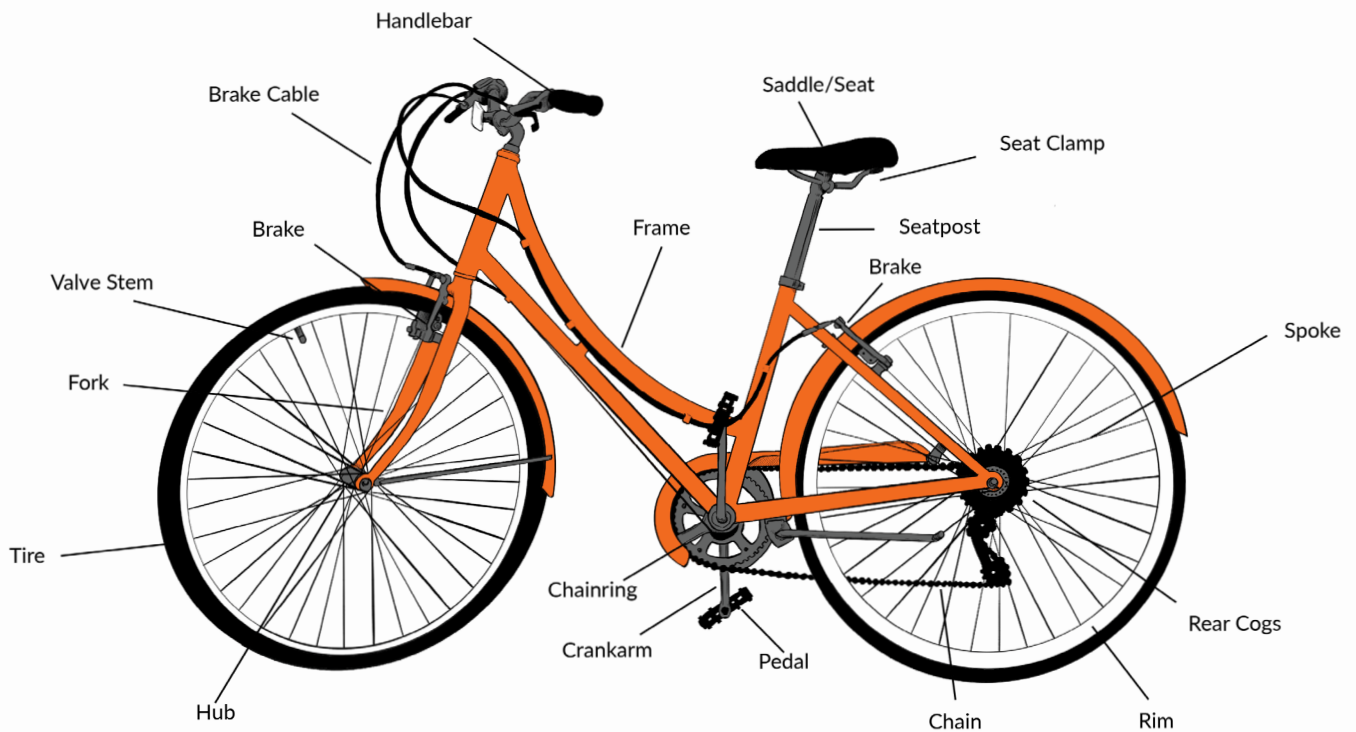




How to Fix a Flat



Aside from the fact that getting a flat tire prevents you from riding your bike, it also can be quite annoying to fix unless you know how to do it yourself. This resource will cover how to figure out the cause of your flat tire and how to fix it.

You'll need a few things to fix your flat:



- 2 tire levers (the kind with end hooks are best)¹
- New tube² or a patch kit (patches³, vulcanizing fluid or rubber cement⁴, and sandpaper⁵ or metal grater)
- Pump⁶
- Box wrench⁷ or wheel key (if your wheel is locked to your frame)
- New tire (if your tire is also worn out)

Optional but highly recommended:

- Disposable gloves (makes cleanup a lot simpler)
- Sharpie or writing tool (to mark/highlight the punctures)

Identifying the cause of the flat

Common causes of a flat tire are the wheel rim pinching and cutting the inner tube due to underinflation or a puncture by a rock, piece of glass, or another object. Regardless, it is important to figure out the cause of the flat tire in order to determine how to fix it.

- Turn your bike upside down to protect the rear gears.
- If the flat is in the rear wheel, shift the drive chain into the highest gear.
- If you have rim brakes, release or loosen the brakes by unhooking the brake arm so the brake pads are not in the way of removing the wheel.
- Undo the wheel axle by either opening the quick release or unthreading the thru-axle.



- Take the wheel off.
- Take the tire off of the rim in order to remove and assess the inner tube.
- To remove the tire and inner tube from the rim put one tire lever under the outer edge of the tire and the other tire lever to the right side of the first.



- Pop the tire bead out by levering both tire levers towards the spokes.
- Hook the first tire lever on a spoke to anchor the lever.
- Use the second tire lever to unseat the tire from the rim in small sections until the tire's grip on the rim loosens enough.

Note: If you are just trying to get to the inner tube, you don't have to remove the tire completely from the rim.



- Finish by sliding the lever around the rim.
- Remove the inner tube from the tire.
- Note: If you keep the inner tube and tire oriented how they were on the wheel, it's easier to match puncture causes (glass, bare rim, etc) to where a hole in the inner tube is likely to be.
- Assess the cause of the flat tire. Look for any foreign objects on the outside and inside of the tire such as a rock, piece of glass, thorn, etc., and carefully remove it.
- Carefully (you're feeling for potential broken glass!) run your fingers along the inside of your tire to feel for any remaining debris.
- Check the inside of your rim - Does the rim tape cover all the metal? Are there any exposed or sharp things that could have punctured your tube?
- Inspect the tube for any punctures. The puncture may be visible to your eye or it might be helpful to inflate the tube and listen and feel for any leaks.

Note: A single hole often indicates a puncture by a sharp object. Two holes often indicates a pinch flat (when the tube gets pinched between the tire and the rim) It is possible that you have two different punctures from a bad section of glass so be thorough!

If you had a pinch flat, it's likely you can prevent another one by inflating your tires enough at the end so you might not need to fix anything here.

Quick tip: Mark the hole with a sharpie or other tool so you don't lose it while prepping your patch.

Match your punctures to your wheel and see if you can fix whatever caused your flat so that it won't cause another flat. This will likely mean removing broken glass or debris, or potentially replacing your rim tape.

- Depending on the severity of the punctures, decide whether to simply patch the hole or replace the tube and/or tire entirely. If your tire has no tread and looks really worn, this is probably a great time to replace it.

Patching the hole

Skip to the next section if you decide to replace the tire and/or tube.

- Take the sandpaper from the patch kit and rub the area where the hole(s) is to rough the surface.
- For a glueless patch, simply stick the appropriate size patch over the hole(s).
- For a patch that requires glue, select the appropriate size patch for the hole(s), apply a thin layer of glue/vulcanizing fluid around the hole, allow the glue to air dry, and press and hold the patch to the area for 30 seconds so it sticks.

Note: The clear plastic cover on the patch is fine to leave on - if you'd like to remove it, be careful not to pull up the patch too!



- Inflate the tube to check to see if the patch solves the issue and that there are no other holes. You might need to use your hands to feel for any air escaping and/or your ears to listen.
- Does your tire have a bad patch and you're mid-ride? A dollar bill or granola bar wrapper can be a great "shoe" to temporarily patch your tire so you can roll home. Simply add it inside your tire where it needs support before installing your inner tube.

Placing the tube back into the tire and on to the rim

- Be sure that all holes are patched and release some of the air from the tube so that it's easier for you to place the tube back into the tire and on the rim.
- Once the tube is in place, use your hands to work the tire back into the rim.

Note: This can be a little tricky and may require some patience to reseat the tire. If your tire is new or particularly stiff, you can use a tire lever to guide your tire into the rim. Be careful because you can puncture your inner tube if you catch the tube while levering the tire back in! This is often easiest if the tube is inflated a smidge.

- Make sure you position the valve stem into the tire and rim's valve holes and that there are no kinks in the tube which could create another flat.
- Guide the tire bead back into the rim
- Check the inner wall of the tire for the tire pressure range before inflating.

Note: There are advantages to both ends of the range, the trick is to not be substantially out of this range (a few psi off is probably fine but 10 psi off is likely not great). If you overinflate too much, your inner tubes will explode from too much pressure. Underinflation may cause a pinch flat.

- Inflate the inner tube.
- Do one more visual and/or audio check to see if the tire is deflating.
- If the patch is holding, give yourself a pat on the back because you've just successfully changed a flat tire!
- If you released the brakes to take off the wheel, make sure you re-engage the brakes.
- Secure the wheel axle and you're ready to ride!

Note: While we may be the Washington Area Bicyclist Association, most of us on staff are not professional bike mechanics. If you have any further issues with your tires or bike that we didn't address, it might be worth taking it to your local bike shop to have a mechanic look it over.