



## Beginner/Intermediate Group

### INSTRUCTIONS FOR CHANGING A FLAT TIRE

#### TOOLS

**Extra tube** (put baby powder on tube before putting it in your saddle pack—this helps to prevent the tube from getting “pinched” between the tire and the rim (and going flat) when air is pumped into the tube)

**Patch kit** (Not necessary, but if have another flat, you can fix it your tube.)

**Tire levers** (two are good, three are better)

**Pump &/or CO<sup>2</sup> cartridge and dispenser**  
(one 16 oz. cartridge will fill one tire)

**Cell Phone** (when all else fails)

**Toothpick** (for placing in puncture hole if tube is repaired)

#### INSTRUCTIONS

1. Find a safe place off the side of the road out of traffic, either vehicle or pedestrian.
2. If the rear tire needs to be changed, shift into your smallest rear gear (sprocket). (This releases the tension on the chain making it MUCH easier to get back on after the flat is fixed.)
3. Release the brakes. To do this on most road bikes, turn the small, tear-drop-shaped lever above the brake caliper upward. The brake release will be on the shifter for Campagnolo equipment. On a mountain bike, release the cable by pinching the caliper and remove the cable from the middle.
4. Pull your quick-release lever into the open position, hold the nut on the opposite side, and spin the lever counter-clockwise until the hub clears the dropouts. There is no need to completely remove the nut to do this.
5. For flat front tire, remove the wheel and let the bike stand upright on its front fork. For rear flat, after freeing the axle by loosening the quick release or axle nuts:
  - Stand to the left of the rear wheel.
  - Use your left hand to lift the bicycle by the seat tube.
  - Use your right hand to pull the upper part of the rear derailleur backward, so that the jockey (upper) pulley swings down and behind the cluster.
  - If necessary, nudge the wheel forward with your right knee, and the wheel will fall out.
  - Lay the bicycle down on its left side, so that there is no weight resting on the derailleur...this is the most fragile part of the bike!
6. Before removing the tire from the rim, do a quick check of the tire for the cause of the flat. It might be a shard of glass, a sticker, or a wire. If you find “a” cause, keep looking. There might be more than one culprit.
7. Remove valve cap & stem nut (on some presta valves) on the wheel.
8. Remove any remaining air from the tube.
9. Use a tire lever to pry the tire off the rim, making sure to get under the inner edge (called the bead) of the tire. Some levers you can hook the tire lever under a spoke. (If your hands are strong, you can roll the tire off the rim without levers.)

10. Use another tire lever about a 3-6 inches along the rim to do the same thing again. This should be enough to force the bead off the rim. If not, use a third lever. When possible, run the tire lever around the rim to get the bead off the rim. Now you should have a tire that is half on the rim and half off. Some cyclists take the tire totally off the rim, but it is possible to change the tube without removing it from the rim.
  11. Remove the tube, patch it or throw it away (but not on the side of the road).
  12. Before inserting your new tube, run your fingers along the inside of the tire and along the rim. Feel for any rough or sharp spots. If you are fixing a flat tire, note where the puncture was on the tire by noting the position of the hole in the tube. If there is glass or other sharp object stuck in the tire, in time it will flatten your new or patched tube if you do not get rid of it.  
**NOTE:** If there is a cut in the tire that goes through the treads, before inserting the new tube, place something (a dollar bill works just fine) over the cut. If this isn't done, the tube will eventually work its way out and go flat again—probably sooner rather than later. See instructions for patching a tube below.
- USEFUL HINT:** If the hole is on the inner part of the tube, the problem may be with the rim tape wearing (or shifting) and a spoke is causing the tube to go flat.
13. Inflate the new or patched tube just enough to hold its shape.
  14. To insert new or patched tube into the half on half off tire, remove the valve stem nut first if the tube has one. Then put the valve stem through the hole in the rim from the non-spoke side of the rim. Don't forget to put the valve stem nut back on the stem.
  15. Starting at the valve stem, use your fingers to squeeze the tire so that you are pushing the bead of the tire onto the rim. When you have some of the bead back on the rim, work your way round, squeezing to get more of the tire on the rim. As you work your way around the rim, make sure that the inner tube stays inside the tire. Sometimes, the inner tube wants to poke out under the tire. When you are almost all the way around, it may get hard to get the edge of the tire onto the rim. It may even seem like there is no way to force the last little bit of tire onto the rim. Depending on the tire, this last part can be very hard or can be easy. If it is easy, the tire can be "rolled" onto the rim using the palms of your hands pushing the tire. If it is very hard, tire levers can be used to pry the tire onto the rim. Be careful, it is easy to break the tire lever if the tire is particularly hard to get on the rim. And it is very easy to "pinch" that tube. It may be that there is too much air in the tube.
  16. Pump up your tire. Look for any places where the tire has an unusual bulge or any places where the tube is poking out from between the tire and rim. If the tube is poking out, let the air out and try to push the tube back in. Make sure that no areas of the bead are coming loose.  
**NOTE:** If you are using a CO<sup>2</sup> cartridge, be sure to use a 16 gram cartridge on high pressure tires (100-120 PSI). The suggested PSI is listed on the sidewall of the tire. If all you have is a 12 gram cartridge, use pump to put more air in the tube BEFORE you use the CO<sup>2</sup> cartridge when you are using a high pressure tire.
  17. Replace the wheel onto your bike. Secure the quick release lever and brakes. Re-installing the wheel is a critical task, and if you don't do it right, the wheel can fall out, leading to a serious crash. This is particularly important on the front wheel.

- The **quick release handle** can move two ways: it can twist around like a wing nut, or it can flip 180 degrees outward and back, like a hinge. (*The twisting motion adjusts the operating range of the quick release. You may have to hold onto the cone-shaped nut at the other end of the axle. **You can't get it tight enough by turning it.** The hinge-like flipping motion is the locking motion. In the "open" position, the quick release handle curves away from the bike. In the "locked" position, it curves toward the bike*).
- **Never, ever ride with the lever in the open position!**
- If the quick release is too loose, this flipping motion will be too easy, but it will not hold the wheel safely--flip it back, turn it clockwise some more, then try again. If it is too hard to flip, and you cannot get it to flip far enough to lie flat, loosen the adjustment by turning the handle counterclockwise. It should take a **good firm push** to get the handle to lie flat.
- It is customary to install the front wheel so that the quick release handle is on the bicycle's left side. That way both quick release handles are on the same side of the bike.

#### FINDING THE LEAK

1. Inflate the tube so that you can find the source of the leak. You can sometimes find the leak by listening for the hissing and following the sound to the hole. A more reliable way is to fill a sink with a couple of inches of water, and then placing a portion of the inflated tube underneath the water, rotating the tire until you've watched the entire tube go through. The leak will give itself away by the bubbles it produces when its section of the tube goes underwater. You can circle the spot with a ball point pen or mark it with an X. Otherwise it can be easy to lose. Place a toothpick through the hole—it will stay in.

- Even when you think you've found the leak, be sure to still check the entire tube, as there may be more than one puncture. Leaks that occur at the base of a valve stem or along the seam of the tube are usually impossible to repair.

- If you are out on the road, you can find the leak by dipping your tube in a creek or puddle. If no other water is available, moisten your fingers with saliva and rub lightly over the surface of the tube until the source of the suspected leak is located.

2. Using sandpaper, roughen the area of the tube (around the toothpick if you use one) that is slightly larger than the patch you will use. This allows the rubber cement to adhere to the tube.
3. Apply a thin layer of rubber cement at the site of the leak over the area you just sanded. Again, this should be slightly larger than the patch you will use. It is not important if you apply rubber cement directly on the hole or not. Allow the rubber cement to dry, a process that should just take a minute. The rubber cement should go from clear to cloudy as this happens. You can hasten this step by blowing on the glue. Remove the toothpick.
4. Most of the time, the patches that come in a pre-made kit will have a thin foil backing which you will need to remove to expose the adhesive. Take that backing off, and apply the patch directly over the hole, pressing it firmly down to seal it onto the rubber cement.

*These instructions were borrowed shamelessly from the following websites:*

<http://www.doityourself.com/stry/changingbicycletire>

<http://www.howcast.com/guides/722-How-To-Change-A-Bike-Tire>

[http://bicycling.suite101.com/article.cfm/changing\\_a\\_bike\\_tire](http://bicycling.suite101.com/article.cfm/changing_a_bike_tire)

<http://www.sheldonbrown.com/flats.html>

[http://bicycling.about.com/od/bikemaintenance/ss/flats\\_fix.htm](http://bicycling.about.com/od/bikemaintenance/ss/flats_fix.htm)

[http://www.seacoastnh.com/Travel/Seacoast\\_by\\_Bike/The\\_Zen\\_of\\_Basic\\_Bicycle\\_Maintenance/](http://www.seacoastnh.com/Travel/Seacoast_by_Bike/The_Zen_of_Basic_Bicycle_Maintenance/)