



Instructions

Model 2MCV

Butternut Electronics Co's Instruction Manual for:
Model 2MCV — 1978
Model 2MCV Rev A — 1982

NOTE:

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


BUTTERNUT ELECTRONICS CO.

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ASSEMBLY AND INSTALLATION: MODEL 2MCV

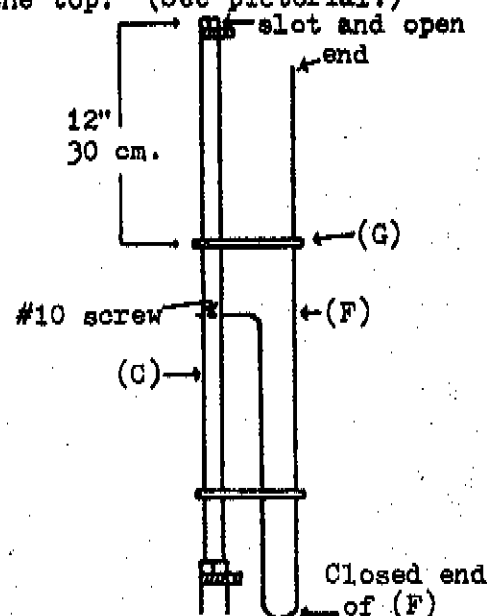
(December, 1978)

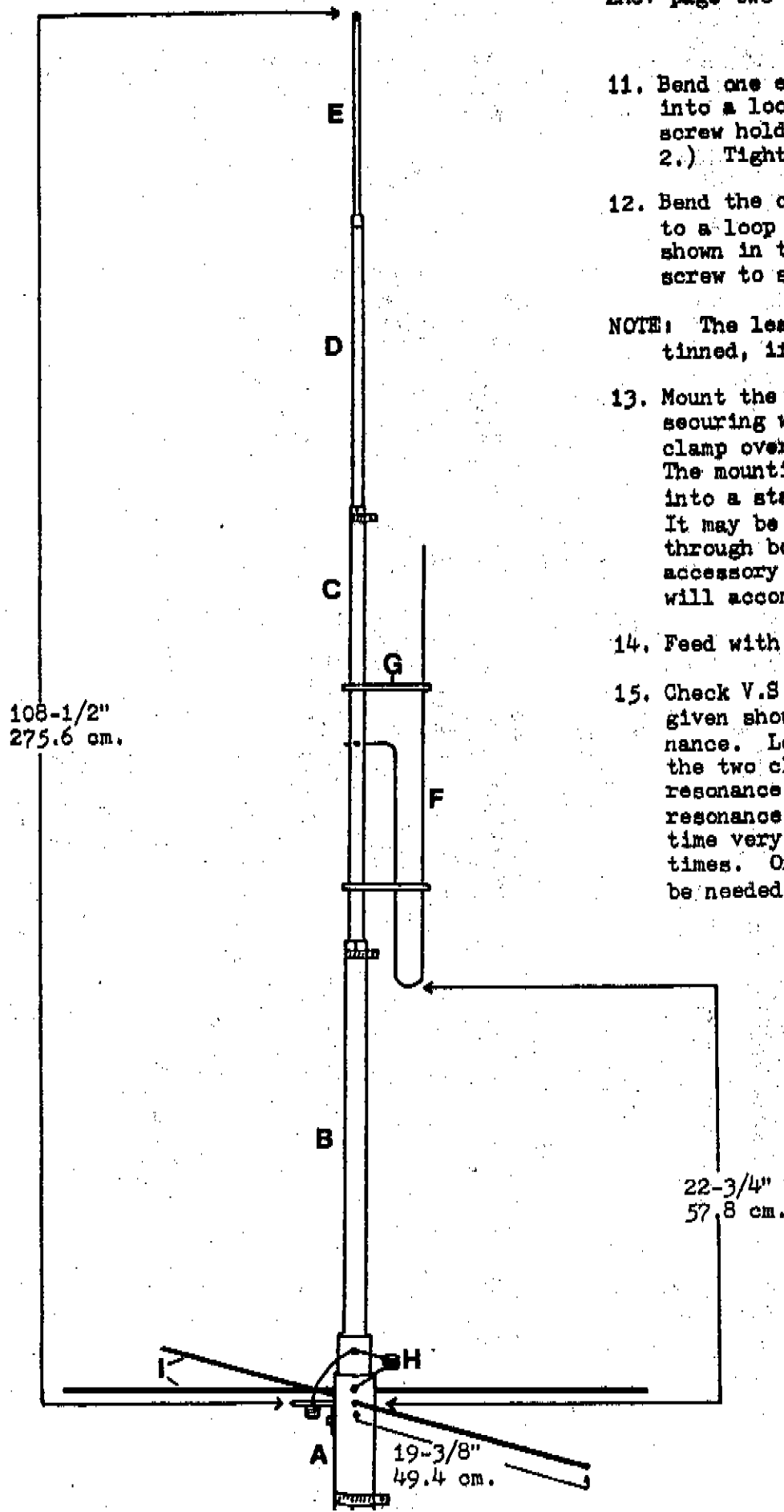
During assembly and installation take care to avoid contacting power lines with the antenna. Do not mount the antenna in any location where it might blow into or fall upon power lines.

Tools recommended for assembly: standard blade screwdriver, 5/16 in. nutdriver, pliers, pocket knife.

Study the pictorial diagrams and proceed as follows:

1. Check to see that all parts are present. See the parts pictorial page.
2. Slide the unslotted end of tube (B) into the insulated end of (A). Line up the screw holes. Pass a #10 screw through the lug at the end of the wire and through the screw holes. Do not tighten completely at this time.
3. Pass the slotted end of (C) through the hole in the plastic part of (F), so that the slot and the open end of (F) are both at the top. (See pictorial.)
4. Pass the end of the phase reversal element (F) through the holes at the center of (C). Secure with a #10 screw (See figure at right.)
5. Pass the top of (F) through the small hole in plastic block (G). Then pass the slotted end of (C) through the large hole in (G), and slide the block down, positioning it 12" (30 cm) below the slot.
6. Place a small stainless steel clamp over the slotted end of (B). Telescope (C) into (B), measuring the distance from the coax connector to the bottom of (F) to 22-3/4" (57.8 cm), and tighten the clamp.
7. Slide tube (E) into tube (D). Line up the screw holes, and secure with a #6 screw.
8. Place a small stainless steel clamp over the slotted end of (C). Telescope (D) into (C), measuring the distance from the top of the antenna to the coax connector to 108-1/2" (275.6 cm), and tighten the clamp.
9. Install radial rods (I) by passing them through the holes just above the coax connector. Each radial should be 19-3/8" (49.4 cm) long. Center so that this is the case, and secure with #10 screws through (A) onto the radials.
10. Prepare the grounding coil (H) by straightening out 1" (2.5 cm) of wire at each end. Scrape 1/2" (1 cm) of insulation off of each end, using a pocket knife.





11. Bend one end of a lead from coil (H) into a loop and connect it to the screw holding the feed wire (See step 2.) Tighten the screw.

12. Bend the other lead from coil (H) into a loop and connect it to (A) as shown in the pictorial. Use a #10 screw to secure.

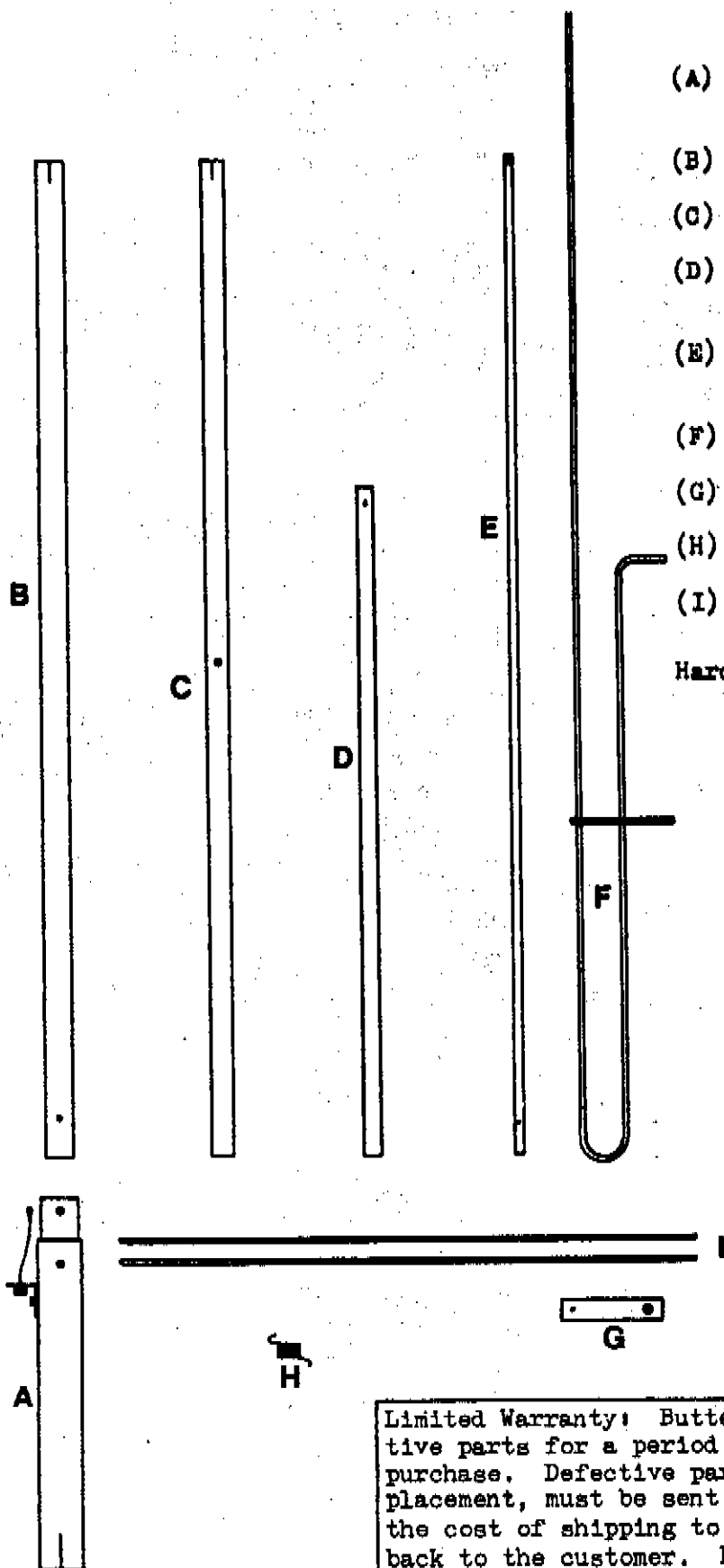
NOTE: The leads from coil (H) may be tinned, if desired.

13. Mount the antenna on a 1" O.D. mast, securing with a large stainless steel clamp over the slotted end of (A). The mounting post (A) will also fit into a standard 1-1/4" O.D. TV mast. It may be secured by drilling a hole through both pieces and bolting. An accessory mounting plate with u-bolts will accommodate larger masts.

14. Feed with 50-53 ohm coaxial cable.

15. Check V.S.W.R. The measurements given should provide mid-band resonance. Lengthening the antenna at the two clamped sections will lower resonance. Shortening will raise resonance. Adjust one section at a time very carefully, repeating several times. Ordinarily adjustment will not be needed.

Parts Pictorial: Model 2MCV



(A) Mounting post. 1.125" O.D. x 12" with insulator insert.

(B) .75" O.D. x 3' tube, slotted.

(C) .625" O.D. x 3' tube, slotted.

(D) .50" O.D. x 2' tube, screw hole in one end.

(E) .375" O.D. x 3' tube, screw hole in bottom, cap on top.

(F) Phase reversal element.

(G) Plastic insulating block.

(H) Grounding coil.

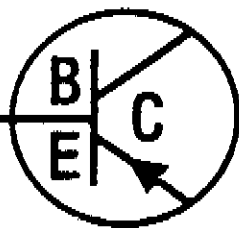
(I) Radial rods.

Hardware Packet:

Clamps: One large, two small stainless steel compression type.

Self-tapping screws: Five #10, one #6.

Limited Warranty: Butternut will repair or replace defective parts for a period of 90 days following the date of purchase. Defective parts, if returned for repair or replacement, must be sent to the factory. The purchaser bears the cost of shipping to the factory. We pay the shipping back to the customer. Exceptions: Customers outside the U.S. pay all shipping charges.



BUTTERNUT ELECTRONICS CO.

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ASSEMBLY AND INSTALLATION INSTRUCTIONS: MODEL 2MCV "TROMBONE" (Copyright 1982)

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!

Note: The only tool required for assembly is a screwdriver, but take care 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:

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 the slotted 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 illustration. Slide clamp (G) downward over the slotted end of tube (B).
3. Install the second flat plastic insulator in the same manner as in step 1. Slide it downward about two inches from the upper end of tube (B). Insert the lower end of tube (B) into the upper end of sub-assembly (A), align the screw holes, and secure with the self-tapping screw.
4. Install "Trombone" section (D), sliding it upward through the lower plastic spacer insulator. Note that the longer end of the rod will pass through the outer hole of the lower spacer first.
5. Slide clamp (G) over the short end of the "Trombone" and secure with the two bolts at the point indicated in the diagram. When the clamp and the "Trombone" section are in the proper position, approximately one inch of the short end of the rod will extend above the clamp.
6. Slide the uncapped end of tube (C) into the slotted end of tube (B) and adjust to the length shown in the diagram. Secure at this point, using the smaller hose clamp. Note that all lengths are measured from the flange of the SO-239 connector on sub-assembly (A).
7. Pass the two radial rods (E) through the holes just above the SO-239 connector. Center the rods so that equal lengths extend from the tubing in all four directions. Secure the radials with the two set screws opposite each rod. Tighten only enough to hold the rods firmly in place.
8. The antenna may now be mounted on a 1" O.D. mast that will slide into the 1-1/8" O.D. lower section 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 standard 1-1/4" O.D. steel TV mast section (.058" wall) and a hole may be drilled through both pieces so that a bolt or self-tapping screw may be used to secure the installation.
9. Attach a 50-ohm coaxial feedline fitted with a PL-259 connector 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 acceptable loss characteristics in the VHF range. Smaller sizes of cable (e.g., RG-58/U) should be avoided, especially in the longer runs.

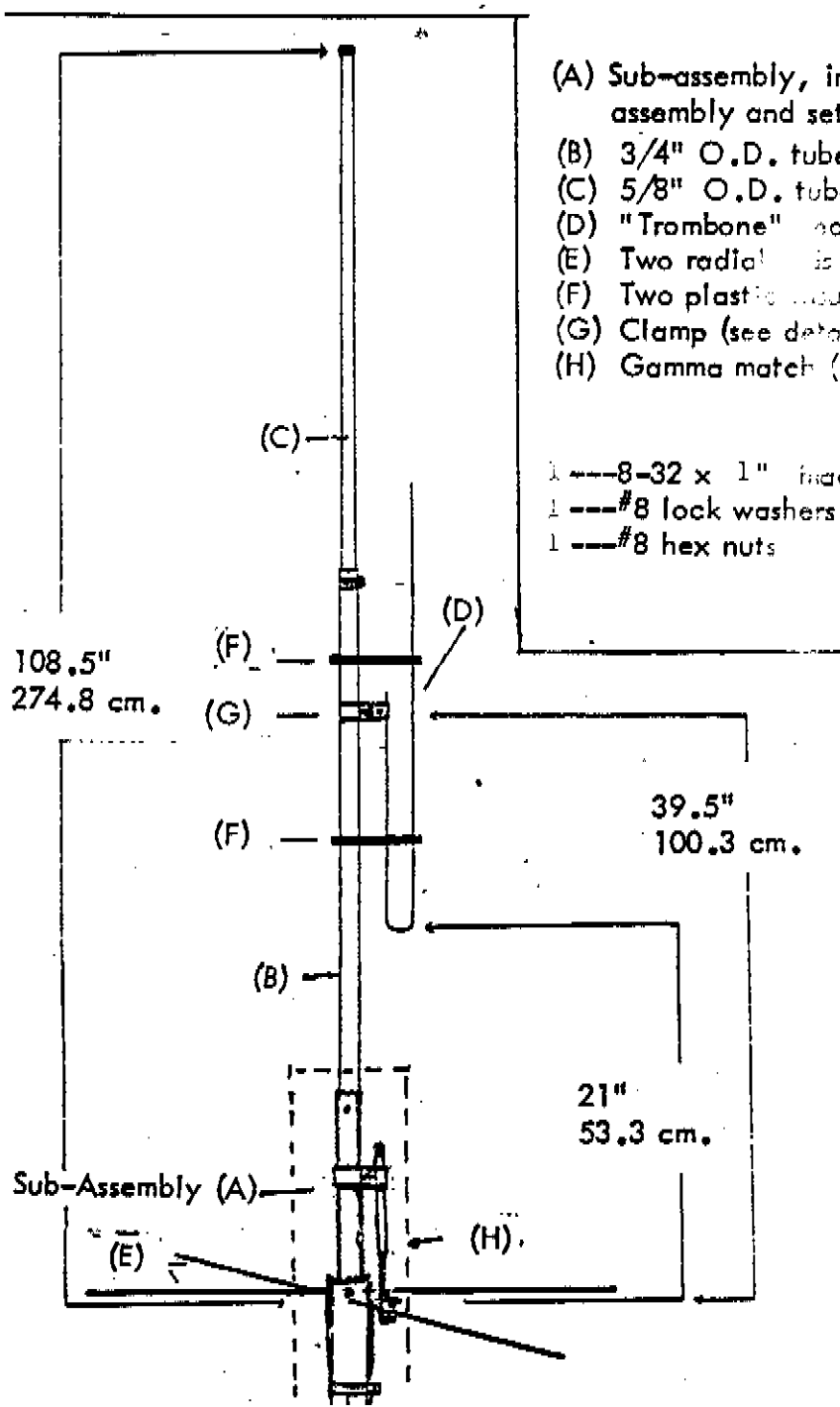
10. Check SWR. The gamma match assembly (H) is pre-set for reasonably low SWR in the 146 to 147 MHz range, so no adjustment of any kind is likely to be required. If, however, the lowest possible SWR at some particular frequency is desired, loosen slightly the outer portion of the clamp of the gamma match assembly so that the small capped tube is free to slide along the insulated wire coming from the SO-239 connector. The amount of overlap of this tube along the wire determines the amount of capacitance in the gamma circuit, and by changing the amount of overlap in increments of 1/4" or so it should be possible to arrive at some setting that produces an SWR of 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 approximately 1/4". Once an adjustment that yields an SWR of 1.5:1 or lower has been found it is very unlikely that subsequent adjustments for even lower SWR will produce any measurable benefits.

PARTS LIST

- (A) Sub-assembly, including SO-239 coax connector, gamma match assembly and set screws for securing radials
- (B) 3/4" O.D. tube, upper end slotted
- (C) 5/8" O.D. tube with plastic end cap
- (D) "Trombone" section
- (E) Two radial leads
- (F) Two plastic insulators
- (G) Clamp (see detail below)
- (H) Gamma match (installed on sub-assembly A)

HARDWARE PACKET

- 1 --- 8-32 x 1" machine screws (bolts)
- 1 --- #8 lock washers
- 1 --- #8 hex nuts
- 1 --- large hose clamp
- 1 --- small hose clamp



CLAMP DETAIL

