

Tire Maintenance

There are tire maintenance procedures that automotive repair professionals should do because they have the proper tools and knowledge. However, understanding these procedures will help you feel more confident in dealing with a repair provider.

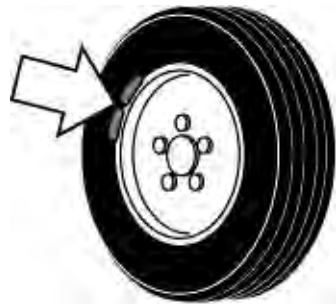
Tire Rotation

Tires on the front and the rear of vehicles operate at different loads and perform different steering and braking functions, resulting in unequal wear patterns. To gain maximum life and performance from your tires, it is essential to rotate your vehicle's tires. Refer to your vehicle's owners manual for mileage recommendations. Usually tire rotation is performed between 5,000 and 7,000 miles.

Wheel Balancing

Properly balanced tires help minimize uneven wear and extend their life. When tires are balanced, small weights are attached to the wheels to limit vibration of the tire and wheels as they turn. Tires and wheels should be balanced when the tires are rotated, after putting on new tires, after fixing a flat tire, and any other time a tire is removed from its rim.

Weights



Wheel Alignment

Wheel alignment is the measurement of the position of the wheels compared to specifications that the vehicle manufacturers recommend. Each vehicle has a specific wheel alignment range. If the wheel alignment isn't within its range, steering may become difficult and tires can wear unevenly. This can make them unsafe and also lower the vehicle's fuel mileage. You should check your wheel alignment every 12,000 miles or whenever you get your tires serviced. If the wheel alignment is out of specification, adjustments can be made by moving adjustable steering and suspension parts.

A vehicle's wheels are properly aligned when you can drive down a road in a straight line without drifting or pulling to one side. Drifting and pulling to one side also can be caused by several other factors: a failed radial belt in a tire, low air pressure, and worn or bent steering or suspension parts can cause these conditions. A complete inspection should be made before a wheel alignment is performed.

Spending a few minutes with your tires can help you preserve the safety of your family, improve your vehicle's performance, and lengthen the life of your tires.



For more information about Making Sense of Car Care, contact your local AAA club, a AAA Approved Auto Repair facility, or visit AAA.com.

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Important safety information: Due to the complex nature of today's vehicles, it is essential that you use the utmost care when working on your car or truck. Before attempting any service or repair, consult your owner's manual. Be sure you understand the service procedure completely, have the proper tools, and adhere to all safety precautions, including handling instructions for any chemicals you are using. If you are unsure about any repair, consult a professional technician.

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Understanding Your Vehicle's Tires

Your tires are the only part of the car that has direct contact with the road. Tires affect your vehicle handling, ride, braking, and safety. For optimum performance, tires must have the correct air pressure, tread depth, balance and the vehicle must have the correct wheel alignment.

Checking your tires on a regular basis is an important step in protecting your safety as well as your automotive investment. Ideally, tire inspections should be performed monthly. If you drive over potholes and debris in the road, live in a cold climate, or drive long distances regularly, then you should inspect your tires more often. Always inspect your tires before a long trip. The more often these inspections are performed, the easier it will be to find a small problem, such as a nail in your tire, and fix it before it becomes a more expensive and time-consuming problem.

Signs of Tire Wear

Poor tire maintenance can lead to premature tire wear, tire blowout or a flat tire. Factors other than tires themselves also can affect tire wear. Worn suspension parts and the vehicle's alignment both play a direct role in tire wear and performance.

Tire Problems to Look For During a Visual Inspection



Over inflation:

Too much air pressure causes only the tire's middle section to touch the road. This creates wear primarily in the center of the tire, and not the tire's edges.



Under inflation:

Too little air pressure causes the tire's sides to sag and the middle section pulls up from the road. This creates wear primarily on both edges of the tire, but not in the center.



Tread wear on one edge of the tire:

This typically occurs when the wheels are out of alignment.



Erratic tread wear:

This is often called cupping, and may mean the wheel is out of balance, or that the shock absorbers or ball joints need to be replaced.

Raised portion of the tread:

may indicate that a radial belt inside the tire has separated.

Tire Problems to Look for While Driving

- **Unusual vibration or thumping noise:** Vibration or thumping noises can indicate a separated radial belt or badly chopped tire.
- **A pull to one side:** While driving at a steady speed, pulling to one side may indicate that tires on one side of the vehicle do not have equal air pressure with the tires on the other side of the vehicle. If this is not the case, a separated radial belt, or the need for a wheel alignment may cause the pulling to one side.

Tire Tread Inspection

Tires depend on good tread condition to maintain traction and to shed water on wet roads. Tread depth should be checked for excessive and uneven wear. Measure tire tread with a depth gauge (available at most parts stores) or a small ruler that has 1/16" graduations.

Although it is not as accurate, you also can check tread depth by placing a quarter in the tread of the tire. Tens of millions of American motorists know the routine. To check to see if it is time for a new set

of tires, you used to insert a penny between two treads. If you did not see the top of Lincoln's head, it was time for new tires. Based on the old penny test, tread of above 1/16 of an inch was declared safe.

The difference between one sixteenth and one eighth of an inch might not seem too significant, however, based on a recent study completed by Tire Rack, the country's largest independent tire tester, the reality of what the tread difference means can be surprising. For example, a pickup truck traveling at 70 miles per hour can take up to 499.5 feet to stop on wet pavement even if it passed the penny test. Meanwhile, that same truck would have a stopping distance of 122 feet less under the same conditions if the tires had just barely passed the quarter test instead. This is a difference of 24% of the stopping distance. Tire Rack also reports in their press release that the tires used in the quarter test also exhibited a better grip on the road.

AAA believes it is time to ditch the penny and replace it with the quarter test. So, put that penny back in your piggy bank and insert President Washington's head (a quarter) into the tire's tread. If Washington's entire head is showing, it is time to replace your tires.



Take measurements in three locations across the tire's tread: (1) outer edge, (2) center, and (3) inside edge. The more tread the tire has remaining, the higher the reading will be. Uneven readings indicate improper tire inflation or the need for a wheel alignment. At 4/32 of an inch, it is time to shop for new tires. At 2/32 (1/16) of an inch, the tread wear has reached its legal limit in most states.



Tread wear indicators:

You also may see wear indicators (thin bald strips) revealed across two or more treads. This indicates that the tires have worn to an unsafe tread level, and should be replaced.

Tire Inflation Inspection

Keeping your tires properly inflated is one of the easiest ways to improve your gas mileage. Check your tire's pressure at least once a month with a tire gauge, which measures pressure in pounds-per-square inch (psi). Tire gauges are available at most auto parts stores. There are three types of air pressure gauges: pen, digital and dial. Dial gauges are easier to read than pen or stick designs.

Recommended tire pressures are for cold tires. Therefore, tire pressure should be checked when tires are cold. Checking tire pressure on a car that has hot tires can result in a pressure reading of up to 5 psi higher than the recommended pressure. Look for your tires' recommended air pressure in the vehicle's owners manual, inside the driver's side car door, or in the glove compartment.

Checking Air Pressure

1. Remove the tire's valve cap.
2. Place the gauge over the tire's valve stem and press firmly so that no escaping air is heard. The tire gauge will indicate how much pressure is in the tire. It is in your best interest to purchase your own high-quality pressure gauge, because gas station and convenience store gauges are sometimes abused and may not be accurate.
3. Adjust the tire's air pressure if needed. When adding air, push the air hose into the valve firmly, until the air stops escaping. Check the pressure every few seconds to help judge the amount of air going into the tire, until you reach the recommended air pressure. If the tire's pressure is greater than it should be, use the nipple on the tire gauge to press the center of the tire valve stem and release air.
4. Replace the valve cap.
5. Repeat the process for the other tires. Don't forget the spare tire.

