

**TELEX** *hy-gain*TELEX COMMUNICATIONS, INC.  
9600 Aldrich Ave. So., Minneapolis, MN 55420**ORDER NO. 376S**

Model 155BA-S "Long John"

5-Element, 15-Meter Beam

PN 801998-2

**INSTRUCTION MANUAL****WARNING**

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

The 155BA-S is ideal for stacking with other Hy-Gain "Long Johns", the 105BA-S and the 205BA-S, for unparalleled performance and durability. The 155BA-S now features stainless steel hardware for all electrical and most mechanical connections.

**General Description**

The Hy-Gain Model 155BA-S is an optimum spaced, 5-element, 15-meter beam. The "Long John" features five full sized elements on a 26 foot boom, a Hy-Gain Beta Match and a rugged boom-to-mast bracket.

**Specifications***Electrical*

Gain .....	12 dB
Front-to-Back .....	20 dB minimum
VSWR (at resonance) .....	less than 1.5:1
Nominal Impedance .....	50 ohms
Power Rating .....	maximum legal
Matching Method .....	beta
2:1 Bandwidth .....	400 KHz
-3 dB Beamwidth .....	57 degrees

*Mechanical*

Boom .....	2" x 26' (5.1 cm x 7.92 m)
Turning Radius .....	approximately 17' 6" (5.33 m)
Longest Element .....	25' 3" (7.69 m)
Surface Area .....	5.2 sq. ft. (.483 sq. m)
Wind Load @ 80 mph .....	133 lbs. (60.3 kg)
Max. Wind Survival .....	100 mph (160.93 kmph)
Mast Diameter Accepted .....	1 1/4" to 2 1/2" (3.2 cm to 6.4 cm)
Hardware .....	18-8 stainless steel except for 7 large bolts used in mast bracket
Clamps .....	stainless steel

## Installation

All tubing supplied with the 155BA-S antenna is taper swaged and slotted. It is held in place with compression clamps. For optimum results from the antenna, make all measurements accurate using the dimensions given in Figure 1.

## Boom Assembly

Select the cast aluminum brackets, boom-to-bracket clamp and casting-to-boom bracket and loosely assemble as shown in Figure 2. The bracket must be loose in order to finish the assembly of the boom.

Select the two center boom sections and slip the unswaged end of each into the boom-to-mast bracket. Align the holes in the boom with the holes in the bracket and secure as shown in Figure 2.

Install the outer boom section as shown in Figure 3.

## Assembly of Element-to-Boom Brackets

Select the set of large element-to-boom brackets (Item No. 4) and loosely assemble as shown in Figure 4.

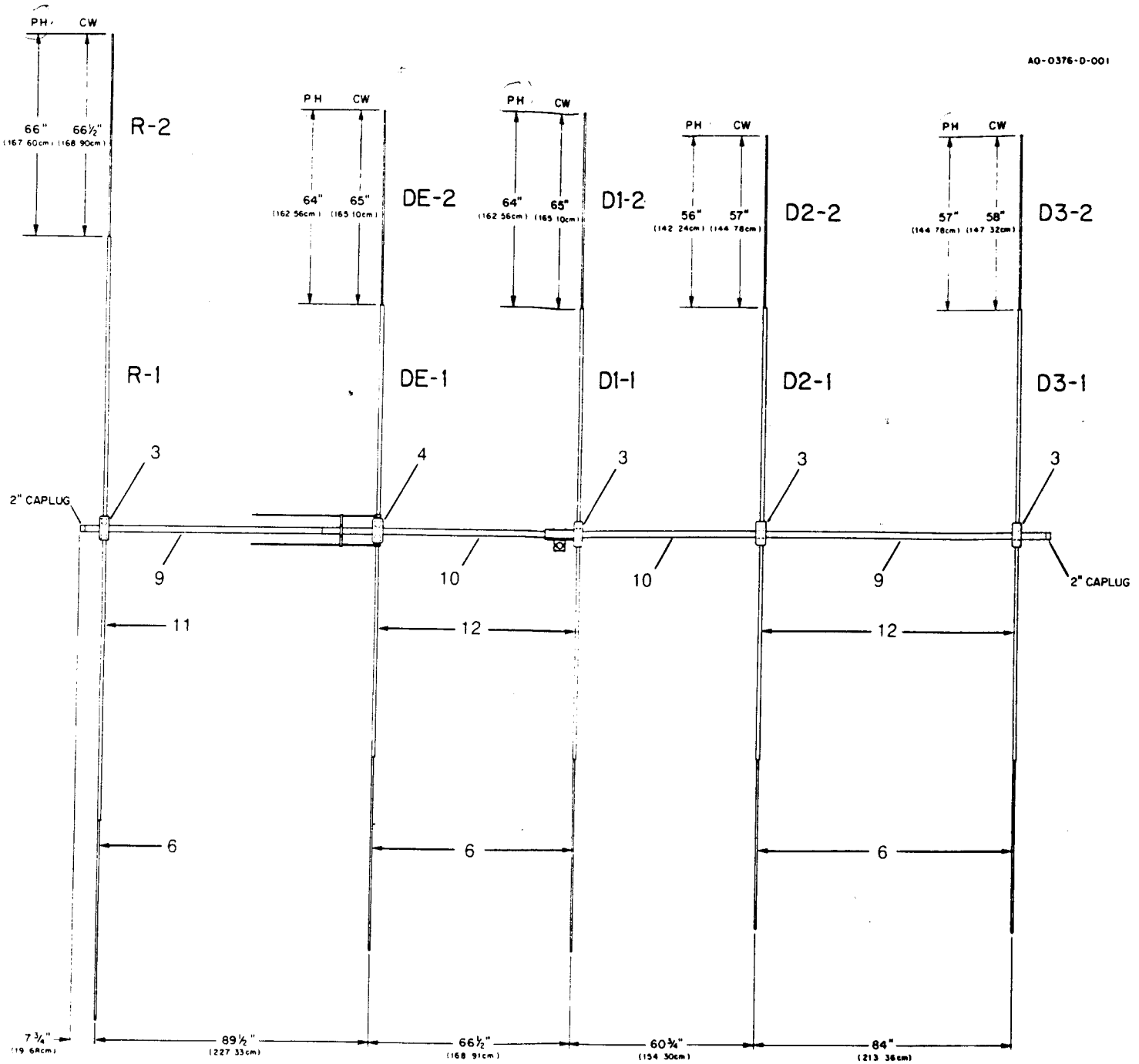
Select the remaining four sets of element-to-boom brackets (Item No. 3) and loosely assemble as shown in Figure 4.

Slide each assembled bracket over a boom end and position them as shown in Figure 1.

At this time, you must decide which mode of transmission you will use - either CW or Phone.

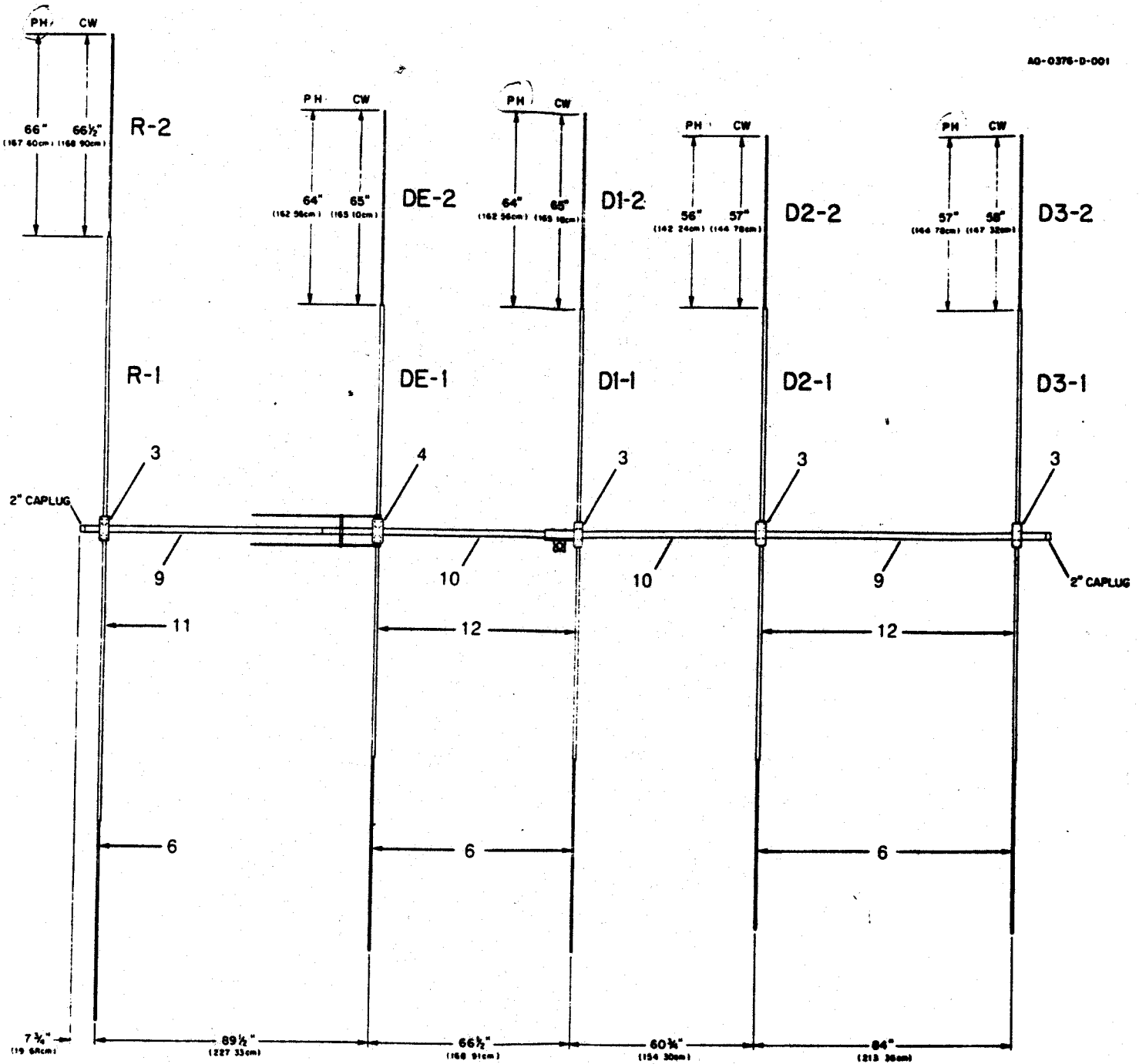
### CAUTION

*When you have selected your mode of transmission, you must use the same mode for the remaining measurement. DO NOT try to use averages or various combinations of measurement settings on the same element or serious deterioration in the antenna performance will result. The VSWR Chart shown in Figure 6 should help you decide which mode to select.*



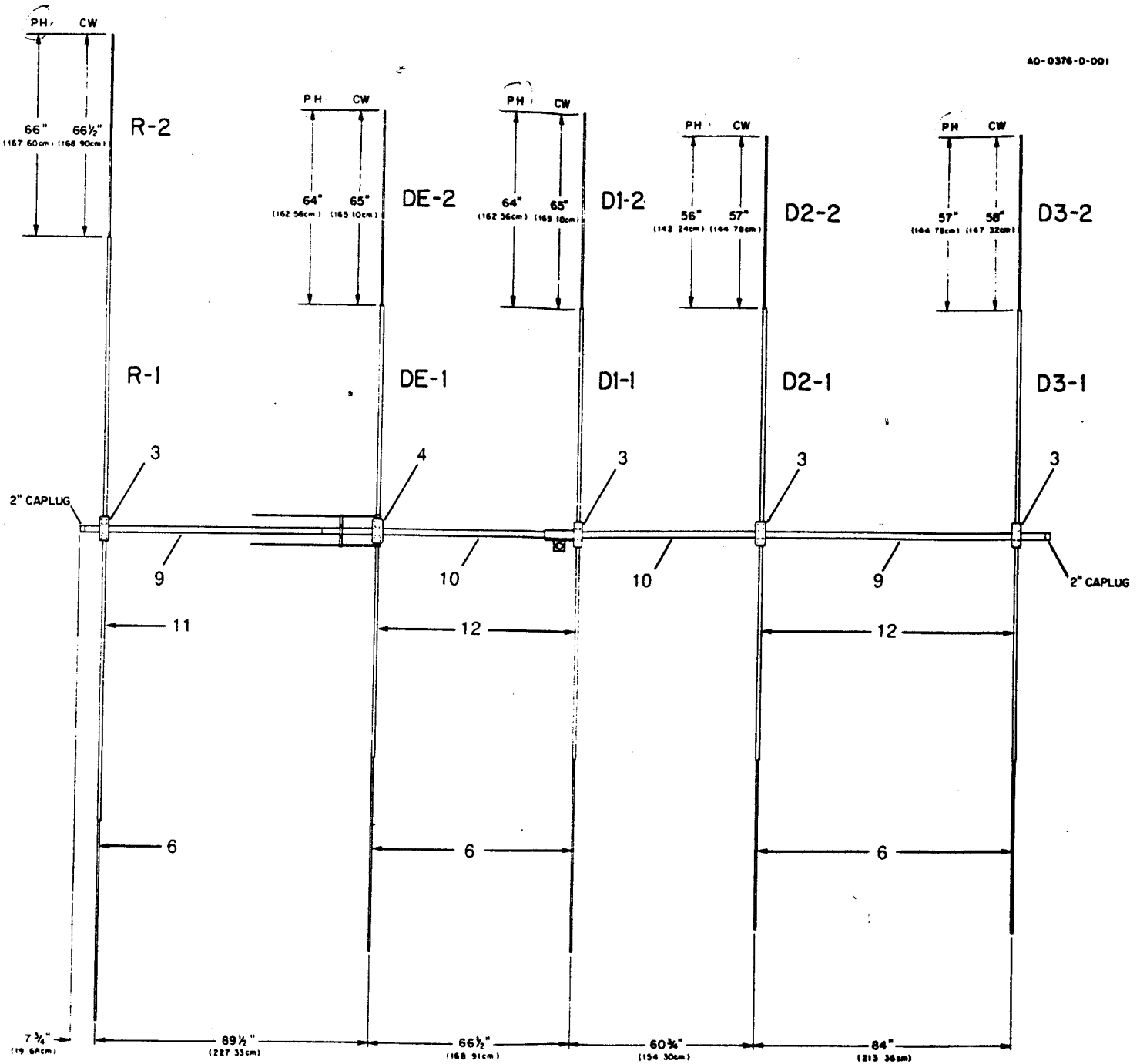
Item No.	Description
3	Bracket, Element-to-Boom, #4
4	Bracket, Element-to-Boom, #13
6	Tube, 7/16" x 68"
9	Tube, Boom Section, 2" x 79"
10	Tube, Inner Boom, 2" x 81"
11	Tube, Swaged, 7/8" x 84"
12	Tube, Swaged, 7/8" x 72"

Figure 1  
Overall View



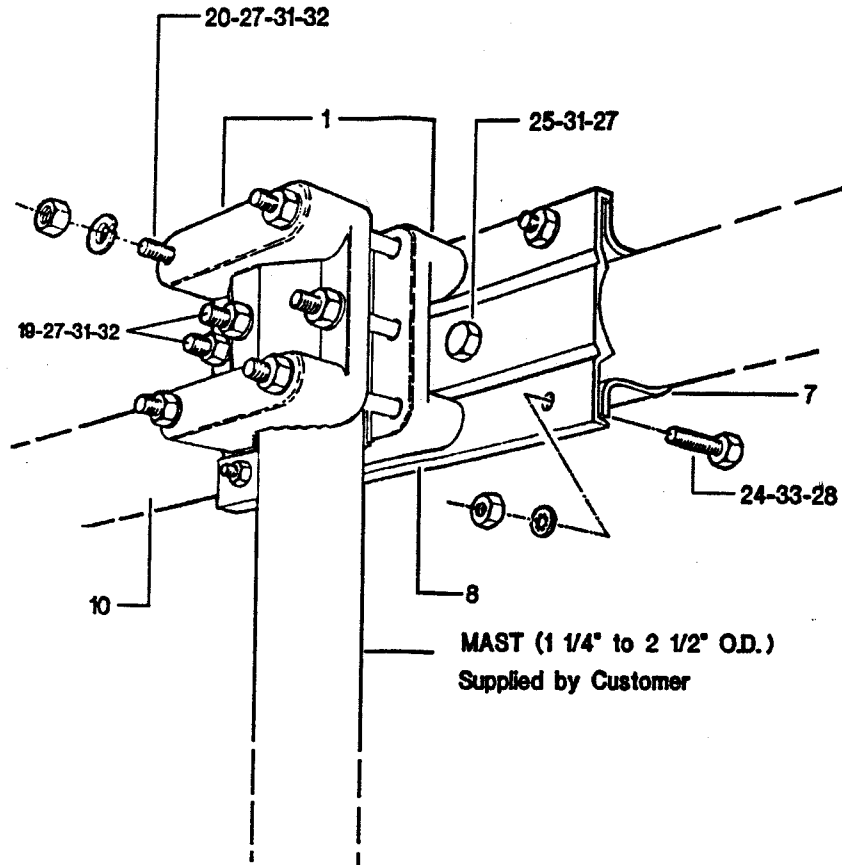
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Figure 1  
Overall View



Item No.	Description	Item No.	Description
1	Bracket, cast aluminum	25	Bolt, hex, cap, 5/16"-18 x 2 3/4"
7	Clamp, Boom-to-Bracket	27	Nut, hex, 5/16"-18
8	Clamp, Casting-to-Boom	28	Nut, hex, 1/4"-20
10	Tube, Boom Section, 2" x 81"	31	Lockwasher, split, 5/16"
19	Bolt, hex head, 5/16"-18 x 3 1/2"	32	Flatwasher, 5/16"
20	Bolt, hex head, 5/16"-18 x 5"	33	Lockwasher, internal, 1/4"
24	Bolt, hex head, 1/4"-20 x 3/4"		

Figure 2  
Boom-to-Mast Detail

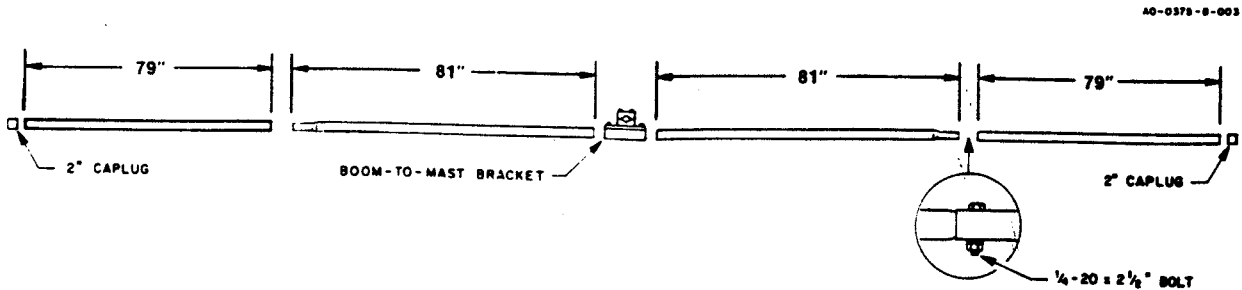
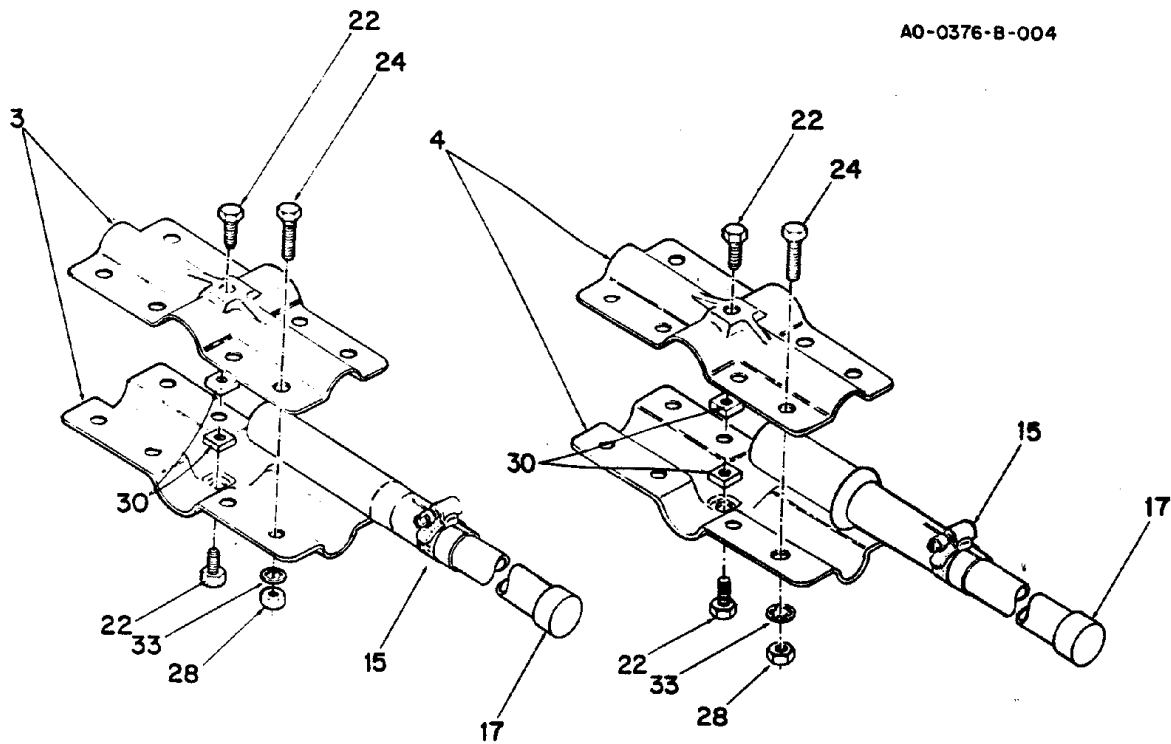


Figure 3  
Boom Assembly and Bracket Detail



Item No.	Description
3	Bracket, Element-to-Boom, #4
4	Bracket, Element-to-Boom, #13
15	Clamp, #6 Tubing
17	Caplug, 7/16"
22	Bolt, hex head, 1/4"-20 x 3/8"

Item No.	Description
24	Bolt, hex head, 1/4"-20 x 3/4"
28	Nut, hex, 1/4"-20
30	Nut, square, 1/4"-2-0
33	Lockwasher, internal, 1/4"

**Figure 4**  
**Element-to-Boom Brackets**

## Assembly of Driven Element and Beta Match

**NOTE:** The following steps will have to be done first for one side of the boom then repeated for the other side.

Select the DE1 section of tubing. Slip the unswaged end of the DE1 into a Driven Element insulator as shown in Figure 4. Slip the insulated end of the DE1 into the bracket assembly on the boom. Tighten the bolts to hold the element securely in the center of the bracket at this time.

Select the 1/4" beta rods. Attach the Beta Match to the boom as shown in Figure 7. Loosely attach the opposite ends of the beta rods to the tubing clamps on the Driven Element.

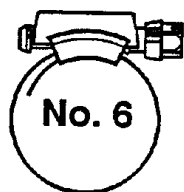
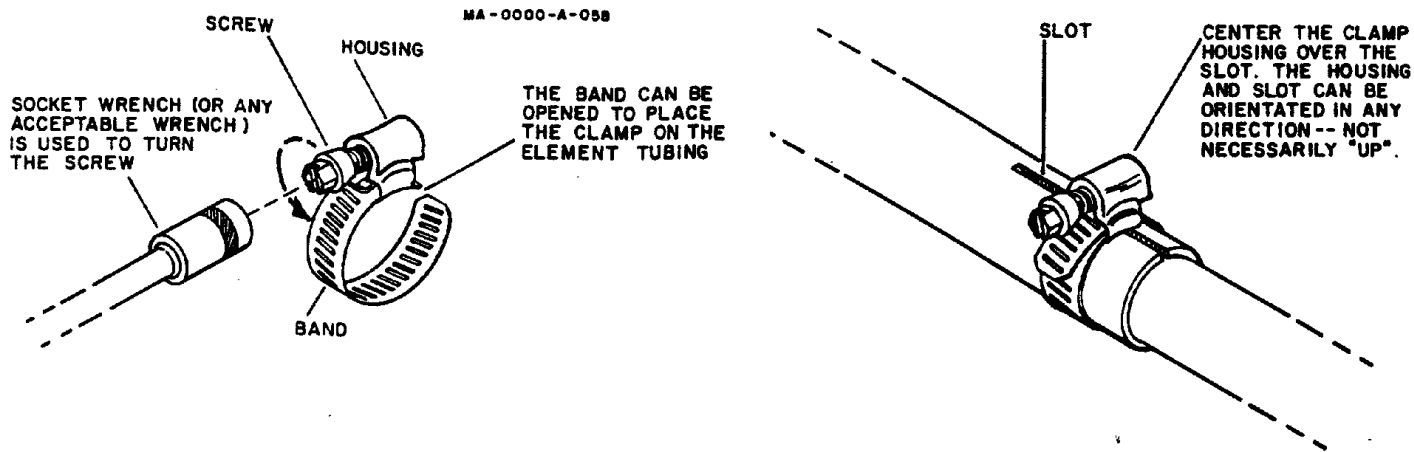
Do Not tighten these bolts at this time, the feed-line will attach to this point in a later step. See Figure 7.

Check the Driven Element to see if it will lie in a plane parallel to the earth, then tighten the anchor bolts in the bracket securely.

## Installation of Tubing Clamps

Select the proper size tubing clamp as shown in the chart. When installing the clamps, place the clamp near the tube end with the top of the clamp over the slot in the tube as shown in Figure 5.

After adjustment of the tubing lengths, tighten the clamp with a 5/16 inch nut driver, socket, or open end wrench until the tubing will not twist or telescope.



Part No.	Description	Fits Tubing Sizes
358756	Clamp, size #6 all stainless steel 5/16" hex head screw	1/2 and 3/4

Figure 5  
Tubing Clamp Installation

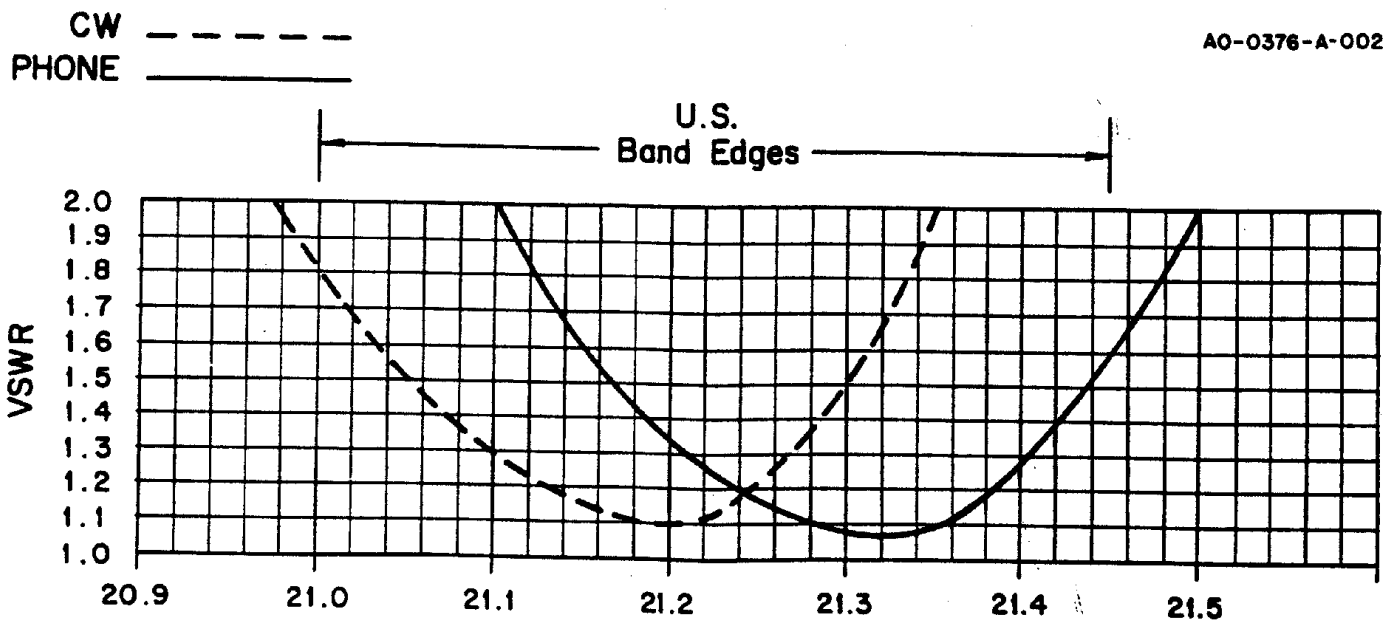


Figure 6  
VSWR Chart

