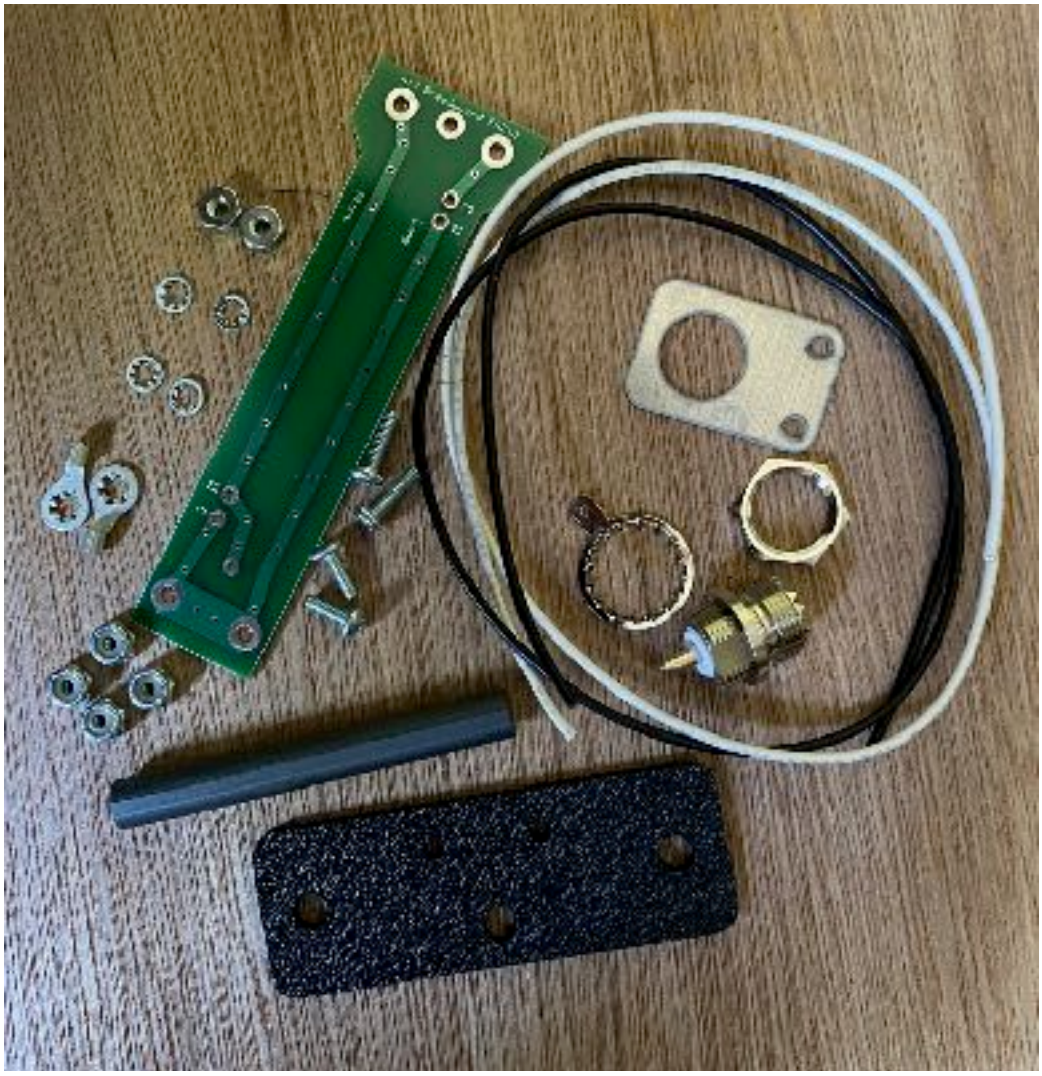
Breadboard Radio Off Center Fed Dipole Antenna Kit

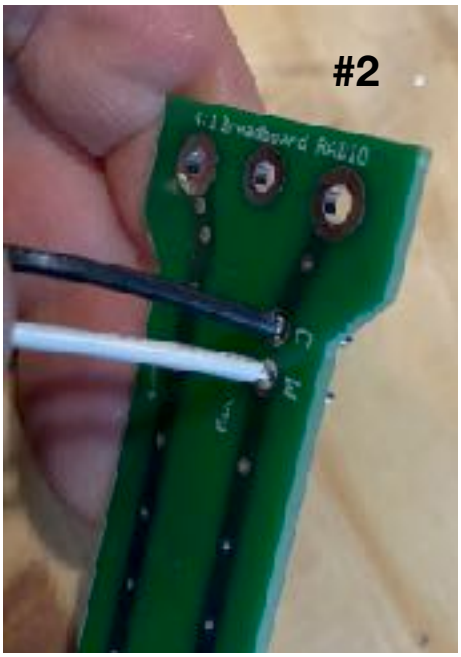
The Breadboard Radio Off Center Fed Dipole Antenna kit version is essentially a kit-built matching balun with center insulator built-in. The end user adds their own wire and end insulators and feed line to complete the antenna. By adjusting the wire length, custom frequencies and SWR may be obtained. An in-shack antenna tuner may be used to allow for the lowest SWR. Completing your antenna will be explained at the end of the balun construction instructions.

Building the Matching Balun

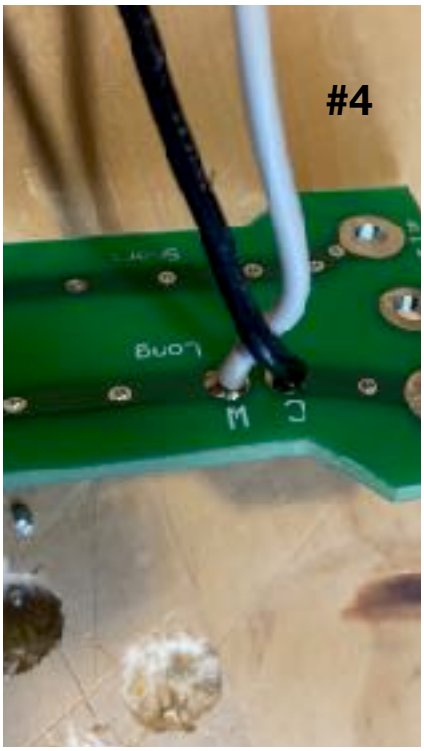
Before beginning construction, please check to see that all of the parts shown below are accounted for. If any parts are missing, please contact Breadboard Radio before starting construction.



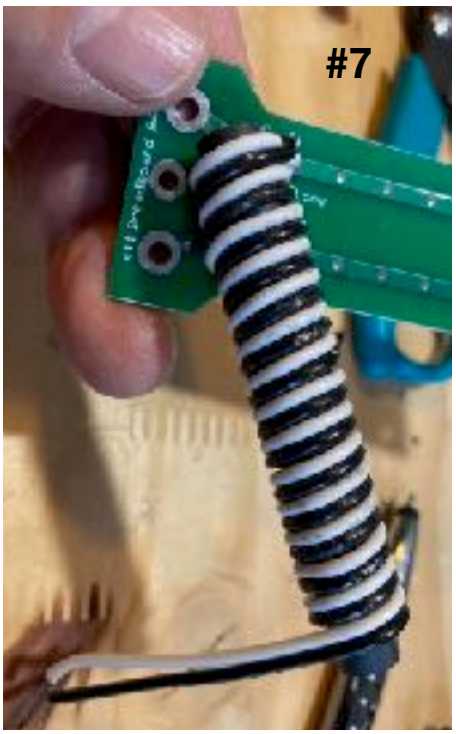
#1 Strip 1/4 inch of insulation from one end of the black and white wire. #2 Insert the stripped end of black wire at “C” and white wire at “W”. #3 Solder both wires on the back of the circuit board and cut off excess wire.



#4 Twist the wires 180 degrees. #5 Start winding the wires on the ferite rod counterclockwise. #6 Continue to wind turns of both wires together, white/black and keep windings tight and close.



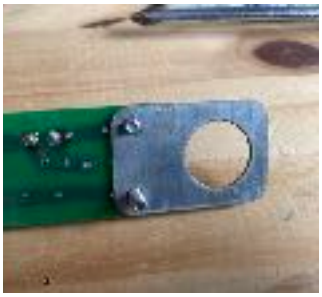
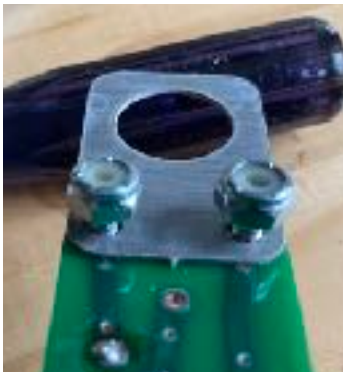
#7 Continue winding until you have 15 tight close and close turns on the ferite rod. #8 Straighten the wrapped ferite rod so that it is oriented vertically with the circuit board. #9 Carefully trim and strip the wires so that they fit into the “W” and “C” holes. The wires must be tight and the insulation should just touch the holes.



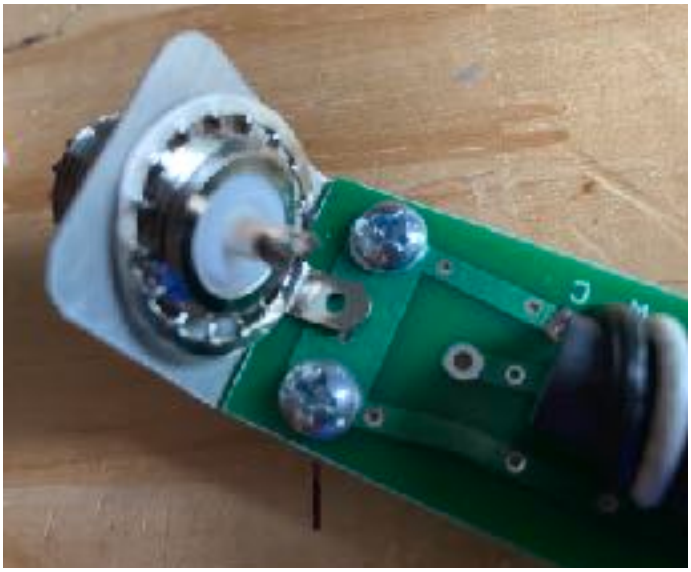
#10 Solder the wires on the back of the circuit board and the trim them close to the board. #11 The finished 15 turns on the ferite rod should be neat and tight.

Next, mount the coaxial connector and center insulator to the circuit board.

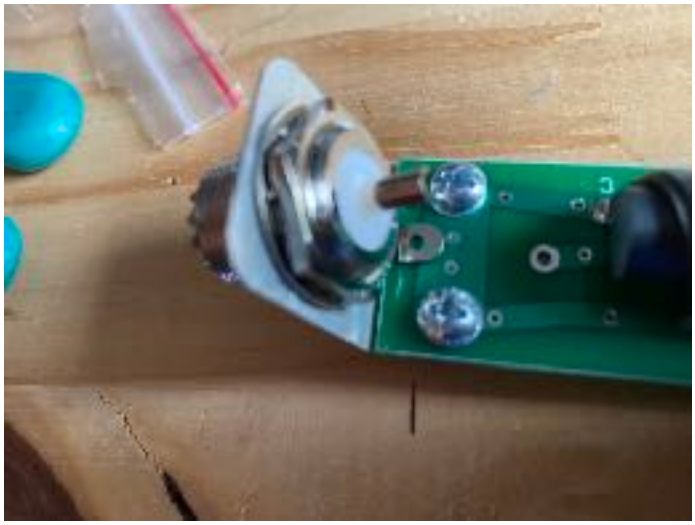
Mount the aluminum coax connector bracket to the bottom of the circuit board as shown with two short machine screws, two washers and two lock nuts. The machine screws will self thread through the circuit board. Tighten securely.

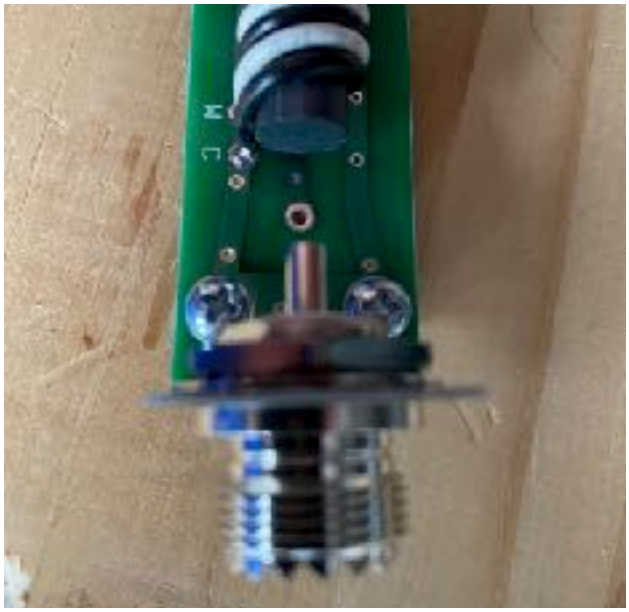





Bend the Aluminum bracket upward about 45 degrees. Place the coax connector through the hole and secure with the lock washer and mounting nut. The solder tab on the locker will need to be bent with pliers about 90 degrees so that the mounting bracket can be bent to 90 degrees after the coat connector is tightened.

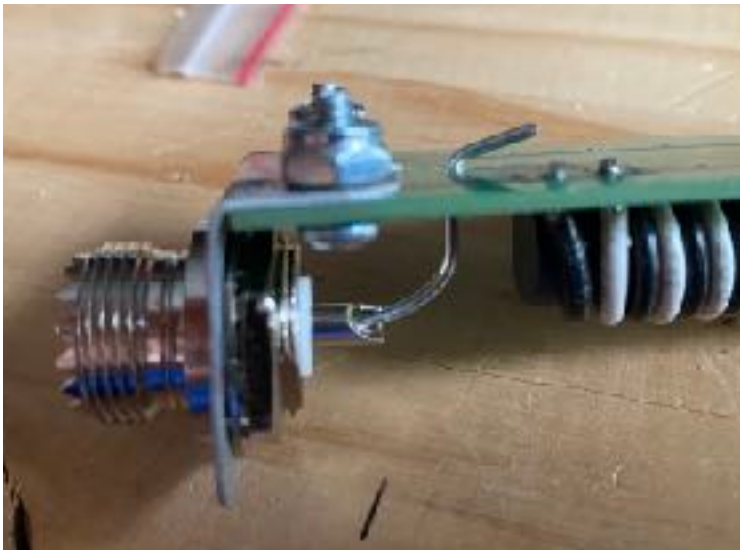



Tighten the nut onto the coax connector. A large box wrench will work well. Then bend the bracket to 90 degrees.

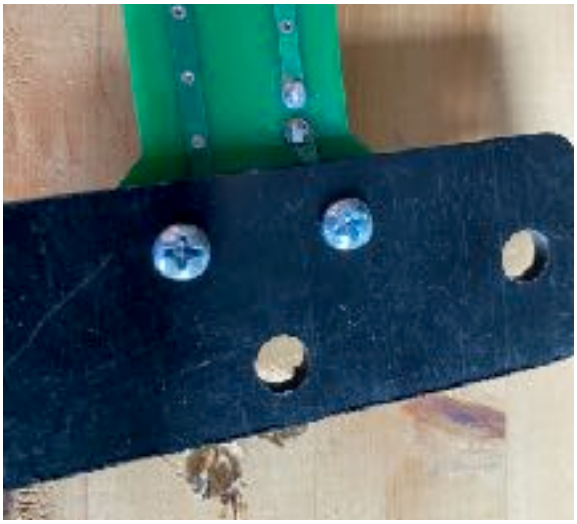




Once the bracket is in place, strip a remaining piece of wire and fashion as shown to connect the center of the coax connecter to the circuit board and secure with solder. Trim the excess wire from the bottom of the circuit board.

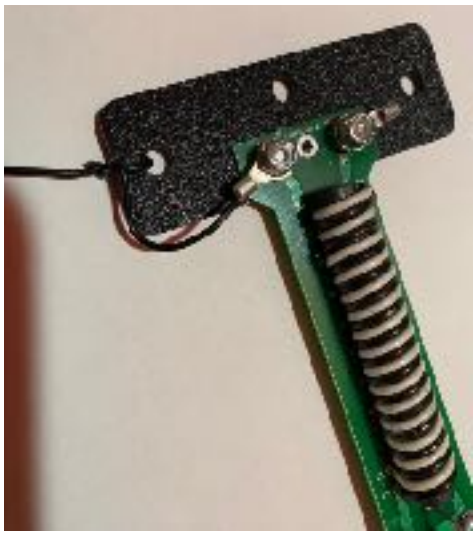


Attach the center insulator using two long machine screws, two lock washers, two ring terminals, two nuts and two lock nuts as shown. The machine screws will self tap through the circuit board.



IMPORTANT!
Both ends of the coil must be coated with an adhesive sealant to prevent the ferite rod from slipping over time. I recommend Liquid tape or Flex Seal. Just a small dab will work. Allow it to dry before proceeding.

After attaching wire and coaxial cable but before putting your antenna in the air, I recommend coating the entire balun and connections with adhesive sealant. This will provide ultimate protection from weather, sun and bugs. IMO Liquid Tape works best!



How To Install Your Antenna

1. Find a location large enough to allow for the finished length of the antenna. For 80 -10 meters, approximately 150 feet. For 40-10 meters, approximately 75 feet.
2. DO NOT PLACE THIS ANTENNA NEAR ANY POWER LINES!!!
3. Your pre-cut wire lengths are as follows:

   80-10 meters…long side 90 feet, short side 45 feet
   40-10 meters…long side 44 feet, short side 22 feet

These lengths should work with reasonable SWR and can be adjusted with an in-shack antenna tuner. You can make the wire lengths longer and then trim to adjust the resonate frequencies if you want to experiment. Note: most internal antenna tuners will work, but some installations may require an external tuner for some frequencies (external tuners can match higher SWRs).

4. The balun end of the wire must be tied to the holes in the left and right sides of the center insulator and then crimped and soldered. Once done, the nylon lock nuts may be tightened. (The shorter wire goes on the left side looking at the coil.) Attach end insulators on the ends of the wires.
5. Attach your transmission line PL-259 connector to the coax female on the balun.
6. Once assembly is complete, but before erecting the antenna, the balun and connections should be completely coated with Liquid Tape and allowed to dry 24 hours. Several coats are recommended. This will protect the coil and connections from rain/snow, solar radiation and bugs. Other coatings will work such as Flex Seal, etc., but I have found Liquid Tape very good.
7. The top hole in the center insulator is for a center support line if desired. Mount the antenna as high and straight as possible. I have had good results at 30 feet and have also used this antenna in several configurations such as inverted Vee, sloper, and even thrown over a tree (insulated wire).
8. Use only RG58 or RG8X coax, NO RG-8 as it is too heavy. USE NO MORE THAN 150 WATTS!!! For best operation, use at least 100 feet of coax between your station and the antenna. A choke is generally not needed, but if desired, it should be placed within 6 feet from the transmitter.