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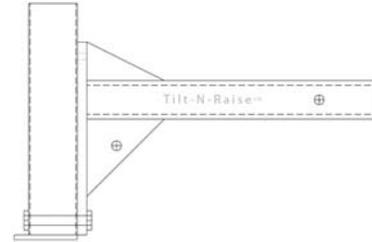


INTRODUCTION

Introducing the Tilt-N-Raise™ antenna mounting mount, a safer way to mount portable communications antenna and supports. The Tilt-N-Raise™ is a safe and effective way to put up a support mast for an amateur radio antenna (or other communications operation) using the receiver hitches on the back or front of your vehicle.

APPLICATIONS

The Tilt-N-Raise™ can be used in any application requiring a portable but sturdy antenna support for vertical antennas, wire loops, wire dipoles and even small HF/VHF/UHF yagis.



DESCRIPTION & FEATURES

The Tilt-N-Raise™ is a design of simplicity combined with the structural strength of aircraft grade aluminum. This patent pending antenna mount will allow you to roll up to an operating spot with your vehicle, tilt over the mast support, and slide in your mast and raise the antenna mast up. In as little as 3 to 5 minutes your antenna can be ready for use.

Along with this easy to manage tilt-over feature you will find a grounding lug for ground rod connections. An added feature at the base of the tilt-over receptacle is an optional radial plate utilizing stainless steel ¼" bolts allowing you to create a small but effective radial field if desired.

OPERATION

Simple as it is the Tilt-N-Raise™ needs no explanation on its operation but there are some cautions to observe:

- You should conduct a site survey prior to setting up your Tilt-N-Raise™ antenna mount. Be especially mindful of overhead power lines, all power lines are dangerous!
- Most importantly you want to park in such a way as to allow you to safely raise and lower the Tilt-N-Raise™ and any antenna mast you are using without striking surrounding objects and structures. It is strongly advised that you avoid using the Tilt-N-Raise™ anywhere that power lines are within striking distance of the mast or antenna you will be using.
- Remember that the Tilt-N-Raise™ is an antenna mount and not a communications tower! It has been designed to aid you in your portable operations but you must realize it does have structural limitations. Use guying for antennas and masts that exceed 25 feet overall. It is better for your safety if you use some small guy anchors and Dacron rope to keep the antenna/antenna mast secure.

- Remove the u-bolt at the top of the vertical receptacle and tilt it to either side that allows you the most freedom of movement.
- Slide the bottom of the antenna/antenna mast into the vertical receptacle until it bottoms out.
- Starting at the midpoint of your antenna/antenna mast start walking towards your vehicle (taking note of any surrounding objects) until the antenna/antenna mast is vertically oriented.
- Insert the u-bolt around the vertical support and tighten it to around 20 foot-pounds of torque. **DO NOT OVERTIGHTEN THE U-BOLT!**
- If you need to implement the ground lug then use what ever size wire you normally use and attach it to the ground lug. It is advisable that you use some sort of connector to clamp at the ground lug to insure a good ground connection.

RADIALS

The age old debate about radials will likely never be solved. Those that use them swear by them, others (even manufacturers) discount their use. Here is some information from someone who is well-known and respected when it comes to antennas:

Some Other Thoughts

The question is frequently asked, "should I mount my vertical on the ground, or get the base up in the air?" Getting the antenna up in the clear is always better than having it mounted at earth level and surrounded by rain gutters, house wiring, trees, power lines and so forth. However, getting the vertical antenna up in the air also means that radials, as many as possible, should be used. The average installation (if there is such a thing) usually consists of three or four radials (or more) cut for the lowest operating frequency. Such a system should give a good performance.

*By Lew McCoy, W1ICP
QST September 1972, pp. 14-16, 28*

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WARRANTY

The Tilt-N-Raise™ antenna mount comes with a limited 1-year warranty for defects in workmanship such as cracked welds or metal fatigue. All warranties are void should the Tilt-N-Raise™ be altered, changed, or modified by any type of media blasting, etching, grinding, refinishing, drilling, sawing, or welding being performed on the mount or any associated parts including the PVC insulator. Use of antenna masts or antennas in excess of 25' without guying could cause

excessive torque to be placed upon the Tilt-N-Raise™ and it will likely suffer damage from the rotational or twisting forces placed upon it. Damages to the Tilt-N-Raise™ that have been caused striking objects when used in EMCOMM or other portable operations voids all warranties. Removal of the pivot bolt, ground lug, or any of the radial plate bolts will damage the powdercoated finish and void your warranty.



CAUTIONS

As with erecting any communications antenna or mast, using the Tilt-N-Raise™ at your portable antenna location should be used in similar circumstances.

- When using the Tilt-N-Raise™ remember that it should ALWAYS be tilted over to one side before sliding the antenna mast into it. You should never attempt to lift an antenna or mast into the vertical support tube of the mount.
- NEVER ATTEMPT TO INSERT AN ANTENNA MAST OF ANY HEIGHT INTO THE TILT-N-RAISE™ WHILE IT IS IN A VERTICAL POSITION.
- The Tilt-N-Raise™ is not designed to be used as a mobile antenna bracket DO NOT DRIVE your vehicle with an antenna mast inserted in it!
- Never drive around your portable operating location once your antenna mast is in the vertical position as you could come into contact with low hanging objects and damage your antenna, antenna mast or even worse you might come into contact with power lines.
- Always, always, always screen your portable location for the presence of power lines. One shouldn't concern oneself how much voltage is in the lines as all AC voltage is capable of serious injury or even death.
- The insulator inside the vertical is designed to accept a maximum antenna or antenna mast of up to 2" OD (outside diameter) and any modification (or removal) of this insulator should be avoided to prevent damages from occurring to your antenna system, your vehicle, or any surrounding objects. Removal or modification of the PVC insulator will also void all warranties applicable at the time of purchase of the Tilt-N-Raise™.

- Regular inspection of your receiver hitch should be done to insure you have not damaged it due to its use while towing. Cracked or weakened receiver hitches could cause the Tilt-N-Raise™ to further weaken the stressed areas when loaded with an antenna or mast. Try to imagine the torque applied to the receiver hitch by a 25 foot mast.
- The Tilt-N-Raise™ is heavily protected by the powdercoating on it and could be tight when inserting it into your receiver hitch. Be sure to clean the hitch of all debris and especially any rust that might block the Tilt-N-Raise™ from being inserted freely. All of our mounts are tested with our receiver hitches prior to being sent out.
- Powdercoating is a durable surface and while it is chip and scratch resistant it IS NOT chip or scratch proof. If you throw it around in the back of your truck then it is highly likely that the corners and edges of the mount could chip off the powdercoating.
- All of the hardware used on the antenna mount is stainless steel which will prevent rusting and corrosion from the elements. But stainless steel hardware has a tendency to “gall” the threads unless some type of light lubricant is used. The pivot bolt at the base of the vertical support tube should never be removed; doing so will void the warranty. The ground lug and the radial lugs were attached prior to the powdercoating process and the removable nuts are wing nuts. Wing nuts were used for the ground and radial lugs to prevent them from being over tightened. **NEVER USE TOOLS TO TIGHTEN THE WING NUTS!** These nuts only need to be ‘snugged’ up to give you a good connection for the ground and radials. Remember that this is a portable operation!

Frequently Asked Questions

Q.} Why is the hole where the locking pin goes through a bit larger than the pin itself?

A.} We have found vast differences in the location of the lock pin hole in the various receiver hitches we have tested. To remedy these situations a much larger hole in the antenna mount was made to allow the antenna mount to fit without any need for modifying the mount lock pin hole. This extra clearance should not present a problem as you are not using this to tow anything. The pins supplied with our portable antenna mounts are industry standard and will fit your receiver-hitch.

Q.} Must I use radials with my portable antenna?

A.} Naturally you must first consider the type of antenna you will deploy using the Tilt-N-Raise™ portable antenna mount. If you are using a dipole or loop antenna

then you would have no need for radials. Some commercially produced vertical antennas do not require radials according to their manufacturers. In these cases you should follow the antenna manufacturer's requirements regarding the use of radials. Some commercial verticals and a good many homebrew vertical antennas do require radials and so you will be able to make use of the radial plate. Should you deploy a variety of antenna types during your portable operations then we suggest you purchase the model with the radial plate attachment. As for the ongoing discussions among radio amateurs concerning the use of radials with vertical antennas it is suggested you read the article by well-known antenna expert Lew McCoy elsewhere in this document.

Q.) Can the Tilt-N-Raise™ portable antenna mount be used in a mobile environment?

A.) While it would seem the Tilt-N-Raise™ would make a great mobile antenna mount we discourage its use while the vehicle is in motion. The antenna mount itself is more than adequate for mobile operation but the likelihood of striking overhead objects is too great to recommend you use the antenna mount while mobile.

Q.) What is the maximum height of an antenna and mast that can be used with the Tilt-N-Raise™.

A.) Our suggested maximum antenna/support mast height is 25 feet. Once you exceed this height you place a heavy load upon the antenna mount due to the leverage action against the mount. Therefore you should guy anything and everything over 25 feet without exception (a quarter wave vertical for 7.225mhz is only 32.39 feet). Using guys as standard operating procedures will protect bystanders, your vehicle and your antenna especially for operators who deploy portable stations for lighthouse activations. Lighthouse activators experience higher wind loads than most portable operators due to their close proximity to the shorelines.

Q.) How can I route the feedline/coax?

A.) Since we don't provide the supporting mast we can't really answer this question adequately. Some suggestions could be to use Velcro strips to secure the feedline to the mast. Velcro would be better than tie-wraps as they are reusable and can be removed faster should the antenna need to be removed quickly. Also, antenna feed points would play a big part in the routing of the feedline. If you have diagrams or photos of different methods of attaching feedlines during portable operations then please feel free to forward them to us and we will post them on our web site for all to use.



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