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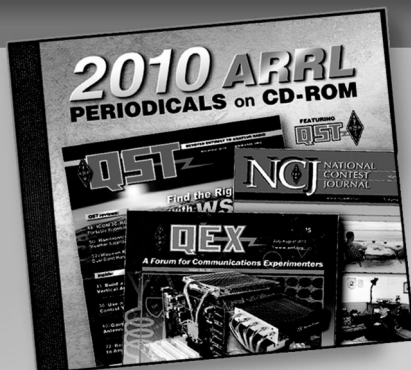
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QST Issue: Aug 1995

Title: A Simple 2-meter Bicycle/Motorcycle Mobile Antenna

Author: John S. Allen, AA1EP

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A Simple 2-Meter Bicycle/Motorcycle Mobile Antenna



Here's a bicycle safety flag that doubles as an antenna!

By John S. Allen, AA1EP
7 University Park
Waltham, MA 02154-1523

An earlier article in *QST*¹ described a good bicycle-mounted antenna for 2 meters, as well as several the authors had tried that *didn't* work so well. One of the antennas that gave them poor *mechanical* results was a J-pole antenna.

An article by Herb Perrine, WD8DLQ, in the *Bicycle Mobile*

¹Notes appear on page 70.

Hams of America Newsletter,² suggested a fiberglass bicycle safety flagpole as a sturdy "backbone" for an antenna. As Herb points out, the fiberglass pole is stiff and rugged, yet flexible.

Herb's idea for a bicycle-flag fiberglass support pole, plus a design from *The ARRL Antenna Book* for a J-pole mounted on a car bumper,³ led me to build a 2-meter antenna for my bicycle that works very well, electrically and mechanically.

Construction

I mounted my J-pole antenna on an ordinary 6-foot-long, 1/4-inch-diameter fiberglass safety-flag pole. Vinyl tape works nicely for this application. While you can use almost any wire-type J-pole antenna in this fashion, you'll get best results with a "twinlead" design. You can buy these premade, or build them.

A J-pole fed by an unbalanced coaxial cable should be equipped with a balun at the feedpoint. The simplest way to make a balun is to get a split-core cylindrical ferrite (such as an Amidon 2X-43-251) and attach it to the outside of the coax 1/4 wavelength from the feedpoint. On VHF frequencies, some ferrite materials are not effective, so be sure to get type 43 material for best results.

After you've secured your J-pole to the flagpole, you may discover that it has been detuned. Using a VHF SWR meter, retune the antenna for lowest SWR.

Bicycling On the Web!

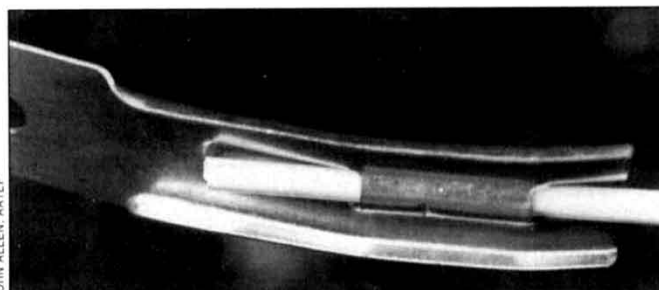
If you have access to the Internet, you can use the World Wide Web to search for bicycling organizations throughout the world. Simply point your Web browser to:

<http://cycling.org:80/org/>

From this page you can get information on cycling clubs in various US states and numerous countries. If a club has its own Web page, just click your mouse button and you're there!



ELISSE GHTELMAN, N1TWM



JOHN ALLEN, AA1EP

Bend the safety flag pole's fixing plate as shown so you can slip it off the flagpole.

Mechanical Installation

Most bicycle safety flagpoles are supplied with a stamped steel mounting plate that grips the bottom end of the pole and has a slot for the bicycle's rear axle. This makes the pole inconvenient to remove and replace. Besides, supporting the pole only at the very bottom lets it flex excessively.

My wife, Elisse, N1TNM, supplied an idea for an easy-on/easy-off antenna mount. Remove the steel plate, after bending it with pliers to release its grip on the pole. Make a mounting sleeve from a one-foot length of automotive brake line tubing, with one end flared (as for a brake line fitting) to reduce abrasion of the flagpole. Flatten the other end of the tubing in a vise to support the bottom of the flagpole. Leave enough of an opening so rainwater can drip out. Wrap tape around the flagpole if it fits too loosely into the tubing.

Two small worm-gear hose clamps will attach the tubing to the vertical strut of a bicycle's baggage rack. Orient the flattened lower end of the tubing with its narrow profile facing the front and rear, and sandpaper or file the bottom of the flagpole into a wedge shape.

If your bicycle has no baggage rack, drill through the flattened part of the tubing so you can bolt it to the bicycle's rear dropout, and make a bracket triangulating the upper end of the tubing to each seat stay above the brake. The hook-end wire rods used for bicycle fender stays are convenient for this purpose.

For best results, mount the J-pole high. However, only about 35 inches need extend above the bicycle/motorcycle wheel or baggage rack. The simplest way to lower the antenna is to shorten the flagpole; for a very low mounting, use a shorter brake line tubing sleeve at the bottom of the pole and a nonconductive bracket higher on the pole.

Motorcyclists may prefer to mount the antenna to the front fork, where it is out of the way of riders and baggage. Due to the heavier wind loading on a motorcycle, mount the antenna low and leave the flag off.

My safety-flag J-pole performs extremely well. It allows me to reliably work though repeaters over 20 miles away in hilly country with my 2-W signal. Build your own J-pole and enjoy this advantage for yourself!

Notes

¹Steve Cerwin, WA5FRF, and Eric Juhre, K0KJ/5, "Bicycle Mobile Antennas," *QST*, Mar 1993, pp 52-53.

²Herb Perrine, WD8DLQ, "A 'Firm but Flexible' 2-meter Whip," *Bicycle Mobile Hams of America Newsletter*, Vol 5, No. 2, Apr/May/ Jun 1994, p 2 (PO Box 4009, Boulder, CO 80306).

³Dean Straw, N6BV, editor: *The ARRL Antenna Book*, 17th Edition (ARRL: Newington). **QST**

Bicycle Mobile Operation

Operating bicycle mobile on VHF or UHF adds interest and sociability to a daily commute or a long bicycle tour. It can help you with routing directions or assistance in an emergency, and it's an invaluable event-management tool for large, organized bicycle rides.

For safe operation while riding, you must be able to keep your hands on the handlebars. Use a miniature speaker-microphone clipped to your helmet strap, or a boom microphone and earphone. Miniature foam-pad earphones do not significantly impair hearing, and a single earphone is legal almost everywhere. You may place a hand-held transceiver in a waist pack and a small antenna on your helmet, so you can get on and off the bicycle without detaching anything. This arrangement is convenient for simplex communication at low power using VOX control, but the potential for unintended transmissions is too high when using a repeater.

Mounting all equipment except the speaker-microphone or headset on the bicycle lets you use a larger antenna and battery as well as a handlebar-mounted push-to-talk switch, and can make the radio's controls accessible while riding. Smaller H-Ts fit handily in a cut-out bicycle water bottle lined with resilient foam, secured in a handlebar-mounted water bottle cage. Be careful that nothing can come loose and dangle by its cable into the front wheel, possibly causing a serious accident. I loop my speaker-microphone cable around a helmet strap in case the clip works loose. A plug and socket at the handlebar end of the cable allow quick disconnection and spare the cable from damage if I pull on it unintentionally.

RG-58 antenna cable looks just like bicycle brake cable, and may be secured to the bicycle frame using ordinary cable clamps; install a connector at the antenna end for easy antenna installation and removal. However, it is convenient, if not elegant, to wind the antenna cable around the bicycle's top tube. A fine source of information on bicycle mobile operating is the bulletin of the Bicycle Mobile Hams of America, published four times yearly. BMHA holds workshops at the Dayton *Hamvention* and other major ham and bicycling events, organizes a twice-monthly HF net on 20 meters, and distributes members' addresses to one another so they can plan group rides or call on each other for technical help. The yearly membership fee is \$10 for individuals, or \$15 for families. For more information, contact the BMHA, Box 4009, Boulder, CO 80306.

The Casual Contester

(continued from page 64)

just a few keystrokes. To find pricing and ordering information for these software packages, try checking the advertisements found in *QST* and in the *National Contest Journal*. You can also read about station automation and contesting in general in the new fifth edition of the *ARRL Operating Manual* (Chapter 7).

Give it a Try!

Now that you've got the basics down, it's time operate in an actual contest! There are lots of VHF and HF contests each year. On HF, I'd suggest the upcoming *North American QSO Party* (aka the NAQP) as a great place to start. Why the NAQP? Well, there are several rules associated with this contest that make it "user friendly" for a new contester. Here are a few to consider. The NAQP activity period is only 12 hours long — not all weekend (like some contests). You're allowed to operate a maximum of 10 hours, so you'll still have time for meals, relaxation or family activities. The NAQP is a North American (only) contest; you'll be working mostly other US

hams, so you won't need to have an antenna farm optimized for long-haul DXing!

Do you have an HF antenna up yet? Great! Nearly any antenna will allow you to make plenty of contacts with hams in your state and other states, too! Since the contest activity can be found on 160 through 10 meters, it doesn't matter which band you have for antennas for — there should be some contest activity on those bands! And since this contest has a power limit of 150 watts, you won't be competing against hams who have "killer" amplifiers! You might even complete the requirements for your Worked All States award (WAS)!

There are two weekends of NAQP activity, one for CW (August 5-6) and one for SSB (August 19-20). Just choose your favorite mode and join in on the fun! You can find the rules for this year's running of the NAQP in the Contest Corral column of the July 1995 issue of *QST* (page 114). It won't be long until you're a seasoned veteran of the contest wars! Until then, I hope to hear you on the air this August for some summertime fun! **QST**