

# VOYAGER™ & VOYAGER™ PLUS Assembly & Tuning Information

U.S. Patent Number 5,612,705

## Introduction

Thank you for choosing the Antenex® VOYAGER™ Antenna. The VOYAGER™ is a vertically polarized gold anodized base antenna. This antenna has been designed for accuracy, durability and value. Electrical designs are optimized with the latest in computer aided technology. All aluminum is gold anodized for extremely high durability, resistance to corrosion and an accurate radiation pattern. **Warning! Use extreme caution when installing this antenna. Electrocuting and/or death can occur if this antenna comes in contact with or comes near electric power lines.**

## Assembly Instructions

Please note we have provided **Red Ink Marks** as a guide to tuning your antenna to the lowest frequency in its specified band.

### **2dBi Gain VOYAGER™ Antenna**

1. No assembly is required.
2. For quick tuning to the lowest frequency in the band, extend antenna until the red line appears, align the red line with the top of the next section and tighten the hose clamp.
3. In order to tune to a specific frequency, proceed to the **Tuning Procedure** section below.

### **5dBi Gain VOYAGER™ Antenna**

1. Locate the phasing loop in the supplied parts bag.
2. Loosen the two middle screws located on the phasing loop insulator. Insert the phasing loop into the holes provided and tighten the two screws until the phasing loop is lightly secured.
3. For quick tuning to the lowest frequency in the band, extend both antenna sections until the red line appears, align the red line with the top of the section below it and tighten the associated hose clamps. Adjust the phasing loop until both red lines are aligned next to the phasing loop insulator on the side the loop is inserted and tighten the associated screws.
4. In order to tune to a specific frequency, proceed to the **Tuning Procedure** section below.

### **6dBi Gain VOYAGER™ PLUS Antenna**

1. Locate the phasing loop in the supplied parts bag.
2. Loosen the two middle screws located on the phasing loop insulator. Insert the phasing loop into the holes provided and tighten the two screws until the phasing loop is lightly secured.
3. Assemble the radial yoke by first screwing one lock nut into the threaded end of each of the four radials. Screw the radials into the four symmetrically placed holes in the radial yoke, then firmly seat the radial lock nuts into place. Slip the radial yoke over the mounting sleeve above the red lines on the sleeve. Tighten the two locking screws to secure the yoke to the sleeve.
4. For quick tuning to the lowest frequency in the band, extend all antenna sections until the red line appears, align the red line with the top of the section below it and tighten the associated hose clamps. Adjust the phasing loop until both red lines are aligned next to the phasing loop insulator on the side the loop is inserted and tighten the associated screws.
5. In order to tune to a specific frequency, proceed to the **Tuning Procedure** section below.

## Tuning Procedure:

**Important Note:** When attaching the transmission line take care not to block the three drain holes located around the connector at the base of the antenna. These holes allow condensation that develops inside the antenna to drain, enabling proper operation.

### **2dBi Gain VOYAGER™ Antenna**

Decide the frequency at which you need the antenna to resonate and then refer to the appropriate graph for your model on pages 4, 5, & 6 and Figure 1 on page 3 to determine the dimensions for the next steps:

1. Using a tape measure, measure from the top of the top section to the screw located in the base insulator.
2. Loosen the hose clamp and slide the section in or out until the proper length is obtained, lightly tighten the hose clamp, twist each of the sections together to ensure good electrical contact and then securely tighten the hose clamp.
3. Temporarily set up the antenna in a clear area at least 6 feet above the ground. Apply RF power to the antenna and check for low VSWR at the chosen frequency.
4. To increase the frequency, reduce the overall dimension of the antenna by sliding the section down.  
To lower the frequency, increase the overall dimension of the antenna by sliding the section up.

### 5dBi Gain VOYAGER™ Antenna

Decide the frequency at which you need the antenna to resonate and then refer to the appropriate graph for your model on pages 4, 5, & 6 and Figure 1 on page 3 to determine the dimensions for the next steps:

1. The top section is measured from the top of the section to the top part of the phasing loop. Slide the section in or out until the correct length is obtained, lightly tighten the hose clamp, twist each of the sections together to ensure good electrical contact and then securely tighten the hose clamp.
2. The bottom section is measured from the bottom part of the phasing loop to the screw located in the base insulator. Slide the bottom section in or out until the correct length is obtained, lightly tighten the hose clamp, twist each of the sections together to ensure good electrical contact and then securely tighten the hose clamp.
3. The phasing loop is measured from the bend of the loop to the screws located in the middle of the phasing loop insulator. Loosen the two middle screws and slide the phasing loop until the correct length is obtained as indicated on the graph for your model. Tighten the associated screws. **Do not trim** the excess phasing loop from the other side or the antenna will not perform correctly at lower frequencies.
4. Temporarily set up the antenna in a clear area at least 6 feet above the ground. Apply RF power to the antenna and check for low VSWR at the chosen frequency. You may then fine tune the antenna by adjusting the sections.

### 6dBi Gain VOYAGER™ PLUS Antenna

Decide the frequency at which you need the antenna to resonate and then refer to the appropriate graph for your model on pages 4, 5, & 6 and Figure 1 on page 3 to determine the dimensions for the next steps:

1. The top section is measured from the top of the section to the top part of the phasing loop. Slide the section in or out until the correct length is obtained, lightly tighten the hose clamp, twist each of the sections together to ensure good electrical contact and then securely tighten the hose clamp.
2. The bottom section is measured from the bottom part of the phasing loop to the screw located in the base insulator. Slide the bottom section in or out until the correct length is obtained, lightly tighten the hose clamp, twist each of the sections together to ensure good electrical contact and then securely tighten the hose clamp.
3. The phasing loop is measured from the bend of the loop to the screws located in the middle of the phasing loop insulator. Loosen the two middle screws and slide the phasing loop until the correct length is obtained as indicated on the graph for your model. Tighten the associated screws. **Do not trim** the excess phasing loop from the other side or the antenna will not perform correctly at lower frequencies.
4. For the VG4066 model, Dimension "A" and "B" are fixed at 14.5" for all frequencies, and Dimension "C" (the hairpin) at 5". Dimension "D" (radial yoke) should be adjusted per the graph. No other adjustment is necessary.
5. For the VG4506 model, Dimension "A" is fixed at 14.5" for all frequencies, Dimension "B" is fixed at 12.75" for all frequencies and Dimension "C" (the hairpin) is fixed at 3.75" for all frequencies. Dimension "D" (radial yoke) should be adjusted per the graph. No other adjustment is necessary.
6. Temporarily set up the antenna in a clear area at least 6 feet above the ground. Apply RF power to the antenna and check for low VSWR at the chosen frequency. You may then fine tune the antenna by adjusting the sections. Longer sections lower resonate frequency, shorter sections raise resonant frequency.

### Warranty

**ANTENEX, INC.** warrants to the original purchaser that our antennas will remain free from defects in materials and workmanship for a period of 2 years from the purchase date. If any such defect is discovered within the warranty period, **ANTENEX, INC.** will at its sole option, repair or replace your product free of charge. This warranty applies only if the product is used as designed, and is void if the product is abused, disassembled, tampered with, used unreasonably or fails as a result of normal wear. Furthermore, this warranty applies only to defects which occur where the proper product is selected as recommended by **ANTENEX, INC.** and is used in the fashion recommended by **ANTENEX, INC.** for the defective product. This warranty is in lieu of all other warranties, expressed or implied, and is limited to a period of two years from the date of original purchase. **ANTENEX, INC.** is not liable for incidental or consequential damages of any kind. Any warranty extended herein shall be limited to the price paid to **ANTENEX, INC.** for the defective product. Where the period of warranty is governed by state or local law such period shall control.

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# FIGURE 1

Dimension "A": From tip of rod to upper hairpin fixing screw.

Dimension "D" Phasing Loop: From hairpin fixing screw to end of hairpin.

Dimension "B": From lower hairpin fixing screw to base insulator fixing screw.

Dimension "C": From top of sleeve to top surface of radial yoke.

**TYPICAL DIMENSIONS**  
(for lowest frequencies)

**VG1502 @150 MHz**  
Dimension "A" = 43½"

**VG4502 @450 MHz**  
Dimension "A" = 13¼"

**TYPICAL DIMENSIONS**  
(for lowest frequencies)

**VG1506 @150 MHz**

Dimension "A" = 51"  
Dimension "B" = 48"  
Dimension "C" = 17"  
Dimension "D" = 9¾"

**VG4506 @450 MHz**

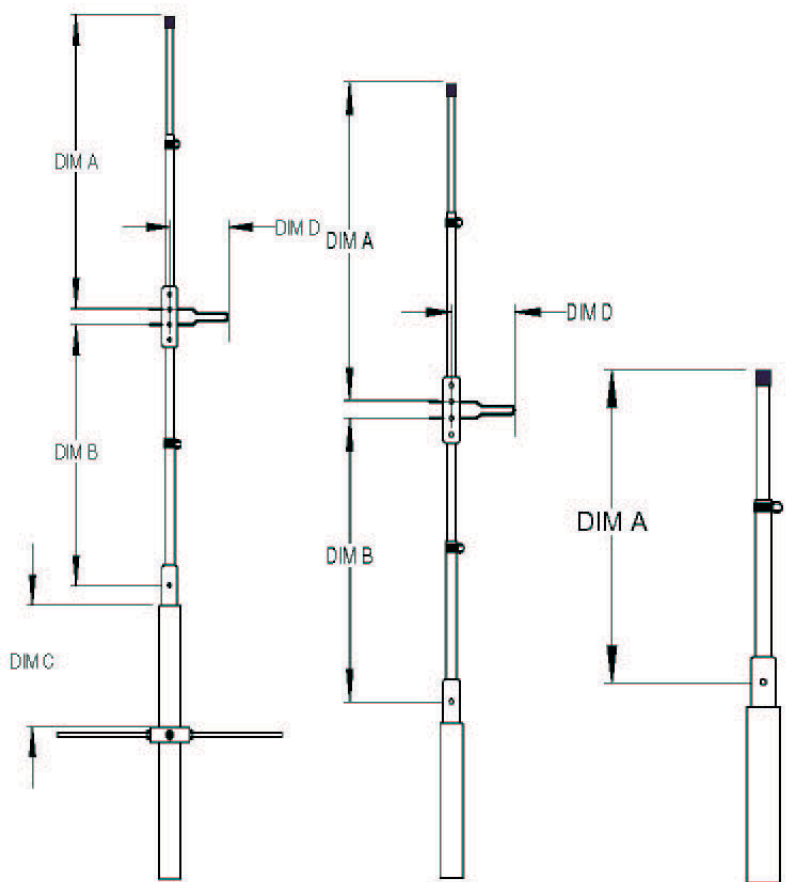
Dimension "A" = 14½"  
Dimension "B" = 12¾"  
Dimension "C" = 6"  
Dimension "D" = 3¾"

**VG1505 @ 150MHz**

Dimension "A" = 50¾"  
Dimension "B" = 50¾"  
Dimension "D" = 9¾"

**VG4505 @ 450MHz**

Dimension "A" = 16½"  
Dimension "B" = 12¾"  
Dimension "D" = 3¼"



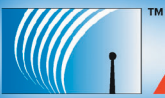
**VOYAGER™ 6dBi**

**VOYAGER™ 5dBi**

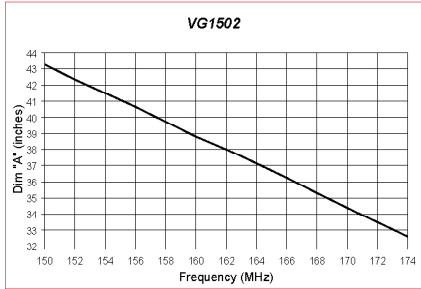
**VOYAGER™ 2dBi**

## WARNING!

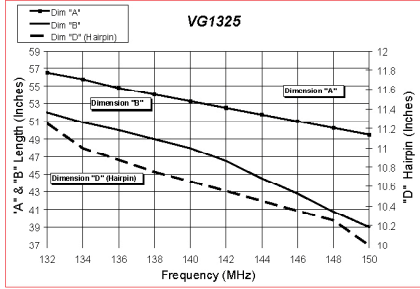
YOU CAN BE KILLED IF THIS ANTENNA COMES NEAR OR IN CONTACT WITH AN ELECTRIC POWER LINE. ALWAYS USE CAUTION WHEN INSTALLING THIS ANTENNA. STAY AWAY FROM ALL OVERHEAD WIRES OF ANY KIND.



## VOYAGER<sup>TM</sup> 2dBi Models TUNING GRAPHS



## VOYAGER<sup>TM</sup> 5dBi Models TUNING GRAPHS



## VOYAGER<sup>TM</sup> PLUS 6dBi Models TUNING GRAPHS

