



## Tilt Base Mounting Plate Installation Guide

DXE-TB-INS-Rev 3g  
U.S. Patent 7,432,875



*DXE-TB-3P Shown with optional Hustler BTV Series Antenna  
installed and partially tilted*

- DXE-TB-3P** for Hustler 4/5/6-BTV Vertical Antennas
- DXE-TB-4P** for DX Engineering Verticals and most Other Vertical Antennas
- DXE-TB-6P** for Hy-Gain AV-14AVQ Vertical Antennas
- DXE-TB-7P** for Comtek 30 and 40 meter Vertical Antennas
- DXE-TB-8P** for Comtek 20 meter Vertical Antennas

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## Introduction

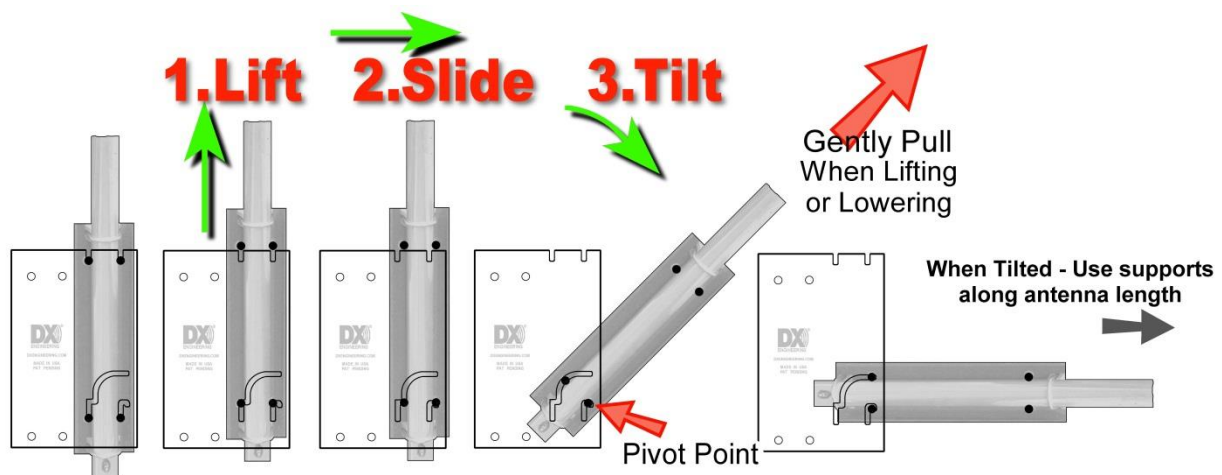
The patented DX Engineering Tilt Base (U.S. Patent 7,432,875) mounting plate enables operators to raise or lower a vertical antenna in seconds while leaving the base securely attached to the mounting post.

With the Tilt Base, one person can handle the antenna - no more climbing ladders or removing a bracket from the support post. Easily make repairs, tune your vertical, or lay your antenna down before bad weather hits with a DX Engineering Tilt Base.

Precision cut from 3/16" 304 Stainless Steel, this mounting plate is virtually indestructible.

Conveniently mounts to the same mast or wooden post that you use for the antenna and radial plate.

Tilting action is done in three easy steps:

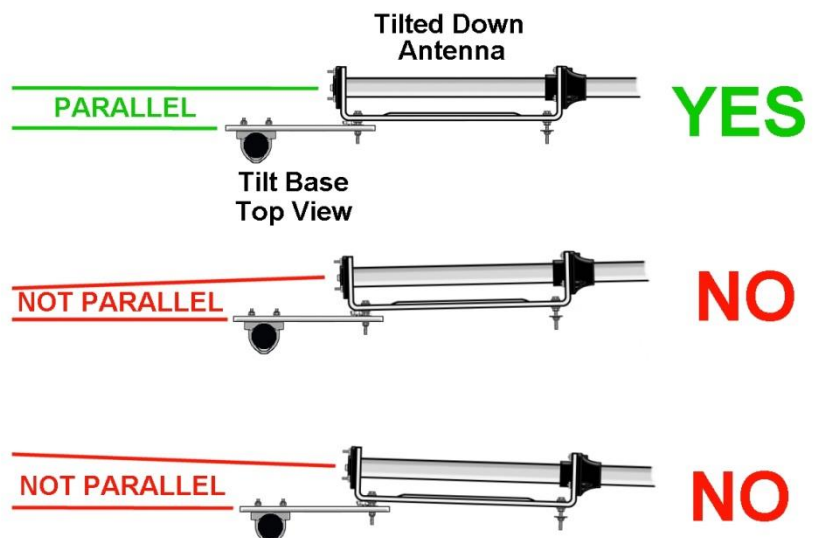


1. Lift - to raise the top two bolts out of their channels.
2. Slide - to engage the bottom bolt in the Pivot Point.
3. Tilt - One of the bottom bolts stays in the Pivot Point, the other follows the arced channel in the Tilt Base plate.

Gentle pulling help to ensure the bolt stay in the Pivot Point.

Additionally you want to keep the antenna parallel to the tilt base to avoid any jamming of the bolts during the tilt action.

More detailed information on the tilt action is discussed later in this manual.



There are five versions of the Tilt Base kit:

**DXE-TB-3P, DXE-TB-4P, DXE-TB-6P, DXE-TB-7P and DXE-TB-8P**

<b>DXE-TB-3P</b>	Specifically designed to mate with the antenna mounting bracket of the <b>Hustler 4, 5 or 6 BTV</b> vertical antennas.
<b>DXE-TB-4P</b>	<p>May be used as the tilt option for the DX Engineering vertical antennas: <b>DXE-30VE-1, DXE-40-VE-1 and DXE-40VA-1.</b></p> <p>May also be used with most other quarter wave vertical antennas (up to 28 feet tall) by first mounting the antenna to a short piece of mast pipe, and then mounting the antenna mounting mast assembly to the 4P adapter plate. The <b>DXE-TB-4P</b> Tilt Base adapter plate will work with vertical antennas s that are mounted on a mast pipe with a maximum of 1.75" OD, weigh less than or equal to 20 pounds, and have a height of no more than 28 ft.</p> <p>Vertical antennas up to 43 feet must be adequately guyed and extra precautions taken when raising or lowering to avoid undue lateral stress on the tilt mechanism.</p>
<b>DXE-TB-6P</b>	Is specifically designed to mate to the antenna mounting bracket of the Hy-Gain AV-14AVQ ( <b>HGN-AV-14AVQ</b> ). This special bracket allows the AV-14AVQ to be closer to ground level for maximum performance.
<b>DXE-TB-7P</b>	Is specifically designed to mate to the Comtek 30 Meter ( <b>COM-30VA</b> ) and Comtek 40 Meter ( <b>COM-40VA</b> ) Vertical Antennas.
<b>DXE-TB-8P</b>	Is specifically designed to mate to the Comtek 20 Meter ( <b>COM-20VA</b> ) Vertical Antennas.

## Parts Needed But Not Supplied

Clamps needed to mount the Tilt Base to your 2" OD maximum mounting pipe. 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.

Two **DXE-SSVC-2P** V-Bolt clamps for a steel mounting pipe from 1" to 2" OD - *or* -

Two **DXE-CAVS-2P** V-Bolt clamps used with pipes from 1" to 2" OD mounting pipe - *or* -

[Two **DXE-CAVS-1P** V-Bolt Clamps to secure the vertical antenna base to the Tilt Base arm are included with the **DXE-TB-4P**.] - *or* -

If you are mounting the Tilt Base to a wooden post (4" x 4" to 6" x 6"), you will need lag bolts, or long bolts with washers & nuts.

## Parts Lists

<b>DXE-TB-3P</b>	
<b>Qty</b>	<b>Description</b>
1	Laser Cut 3/16" thick 304 Stainless Steel Tilt Base ( <i>U.S. Patent 7,432,875</i> )
4	1/4" Stainless Steel Nyloc Locknuts
4	1/4-20 Stainless Steel Hex Nuts
2	1/4" Stainless Steel Flanged Hex Nuts
4	1/4-20 x 1-1/2 " Stainless Hex Head Bolts
4	1/4" Stainless Flat Washers
4	1/4" Stainless Split Lock Washers
4	1/4" Stainless Fender Washers

<b>DXE-TB-4P</b>	
<b>Qty</b>	<b>Description</b>
1	Laser Cut 3/16" thick 304 Stainless Steel Tilt Base ( <i>U.S. Patent 7,432,875</i> )
1	TB-4P Mounting Plate (bolts to the Insulated Channel on DXE antennas)
2	<b>DXE-CAVS-1P</b> V-Saddle Clamps - secures the Tilt Base Mounting Plate to the antenna mounting mast for non-DX Engineering antennas
4	1/4" Stainless Steel Nyloc Locknuts
4	1/4-20 Stainless Steel Hex Nuts
2	1/4" Stainless Steel Flanged Hex Nuts
4	1/4-20 x 1-1/2 " Stainless Hex Head Bolts (not used - see text)
4	1/4" Stainless Flat Washers
4	1/4" Stainless Split Lock Washers
4	1/4" Stainless Fender Washers

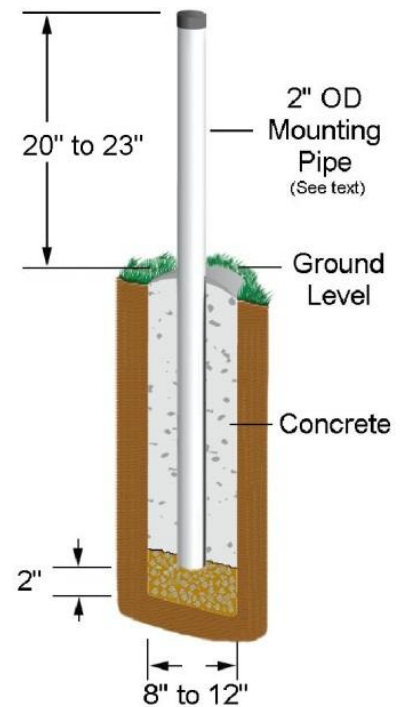
<b>DXE-TB-6P</b>	
<b>Qty</b>	<b>Description</b>
1	Laser Cut 3/16" thick 304 Stainless Steel Tilt Base ( <i>U.S. Patent 7,432,875</i> )
1	Hy-Gain AV-14AVQ Vertical Antenna Adapter Plate
4	1/4" Stainless Steel Nyloc Locknuts
8	1/4-20 Stainless Steel Hex Nuts
2	1/4" Stainless Steel Flanged Hex Nuts
4	1/4 - 20 x 1-1/2 " long Stainless Hex Head Bolts
8	1/4" Stainless Flat Washers
4	1/4" Stainless Split Lock Washers
4	1/4" Stainless Fender Washers
4	Aluminum Spacers, 1/2" OD x 1/4" long
4	1/4-20 x 1" long Stainless Steel Hex Head Bolts
4	1/4" Stainless Steel Split Washer

<b>DXE-TB-7P</b>	
<b>Qty</b>	<b>Description</b>
1	Laser Cut 3/16" thick 304 Stainless Steel Tilt Base ( <i>U.S. Patent 7,432,875</i> )
1	Comtek Vertical Antenna Adapter Plate
4	1/4" Stainless Steel Nyloc Locknuts
4	1/4-20 Stainless Steel Hex Nuts
2	1/4" Stainless Steel Flanged Hex Nuts
4	1/4-20 x 1-3/4 " long Stainless Hex Head Bolts
4	1/4" Stainless Flat Washers
4	1/4" Stainless Split Lock Washers
4	1/4" Stainless Fender Washers
4	Aluminum Spacers, 1/2" OD x 1/4" long
2	2-1/2" Custom Length 5/16" Threaded Stainless Steel U-Bolts
4	5/16" Stainless Flat Washers
4	5/16" Stainless Split Lock Washers
4	5/16" Stainless Steel Hex Nuts

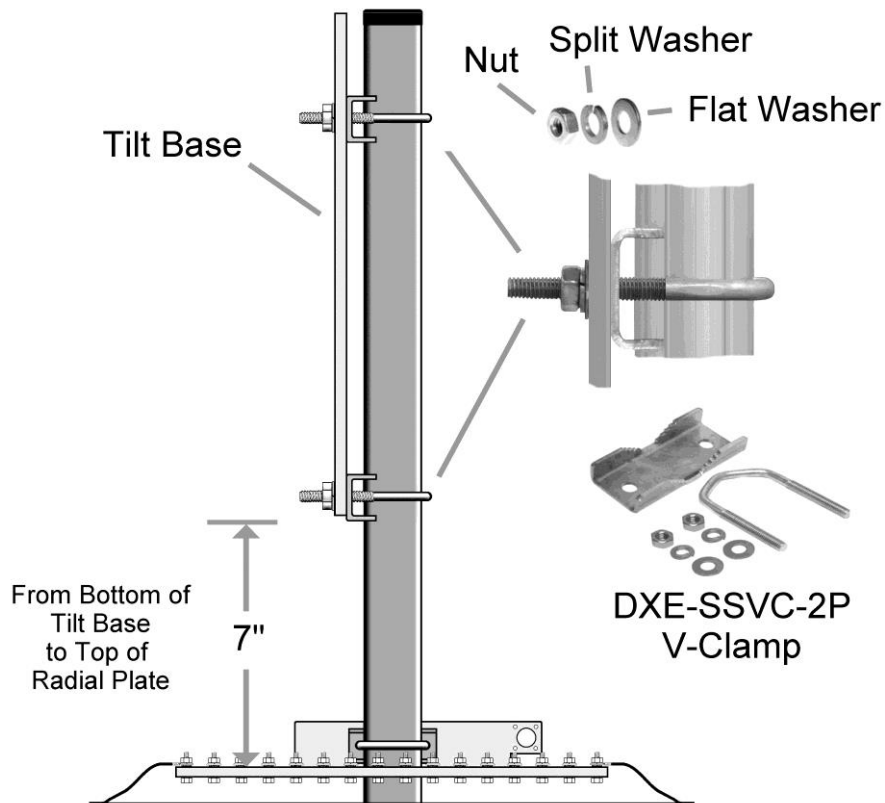
<b>DXE-TB-8P</b>	
<b>Qty</b>	<b>Description</b>
1	Laser Cut 3/16" thick 304 Stainless Steel Tilt Base ( <i>U.S. Patent 7,432,875</i> )
1	Comtek Vertical Antenna Adapter Plate
4	1/4" Stainless Steel Nyloc Locknuts
4	1/4-20 Stainless Steel Hex Nuts
2	1/4" Stainless Steel Flanged Hex Nuts
4	1/4-20 x 1-3/4 " long Stainless Hex Head Bolts
4	1/4" Stainless Flat Washers
4	1/4" Stainless Split Lock Washers
4	1/4" Stainless Fender Washers
4	Aluminum Spacers, 1/2" OD x 1/4" long
2	1-1/2" Custom Length 1/4-20 Threaded Stainless Steel U-Bolts
4	1/4-20 Stainless Flat Washers
4	1/4-20 Stainless Split Lock Washers
4	1/4-20 Stainless Steel Hex Nuts

## Mounting Pipe - For all versions of the Tilt Base

Use a 1-3/4" to 2" OD thick-walled galvanized steel mounting pipe at least 4 feet long. This will allow approximately 2 feet to be below ground and 2 feet above ground. A thick-walled steel pipe 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 a 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.



**Figure 1 - Tilt Base Mounting**



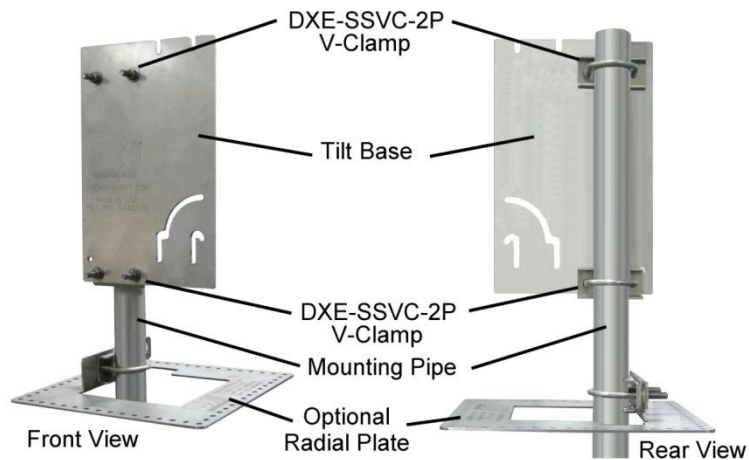
Allow to set overnight. Your location, landscape and ground conditions may require different mounting solutions in order to have the steel mounting pipe and the vertical antenna in a secure position. You may also attach the Tilt Base to a wooden post at the location you intend to use the antenna, making sure the unit is securely mounted. When using the optional **DXE-RADP-3** Radial Plate, allow approximately a 7" clearance (**Figure 1**) from the Radial Plate surface to the bottom edge of the Tilt Base.

**Note:** 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.

**Note: 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.**



When the Tilt Base is installed on the customer supplied mounting pipe, the Tilt Base will look as shown in **Figure 2**.



**Figure 2 - Tilt Base installed on customer supplied 2" OD mounting pipe using two optional DXE-SSVC-2P stainless steel V-Clamps. Shown with optional DXE-RADP-3 Radial Plate**

You can also mount the Tilt Base to a wooden post (4" x 4" to 6" x 6") using lag bolts and washers as shown below.

**DXE-TB-3P  
and  
DXE-RADP-3  
shown mounted  
to a 4" x 4" post**

**Other Optional  
Parts Are Shown**

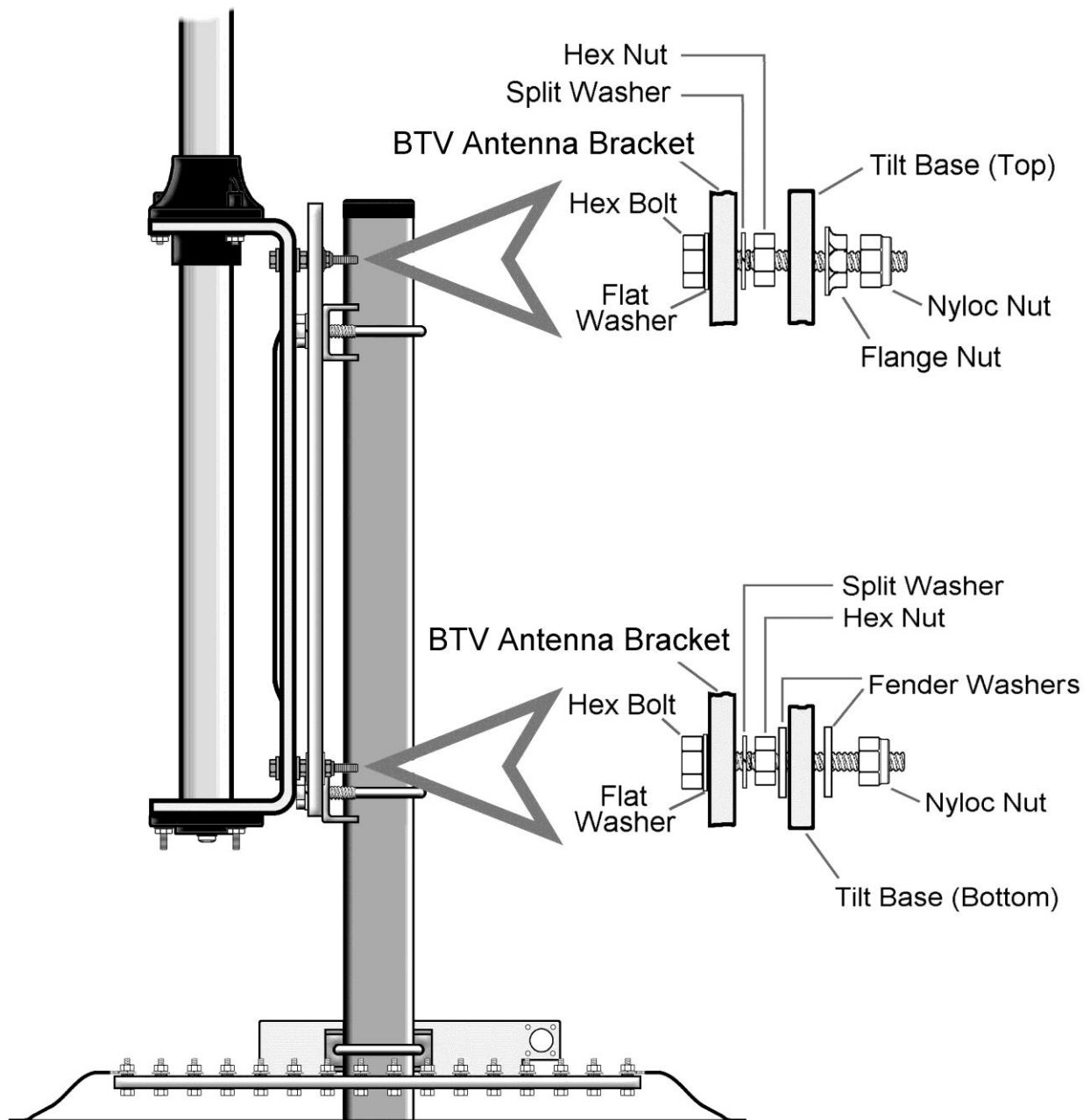


**DXE-TB-3P  
and  
DXE-RADP-3  
shown mounted  
to a 4" x 4" post**

**Other Optional  
Parts Are Shown**



**DXE-TB-3P with Hustler 4/5/6 BTV Verticals:** Attach the mounting hardware to the Hustler antenna bracket as shown in **Figure 3**.



**Figure 3 - Assembly for Hustler 4/5/6 BTV (shown with optional Radial Plate)**

The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.





**Figure 4 - Tilt Base shown with optional  
BTV antenna, VFCC, VFCC Shelf,  
Radial Plate, and Radial Wires**

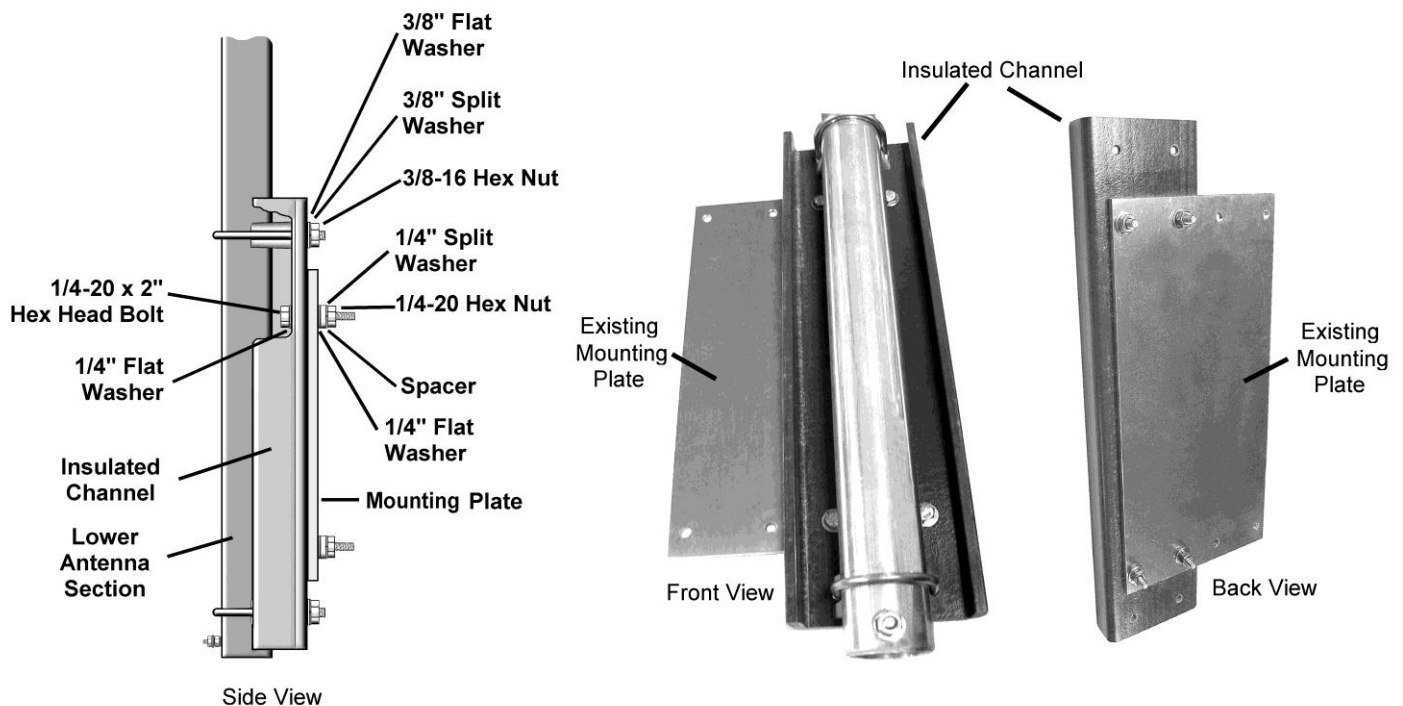
## **DXE-TB-4P with DX Engineering Verticals:**

If you are installing the optional Tilt Base to a DX Engineering **DXE-30VA-1**, **DXE-40VA-1** or **DXE-40VE-1** vertical antenna, the included smaller mounting plate will be installed on the antenna insulated channel in place of the existing (larger non-tilt) mounting plate.

**For retrofits** (installing the Tilt Base after you have already assembled the vertical antenna) follow Steps 1 through 3.

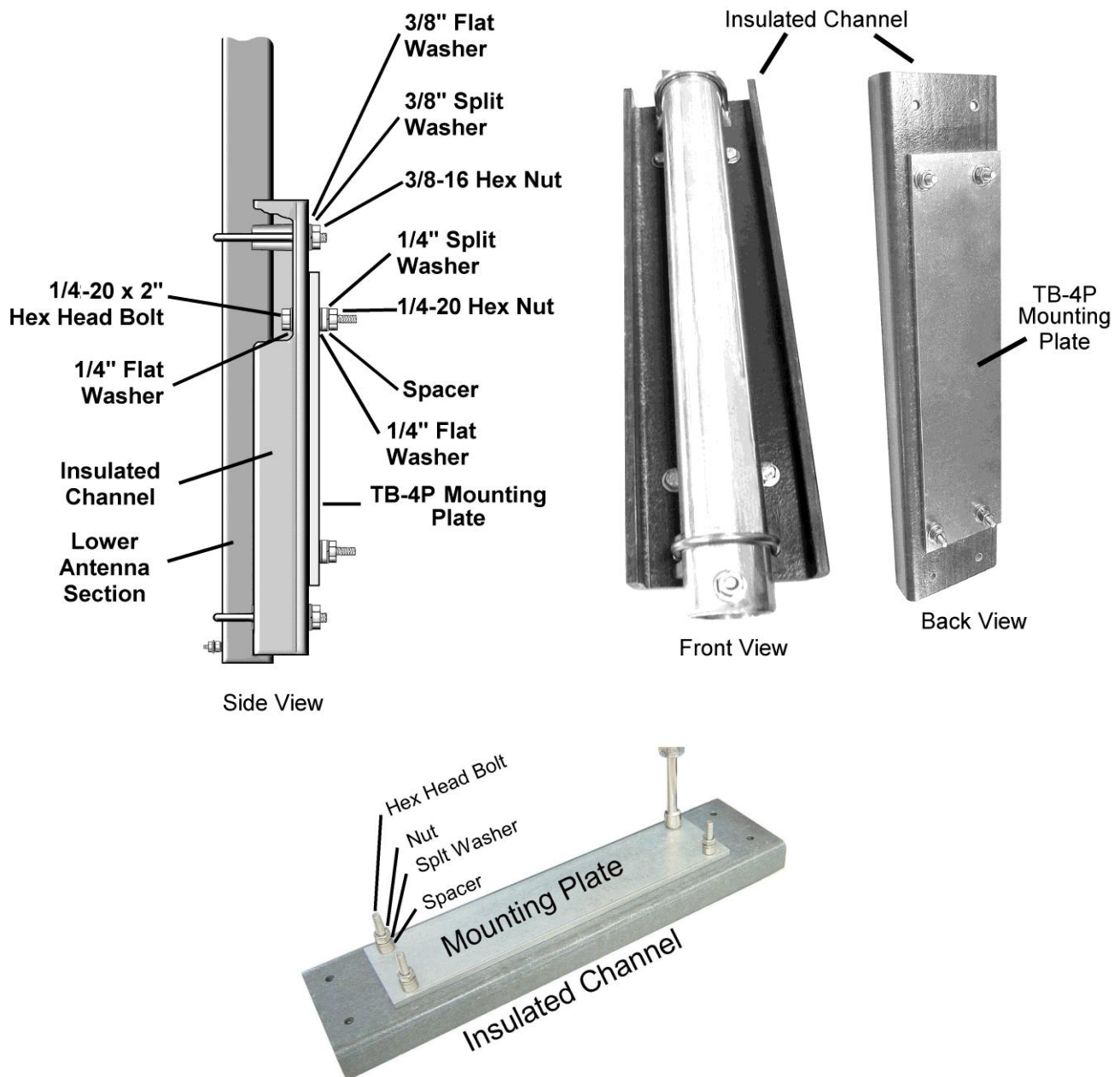
**For new installations**, use Step 3. Use the smaller mounting plate instead of the larger mounting plate. Then continue using the DX Engineering antenna installation manual that is included with your antenna.

1. Remove the antenna from the mounting pipe. Install the Tilt Base plate on the mounting pipe using two **DXE-SSVC-2P** Stainless Steel Clamps as shown in **Figures 1& 2**. Allow approximately 4" to 7" space between the bottom of the Tilt Plate to the top of the optional Radial Plate (depending on original antenna installation options - refer to your antenna installation manual for details).
2. Remove the existing mounting plate from the insulated channel. Reference **Figure 5**.



**Figure - 5**

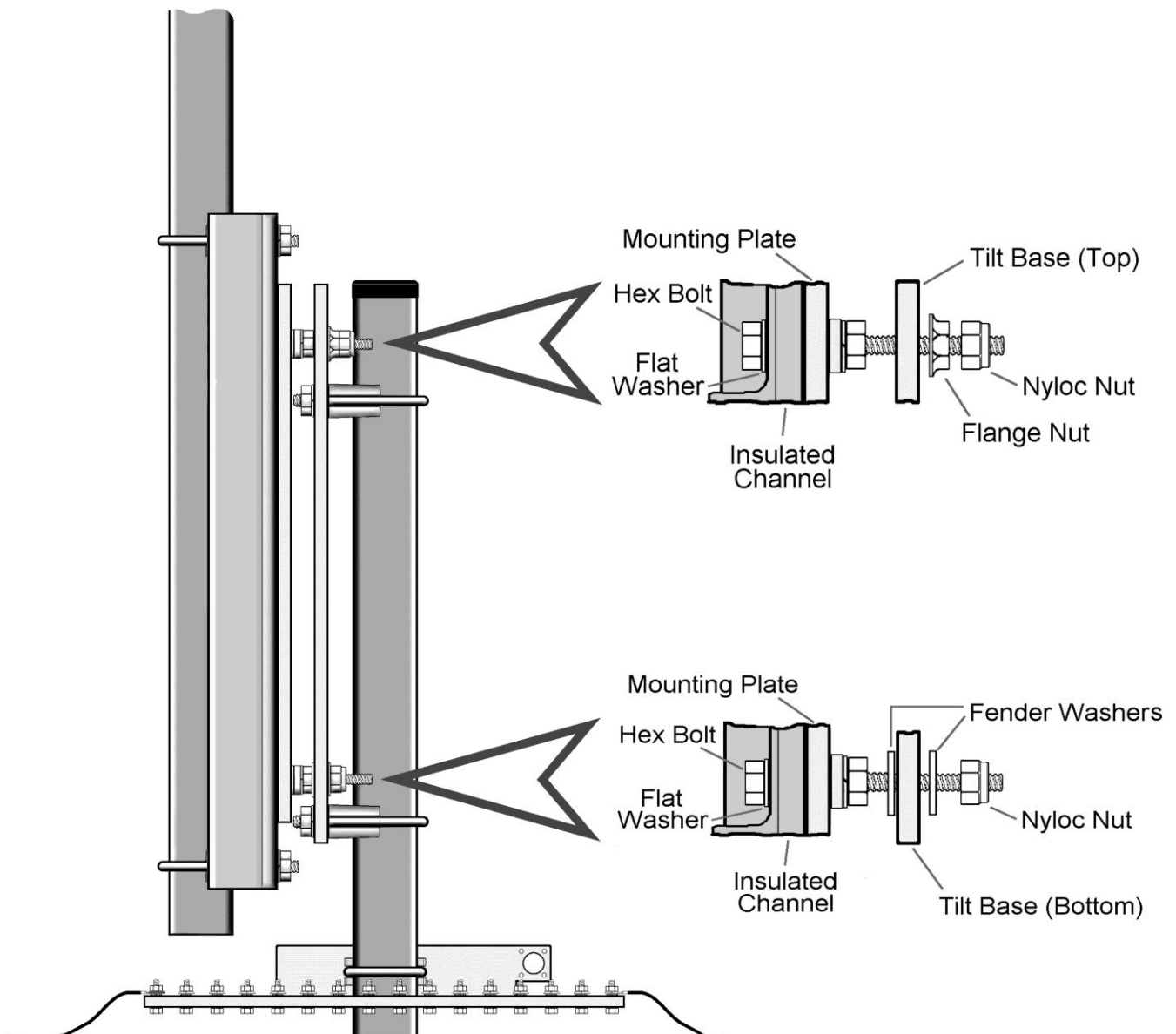
- Using **Figure 6**, attach the smaller Tilt Base aluminum mounting plate to the back of the insulated channel. The antenna base hardware kit contains four 2" hex head bolts, four flat washers, four aluminum spacers, four split washers and four nuts. From the inside of the channel, insert a 2" hex head bolt with a flat washer through each of the middle four holes, through the backing plate. Put on the aluminum spacer, a split washer and a plain hex nut. Tighten firmly, but not enough to crush the insulated channel.



**Figure - 6**

## Base Section to Tilt Base

Place the Lower Base Section into the holes of the mounted Tilt Base and loosely install the Tilt Base mounting hardware shown in **Figure 7**. Leave the flange nuts and Nyloc nuts slightly loose.

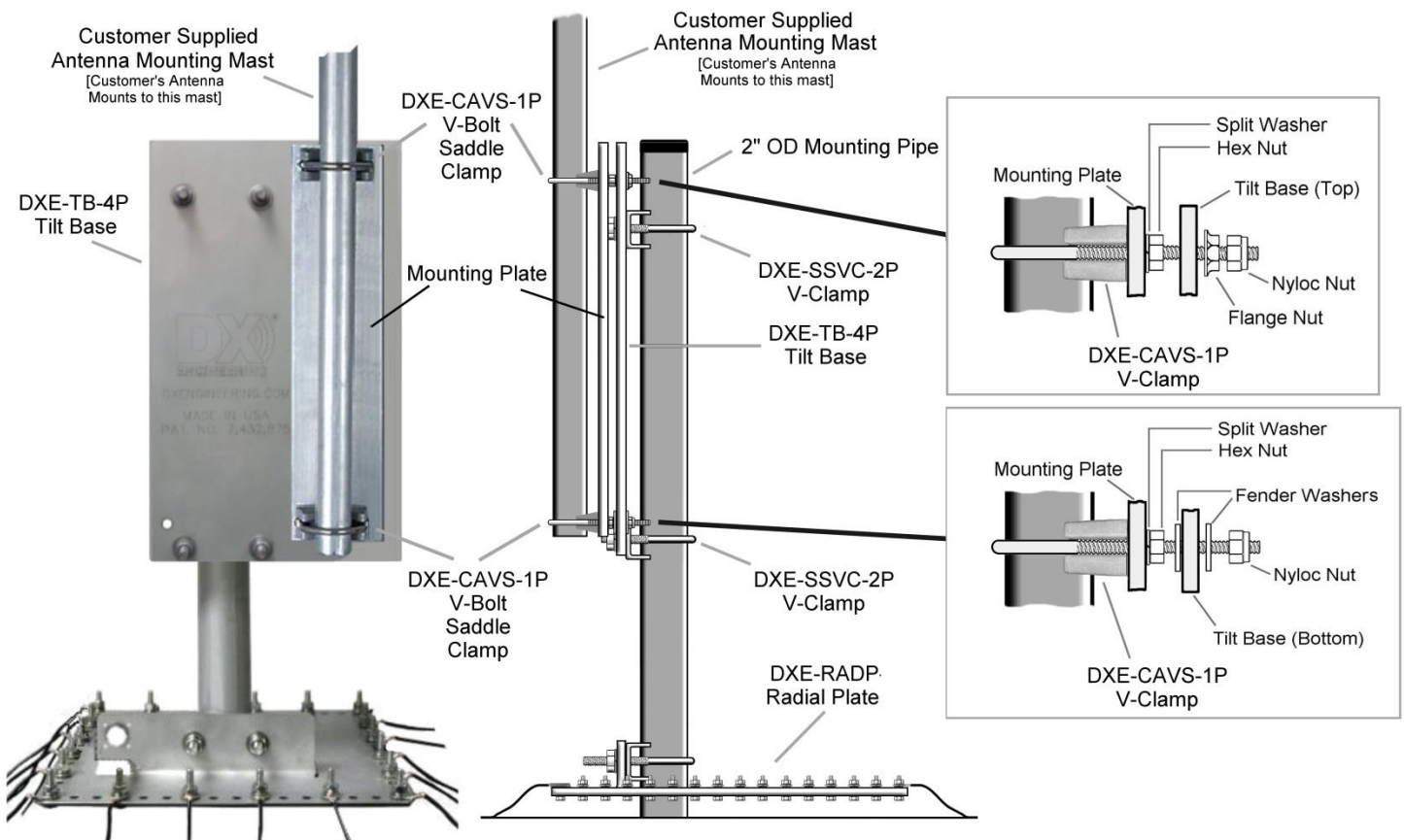


**Figure - 7**

Using a wrench or nut driver, securely tighten the two Nyloc Nuts at the bottom of the patented 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. The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.

## **DXE-TB-4P with Other Verticals:**

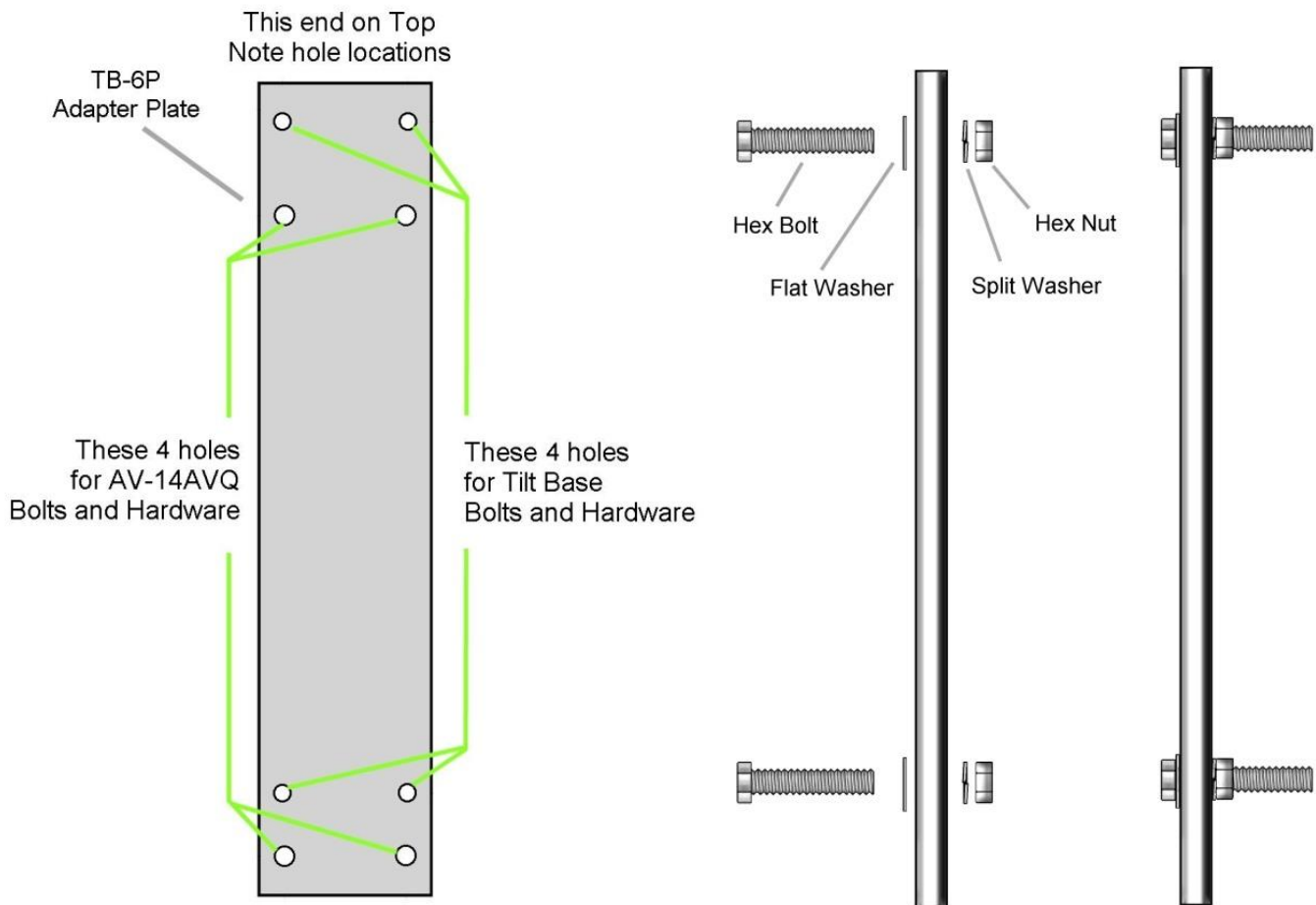
After attaching your vertical antenna to a short antenna mounting mast, use the supplied **DXE-CAVS-1P** V-Bolt saddle clamps provided in the **DXE-TB-4P** kit (instead of the hex head bolts) to mount the antenna/mounting mast assembly to the mounting plate as shown in **Figure 8**. Attach the TB-4P mounting plate to the top of the Tilt-Base using the flange and Nyloc nuts. At the bottom, use the two large washers and Nyloc nuts. See **Figure 8** for the proper sequence of hardware. The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.



**Figure 8 - DXE-TB-4P Tilt Base assembly for GAP, and Cushcraft type antennas  
(Shown with optional DXE-SSVC-2P Stainless Steel V-Clamps,  
DXE-RADP-3 Radial Plate and Radial Wires)**

## **DXE-TB-6P with Hy-Gain AV-14AVQ Verticals:**

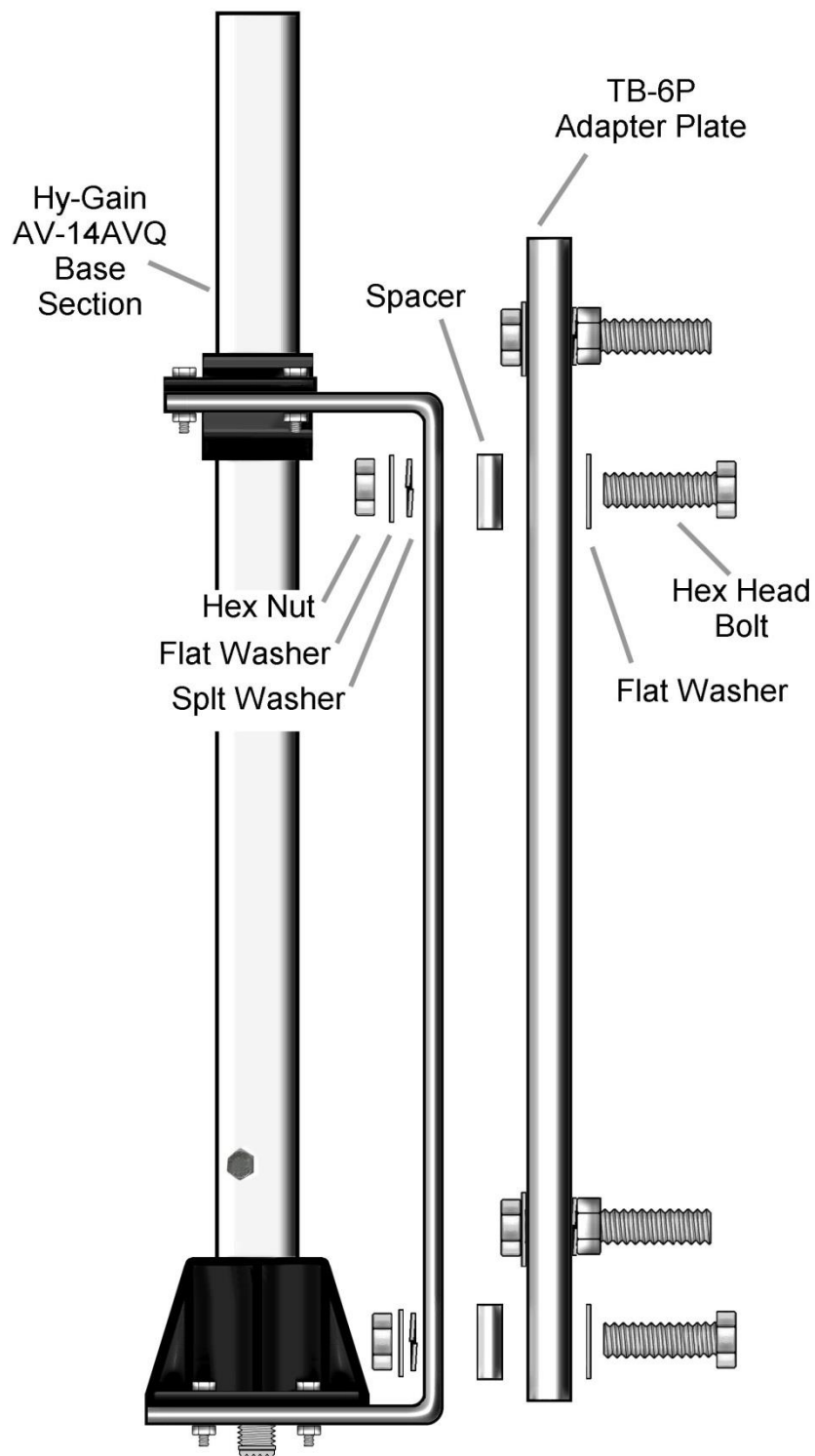
The **TB-6P** adapter plate is used to allow the Hy-Gain AV-14AVQ base to easily attach to the Tilt Base. Install four Tilt Base Hex Head Bolts, four flat washers, four split lock washers and four hex nuts to the **TB-6P** adapter plate as shown in **Figure 9**.



**Figure 9**



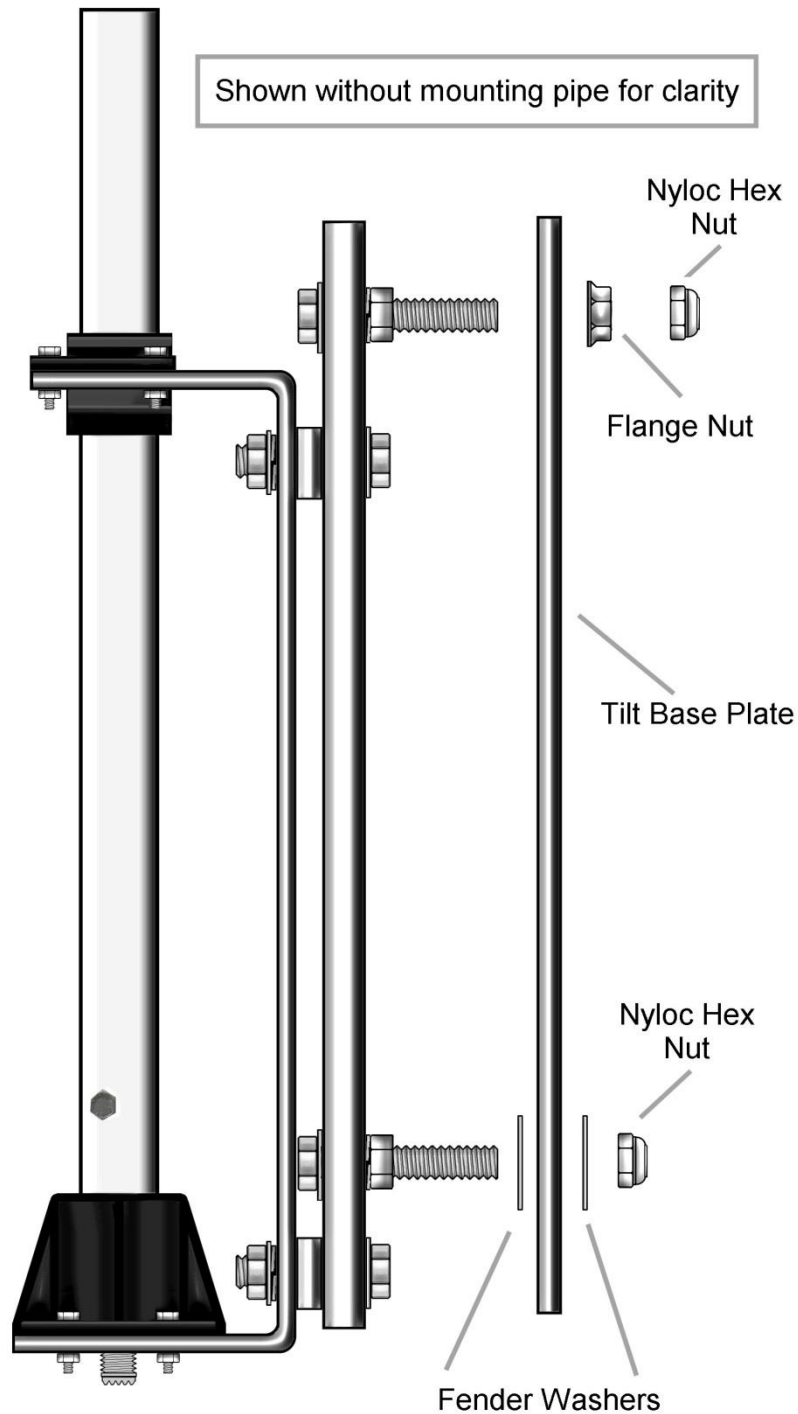
Install the Hy-Gain AV-14AVQ base section to the **TB-6P** adapter plate using four hex head bolts, eight flat washers, four spacers, four split washers and four hex nuts as shown in **Figure 10**.



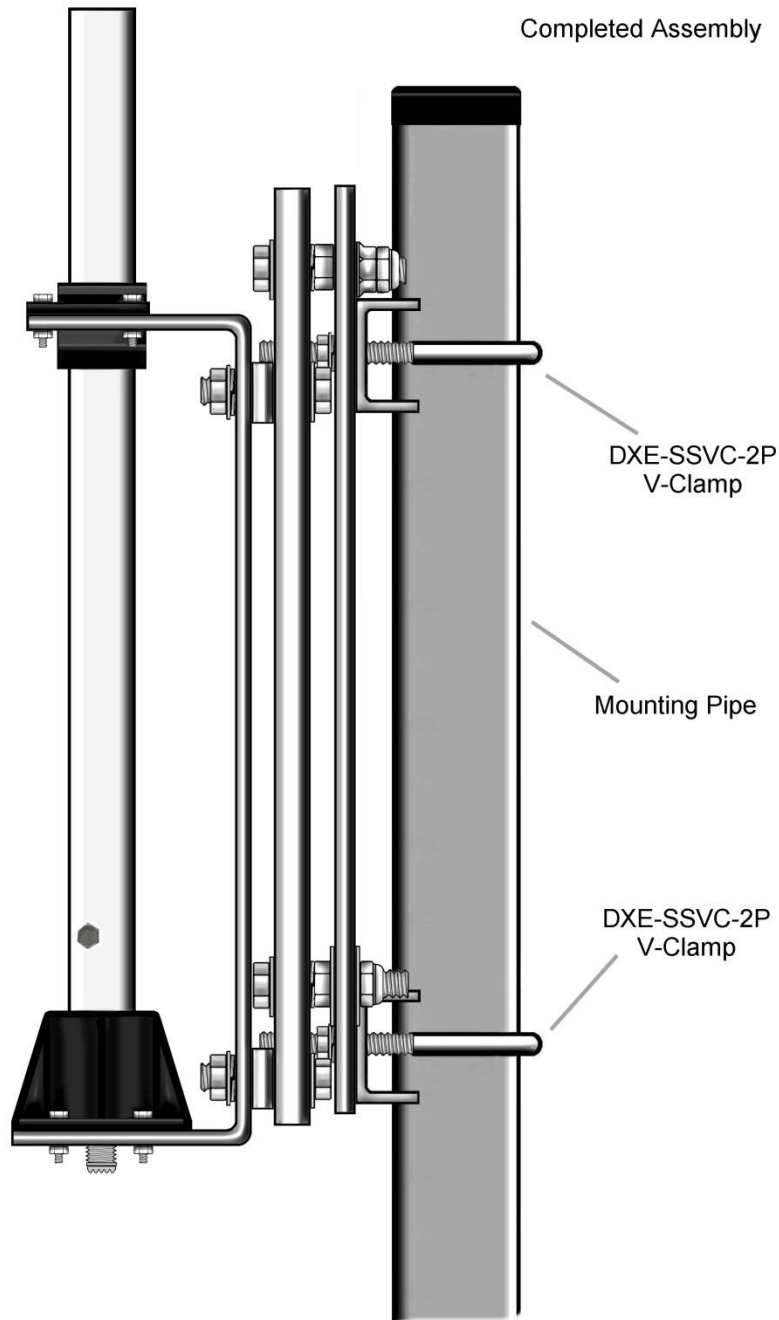
**Figure 10**

Install the Hy-Gain AV-14AVQ base section / TB-6P adapter assembly to the DXE-TB tilt base plate using four fender washers, four Nyloc hex nuts and two flange nuts as shown in **Figure 11**. The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.

[For clarity, Figure 11 does not show the mounting pipe.]



**Figure 11**

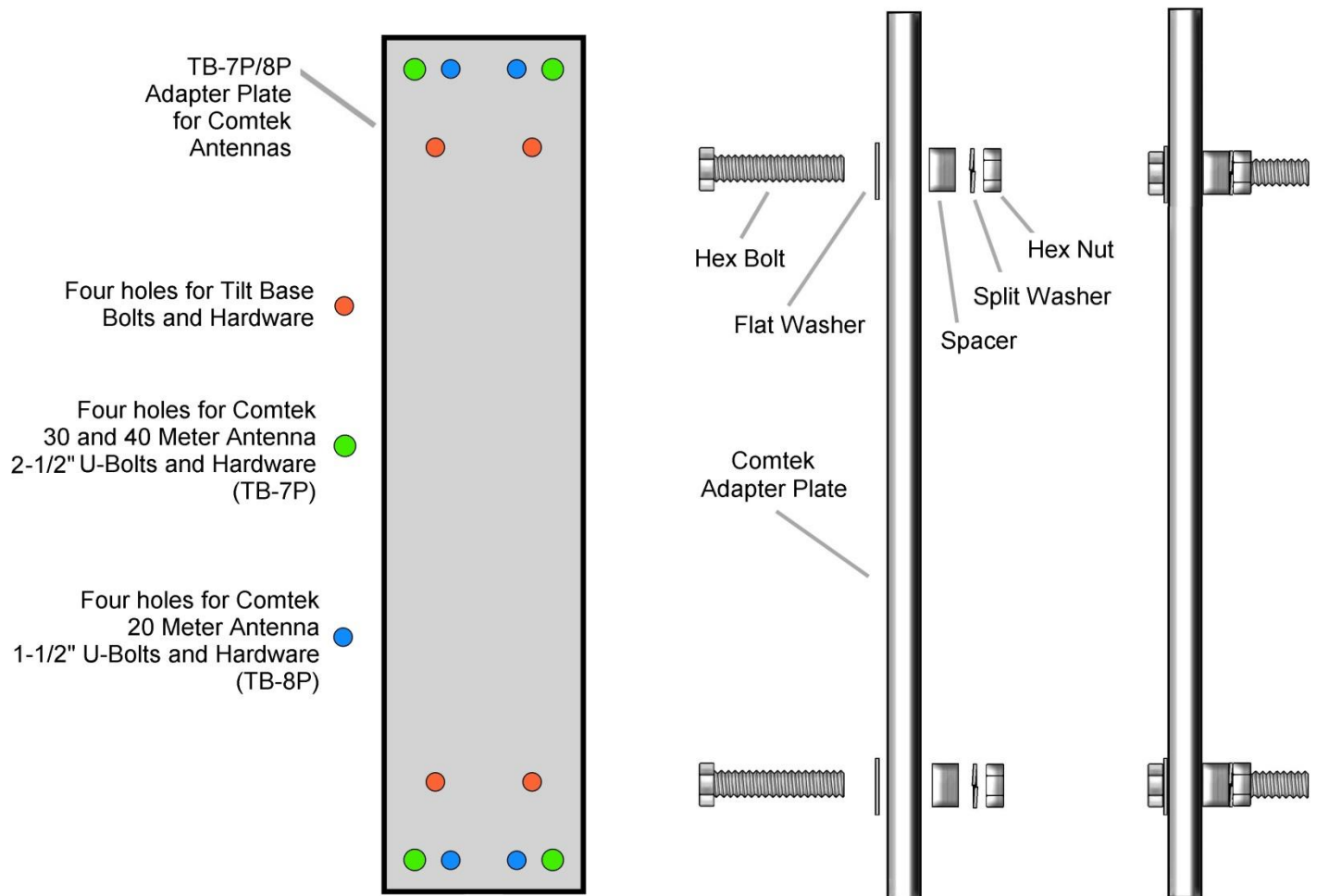


**Figure 12**

**Figure 12** shows the completed **DXE-TB-6P** assembly mounted to the customer supplied mounting pipe (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) using two **DXE-SSVC-2P** Stainless Steel V-Clamps.

## **DXE-TB-7P with Comtek 30 and 40 Meter Verticals:**

The Comtek adapter plate allows the Comtek 30 or 40 Meter Vertical antenna to attach to the Tilt Base. Install four Tilt Base 1/4-20 x 1-3/4" long Hex Head Bolts, four flat washers, four split lock washers, four spacers and four hex nuts to the **TB-7P** adapter plate as shown in **Figure 13**.

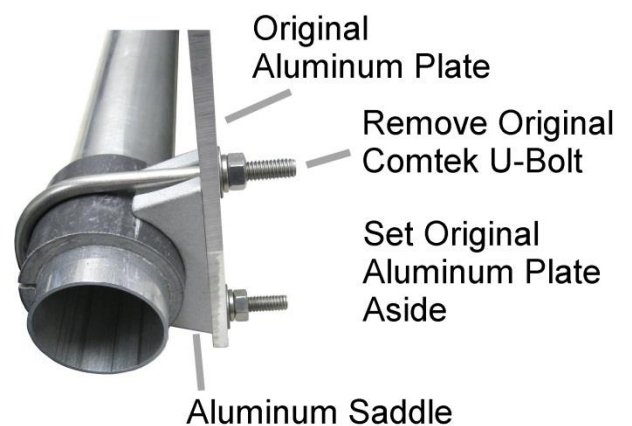


**Figure 13**

On the Comtek 30/40 antenna base, remove the 2-1/2" U-Bolts that hold the antenna to the Aluminum Base.

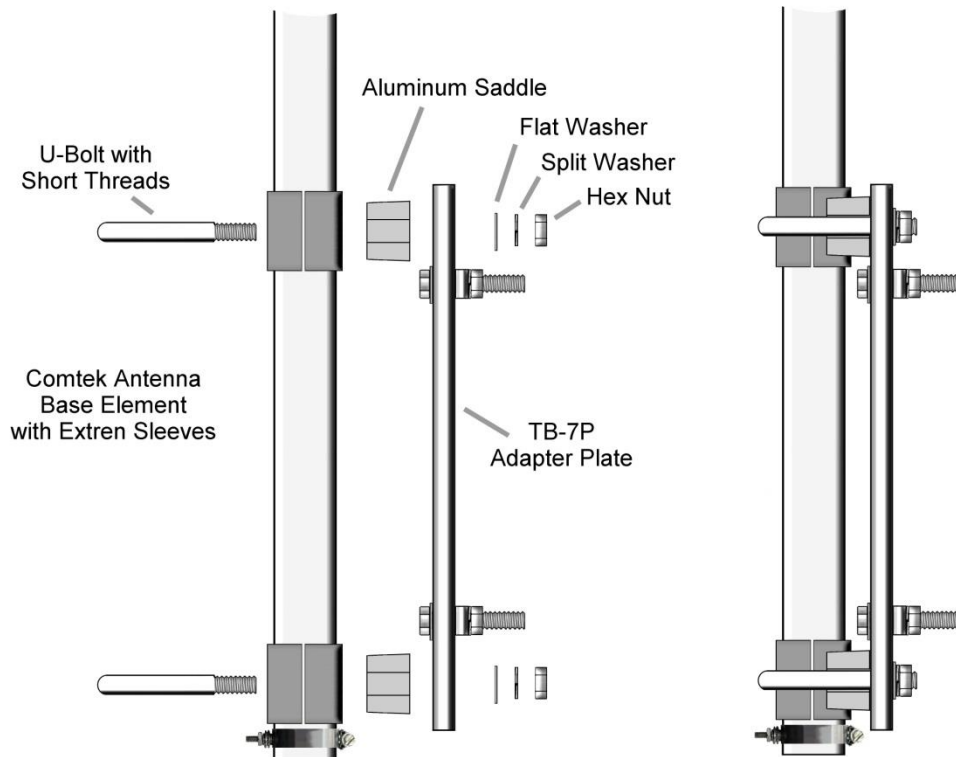
Set the original aluminum plate, U-Bolts and U-Bolt hardware aside - they will not be re-used.

The aluminum saddles **will** be re-used.



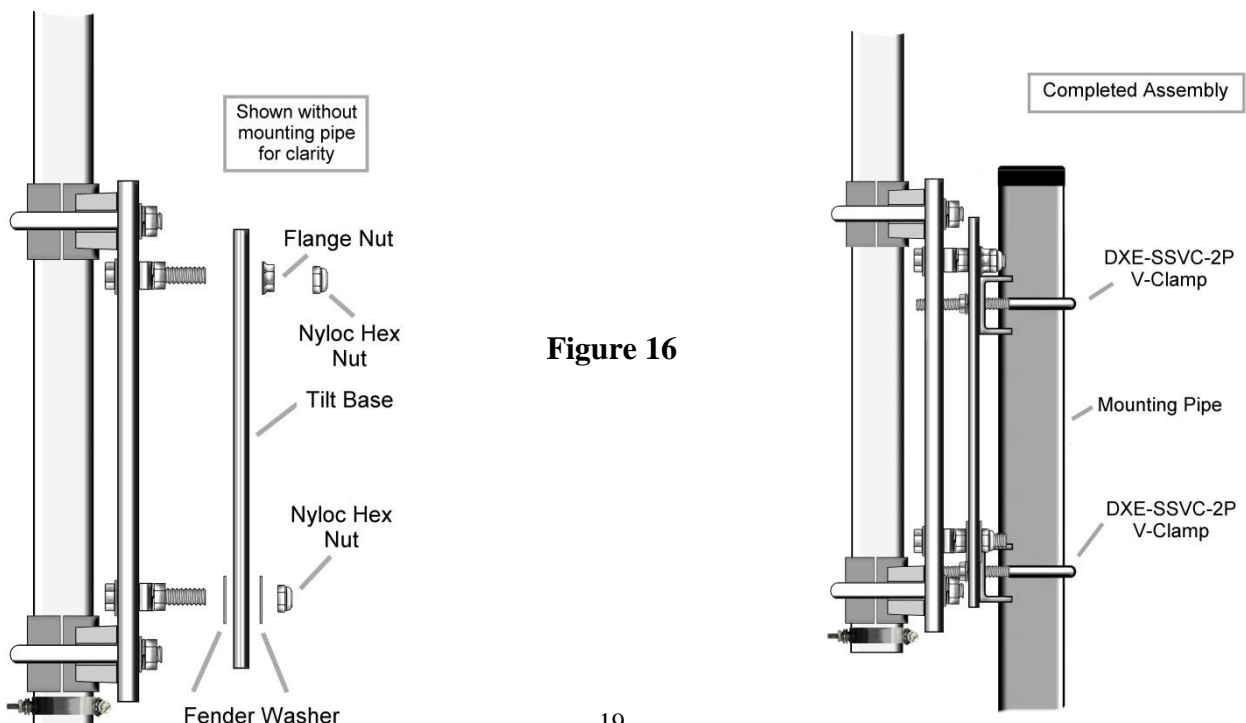
**Figure 14**

Attach the Comtek base element to the Comtek TB-7P aluminum adapter plate using two new (shorter thread length) U-Bolts and the original aluminum saddles as shown in **Figure 15** using the new flat washers, split washers and hex nuts.



**Figure 15**

Install the Comtek base element TB-7P adapter assembly to the DXE-TB tilt base plate using four fender washers, two Nyloc hex nuts and two flange nuts as shown in **Figure 16**. The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.



**Figure 16**

**Figure 16** shows the completed **DXE-TB-7P** assembly mounted to the customer supplied mounting pipe. 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) using two **DXE-SSVC-2P** Stainless Steel V-Clamps.

### **DXE-TB-8P with Comtek 20 Meter Verticals:**

The Comtek adapter plate is used to allow the Comtek 20 Meter Vertical antenna to easily attach to the Tilt Base. Except for the U-Bolts and U-Bolt hardware, all the other parts are the same as the TB-7P kit.

The installation instructions are the same as the **DXE-TB-7P** with only a few differences. The custom short thread 1-1/2" U-Bolts have 1/4-20 threads, sized to fit the **COM-20VA** antenna. Use the mounting holes on the supplied adapter plate that fit the 1-1/2" U-Bolts.

The rest of the assembly is the same as the **DXE-TB-7P**.

### **Using the Tilt Base**

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. Loosen the top two Nyloc nuts and flange nuts. 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. The bottom Nyloc Nuts should not be loosened more than one-half turn at any time. The upper Nyloc nuts are used to secure the tightened flange nuts from becoming loose if the wind vibrates your antenna assembly.

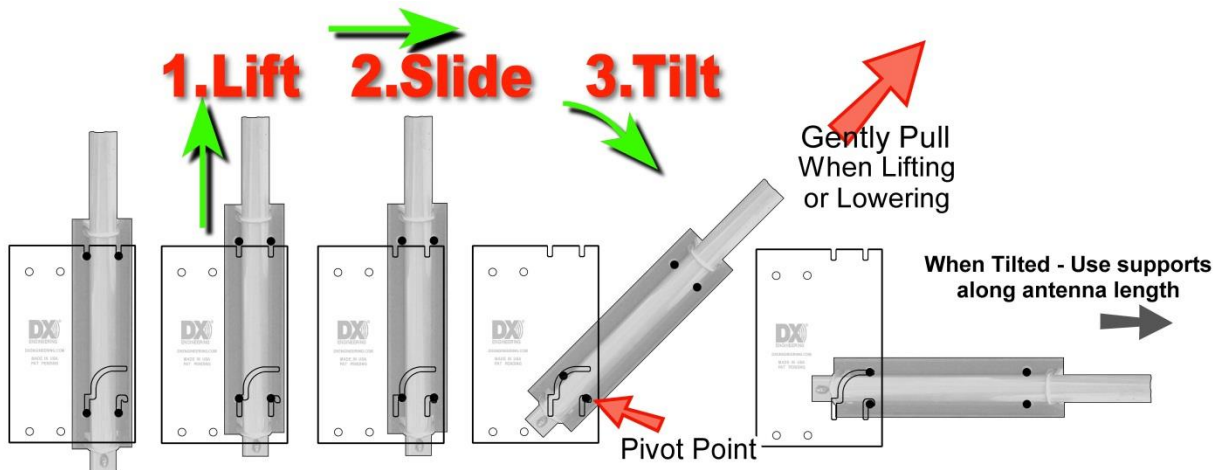
**DANGER: Make sure you have not inadvertently located the antenna underneath power lines. Residential power lines are often less than 40' high. Contact With Any Power or Utility Lines Can Be Lethal !**

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 17**. 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.

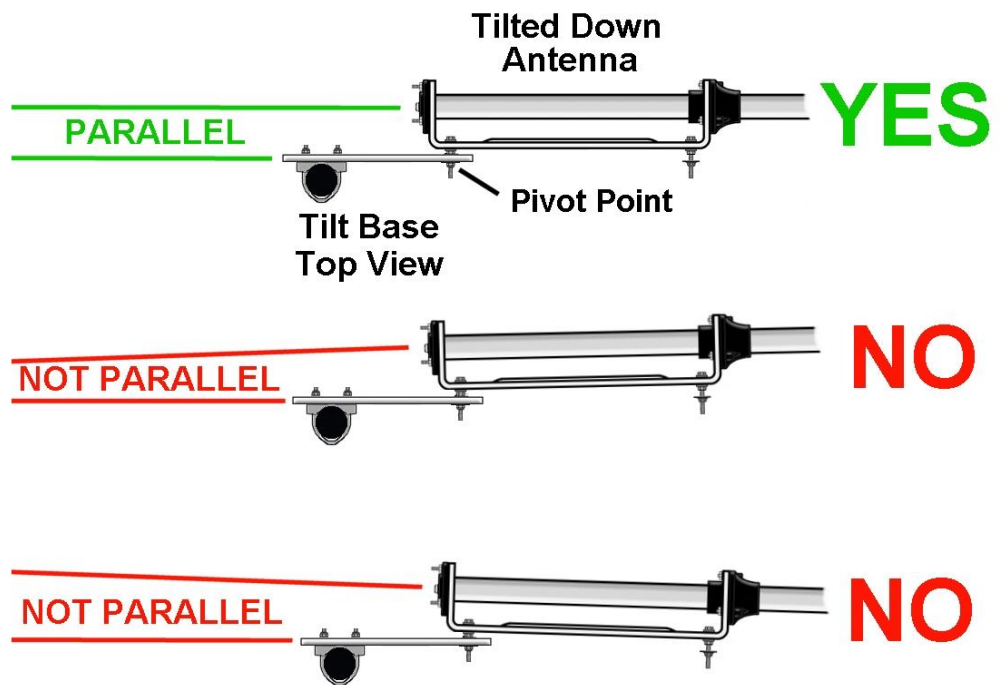
It is important to note that the lower, outside bolt becomes the pivot point while raising or lowering the antenna. This pivot bolt **MUST** be retained in the pivot point. It seems natural to *push* the antenna toward the Tilt Base while raising. **Push up** while raising, but not toward the base and keep the antenna parallel to the tilt 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 is tightened.



Additionally you want to keep the antenna parallel to the tilt base to avoid any jamming of the bolts during the tilt action.



**Figure - 17 - 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.

## 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](http://www.DXEngineering.com)) for the latest revision manual.

## Optional Items

### **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



\*Note: **PTX-81343** Never-Seez<sup>®</sup> 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.

### **PTX-81343, PTX-81464, DXE-NSBT8, DXE-NMCBT8 - Never-Seez<sup>®</sup> & Anti-Seize**

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 <sup>®</sup> , 8 oz. Brush Top
*DXE-NMCBT8	Never-Seez <sup>®</sup> , 8 oz. Brush Top, Marine Grade

\* **These products are limited to domestic UPS Ground shipping only**



### **DXE-RADP-3 - Radial Plate, Stainless Steel w/ 20 Sets of SS Radial Attachment Hardware**

The patented 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. The 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 DX Engineering and Comtek vertical antenna systems as well as most commercially available vertical antennas such as the Hustler BTV series (4-BTV thru the 6-BTV), the SteppIR (BiggIR or SmallIR) or one of your own construction

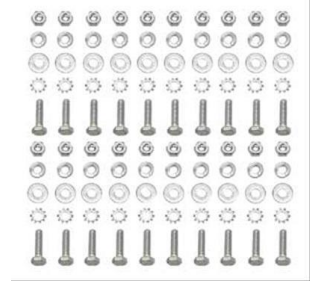


### **DXE-RADP-1HWK - Radial Plate Wire Attachment Hardware Kits**

DX Engineering Radial Plate Wire Attachment hardware kits are designed for use in mounting the DX Engineering stainless steel radial plate.

Kits include:

- \* Twenty 1/4 in. stainless steel bolts
- \* Twenty 1/4 in. stainless steel nuts
- \* Twenty 1/4 in. stainless steel flat washers
- \* Twenty 1/4 in. stainless steel split washers
- \* Twenty 1/4 in. stainless steel star washers



### **DXE-AOK-TB1193 - Tilt Base Wing Nut Knobs**

DX Engineering wing nut knobs are for the tool-less, quick release of the DX Engineering **DXE-TB-3, -4, -6, -7 or -8** tilt bases. They are perfect for lowering the antenna for tuning or daily stealth operation. To install them, simply remove the existing hex nuts and thread on the wing nut knobs. The old hardware can be stored on the tilt base for future use. Purchase two sets to also allow for the tightening of the lower mounting hardware without tools and for extended periods of upright installation and use.



### **DXE-TB-1HWK - Replacement Tilt Base Hardware Kits**

DX Engineering replacement tilt base hardware kits are genuine replacement hardware kits for the tilt base antennas. They consist of all of the nuts, bolts, fender nuts, and flat and lock washers needed to replace missing or damaged pieces. They do not include hardware for saddle clamps.



## 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](mailto:DXEngineering@DXEngineering.com)

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

## 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, WHETHER EXPRESS, STATUTORY, OR IMPLIED, 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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