



V - 6R

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6-Meter Collinear Gain Vertical
for 51-54 Mhz

INSTRUCTION MANUAL

General Description

The new Hy-Gain V-6R VHF antenna is a collinear 5/8-wave omnidirectional vertical antenna for the 51-54 MHz frequency range. The V-6R features two sets of 1/4-wave radials which properly decouple the lower 5/8-wave radiator from the mast. It also features a 500 watt enclosed coil that matches the antenna to a nominal 50 ohms.

The feedpoint is a female UHF connector that is protected from the weather within the lower radiator. The V-6R also features a mast-to-mast bracket that will accept up to a 2 1/4 inch O.D. mast.

SPECIFICATIONS

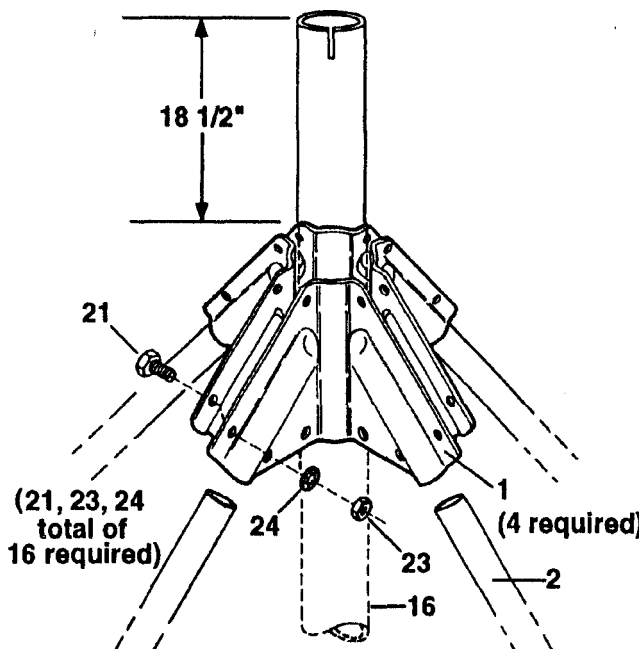
VSWR at Resonance (52.8 MHz)	less than 1.5:1
2:1 VSWR Bandwidth	3 MHz minimum
Power Gain	3 dBd (5.2 dBi)
Antenna/Mast Isolation	20 dB
Power Input	500 watts continuous
Lightning Protection	DC ground
Height	25 feet 3 inches (7.7 m)
Wind Area	2.2 sq. ft. (0.20 sq.m)
Maximum Mast O.D.	2 1/4 inches (57 mm)
Hardware	18-8 stainless steel
Maximum Wind Survival (no ice)	80 mph
Net Weight	15 lbs (6.8 kg)

Assembly of Lower Radiator

Unpack the antenna and check the parts against the parts list and drawings.

Select four of the radial clamps and associated hardware and LOOSELY assemble them as shown in Figure 1. Repeat the previous step for the remaining four radial clamps.

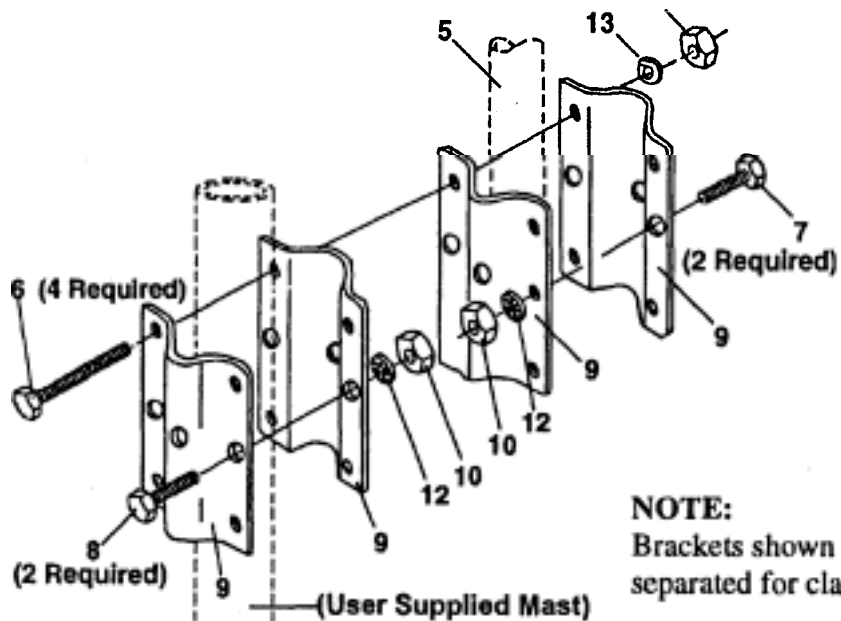
Slide both assemblies onto the 1 1/8" x 61" tube assembly (Item 16) as shown in Figure I and 4. Tighten only the eight (8) screws close to the tube to hold the clamps in place. Place a No. 16 tubing clamp (Item 19) over the slotted end of the tube as shown in Figure 5.



Item No.	Description
1	Radial Clamp, 45 degrees
2	Tube, 7/16" x 52"
16	Tube, 1 1/8" x 61", slotted
21	Bolt, #10-24 x 5/8", hex head
23	Nut, #10-24, hex
24	Lockwasher, #10, internal

Figure 1
Radial Clamp Assembly

Item No.	Description
5	Tube, 1 3/8" x 44", slotted
6	Bolt, 5/16"-18 x 5", hex head
7	Bolt, 1/4"-20 x 1", hex head
8	Bolt, 1/4"-20 x 2", hex head
9	Mast-to-Mast Clamp
10	Nut, 1/4"-20, hex
11	Nut, 5/16"-18, hex
12	Lockwasher, 1/4", internal
13	Lockwasher, 5/16", split



NOTE:
Brackets shown separated for clarity.

Figure 2
Mast-to-Mast Clamp

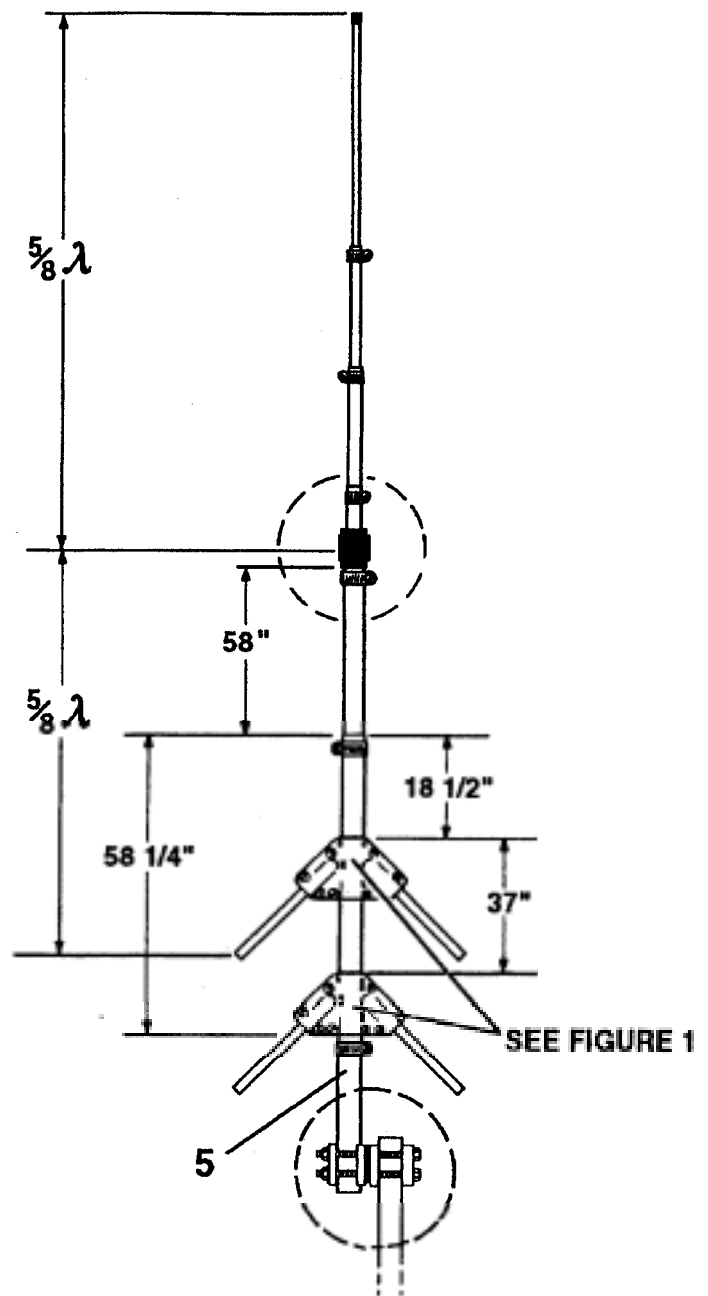
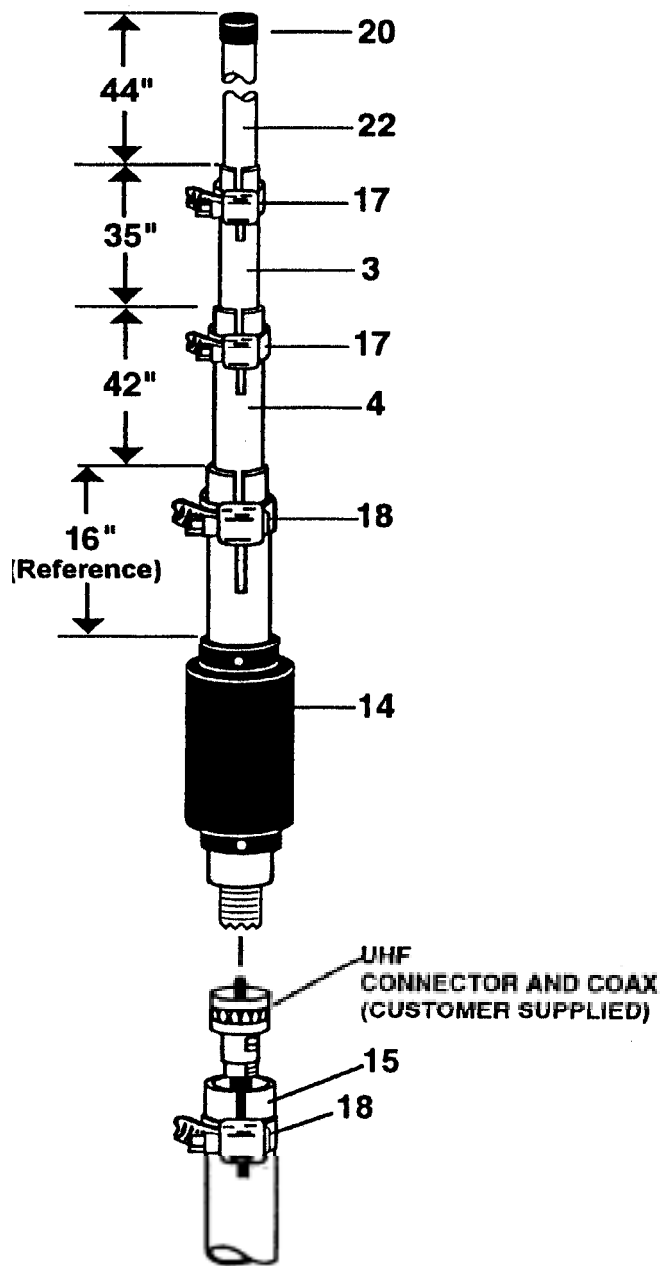
Select the 1 3/8" x 44" slotted tube (Item 5) Place a No. 16 tubing clamp (Item 19) over the slotted end of the tube. Slide the slotted end over the bottom end of the 1 1/8" x 61" tube assembly until the tube touches the bottom of the bottom radial clamp. Tighten the tubing clamp securely

Select the mast-to-mast clamps and associated hardware and loosely assemble them as shown in Figure 2. Install the 1/4" hardware first.

Slide the assembled mast-to-mast clamp over the bottom end of the 1 3/8" x 44" tube as shown in Figure 2 and securely tighten the two (2) 1/4"-20 x 1" bolts, nuts and lockwashers (Item Nos. 7, 10, and 12).

NOTE: The end of the 1 3/8" x 44" tube (Item 5) should be even with the bottom of the mast-to-mast clamps (Item 9).

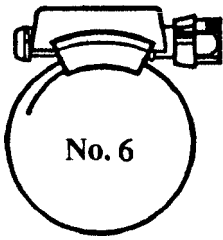
Select the 1" x 60" tube assembly (Item 15). Place a No. 10 tubing clamp (Item 18) over the slotted end of the tube. Slide the bottom end of this tube assembly into the top (slotted) end of the 1 1/8" x 61" tube assembly (Item 16) to the dimension shown in Figure 4. Securely tighten the No. 16 tubing clamp on the top of the 1 1/8" x 61" tube.



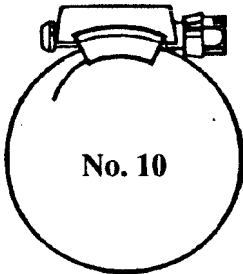
Item No.	Description
22	7/16" x 58"
3	Tube, 5/8" x 38"
4	Tube, 7/8" x 44"
5	Tube, 1 3/8" x 44", slotted
14	Coil, V-6R
15	Tube, 1" x 60", slotted
17	Clamp, #6, Tubing
18	Clamp, #10, Tubing
20	Caplug, 7/16"

Figure 3
Upper Radiator/Coil Assembly

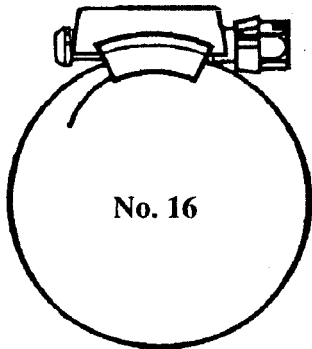
Figure 4
Overall View



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



Part No.	Description	Fits Tubing Sizes
358757	Clamp, Size #10 all stainless steel 5/16" hex head screw	1"



Part No.	Description	Fits Tubing Sizes
358758	Clamp, Size #16 all stainless steel 5/16" hex head screw	1 1/4"

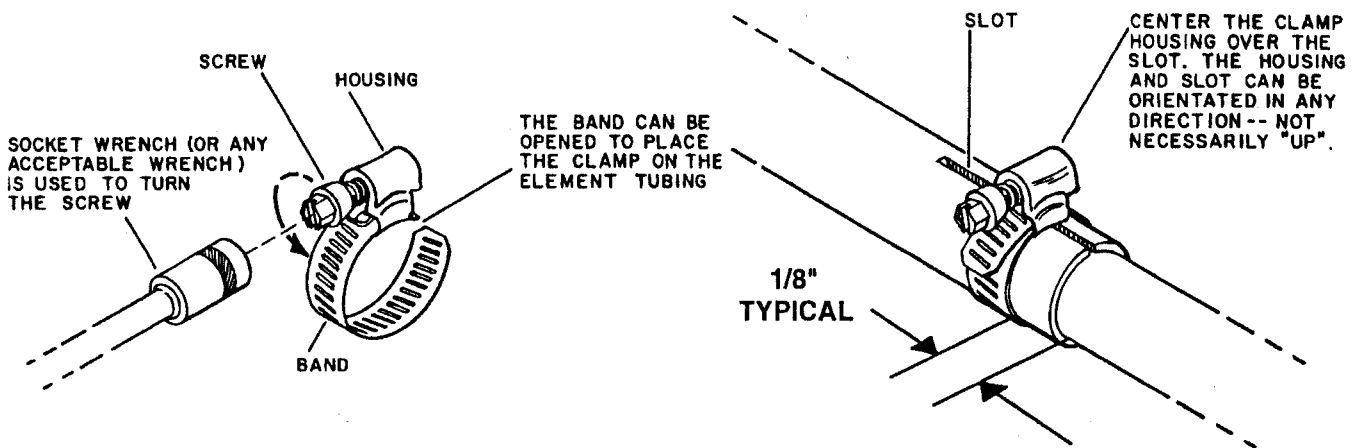


Figure 5
Compression
Clamps

Assembly of Upper Radiator

Refer to Figures 3 and 5.

Select the V-6R coil assembly (Item 14). Select a No. 10 tubing clamp (Item 18) and place over the slotted tube end of the coil assembly.

Select the 7/8" x 44" swaged tube (Item 4) and insert the bottom end into the slotted end of the coil assembly so that 42" is exposed. Tighten the tubing clamp securely. Place a No. 6 tubing clamp (Item 17) over the top (slotted) end of the 7/8" tube.

Select the 5/8" x 38" swaged tube (Item 3) and insert the bottom end into the slotted end of the 7/8" tube so that 35" is exposed. Tighten the tubing clamp securely. Place a No. 6 tubing clamp (Item 14) over the top (slotted) end of the 5/8" tube.

Select the 7/16" x 58" tube (Item 22) and insert one end into the slotted end of the 5/8" tube so that 44" is exposed. Tighten the tubing clamp securely. Place the 7/16" caplug (Item 17) on the end of this tube.

Final Assembly

It is recommended that you attach a short length of coaxial cable to the antenna before installation. After installation, you may then attach your feedline to this cable. The short length of cable must be at least 14 feet (4.3 m) long.

The V-6R may be fully assembled or partially assembled before installation on your mast or tower. Use one of the suggested methods as described.

Method 1: Full Assembly

Attach the short length of coaxial cable to the UHF connector on the bottom of the coil assembly. Tighten the connector securely. Thread the cable through the bottom radiator tubes until the connector can be seen. Place the bottom of the coil assembly into the top of the 1" x 61" tube assembly and securely tighten the No. 10 tubing clamp.

Select the eight (8) 7/16" x 52" radial tubes (Item 2), and insert them completely into the radial clamps. Tighten all screws on both radial clamp assemblies.

Place the antenna on a mast (2 1/4" O.D. max.) using a gin-pole. Tighten the 1/4" bolts first, then install and tighten the 5/16" hardware as shown in Figure 2. Depending upon your requirements, you may install the mast-to-mast clamps on your supporting mast first, then install the antenna. Try - this at at ground-level first!

Method 2: Partial Assembly - Top of Tower

Attach the short length of coaxial cable to the UHF connector on the bottom of the coil assembly. Tighten the connector securely. Thread the cable through the bottom radiator tubes until the connector can be seen. Place the bottom of the coil assembly into the top of the 1" x 61" tube assembly and securely tighten the No.10 tubing clamp.

Hand-tighten the screws on the radial clamps and mark the exact position of the radial clamps with either black tape or a permanent marker before raising the antenna. Raise the antenna to a position near the top of the tower. Select and install the (8) 7/16" x 52" radial tubes (Item 2) into the radial clamps. Begin with the top set, raise the antenna slightly, then install the bottom set. Securely tighten all screws!

Place the antenna on a mast (2 1/4" O.D. max) using a gin-pole. Tighten the 1/4" bolts first, then install and tighten the 5/16" hardware as shown in Figure 2. Depending upon your requirements, you may install the mast-to-mast clamps on your supporting mast first, then install the antenna. Try this at ground-level first!

Method 3: Partial Assembly - Tower Side Mount

Attach the short length of coaxial cable to the UHF connector on the bottom of the coil assembly. The length of this cable may be increased so that the connection to the feedline may be easily reached from the tower. Tighten the connector securely. Thread the cable through the bottom radiator tubes until the connector can be seen. Place the bottom of the coil assembly into the top of the 1" x 61" tube assembly and securely tighten the No. 10 tubing clamp.

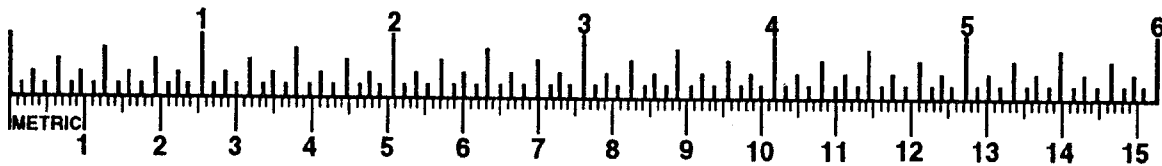
The tower (side-mount) support bracket(s) should be installed prior to antenna installation. The antenna should be supported at least 6 feet (2 m) from the side of the tower for best performance. Some detuning may be expected even at this spacing.

Hand-tighten the screws on the radial clamps and mark the exact position of the radial clamps with either black tape or a permanent marker before raising the antenna. Raise the antenna to a position near the support brackets. Select and install the eight (8) 7/16" x 52" radial tubes (Item 2) into the radial clamps. Securely tighten all screws!

Place the antenna on the support. Tighten the 1/4" bolts first, then install and tighten the 5/16" hardware as shown in Figure 2. Depending upon your requirements, you may install the mast-to-mast clamps on your supporting structure first, then install the antenna. Try this at ground-level first!

WARNING

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



Converting American Measurements to Metric

Use this scale to identify lengths of bolts, diameters of tubes, etc. The American inch (1") and foot (1') can be converted to centimeters in this way.

$$1 \text{ inch (1 ") = 2.54}$$

$$\text{cm } 1 \text{ foot (1')} = 30.48$$

Example:

$$42" \times 2.54 = 106.7\text{cm}$$

PARTS LIST

Item No.	Part No.	Description Qty
1	160012	Radial clamp, 45 degrees 8
2	175165	Tube, 7/16" x 52"8
3	190012	Tube, 5/8" x 38"1
22	171533	Tube, 7/16" x 58"1
4	190205	Tube, 7/8" x 44"1
5	191020	Tube, 13/8 " x 44"1
	878785	Parts Pack, Base V-6R 1
6	500387	Bolt, 5/16"-18 x 5, hex head4
7	502958	Bolt, 1/4"-20 x 1 ", hex head 2
8	505737	Bolt, 1/4"-20 x 2", hex head 2
9	5137000-1	Mast clamp.....2
10	554099	Nut, 1/4"-20, hex.....4
11	555747	Nut, 5/16"-18, hex.....4
12	562961	Lockwasher, 1/4", internal4
13	564792	Lockwasher, 5/16", split..... 4
14	878786	Coil Assy. V-6R1
15	878787	Tube Assy, V x 60". 1
16	878788	Tube Assy, 1 1/8" x 61". 1
	878790	Parts Pack, V-6R.....1
17	358756	Clamp, #6, tube.....1
18	358757	Clamp, #10, tube.....3
19	358758	Clamp, #16, tube.....2
20	455644	Caplug, 7/16", black..... 1
21	500160	Bolt, #10-24 x 5/8", hex head 34
23	554071	Nut, # 10-24, hex34
24	565697	Lockwasher, #10, internal 34
25	880395	Mast Clamp Assy..... 1