

The DK3 HF Mobile Antenna

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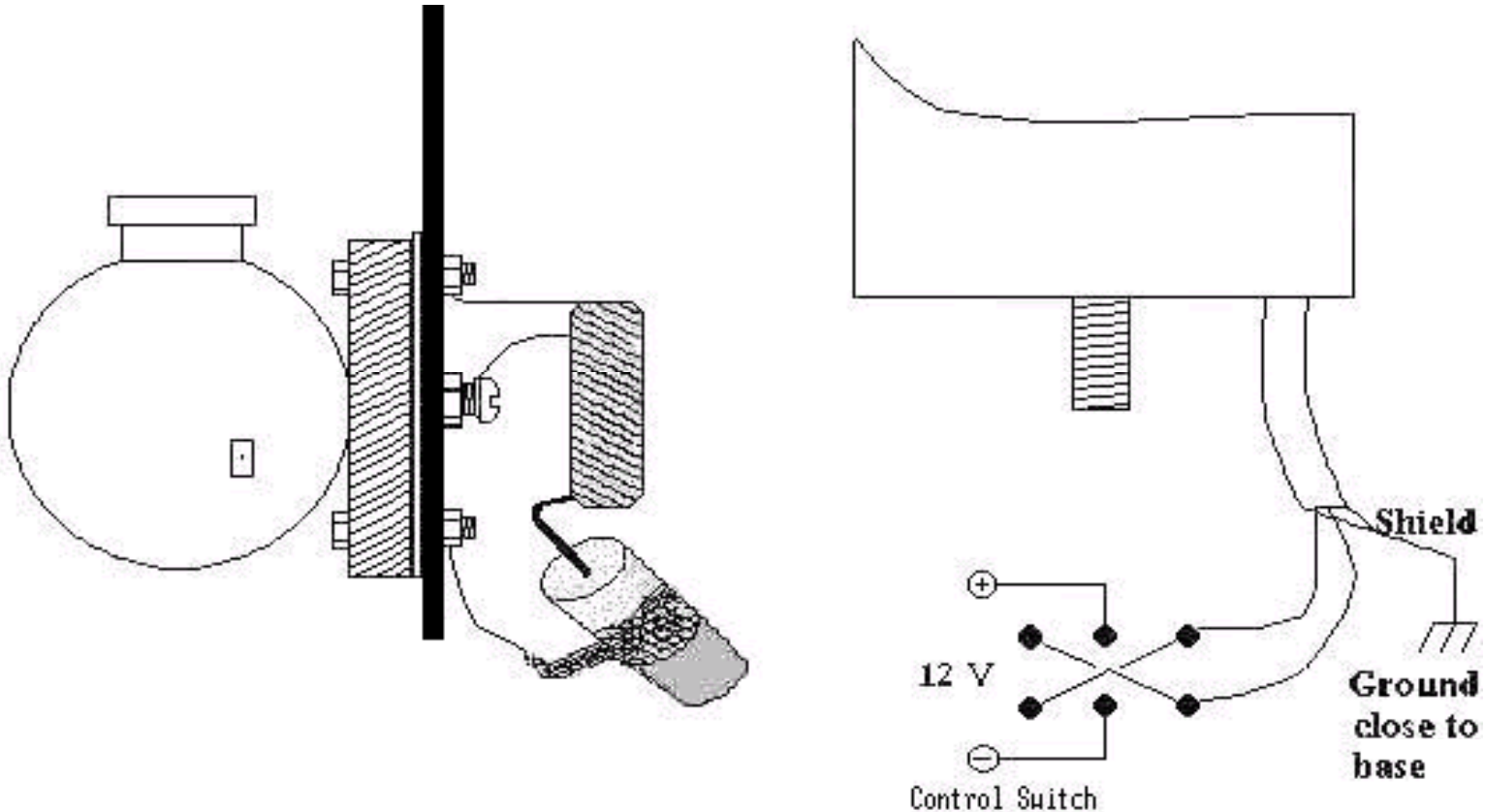
A complete 23 page manuscript is available from W6AAQ, D. K. Johnson, 26659 Capay St., Esparto CA, 95627-0595 for \$5.00 and Don's book 40+5 years of HF Mobileering is available from Worldradio.

Profits from the sale of this antenna are to be used by the El Paso Amateur Radio Club and not its dedicated members who spent much of their wives quality time to build it for you. So enjoy mobileering. The antenna has been modified to be ball mounted with the feed to the connection at the ball. Do not attempt to mount it on a spring. A spring will not hold the load and in most cases is a source of noise.

The coupling toroid must be be mounted as close as possible to the ball mount. The lead from it to the ball is part of the antenna and must be considered during installation.

Better results will be obtained if the antenna is mounted as high as possible, at least so the coil is above the roof-line of your vehicle.

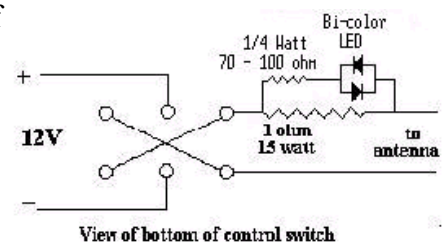
The antenna is adjusted to the frequency on which you wish to operate by extending the coil above the tubing which is the lower portion. This is done without having to transmit. Just set your transceiver to the desired frequency and listen to the noise generated by the drive motor as you run the coil up or down. Tune for maximum audio. Then adjust it back and forth to peak.



Here is a little trick which will tell you when you have reached the End Of Travel. When EOT is reached the one of the LEDs will illuminate. If you can't find a bi-polar LED use two LEDs in parallel. Just reverse one of them.

Red in one direction.

Green in the other.



Electra-Slide Antenna

Made by the members of W5ES

Each antenna is built as a proto-type, and each is individually tested on at least two different vehicles (usually on my truck and my wife's car but we have tested them on several other cars from time to time).

A few instructions on installation and tuning the Electra-Slide Antenna.

On installation:

The shield on the control wiring is to reduce noise. So keep it short and ground it on both ends. The ground is a VERY important part of any antenna. Make sure it is solid and will not come loose. Ground the toroid and the control cable shield as close to the antenna as possible. No more than 6 or 7 inches from the mount. Your vehicle is acting as the counter-poise for the antenna and if the leads are not short and secure it will not function properly. The length of your whip should be cut so that the overall length from the mount to the tip is resonant on ten meters. Include the ball, the tube and the whip. They are all part of the antenna. When you have the length right the antenna will cover from below 75 meters to the top of the 10 meter bands and all frequencies in between.

The formula to calculate the length is:

Length in feet = 234 divided by the frequency in megahertz.

Leave an extra inch or so, it is easier to shorten than to lengthen the whip. If you mount your antenna close to the metal body of your motor home, you should allow for a longer whip. So start out extra long, 3, 4 or 6 inches long may require more cutting but it's better than buying a new whip.

The antenna should be braced to prevent it from exerting a bending action on the mount. Brace it solidly between the vehicle and at least half way up the tube. A non-conductive clamp to limit sway is all that's needed. One pound of pressure exerted at the top of the tube will present a bending action on the base of over thirty pounds. So please brace it.

On tuning:

With the antenna fully retracted, set your radio to the top of the 10 meter band. With an SWR bridge installed in the transmit line, obtain a reading at your lowest power output. Tune your radio to the bottom of the 10 meter band and get another reading. Compare these two readings. If the second reading is higher than the first reading you have to cut off a little of the whip. Do not cut too much, only about 1/8" at a time. When the readings are the same, the antenna is resonant in the middle of the 10 Meter band. This is all the trimming that is needed. All the HF frequencies between 75 and 10 Meters can now be obtained by extending or retracting the coil inside the base tube by running it in and out with the screwdriver. There is always a temptation to make these adjustments at another frequency but if you want to work 10 Meters then you will do better making them in this way. If you would like to use a longer or even a shorter whip it will work but you will always have to have some of the coil extended on every band. If you get the whip too short you will lose the ability to work MARS just below 75 Meters and you may lose 75 as well. When the coil is retracted it is shorted out by the finger stock inside the tube and is not in the antenna circuit. As the coil extends the antenna becomes electrically longer and the "Q" increases. This is caused by the capacitance and inductance between the turns of the coil. Please note that the band width will decrease as the "Q" goes up.

If you are using an SWR meter to tune the antenna you will have to watch it carefully on the lower bands. A difficult thing to do while driving. A better way is to tune to the frequency you want to operate on and run the antenna coil in or out as you listen to the noise. When resonance is obtained the noise level will increase dramatically.

Today's radios will operate very well with an SWR of 2:1, so don't worry if a perfect match is not reached. Surrounding trees, cars, houses and the like will cause a change in SWR but will not adversely effect the operation of your radio. If you are in a fixed location while operating a slight adjustment will reduce the SWR again.

About the Toroid:

Mount it as close to the base of the antenna as you can. The leads must be kept as short as possible. Make good solid connections.

Best 73
Clay, K5TRW

