

ISOPOLE 144 ANTENNA

Assembly Instruction Sheet

The broadband IsoPole 144 Antenna represents a breakthrough in vertical VHF base station antenna design. The IsoPole offers superior decoupling, a predictable radiation pattern, and the maximum gain possible for an antenna of this length. Each IsoPole is factory-tuned and requires only field adjustment of the element lengths. In addition, the IsoPole's rugged construction will withstand harsh weather conditions.

The IsoPole should be mounted on a low cost, standard 1.25 inch TV mast, which is available at most local hardware stores, TV shops, and electronics stores (including Radio Shack). Any mast with an inside diameter of at least 0.75 inches (to accommodate a PL-259 connector) and an outside diameter of no more than 1.275 inches, is suitable. The mast must be at least eight feet long. *NOTE: The IsoPole does not impose any maximum length restrictions on the mast, however, it should not be any longer than is practical for its strength. (The 10-foot Rohn galvanized steel mast is an excellent choice.)*

IsoPole 144 Assembly (Use gloves to avoid sheet metal cuts)

1. Slide the lower cone (with decal) down over the top of the mast; position the cone " L_3 " inches from the top of the mast (Figure 1).*
 2. Slide a cone stabilizing disc up from the bottom of the mast, and position it inside the lower cone. Once locked in position, secure the cone with one of the large stainless steel hose clamps.
 3. Slide the second cone stabilizing disc down over the top of the mast to a position just above the lower cone. Slide the upper cone a distance of " L_1 " inches down the mast (Figure 1).*
 4. Position the cone stabilizing disc inside the upper cone to lock it in position. Secure the cone with the remaining large stainless steel hose clamp.
 5. Pass a feedline (with a PL-259 coax connector attached) through the mast and fasten it to the recessed connector in the base of the upper element section. It is recommended that you use RG-8 or RG-213 coax if the feedline is more than 20 feet long.
 6. Slide the base sleeve of the upper element tube over the top of the mast. Secure the tube with the three stainless steel screws.
 7. Insert the tip rod into the upper element tube. Adjust the equal lengths (upper element/upper cone) of the " L_2 " section for the desired frequency (Figure 2). Secure the joint of the upper element tube with the small stainless steel hose clamp. For added weather protection, put silicon grease or petroleum jelly in the joint and wrap it with electrical tape. Be sure to tighten the small hose clamp over the tape and joint.
- * If the mast is painted, scrape the area where the top of the cone touches the mast. Regardless of whether or not the mast is painted, spread silicon grease or petroleum jelly over this area to prevent corrosion. Then, spiral-wrap electrical tape around the mast starting two inches above the neck of the cone and ending just below the stress relief holes. Be sure to position the large hose clamp over the tape and cone neck before tightening.

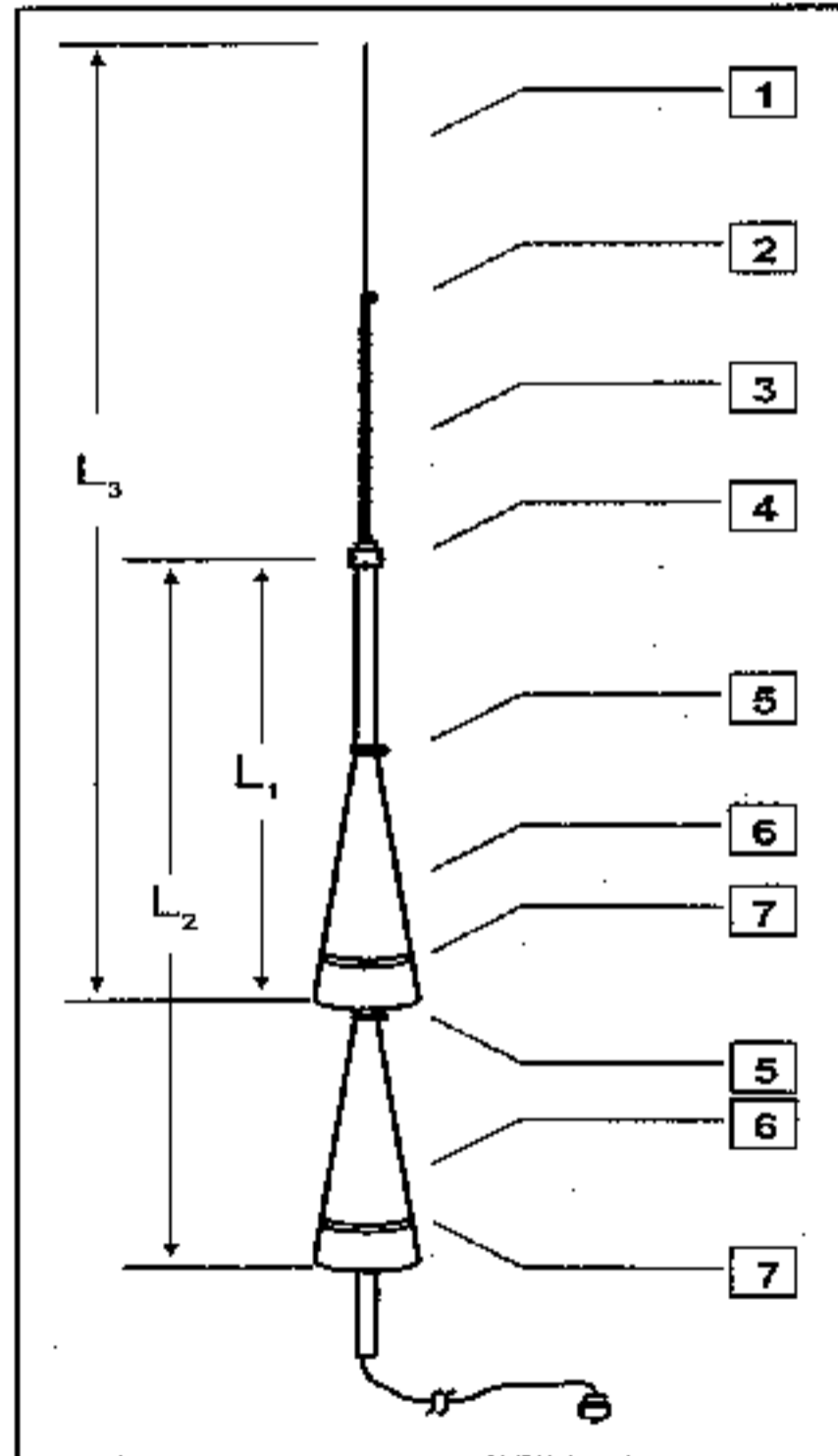


Figure 1. IsoPole 144

WARNING: Mount the IsoPole as high as possible to clear any surrounding objects. Be sure to mount the IsoPole so it will neither touch, nor be able to fall into, nearby power wiring.

NOTES: (1) If you have an SWR bridge available, you can tune the IsoPole to an exact frequency. To decrease the resonant frequency, simply lengthen the L_1 section by extending the upper element and lowering the cones equally. To increase the resonant frequency, shorten the L_1 section. (2) The IsoPole is DC-grounded. A short between the upper element and the mast should be evident with an ohmmeter.

IsoPole 144			
For MHz	L_1	L_2	L_3
137	55 in. 1.40 m	80.5 in. 2.04 m	110 in. 2.79 m
146	50 in. 1.27 m	75.5 in. 1.92 m	100 in. 2.54 m
151	48 in. 1.22 m	73.5 in. 1.87 m	96 in. 2.44 m
153	47 in. 1.19 m	72.5 in. 1.84 m	94 in. 2.39 m
158	44 in. 1.12 m	69.5 in. 1.77 m	88 in. 2.24 m

Figure 2. Frequency Chart

Tools Needed

- Six-foot Tape Measure
- Large Flatblade Screwdriver
- Medium Flatblade Screwdriver or .25 in. Nut Driver
- Flat File (for paint removal)
- Silicon Grease or Petroleum Jelly
- Black Electrical Tape

Parts List (refer to Figure 1)

1. Tip Rod
2. Small Stainless Steel Hose Clamp
3. Upper Element Tube and Matching Network Assembly
4. (3) 0.25 in. x 20 in. Stainless Set Screws
5. (2) Large Stainless Steel Hose Clamps
6. (2) Decoupling Cones
7. (2) Expanded Polyethylene Cone Stabilizing Discs



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