

Routine maintenance tips

Whether changing a tire or topping off fluids, it's important to follow a few safety guidelines when working on your car. Many parts of a car including fluids from the battery become very hot and can cause severe burns. Sometimes a badly worn tire can have a protruding piece of steel. Personal safety simply involves taking precautions to protect yourself from injury. Here are a few simple tips to keep in mind:

- Wear gloves to protect against scraping, cutting or burning.
- When opening and closing the car hood, keep hands and fingers clear.
- Use a cloth rag or paper towel to remove or wipe off leaking fluids, oil from dip stick, etc.
- Avoid wearing loose or baggy clothing and jewelry, which can easily get caught in parts. Tie back or tuck in long hair.
- If possible, wear closed-toe and sturdy shoes. This will help protect your feet in case you spill fluid or drop a tool or something heavy.
- Before you get under the hood, make sure your engine is cool. Never remove a radiator cap when the engine is hot, or even warm.

Checking fluid levels

Engine oil: The life of your car's engine depends largely on its lubricating and cooling systems. If an engine does not have a supply of oil or does not cool itself, the engine will quickly be destroyed.

Engine oil comes in different weights (viscosity). The higher the viscosity of oil the higher the number. For example, an oil classified as an 10W-30 weight oil is heavier and flows slower than a 5W-20 oil. Heavyweight oils are best suited for use in higher-temperature regions. Low-weight oils work best in low-temperature regions. The "W" after the 5 indicates that the oil was tested at 0° F. This is commonly referred to as the "winter-grade." Therefore, the 5W means the oil has a viscosity of 5 when cold. The 20 rating is the hot rating. This rating was the result of testing the oil's viscosity at 212° F.

For your particular car, check your owner's manual and see what the manufacturer recommends for oil weight.

One of the most important things you can do to maintain your car is to change the oil and oil filter regularly. The general rule of thumb, especially if you want to keep your vehicle in tip-top condition, is to change the oil every 3,000 miles.

Your oil should be relatively clean, but still have a dark color to it once it runs through your engine. You should regularly check your oil level, and maintain it between the minimum and maximum fill lines. This is why it is a good idea to have some motor oil with the vehicle so you will be able to add some if needed.

Coolant: Your car's cooling system is critical to your summer driving, with the primary job of keeping your engine cool (your engine can reach well over 200° F). Your cooling system strives for a constant 200° F to protect your engine against corrosion, provide more efficient fuel combustion, and maintain proper oil viscosity.

To help maintain your car's cooling system, it is important to make sure the reservoir level of antifreeze is half full. If it is low, you will need to add a 50/50 mixture of water and antifreeze.

Never fill the system with 100% antifreeze. This can cause extreme engine heat, which can damage your car's engine.

The fluid levels for power steering, brake and transmission fluids and windshield washer solvent should also be checked regularly.

Maintaining proper tire pressure and inflation

Inflating and maintaining proper tire pressure ensures safer, more comfortable driving and better fuel efficiency. All you need is a simple air pressure gauge, available at most auto parts stores for a few dollars and a source of air which most gas stations offer. Tire pressure is measured in pounds per square inch (PSI), which is designated by the notches on an air pressure gauge. To find out which PSI is right for your tires, look on the sides of the tires themselves. In raised writing you should find "recommended PSI" or similar, with the proper figure for your tires. Similar compact and mid-size sedans typically have PSI levels between 30 and 40 PSI. Larger vehicles with larger tires, including bigger sedans, usually have higher pressure, around 45 PSI. Things to remember when inflating tires:

- A general rule of thumb is to check your tire pressure monthly.
- Check your car's tire pressure when the tires are cold (three hours after driving).
- Never inflate tires five PSI more or less than what is recommended on the tire. Under-inflating wears out the sides of the tire and is a driving hazard. Over-inflated tires will wear more quickly, and are dangerous because of the increased possibility of a blowout.

Inspecting your tires for damage as well as tire wear is also important. Most tires have built-in tread wear indicators to show when they need replacement. These indicators appear as 1/2-inch wide bands when the tire tread depth wears to 1/16 inch. When the indicators appear in two or more adjacent grooves at three locations around the tire, or when cord or fabric is exposed, tire replacement is recommended.

Extending the life of your car's battery

Since the battery is what starts your car, it's a good idea to test it on a regular basis, including when you have your car serviced before long trips or after it's been recharged. A few tips to extend the life of your battery:

- Regularly clean off corrosion from the battery terminals using a wire brush with baking soda and water.
- Make sure vent caps are tight to prevent water or baking soda from entering cells.
- Check your battery's electrolyte level before charging. It should be at the bottom of the vent splash band. If the level is low, add distilled water to bring level to the bottom of the vent walls.
- If distilled water is not available use good drinking water. It's better than adding nothing; otherwise the battery plate will dry out and the battery could lose its capacity.

Check these components for wear and replacement

Other important components and parts of your vehicle and engine that need regular maintenance and infrequent replacement include the following:

- **Air Filter**—An air filter that is clogged with dirt, dust and bugs chokes off the air and creates a "rich mixture" (too much gas being burned for the amount of air, which wastes

gas and causes the engine to lose power.) Replacing a clogged air filter can improve gas mileage by as much as 10 percent, saving about 20 cents a gallon.

- **Headlight, turn signals, and brake lamps**—These should be checked monthly. When your vehicle’s lighting is defective, other motorists may not get the message that you intend to stop or turn. Turning on headlights both day and night helps define your car’s position on the road and its distance from other drivers.
- **Spark Plugs**—A vehicle can have either four, six or eight spark plugs, which fire as many as 3 million times every 1,000 miles, resulting in a lot of heat and electrical and chemical erosion. A dirty spark plug causes misfiring, which wastes fuel. Spark plugs need to be replaced as recommended by the manufacturer.
- **Engine Timing Belt**
- **Windshield Wipers**—These should be replaced every six months, depending on the climate. An easy reminder is to change wiper blades in the spring and fall when you change your clock. Be sure the windshield washers are working properly too and keep the reservoir filled with solvent.

Be prepared with emergency tools/road kit

Whether on the road or at home, you need to be equipped with some basic survival items and tools that can make driving and living with your car easier, safer and more convenient. Here are some suggestions as a starting place:

- Jumper cables
- Flashlight or spotlight with extra batteries
- Rain suit or poncho (brightly colored)
- Safety goggles or glasses
- Pair of disposable work “coveralls”
- Emergency flares, warning triangle or cones
- Fire extinguisher
- Hose-patch kit for emergency mending of coolant hoses.
- Pressurized can of tire inflator and sealer for emergency filling of a flat tire.
- Battery-powered air compressor
- Roll of duct tape
- Wheel chocks (placed under the wheels to prevent the car from rolling)
- Basic tool set (should include adjustable wrench, pliers, screwdrivers and wrenches). Many auto parts stores sell compact tool kits, perfect for storage in the trunk of your car.
- Mini shovel, ice scraper, snow brush, bag or container of sand for traction (winter months).
- Funnel for pouring liquids
- Extra fuses
- Mechanical or elastic tie-down straps

- Roll of heavy-duty paper towels or rags
- Pair of work gloves

Note: The information contained in this guide is for educational purposes only and cannot substitute for the advice of professional mechanic or authorized dealer. Different cars have different requirements. For information specific to your car consult your owner's manual or call your local dealer. Don't attempt to service your car if you don't have proper knowledge and tools.