a big plus for me when purchasing radio accessories.

Although I could tune the antenna to resonance on each band, one criticism is that there is no definitive way to move the collar to repeatable stops (tuning for 40 meters, 20 meters, and



Figure 14 — The SB Mini mounted on a lip mount on the author's Subaru.

so on). I found that I needed my analyzer to tune the antenna every time. Depending on your radio setup, your experience may differ.

For portable operation, I used the SB 1000 with the mini pod antenna stand (see Figure 15). The mini pod is a three-legged tripod that disassembles for storage and transport. To assemble the mini pod, screw the three legs into the antenna base. While doing so, attach the radials by sliding the threaded end of the leg through ring terminals on the ends of the radials. This simple no-tool-required style of attaching radials was much appreciated in the field.

The antenna comes with three radials, but you can add more as desired to improve antenna performance. I often used anywhere from 5 to 10 radials because adding additional radials required very little effort. The feed line attaches to an SO-239 connector in the center of the tripod base.

Conclusion

I used the Wolf River Coils antennas from QRP levels to 100 W, making 4,300 contacts. I made about 60% of those contacts with the SB 1000 and 40% with the SB Mini. Some 3,400 of those contacts were from the car, and another 900 were portable using the tripod.

My top suggestion for improvement is to include a mechanism to allow repeatable tuning. While I recognize that different operating environments will affect the tuning, it would be nice to have a quicker method of changing bands. From an appearance standpoint,



Figure 15 — The SB 1000 TIA kit includes SB 1000 base coil, a small tripod, a 102-inch collapsible whip, and three radial wires.

including heat shrink on the ring terminals of the antenna and radials would be a nice touch.

The Wolf River Coils website Support section offers a number of downloadable instruction sheets and application notes. In addition, there are links to several YouTube videos that show how to set up and adjust the antennas.

Overall, I have been very happy with my Wolf River Coils antennas. Being able to use the same antenna for mobile or portable operation makes this antenna an excellent candidate for the active on-the-go amateur operator.

Manufacturer: Wolf River Coils, www.wolfrivercoils.com. Price: SB 1000 TIA antenna kit, \$125. SB 1000 coil only, \$60; SB Mini, \$45.