

Tips For Easy and Safe Wheel Removal and Installation

Put the chain on the small chainring and smallest cog

The most basic and important rule for easy rear wheel removal is to first pedal by hand, operate the shift levers and put the chain onto the smallest chainring and the smallest cog. This puts the chain in its least tensioned position, letting the derailleur cage that hangs down beneath the cogs move as far back as it can on its own. Front wheels require no such preparation.

Tip: A common mistake is to only shift onto the smallest cog and not the smallest chainring. You can do it that way, but if you're not very good at getting rear wheels in and out, shifting onto the small chainring can make it significantly easier.

Open the brake quick release

Most sidepull brakes have a little lever on the side that can be moved to open the brake wider and provide more clearance to make getting the wheel on/off easier by ensuring the tire won't bump into the brake pads. Depending on the make and model of your brakes it might be on the calipers over the wheels or on the brake levers.

If you can't find it, the easiest thing is to ask one of your riding buddies because he or she can probably tell you.

Tip: Even if you have older center-pull brakes or direct-pulls, as found on city bikes, there are ways to open the brake. The center-pulls might have a quick release on a cable hanger attached to the headset and seat lug or something built into the levers. And direct-pulls are opened by releasing the cable on one side by hand. Any bike shop could show you if you can't figure it out.

Open the wheel quick release

The wheel quick release is the mechanism that clamps the wheel tightly in the frame. On rear wheels you can simply flip the lever 180 degrees to open it and you will be ready to remove the wheel.

Most front wheels these days require an extra step due to something called a wheel-retention device built into the fork to prevent the wheel from falling out even if the quick release is loose. This device makes it necessary to hold one side of the quick release while you turn the other side counterclockwise until the quick release ends clear the fork tips and the wheel can be removed.

Removing the rear wheel

If you lift your bicycle by the seat and give the top of the wheel a push or bump with your hand it should drop out of the frame. It may get hung up on the rear derailleur and stop, though.

If that happens, reach down, hold onto the body of the rear derailleur in such a way as not to get grease on your hands and pull back on the derailleur. It will swivel out of the way and the rear wheel will drop out, though you may have to still manipulate the wheel a bit to free it from the chain.

Do NOT drop or put the bike down hard

Now that the wheel(s) is out of the bicycle, be careful! At the race I watched so many people plop the fork onto the pavement to stand the bike up as they went to get their other front wheel. That's a bad idea.

The fork tips (called the front dropouts) are delicate, often made of aluminum, sometimes carbon. You could easily bend or even break them bumping them too hard. If you have to stand up your bike that way, touch the fork to the ground gently. I prefer to just hold the bike, go get the other wheel and not put the bike down at all.

While you can harm the fork hitting it on the ground, you can do even more bad things to the rear end. Should you mistakenly drop the bike when the rear wheel isn't in place you could fracture the rear dropouts, bend the rear derailleur and the derailleur hanger or at the very least get your chain full of sand or dirt.

Tip: To avoid any damage, simply lay your bike on its left side. Or, if you can find a branch or fence that works (some wide car mirrors can work), you can often rest the tip of the seat on it to suspend the bike safely off the ground as you swap out the wheel(s). I do NOT recommend turning bicycles upside down due to the delicate nature of shifting brake levers, cables and computers. Also, inverted bikes are more likely to fall over and get damaged.

Putting the wheels back on

Front wheels are easiest. You just make sure they're all the way inserted into the fork and tighten the wheel and brake quick releases.

Be sure the wheel is centered in the fork, though, because if it's not, your brake will likely rub on one side or one pad will be closer to the rim than the other. To check that the wheel's installed properly, give it a spin, and see if it turns free and true. If you spot any rubbing on the brake pad, don't change the brake adjustment. Just loosen and center the wheel and retighten it, and the brake will work as it did before.

Tip: I can't overemphasize the importance of checking that the wheels are centered in the fork and frame. That is the thing that tells you that you put the wheel in correctly and it's not crooked in the frame or only partially inserted into the dropouts. I use the same finger on both hands and insert them between the rim and fork blades, and on the rear, between the rim and seatstays and then the chainstays. That way my fingers act as feeler gauges and I can feel right away if the wheel isn't in right.

Rear wheels are trickier

Due to the chain and derailleur, rear wheels require paying more attention to what you're doing. Start by placing the cassette side of the wheel inside the loop of the chain and ahead of the rear derailleur. Make certain that the chain is on the smallest cassette cog since that's where it was when you removed the wheel.

Now if you gently lower the bike and hold, pull up gently and slightly jostle the wheel, it should drop right into the rear end of the bike (the wheel is held in the rear dropouts). No? Check the following:

- Make sure that the quick release lever is in the “open” position, which means the concave side is facing out.
- Make sure that there’s enough clearance between the quick-release ends or they’ll bump into the frame or derailleur and stop the wheel. To gain clearance, hold one end of the QR and turn the other end counterclockwise.
- Sometimes people unscrew the quick release fully, drop the parts and the little springs fall off and get put back on backwards. When this happens they effectively enlarge the axle and make it not want to go into the dropouts. The springs are shaped like small ice cream cones. Make sure that the pointed ends of both of them are pointed to the inside and not overlapping the axle.

Those unusual rear-facing dropouts

A few bicycles have rear dropouts with openings in the rear instead of the bottom. My time trial bike is like this, but there are some regular road bikes with them, too. On this setup it’s hard to get the rear wheel on and off because the chain wants to hold it from coming out and then prevent it from going in.

The way to get around this is to remove the rear wheel quick release completely before wheel removal and installation. Then put your hand in a plastic baggie, wear a glove or make a small hook out of an old spoke and use your fingers or hook to pull the chain back and to the right. You will then be able to easily remove and insert the wheel. When it’s in place, simply drop the chain onto the smallest rear cog, install your QR, tighten it and ride!

Tip: The way you know that you have your quick releases tight enough is that the force to close it should leave a clear imprint of the lever on the palm of your hand. Another tip is to tuck the QR levers close to the frame/fork so that they can’t hook onto anything and get loosened accidentally.