

# How To Change A Flat

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## 1. Take the wheel off the bike

- a. Remove riding gloves to avoid getting them dirty with road filth.
- b. *Front Wheel*
  - i. Release brake.
  - ii. Release quick release (unscrew after releasing if fork has "lawyer lips".)
  - iii. Slide wheel out.
- c. *Rear Wheel*
  - i. Shift into smallest cog.
  - ii. Release brake.
  - iii. Release quick release.
  - iv. Pull out derailleur by the top pulley.
  - v. Drop out wheel.
  - vi. Position bike so it is not resting on derailleur.

## 2. Take the tire off the wheel

- a. With a plastic tire lever, get under the bead of the tire on the opposite side of the valve.
- b. Lock tire lever to spoke.
- c. With another lever, get under the bead of the tire a few inches from the first lever.
- d. Pull the part of the tire between the two levers over the rim.
- e. While the second lever is still between the rim and the tire, push it away from the first lever unseating the bead from the rim, and go around the rim with the lever till you have freed the tire from one side.
- f. Pull off the rest of the tire from the wheel on the same side as you just freed from the rim.
- g. Steps a-e can be done with one lever with some practice.

## 3. Find the cause of the flat (or be doomed to repeat it)

- a. Pull the tube out of the tire keeping orientation of the tube and tire the same for step f.
- b. Look for the hole!
- c. If not obvious, put air into the tube with a pump, by mouth, or left over CO2 charge from your last flat.
- d. Look for the hole!
- e. If it is still not obvious, try running tube near mouth. Lips are very sensitive to small air leaks.
- f. Once the hole is found, look at the corresponding area of the tire (which is why step a.)
- g. If no hole is found, gently run your fingers around the inside of the tire (careful not to cut yourself!)
- h. If no hole is found, check for rim strip holes, these can cause a flat.
- i. If two parallel holes are found in the tube, it is a snake bit caused by hitting a pothole and there will generally not be a hole in the tire.
- j. Also look for sidewall cuts where the tube can bulge out and cause a flat. Often caused by poorly adjusted brakes.
- k. Holes in the tire large enough to allow the tube to come out will need to be booted.
  - i. Boots can be paper money, Tyvek pieces, duct tape or old tire sections. Do not use plastic!
  - ii. Boot should be about 1 inch square, or about one inch on any side of gash. Gashes bigger than an inch can generally not be booted, multiple layers of duct tape inside the tire may work.
  - iii. Insert the boot between tire and tube during step 4 j below.

#### 4. Reinstall the tube and tire

- a. Reinstall one side of the tire on the rim.
- b. Position tire label by valve hole. This helps you orientate the tire to the tube for the next flat. If only a label on one side, put the label on the right (drive) side of the bike.
- c. Put enough air in new or repaired tube to give it shape to be round and full, but not enough to cause the tube to stretch at all. It should also not be limp.
- d. Insert valve into valve hole by pushing loose side of tire over, inserting valve through hole.
- e. Pull tire over tube by the valve.
- f. Insert tube into tire all the way around. It should not have any kinks, twists or turns and should nicely fit.
- g. Push tire and tube further in over the rim. Outside free tire bead should now be flush with the braking surface of the rim.
- h. Push the valve up and pull over the tire bead over the rim at the valve.
- i. Pull the valve down and make sure it is straight and the tire is seated correctly on the rim at the valve.
- j. From the correctly seated valve, start moving the bead over the rim in both directions by hand till you can't do it easily any more.
- k. Put the rest of the bead over the rim (use any following technique that works!)
  - i. Some tires can be installed by hand! Pull tire over rim from opposite side.
  - ii. Put lever between rim and tire. Concave part of lever should be on the rim. Lift lever to move bead over rim. You can use your hands as well. Use two levers if needed.
  - iii. Release some air in tube to get more play in the tire.
- l. Pump up tire!

#### 5. Remount the wheel on the bike

- a. Make sure brake is released, tire is now full and will be wider than when you took it off.
- b. *Front Wheel*
  - i. Put wheel back in fork.
  - ii. Tighten quick release (rescrew first if "lawyer lips" are present.)
  - iii. Put brake back in riding position.
- c. *Rear Wheel*
  - i. Pull derailleur out and put chain over smallest cog.
  - ii. Pull back on wheel to put it in the drop outs.
  - iii. Check wheel alignment.
  - iv. Tighten quick release.
  - v. Check chain is on derailleur correctly.
  - vi. Check chain is on front crank correctly.

#### 6. Clean up

- a. Fold up old tube (can generally be repaired with a patch) and store.
- b. Put back CO2, pumps, tire levers, etc into pocket or bag.
- c. Wash hands if you want and put gloves back on.
- d. Check for any leftover items and take with you!
- e. Ride!