Vertical Antenna Tilt Base Assembly

DXE-VA-BASE

DXE-VA-BASE-INS Rev. 5e

(DXE-VA-BASE shown with customer supplied mounting pipe and antenna section)
Introduction

For heavy duty applications, the **DXE-VA-BASE** Insulated Vertical Antenna Base with its supplied laser cut stainless steel Tilt Base, and complete stainless steel hardware package is intended to support a 2 inch OD antenna base section in a vertical position and to allow tilting for easy maintenance or tuning. The **DXE-VA-BASE** is designed for vertical antennas that exceed 30-35 feet.

The **DXE-VA-BASE** consists of a unique reinforced fiberglass insulating channel which has twice the strength of commonly used nylon and other insulating materials. It is fastened with stainless steel hardware to a rugged 3/16 inch thick stainless steel laser cut Tilt Base.

With a DX Engineering Tilt Base, operators can raise or lower their vertical antenna in seconds while leaving the base plate securely attached to the mounting pipe or post. One person can service the antenna. No more climbing ladders or removing brackets. Easily make repairs, tune your vertical or lay your antenna down before bad weather hits. The Tilt Base may be bolted to a secure flat mounting surface, or to the recommended galvanized steel mounting pipe described in the installation instructions using two optional **DXE-SSVC-2P** Stainless Steel V-Clamps. The standard 1-1/2" galvanized water pipe (with its 1.9" OD) is just fine for this application and can usually be found at your local home building supply store.

**WARNING!**

**INSTALLATION OF ANY ANTENNA NEAR POWER LINES IS DANGEROUS**

**Warning:** Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death.

**Tools Required**

3/8", and two 1/4" nut drivers or wrenches (SAE)

**Parts Included**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stainless Steel Tilt Base</td>
<td>1</td>
</tr>
<tr>
<td>Mast Mount Insulated Channel</td>
<td>1</td>
</tr>
<tr>
<td>Aluminum Spacer</td>
<td>4</td>
</tr>
<tr>
<td>Aluminum Mounting Plate</td>
<td>1</td>
</tr>
<tr>
<td>3/8” U-Bolt x 2” ID x 3.25” leg, Saddle &amp; Hardware</td>
<td>2</td>
</tr>
<tr>
<td>1/4-20 x 2” Hex Head Bolt</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4-20 Nyloc Nut</td>
<td>4</td>
</tr>
<tr>
<td>1/4-20 Hex Nut</td>
<td>4</td>
</tr>
<tr>
<td>1/4” Split Washer</td>
<td>4</td>
</tr>
<tr>
<td>1/4” Flat Washer</td>
<td>4</td>
</tr>
<tr>
<td>1/4” Flange Nut</td>
<td>2</td>
</tr>
<tr>
<td>1/4” Fender Washer, 1” OD</td>
<td>4</td>
</tr>
</tbody>
</table>
Installation

Site Selection
Select a mounting location clear from power lines, structures and other antennas by a minimum of your antenna height. **Consider overhead power lines, utility cables and wires.** The further away the vertical is mounted from local noise sources or other metallic objects, which can re-radiate noise and affect the tuning, radiation pattern and SWR, the better.

Mounting Pipe
Use a thick-walled galvanized steel mounting pipe at least 4 feet long. This will allow approximately 2 feet or more to be below ground and 2 feet above ground. A thick-walled steel pipe 1-3/4" OD to 2" OD maximum is recommended with a minimum thickness of 1/8" (1/4" preferred) should be used. The standard 1-1/2” galvanized water pipe (with its 1.9” OD) is just fine for this application and can usually be found at your local home building supply store. For permanent mounting, use a post-hole digger to make the hole deep enough to accommodate 2 feet of pipe and a couple inches of gravel at the bottom for drainage. Set the pipe on the gravel, use the pre-mix concrete to fill around the pipe, adding water and mixing as you fill or mix the concrete first, then pour in the hole. Fill the hole until the concrete is level with the ground around it. Use a level as you fill the hole to be sure the pipe is straight. Allow to set overnight. Your location, landscape and ground conditions may require different mounting solutions in order to have the steel mounting pipe and the vertical antenna in a secure position.

*Note:* Galvanized steel, rather than aluminum, is much more suitable for mounting in concrete. Aluminum will quickly corrode due to incompatibility with the materials used to make concrete.

Base Assembly
The DXE-VA-BASE shipping box contains the stainless steel tilt base, an aluminum plate with four holes, an insulated channel, two U-Bolt Saddle Clamp assemblies and stainless steel hardware.

*PTX-81343 Never-Seez or DXE-NSBT8 Anti-Seize* should be used on all clamps, bolts and stainless steel threaded hardware to prevent galling and to ensure proper tightening.

Attach the Aluminum Mounting Plate to the Insulated Channel using the 2” x 1/4” Hex Bolts, 1/4” Flat Washers, 1/4” Split Washers, Aluminum Spacers, and 1/4-20 Hex Nuts in four places as shown in Figure 1. Do not over tighten to avoid crushing the insulated channel.

Figure 1
The 2” OD base section of your vertical antenna is installed to the **DXE-VA-Base** assembly using the two 2” OD U-Bolt Saddle Clamps as shown in **Figure 2**. When tightening, observe the split washers. When they fully seat (flatten out), the clamp is tight enough. Any clamp should be tightened evenly from side-to-side with an equal amount of thread above the nut.

![Figure 2](image)

**Tilt Base Section to Mounting Pipe**

If you are using the optional **DXE-RADP-3** Radial Plate, it must be installed on your mounting pipe prior to installing the **DXE-VA-Base** and Tilt Base assembly.

Attach the Tilt Base Plate to your ground mounting pipe using two optional **DXE-SSVC-2P** Stainless Steel V-Clamps, as shown in **Figure 3**. When tightening, observe the split washers. When they fully seat (flatten out), the clamp is tight enough. Any clamp should be tightened evenly from side-to-side with an equal amount of thread above the nut.

![Figure 3](image)
The **DXE-VA-BASE** is mounted to the Tilt Base using the Fender Washers, Flange Nuts and Nyloc Nuts as shown in Figure 4.

![Figure 4](image)

Using a wrench or nut driver, securely tighten the two Nyloc Nuts at the bottom of the Tilt Base. Then loosen them one-half turn each. This will allow proper movement of the Tilt Base while raising or lowering the antenna. It is not necessary to tighten these nuts more securely unless further tilt operation is no longer required. They should not be loosened more than one-half turn at any time.

Test the tilt function to ensure proper clearances. Standing in front of the Tilt Base, lift the antenna base section, slide it to the right, and let it down slightly until the lower outside bolt is resting in the pivot point. Then slowly tilt as shown in Figure 5. Make sure when you are tilting the antenna to **lift, slide to the right, and then tilt.** Be careful to keep the pivot bolt resting in the pivot point. Reverse the process when raising the antenna.

It is important to note that the lower, outside bolt becomes the pivot point while raising or lowering the antenna. This pivot bolt **MUST** be retained in the pivot point. It seems natural to **push** the antenna toward the Tilt Base while raising. **Push up** while raising, but not toward the base since this could cause the pivot bolt to lift out of the slot and allow the mechanism to bind up and bend the lower bolts.

The Tilt Base is not made to support the whole antenna by itself when tilted. When the antenna is tilted over, ensure you have some sort of table, stand, or saw horse to set the antenna on to aid in
supporting the weight. When the antenna is in the upright position, ensure the mounting hardware (reference Figure 4) is tightened.

**Figure - 5 - Tilt Action**

**Note:** A pair of sawhorses or ladders should be used to support the vertical sections during assembly with the tilt-base and whenever the vertical is tilted down. Do not allow the Tilt Base to support the entire weight of the vertical when horizontal.

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**Optional Accessory Items**

**DXE-RADP-3 - Radial Plate, Stainless Steel with 20 Sets of SS Radial Attachment Hardware**
The DX Engineering Radial Plate is meant for those of you that have or are building a quarter wave vertical antenna and who want an easy, neat and effective way to connect those essential radial wires and the coax to your vertical antenna for the lowest takeoff angle and strongest signals. DX Engineering Radial Plate is laser cut from tough stainless steel so that it has smooth edges, won’t corrode and will always look good. You will be proud of how good your installation looks. This plate will work perfectly with most commercially available vertical antennas such as the Hutsler BTV series (4BTV thru the 6BTV), the SteppIR (BiggIR or SmallIR) or one of your own construction.

**DXE-SSVC-2P - Stainless Steel V-Clamp for steel pipe, 2 inch V-bolt**
This V-Clamp is made in one size that fits Steel tubing or pipe from 1” to 2” OD as used in antenna construction. The supplied V-bolt is long enough to attach tubing to thick plates and is made with anti-corrosive properties. The special Stainless Steel saddle has serrated teeth will clamp to the pipe securely by biting into the surface. For this reason, it is not recommended for softer aluminum tubing or pipe. Ideal for fastening a radial plate and antenna mounting to a steel pipe.

- Used to clamp 1 to 2” (OD) steel tubing or pipe
- Designed for attachments that don’t require resistance to torque
- V-bolt and saddle made from high-strength 18-8* stainless steel

The use of an anti-seize compound is HIGHLY recommended to achieve proper torque and prevent galling.
PTX-81343, DXE-NSBT8 - Anti-Seize & Never-Seez
An Anti-seize compound MUST be used on any Stainless Steel nuts, bolts, clamps or other hardware to prevent galling and thread seizure. Any of these products can be used for this purpose.

*PTX-81343 Anti-Seize, 1 oz. Squeeze Tube
*PTX-81464 Anti-Seize, 8.5 oz. Aerosol Can
*DXE-NSBT8 Never-Seez, 8 oz. Brush Top
*DXE-NMBT8 Never-Seez, 8 oz. Brush Top, Marine Grade

* These products are limited to domestic UPS Ground shipping only

DXE-RADW - 500K or 1000K Radial Wire Kits and Components
To achieve optimal performance with a ground-mounted vertical, install as many radials as possible. These bulk radial wire kits use insulated wire that is UV resistant, hard to see and lays down easily, unlike the wire that is commonly available at the big box stores. It will last much longer in contact with soil than bare wire.
The DXE-RADW- 500K or 1000K kit provide everything you will need to build the perfect radial system!

- 500/1000 ft. spool of 14 AWG, stranded copper wire with vinyl insulation
- 20/40 lugs
- 100/200 radial wire anchor pins - eliminating the need to bury your radials!
- Build up to 20/40 radials, 25 feet long

<table>
<thead>
<tr>
<th>DXE-RADW-500K</th>
<th>Bulk Radial Wire Kit, 500 ft Spool of Wire, 20 Lugs, 100 Staples</th>
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</thead>
<tbody>
<tr>
<td>DXE-RADW-1000K</td>
<td>Bulk Radial Wire Kit, 1000 ft Spool of Wire, 40 Lugs, 200 Staples</td>
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</tbody>
</table>

DXE-RADW-500KBD or 1000KBD - Bulk Radial Wire Kits and Components
To achieve optimal performance with a ground-mounted vertical, install as many radials as possible. These bulk radial wire kit use insulated wire that is UV resistant, hard to see and lays down easily, unlike the wire that is commonly available at the big box stores. It will last much longer in contact with soil than bare wire. The biodegradable anchors allow easy installation of radial wires, and will degrade and disappear in a year or so when they are no longer needed.
The DXE-RADW-500 or 1000KBD kit provide everything you will need to build the perfect radial system!

- 500/1000 ft. spool of 14 AWG, stranded copper wire with vinyl insulation
- 20/40 lugs
- 100/200 biodegradable radial wire anchor pins- Eliminating the need to bury your radials!
- Build up to 20/40 radials, 25 feet long

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<tr>
<th>DXE-RADW-500KBD</th>
<th>Bulk Radial Wire Kit, 500 ft Spool of Wire, 20 Lugs, 100 Biodegradable Staples</th>
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</thead>
<tbody>
<tr>
<td>DXE-RADW-1000KBD</td>
<td>Bulk Radial Wire Kit, 1000 ft Spool of Wire, 40 Lugs, 200 Biodegradable Staples</td>
</tr>
</tbody>
</table>

DXE-RADW-20RT/32RT/65RT Pre-Assembled, Radial Wire, w/ 1/4" ring Terminals, 20 Pack
The DXE-RADW Radial Wire Kits include the highest quality 14 gauge stranded copper wire with a relaxed black PVC insulation for easy installation of your radial system. They allow fast and easy installation of your radial ground system, and permit you to mix and match different length to fit the available space. The stranded wire and relaxed insulation mean that the wire will lay flat as you place it on the ground - easy to install! The twenty pre-cut radial wires include 1/4" ring terminals professionally crimped on one end for quick and easy attachment to the radial plate. These Radial Wire Kits are designed for users of vertical antenna systems which have the need for a high quality radial system for optimum antenna performance. The 1/4" ring terminals are machine crimped for maximum grip. Soldering is not required for strength, but is recommended if installed in corrosive environments such as salt spray.

- Packed 20 Radial Wires per package
- 14 gage, stranded copper wire
- Black relaxed PVC insulation
- 1/4" Ring Terminal professionally crimped on each Radial Wire
- 3 lengths to choose from: 20 Ft (-20RT), 32 Ft (-32RT), 65 Ft (-65RT)

<table>
<thead>
<tr>
<th>DXE-RADW-20RT</th>
<th>Package of 20 each 20 Ft Radials with 1/4&quot; Ring Terminals</th>
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<tbody>
<tr>
<td>DXE-RADW-32RT</td>
<td>Package of 20 each 32 Ft Radials with 1/4&quot; Ring Terminals</td>
</tr>
<tr>
<td>DXE-RADW-65RT</td>
<td>Package of 20 each 65 Ft Radials with 1/4&quot; Ring Terminals</td>
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</tbody>
</table>
DXE-AOK-TB1193 - Wing Nut No-tools Tilt Base Add-on Kit (pack of 2)
Wing nut knobs for tool-less quick release of the DX Engineering DXE-TB-3 or DXE-TB-4 Tilt Base - handy for lowering the antenna for tuning or daily stealth operation.

Simply remove the existing hex nuts and thread on the wing nuts. The old hardware stores on the tilt base for future use. Purchase two sets to also allow tightening of the lower mounting hardware without tools - and for extended periods of upright installation and use.

Technical Support

If you have questions about this product, or if you experience difficulties during the installation, contact DX Engineering at (330) 572-3200. You can also e-mail us at:

DXEngineering@DXEngineering.com

For best service, please take a few minutes to review this manual before you call.

Manual Updates

Every effort is made to supply the latest manual revision with each product. Occasionally a manual will be updated between the time your DX Engineering product is shipped and when you receive it. Please check the DX Engineering web site (www.dxengineering.com) for the latest revision manual.

Warranty

All products manufactured by DX Engineering are warranted to be free from defects in material and workmanship for a period of one (1) year from date of shipment. DX Engineering’s sole obligation under these warranties shall be to issue credit, repair or replace any item or part thereof which is proved to be other than as warranted; no allowance shall be made for any labor charges of Buyer for replacement of parts, adjustment or repairs, or any other work, unless such charges are authorized in advance by DX Engineering. If DX Engineering’s products are claimed to be defective in material or workmanship, DX Engineering shall, upon prompt notice thereof, issue shipping instructions for return to DX Engineering (transportation-charges prepaid by Buyer). Every such claim for breach of these warranties shall be deemed to be waived by Buyer unless made in writing. The above warranties shall not extend to any products or parts thereof which have been subjected to any misuse or neglect, damaged by accident, rendered defective by reason of improper installation, damaged from severe weather including floods, or abnormal environmental conditions such as prolonged exposure to corrosives or power surges, or by the performance of repairs or alterations outside of our plant, and shall not apply to any goods or parts thereof furnished by Buyer or acquired from others at Buyer’s specifications. In addition, DX Engineering’s warranties do not extend to other equipment and parts manufactured by others except to the extent of the original manufacturer’s warranty to DX Engineering. The obligations under the foregoing warranties are limited to the precise terms thereof. These warranties provide exclusive remedies, expressly in lieu of all other remedies including claims for special or consequential damages. SELLER NEITHER MAKES NOR ASSUMES ANY OTHER WARRANTY WHATSOEVER, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS, AND NO PERSON IS AUTHORIZED TO ASSUME FOR DX ENGINEERING ANY OBLIGATION OR LIABILITY NOT STRICTLY IN ACCORDANCE WITH THE FOREGOING.

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