

Road Trip USA: Dealing with Common Pitfalls on the Highway

Part 1: The Flat Tire

By Joshua Marshall

Summer is finally here, and with it comes the great American tradition: the road trip. Each year millions of Americans pack up their families and head out on the highways, byways, and back roads of this great land. If you plan on being in their number this year, some thoughtful preparation and know-how will make your trip much easier. Because even though you may forget to bring along your phone charger, you will never manage to leave behind Murphy's Law. In this first installment, we will cover the most common of motorist dilemmas: the flat tire.

Your checklist:

Sitting stranded on the side of the road is the exact wrong time to start looking for your tire changing equipment. Be prepared by taking a thorough inventory of what you will need. See **Photo 1** below and the following list for what you will need to change a tire.



Photo 1: Most of what you will need should have come with your vehicle. Required equipment is the spare tire (1.) and the jack with tire iron (2.). Optional equipment includes a warning triangle (3.) and a flashlight (4.).

1. Spare Tire (inflated to appropriate pressure)
2. Jack with Tire Iron
3. Warning Triangle (optional)
4. Flashlight (optional)

The jack, tire iron, and spare should have been included with your car. Refer to your owner's manual to find where they are stowed. You will need to make sure that the jack is operational and the tire iron actually fits the lug nuts on your vehicle. The spare tire should be in good condition and inflated to the correct pressure. The warning triangle and flashlight, while optional, can give be important safeguards if you need to change a flat tire in the dark.

The Procedure:

So you've finally gotten a flat tire. What now? The procedure for changing a tire is fairly straightforward and can be managed by anyone with the proper instruction. Here's what you do:

1. Ensure that your vehicle is safely off the road. Being pulled over on the shoulder of a major highway is a dangerous proposition. Do all that you can to put maximum distance between your vehicle and fellow drivers. Place your vehicle in park (or 1st gear if you have a manual transmission) and engage the emergency brake. Turn on your hazard lights.

Important: *Passengers, especially children, should remain in the vehicle at all times while you change the tire.*

2. If you have one, place your warning triangle behind your vehicle. It should be placed on the shoulder approximately 50 yards behind your vehicle.
3. Remove the spare tire, jack, and tire iron from their storage space. Grab your flashlight if it is dark out.
4. Remove the hub cap or wheel cover if equipped. "Break" each lug nut free with the tire iron by turning counter-clockwise one turn. You will work in a star pattern. See **Photo 2**.

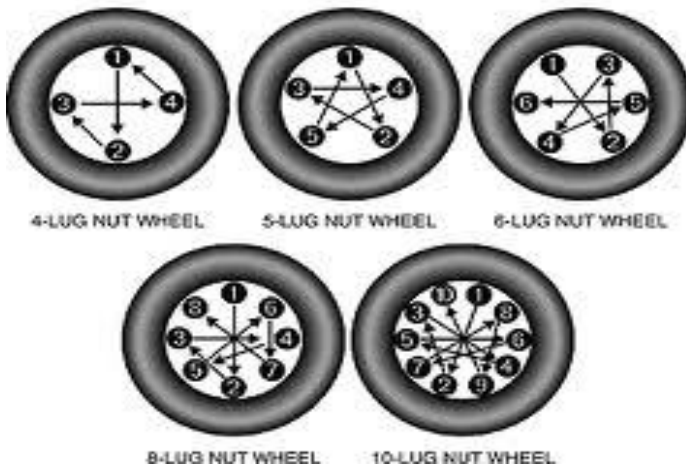


Photo 2: Using a crisscross or star pattern will ensure that you do not warp the wheel when loosening or tightening the lugs. The above diagram shows the proper pattern for most commonly found lug patterns.

5. Place the jack under the vehicle, taking care that it is positioned securely against the frame. See **Photo 3**.

Important: *Make sure that the base of your jack is placed firmly and squarely on the ground. You will need to pay careful attention to this as you jack up the car.*



Photo 3: When using the jack, make sure it is secure against the frame. Refer to the owner's manual for proper jack placement on your particular vehicle.

6. Begin jacking up the vehicle. Each jack works somewhat differently, so it is a good idea to familiarize yourself with its operation beforehand. Jack up the vehicle the minimum distance needed for the flat tire to clear the ground. Continue to make sure the jack is firmly in place.
7. Finish loosening up the lug nuts, continuing in the star pattern. Place the removed lug nuts in the hub cap or wheel cover, or someplace where they will not get lost.
8. Remove the flat tire.
9. Place the spare tire on the hub and begin putting on the lug nuts. Tighten the lug nuts by turning them clockwise.

- 10.** Once you have the spare tire on and lug nuts tightened, lower the vehicle. You should take care to do this as slowly and gently as possible.
- 11.** Use the tire iron to double check that each lug nut is tight, remembering to work in a star pattern.
- 12.** Put the jack, tire iron, and flat tire back into their storage space. Retrieve your warning triangle if you used one.
- 13.** Return to your vehicle, carefully merge back into traffic and drive to the nearest mechanic/repair shop to have your tire fixed.

Important: *If your spare tire is one of the smaller ones, commonly called "doughnuts," remember the **50/50 rule**: the spare tire is safe for about **50 miles** and should be driven less than **50 MPH**.*

Final Thoughts

Every driver will at some point have to deal with a flat tire. Having the knowledge of what to do beforehand will save you a lot of hassles, and will get you back on the road quickly and safely. Before you head out this summer, take some time to learn these steps to changing your tire and keep in mind that you are not part of NASCAR pit crew. Work safely, even if that means slowly.

Be sure to check back for next week's installment in our Road Trips USA series: the overheated motor. Be smart, and be safe.

