

# Poseidon Build Instructions

Coffee and Ham Radios

# Description - CaHRTenna Poseidon Vertical Antenna

The CaHRTenna Poseidon is a portable vertical, designed for portable use from 40m - 6m with the use of a tuner. We suggest the use of a CMC choke at the antenna feedpoint.

It's designed as a lightweight,rugged kit that any ham will be able to assemble. You will only need basic tools that you probably already have in your shack. The antenna has been tested at 50w digital and 100w SSB.

The recommended configuration for this antenna is a vertical 25' element with four 17' radials spread out in equal directions. The kit is a development platform and we do encourage folks to try different configurations to meet their specific needs.

# Parts List

- Frame / Winder
- Velcro Strap
- 100' 22AWG wire
- 1 Large heat shrink
- 1 Sticker
- 1 Toe-Roid
- 2 x 18" of 18AWG Magnet Wire
- 6 Zip-Ties
- 1 Small Heat Shrink
- BNC Adapter
- 1 Screw w/ Nut
- 2 Ring Terminals
- 1 Black Clip
- 1 antenna mount disk



# Preparing the Frame

Attach the BNC connector to the frame with the ground tab pointing left. Attach the screw and the two wire terminals to the left of the BNC attachment point. (Fig1)

Also, make sure the post for the center conductor is open in the up position. (red arrow - Fig 2)



Fig 1

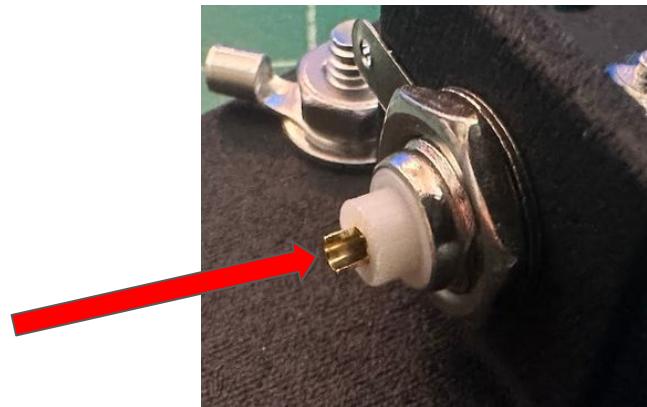
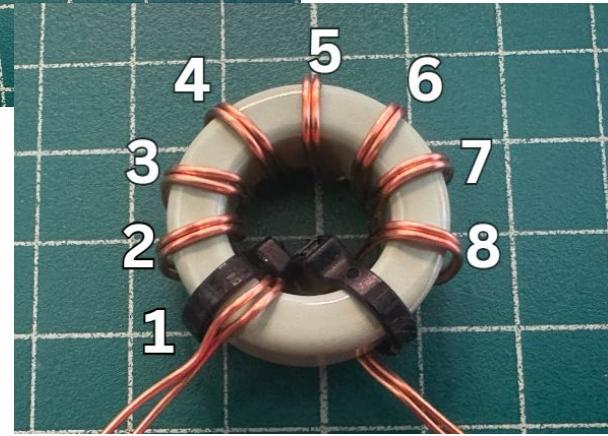
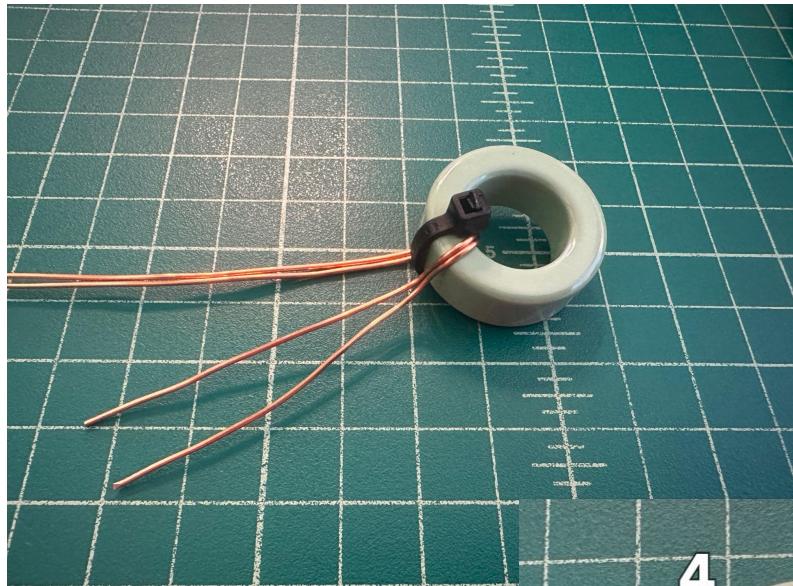


Fig 2

# Winding the Toroid

Using the zip-ties, you can hold the magnet wire to the toroid, leave ~2.5" before you begin winding. (Fig 1) You want to have eight wraps evenly spaced. (Fig 2) When done, tuck the ends of the zip-tie into the center of the toroid.



# Winding the Toroid

Use sandpaper, razor blade or Dremel to remove the enamel coating on the ends of the magnet wire, make sure to get it all off. (Fig 1)

Twist and solder the two center wire keeping the connection as close to the toroid as possible. Make sure to leave one wire long to insert into the center connection of the bnc. You should have continuity between the two outer wires at this point. (Fig 2)



Fig 1



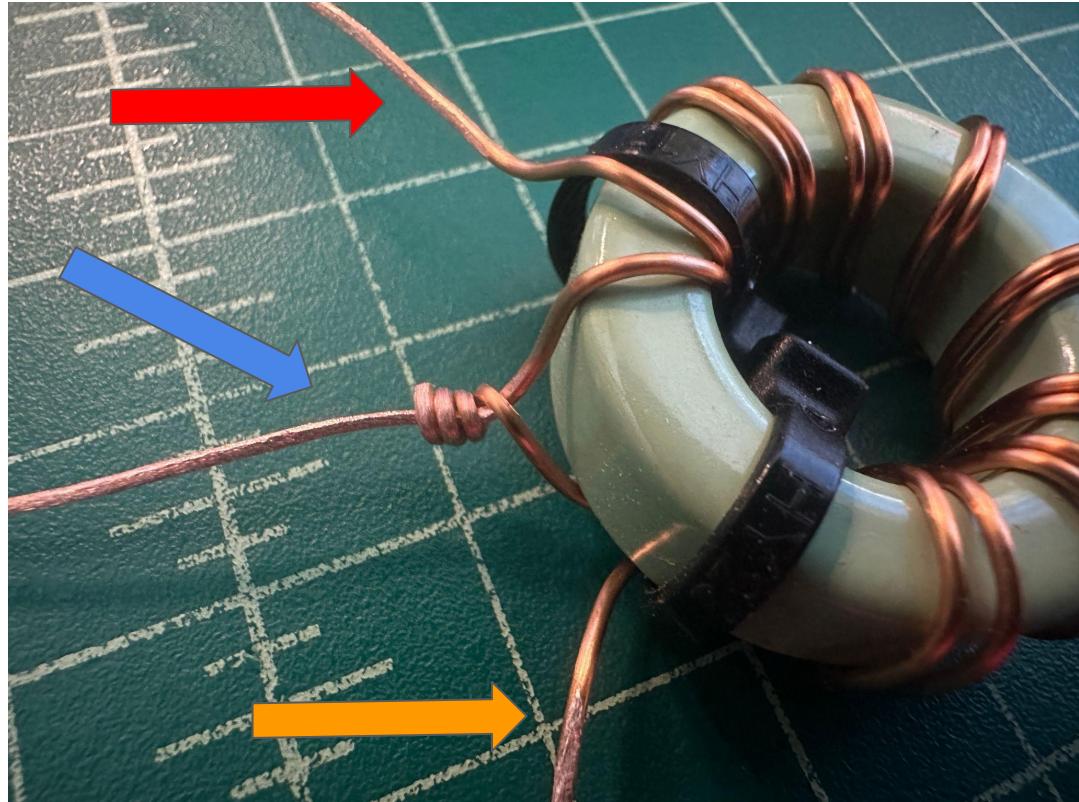
Fig 2

# Winding the Toroid

Antenna connector, red arrow.

Center tap, blue arrow.

Ground connector, orange arrow.



# Mounting the Toroid

Size the fitting of the toroid to the frame, you will need to carefully trim the center tap, (blue arrow - Fig 1) and run the shield connection through the tab on the BNC connector. (red arrow - Fig 1)

Use the zip-ties to attach the wound toroid to the frame. (Fig 1) Once attached, you can tuck the ends of the zip-tie into the center of the toroid.

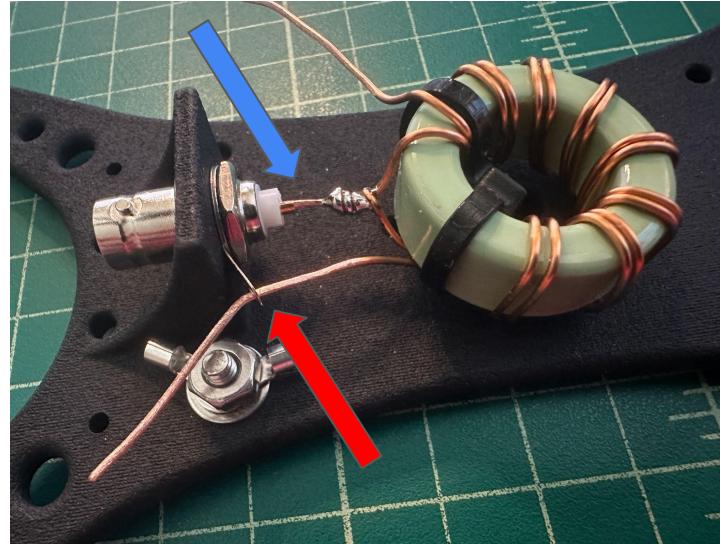


Fig 1

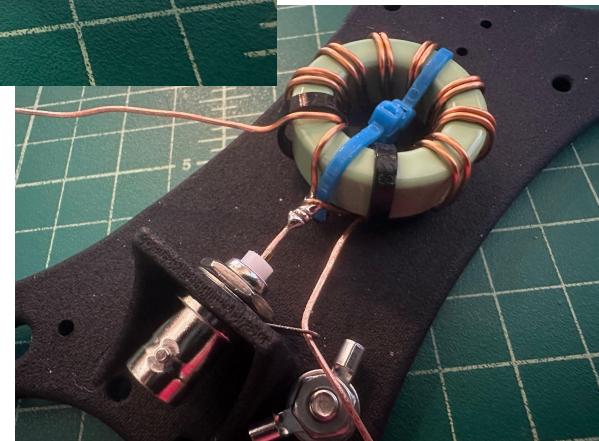


Fig 2

# Mounting the Toroid

You can size the ground connection by running the wire into the the O-ring terminal. (orange arrow - Fig 1)

Crimp, or solder/crimp the ground wire to the O-Ring. (red arrow - Fig 2)

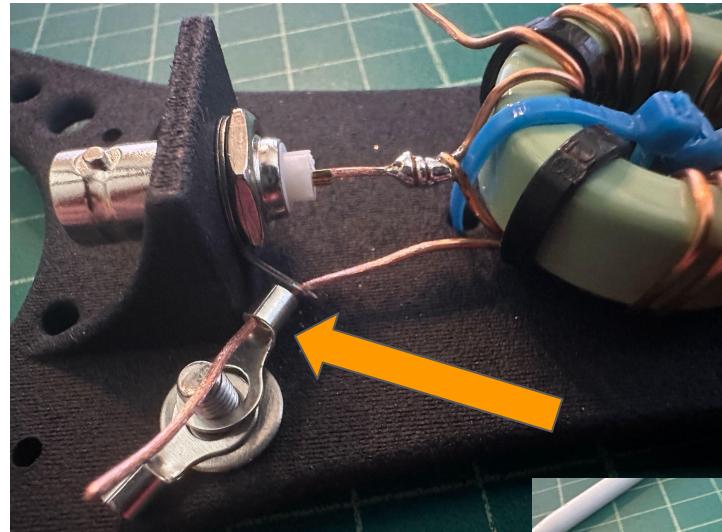


Fig 1

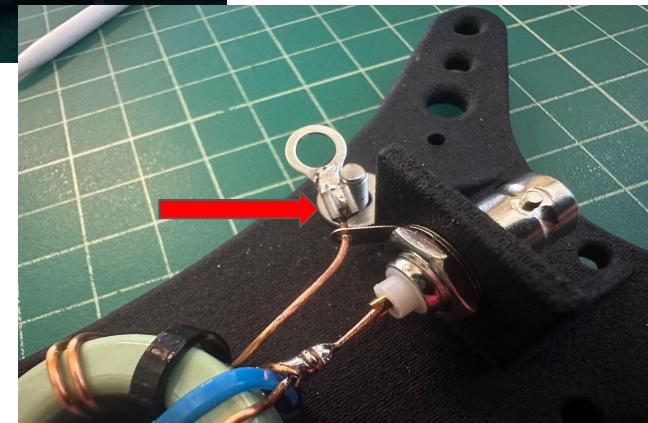


Fig 2

# Mounting the Toroid

Attach the crimped / soldered O-ring to the screw. (orange arrow - Fig 1)

Solder the center tap to the center conductor on the BNC adapter. (red arrow) Solder the ground wire to the tab on the BNC. (orange arrow - Fig 2)

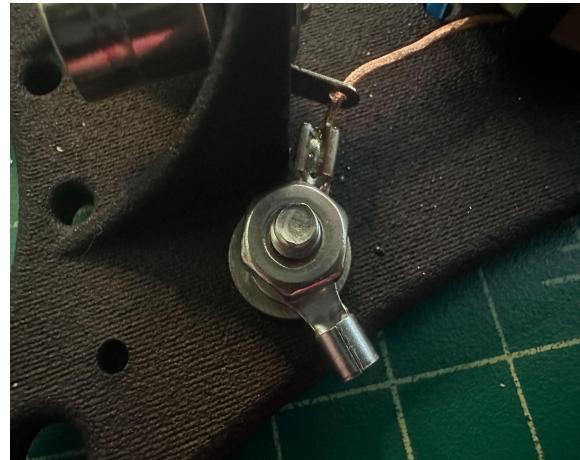


Fig 1

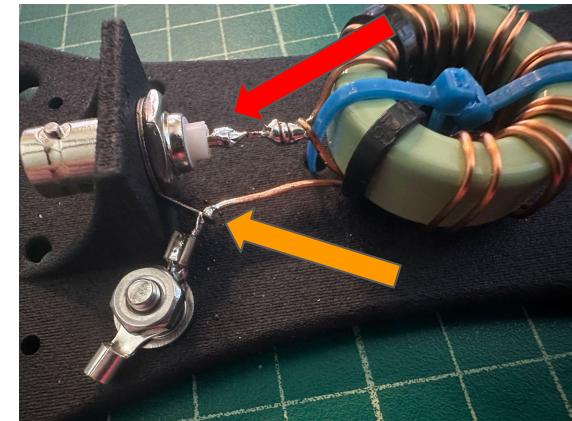


Fig 2

# Mounting the Toroid

Adjust the element connection so that it routes to the top of the toroid, carefully fold the end over. (orange arrow - Fig 1).

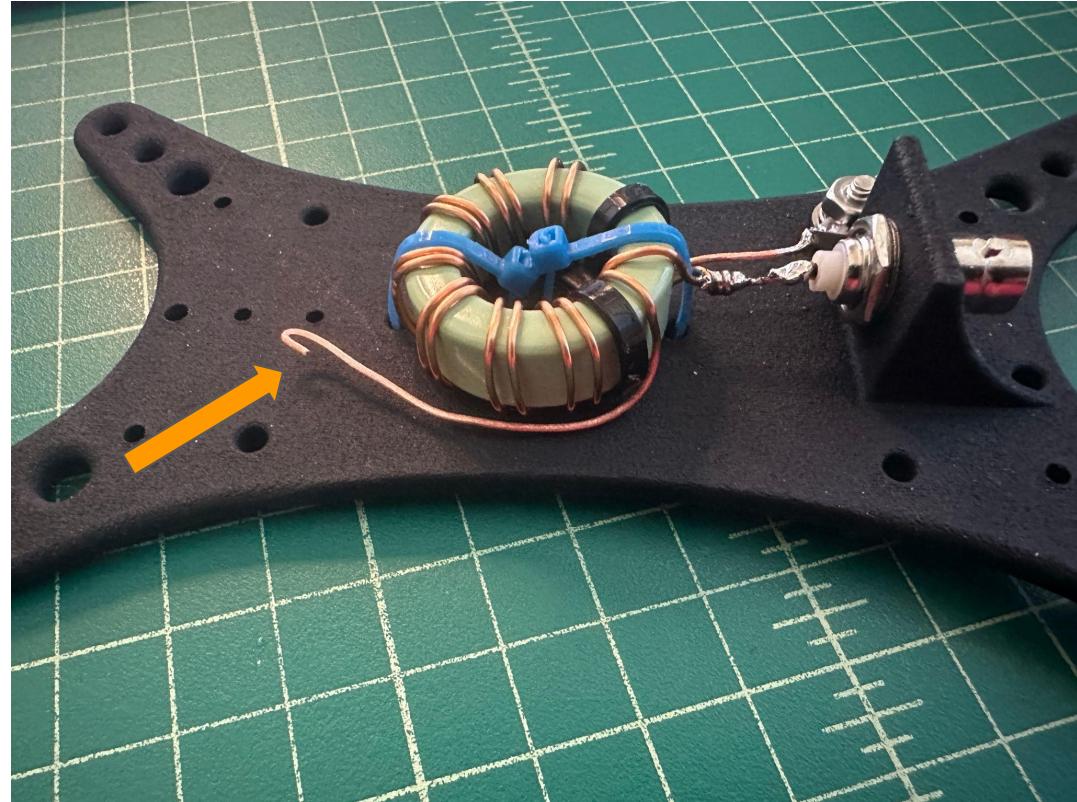


Fig 1

# Preparing the Element

The element should be cut to 25' and 4". Fold 4" of the end over making a loop and secure with two zip-ties, you can secure with heat shrink if you want. Attach the black clip to the loop. (blue arrow Fig 1)

Thread the end of the element through the holes at the top of the frame, you can tie a knot for security if you want. Slide 1/4" of heat shrink over the antenna connection wire. (red arrow Fig 2)

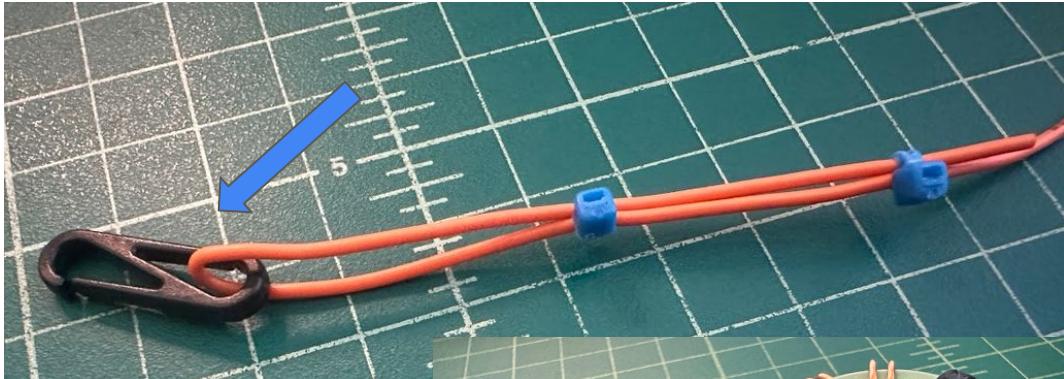


Fig 1

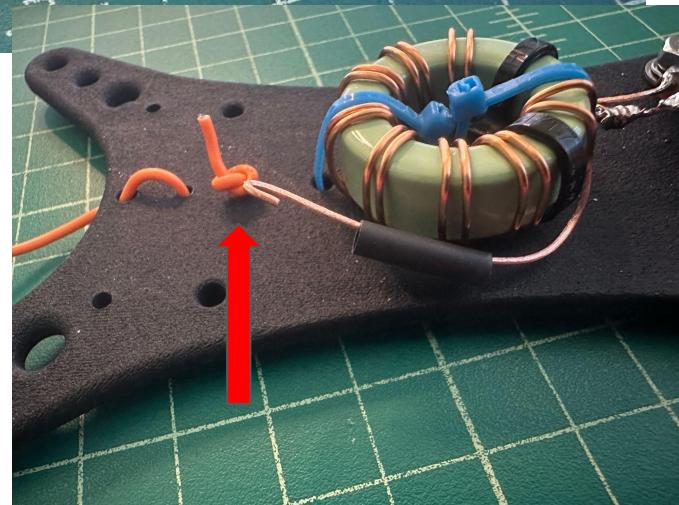


Fig 2

# Attaching the Element

Strip the end of the wire and tin with solder. Also, tin the antenna connection wire. (Fig 1)

Twist the stripped wire around the hook and solder into place. (Fig 2)

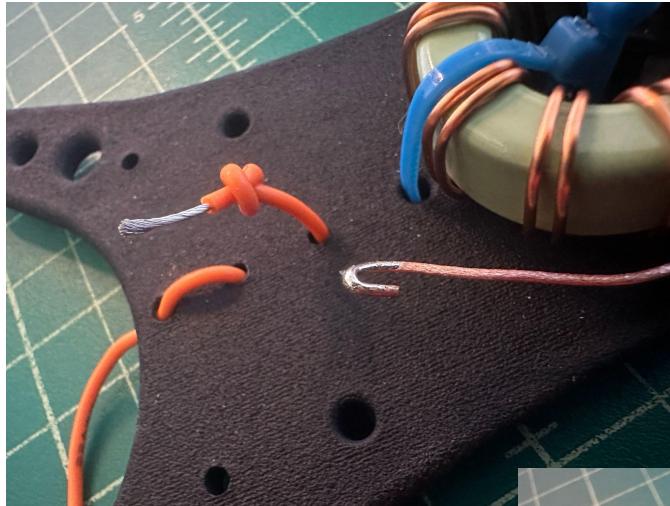


Fig 1



Fig 2

# Attaching the Element

Slide the heat shrink over the connection. (Fig 1)

Carefully apply heat to the heat shrink. (Fig 2)

NOTE: Do not apply the large shrink wrap until you have fully tested the antenna.

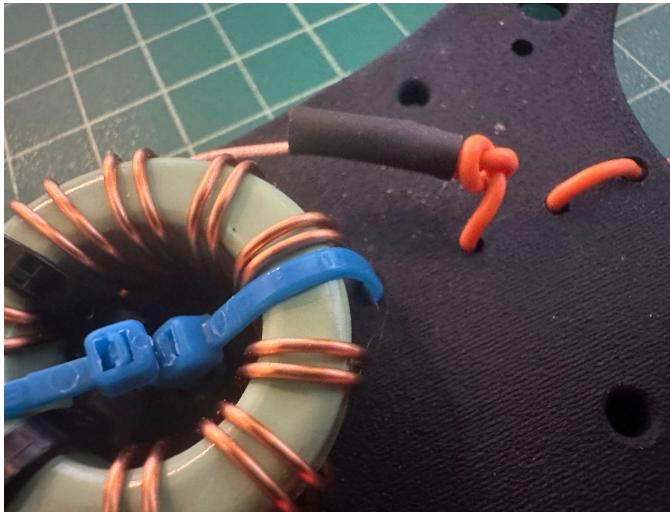


Fig 1

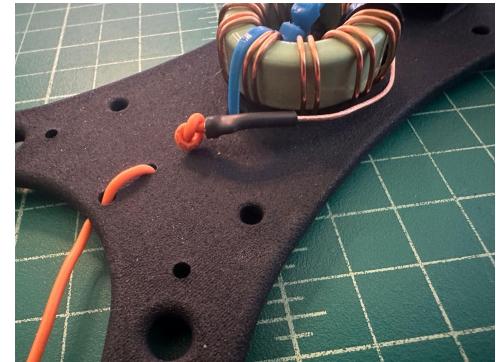


Fig 2

# Preparing the Ground Plane

Your O-ring wire terminal will come with a plastic insulator. You can remove this and use the supplied heat shrink if you want. To remove it, simply heat the plastic insulator and remove, use caution if you heat it up too much.

We recommend using four radials cut to a length of 17'.

Strip the ends of your ground plane wires and crimp them into the O-ring connector, you can solder them as well if you feel it's necessary.

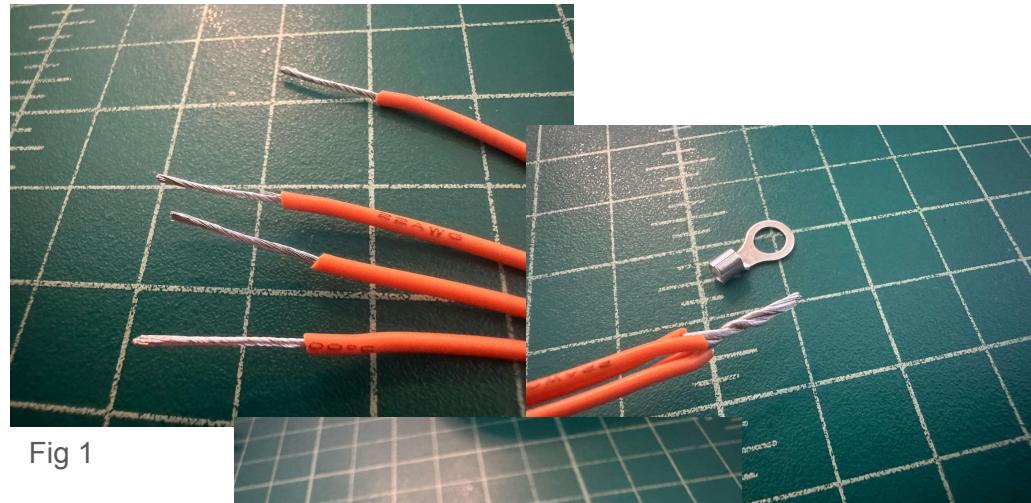


Fig 1

Fig 2

Fig 3

# Putting it together - Attaching the Ground Plane

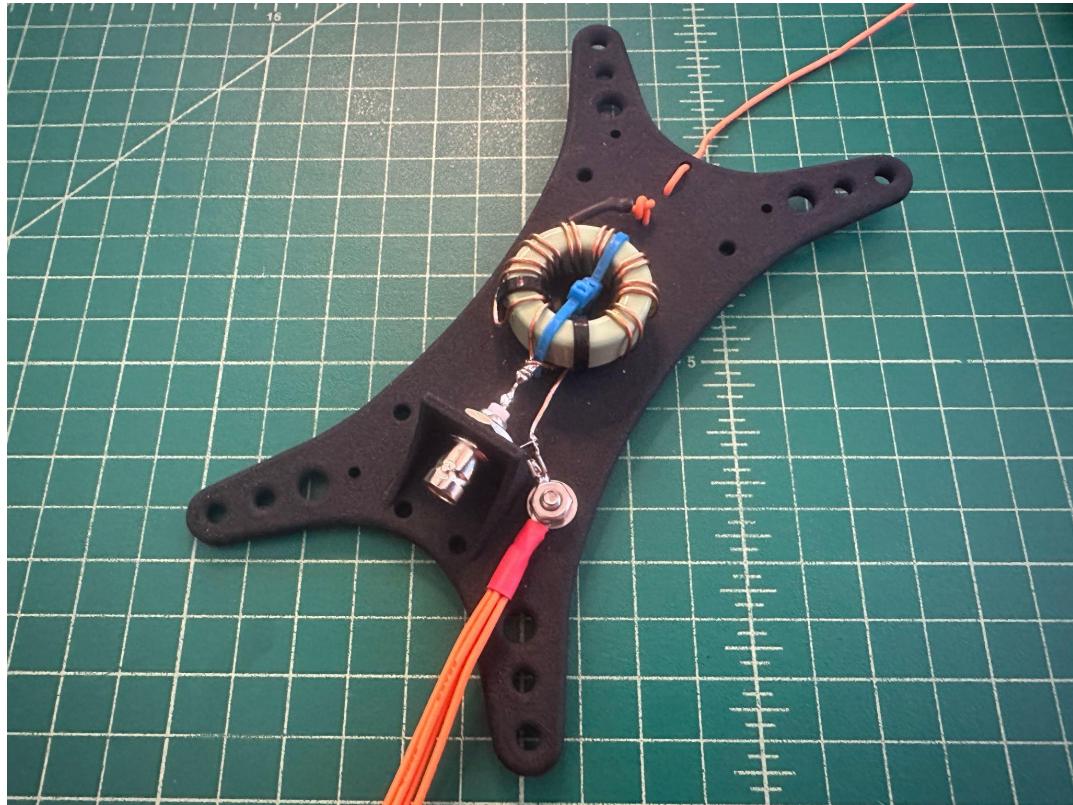
Attach the ground radials to the frame using the screw and nut (Fig 1).



Fig 1

# Almost Finished

Test the antenna to make sure it is built correctly, once verified you can add the shrink wrap.



# Mounting the Antenna

Use the velcro strap to attach the frame of the antenna at the bottom of your mast.

Spread the four radials equally around the base at 12, 3, 6 and 9 o'clock.

Attach the end of the element to the top of the mast.



# Mounting the Antenna

The kit will come with a small disk for attaching the element to the top of the mast. Use the clip to connect the end of the element to the disk and slide the tip of the disk over the top of the mast. Keep in mind, you only want the frame of the antenna about 6" off the ground so you may need to adjust the mast accordingly.

Note: Due to inconsistency in 10m mast construction you may need to adjust the disc and mark the location on the mast. Also in some cases a piece of tape for the day may help.



# Complete Setup

The completed antenna setup  
should resemble this picture.

