

## WARNING!

**Installation of this product near power lines is dangerous. Contact with them can be lethal! Should the antenna begin to fall in the direction of overhead wires, let go of the mast immediately and call the utility company.**

### SPECIFICATIONS

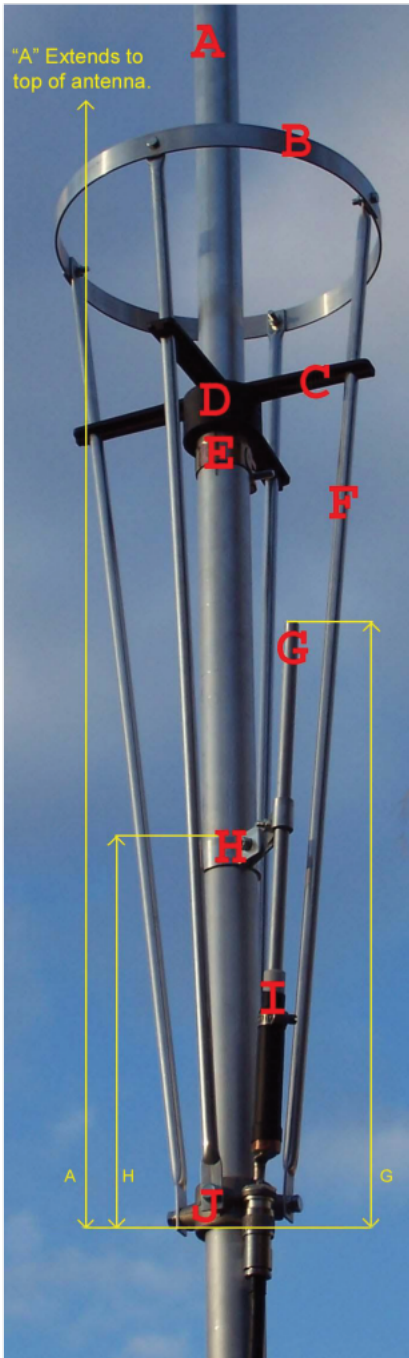
Frequency range: 88-110 MHz. (Tunable)  
 Radiation pattern: Low angle omni  
**Max. power: 1 KW (Low power model)**  
 Lightning protection: DC grounded radiator  
 SWR: 1:1 at tuned frequency

Impedance: 50 ohms  
 Gain: 6 db  
 Polarization: Vertical  
 Wind load: .7 square feet  
 Max. Wind speed: > 100 MPH

Bandwidth: 5 MHz @ < 1.5:1  
 Length: 9 feet  
 Wavelength: .82 wave  
 Connector: N-Type (Teflon insulated)

### MEASUREMENTS

The following settings are all measured from the bottom edge of the aluminum hub (part J) to the top edge of the parts referred to. They are intended to get you close to your SWR setting prior to final adjustments with an SWR meter. Always set the length of the main radiator to your exact frequency using the formula on the other page. Failing to do so will result in reduced performance even though it will be possible to achieve a good SWR. The stainless steel clamps should be placed at the extreme top of the slotted sections to apply maximum pressure to the inner pieces of tubing.



Frequency MHz	Main A (Inches)	Gamma G (Inches)	Bracket H (Inches)
88	111.22	13.60	10.50
89	109.60	13.75	11.00
90	107.70	13.75	11.25
91	106.10	14.00	11.40
92	104.30	14.00	11.40
93	102.75	14.20	11.40
94	101.20	14.20	11.40
95	99.60	14.20	11.40
96	98.25	14.20	11.60
97	97.00	14.20	11.60
98	95.90	14.20	11.60
99	94.70	14.40	11.60
100	93.50	14.65	11.60
101	92.30	14.75	11.60
102	91.00	15.00	11.80
103	90.00	15.20	11.80
104	88.75	15.35	12.00
105	87.80	15.55	12.60
106	86.60	15.55	12.60
107	85.60	15.55	12.60
108	84.45	15.55	12.75

### ANTENNA MODEL (N-Type connector)

{ } Customer tuned following directions

{ } Optional factory tuned to \_\_\_\_\_ MHz\*

\*Set TOP main radiator section to the black mark and secure clamps tight so the sections cannot slide back down.

Date Shipped: \_\_\_\_\_

## ASSEMBLY INSTRUCTIONS

When you unpack the Dominator you will notice the gamma match (part G & I), gamma bracket (part H), and aluminum hub (part J) have already been mounted on the largest diameter bottom section of tubing. The first step is to attach the four loop supports (parts F) to the hub (part J) using the supplied screws. Next, slide the large hose clamp (part E) over the slotted top part of the bottom section so the bolt lines up with the slot. Slide the longest section of tubing (part A) into the slotted end of the bottom section you just put the clamp on. This longest middle section should slide into the lower section until it hits a dimple that has been placed in the lower section to insure the correct length. Be sure the slotted end of the middle section is facing up and tighten the bolt on the hose clamp.

Now locate the round black Nylon hub (part D) that looks similar to the metal one already installed. There are five holes taped for the black hex screws included in the plastic bag. It's easiest to install the five hex screws into the hub at this point. Install them by hand, leaving about half of the threads exposed for now. Look at the hub (part D) and make sure the four slots that will line up with the four black spreader brackets (parts C) is facing up. With the four slots up, slide the hub over the middle section of tubing. Slide this hub (part D) all the way down the middle section until it stops against the top of the lower section with the gold clamp (part E). Try to align the four slots in the plastic hub so they are in line with the four loop support rods (parts F) that were already installed on the bottom section.

Carefully line up each of the four spreader brackets (parts C) over the slots in the top of the Nylon hub (part D) so that you can push the spreader (part C) down into the slot in part D. It can be helpful to loosen the four lower loop support rod bolts on part J. Now make sure the four loop support rods are in line with the largest diameter tubing section in the center of the antenna. If they are not square, just twist the entire Nylon hub (part D) until they line up perfectly. This should also keep an equal distance between the gamma match (parts G & I) and the loop support rod (parts F) to either side of it. Now tighten the five black hex screws in the Nylon hub with the wrench from the bag. Also tighten the four larger bolts on the lower metal hub (part J) holding the loop support rods (parts F).

Locate the two curved aluminum loop halves (parts B) with 3 holes drilled in them and four smaller bolts from the hardware bag. When this is bolted together to form the loop, the ends from both loop halves (Parts B) will overlap on the top of two opposite loop support rods (parts F). It is easier to install the loop working with the overlapping ends first. Then the bolts in the centers of the loop line right up. It will require some flexing of the flat aluminum loop (parts B) and the loop support rods, to wrap it around the outside of parts F. It does not matter if the left half of the loop overlaps the right side or vice versa, as long as the loop (parts B) is wrapped on the outside of the support rods (parts F). Install the second two bolts that attach the centers of the loop halves to the support and tighten all four bolts.

Find the silver stainless steel hose clamp from the hardware bag and slide it over the top of the middle section of the main radiator (part A) so the bolt lines up with the slot. Next slide the top section of the main radiator into the middle section with the black plastic cap facing up so the top is sealed. If you have special ordered your antenna with the factory tuning option, there will be a black mark on the top section of tubing indicating how far to slide this part into the middle section and your gamma match will not need adjustment. Standard model antennas will require consulting the customer tuning instructions to calculate the overall length of the main radiator according to your frequency using our formula. Adjustment of the gamma match will be required.

A = Main radiator

B = Two loop halves

C = Four spreader brackets

D = Nylon spreader hub

E = Larger gold clamp

F = Four loop support rods

G = Gamma rod

H = Gamma bracket

I = Gamma match

J = Metal hub

## HIGH GAIN 3/4 WAVE TUNING INSTRUCTIONS

The 3/4-wave ground plane uses an advanced design (patent pending) that delivers excellent FM broadcast range. The antennas long 3/4 wave main radiator combined with its innovative inverted ground plane structure and highly efficient gamma match give it performance that rivals the best multi bay stacked phased arrays. It should be mounted as high as possible and is easily mounted using standard mast and U-bolts. The U-bolts should be placed in the centers of the two reinforcing sleeves on the base. The wider spreader plate on the back of the U-bolt with the nuts on it should be the side against the antenna to prevent the U-bolts from crushing the tubing. Do not allow the mast to rise above the top sleeve. Keep at least 10 feet (more is advisable) between the antenna and other metal objects so they do not interfere with the radiation pattern. Secure the coax cable to the mast so it does not apply stress on the connector. The type and length of coax you use is very important. Poor quality cables will waste more than half of your power in the wire on a typical 100-foot run. For coax lengths 50 feet and under good quality RG/8U is acceptable. For runs between 50 and 100 feet use Belden 9913. For runs of 101 feet or more, use Andrew LDF4 coaxial cable.

Unless your antenna was special ordered factory tuned to your frequency you will have to adjust the antenna to achieve a good SWR match. You will need an SWR meter designed for VHF use, not the common 1.8 to 30 MHz. It is advisable to turn the transmitter off when making adjustments so you will not be exposed to high levels of RF when you are adjusting the antenna. Do not touch any part of the antenna when reading the SWR meter. Only power the transmitter up when you are clear of the antenna. If safety reasons prevent you from adjusting the antenna in the location where it is to be mounted an alternative is to set the SWR on the ground with the antenna temporarily mounted on a 10-foot pole. With the antenna 10 feet above ground this is equal to one wavelength in height on the FM band and is suitable for adjusting the SWR. Make sure you are in a clear area away from metal objects and use the coax cable that will be connected in its permanent location so changes in wire do not affect your SWR adjustments.

There are three factors that determine the operating frequency for this antenna. The primary setting is the length of the main radiator to equal 3/4 wavelength at your operating frequency. This length is measured from the top of the coax connector plate to the tip of the antennas main radiator. The length in inches is calculated by using our formula  $9212$  divided by frequency in MHz. Example at 98.1 MHz. would be  $9212 / 98.1 = 93.9$  inches.

Once this calculated measurement has been set for your frequency do not attempt to adjust the main radiator to set the SWR. The next two adjustments are responsible for setting the SWR and deal with the gamma match. This is the part with the white Teflon insulation and has the coax connector on its base. The first adjustment is set by how much Teflon is slid into the lower portion of the gamma match to get the right amount of capacitance. The second adjustment is set by the location of the gamma bracket that connects the gamma rod to the main radiator. Moving this bracket up or down will give the right amount of inductance. It is the balance between the inductive and capacitive components in this network that make it possible to achieve a 1:1 SWR. When both the inductive reactance and the capacitive reactance are equal at your frequency, they cancel each other out and make the antenna appear as a perfect 50-ohm resistive load.

The setting of the exposed Teflon has the biggest effect and is much more sensitive than the bracket so we will start by moving it in or out 1/16 inch. If the SWR increases you know you moved it in the wrong direction. Continue to slide the Teflon in the direction that lowers the SWR 1/16<sup>th</sup> of an inch at a time. At some point the SWR will stop going down and begin to rise again. Find the spot that gives the lowest SWR with the Teflon and then move onto the slider bracket adjusting it in the same manner. Since the slider bracket is not as sensitive it should be moved up or down a 1/4 inch at a time. Just like the Teflon we have to determine what direction of movement provides the lower SWR and find the lowest point possible on this adjustment. It is important to understand that these two gamma match adjustments interact with each other and you should make sure the clamps aren't loose enough that when you adjust one, the other setting isn't being disturbed at the same time. In most cases it is necessary to repeat the gamma match tuning procedure more than once in order to achieve a perfect 1:1 SWR. The good news is the direction you will be moving the parts in to lower the SWR will be the same as the first time as long as you have not passed the optimum spot. As you get closer to the perfect SWR you should reduce the amount you move the parts each time to prevent you from passing over this ideal spot. Technical assistance is available through email at: [support@progressive-concepts.com](mailto:support@progressive-concepts.com)