

TELEX. *hy-gain*

TELEX COMMUNICATIONS, INC.

9600 ALDRICH AVE SO MINNEAPOLIS, MN 55420 U.S.A.

ORDER NO 226S
203BA-S
3-Element, 20-Meter Beam

PN 801828-4

INSTRUCTION MANUAL

General Description

The Hy-Gain 203BA-S is an optimum spaced, three-element, 20-meter beam. A beta match insures maximum transfer of energy from the feedline to the antenna. The Model 203BA-S is recommended to fit a 2" to 2 1/2" O.D. mast and can be rotated with the CD-45II or Ham IV rotators. The 203BA-S now includes stainless steel hardware for all electrical and most mechanical connections.

Preparation for Assembly

Please read all the installation instructions and study the illustrations before beginning the antenna assembly.

FOR OVERSEAS CUSTOMERS: If you use the Metric System, see the American-to-Metric conversion table in the rear of this manual. Most illustrations in this manual will provide both American and Metric Dimensions.

When unpacking your antenna, check inside of all tubing for small parts and elements. To conserve space, these smaller articles are sometimes put inside larger pieces. Check all parts against the parts list in the rear of this manual to ensure no parts are missing.

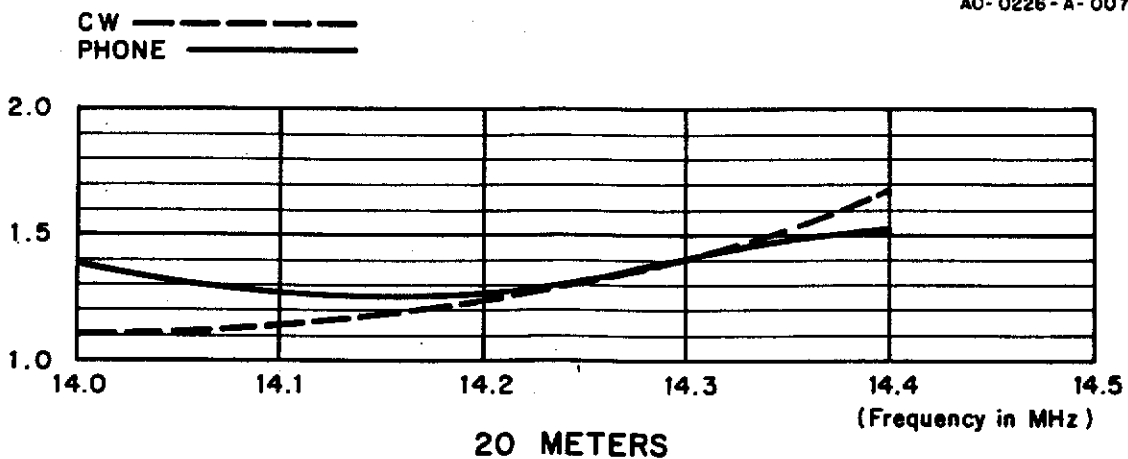


Figure 1
 VSWR Chart

Specifications

Electrical

Input Impedance	50 ohms
Gain (dBi)	8.5 dB minimum
Front-to-Back Ratio	20-25 dB
Maximum Power Input.....	maximum legal
VSWR at Resonance.....	less than 1.5:1
Lightning Protection.....	DC ground
2:1 VSWR Bandwidth	500 KHz minimum

Mechanical

Boom Length	16 ft. 6 in. (5.02 m)
Boom Diameter.....	2 in. (5.08 cm)
Longest Element	37' 1" (11.30 m)
Maximum Wind Survival.....	80 mph (128.7 kmph)
Net Weight.....	32 lbs. (14.51 kg)
Accepts Mast.....	1 1/4" to 2 1/2" (3.2 cm to 6.3 cm)
Wind Surface Area.....	5.38 sq. ft. (0.50 m ²)
Wind Load @ (80 mph) (128.7 kmph).....	138 lbs (62.59 kg)
Turning Radius	20.1 ft (6.126 m)

All tubing supplied with the Model 203BA-S is taper-swaged and designed to telescope together. It is held in place with compression clamps. Make all measurements as accurate as possible using the dimensions given in this manual for best results from your antenna.

Assembly Of The Boom

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

Select the two 45" boom sections (2" diameter tubing) and slip the unswaged end of each into the boom-to-mast bracket. Line up the holes in the boom with the holes in the boom-to-mast bracket and secure using the two (2) 5/16"-18 x 2 3/4" bolts, nuts and lockwashers (Item Nos. 34, 37 & 39) provided.

Slip the remaining boom sections (Item 4, 2" x 57") over the swaged end of the assembled boom sections (Item 5, 2" x 45") and secure the 1/4" x 2 1/2" bolts (Item 30), nuts (Item 33) and lockwashers (Item 31).

Item No.	Description
1	Bracket, cast aluminum
2	Bracket, casting-to-boom
3	Clamp, boom-to-bracket
5	Tube, aluminum, 2" x 45"
28	Bolt, hex head, 1/4" - 20 x 3/4"
32	Nut, square, 1/4" - 20
33	Nut, hex 1/4" - 20
34	Bolt, hex head, 5/16" - 18 x 2 3/4"
35	Bolt, hex head, 5/16" - 18 x 3 1/2"
36	Bolt, hex head, 5/16" - 18 x 5"
37	Lockwasher, split, 5/16"
39	Nut, hex, 5/16" - 18

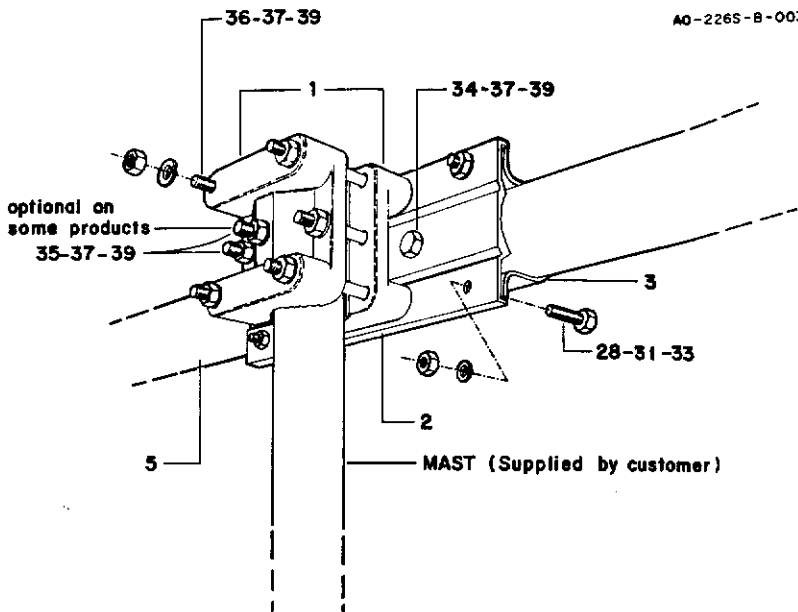
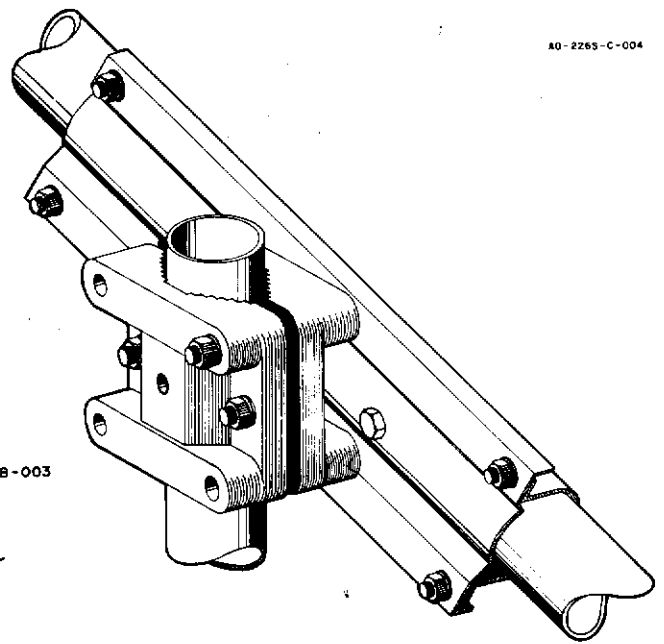


Figure 2
Boom-To-Mast Bracket Assembly

Tools: The following tools are required for easy assembly of the 203BA-S Beam:

Qty	Tool Type
1	Tape measure, 12 ft.
1	Nut Driver, 1/2 in.
1	Nut Driver, 7/16 in.
1	Nut Driver, 3/8 in.
1	Nut Driver, 11/32 in.

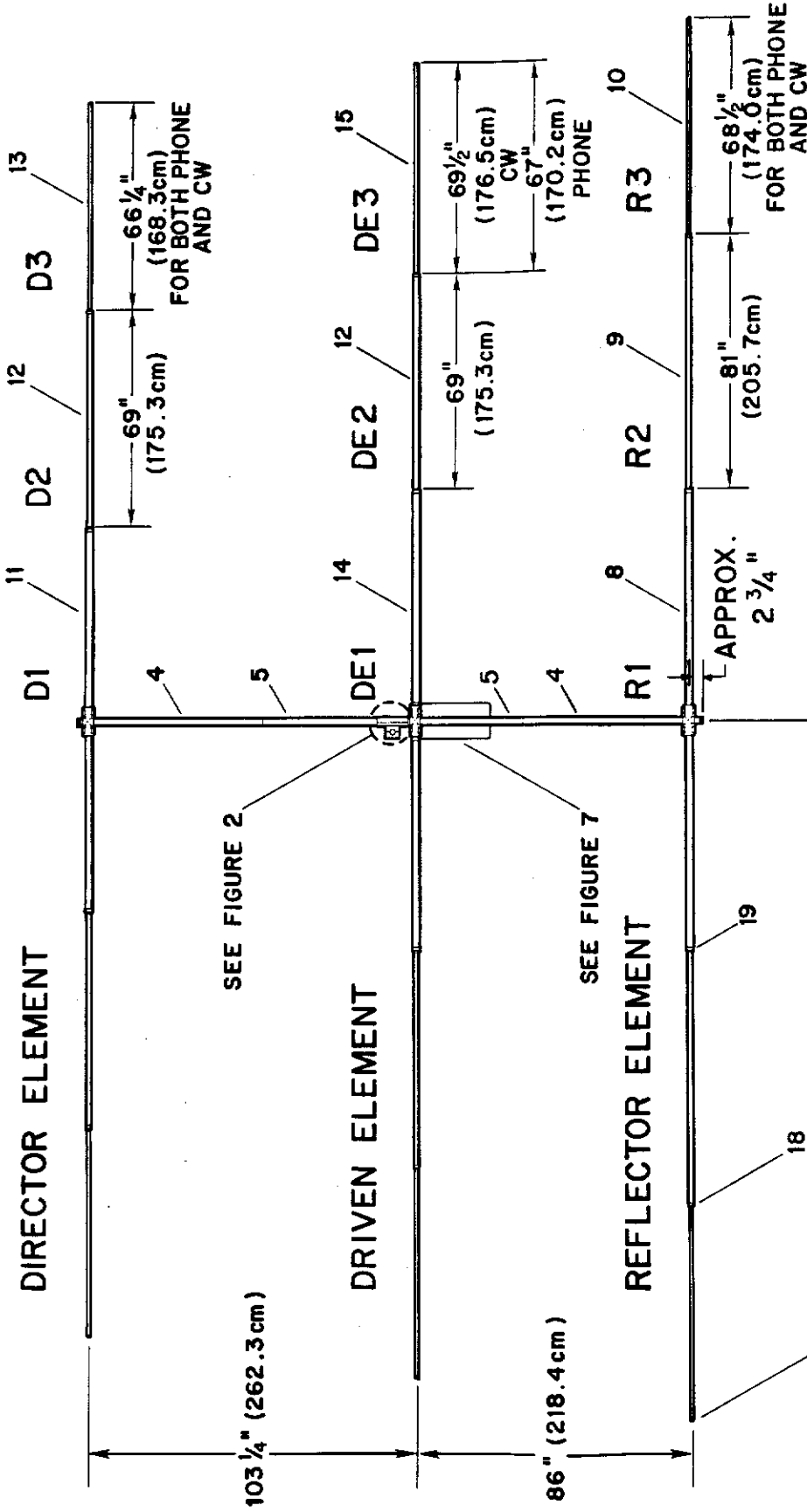
NOTE: One end of each of the 2" x 45" boom sections has a small hole drilled approximately 28 3/4" from the boom-to-mast bracket. Both holes must be positioned so they are facing down (earthward) when the boom is assembled.

One hole will be used for attaching the beta match in a later step. This end of the boom will be known as the reflector end. Refer to Figure 5.

DO NOT tighten all the screws in the boom-to-mast bracket at this time. The cast brackets must be loose for attaching to the mast in a later step.

Compression Clamps

To save time, loosely assemble all of the compression clamps and their appropriate hardware before beginning further installation of the antenna. See Figure 3. When installing the clamps, place the clamp near the tube end with the open side even with the slot in the tube.



NOTE: ITEMS 18, 19, & 20 ARE TYPICAL FOR ALL ELEMENTS 21, BOTH ENDS OF BOOM

Item No.	Description	Item No.	Description
4	Tube, aluminum, 2" x 57"	13	Tube, aluminum, 7/16" x 72", DE3
5	Tube, aluminum, 2" x 45"	14	Tube, aluminum, 1 1/4" x 72", swaged, DE1
8	Tube, aluminum, 1 1/4" x 72", swaged, R1	15	Tube, aluminum, 7/16" x 72", DE3
9	Tube, aluminum, 7/8" x 84", swaged, R2	18	Clamp, compression, 1/2"
10	Tube, aluminum, 7/16" x 71", R3	19	Clamp, compression, 1"
11	Tube, aluminum, 1 1/4" x 60", swaged, D1	20	Caplug, 7/16", with hole (for element ends)
12	Tube, aluminum, 7/8" x 72", swaged, D2 x DE	21	Caplug, 2", (for boom ends)

Figure 5
Overall View of Assembly