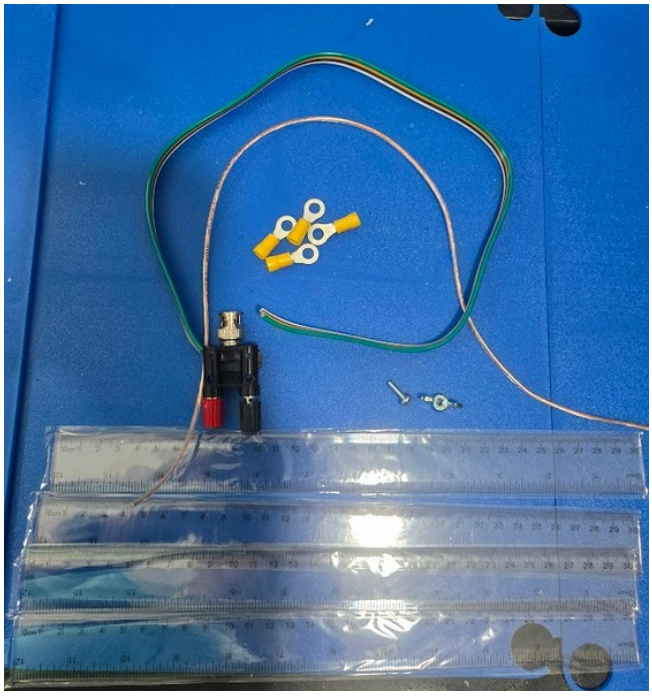
How To Build A Righteous Jungle Antenna

You have seen them in survival books and on Etsy, but now you can build your very own “jungle antenna” a.k.a. a ground plane antenna. The pictures taken and mods suggested are the Radio Relief Inc. Mk 3 Mod 1 VHF 2m version for use in Radio Relief’s “Go Box” setups for disaster communications as the inexpensive, easily repairable, last ditch antenna when you have nothing but a tree branch and twine to support it. Feel free to make or suggest your own mods. Also feel free to adapt to other bands such as 70cm. Thanks to Jennifer Tubbs **KQ4QJQ** for the major suggestion of having radial arms rather than perimeter struts as we had on the Mk1 Mod1.

Parts:

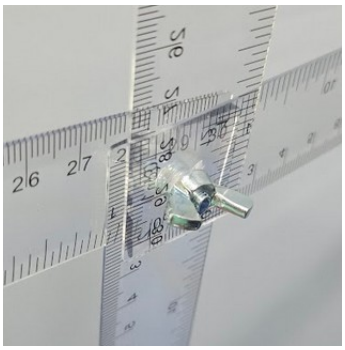
4 plastic school rulers
4 10-12 (yellow) ¼” ring connector terminals
5 22” pieces of 12 or 14 gauge wire (suggested 4 strand trailer light wire and/or speaker wire for color differentiation)
1 BNC Male Plug to 2X 4mm Double Binding Post a.k.a. a “cobra head” connector
1 small bolt
1 wingnut that fits that bolt
Electrical tape
Coaxial cable for use in testing and transmitting with appropriate connectors



Tools:
Drill with drill bit sized for bolt
Wire strippers
Wire cutters
Wire connector crimpers (or just pliers in a pinch)
Pliers
Vector Network Analyzer (e.g. a NanoVNA)
Assorted connectors to connect VNA to antenna coax
Tree or other non-conductive, free hanging spot

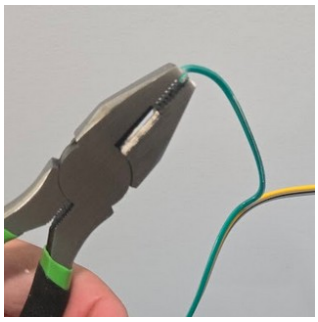
Arm Construction:
Drill holes in each end of each ruler (two holes per ruler) roughly in the middle of the ends (~ ½" from end) . One hole will take an individual wire; the other will take the bolt.

Use the rulers to make the arms of an X shape with the bolt through the holes and the wingnut to secure them all.



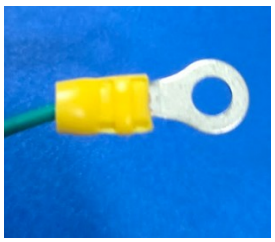
Wire Construction:

If using 4 strand trailer light wire, separate all the strands. In the end, you need 5 strands of wire, no matter the source. Trailer light wire was easy to find.

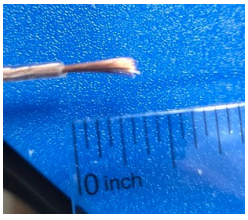


Strip 4 strands of wire about ½". Twist and double back exposed part on itself to make it fatter.

Crimp on ring connectors on the ends of each exposed wire.

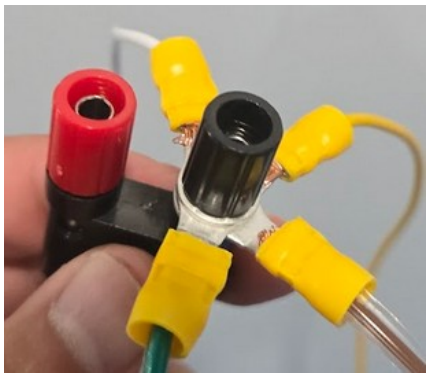


Strip 5th strand of wire about 3/8" and twist tight.

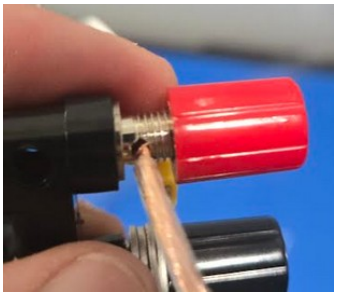


Attaching to the BNC Connector:

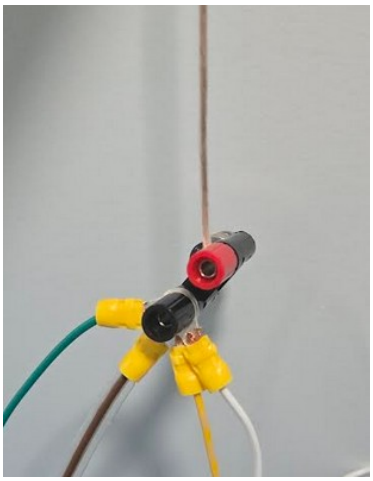
Unscrew the black side of the connector all the way. Put the 4 ring connected wires on the post, angling each on the post. Screw the black nut back on tight. These are the 4 angled radials that will droop down.



Unscrew the red post just enough to expose the hole in the post. Take 5th wire and thread the exposed end into the hole. Screw down red nut back down tight. This wire is the monopole vertical that goes up.

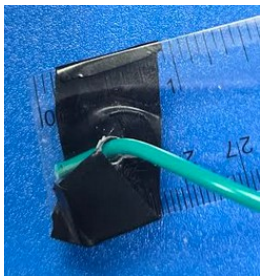


At this point you should have this:

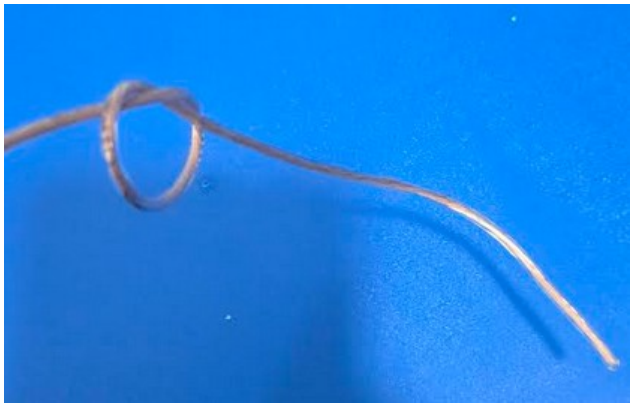


Arms to Wires:

You will use the ring connector wires of the radials. Attach the loose end of each wire through the distant holes of the ruler arms with electrical tape. Try to keep the wires from crossing each other. I prefer to bend the wire underneath after threading the hole, and then using the one tape piece horizontal to the ruler width and one tape piece perpendicular method to ensure retention.



Make a loop in the unattached vertical monopole wire about 2” from the loose end.

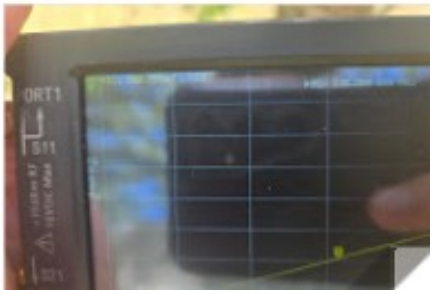


Testing the Antenna:

Attach appropriate connectors to whatever coax you intend to use. You should have this:

Attach a properly calibrated NanoVNA or other VNA to your coax, making sure it is tuned to look at 140-150 MHz, which is in the VHF range. Hang the antenna by the loop in the top wire monopole. Take care the wires are not desensitized by coming in contact with anything.

Use the VNA to analyze SWR (standing wave ratio). It should be pretty high (>2.0) at this point. Using wire cutters, trim a ***very small*** bit (less than 1/16" at a time) off the monopole above the loop. Watch the SWR on the VNA. Trim again as needed. As it gets anywhere on the curve close to 2.0, shrink your trimming size until you are almost nibbling the wire. This is more art than science.



When the entire range 140-150 MHz is below 2.0, quit trimming while you are ahead. If you cut too much and SWR goes back up, fear not; just cut a new monopole wire, reattach to red post, and try again.

Personally, if at 146.520 MHz is 1.5 or less, I'm happy.

CONGRATULATIONS!
You did it! We're not sure who is prouder, MacGyver, The A-Team, or Michael Weston from *Burn Notice*! Either way, with a little elevation, you can talk a long way on this antenna. Your mileage may vary, as transmitting on this antenna is entirely at you and your equipment's own risk, no warranties express or implied otherwise.

Feel free to loosen the wingnut so you can fold the antenna up for travel or storage. Be sure to re-tighten it when you fold the arms back out for use.

Have fun! 73 de **WE4LAW**, **KRBWA**, and **KM4SAG** with Radio Relief Inc., A Ham Radio Charity. If you want to know more about Radio Relief, visit www.radioreliefga.org or look us up on Facebook.