

Art Paton, N9AEP

# A Motorized Mag Mount for Mobile Antennas

Adapt a motorized mount to a magnet—for under \$10!

If you're like me, you hate getting out of the car to fold down your mobile gain antenna or, worse, taking it off the car completely before parking in your garage. It's tiresome, and in the winter here in Chicago, you just don't want to get out of the car. Also, since I still have most of my hair, I want to avoid frying it with 50 W of VHF coming in the rear window. I want my VHF/UHF antenna on the top of the car.

A car top mount offers more protection from RF exposure and offers a better ground plane for mobile antennas. The problem comes when you want to drive your car into the garage and you don't have a 10 foot high opening or garage ceiling. In my garage, a car top antenna would get all tangled up in the garage door opener mechanism.

## Just Push the Button

I have admired the Diamond K9000 motorized mount for some time. You push a little button and the antenna rotates down 90°. You push another little button and the antenna rotates back up vertically. With something like this, I could arrive home on a winter's eve and grin out at the falling snow and the ice in the

driveway and push that little button to lower my antenna. One problem—the K9000 only comes in luggage rack mount and trunk lid mount versions. I don't have a handy luggage rack on my car roof, and I am not a fan of trunk lid mounts for a variety of reasons. I wondered if it would be possible to adapt the motorized mount to a magnet and put it on the roof of my car.

DAVID PATON



Figure 1—The fully assembled mount.

ART PATON, N9AEP



Figure 2—A close-up of the magnet and mounting bracket.

DAVID PATON



Figure 3—The control switch resting on the console of my car.

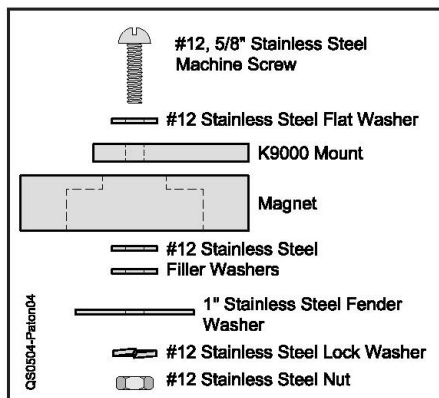


Figure 4—Placement of all parts—ready for assembly.

So along comes Hamvention 2004—the wettest one I have ever attended. I went to the RF Parts booth and looked at the K9000 again. I noticed that the luggage rack mount had a bottom plate with a strategically placed hole for the mating half of the mount. I could see that it was possible to put a bolt through that mount and into a magnet.

Now the search was on. After some advice from other magnet vendors, I was directed to the Metal and Cable Corporation booth, where I bought a single magnet in a spiffy chrome housing with a hole in the middle for a bolt. I then went right back to the KJI Electronics booth and bought the luggage rack version of the K9000 and the matching C213 cable assembly. I couldn't wait to try it out.

That evening in the hotel room I wired the mount to a gel cell I had found in the flea market and tested the mount. The whirring sound was music to my ears as the mount slowly rotated down and up, and down and up....

### Mating the Mount to the Magnet

Back home, I went over to my local hardware store and bought a  $\frac{5}{8}$  inch long, #12 stainless steel bolt, a lock washer, flat washer and a 1 inch fender washer. I also bought two #12 flat washers to exactly fit the bigger hole in the magnet housing and center the bolt in the hole. These were sandwiched between the mount and the fender washer, as a sort of bushing, during assembly. The K9000 was used with the upper luggage rack mounting bracket only. The hole at one end of the bracket was used to mount the K9000 to the magnet. Some layers of servo tape, a type of padded, double sided tape used to mount electronics in the radio control hobby, was used to fill the slight gap between the other end of the mount and the edge of the magnet.

You can do this, too. All it takes is a K9000 Motorized Antenna Mount, a single magnet mount and, at my hardware store, 90 cents of stainless steel hardware. Figure 1 shows the fully assembled mount. Figure 2 is a close-up of the magnet and mounting bracket. Figure 3 shows the location of the control buttons on the console. Figure 4 shows the placement of all the parts for assembly.

Final installation included plugging the power cord for the mount into the cigar lighter socket in the console. Fussy about how your car looks inside? It's a simple matter to hardwire the power cord into the electrical system or to the power source for your radio. The wonderful UP/DOWN button box was secured to the console with another piece of servo tape. Now all I had to do was route the antenna cable and motor power cable. The C213 cable is a special type provided by Diamond to make it easier to route the antenna cable through body openings and weatherstripping. Diamond representatives tell me that this

## Parts List

Diamond K9000 Motorized Antenna Mount, Model K9000LRM for "Luggage Rack Mount" and the C213 Cable Assembly. Available from various Amateur Radio dealers and from RF Parts Co. Note: You may need an extension cable if your run exceeds 13 feet.

Single Magnet Mount, magnet only. Available from several suppliers of heavy duty, multiple magnet antenna mounts. Mine was purchased from Metal and Cable Corporation, 9337 Ravenna Rd, Unit C, PO Box 117, Twinsburg, OH 44087-0117; tel 330-425-8455.

Miscellaneous Hardware: one  $\frac{5}{8}$  inch #12 stainless steel machine screw, one #12 lock washer, three #12 flat washers, one 1 inch Fender washer. Plus wire ties and cable attachment mounts as needed to route antenna and power cables. Servo tape or other gap filling material to support the other end of the mount.

cable has the same loss values as the RG-58 used in most mobile antenna installations.

### And It's Portable!

The mount works beautifully—I can drive the car into the garage without getting out to remove the antenna, and the mount stays in place at turnpike speeds. My radio is happy with the system and I am delighted to be able to push that little button to lower the antenna before driving into the garage. If, like me, you have longed to have a motorized antenna mount on top of your car, this is a solution you can make yourself. It has the bonus of being able to be taken off and put on any other car—just unplug the power cord and antenna, and move the magnet to your other car. I've wanted something like this for a long time. I'm amazed I didn't think of it sooner!

*Licensed since 1996, Art Paton, K9AEP, holds an Amateur Extra class license. Art is the holder of WAS, WAZ, DXCC and QRP/ARCI 1000 Mile per Watt awards for SSB and CW. He enjoys building and has recently completed an Elecraft K2. You can reach the author at 124 Samoset Ln, Schaumburg, IL 60193; n9aep@arrl.net.*

QST

## New Products

### PRACTICE AMATEUR RADIO EXAMS—WITH MEMORY

◇ The HamTestOnline Web site has a new feature, *The Practice Exam with Memory*. The concept is to avoid the repetition of random exams, said not to be a proven learning method. Instead, these practice exams track your answer history and give you a choice between exams that focus on unseen questions, ones that focus on weak areas, or random ones. If you focus on unseen items, they present new questions in logical order. If you choose to focus on weak areas, they use their proprietary repetition algorithm to choose the question order.

After the questions have been answered, the service offers explanations, pictures, and links for obtaining more information. The goal is for the student to learn the material, not just memorize answers.

The Web site offers unlimited practice exams and tracks answer history at no charge. Advanced features require a subscription, which costs \$39.95 for full access to all features and all three exams for two years. Subscribers 18 and under pay a reduced rate of \$24.95. Gift subscriptions are available. For more information, see [www.hamtestonline.com](http://www.hamtestonline.com) or send an e-mail to [K1RV@hamtestonline.com](mailto:K1RV@hamtestonline.com).