

Fixing a flat tire

The only drawback to pneumatic tires is they can lose their air. This occurs either over time, or due to a puncture. Air loss occurs naturally at a rate of about 50% in two months, the loss is through the walls of the tube not the valve. If air is lost at a quicker rate you have a puncture.

Most pneumatic wheelchair tires are clinchers, which means they use an inner tube, the air in the tube presses the tire onto the rim and the pressure holds it in place. Air enters the tube through a valve, of which there are two kinds, Schraeder and Presta. The inside of the rim is covered in rim tape so that the nipples of the spokes don't poke holes in the tube. The edges of the tire are lined with wires to hold onto the rim; this is called the bead. The tire must be removed from the wheel to test and fix the tube.



Schraeder valve



Presta valve



Presta valve with adapter

Different Kinds of Flats

A sharp object that sticks in your tire and punctures the tube causes most flats. The second most common type is caused by a pinch, these are called snakebite flats. Snakebites occur when hitting a curb with too little air in the tube. Occasionally a valve leaks and the valve core has to be replaced. If the tube explodes due to an old, weak, or poorly fitting tire the tube and tire must be replaced.

Tools



- A pump compatible with the valve. We recommend Schraeder valves.
- A tire pressure gauge, one built into the pump is the most convenient.
- Tire levers, which help lift the tire bead over the rim
- A patch kit, with extra patches, rubber cement, and a piece of sandpaper or a buffer

Tire and tube removal

1. Mark the tire next to the valve to help locate the puncture later.
2. Let all the air out of the tire by pressing the little stem in the middle of the valve. (If you have a Presta valve unscrew the top and press it in).
3. Release the bead from the rim all the way around (it tends to stick). Then push the beads in towards the rim well.
4. Unscrew the nut holding the valve to the rim (if it has one).

5. Use the tire levers to ease the tire off the rim. If you can do it without levers that is better. Don't use a screw driver because it will damage the rim and may make another hole in the tube.
6. Pull the tube out of the tire.

Fixing the tube

1. Inflate the tube using the pump.
2. Hold the tube close to your face and listen and feel for the air escaping. This is easier than looking. If you cannot find the puncture submerge the tube in water and you will see the bubbles of escaping air from the puncture.
3. When you find the puncture, scrape the area around it with the buffer (sand paper). This cleans the rubber and roughens it so that it takes the patch better; it also marks where the puncture is so you can find it again when the tube dries.
4. Let the majority of the air out. Cover the area with rubber cement (from the patch kit); make sure that the area covered is greater than the size of the patch. Larger holes need bigger patches. Wait about five minutes for the cement to dry.
5. While the cement is drying, look for the sharp object that caused the puncture. If you use the mark you made on the tire to see how the tube was lined up with the tire, it shouldn't be hard to figure out which section has the offending object in it. Take a piece of cloth and run it along the inside of the tire; it will stick on the protruding object that punctured the tube. Remove the object.
6. When the cement is completely dry. Peel the silver foil off the patch and apply that side to the tire. Rub hard from the centre toward the edges so that it sticks really well. Leave the cellophane on; it can be tricky to remove without damaging the patch and it helps protect the patch.
7. Dust the excess glue with talk or chalk to stop it adhering to the tire.

Replacing the tube and tire

1. Make sure the tape is in place around the rim, it protects the tube from the spoke nipples.
2. Inflate the tube slightly and pack it back into the tire, pushing the valve through the hole in the rim. Make sure the valve stays perpendicular to the rim.
3. Now slide the bottom bead over the rim, this should be easy to do.
4. Ease the second bead over the rim working your way around on both sides towards the opposite side.
5. The last part of the bead will be very difficult to lift over the rim. Make sure the bead where you started is pushed way in to the rim, this will give you a little more slack. Gradually work the top bead up and over the rim taking care not to pinch the tube. If you do, you will have to go back to square one. If possible try to complete this without using the tire levers to reduce the likelihood of damaging the tube. A little Armor All on the sticking bead can help ease things.
6. When the tire is on, push both beads into the well of the rim all the way around the wheel to make sure the tube isn't pinched.
7. Inflate the tube to the pressure marked on the sidewall.
8. Tires have a reference line that should be the same distance from the edge of the rim all the way around; this ensures the tire is seated properly on the wheel. If it is off centre let air out adjust the tire on the rim and re-inflate.