

---

# AEA IsoPole™ 144

## Assembly Instruction Sheet

---

The AEA IsoPole Antennas represent a highly superior vertical VHF base station antenna design. The IsoPoles offer superior decoupling for a predictable radiation pattern and the **MAXIMUM GAIN POSSIBLE FOR THE LENGTH OF THE ANTENNA**. The mechanical construction offers a rugged design which will withstand the harshest weather.

Each IsoPole is factory tuned and only requires adjustment of the element lengths in the field.

The IsoPole antennas were designed to mount on a low-cost, standard 1-1/4 inch TV mast, available at most local hardware stores, TV shops or electronics stores (including Radio Shack). Any mast with an inside diameter of at least 0.75" (to pass PL-259 connector) and no more than 1.275" outside diameter will be suitable. The maximum mast length is unlimited so far as the IsoPole is concerned, but should be no longer than good engineering practice dictates for the strength of the material used (The 10 ft. Rohn heavy-duty galvanized steel mast is an excellent choice.). The minimum mast length is approximately 8 feet for the IsoPole 144.

### ISOPOLE 144 ASSEMBLY (use gloves to avoid sheet metal cuts)

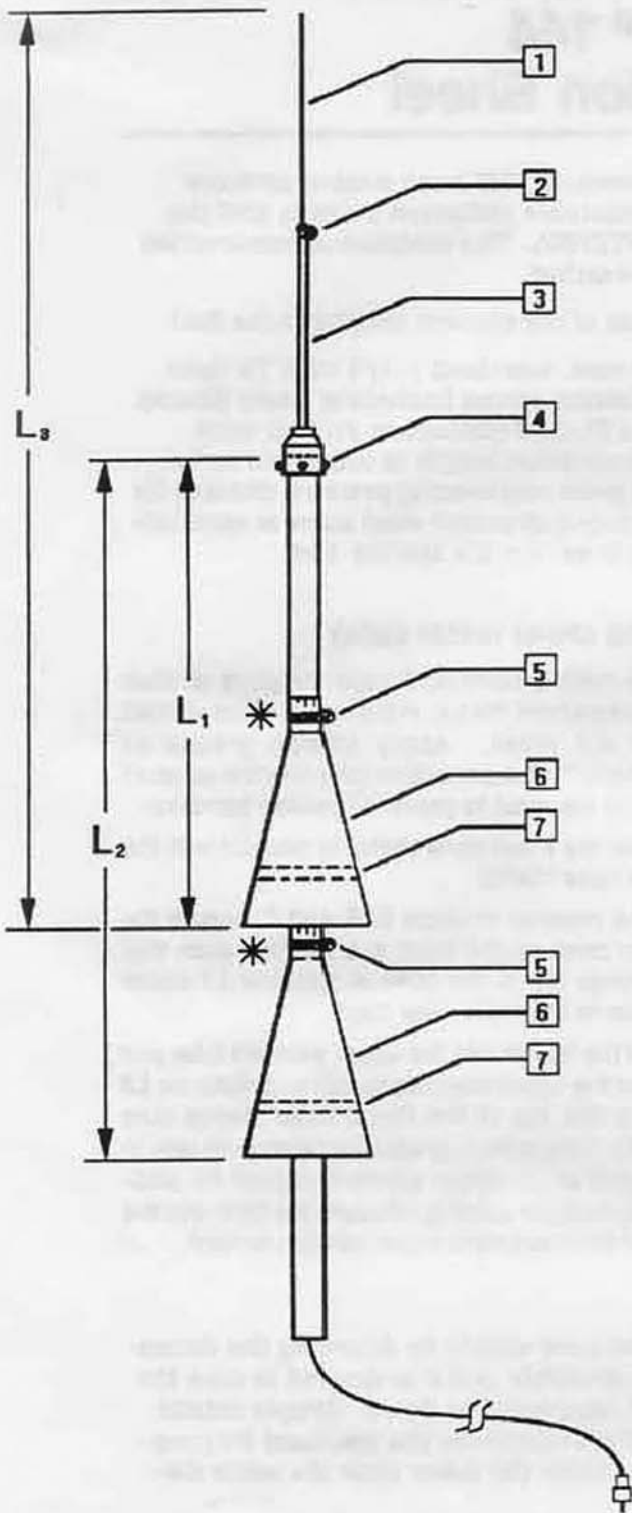
1. Slide the lower cone (the one with the decal) over the top of the mast and loosely secure with one of the large hose clamps about four feet from the top of the mast.
2. Similarly, slide the upper cone over the top of the mast and loosely secure with the other large hose clamp just above the lower cone.
3. Pass the feedline (with a PL-259 coax connector attached) through the mast and attach to the recessed connector in the base of the upper element section. It is recommended that RG-8 or RG-8X be used if the length of the coax is more than about 20 feet.
4. Place the base sleeve of the upper element over the top of the mast and secure symmetrically in place by tightening the three set screws.
5. Slide the lower cone into position so that the lower edge is positioned a distance  $L_2$  below the top of the metal sleeve. See the chart on the reverse.
6. If the mast is painted, scrape the paint off from the area where the top of the cone makes contact with the mast. Apply silicon grease or Vaseline™ type petroleum jelly over the scraped area of the mast to prevent possible corrosion.
7. Secure the lower cone tightly in position with the large hose clamp.
8. In like manner to steps 5, 6 and 7, secure the upper cone on the mast in a position such that the lower rim of the cone is distance  $L_1$  below the top of the mast. See chart.
9. Insert the tip rod into the upper element tube and adjust the upper element length to a distance  $L_3$  above the top of the metal base sleeve (see chart). Use silicon grease or petroleum jelly in the joint of the upper element section for additional weather sealing. Secure the joint with the small stainless steel hose clamp provided.

**NOTE:** The IsoPole is a broad band antenna and is easy to tune simply by following the dimensioning instructions above. However, if an SWR bridge is available and it is desired to tune the IsoPole exactly to a given frequency, it is possible (but not necessary) to do so. Simply extend  $L_3$  (by extending the upper element and upper cone equally) to decrease the resonant frequency and decrease  $L_3$  for increasing the resonant frequency. Move the lower cone the same distance the upper cone was moved.

**WARNING:** The antenna should be mounted so as to clear surrounding objects as much as possible. A high location is most desirable. Be sure to mount the antenna so it will neither touch nor be able to fall into nearby power wiring.

Advanced Electronic Applications  
A Division of Tempo Research Corp.  
1221 Liberty Way  
Vista, CA 92083  
(760) 598-9677

part no. 040-902  
© AEA, Inc. 1992



IsoPole 144			
For MHz	L1	L2	L3
137	55" 1.40m	80.5" 2.04m	110" 2.79m
146	50" 1.27m	75.5" 1.92m	100" 2.54m
151	48" 1.22m	73.5" 1.87m	96" 2.44m
153	47" 1.19m	72.5" 1.84m	94" 2.39m
158	44" 1.12m	69.5" 1.77m	88" 2.24m

#### Parts List:

1. Tip Rod
2. Small Stainless Steel Hose Clamp
3. Upper Element Tube and Matching Network Assembly
4. 1/4" x 20 Machine Screws (qty. 3)
5. Large Stainless Steel Hose Clamp (qty. 2)
6. Decoupling Cone (qty. 2)
7. Expanded Polyethylene Cone Stabilizing Disc (qty. 2)

\*Scrape or file away any paint where the decoupling cone contacts the mast.

**NOTE: The IsoPole is DC grounded. A short between the upper element and the mast should be evident with an ohmmeter.**

**Equipment Needed:** Mast, recommend use of low-cost steel 1-1/4" TV mast available at most hardware, TV or electronics stores. Mast must be a minimum of 8' long for 137 MHz (no maximum length). Minimum inside diameter is 0.75" and maximum outside diameter is 1.275".

**Tools Needed:** Accurate measuring stick or tape; Flat-bladed screwdriver; nut drivers: 1/4" and 5/16"; flat file (for removing paint from mast); silicone grease or petroleum jelly.