

A Repair Stand for a Lectric XP eBike, Version 1.4

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If I am working on my disk brakes or derailleur, it is best² to raise the wheel off of the ground so the wheel can freely spin. This is also handy when I'm trying to isolate an unwanted sound related to the spinning of the wheel.

I wanted a repair stand that was easy to install and had minimal wobble.



The stand consists of two parts: the base, and the rod. The rod is a hollow tube.

[Here](#) is a video of the stand being used.

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² When I need to remove a wheel, it is best to turn the bike up-side-down and have it rest on the seat and the handlebars. It is essential that the display brackets be loosened and the display rotated horizontal so it is not crushed. Using thick towels under the handlebars and seat both protect them from scratches and prevent motion.



The base was built from a piece of pine with an aluminum cylinder bolted to it. This cylinder was turned on my lathe and has a diameter that is a close fit to the inside of the rod. I left a larger diameter at the bottom so the rod would not sink into the wood.



The cylinder was drilled and tapped to accept a 3/8-16 bolt. The pine was drilled out to accept a washer which spreads the load.



Using the same material, I turned a close-fitting plug for the top of the rod. It was drilled and tapped 1/4-20, and a shoulder bolt fitted. I drilled and tapped a hole in the side of the rod and plug 6-32, and used a small screw to secure it. The shoulder on the plug takes the force. This screw just keeps the plug from falling out during storage.



I punched a hole near the end of a piece of 1-inch wide webbing so my 1/4-20 shoulder bolt would pass through. A washer distributes the force.

Then I formed a loop at the other end and sewed it. The length of this webbing was determined on the bike.



To use the stand, I first remove the seat post.



The rod is slid down the tube. It is a close sliding fit.

If the rod was a little larger in diameter, I could have used the seat clamp to secure it.

The rod was cut from a discarded swimming pool brush handle. Although thin-walled, it is strong.

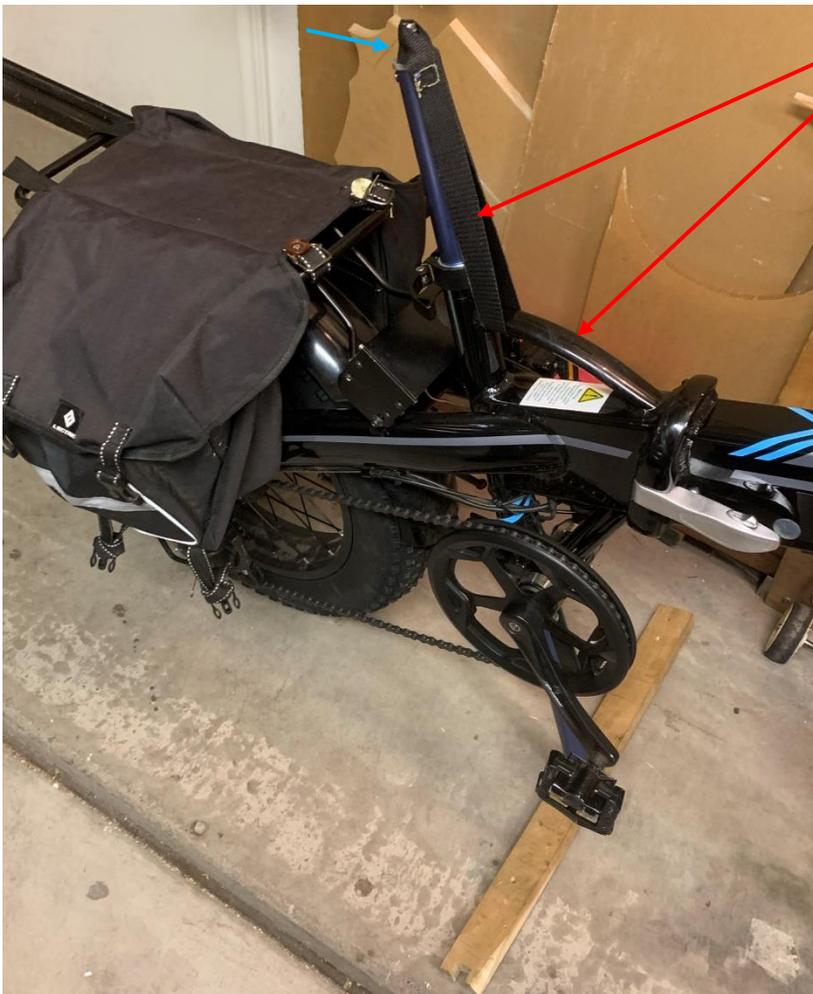


With the rod extending out the bottom of the bike, I position the base.



The bike is resting on its kickstand to is not upright yet. I slide the rod over the cylinder while I raise the base. The base's weight causes the cylinder to bind inside the

rod and prevent it from falling out.



First, I pass the strap through the lift handle. Then, with one hand, I set the bike vertical and lift it up. My other hand places the loop around the shoulder bolt (blue arrow).

I can then lower the bike down on the base. The strap easily carries the total weight of the bike.

Most of the bike's weight is around the rear wheel, so this one-handed lift is probably 40 pounds. If that is too much, the back wheel can be placed on a 4 by 4 block of wood first. After the strap is secure, slide the block out.

The bike will rest on the back wheel, so the front wheel is free to spin. Brake and disk inspection are easily accomplished.



When I want to service the back wheel, I draped my bike chain and lock over the front wheel. This is enough weight to tilt the bike forward.

Brake and derailleur adjustments are easily accomplished.



When I'm done, I again lift the bike up by the handle, unloop the strap, and lower the bike. Then I lift up the rod so I can tilt the bike back on its kickstand. And finally, I separate the base from the rod.



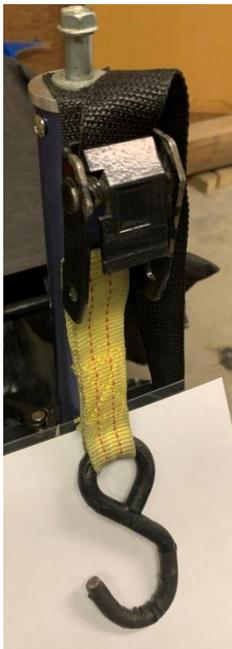
If the bike is too heavy for you to lift, place the rear wheel on something a few inches high and size the strap so it is snug when looped over the bolt. Alternately, use a Nite Ize fastener for a [rope](#) or [strap](#).

To use, drop in the rod, attach the base, secure the strap, and then roll the bike off of whatever is supporting the rear wheel. As the weight supported by the rear wheel is transferred to the stand, you will need to slide the stand forward. This will be easier if you lift some of the weight off of it.

I like the Nite Ize strap solution but wondered if I had something that had the same feature. In my collection of rigging straps, I have a few that I do not like because they have a clamp rather than a ratchet. This makes it hard to fully tighten the strap. Ah, but this is exactly what I need here.



First, I separated the two parts.
The strap with hook was saved for some future project.

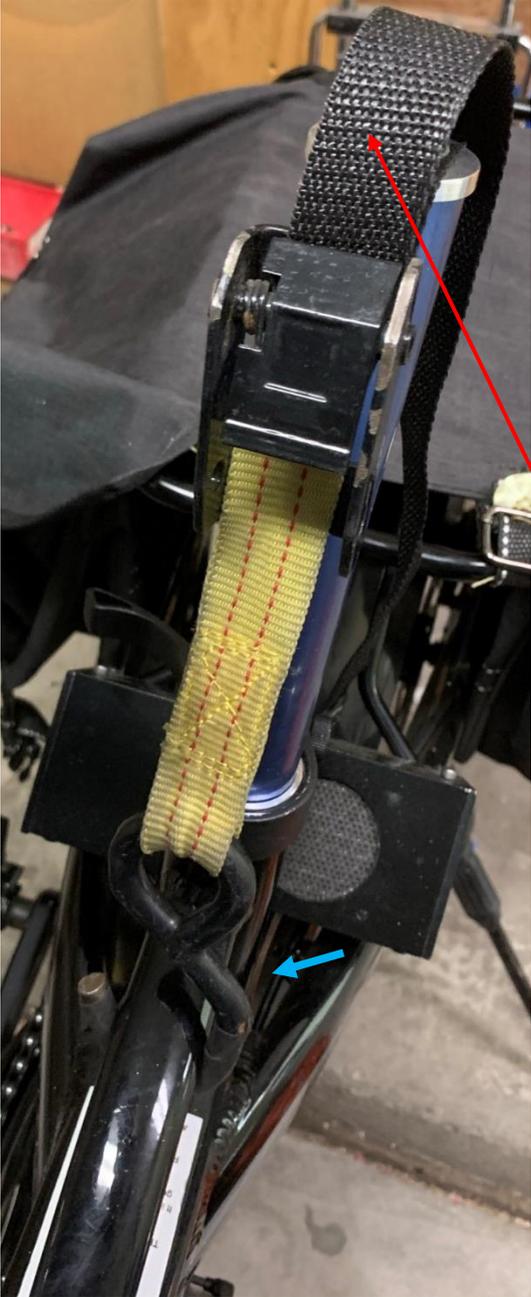


Then I fitted the clamp with hook to my existing strap.

I did have to spread the hook open a little more. This damaged the already worn-out rubber coating, so I slid on some heat shrink tubing to, at least temporarily, keep the metal of the hook from hurting the lift handle on my bike.



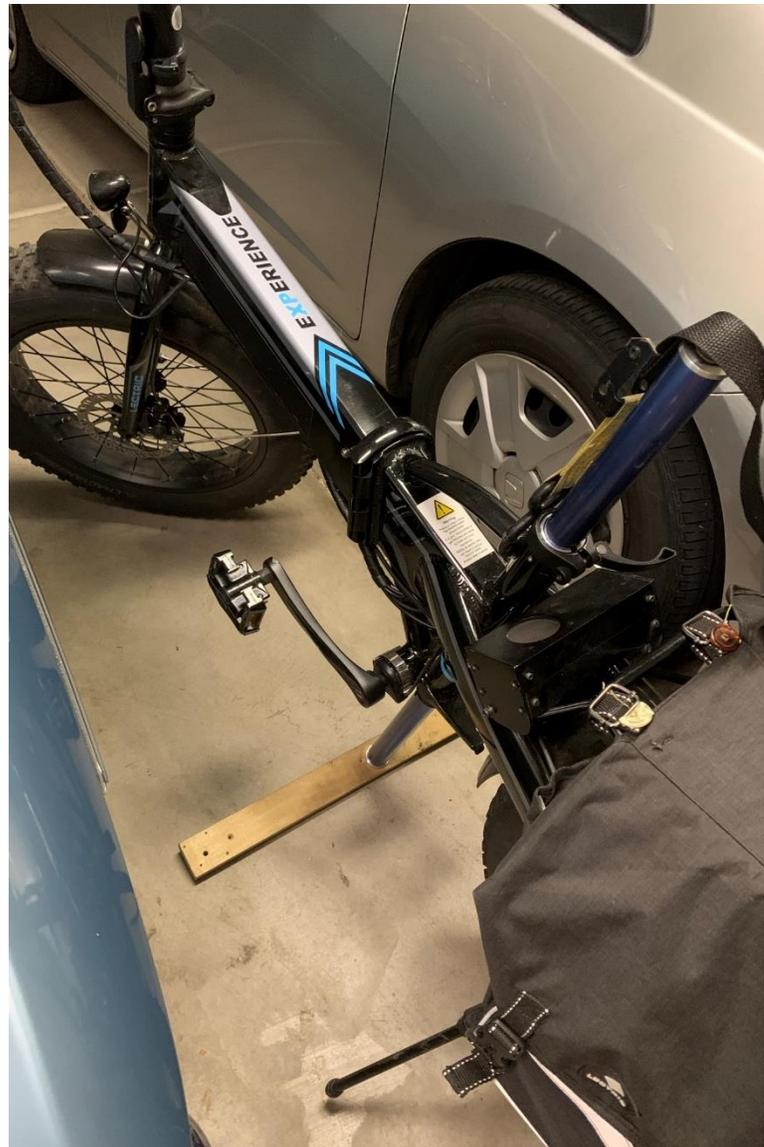
To use, I first put my rear wheel on a raised area in my garage. Then I fit my tube and base.



The hook goes around the lift handle (blue arrow) and I pull up on the black strap to take out the slack.



As I make the bike vertical, I pull up on the black strap until it is tight.



Then I roll the bike off of the step while sliding the base forward. Lifting up on the handle a little makes this movement easier.

The front wheel of the bike is now elevated.



To lower the bike, I use one hand to steady it and the other hand to push on the clamp. The action is smooth and well-controlled.

Then I pull down on the clamp enough to unhook from the lift handle. Remove the base and slide the tube out.

Ronnie Bouchon built this version of the stand. It uses an oak dowel that is clearly very strong. My stand doesn't have the two bottom 2x4's but they are a great idea which improves stability. Note that his bike is entirely off of the ground.



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