ASP816 and ASP817

Three- or Five-Element Yagi Antenna
138-174 MHz, VHF High Band

Assembly and Mounting Instructions

PRODUCT DESCRIPTION

The three-element ASP816 and five-element ASP817 yagi antennas are designed to provide high directivity and high front-to-back ratio in the 138-174 MHz frequency band. This antenna is capacitor-fed; no DC continuity exists between the center of the coax connector and any other part of the antenna.

ASSEMBLY AND INSTALLATION

1. After removing the antenna from the shipping box, inspect it to be sure all parts are on hand, and that there is no physical damage.
2. Inspect the antenna feed assembly output connector to ensure that it mates with the end of your station transmission line. Do not remove any connector or cable from the antenna feed assembly; they are all a part of your antenna.
3. Verify that the antenna is tuned to the same frequency band as the radio system with which it is to be used.

ASSEMBLY OF ELEMENTS ONTO SUPPORT BOOM

All elements should be assembled before the antenna is mounted to the mast or tower leg. For reference, the reflector element is the longest element of the antenna.

1. Locate the proper element spacing by measuring and marking the boom. Start with the director by placing it two inches from the end of the boom. Refer to Figures 1 and 3 for the ASP816, Figures 2 and 4 for the ASP817, and Table 1 for dimensions.
2. Using a hacksaw or tube cutter, cut the director element, the driven element and the reflector element to the desired frequency length. To determine the lengths, refer to the cutting charts shown in Figure 5 for the ASP816 and Figure 6 for the ASP817.
3. Slide the cap plugs onto the end of the elements after cutting.
4. Using the gamma clamps and hardware provided, assemble the driven element and gamma feed to the boom (see Figure 10 on page 4).

Warning!

Installation of this product near power lines is *dangerous*. For your safety, follow the installation procedures.

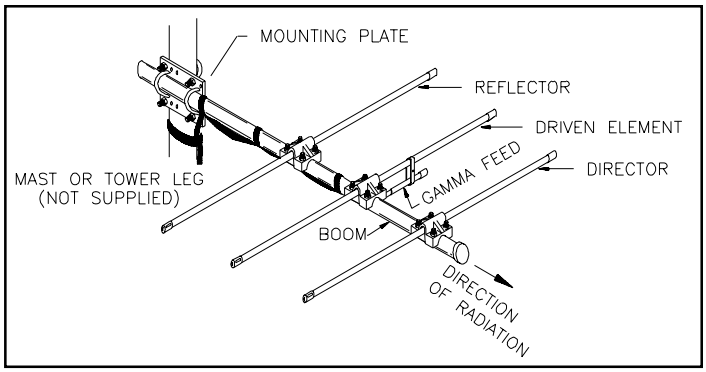

Figure 1: Assembled ASP816 Three-Element Yagi

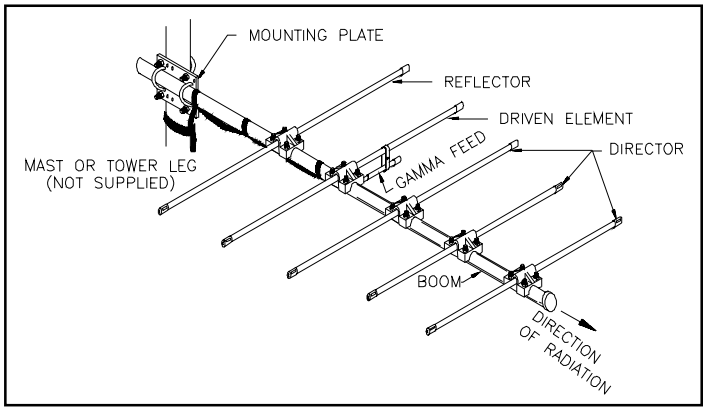

Figure 2: Assembled ASP817 Five-Element Yagi

5. Before securing the gamma feed, set the capacitor tube and gamma clamp lengths. Refer to Figures 7, 8, and 9 to determine the dimensions.
6. Secure the element and gamma feed; make sure the element is equal in length on either side of the boom. If finer tuning is required, refer to the section on Tuning After Final Installation.
7. Using the clamps and hardware provided, assemble the directors and reflector to the boom -- make sure the elements are equal in length on either side of the boom.
8. Slide the plugs into the ends of the boom.
9. Mount the assembled antenna to the mast or tower leg using the provided mounting plate and hardware (see Figure 11).
10. Position the mounting plate so that the edge is 3/4" from the end of the boom. *Do not shorten the boom*; use the full length supplied.

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MOUNTING INFORMATION

1. The three- or five-element yagi antennas come complete with heavy-duty mounting hardware for mounting to a mast or tower leg (see Figure 11). The antennas can be mounted vertically or horizontally, as shown. When mounted, all elements should be clear of any guy wires or other metal objects.

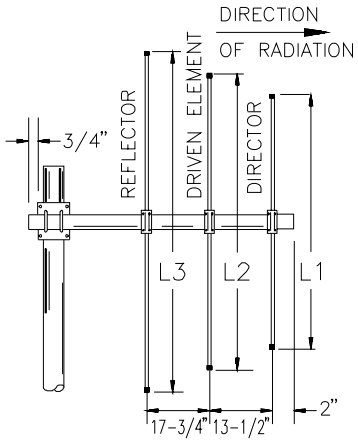
   Note: For horizontal polarization, the drain hole in the capacitor tube must face downward. For vertical polarization, position the gamma tube upward
2. The mounting plate kit , part no. ASP617, shown in Figure 11, consists of two U-bolts, four hex nuts, four lock washers and a mounting plate. It is designed to secure any combination of two intersecting pipes measuring 1 to 2-7/8 inches OD. It can also be used to mount an intersecting cross pipe measuring up to 2-7/8 inches OD to an angle iron tower leg measuring up to 2-1/2 inches or to a round tower leg measuring up to 4 inches OD.
3. Determine both the direction of desired maximum range and the tower leg onto which the antenna is to be mounted. Then, mount the antenna to the tower using the hardware provided.
4. Orient the antenna in the desired direction and tighten the mounting clamp securely.
5. A check of the antenna VSWR as measured at the antenna is recommended at this time. Note this measurement carefully and record it for future reference.
6. After checking the VSWR at the antenna, connect the transmission line to the antenna. The cable at the antenna is fitted with a type "N" male connector. Make the connection snug but do not apply heavy force with pliers.
7. To avoid moisture problems, carefully wrap Vapor-Wrap around the connection, working the compound into all cracks and smoothing over the outer jackets of the transmission line. Failure to waterproof the cable connection will result in improper operation of your antenna. Secure the feeder cable and transmission line to the tower in the best position to avoid physical damage to the cable.
8. After the antenna and transmission installation has been completed, a careful visual check should be made to ensure that:
   - All mechanical connections have been made.
   - The antenna is mounted on the proper leg of the tower with sufficient physical clearance.
   - The radiating element is mounted with the "UP" arrow in the proper position.
   - All connections have been carefully wrapped with Vapor-Wrap to prevent moisture problems.

TUNING AFTER FINAL INSTALLATION

If required, a thru-line wattmeter or VSWR bridge can be used to adjust the gamma for minimum reflected power at the operating frequency.

1. Verify that the gamma capacitor tube and gamma clamp are set to the approximate dimensions shown in Figures 7, 8, and 9.
2. Adjust the capacitor to minimum VSWR by telescoping the tube up or down.
3. Move the gamma clamp on the driven element.
4. Adjust the capacitor tube for minimum VSWR.
5. Securely tighten all hardware on the gamma feed and driven element clamps.
6. Check the VSWR again to verify the adjustment.

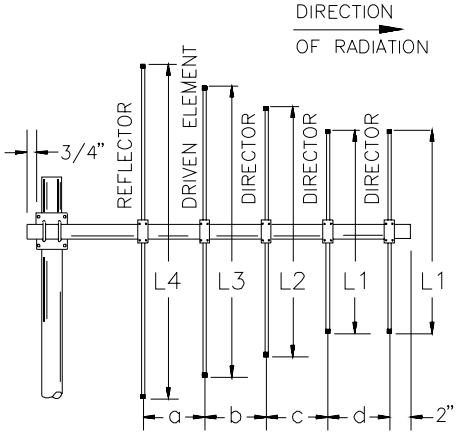
Fig. 3: ASP816 Three-Element Yagi



MHz	"a"	"b"	"c"	"d"
138-160	17-3/4"	13-1/2"	17-3/4"	17-3/4"
160-174	16"	12-1/8"	16"	16"

Table 1: Element Spacing

Fig. 4: ASP817 Five-Element Yagi



Figures 3 and 4; and Table 1: Element Spacing and Lengths

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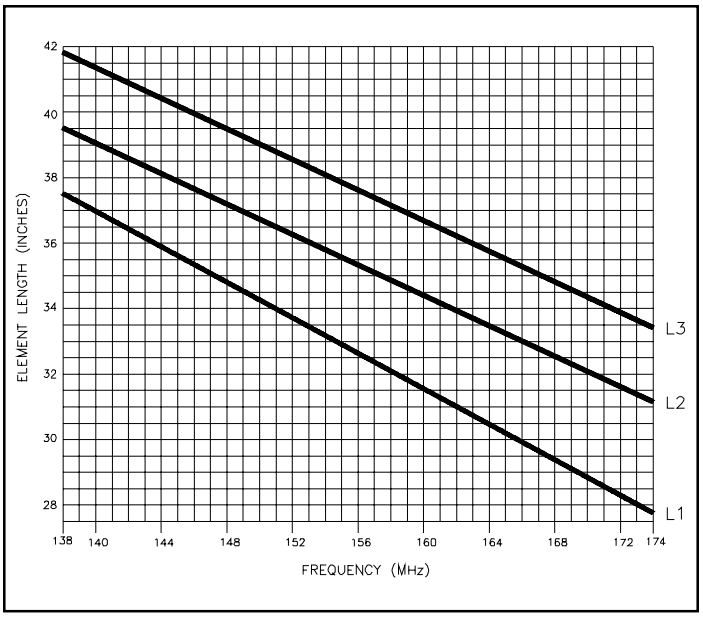

Figure 5: ASP816 Three-Element Cutting Chart

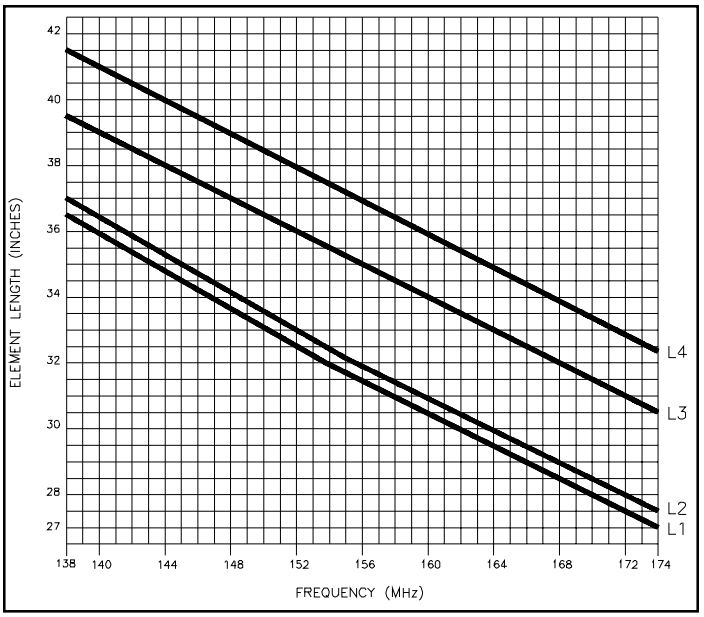

Figure 6: ASP817 Five-Element Cutting Chart

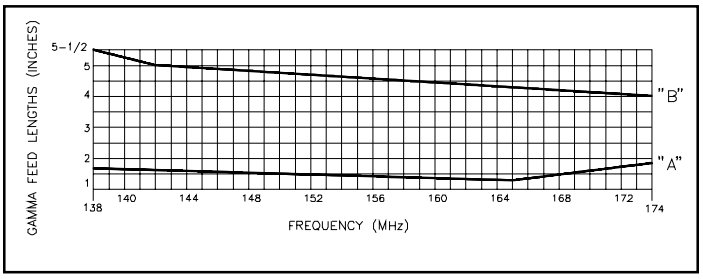

Figure 7: ASP816 Three-Element Gamma Feed Lengths

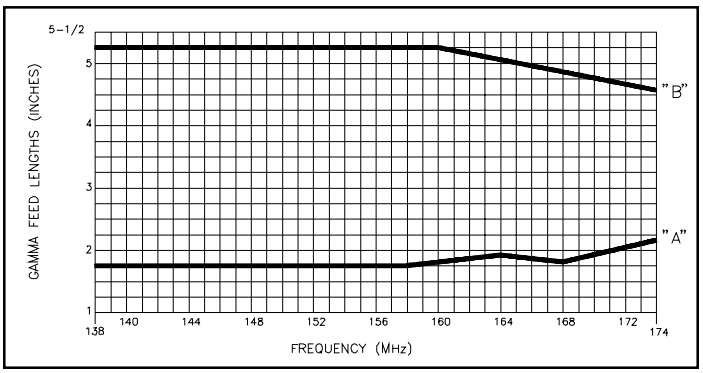

Figure 8: ASP817 Five-Element Gamma Feed Lengths

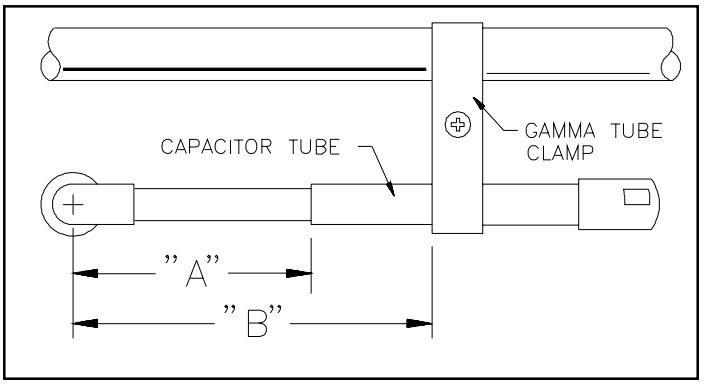

Figure 9: Gamma Feed Lengths

Verify that the gamma capacitor tube and gamma clamp are set to the approximate dimensions shown in Figures 7, 8, and 9.

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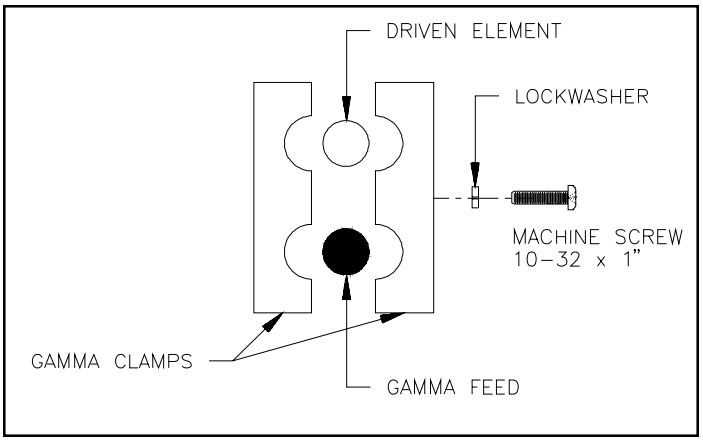

Figure 10: Gamma Clamp

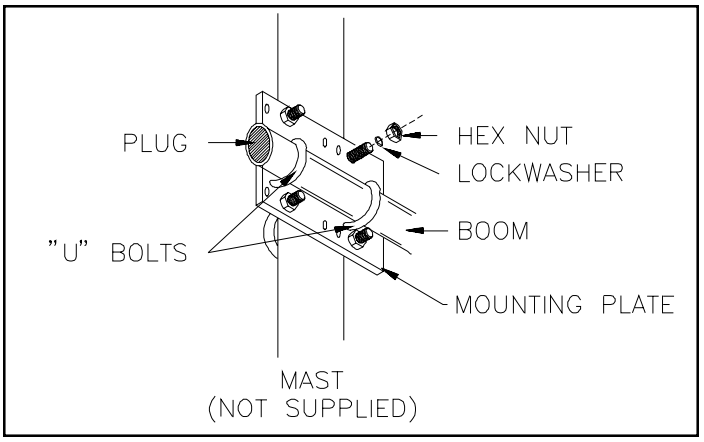

Figure 11: Mounting Clamp Kit (Part no. ASP617)

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