

## Mad Dog Coils “Tiny Dog” – User Guide

High-quality HF antenna loading coil, developed and hand built in Australia by Marty Nelson VK4KC. The Tiny Dog is designed and built to be paired with the Chameleon SS25 or SS17 telescopic whips (or equivalents) and can tune down to the 40 meter band. The coil has greater wall thickness of the threaded riser and end caps to be able to handle the weight and wind loading of the SS25 (25 ft.) whip.

This coil does not have a coax feed point so it requires an additional feed point mount such as the MDC Dingo Mount. This coil is perfect for the Delta loop configuration or use two of them in the V-dipole configuration. For more information on these configurations see the MDC Dingo user guide.

The stainless steel collar slides up and down the stainless steel wire wrapped former to change the coil impedance. Only one tuning collar is recommended for the Tiny Dog Coil. The top and bottom mounting hardware can either be imperial 3/8- 24 TPI UNF or metric 10mm threaded bolts.

### Notes:

- The upper end cap must not be unscrewed as there is an internal electrical connection from the coil to the bolt.
- When attaching the coil to antenna whips and tripods, etc, do not over tighten. Generally for stationary portable operation finger-tight is suitable.

### Setup

There are two suggested ways the antenna can be mounted.

1. The lower bolt can be connected to a ground spike or a tripod that keeps the coil low to the ground (less than 300mm or about a foot). Multiple ground radial wires (suggest 6 at 4.5 metres) need to be spread out from the ground socket to create a ground plane.
2. Mount the coil on top of a tripod at a height of 1 to 1.5 metres. Multiple ground radial wires (suggest 6 at 4.5 metres) need to be spread out from the ground socket to create a ground plane.

Field testing has shown that having the coil lower to the ground will result in a better SWR.

Note: Strong winds can easily cause a tripod to fall over. Care should be taken to anchor or weigh down the tripod to counter the effect of strong winds. A heavy duty tripod is recommended when using a 25 ft. telescopic whip. If the antenna does fall it will most likely be the antenna whip that gets damaged rather than the coil. With wind speeds greater than 30km/hr (18.6 m/hr) care should be taken and recommend that extendable whips be shortened to handle the wind load.

### Tuning

Tuning will need to be done each time the coil is setup. Tuning in a frequency is done of moving the collar up and down the coil former. You can also fine tune by moving the telescopic whip in and out, and ground radial wire placement. This coil comes with one collar. It is important not to over tighten the tuning collar wing nut. It should be just tight enough that the collar cannot slide up or down. To adjust the tuning loosen the wing nut just enough so that the collar can slide up and down.

With a 17 foot (5.2 meter) telescopic whip and one collar the 40 & 30 meter bands tuning is performed by moving the collar up and down the wire wrapped former and the 17 foot whip fully extended. For 20 to 6 meters the coil is bypassed by plugging the link cable into the upper by-pass socket and tuning is performed by shortening the telescopic whip.

With a 25 foot telescopic whip and one collar the 40 meter band tuning is performed by moving the collar up and down the wire wrapped former and the 25 foot whip fully extended. For 30 to 6 meters the coil is bypassed and tuning is performed by shortening the telescopic whip.

## Ground Radial Wires

With my experiments I commonly used two bunches of 3 wires at 4.5 metres (about 17ft) in length. Each bunch soldered to a banana plug. The banana plugs I use can be plugged into each other. The position the wires are laid out as well as if they are fully extend or some bunched up will all affect the SWR, Impedance and Reactance. Ideally you want to keep SWR as low as possible, certainly below 1:2.0, Impedance close to 50 ohms, and reactance as close to 0 as possible. Experiment to get best results for the location you are setup in.

## Power Rating

SSB:200 W

CW/AM/FM/Digital: 100 W

## Internal Electrical Connections

Lower bolt connected to link wire

Upper former coil wire connected to upper bolt/coupler nut

## Design and Construction

There is nothing new about coils. There are many manufacturers providing similar products. I have been working on this particular design using irrigation piping for many years, making many prototypes to perfect the design. I test the coils regularly in the field and have completed over 350 POTA park activations with most of them using Mad Dog Coil products.

The standout features with this Coil is:

- Power capability for QRO operation.
- Rigidity and strength.

## Specifications

Overall length (including top coupler nut): 200 mm.

Coil diameter: 60 mm.

Coil wire along with top and bottom bolt/nut hardware is 304 Stainless Steel.

Number of turns: 29

Weight: 0.49 kg

Coil inductance: 30 uH



## Warranty

Products manufactured and sold by Mad Dog Coils are warranted for 1 year from the date of purchase. Customer pays for shipping of replacement product.

## \* Disclaimer \*

It should be noted that the Mad Dog Coils should only be used in accordance to our specifications and within our stipulated intended use. All details of intended use are detailed in this document that is shipped with the product. We accept no liabilities for such uses outside of our intended use and stipulations. It is recommended due to the weight SS25 telescopic whip that the setup is only used in vertical configuration and not as a dipole or v-dipole.

I hope you get many years of use and enjoyment out of your Mad Dog Coils product.

73' Marty VK4KC the Mad Dog!