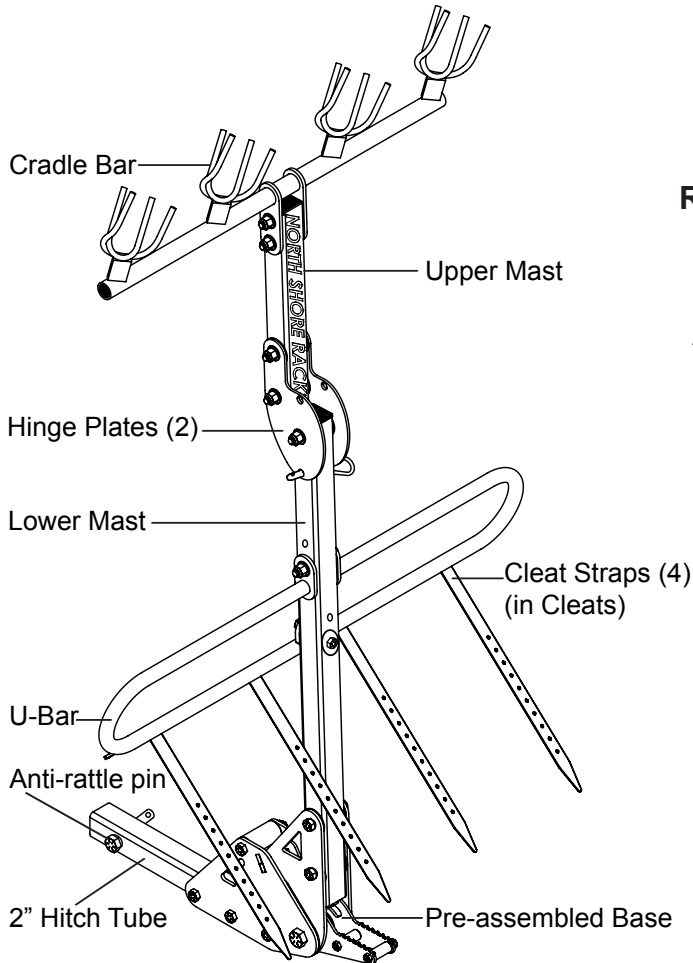


NORTH SHORE RACKS

NSR4 GRADUS USER MANUAL & ASSEMBLY INSTRUCTIONS

Welcome to the North Shore Racks family! Our design set the standard – others may imitate, but none compare. Your rack is intended to be used with mountain bikes/e-mtbs as there needs to be sufficient room around the crown of the fork for the rack to fit. Almost all suspension forks are compatible. This manual covers the NSR GRADUS series of racks and as such, the illustrations are for all available models. Once you've assembled your rack and used it a few times you'll quickly appreciate just how easy it is to use and how neatly it carries your mountain bikes.

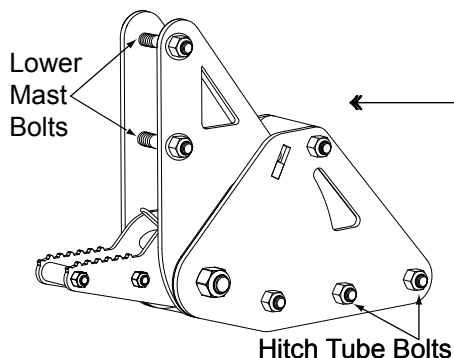


REQUIRED TOOLS FOR ASSEMBLY:

- 2 x 3/4 inch (19mm) wrenches for rack assembly
- 1 x 15/16 inch wrench for Anti-rattle Hitch Pin
- 2 x Crescent wrenches for base pivot bolt assembly
- All-purpose grease for rack assembly
- Rubber mallet (optional)

ACCESSORY PACKS INCLUDED:

- 1 x *Anti-rattle hitch pin*
- *Hardware Pack:*
 - 7 x 1/2 inch hex head bolts
 - 7 x 1/2 inch nylock nuts
 - 13 x 1/2 inch small flat washers
 - 1 x 1/2 inch x 2 inch large fender washer
- *Strap Pack:*
 - 4 x Voile UV straps
 - 6 x Large nylon fender washers
 - 1 x Gold D-handle Hitch Pin & bridge clip



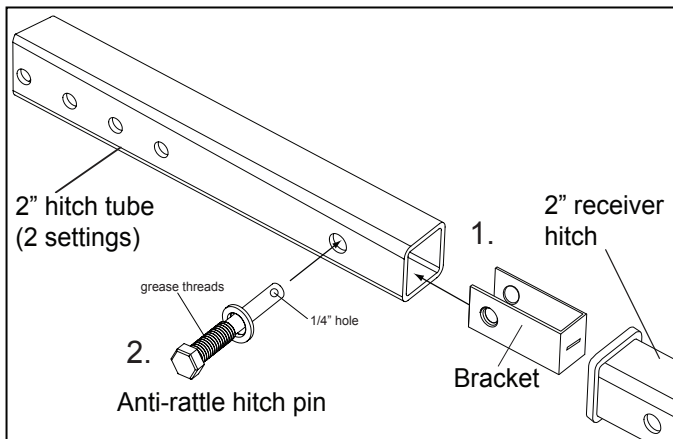
PRE-ASSEMBLED BASE:

Included for installation:

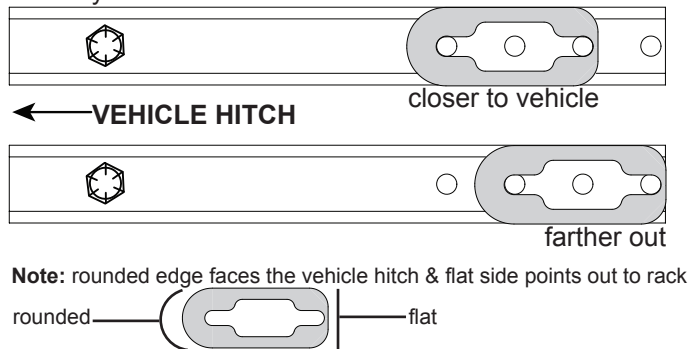
- 2 x 1/2 inch (4" length) hex head bolts (hitch tube bolts)
- 2 x 1/2 inch (3" length) hex head bolts (lower mast bolts)
- 4 x 1/2 inch small flat washers (lower mast bolts)
- 4 x 1/2 inch nylock nuts
- 4 x Large nylon fender washers

NORTH SHORE RACKS

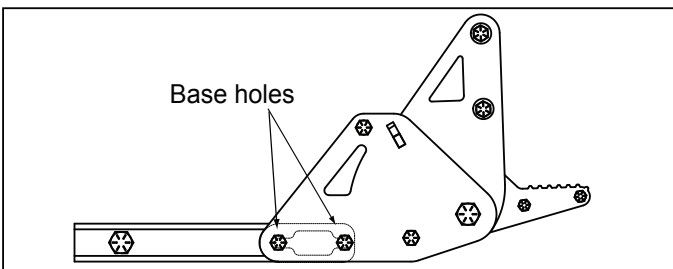
1. Remove the 2 Inch Hitch Tube and Anti-rattle Pin from the main box. On your work space or table, install the pin.



2. Remove the Pre-Assembled Base and Hitch Spacers from the base box, lay the 2 Inch Hitch Tube on the table then pick one of the two settings for setback (distance) from the rear of your vehicle.



3. Carefully line up the Base holes with the holes on the Hitch Tube & Hitch Spacers. Insert the two bolts (1/2" x 4"), add lock-nuts, and hand tighten.



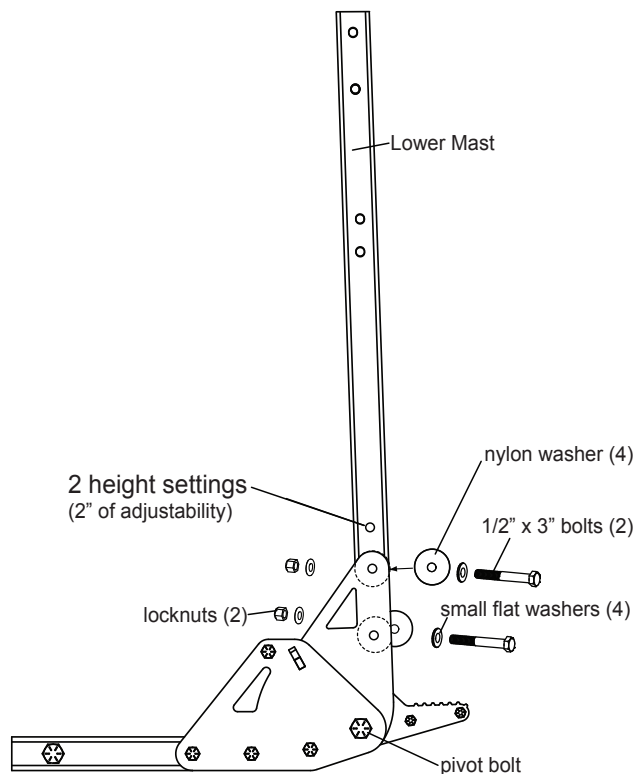
This is a good time to insert the entire assembly in your vehicle hitch to choose your setback settings. Remove the Anti-rattle Hitch Pin from the Hitch Tube and install the assembly into your vehicle hitch. Align the hole of your hitch to the hole on the tube. Once the setting is decided, tighten the two 1/2" bolts with a 3/4" (19mm) wrench and tighten to 40 ftlbs.

4. Insert your Anti-rattle Hitch Pin and hand tighten first. Take a 15/16" wrench (or socket and driver) and tighten down to 75 ftlbs.

Note: DO NOT use an adjustable wrench as it will not get the proper purchase on the pin for decent torque.

5. This next part can be a bit tricky. The Lower Mast goes in next. Be aware that there are two vertical height settings, so go ahead and choose which one suits your setup. Take one of the bolts (1/2" x 3") and small flat washers; it is best to insert the lower bolt first. * Do not run the bolt all the way through as you will need to carefully slide one of the large nylon flat washers between the Base plate and the lower mast on one side, then repeat this on the opposite side.

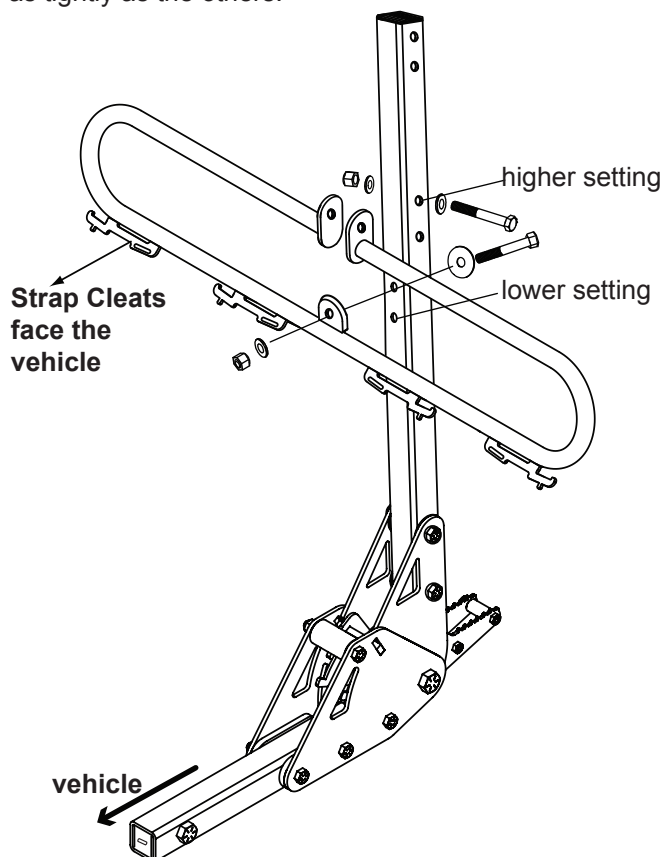
The nylon washers can be finicky with alignment so it may take a couple of tries. Add a small flat washer on the other side, along with a locknut and hand tighten. Repeat on the upper hole. After hand tightening both locknuts, take your 3/4" (19mm) wrench and tighten to 40 ftlbs



6. Once the entire assembly has been installed and you are happy with the setup, tighten the pivot bolt with your adjustable wrench. This is a good time to check the other bolts on the entire base assembly to ensure everything is tight. Now install the assembly in your hitch

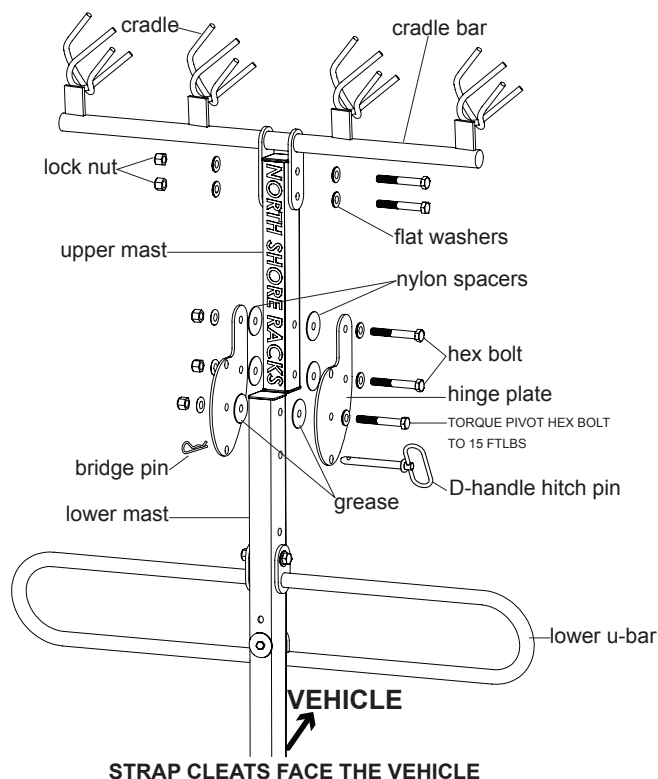
NORTH SHORE RACKS

7. The U-Bar is installed next. Most people will use the higher setting but if you have a longer wheelbase bike you can set the U-Bar in the lower setting. Install as per diagram below. It is best to insert the lower front-to-back bolt and washer through the lower mast first then, the perpendicular top bolt and washer. Please note that the lower bolt uses the large metal Fender Washer. It is important not to tighten this bolt as tightly as the others.

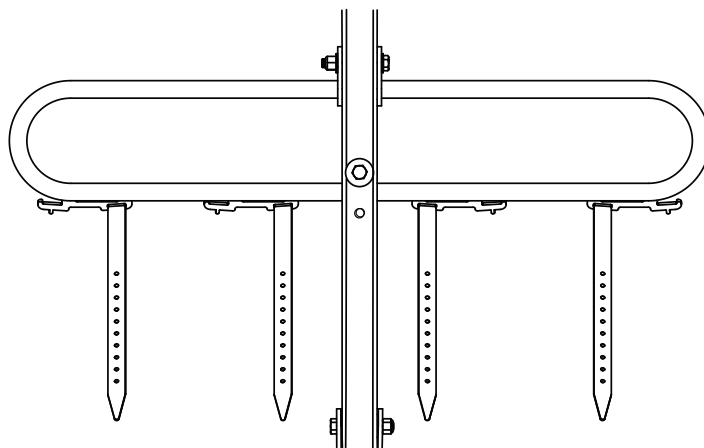
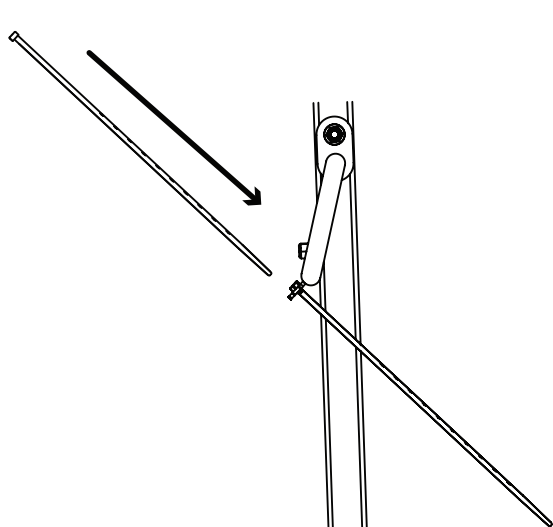


8. Now you can build the rest of the rack from your vehicle hitch. Go to the **VIDEOS** page of our website for the full ASSEMBLY.*

**Please note that these videos do not reflect the latest updates however, the assembly from the Lower U-Bar onwards, is the same. Updated videos will released.*



9. Insert the Voile straps into the strap cleats, simply by sliding the strap into the small slit on the Strap Cleat. Give it a bit of a pull to help set the strap into the laser cut hole.



NORTH SHORE RACKS

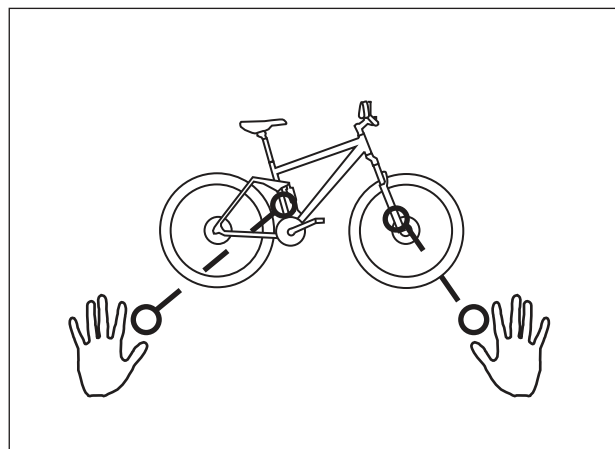
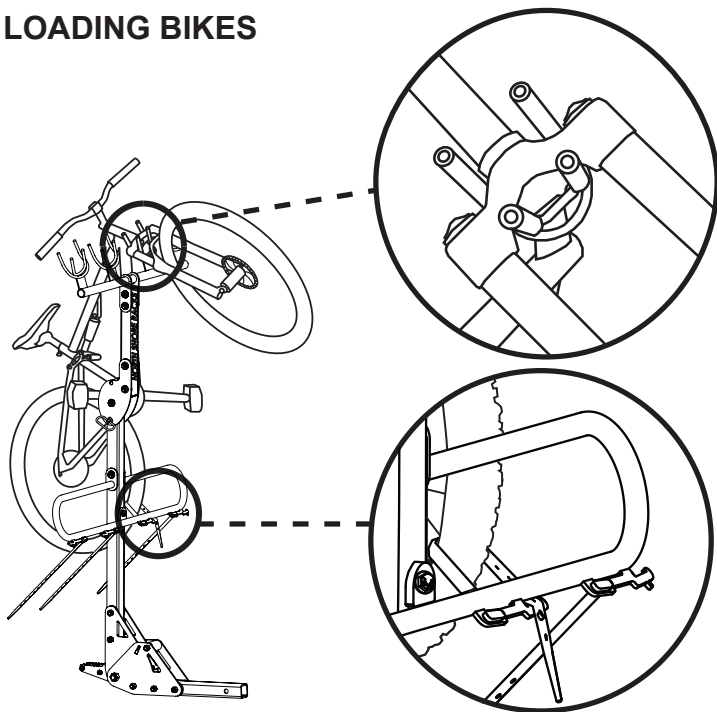
LOADING BIKES

WEIGHT PER CRADLE: 60lbs MAX

WEIGHT CARRYING CAPACITY: 200lbs MAX LOAD

2 INCH VEHICLE HITCH REQUIRED

(not available for 1 1/4" hitches)



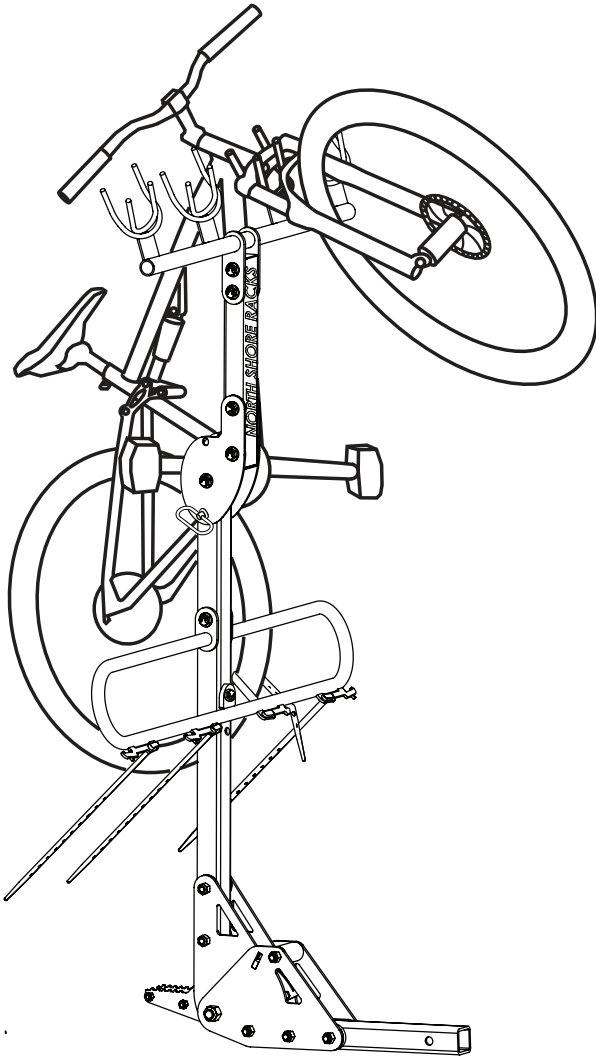
1. Position a bike as shown above. Grasp the seat tube area with one hand and grasp the fork low down, near the bottom, with your other hand.
2. Approach the rack from the right hand side (passenger side), simply lift the bike and place the fork crown of the bike into the left-most padded cradle of the rack. ***Do not try and lift the bike over the rack from behind.** It is much easier to load from the side, then you do not need to lift so high. If you have a high hitch, try laying the rack back a setting or two to bring the rack closer to the ground.
3. Secure the rear wheel with the straps as shown above. Pull the strap through your wheel's rim, return it under the u-bar into the open face of the strap cleat and then pull the strap down firmly into the cleat catch. When installed correctly, the bike will be secured in place and ready to go.
4. To load another bike repeat steps 2-4.

Note: you may have to adjust the pedal placement before securing the rear wheel to ensure that no bike components touch

TIPS AND PRECAUTIONS

1. Load bikes one at a time from the left most position of the rack to the right; remove bikes in the opposite order.
2. Do not support bikes from the rack in any other way than what is shown.
3. Place bikes with shorter stems (DH/ Freeride) in the left positions and longer stemmed bikes (Cross-country) in the right positions to minimize any possible handle bar interference.
4. Fork crowns must be free of any accessories. ie: fork-mounted fenders are not compatible.
5. Do not use this rack for anything other than the transport of mountain bikes.
6. Excessively high speeds or rough roads may overstress the rack and/or hitch/vehicle.
7. Check with the hitch manufacturer to ensure the hitch is capable of withstanding the stress of this rack.
8. Check all fasteners and retorque as needed before each use.

NORTH SHORE RACKS



WARNING

BE MINDFUL OF CLEARANCE BETWEEN THE BIKES AND THE GROUND WHEN DRIVING (IE: STEEP DRIVEWAYS). CONTACT WITH THE GROUND MAY CAUSE DAMAGE TO BIKES AND/OR THE RACK OR OTHER VEHICLES BEHIND YOU AS A RESULT OF TRYING TO AVOID FALLEN BICYCLES AND/OR THE RACK.

BE AWARE THAT BIKES ON THE RACK MAY PROTRUDE ABOVE THE TOP OF YOUR VEHICLE AND CONTACT OVERHEAD STRUCTURES CAUSING DAMAGE (IE: PARKING GARAGES).

NOT RECOMMENDED FOR USE ON RECREATIONAL VEHICLES, ESPECIALLY THOSE WITH LONG OVERHANGS.

WE DO NOT RECOMMEND USING THE RACKS ON SALTED ROADS. THE RACKS ARE MADE FROM MILD STEEL; THEY CAN BE SUSCEPTIBLE TO RUST IF THE POWDER COAT IS DAMAGED EXPOSING METAL, OR IF IT HAS PROLONGED EXPOSURE TO SALTED ROADS. BE SURE TO MAINTAIN A GOOD GREASING OF PIVOTS AND CARE OF AREAS WHERE POWDER COAT HAS BEEN TAKEN OFF BY GENERAL USE.

WARRANTY

North Shore Racks Inc. products carry a two-year limited warranty(6 months for commercial use) from the date of purchase to the original purchaser against defects in materials or workmanship. This warranty is void if the product has been used off-road, on a Recreational Vehicle (RV, Trailer), modified, damaged or used for anything other than its intended purpose. In no event shall North Shore Racks Inc. be liable for incidental or consequential damages.

This warranty is non-transferable.