

# Securing a Folded Lectric XP eBike, Version 1.3

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By R. G. Sparber

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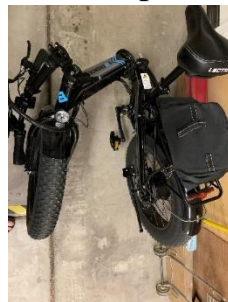
*For an overview, you can watch this [YouTube video](#).*



My Lectric XP eBike is easy to move around. But when folded up<sup>2</sup>, it can become a bit hostile.



If I lift up on the handle and pull, the folded bike smoothly rolls forward.



When I roll it backward, the front-wheel takes on a mind of its own and wants to go sideways. Then the cranks turn until they jam against the frame. This locks the back wheel.

Furthermore, if I lift the bike out of my car and tilt it the wrong way, the front half of the frame can suddenly swing around to the unfolded position. If you go to [this](#) YouTube video by Xiangdong Luo<sup>3</sup> and fast-forward to time stamp 3:40, you will see what I mean. Thankfully, he didn't have his hand in the way.

I am offering solutions to these problems.

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<sup>2</sup> To prevent damage to the key and myself, I remove the key before folding.

<sup>3</sup> I am a subscriber. He has many excellent videos on the Lectric XP eBike.

## The Cranks Turn, Jam, and Lock the Back Wheel



I bought<sup>4</sup> a large cable tie, about 3/8-inches wide and long enough to go around the drive sprocket at least 1¼ times.



I cut off the excess, including the latching block, and rounded the end.



The bike must have been placed in gear 6 while moving. This aligns the chain in the front sprocket.

I turn the crank counterclockwise as I feed in the cable tie until it comes out the top.



The chain will now slide on the cable tie while continuing to be flanked by the chain guard.

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<sup>4</sup> OK, I didn't buy it. I found it laying on the street covered in dirt.



When I roll the bike backward, one of the pedals will rotate until it is stopped by the frame. It is not jammed. The bike can now be rolled forward and back without the wheels locking up.

## The Front Wheel Has a Mind of its Own



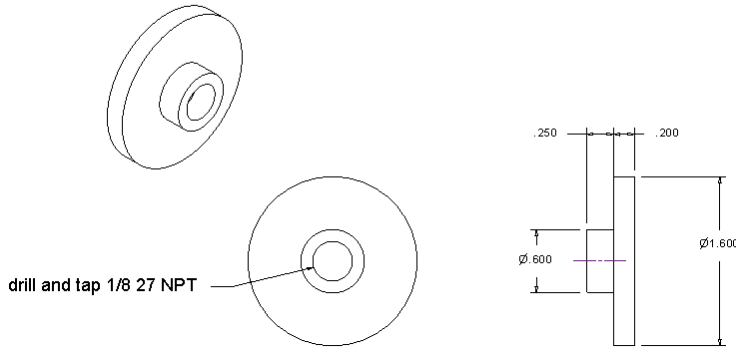
When I roll the folded bike backward, the front wheel will wander off.



## Low Force Solution

### Using a machined part

Kickstand Lock  
Material: aluminum



If I am only rolling the folded bike, this steering lock<sup>5</sup> is enough to solve the problem. It is a disk with a boss. The boss was drilled and tapped to match the thread on the front axle.

I have called out a 1/8 27 NPT (National Pipe Thread). This has 27 threads per inch. The tapered thread should bind up on the axle's thread

and lock the part in place. I tapped too deep, so the part is a little loose until it tightens up on the existing nut's face. If necessary, I will secure the lock with Loctite. I suggest you first drill your 21/64-inch tap hole. Then turn the tap three revolutions, do a trial fit, and then tap one revolution at a time until you get a tight fit with the face of the boss tight against the nut.

Threaded lamp rod is 1/8 IPS ("iron pipe straight"). The thread is also 27 threads per inch but has no taper. You may be able to locate a ready-made part that will work; check your local hardware or lighting store. If you find one, please send me a picture with detail. I will update the article with proper credit to you.



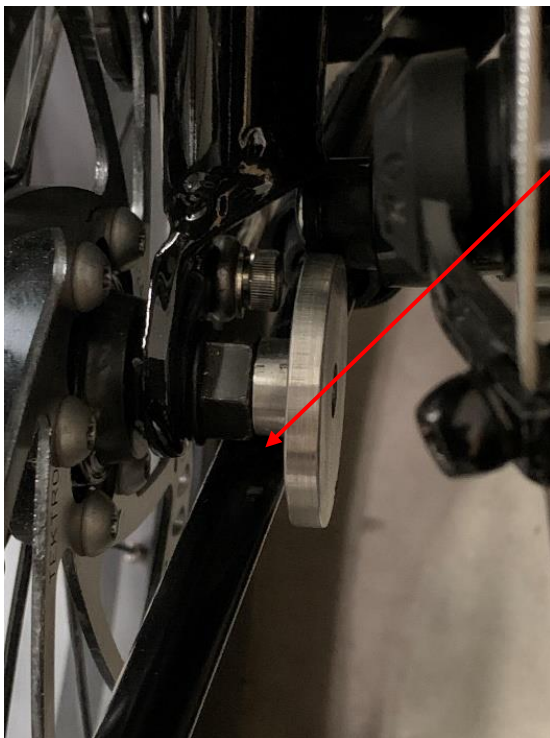
I screwed the lock onto the left side of the front axle.

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<sup>5</sup> I have no intension of selling these locks but do freely give the idea away. If others wish to get into this business, I wish them well. I want nothing in return.



To engage the lock, I first move the front wheel close to the kickstand.



Then I push down on the kickstand while moving the wheels together. Let go, and the kickstand is captured under the boss and against the disk. The wheel no longer pivots due to moving the folded bike backward.

I designed the disk to gently hold the kickstand. Any large force pulling the wheels apart will cause it to release. This protects the kickstand from damage.

## Using an off-the-shelf part



I bought this part at Ace Hardware, but any big-box store should also have it. It must be marked “1/8 IP” in order to thread onto the axle. Look in the electrical part of the store.



There is a threaded hole in the part that takes an 8-32 bolt. It is secured with a lock washer and nut. The best bolt I found for this task is a Socket Head Cap Screw. You do not want to select a bolt with sharp edges that will scratch up your kickstand.



Screw the part onto the left end of the front axle. When tight, it will either mostly be facing with the horizontal part down, as shown here, or mostly facing up.

If down, add the bolt secured with the lock washer and nut.

If the horizontal part faces up, don't install the bolt.

There is very little thread to play with here, but you can add a thin washer to change the part's orientation so it is closer to either up or down.



I took a plastic file folder and punched out a washer. It changed the part's orientation by about 20°. You may be able to install two of these washers but do not add more or the part will not stay on the axle.

## High Force Solution

After I have rolled the bike to my car, I'm ready to lift. The kickstand lock is not strong enough to resist the resulting forces, so I add a strap.



The strap goes around the tires and is barely snug.

I now have a solid unit that can be safely handled. It can be rolled a short distance, but then the strap will hit the fork.

## Unpacking



After lifting the bike out of my car, I remove the tire strap. Then I release the steering lock, unfold the bike, and lock the frame together. With the

bike on its kickstand, I again turn the cranks counterclockwise while I pull on the cable tie. Only then do I install the key.

***Especially if you are starting out on a hill, it is common to push down hard on the pedal to get going. If you forgot to remove the cable tie, you may go flying just as you would if you threw the chain. I did this 47 years ago, and it was a painful experience. So please verify that the cable tie has been removed before heading out.***

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