

**INSTRUCTION  
MANUAL**

**ORDER NO. 500**

**The Penetrator  
omnidirectional base antenna**

PN 801090

**General Description**

The Penetrator is a full size 5/8-wave, omnidirectional antenna. It features a full sized radiator with lower radiation angle concentrating power closer to the ground. The antenna is designed to accept AM, FM, SSB, and DSB signals. This model can be fed by any standard 52-ohm coaxial cable, such as RG-8/u and RG-58/u. For runs over 50 ft., RG-8/u is recommended.

The Penetrator is designed to fit any masting material up to 1-5/8" O.D. A 1-1/4" plumbers pipe is highly recommended for mast use due to its low cost and high strength.

**Specifications**

Frequency range.....	27 MHz Class D citizens band
Maximum power input .....	1500 watts
Maximum VSWR .....	1.1 to 1
Nominal input impedance .....	52 ohms
Lightning protection.....	DC ground
Height .....	22' 9-1/2"
Radial length .....	8' 9"
Wind (survival) .....	80 mph
Accepts mast .....	1-5/8" O.D.

**Installation  
Instructions**

Unpack the antenna and check each part against the parts list.

( ) Select the base assembly (item 12), the two radial plates (item 1), the M1 assembly (item 13), and the upper insulator (item 11).

( ) Refer to Figure 1 and loosely assemble these parts as shown, using the 1/4" x 1" screws and associated hardware. Do not tighten at this time.

**NOTE:** Make certain the end with 1/4" diameter holes, located 3/8" from the end, are down and align with the holes in the insulator. Also remember to point the two smaller holes, located 5-5/8" and 13" from the bottom end, away from the base bracket, as these will later be used to attach the matching rod assembly.

( ) Fasten the M1 assembly to the insulator with the #10 x 1-3/4" screw (item 26) and associated hardware (item 41 and 35). Tighten securely.

( ) Referring to Figure 2, assemble the 7/8" x 25" R1 tubes (item 3) into the brackets, aligning the holes and fastening with 1/4" x 1-1/2" screws, nuts, and lockwashers (items 24, 34, and 40).

( ) Tighten the 1/4" x 1" screws holding the base brackets and radial plates.

( ) Remove the two rod support insulators (item 21) and the two #10 x 5/8" screw (item 29) and #10 internal lockwasher (item 41) from the parts pack and attach as shown in Figure 3 to the M1 assembly.

AO-0500-B-001

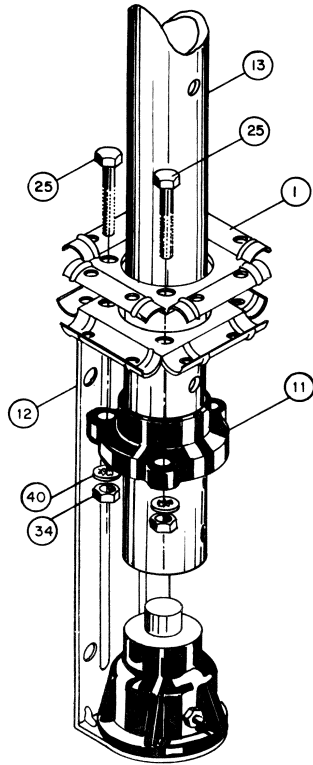


Figure 1

AO-0500-B-002

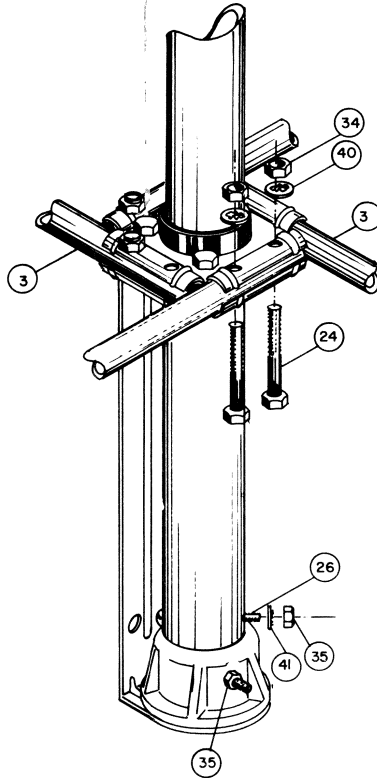


Figure 2

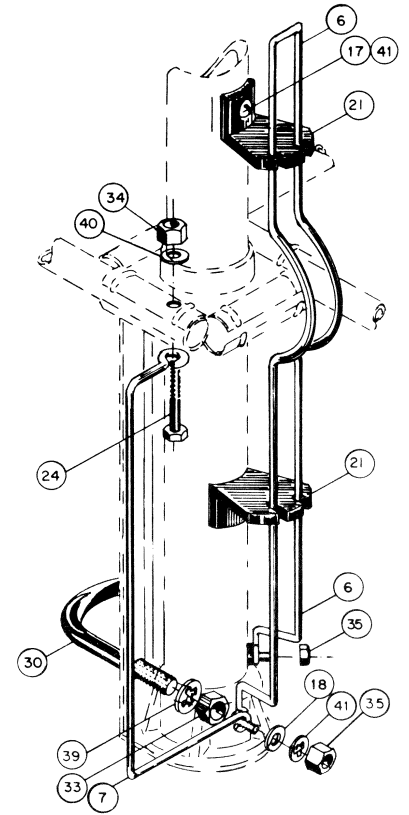


Figure 3

- ( ) Attach the matching rod and beta rod exactly as shown in Figure 3.
  - ( ) Assemble the radiator tubes M2, M3, M4, and the top radial assembly, also the radial elements, by following Figure 4.
- It must also be noted that when assembling the various tubes in either the radiator or the radials, the tubing must be slipped inside the larger tubing until the black mark disappears. This is important for proper operation of the antenna.
- ( ) Assemble the top hat radials as shown in Figure 5. They should be spaced 90 degrees apart.
  - ( ) Attach the four 1/8" caplugs on the end of the top hat radials and the 7/16" caplugs on the end of the R3 tubes.
  - ( ) Check all hardware and tighten securely.
  - ( ) Loosely assemble the 5/16" U-bolts on the bracket as shown in Figure 3.
  - ( ) Mount on the top of your mast and tighten the U-bolts securely.
  - ( ) Attach your coax to the connector, located on the bottom of the base bracket and hook to your transceiver.
  - ( ) This completes your installation.

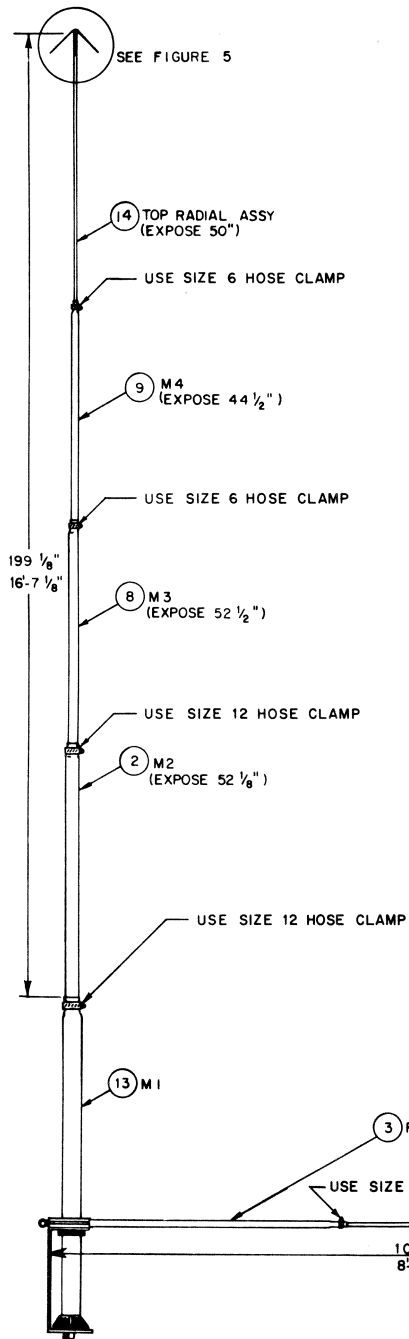


Figure 4

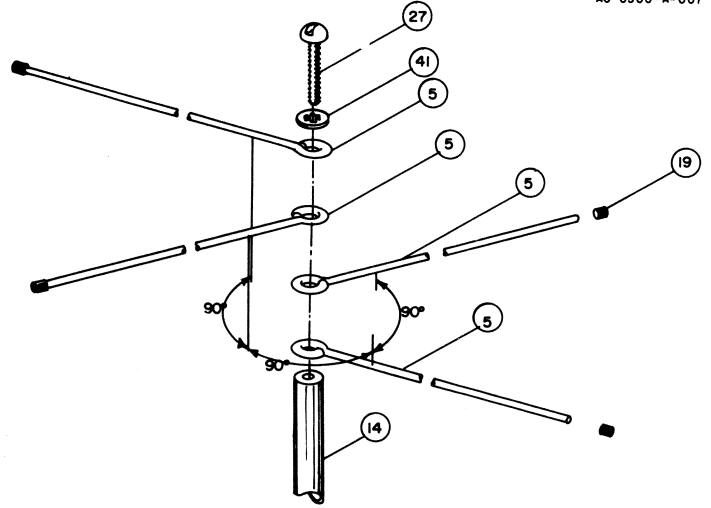


Figure 5

## Parts List

Item	Part No.	Description	Qty	Item	Part No.	Description	Qty
1	165002	radial bracket	2	20	455644	7/16" caplug	4
2	170770	M2 1-1/8" x 55"	1	21	463642	rod support	2
3	170301	R1, 7/8" x 25"	4	22		unassigned	
4	170302	R2, 5/8" x 32-1/2"	4	23		unassigned	
5	170773	top hat radials	4	24	506335	screw, 1/4" x 1-1/2"	8
6	170774	matching rod	1	25	506389	screw, 1/4" x 1"	3
7	170775	beta rod	1	26	506440	screw, #10 x 1-3/4"	1
8	170300	M3, 7/8" x 55"	1	27	506455	screw, #10 x 1"	1
9	170295	M4, 5/8" x 47"	1	28		unassigned	
10	175165	R3, 7/16" x 52"	4	29		unassigned	
11	463056	upper insulator	1	30	543792	U-bolt, 5/16" x 1-5/8"	2
12	870253	base assembly	1	31		unassigned	
13	878804	M1 assembly, 1-1/4" x 71" tube	1	32		unassigned	
14	875810	top radiator assembly	1	33	556945	nut, 5/16" hex jam	4
	878845	Parts Pack	1	34	556960	nut, 1/4" hex	12
15	350618	7/16" to 25/32" hose clamp size 6	10	35	556970	nut, #10 hex	3
16	350619	11/16" to 1-1/4" hose clamp size 12	2	36		unassigned	
17	526530	#10-32 x 5/8" self-tapping screw	2	37		unassigned	
18	567130	#10 flat washer	1	38		unassigned	
19	455624	1/8" caplug	4	39	567075	lockwasher, 5/16" internal	4
				40	567110	lockwasher, 1/4" internal	14
				41	567125	lockwasher, #10 internal	6

## Warranty

Hy-Gain Electronics Corporation warrants each new product manufactured to be free from defects in material and workmanship and agrees to remedy any such defect, or to furnish a new part, in exchange for any part of any unit which under normal installation, use, and service discloses such defect within ninety days from the date of purchase by original owner.

This warranty does not extend to any of our products which have been subjected to mis-use, neglect, accident, incorrect wiring not our own, improper installation or to use in violation of instructions furnished by us. Nor does it extend to units which have been repaired or altered outside of our factory nor to accessories used therewith not of our own manufacture.

Hy-Gain Electronics Corporation reserves the right to make any changes deemed necessary or desirable without advance notice or incurring any obligation to make like changes in units previously manufactured or sold.

This warranty does not cover transportation or installation costs that may be incurred, Hy-Gain Electronics Corporation's sole liability is the remedy of any defect for ninety days. Hy-Gain Electronics Corporation is not responsible for personal injury or property damage resulting from improper or careless installation or usage not intended by the manufacturer.

No persons authorized to assume for us any other liability in connection with the sale of our products.

All warranties are void and terminated one year after the last unit of its type and design has been manufactured by us.

All claims of defects or shortages should be addressed to:

Hy-Gain Electronics Corporation  
8601 Northeast Highway Six  
Lincoln, Nebraska 68505  
attn., Customer Service Department

You must furnish model number, date, place and proof of purchase, such as a copy of the sales receipt to establish warranty. Your letter should include all pertinent details along with part or item numbers involved. Do not return anything until requested to do so. No warranty card is furnished. You must supply the above information.

Any returned items must have prior authorization. Unexpected returns are greatly delayed in handling. These delays can be avoided by writing in advance furnishing the above information.