



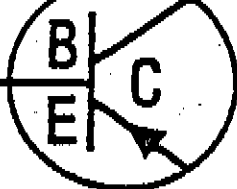
Instructions

Model 2MCV-5

Butternut Electronics Co's Instruction Manual for:
Model 2MCV-5 — 1984

NOTE:

The 2MCV-5, 2 Meter Collinear Vertical antenna previously manufactured by Butternut Electronics Co. has been discontinued. Parts are no longer available for these antennas. This instruction is made available as a reference.



ASSEMBLY AND INSTALLATION INSTRUCTIONS: MODEL 2MCV-5 ("SUPER-TROMBONE" VERTICAL ANTENNA FOR 144 to 160 MHZ) Copyright 1984--Butternut Electronics Co.

Read instructions carefully before proceeding. During assembly and installation take extreme care to avoid contacting power lines with the antenna or with other conductors. Do not install the antenna in any place where it may come into contact with power lines in the event of structural failure or normal flexing after installation. Such contact may result in damage to property, bodily injury, OR EVEN DEATH!

The only tool required for assembly is a screwdriver, although nutdrivers of the proper size will greatly facilitate assembly. If a screwdriver is used be careful not to hold the work immediately opposite the blade as a slip can cause painful injury to the hand or the wrist.

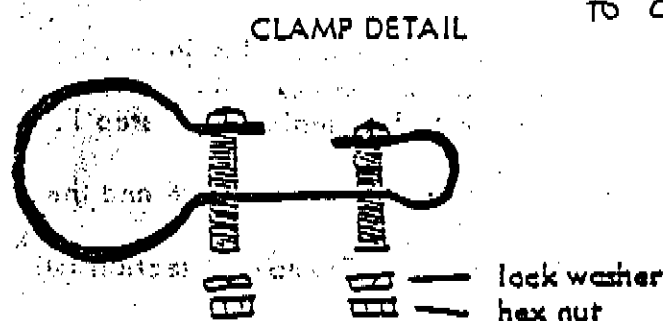
Study the diagrams and proceed as follows. Note that all lengths given in the diagrams are to be measured from the flange of the SO-239 connector on sub-assembly (A):

1. Install one of the flat plastic spacer-insulators (F) on tube (B). To start the tube through the hole place the insulator on a flat surface and force one end of the tube through the hole. Slide the insulator to the center of tube (B).
2. Prepare "Trombone" clamp (G) by installing the #8 hardware as shown in the diagram. Slide clamp (G) onto tube (B).
3. Install the second spacer-insulator (F) in the same manner as in step 1. Insert the unslotted end of tube (B) into the upper end of sub-assembly (A), align the screw holes and fasten securely with a #8 x 1-1/4" bolt, lockwasher and hex nut.
4. Install "Trombone" section (D), sliding its ends upward through the lower spacer-insulator. Note that the longer end of the rod will pass through the outer hole of the spacer.
5. Slide the short end of section (D) into clamp (G) and secure all clamp hardware with clamp (G) set at the position indicated in the diagram. Approximately 1 inch of the short end of section (D) should extend above the upper edge of clamp (G).
6. Slide the unslotted end of tube (C) into the upper end of tube (B). Align the holes in tubes (B) and (C) and fasten securely with a #8 x 1" bolt, lockwasher and hex nut.
7. Install one of the flat spacer-insulators (L) on tube (I) using the procedure indicated in step 1. The slotted end of tube (I) should point upward.
8. Prepare clamp (K) using the #8 hardware and slide it onto tube (I). Position the clamp and the spacer-insulators as shown in the diagram.
9. Install the second spacer-insulator (L) on tube (I) and attach the second "Trombone" section (D) as in steps 4 and 5.
10. Position the small hose clamp on the slotted end of tube (I), insert the uncapped end of tube (J) and adjust the length of (J) to the dimensions given.
11. Slide the lower end of tube (I) into the upper end of tube (C), align the holes and fasten securely with a #8 x 1" bolt, lockwasher and hex nut.
12. Pass the two radial rods (E) through the holes just above the SO-239 connector on sub-assembly (A). Center the rods so that equal lengths extend from the tubing in all four directions. Secure the radial rods with the two set-screws opposite each rod. Tighten only enough to hold the rods firmly in place.
13. The antenna may now be mounted on a 1-inch O.D. mast that will slide into the 1-1/8-inch O.D. lower tube of sub-assembly (A). The larger hose clamp may then be tightened around the slotted lower end of (A) to hold the antenna in place. Alternatively, the lower section of (A) may be telescoped into a section of standard 1-1/4-inch O.D. steel TV mast (.058-inch wall) and a hole drilled through both pieces so that a bolt or self-tapping screw may be used to secure the installation.
14. Attach a 50-ohm coaxial feedline fitted with a PL-259 plug to the SO-239 connector of sub-assembly (A). For best results a good grade of cable should be used, preferably RG-8/U or some other variety that has acceptably low loss characteristics in the VHF range. Smaller sizes of cable (e.g., RG-58/U) should be avoided in all but very short runs.
15. Check SWR. The gamma-match assembly (H) is pre-set for reasonably low SWR over the 146-148 MHZ range, so no adjustment of any kind is likely to be required. If, however, the lowest possible SWR at some particular frequency is desired, loosen slightly the outer portion of the gamma clamp so that the small capped tube is free to slide along the insulated wire coming from the SO-239 connector. The amount of overlap between this tube and the wire determines the amount of capacitance in the gamma circuit, and by varying the overlap in

increment of approximately 1/4 inch it should be possible to arrive at some setting that produces an SWR of no greater than 1.2:1 or so. If such a setting cannot be found, loosen the other end of the gamma clamp, and reposition it along the larger tube before attempting another series of capacitance adjustments with the smaller tube. Changes in the position of the gamma clamp along the larger tube should also be made in increments of 1/4 inch or so. It should be remembered that line losses resulting from an SWR of, say, 1.5 are not significantly greater than losses in the same line when it is perfectly matched to the antenna.

PARTS LIST--MODEL 2MCV-5

- (A) base sub-assembly, including SO-239 coax connector and set-screws for radials
- (B) 3/4-inch tube
- (C) 5/8-inch tube
- (D) Two "Trombone" sections
- (E) Two radial rods
- (F) Two plastic spacer-insulators with holes for section (B)
- (G) Lower "Trombone" clamp (see detail below)
- (H) Gamma match (part of sub-assembly A)
- (I) 1/2-inch tube, upper end slotted
- (J) 3/8-inch tube with end cap
- (K) Upper "Trombone" clamp (see detail below)
- (L) Two spacer-insulators with holes for section (I)



HARDWARE PACKET

- 1--8-32 x 1-1/4 in. machine screw (bolt)
- 2--8-32 x 1 in. machine screw
- 4--8-32 x 3/4 in. machine screw
- 7--8 lock washers
- 7--8 hex nuts
- 1--large hose clamp
- 1--small hose clamp

CENTER OF CLAMP

