



# ASSEMBLY INSTRUCTIONS

## CRS - 150 ANTENNA

PART NO.	DESCRIPTION	QUANTITY
9	8-32 x 5/8" Stainless Steel machine screw	1
10	#8 Internal tooth lockwashers	3
27	5/8" Plastic Cap	1
94	1/4"-20 Steel Lock Nut	1
11	8-32 Hex Stainless Steel Nuts	4
47	1/4"-20 x 3/4" R H Steel Machine screw	1
67	Tuning Rod Clamp	1
G-8	3/4" Telescope clamp	1
96	8-32 x 3/8" R H Stainless Steel Machine screw	2
95	Tuning Rod	1

### PARTS LIST AR-2 RINGO

DESCRIPTION	QUANTITY
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Base assembly with insulator and coax fitting	1
5/8" x 15" .049 wall aluminum tubing	1
Tuning rod	1
Preformed ring	1

### INSTALLATION INSTRUCTIONS

Your Cush Craft Ringo is designed and manufactured to give top performance and trouble free service. It will perform as specified if the assembly and installation suggestions are followed.

**MASTING:** The CRS-150 will take up to a 1-1/4" O.D. mast. For most installations, a 1-1/4" television type tubing will be satisfactory.

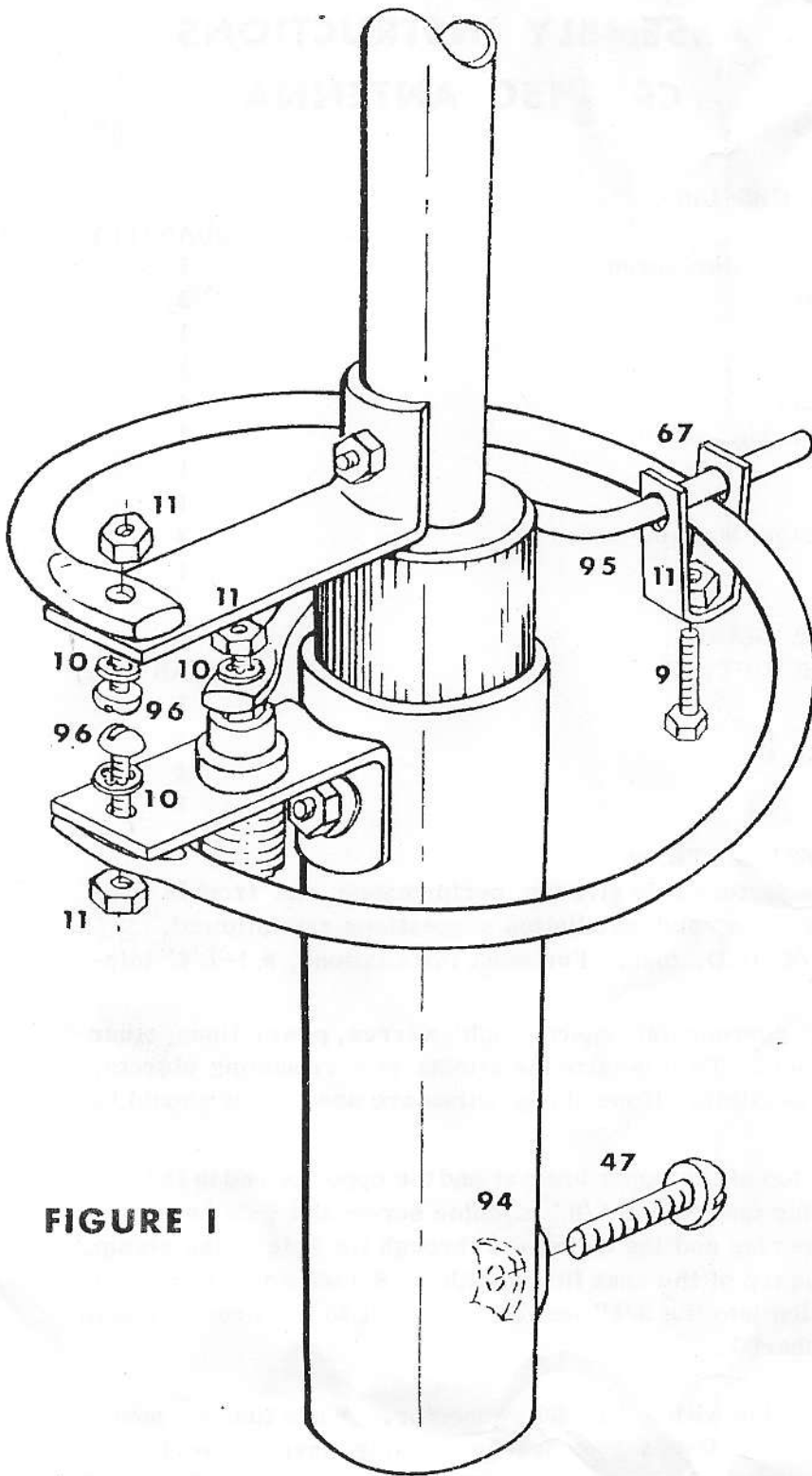
**LOCATION:** of the antenna is very important. Surrounding objects such as trees, power lines, other antennas, etc. will seriously reduce efficiency. To minimize the effects of surrounding objects, mount the antenna as high and in the clear as possible. If metal guy wires are used, they should be broken with strain insulators.

**ASSEMBLY:** Attach one end of the ring to the top of the upper bracket and the opposite end to the bottom of the lower bracket, Figure 1. Assemble the 8-32 x 5/8" machine screw and 8-32 hex nut to the tuning rod clamp. Slide the clamp over the ring and the tuning rod through the hole in the clamp. Attach the flattened end of the tuning rod to the top of the coax fitting with a #8 lock washer and 8-32 hex nut, Figure 1. Slide the 5/8" tubing section into the 3/4" section, adjust it to the proper length for your operating frequency, dimension A, chart 1.

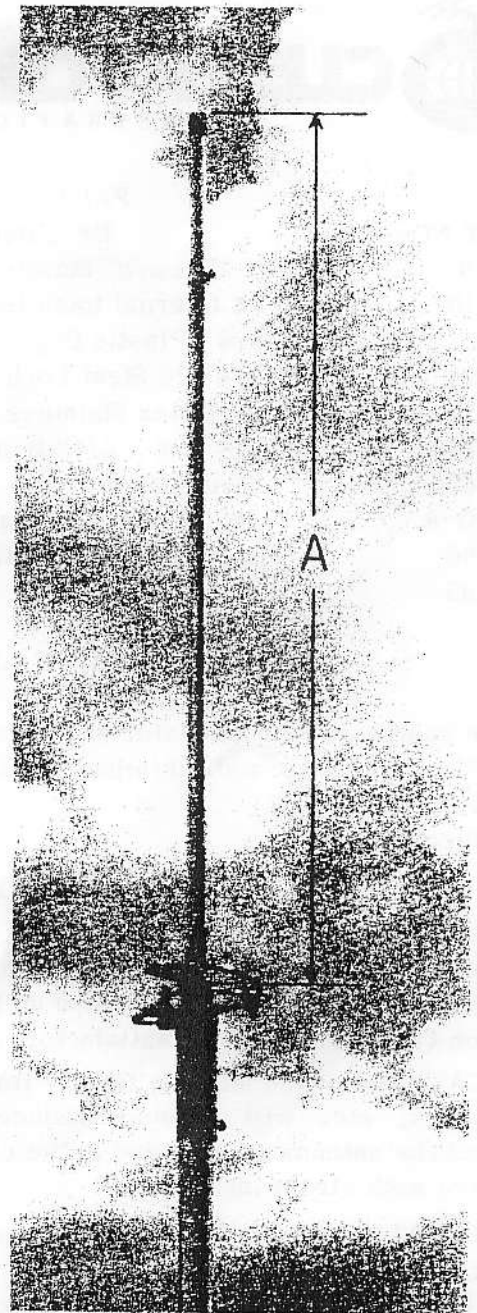
**TUNING:** Use a good quality 52 ohm coaxial cable with a PL-259 connector. When tuning, mount the antenna as high and in the clear as possible. Use a good quality standing wave ratio bridge. It is preferable to mount the bridge at the antenna for tuning. Set the transmitter to your center operating frequency.

(2) Adjust the transmitter and bridge for maximum forward power. Check the standing wave ratio (reflected power with the bridge in the reverse position). Move away from the antenna when taking measurements. If the SWR is high, loosen the tuning rod clamp and adjust the rod slightly in either direction. If the SWR increased, move the rod back to its original position and adjust in the opposite direction. If the SWR dropped, repeat the adjustment procedure until there is little or no reflected power indicated on the bridge.

(3) When the antenna is completely assembled and tuned, tape the feed line and tuning rod to ring connections and coat with a clear acrylic spray or equal. Run the coaxial feed line down the mast with tape to hold it in position.



**FIGURE I**



**CHART #1**      **DIMENSION A**  
 Freq.(MHz):      Lgth. (in)      Lgth.(Cm):

150	37	93.8
151	36 3/4	93.2
152	36 1/2	92.6
153	36 1/4	92.0
154	36	91.4
155	35 3/4	90.8
156	35 1/2	90.2
157	35 1/4	89.6
158	35	89.1
159	34 3/4	88.5
160	34 5/8	87.9
161	34 3/8	87.4
162	34 1/8	86.9
163	34	86.3
164	33 3/4	85.8

**LIMITED WARRANTY**

Cushcraft Corporation, P.O. Box 4680, Manchester, New Hampshire 03108, warrants to the original consumer purchaser for one year from date of purchase that each Cushcraft antenna is free of defects in material or workmanship. If, in the judgment of Cushcraft, any such antenna is defective, then Cushcraft will, at its option, repair or replace the antenna at its expense within thirty days of the date the antenna is returned (at purchaser's expense) to Cushcraft. This warranty is in lieu of all other expressed warranties. Any implied warranty is limited in duration to one year. Cushcraft Corporation shall not be liable for any incidental or consequential damages which may result from a defect.

Some states do not allow limitations on how long an implied warranty lasts, or exclusions or limitations of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty does not extend to any products which have been subject to misuse, neglect, accident, or improper installation; any repairs or alterations done outside the Cushcraft factory will nullify this warranty.