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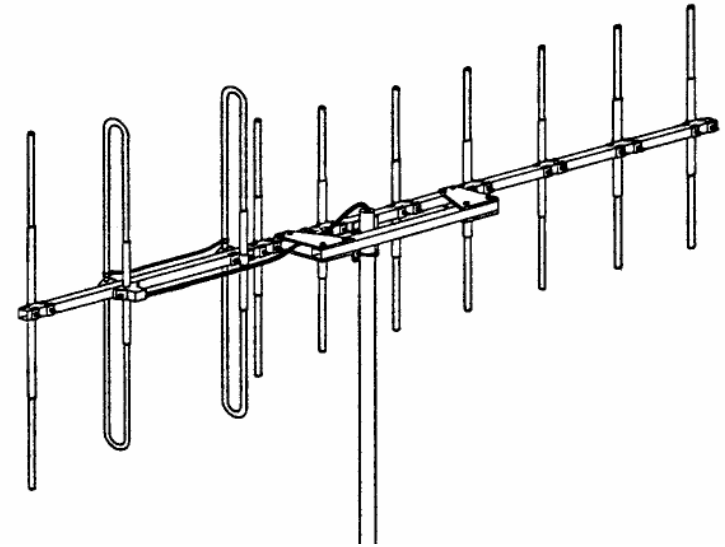
390474 Rev. M

# INSTRUCTION BOOKLET

## Y102B-VH

Vertical and Horizontally Mountable

### RUGGEDIZED YAGI ANTENNA



BY

TACO<sup>TM</sup>)

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**Please Note:** A qualified structural engineer should be consulted prior to mounting an antenna on a tower or support structure.

## **1-GENERAL DESCRIPTION**

The Y102B-130V/Y102B-130VS is a ten element yagi covering the frequency range 118 MHz - 136 MHz. The antenna is designed for vertical polarization and is supplied with a fiberglass support mast and coupling clamp for direct assembly to a standard metal mast.

## **2-THEORY OF OPERATION**

The driven section of the Y102B-130V/Y102B-130VS consists of two folded dipoles interconnected and phased by two parallel 1/4 in. (.64 cm) diameter aluminum transmission lines to produce a unidirectional radiation pattern. The balanced terminals of the rear dipole are connected through an internal cable to an "N" type connector mounted at the grounded side of the dipole. This internal "balun" effectively chokes off the surface currents normally associated with a balanced feed and eliminates transmission line radiation. The inherent directivity and front to back ratio of the twin dipole system is increased by a train of seven parasitic directors spaced in front of the dipoles and a single parasitic reflector at the rear of the antenna. The entire antenna is maintained at d.c. ground potential so that a ground wire connected to the cable fitting will drain off static build-up and provide lightning protection.

## **8-SAFETY PRECAUTIONS**

To protect your antenna and receiver from lightning damage, you should ground your equipment.

1. To ground the antenna attach a ground wire under the head of the 3/8-16 x 2 1/4 in. long hex head screw at the mounting casting (see Figure 4). Run the ground wire down the mast to a ground rod driven at least 4 feet into the ground. If it is preferred to run the ground wire inside the mast, drill a hole through the mast cap. Run the ground wire through the hole and weatherproof with RTV or equivalent compound.
2. Keep the antenna and cable a safe distance from any power lines.

### 7-DOWNLEAD

1. Slide the supplied grommet over the end of the cable and back approximately 3 feet from the end of the cable. RG-213/U cable is recommended.
2. Thread the connector onto the dipole fitting.
3. Secure the cable to the mast side of the crossarm about half way between the dipole fitting and the mast with a cable tie (supplied). See Figure 7.
4. Feed the cable through the top of the dielectric mast and insert the grommet into the top of the mast

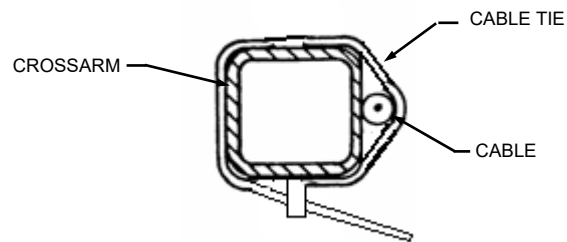


FIGURE 7

### 3-ANTENNA ASSEMBLY

The dipoles and elements are match marked to the supporting crossarm. The dipole insulators and parasitic elements mount to the same side of the crossarm.

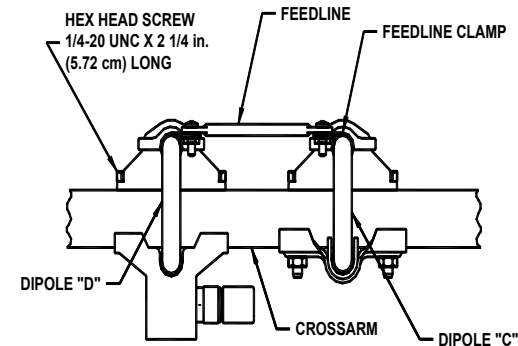


FIGURE 1

1. (For Y102B-130VS only) Assemble sectioned crossarms together, by inserting front crossarm into the rear crossarm. Use 1/4-20x1 3/4" hex head bolts.
2. Next, starting with dipole "C" assemble dipole "C" and "D", to their marked locations on the crossarm as shown in Figure 1.. Use the 1/4-20 x 2 1/4" hex head screws.
3. The feedlines connecting the dipoles "C" and "D" are attached as shown in Figure 2 using the four feedline clamps and the #10-32 x 5/8" long round head screws. The feedlines must have a center to center spacing of 3/4 inch as shown in Figure 2. Attach the feedlines to the top of the feedline clamps. There must be bare metal to metal contact between the feedlines and the dipoles.

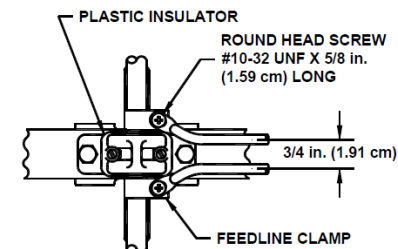


FIGURE 2

- The parasitic elements are mounted onto the crossarm at its match-marked location with 1/4-20 x 2 1/4" long hex head screws, as shown in Figure 3. Use a reinforcing clip at each screw location.

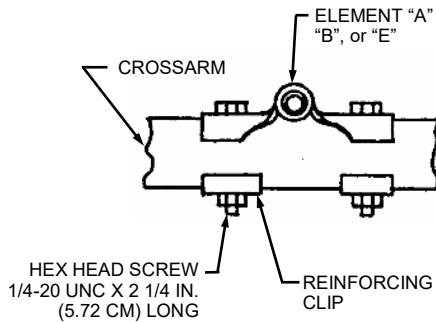


FIGURE 3 ANTENNA MOUNTING

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The antenna mounting clamp is assembled to the crossarm at the unmarked holes between the fifth and sixth parasitic element from the front of the antenna.

- Assemble the mounting casting to the dipole-fitting side of the crossarm as shown in Figure 4, using the mounting clamp and the 3/8-16 x 2 1/4" long hex head screws.
- Loosely assemble the two 3/8" diameter U-bolts into the mounting casting.
- Secure the capped end of the dielectric mast (supplied) so that the top is a couple of inches above the crossarm.

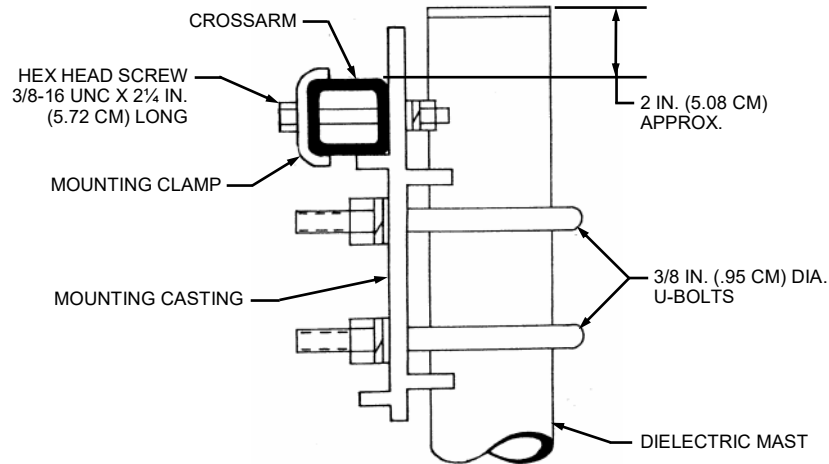


FIGURE 4

### 5-BRACE ASSEMBLY

The crossarm brace is attached to the mast side of the crossarm (see Figure 5) using eight 1/4-20 x 2 1/4" long hex head screws.

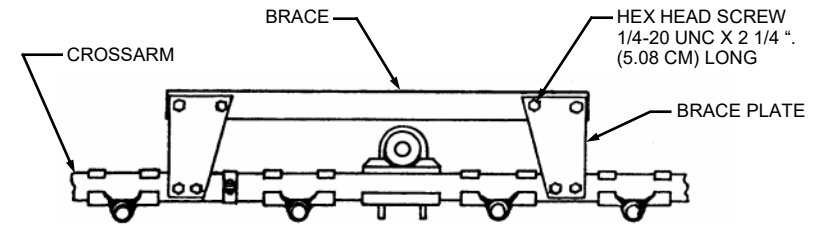


FIGURE 5

### 6-MOUNTING ASSEMBLY

- Install 6 Clamping Bolts and Hex Nuts to the antenna base per Fig. 1.
- Slide the Antenna Base onto the Mounting Mast.
- Tighten the Clamping Bolts while keeping antenna plumb and centered on the Mounting Mast.
- Tighten Hex Nuts against the antenna base.

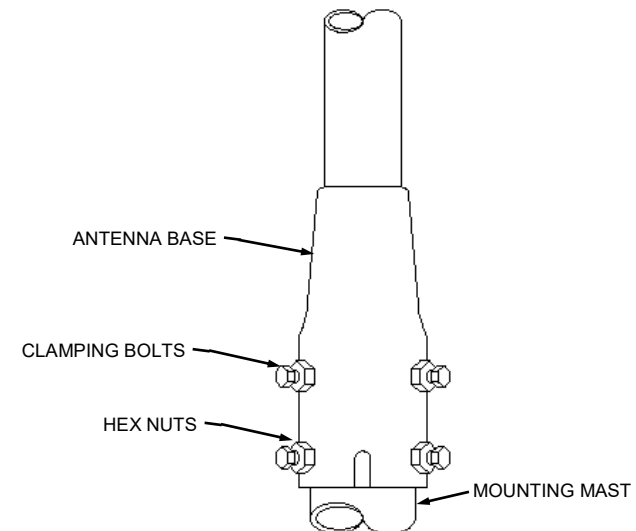


FIGURE 6