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ACTIVITIES

Fixing a Flat

An Essential Skill for Bikers

By Chain Gang Expert Cyclist [Ethan Gelber](#)

Repairing a flat tire is one of the most fundamental and important repair skills every cyclist should have. You never know when that shard of glass or hard-edged debris will wedge its way through your tire and bite into the soft rubber of your inner tube. Having the tools and know-how to repair this common problem is vital.



© Dennis Coello
Sharpen your skills before hitting the road

I will briefly describe the four steps involved in removing a tire and then replacing or repairing an inner tube, but you should also purchase, if you can, a good book about basic bicycle maintenance and practice practice practice. You don't want the first time you deal with this type of routine work to be when you are on the road miles from home.

Tools

Before you begin, make certain that you have all of the tools. You will need **two (or three) tire irons or levers**, a **tube repair kit** or **spare inner tube**, and a **pump**. Check your wheel; if it does not have a quick-release, you will also need a **crescent wrench** for loosening the nuts.

Step 1: Remove the Wheel

There are three basic obstacles to overcome: gravity, the axle attachment (quick-release or axle nuts), and the brakes — and, in the case of the rear wheel, the derailleur. Gravity can be turned to your advantage by first turning the bike upside-down. Then loosen whatever assembly is keeping your wheel attached to the bike. If you have a quick-release attachment, flip the lever so that it is loose. If you have axle bolts, use your crescent wrench to loosen both bolts.

You will then need to loosen the brakes enough to allow the wheel to pass between the brake blocks. Most

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new brake systems have a relatively simple way of doing this. The front wheel can then be easily detached from the bike. With the rear wheel, you will need to swing the rear derailleur back and out of the way (pull toward the rear of the bike) to allow for the wheel's unobstructed removal.

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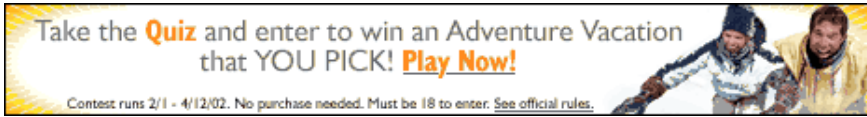
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ACTIVITIES

Fixing a Flat

Steps 2-4

By Chain Gang Expert Cyclist [Ethan Gelber](#)

Step 2: Remove the Tire

This is the hard part. Your tire irons are the tool of choice. First, make sure that all the air is out of the tire. Press and squish to make sure of this. Then, using the beveled end of the tire iron (the end without the hook!), pry the tire off.



Removing the tire

Begin by selecting a spot on the wheel exactly opposite the valve. Stick the tire iron in between the rubber of the tire and the rim of metal that holds it in place. Push it in about half an inch, making sure that it is completely under the tire. Then press down on the free end. This will pry the tire up. Use the hook on the end of the tire iron to attach it to one of the spokes. Take your second tire iron and repeat this operation at a point two spokes away. Then repeat it again with the third tire iron. When the third is in place, you should be able to remove the second and use it to perform the same motions, working your way around the wheel. Eventually you will have one side completely removed.

At this point, if you want to remove the tire completely, you may be able to pull the tire off by hand, without the aid of any tools. If not, recommence the whole operation using the tire irons to pry free the other side of the tire, but pry it in the same direction as you did the first side. However, it is probably better if you leave one side of the tire attached.

Step 3: Replace or Patch the Tube

If you are going to replace your inner tube, remove the old one and insert the new. If you are going to patch the old one, leave the valve in the valve hole and reinflate the inner tube slightly. This will help you locate the puncture (listen and feel for escaping air) and the possible location of the offending object in your tire. Carefully inspect the tire (inside and out) in the area

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around where the puncture occurred. Remove the nail or glass or whatever from the tire and then patch your inner tube.

To do the latter, use the coarse material provided (sandpaper or a small scraper) to roughen up the area around the puncture. Spread glue over an area larger than the patch. Do not be impatient; let it dry completely. Remove the silver lining from your patch and then press this side to the dry glue. (Remove the lining at the last possible moment so that the surface you want to place against the inner tube remains clean.) Make sure that the edges of the patch are in contact with the glue. Press the surface down firmly. Let the whole thing set for about a minute.

Step 4: Reconstruct Your Bike

Pump a little air (not very much) into the tire and push the inner tube back into the tire. If you are placing a new inner tube in the tire, begin by inserting the valve in the valve hole, then push the inner tube into the cavity of the tire. Make sure that one of the edges of the tire is properly in place. Then go back to your tire irons and shoehorn (that is, use the beveled edge but "upside-down") the other edge of the tire into place. (You might want to re-deflate the inner tube to make sure you don't puncture it.)

Start with the rim area closest to the valve and then work your way in around the wheel. You should be able to do this by hand. Only the last few inches will be hard and require the tire iron, but persevere. If you have been careful, the valve should not be at an angle when you are done. Reinflate the tire and hit the road!

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