CycleSimplex Bike Rack Assembly Instructions

One Trike Plus One Bike Rack

v7.0

Precautionary and Maintenance Information:

Thank you for your purchase!

Caution: There are sharp edges. Wear gloves during assembly so as not to harm yourself

All straps must be used at all times.

When you are not carrying trike(s)/bike(s), you can either leave the straps attached through the slots or remove them. If you leave the straps on the rack, they should be connected just as they would with the trike or bike on the rack, otherwise they may be lost.

There is always some flex in metal. Because of this you should check and tighten bolts before each use.

You should check the straps for wear before each use and replace if they show any wear.

This trike or bike rack will extend quite a distance behind your vehicle. Caution must be used not to "bottom out" on sharp dips or rises in your path. Your rack or trike(s)/bike(s) may also extend beyond the sides of your vehicle so caution is required not to hit the rack or your trike(s)/bike(s) on other objects.

Liability Information:

CycleSimplex, LLC's liability from all causes is limited to the purchase price of the trike or bike rack.

Warranty Information:

This trike or bike rack may be returned unused for any reason by the purchaser to CycleSimplex, LLC within 15 days of its receipt by the purchaser. For full refund, returns must be packaged so that no damage occurs to the rack in shipment and the trike or bike rack is received by CycleSimplex in like new condition. If the rack arrives damaged, the cost of repairing the damage may be deducted from the refund.

CycleSimplex, LLC guarantees the trike or bike rack to be free from defects in material or workmanship for 90 days from the date the purchaser receives the product. During that 90-day period, CycleSimplex, LLC will at its sole discretion either replace defective components or refund the full purchase price of the trike or bike rack upon return of the trike or bike rack in like new condition.

Parts List

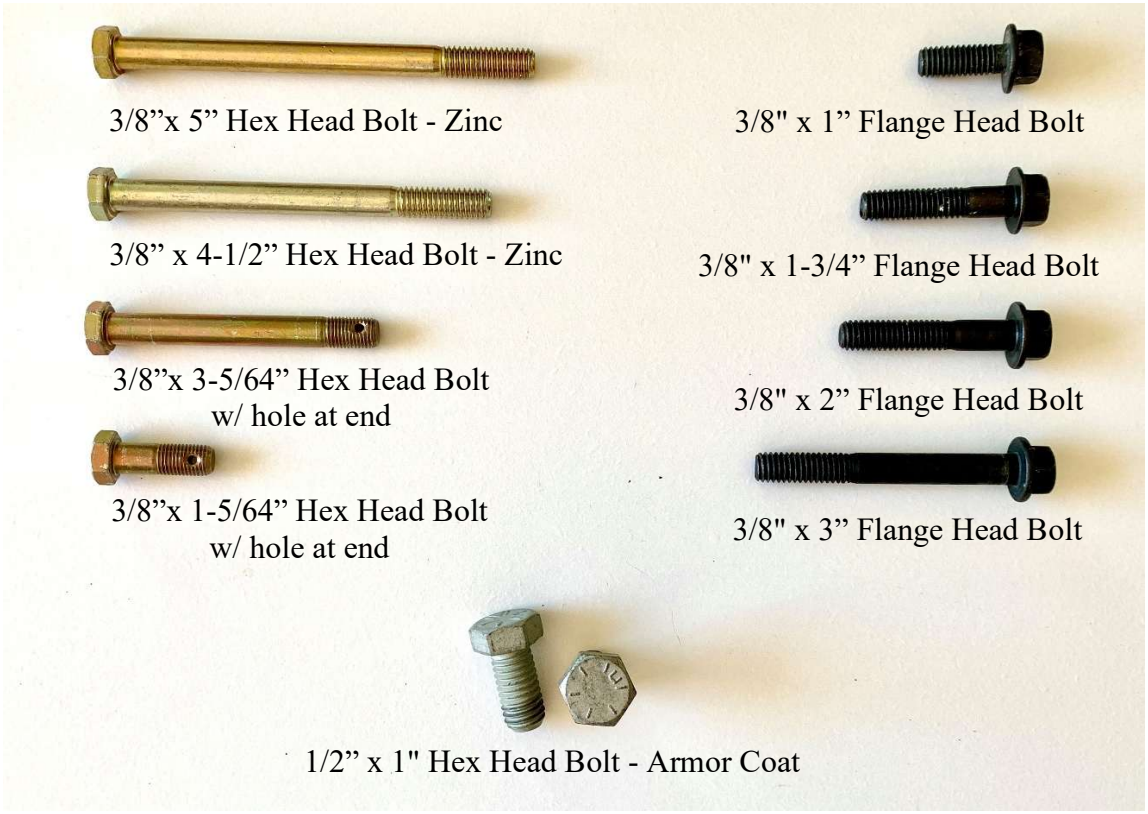
Small Parts Bag

	Item	Qty
1.	Hex Head Bolt - 1/2” x 1" - Armor Coat	3
2.	Lock Washer - 1/2” - Armor Coat	3
3.	Channel Nut - 1/2" Thread - 3/8" Thick	3
4.	Flange Head Bolt - 3/8" x 3”	7
5.	Flange Head Bolt - 3/8" x 2”	6
6.	Flange Head Bolt - 3/8" x 1-3/4”	12
7.	Flange Head Bolt - 3/8" x 1”	2
8.	Hex Head Bolt - 3/8” x 4-1/2” - Zinc	1
9.	Hex Head Bolt - 3/8”x 5” - Zinc	1
10.	Hex Head Bolt - 3/8”x 1-5/64” with hole at end	1
11.	Hex Head Bolt - 3/8”x 3-5/64” with hole at end	1
12.	Slotted Nut - 3/8”	2
13.	Cotter Pin for Slotted Nut	2
14.	Clevis Pin - 3/8" x 3”	1
15.	Hair Pin for Clevis Pin	1
16.	Flat Washer - Regular 3/8” - Armor Coat	24
17.	Flat Washer - **Thick** 3/8”	2
18.	Lock Washer - 3/8" - Zinc	2
19.	Self-Lock Nut - 3/8"	21
20.	Square Washer	10
21.	Square Nut - 3/8"	9
22.	Spacer - White, 2” long	2
23.	Rubber Pad	1

Rack Components

	Item	Qty
A	Receiver Insert - Black, square tube, 16-1/2” x 1.25" or 2" (Depending on hitch size)	1
B	Shims (For 1.25” Hitch model only)	2
C	Tilt Plate – Black, 5” x 6-5/8” with 5 holes	2
D	Main Strut – Black, square tube, 2” x 34” long	1
E	Trike Strut – Black, square tube, 1-1/4" x 47” long	1
F	Bike Vertical Support – Aluminum, slotted channel 1” x 1-5/8” x 24” long	2
G	Bike Channel Internal Support - Black, 1/4” x 1” x 8”, 4 holes	1
H	Bike Channel - Silver, slotted channel, 1-5/8” x 1-5/8” x 38” long	1
I	Trike Channel - Silver, slotted channel, 1-5/8” x 1-5/8” x 24" long	1
J	Trike Crossbar - Black, slotted channel, 1-5/8” x 1-5/8” x 36" long	1
K	Bike Upper/Lower V-Tray - 32” long, 4 holes	2
L	Trike Upper V-Tray - 36” long, 2 holes	1
M	Trike Lower V-Tray - 36” long, 8 holes	1
N	Cam Buckle Strap - 54”	2
O	Cam Buckle Strap - 18”	7
P	Trike Strut U-Clamp - 1" high	1
Q	Trike Crossbar U-Clamp - 1-5/8” high	1
R	7” J-Bolt Assembly	1
S	L-Bracket	3
T	Flat Bracket Strap Holder - 2 Hole	1
U	Flat Bracket Strap Holder - 3 Hole	1
V	Corner Bracket (Seat Post Holder)	2
X	Wheel Stop	2

Hardware:



3/8”x 5” Hex Head Bolt - Zinc

3/8" x 1” Flange Head Bolt

3/8” x 4-1/2” Hex Head Bolt - Zinc

3/8" x 1-3/4” Flange Head Bolt

3/8”x 3-5/64” Hex Head Bolt w/ hole at end

3/8" x 2” Flange Head Bolt

3/8”x 1-5/64” Hex Head Bolt w/ hole at end

3/8" x 3” Flange Head Bolt

1/2” x 1" Hex Head Bolt - Armor Coat

3/8” Square Nut

1/2” Channel Nut

3/8” Square Washer

3/8” Self-Locking Nut

1/2” Lock Washer

3/8” Flat Washer - Regular

3/8” Slotted Nut

3/8” Lock Washer

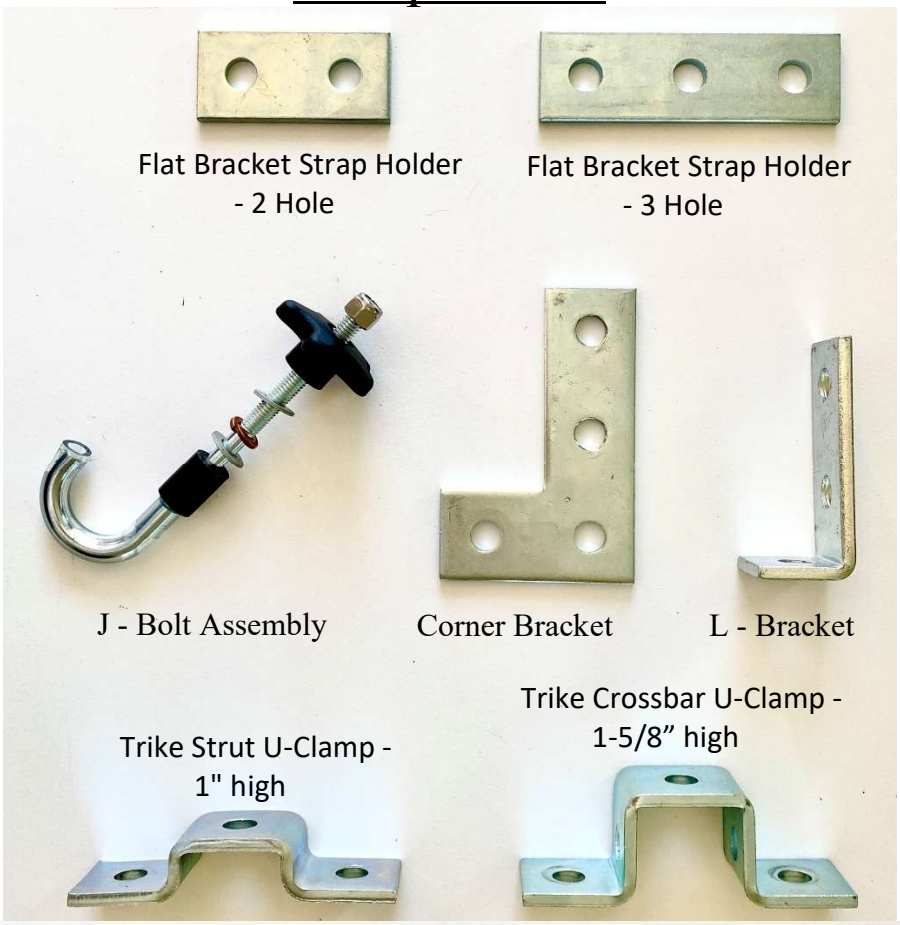
3/8” Flat Washer - **Thick**

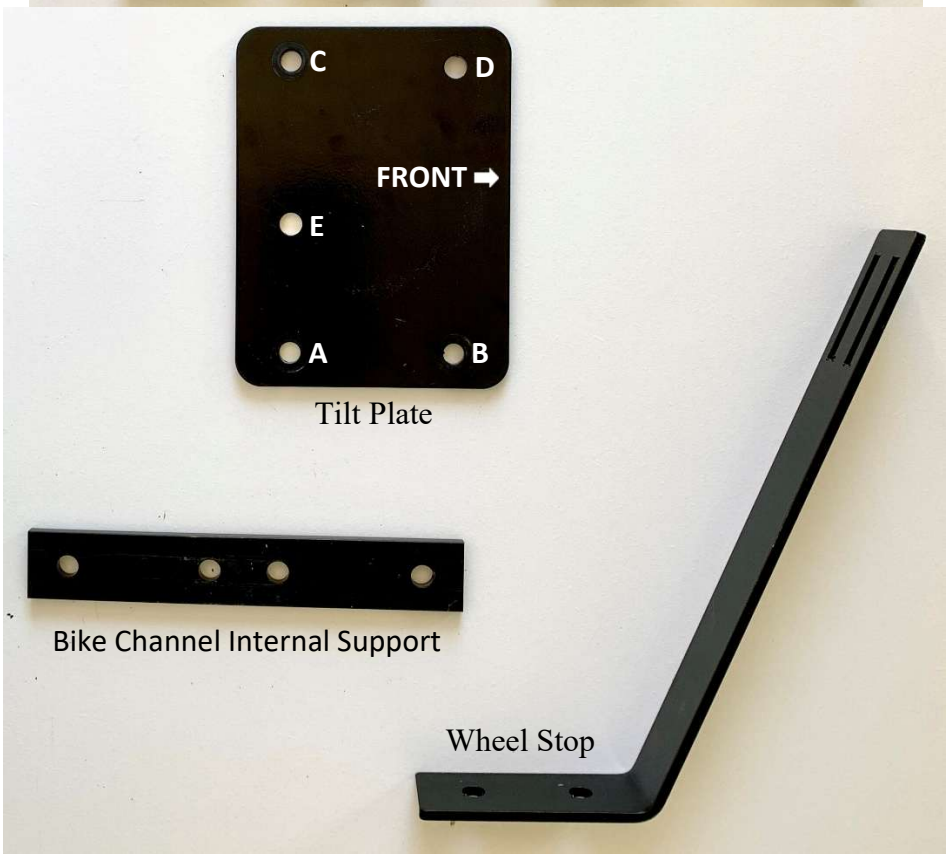
Clevis Pin - 3/8" x 3”

Cotter Pin for Slotted Nut

Spacer - 2” long

Components:


Flat Bracket Strap Holder - 2 Hole
Flat Bracket Strap Holder - 3 Hole
J - Bolt Assembly
Corner Bracket
L - Bracket
Trike Strut U-Clamp - 1" high
Trike Crossbar U-Clamp - 1-5/8” high


C
D
FRONT
E
A
B
Tilt Plate
Bike Channel Internal Support
Wheel Stop

Trike Strut – Black, square tube, 1-1/4” x 47” long

Trike Crossbar - Black, slotted channel, 36” long

Main Strut – Black, square tube, 2” x 34” long

Receiver Insert - Black, square tube, 16-1/2” x 1.25" or 2"

Trike or Bike Slotted Channel (Steel), or Bike Vertical Support (Aluminum)

Trike Lower V-Tray - 36” long, 8 holes

Trike Upper V-Tray - 36” long, 2 holes

Bike Upper / Lower V-Tray - 32” long, 4 holes

Tools you will need:

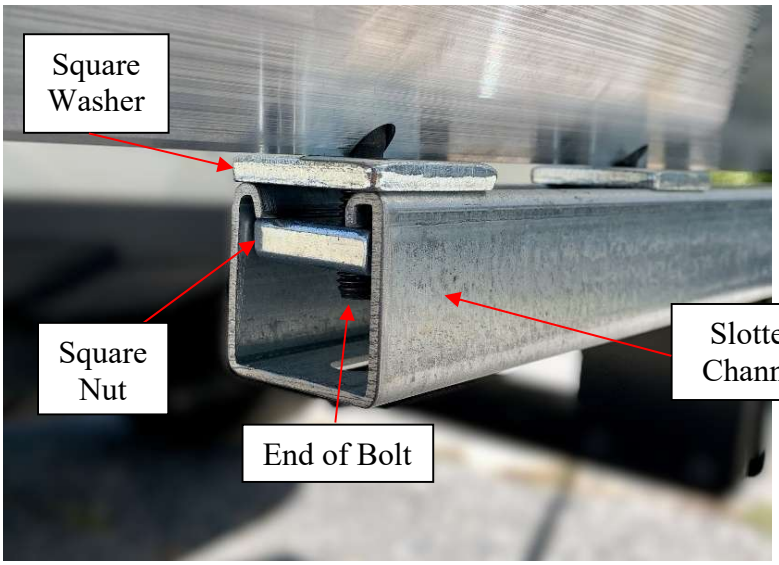
- Gloves
- Tape measure
- 9/16” and 3/4” Wrenches, or an Adjustable Wrench
- 9/16” and 3/4” Sockets, or Wrenches, or another Adjustable Wrench.

Note:

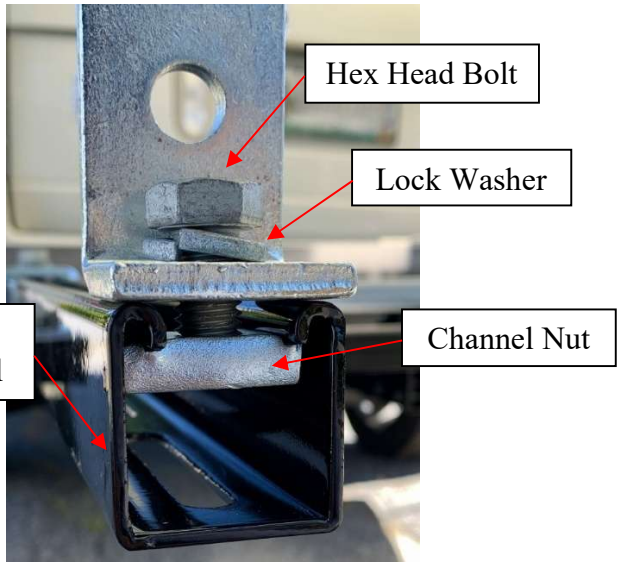
The slotted channel comes in various sizes. When we describe something as slotted channel, it will look like the following with 3” long slots in the bottom.

When attaching components to the slotted channel, it is critical that all assemblies must be tightened with the Square Nut or Channel Nut under the rail as shown below. The grooves in the Channel Nut must be facing up, and under the rail of the slotted channel. The Square Nut does not have any grooves and can be oriented up or down.

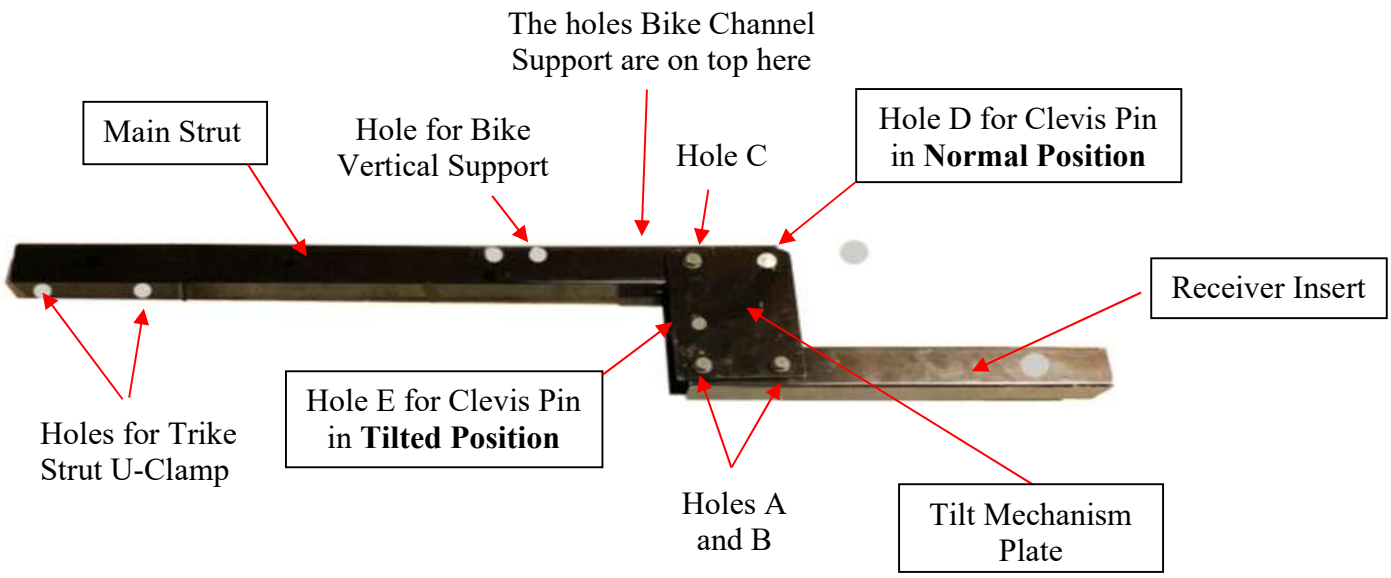
Bike Channel V-Tray Assembly



Trike Crossbar Wheel Bracket Assembly



Step 1: Assemble Receiver Insert, Tilt Mechanism and Main Strut



We recommend assembling the rack in the hitch receiver of the vehicle. If you are not doing so, please ignore Step 1A and continue building the rack as normal. **Make sure Hole E in the Tilt Plate is towards the rear and closer to Hole A than Hole C. If not, then the plate is upside down.**

1A: Place the end of the Receiver Insert that has a single hole into the vehicle hitch receiver and secure with a pin. The pin should have either a nut or a hair pin on the end so that it doesn't fall out.

1B: **1.25" Rack** - Pass two 3/8" x 3" flange head bolts through holes A and B in the bottom of the Tilt Plate, then through a Shim. Pass those two bolts through the two holes in the Receiver Insert, the 2nd Shim and then through holes A and B in the 2nd Tilt Plate. Place a 3/8" flat washer and 3/8" self-locking nut on the end of each bolt and finger tighten.

2" Rack - Pass two 3/8" x 3" flange head bolts through holes A and B in the bottom of the Tilt Plate, then through the two holes in the Receiver Insert. Align those two bolts with holes A and B in the 2nd Tilt Plate and place a 3/8" flat washer and 3/8" self-locking nut on the end of each bolt and finger tighten.

1C: Carefully rest one end of the Main Strut on the ground and align the 2nd hole on the side with hole C in the Tilt Plate. Pass a 3/8" x 3" flange head bolt through hole C of the first Tilt Plate, then the Main Strut, then hole C of the 2nd Tilt Plate. Place a 3/8" flat washer and 3/8" self-locking nut on the end of the bolt and finger tighten.

1D: Raise the Main Strut to the horizontal position and pass the Clevis Pin through hole D in the Tilt Plate, through the Main Strut, and then hole D in the other Tilt Plate. Insert the Hair Pin into the hole in the end of the Clevis Pin. Tighten all nuts and bolts.

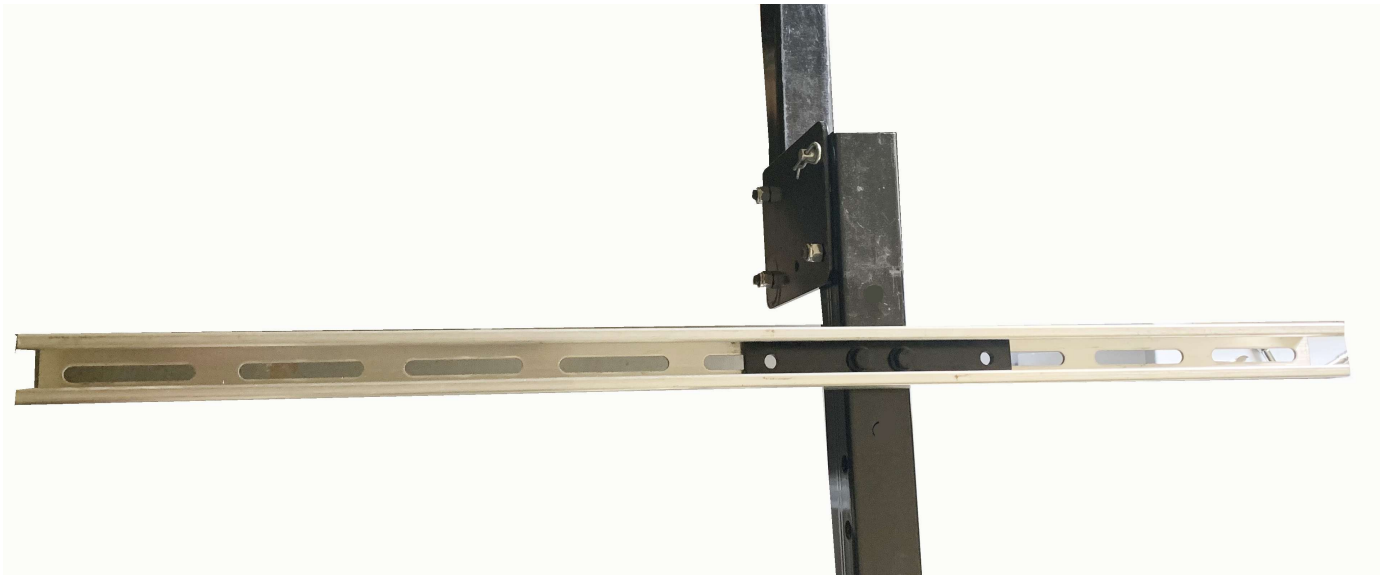
If you want to tilt the rack up:

- Loosen the nut and bolt in hole C,
- Support the rack and remove the Clevis Pin from hole D,
- Tip the rack up until the Main Strut is vertical and insert the Clevis Pin through hole E,
- Tighten the nut and bolt in hole C.

Step 2: Attach the Bike Channel to the Main Strut

Note: The 36” Bike Channel should extend more on the driver’s side than the passenger side. How much more will depend on the radius of your bike’s front wheel. It should extend the radius of your wheel more to the driver’s side.

2A: Place the Bike Channel Internal Support inside the Bike Channel. The two middle holes of the Internal Support should be placed over the two holes in the Main Strut closest to the vehicle. Two 3/8” x 3” flange head bolts should be placed through the Internal Support, then the Bike Channel and the Main Strut. Place a 3/8” flat washer and 3/8” self-locking nut on the end of each bolt and tighten.



Step 3: Assemble the Bike V-Trays

3A: Using two 3/8" x 1-3/4" flange head bolts, attach a Wheel Stop to the end of a 32" 4-hole V-Tray. This will be the Bike Lower V-Tray. Under the V-Tray, place a 3/8" flat washer and a 3/8" self-locking nut on each bolt but do not tighten all the way. Place an 18" strap (not shown) under the Wheel Stop, between the bolts and slightly tighten the nuts. You will tighten the nuts all the way after you adjust the straps when you first place your bike on the rack.

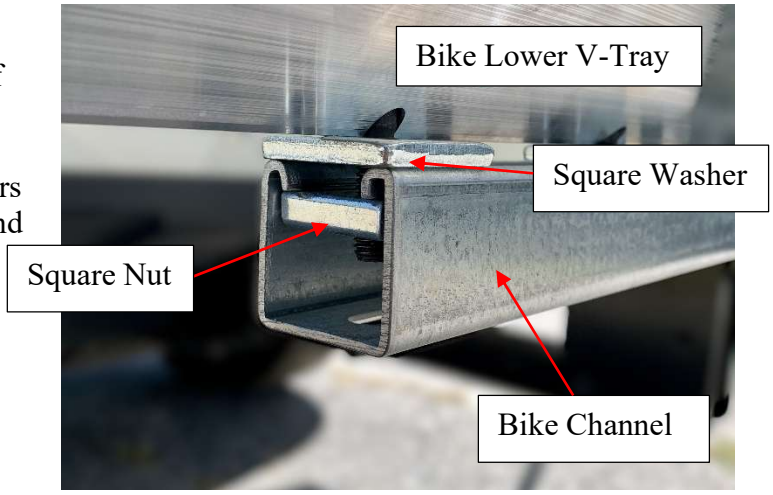
3B: Place a 3/8" x 1-3/4" flange head bolt in each of the remaining 2 holes. Under the V-Tray, slide a single 3/8" square washer onto each bolt and screw on a 3/8" square nut so that the bolt comes just through the square nut. You will later slide the square washers on top of the Bike Channel and the square nuts under the rails of the Bike Channel.

3C: Place a 3-hole Flat Bracket Strap Holder on the end of the other 32" V-Tray over the two holes that are 1-7/8" apart. This will be the Bike Upper V-Tray. Pass two 3/8" x 1-3/4" flange head bolts through the two holes in the Flat Bracket Strap Holder and then the V-Tray. Place a 3/8" flat washer and a 3/8" self-locking nut on each bolt. Place an 18" strap (not shown) under the Flat Bracket Strap Holder between the bolts and slightly tighten the nuts. You will tighten the nuts all the way after you adjust the straps when you first place your bike on the rack.

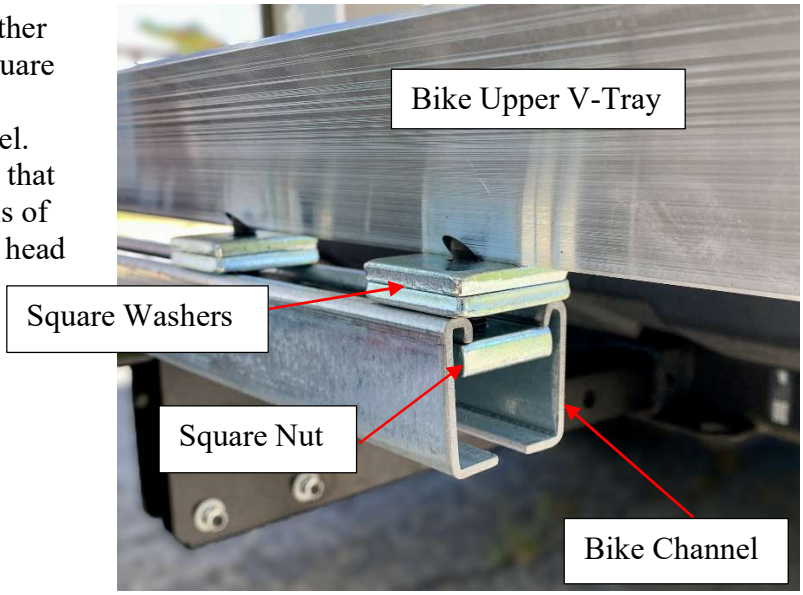
3D: Place a 3/8" x 1-3/4" flange head bolt in each of the two remaining holes. Under the V-Tray, slide **TWO** 3/8" square washers onto each bolt, then screw on a 3/8" square nut so that the bolt comes just through the square nut. You will later slide the square washers on top of the Bike Channel and the square nut under the rails of the Bike Channel.

Step 4: Attach the Bike V-Trays to the Bike Channel

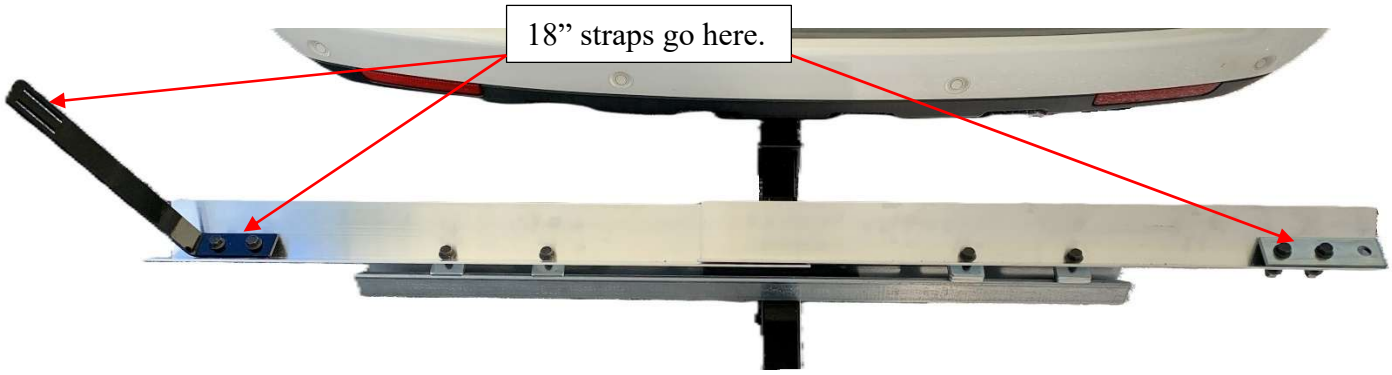
4A: Slide the Bike Lower V-Tray onto the Bike Channel by placing each square washer on top of the Bike Channel and each square nut under the rails of the Bike Channel. Slide the V-Tray Assembly in far enough so that the square washers sit completely on the rails of the Bike Channel and tighten the two flange head bolts.



4B: Slide the Bike Upper V-Tray onto the other side of the Bike Channel by placing **both** square washer on top of the Bike Channel and each square nut under the rails of the Bike Channel. Slide the V-Tray Assembly in far enough so that the square washers sit completely on the rails of the Bike Channel and tighten the two flange head bolts.



The Bike Assembly should look like the picture below. The Bike Upper V-Tray assembly can slide over the Lower assembly to adjust for your bike's length. Two straps will go on the Wheel Stop, one through the slots and one between the two bolts. A third strap will go on the other end under the Strap Holder between the two bolts. Once you adjust for the length of your bike, tighten all bolts.



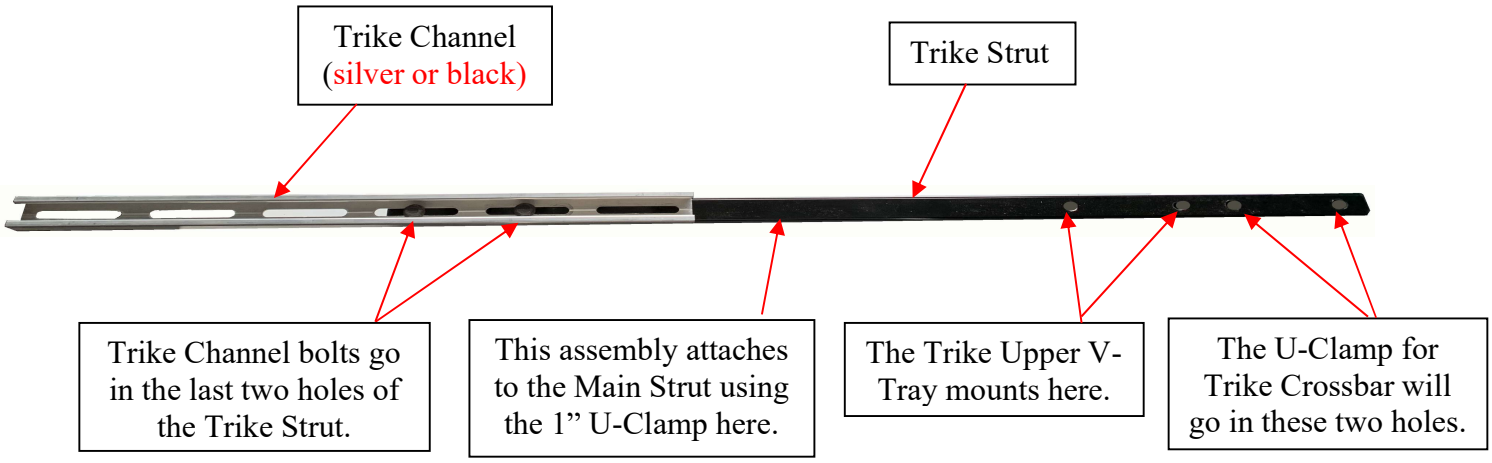
Step 5: Attach the Trike Channel to the Trike Strut

Using the last two holes on the left end of the Trike Strut, you will secure the Trike Channel on top of it. Pass two 3/8" x 2" flange head bolts from above, through the Trike Channel then the Trike Strut, and place a 3/8" flat washer and 3/8" self-locking nut underneath. finger-tighten.

Delta Trike - Lay the Trike Channel on the Trike Strut so that the total length of the two components is your delta trike's wheelbase plus 10 inches.

Tadpole Trike - Lay the Trike Channel on the Trike Strut so that the total length of the two components is the distance from the back edge of the rear wheel to the axle of the front wheels plus 2".

Tighten all nuts and bolts once the desired length has been achieved.



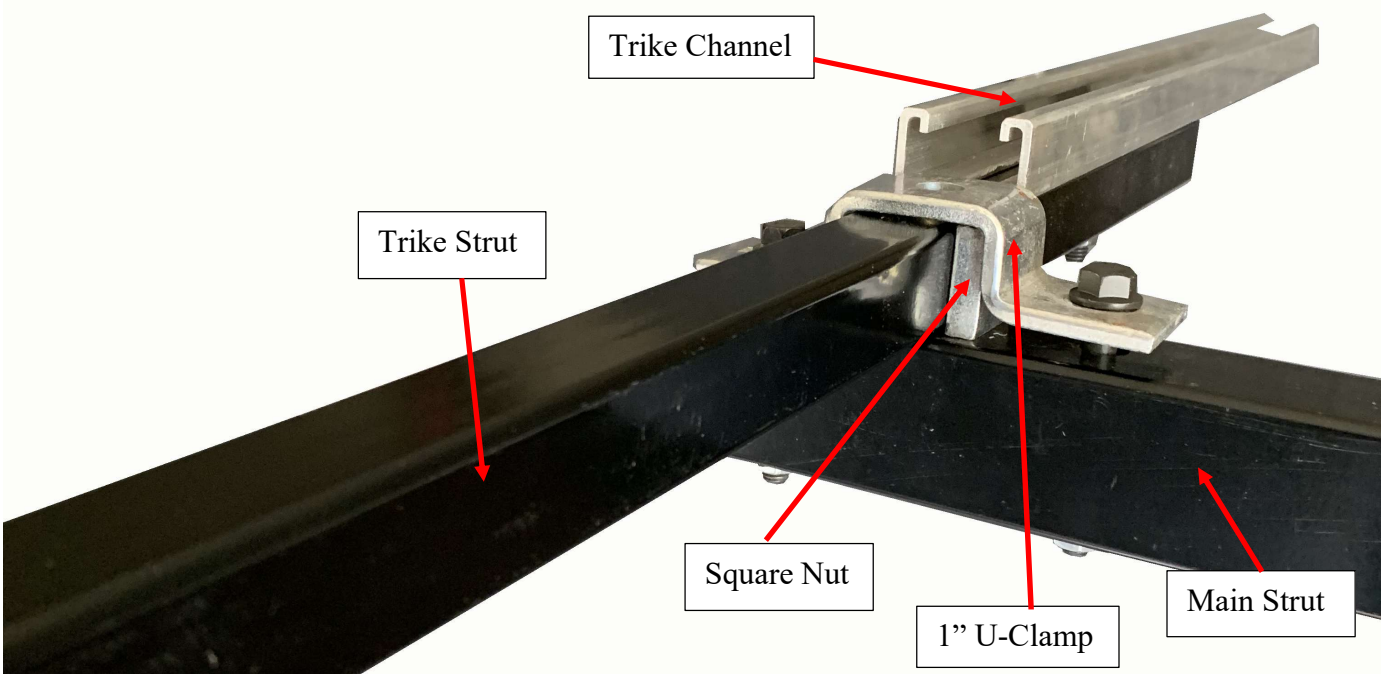
Step 6: Attach the Trike Strut Assembly to the Main Strut

You are going to place the 1" U-Clamp over the Trike Strut Assembly and attach it to the Main Strut using two 3/8" x 3" flange head bolts. The U-Clamp by itself will not be snug against the Trike Strut so you will have to put a 3/8" square nut inside the U-Clamp as shown below.

Delta Trike - Align the Trike Strut Assembly so that the side with the Trike Channel extends over the Main Strut 5" longer than the other side.

Tadpole Trike - Measure the distance from the back edge of your rear tire to the end of the boom by the front wheels. Divide that length by 2. This is the distance from the outside end of the Trike Channel to the U-Clamp in the picture above. You may have to slide the Trike Strut Assembly within the U-Clamp later to align the trike behind the vehicle.

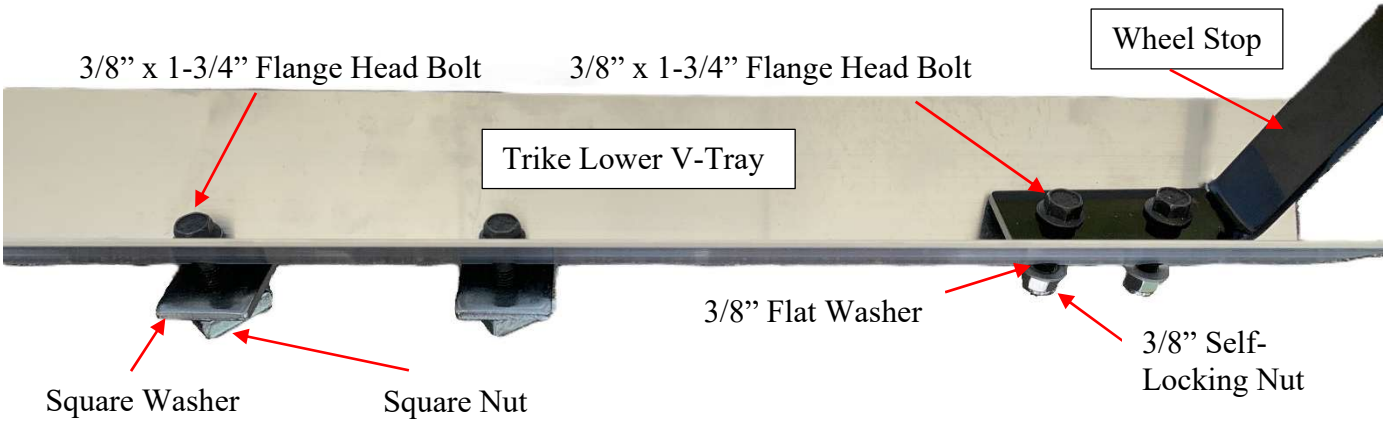
Gradually tighten each 3/8" bolt evenly so that the U-Clamp holds the Trike Strut Assembly and the square nut tightly. It is OK to bend each arm of the U-Clamp a little as you tighten the bolts.



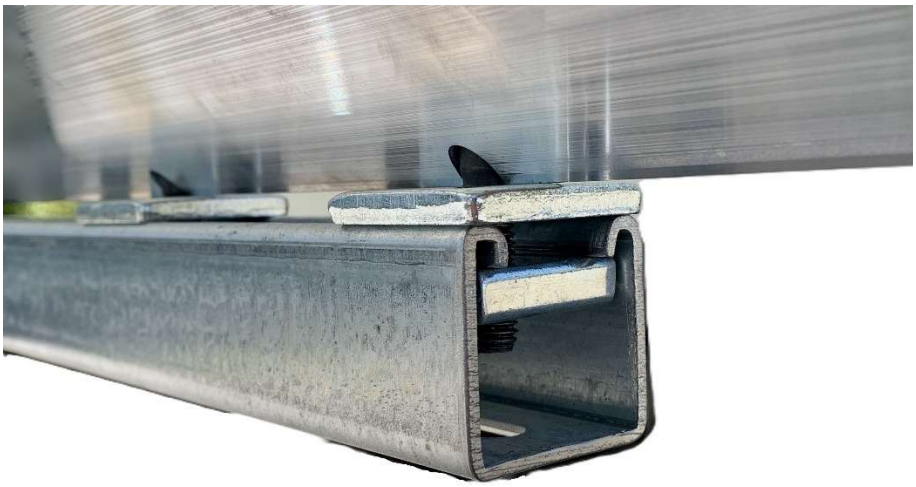
Step 7: Assemble the Trike Lower V-Tray

7A: Using two 3/8" x 1-3/4" flange head bolts, attach a Wheel Stop to the end of the 36" 8-hole V-Tray. This will be the Trike Lower V-Tray. Under the V-Tray, place a 3/8" flat washer and a 3/8" self-locking nut on each bolt but do not tighten all the way. Place an 18" strap (not shown) under the Wheel Stop, between the bolts and slightly tighten the nuts. You will tighten the nuts all the way after you adjust the straps when you first place your trike on the rack.

7B: Place 3/8" x 1-3/4" flange head bolts through the 4th and 5th holes from the end. Under the V-Tray, place a 3/8" square washer and a 3/8" square nut on the end of each bolt so that the bolt comes just through the square nut.

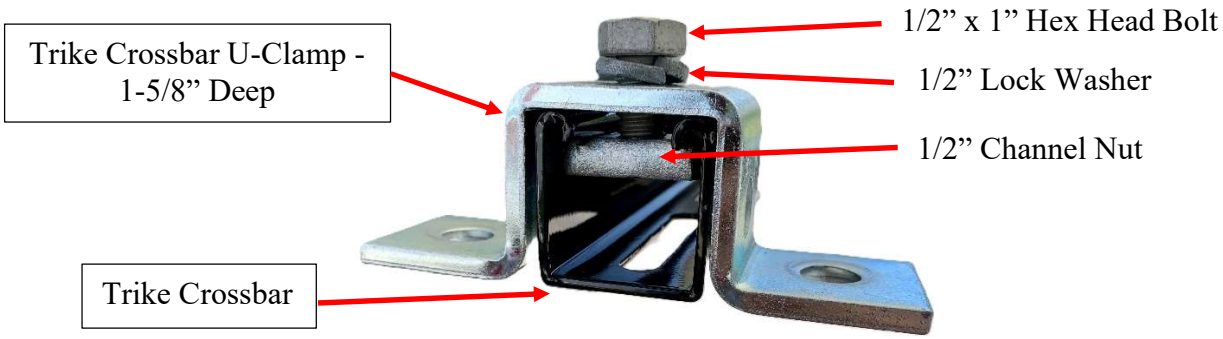


7C: To attach the Trike Lower V-Tray Assembly to the Trike Channel, slide the square washer on top of the Trike Channel and the square nut under the rails of the Trike Channel.

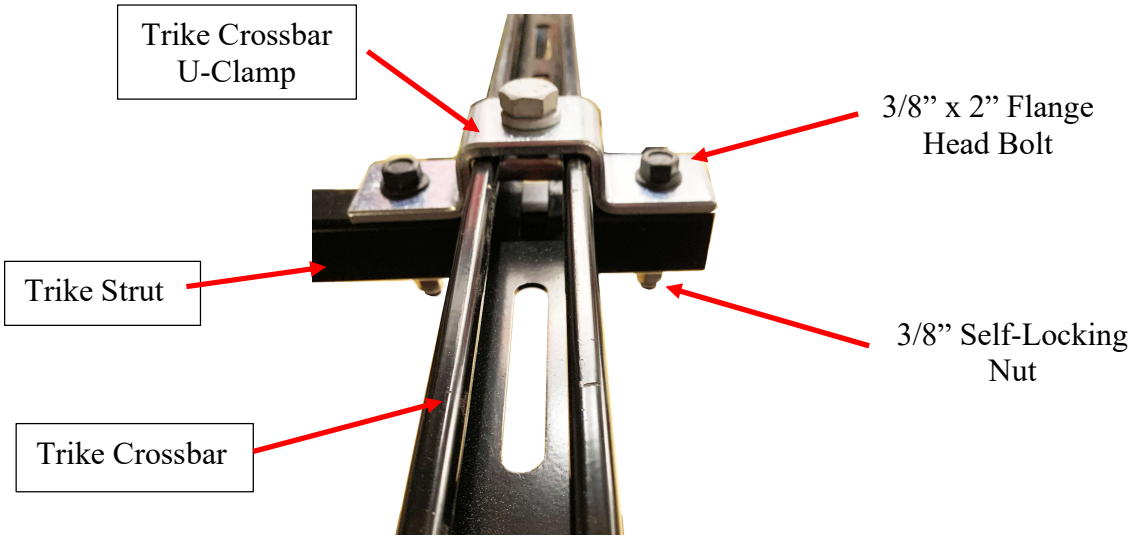


Step 8: Attach the Trike Crossbar to the Trike Strut.

8A: The Trike Crossbar U-Clamp attaches to the Trike Crossbar as shown below. It should be positioned in the middle of the Trike Crossbar, with equal amounts extending on either side, and tightened.



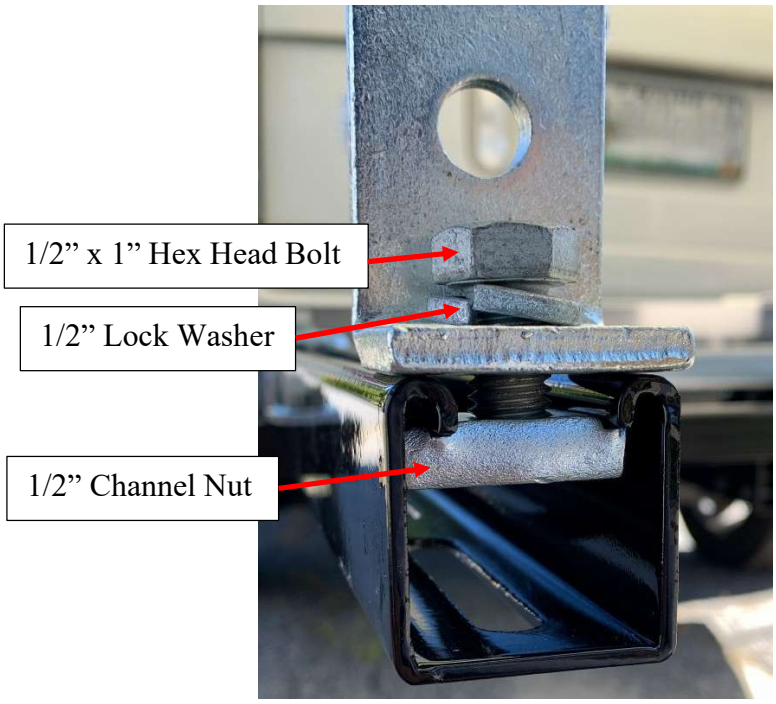
8B: Attach the Trike Crossbar Assembly to the end of the Trike Strut by passing 3/8" x 2" flange head bolts through the Trike Crossbar U-Clamp, then the Trike Strut. Secure them underneath with 3/8" self-locking nuts.



Step 9: Attach the Trike Wheel L-Brackets to the Trike Crossbar

9A: Place a 1/2” lock washer under the head of a 1/2” x 1” hex head bolt and place one of those through each L-Bracket. Place a 1/2” channel nut on the end of each bolt, under the L-bracket.

9B: Slide the channel nuts inside the Trike Crossbar so that the channel nuts are under the rails of the Crossbar and the L-Brackets are on top of the Crossbar. Position each L-Bracket so that they are on the outside of each wheel. Tighten bolts.



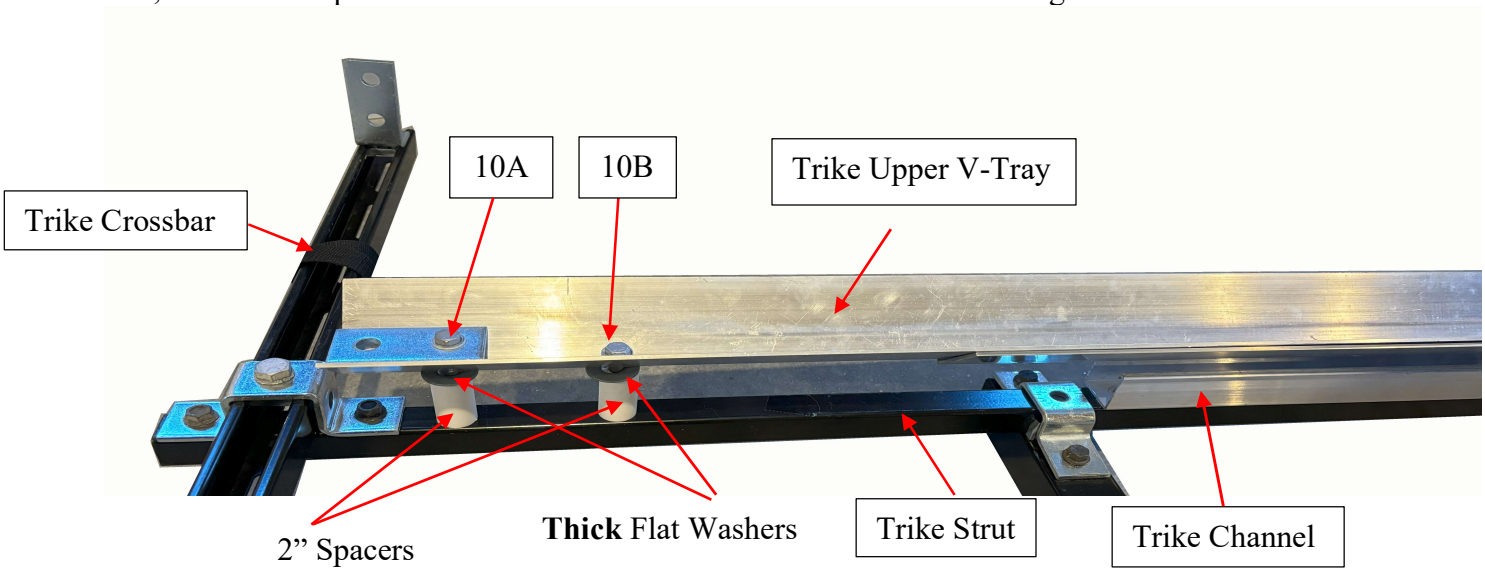
Measure the distance from the outside of one tire to the outside of the other tire. This will be the distance between the L-Brackets.

The L-Brackets can also be spun around (rotated 180 degrees) so that they go on the inside of each wheel instead. This will allow for slightly more track width.

Step 10: Attach the Trike Upper V-Tray to the Trike Strut

10A: Set the Trike Upper V-Tray on top of the Trike Lower V-Tray as shown in the picture below. Place the 2-hole flat bracket over the end hole in the Trike Upper V-Tray and pass the 3/8" x 5" hex head bolt through the flat bracket, V-Tray, a **thick** washer, a 2" White Spacer and then the Trike Strut. The spacer should have a **thick** 3/8" washer between it and the V-Tray. Place a 3/8" self-locking nut on the end of the bolt and tighten a little.

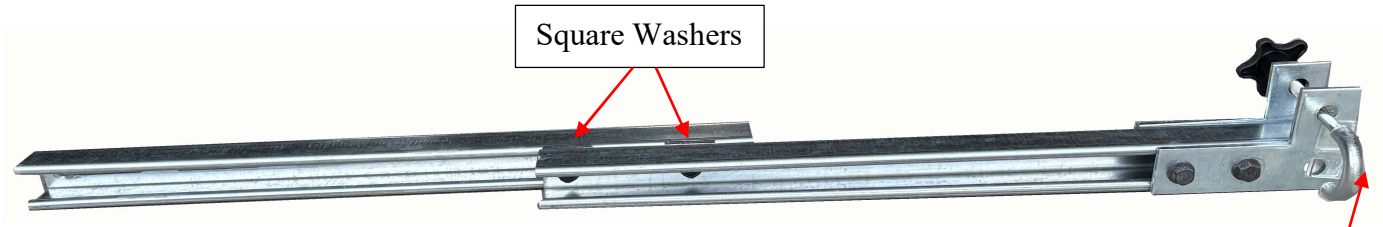
10B: Pass the 3/8" x 4-1/2" hex head bolt through the 2nd hole in the V-Tray, then through a **thick** 3/8"washer, a 2" White Spacer and the Trike Strut. Secure with a 3/8" self-locking nut.



Step 11: Assemble the Bike Vertical Support and Seat Post Holder

11A: Place a single 3/8" lock washer on two 3/8" x 1" flange head bolts. In separate slots of one 24" long slotted aluminum Bike Vertical Support Channel, pass each bolt through from the inside. On the back, place a 3/8" square washer and loosely add a 3/8" square nut as shown below. This will be the Bike Upper Vertical Support.

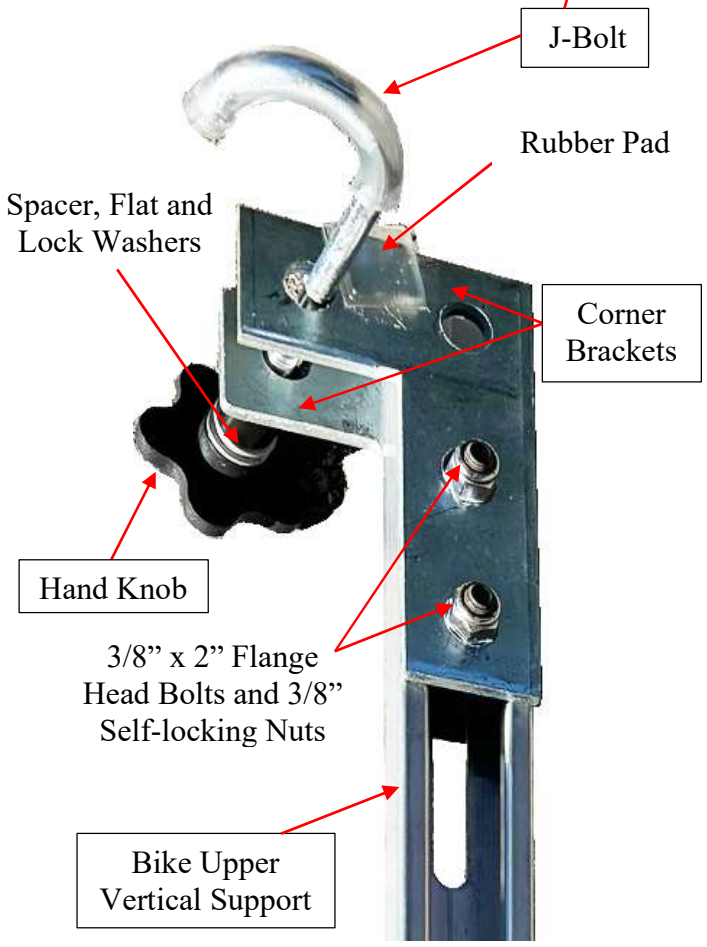
11B: Attach the Bike Lower Vertical Support as shown below. The square washers go between the them, and the square nuts go inside the Biker Lower Vertical Support, under the rails. Tighten the bolts.



11C: Attach the Seat Post Corner Brackets to each side of the Bike Upper Vertical Support by using (2) 3/8" x 2" flange head bolts and 3/8" self-locking nuts through the end holes of the long leg of the Corner Brackets.

11D: Unscrew and remove all items from the J-Bolt Assembly and place the J-Bolt itself through the short leg of the Corner Brackets. On the other side, place the black round spacer, then a flat washer, lock washer, another flat washer then the hand knob. Add the 3/8" self-locking nut to the end of the J-Bolt Assembly to make sure the parts don't fall off. Make certain the J-Bolt slides easily and adjusts to securely clamp the bike seat post.

11E: Peel off the protective paper and place the Rubber Pad where the seat post makes contact with the bracket.



Step 12: Attach the Bike Vertical Support Assembly to the Main Strut

12A: Place (4) or (5) 3/8” flat washers under the head of the 3/8” x 3-5/64” hex head bolt (with the hole at the end). Place the bolt through the L-Bracket and the Main Strut in the hole that is 9” from the outer end of the Main Strut. Put a 3/8” flat washer on the end of the bolt and secure with a 3/8” slotted nut. The L-Bracket will need to swivel but it should not be loose, so tighten the nut snugly to allow for this. Once the desired tightness is achieved, put a Hair Pin through a slot in the nut and the hole in the bolt and bend the tines so it doesn’t fall out.

12B: Place a 3/8” flat washer under the head of the 3/8” x 1-5/64” hex head bolt (with the hole at the end). Pass the bolt through the bottom slot in the Bike Lower Vertical Support and the top hole in the L-Bracket. Place (3) or (4) 3/8” flat washers behind the L-Bracket and secure with a slotted nut. The Bike Vertical Support Assembly will need to swivel, but should not be loose, so tighten the nut snugly to allow for this. Once the desired tightness is achieved, put a Hair Pin through a slot in the nut and the hole in the bolt and bend the tines so it doesn’t fall out.

Please refer to the following images to see how the bike and trike should be placed on the rack, and secured using the included straps.

Picture of Finished Rack

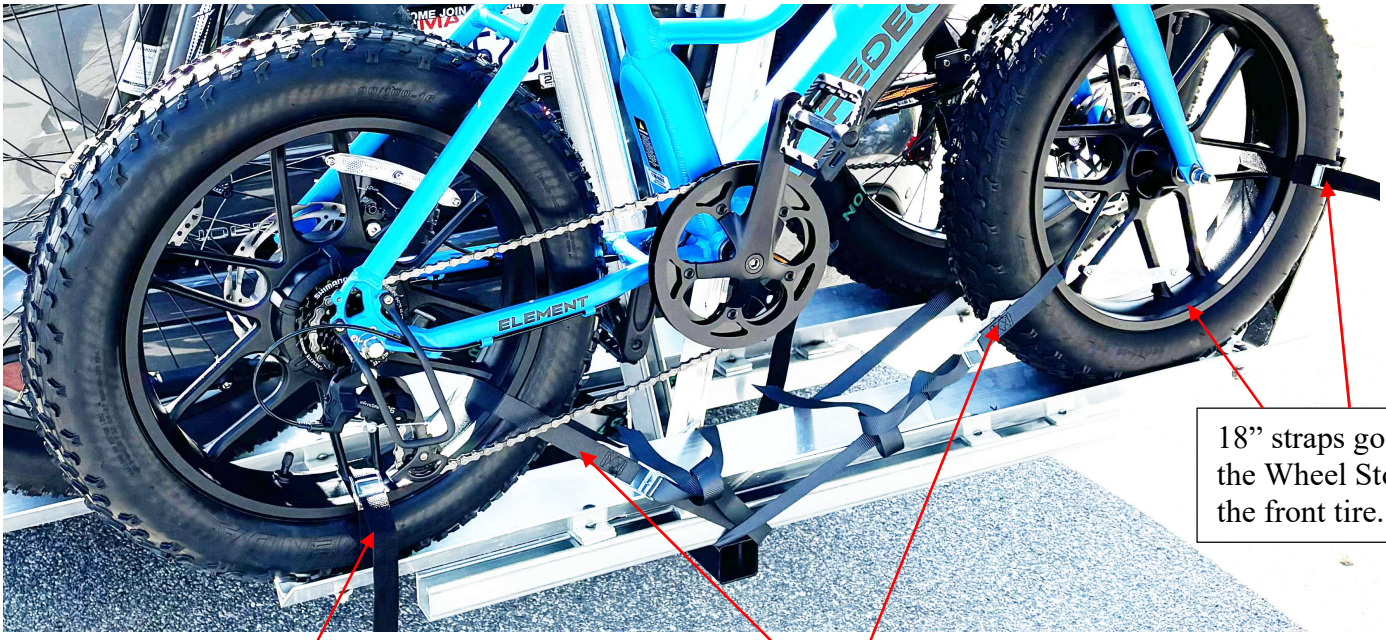
Straps holding the front wheels of a tadpole trike or the rear wheels of a delta trike shown below:

18” Straps on both the dual wheels that go around the Trike Crossbar and the wheel of the trike

Straps holding the rear wheel of a tadpole trike or the front wheel of a delta trike shown below:

18” Straps go around the Wheel Stop and the rear tire of a Tadpole trike or the front tire of a Delta trike

Straps holding the front and rear wheels of a bike shown below:



18” straps go around the Wheel Stop and the front tire.

18” strap goes around the Strap Holder and the rear tire.

Two 54” straps go around the Bike Channel and both tires.