

# SLBC-There is more than one way to change a flat tire

What follows are the steps to change a rear tire on a road bike. First some “introduction”.

1. There is no one right way to change a tire. Several steps are mandatory while others are personal preference. What you will see are my personal preferences based upon 23 years of experience, 110K miles of cycling and MANY flat tires.
2. Tire valves come in two types. Shraeder (like on your car or golf cart) and Presta (like on most road bikes). Most casual bikes use shraeder valves. Make sure you carry a tube that matches what is on your bike.

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Tire with tubes (aka Clincher Tires) come in two construction types:

1. Wire bead: These are lower cost tires that come on many bicycles. These work fine but are more difficult to put on especially with narrow (23, 25, 28mm) tires
2. Folding (Kevlar bead): Cost a bit more (1.5-2X) but are easier to install and many have bead to bead Kevlar band to provide enhanced flat protection.

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Alternatives to tires with tubes:

Tubeless tires were originally developed for mountain bikes have been around for some time. In the last 5 years, they have been proliferated to road bike tires.

They require special tubeless rims and internal goo that will plug SMALL fissures. Tubeless tires are more costly but they can work at lower pressures and provide a softer ride. HOWEVER, they are not too good with large fissures (like a glass cut). The sealant cannot seal large fissures, will spray all over your bike and you will have to do a roadside repair with a tube anyway.

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- You will need these for a roadside repair:



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## **A word about Safety**

- Before you start-get you and your bike (and any fellow riders) off the road. Use someone's driveway if necessary

- If you are on a busy road,

Get at least 10 feet off the road if possible

If there is a guard rail, get on the other side of it if possible

Position one of your fellow riders 100 feet up the road facing the oncoming traffic

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Lets get started....

Rear tires are always more difficult to repair and they are almost always the ones to get a puncture.

Shift your chain to the big sprocket in front and the smallest sprocket in the back



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Open the brake caliper

Brake release lever



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Open the quick release lever. Hold the bike frame with your left hand and proceed to remove the wheel.

Note if you have a short cage derailleur you may have to rotate the derailleur by hand to remove the wheel. If you have a medium or long cage derailleur, the wheel should drop right out



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Remove the wheel from between the chain

Note: if you do this right, your hands should never have to touch the chain

Lay your bike down, derailleur side up, or have a friend hold it while you complete the repair



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Remove all air in the tire.  
Seems obvious, but if you have a slow leak and if you omit this step it will be more difficult to get the old tube out.

Using two tire levers, insert them under the tire bead on one side of the rim.



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Hook one end of one lever around a spoke and then move the other lever around the rim to break the bead.

Note: it is not necessary to use two tire levers, often times breaking the bead can be done with only one lever



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If you have the nut on the presta valve remove it and then remove the tube from the tire and rim.

Note, you do not have to break the bead on the other side of the tire to get the tube out and you do not have to remove the tire from the rim to complete the repair.



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Now, the most annoying part... Locate the puncture

There are two types of punctures to look for:

- A slow leak-caused by a wire in the tire or by a piece of imbedded gravel that will slowly cut thru the tube
- Rapid loss of air-caused by a large piece of glass or other metallic object or by a pinch flat
- A pinch flat, often called a snake bite, happens when you hit an object, like a pot hole. If your tire pressure is low to start with, pinch flats are more likely to happen. A pinch flat (snake bite) looks like two parallel cuts about ½ inch apart as if a snake's fangs made them.

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Locate the puncture in the tube FIRST if possible.

If you have an air pump, blow up the tube large enough to feel the air coming out. If you can find it, note where it is in relation to the valve.

If the tube will not hold air at all, you need to look visually for a snake bite. If you can find it note where it is in relation to the valve.

Sweep the INSIDE of the tire with your hand-CAREFULLY, to locate the source of the puncture. If you know where it is in relation to the valve, pay more attention to that area on the tire when you sweep it.

When you find the source of the puncture, remove it. If you cannot find the source of the puncture (what we call root cause), it may still be there and will come back again after you put in a new tube.

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Now that you have found the source of the puncture and removed it, take the new tube out of your seat pack, unfold it. If it is a presta tube, remove the valve cover, loosen the sealing nut, push the sealing nut in to free the valve and add a LITTLE air to give the tube some shape.

Retighten the sealing nut (so the little air will not escape). Take the jam nut off the valve-you can discard it-it is not needed but some people like it

If you did not take the tire off the rim, make sure the tire label is lined up with the valve hole in the rim. If you removed the tire from the rim, line up the tire label with the hole in the rim-You do this so that it is easier to locate the puncture source in the tire if you can find it in the tube first.

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Insert the valve thru the valve hole and install the tube into the tire.

Make sure there are no twists in the tube.

Make sure the valve stem is perpendicular to the rim (not slanted)



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Starting OPPOSITE the valve, push the tire bead into the rim. As you get close to the valve, you will have to stretch the tire bead over the rim. Let any residual air out of the tube to help in this effort and starting on the side opposite the valve squeeze the tire inward toward the center of the wheel.

USE YOUR HANDS. As tempting as it may seem, AVOID using the tire lever as you can damage the new tube.



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After the bead has been seated, check that the valve can move freely up and down inside the tire.

If it does not, it means you have pinched the tube between the tire and the rim and you must partially remove and reinstall



Pushed in



Released out

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Start to put air into the tire. If you use a hand pump, put some in and squeeze the tire on both sides of the rim. You should be able to see the rim tape (if you have it) and the tube should not protrude under the tire bead.

Once you are convinced all is well, finish putting air into the tire, tighten the nut and reinstall the valve cap.



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Notes about CO2 inflators:

- Buy one with a trigger control.
- Look for ones that have an integral hand pump as well
- If you use one, it is easier if you have the tire with the valve on top pointing down v. on the ground pointing up. Why? 1. The former is closer to your eyes and it is easier to see and 2. The ground and an uninflated tire behave like a spring and it is difficult to make sure the inflator is seated on the valve.

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Time to put the tire back on the bike: The MOST DIFFICULT PART

Hold the bike frame with your left hand. Hold the tire in your right hand and align one of the outermost TWO cogs of the cassette with the chain. You do NOT have to have it exactly in the outermost one. The underside of the chain needs to be on top of the cassette.

Align the quick release with the frame dropouts and you should be able to pull it into the frame. With a short cage derailleur, you may have to rotate the derailleur cage again to get the chain to wrap around the cassette.

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Center the tire between the brake pads and tighten and close the quick release. The QR should leave a mark in your hand when it is tight. If you over tighten, you risk damaging the flimsy nut on the other side.

Close the brake release lever and with the cranks, spin the tire. It should spin smoothly with no wobble. The chain will automatically drop into the lowest cog where you had it before the tire was removed.

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That's it, you are done. Except....

Clean up the area where you worked. Do not leave trash or tubes.

If you used a CO2, it will be very cold. With your gloved hand, unscrew it and put the spent cartridge in your jersey to be disposed properly

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- Lessons Learned

If you have never changed a flat tire, try it first in your garage-less stressful.

If you get a new bike, make sure you know how to get the tire off the bike. Disc brakes are a bit different so once again try it in your garage first.

Carry two tubes AND a patch kit.

Invest in folding tires. Your hands will thank you.

If you have aero wheels, make sure the tubes you carry have long stems....and carry two. Your fellow cyclists may not have a long stem tube to lend you.

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- Lessons Learned

When you put the rear wheel back on, make sure the chain is on the cassette, not jammed between the cassette and the derailleur hanger. Why? When you tighten the QR, you can bend the derailleur hanger and your shifting will be affected.

If you ride on roads where there are shredded truck tires, tiny wires from the tires will get into your tires. After you get off the busy roads, get off your bike and spin the tires and with your gloved hand and rub the tire surface to dislodge any that have not already worked themselves into your tire.

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- Lessons Learned

Carry a pair of tweezers or a small Leatherman plier so you can pull out those tiny wires

Two cyclists at the same time cannot put a rear wheel on a bike as effectively as a single cyclist

More than three cyclists trying to repair a tire just does not work well.

The last and most important lesson is that if you cannot find root cause, you will get another puncture. Could be 100 feet or 70 miles later.

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- Lessons Learned for CO2 users

Use 16g cartridges. 12g will work but you will not get high enough inflation pressure.

Cartridges are threaded and non threaded. Make sure you get ones that match the CO2 head.

After the ride, deflate the repaired tire and reinflate with air. Why? CO2 molecules are smaller than air molecules and will leak out faster. If you only ride every few days, you may find your tire flat and think you have to repair again.

Carry two cartridges (I carry three)