

Off Center Fed Vertical Dipole Antenna Design

The GigaParts DX Flagpole Antenna is an off center fed dipole. The feed line routes into the lower half of the dipole up to the feed point. Routing the feed internally minimizes coupling of the feedline with the antenna. As it is a dipole, no ground radials are needed. The off-center fed dipole works well with most popular tuners to provide a good match across the most active HF amateur bands.

Premium Quality Materials

The GigaParts DX Flagpole Antenna has been rigorously mechanically engineered for long-term durability in tough weather. We strive to use the best materials available including:

- DOM (Drawn Over Mandrel) 6063-T832 aluminum tubing for the flagpole antenna series, having a yield strength exceeding 35,000 PSI. Drawn tubing has very tight tolerances enabling the precise fitting adjacent of telescoping tubes for easy manufacturing and assembly.
- Fasteners are 304 stainless steel in common Imperial thread sizes such ¼-20. Replacement hardware will usually be conveniently available at your local hardware store.
- Bolts are secured with stainless steel nylon-insert lock nuts.
- Each antenna kit comes with a quantity of Dow Corning High Vacuum Grease for preparing joints and bolt threads for long-term reliability and ease of maintenance.

For information on the specific materials used with each model, please consult the applicable manufacturing drawings.

Assembly Steps

We recommend assembling your new GigaParts DX Flagpole Antenna in this order:

- Begin with an inspection of the shipping containers for any apparent damage
- After determining your antenna location, prepare the foundation
- At your selected assembly location, unpack and organize the parts
- Prepare and properly lubricate the antenna joints
- Assemble the antenna
- Prepare the feed line and tuner connections
- Tuner installation
- Initial tuning check
- Recommended maintenance

Delivery Inspection

We ship most domestic antenna orders via Fedex Ground unless requested otherwise. We email you a tracking number when we ship, and you should try to be at the receiving location on the scheduled delivery date to inspect and sign for the shipment.

Inspect the exterior of the shipping container to ensure there has been no damage or loss during shipment. Although rare, damage on route can occur. We always ensure shipments for full value, and we can help you with any necessary carrier insurance claims. Contact us promptly after receiving damaged items. Contact GigaParts immediately if you suspect something isn't correct.

Recommended Tools!

- Wrenches or ratchets: 7/16"
- Measuring Tape
- Flat-blade screwdrivers
- Industrial strength heat gun, to install heat shrink over the feed point and ferrites
- Tools to prepare foundation and pour cement base

Foundation Preparation

The GigaParts DX Flagpole Antenna can be mounted in the ground; in a concrete foundation; tilt-mount; tripod; or secured to a permanent structure.

The antenna comes with a 32 to 36 inch length of PVC tubing. This can be placed in the center of a concrete foundation in the ground, offering convenient, tool-free access to take the antenna down. We recommend using a concrete foundation, 18" in diameter and 36" deep for the 20-foot flagpole, and 54" deep for the 28-foot flagpole. These foundation designs are built for very high winds, some users may opt to use a direct burial foundation. This may be sufficient in areas with mild weather. In these cases, be sure to lay down the antenna before any high wind events.

Basic Antenna Foundation Preparations

- Call before digging to verify no utility lines are beneath the digging site!
- Dig an appropriately sized hole for the foundation requirements.
- Put gravel in the bottom of the hole to allow for drainage.
- Use an 18" diameter x 36" length cardboard tube to hold the concrete.
- Place the PVC tube in the center of the cardboard tube, be sure the PVC will protrude from the top of the concrete.
- Pour concrete around the PVC tube inside the cardboard tube.
- It is important to ensure that the PVC tube is vertical. To check this, insert a section of the flagpole into the PVC and place a long level on the side, it should be vertical. Alternately, a plumb can be used to check that it is vertical. Minor adjustments can be made when the concrete is first poured.
- Wait several days for the concrete to set up. Concrete reaches full strength in about 30 days.
- The foundation is now ready for use.

Find a Suitable Assembly Location

It is best to assemble the antenna near the installation site. We recommend using sawhorses or a temporary work surface at waist level to aid in keeping track of parts and pieces

- Keep tubing sections and fasteners clean for easiest assembly
- Prepare parts, tools, drawings, supports, and test equipment (antenna analyzer or VNA) before assembly

Antenna Joint Preparation

Prepare each aluminum joint (where one tube 'telescopes' into another) by rubbing off the aluminum oxidation with a mildly abrasive scrubbing pad, then spread a thin layer of the anti-oxidant compound (supplied) immediately after. This is to ensure long-term electrical contact between the mast sections and to prevent corrosion at the joints. Aluminum can oxidize in just a few hours so be sure to apply the anti-oxidant compound right away after preparing the joint. Coat the threads of each fastener with the anti-oxidant compound to help prevent galling.

Assembling the Antenna

Assemble the antenna tubing sections. Clean and grease each joint as described above. Bolt each section together. Use the drawing to ensure the sections are in the correct positions.

Caution - Do not over tighten bolts as this may deform the tubing and can also break the bolts. Ensure that each nut and bolt is securely tightened.

If you purchased the flag kit, install the truck at the top of the flagpole. Secure it using the set screw. The truck is threaded for ½"-13 decorative tops, not provided with the kit. Thread the rope through the truck pulley and tie it to length for the flag and flag clips.

Preparing Feed Line and Tuner Connections

The GigaParts DX Flagpole Antenna comes standard with a custom designed current balun located where the feedline exits from the antenna base. The balun connects the feedline to the antenna feedpoint and decouples the antenna from feedline.

Be sure to waterproof the feedline from the shack to the antenna's feedline. We recommend using hand moldable plastic **Coax-Seal** (GigaParts SKU: ZCB21018). We also recommend covering the ferrite bead balun with the included industrial heat shrink. Note that the heat shrink comes with a spiral of heat-activated glue on the inside for extra waterproofing

Antenna Tuner Installation

For best results mount an outdoor rated tuner directly to the feedline provided with the antenna. The tuner can only correct high SWR between the radio and the tuner, so between the tuner and the antenna, the SWR will be high in the feedline, with an associated loss per foot. Thus the antenna will perform best if the distance between the tuner and feed point is minimized.

The tuner should be mounted up off the ground with the feedline exiting the bottom of the tuner, to minimize moisture ingress into the cable connectors. The connectors should also be covered with **Coax-Seal** to keep moisture out.

Some radios have a built-in tuner. This setup is not recommended. Using a tuner at the base of the vertical (as close as possible) is the **ONLY** way to have real performance. Because of the great number of tuners available, it is not practical for us to recommend any individual brand for your installation. Consult the owner's manual for your tuner setup details. Most user problems with high SWR are because of improper tuner setup or use, or a malfunctioning tuner.

Initial Tuning Check

After the antenna, automatic tuning unit, and radio are connected, run the tuner on each band. Record the SWR in your station notebook and be sure it is within acceptable limits. If any band exhibits unacceptably high SWR after tuning, try to re-tune. If that does not work, double check that the tuner is set up properly and has sufficient power supplied.

Recommended Maintenance of your Antenna

Periodically check the VSWR after tuning on each band and record the result in the station notebook. One month following installation, check the coaxial cable and feed point connections to be sure hardware and electrical connections have not loosened due to wind or thermal cycling.

Technical Support

If you have questions about your antenna, or if you experience difficulties during the assembly or installation, contact GigaParts at (256) 535-4442.