

Belts, Hoses & Other Fluids

Why it Matters

Modern cars are complex machines that can perform at their best when they are well-maintained. In this section, we cover basic maintenance practices for: fan belts, hoses and cooling systems, brakes, power steering and manual or automatic transmissions.

How it Works

Fan Belts

Fan Belts use some of the power of the engine to drive external devices such as: water pump, alternator, power steering pump, air conditioner compressor and certain emission control devices.

Hoses and Cooling System

Hoses are used to carry coolant (i.e. antifreeze) to and from the engine and they are a part of the engine's cooling system. The cooling system is designed to remove excess heat from the engine and to provide engine heat for passenger comfort and windshield defogging. The engine coolant must provide several functions to properly protect your engine year-round:

Freeze protection - The coolant must not freeze solid in order to protect the engine block from cracking.

Boil-Over protection - Coolant, when properly mixed with water and under the proper system pressure has a significantly higher boiling point than just water alone. This enables modern engines to run hotter, reducing emissions and increasing overall engine efficiency.

Corrosion protection - Coolant contains additives to keep the inside of the engine, radiator and other system parts from being attacked by corrosion.

Lubrication - Coolant contains lubrication additives to extend water pump seal life. Protection for rubber parts - Coolants must be compatible with rubber parts such as radiator and heater hoses, and water pump seals.

Brake System

The vehicle brake system uses fluid to transmit the pressure applied to the brake pedal to each of the brakes at the wheels. Brake fluid is specially formulated to be compatible with the materials that make up the brake system and to withstand the high temperatures associated with stopping a moving vehicle. All brake fluid is not the same. The Department of Transportation (DOT) has strict guidelines for classification of fluids, based on the materials of the brake system and the expected heat generated while stopping the vehicle. Brake fluids with a designation of DOT 3 and DOT 4 are used with most automobiles today. If you find that your vehicle needs a small amount of brake fluid, be sure to check with your owners manual for the correct type to use, or check with your automotive technician.

Power Steering System

The power steering system utilizes a belt-driven pump-to-pump fluid under pressure to help steer the vehicle. Some vehicles in the future will likely use a different system, but

most vehicles today use the belt-driven pump system. There are several types of power steering systems, such as "rack and pinion" or the more conventional "worm and sector", but all use fluid under pressure as the main way to assist you in steering the vehicle.

Automatic Transmission

The automatic transmission uses the power of fluid (hydraulics) to transmit engine power through various gear ratios to the differential gears and ultimately, to the drive wheels.

Manual Transmission

The manual transmission uses a series of gears that are selected by the driver to ultimately transfer power the wheels. Transmission fluid is used to lubricate the gears and keep the transmission functioning properly.

What You Do

Check your fan belt - Every oil change

You should be looking for the following: (be sure engine is cool, turned off and ignition key is removed) excessive looseness, cracks and glazed or shiny rubber. If any of those problems are visible, you should replace your fan belts. Otherwise, get them changed every two years. As always, if you are uncertain about the condition of your fan belts, have them checked by a trained technician.

Check your hoses and cooling system - Every oil change

Change your coolant every two years. During oil changes, check that your coolant is filled to the proper level. Every two years, you should change your coolant. When checking hoses (be sure engine is cool, turned off and ignition key is removed!) you should be looking for the following: leaks and excessive hardness or softness. If your hoses have any of those problems, have them replaced. Also, be sure to check the clamps on your hoses to make sure they are tight. Finally, if your hoses are over three years old, you should consider having them replaced.

Check your brake fluid - Every oil change

The brake fluid reservoir is usually located inside the engine compartment, directly in front of the steering wheel area for vehicles with the engine located in the front. Most fluid reservoirs today are made with a see-through plastic that allows you to see the level of fluid without removing the reservoir cover. If the reservoir cover must be removed, either to check the fluid level or to add a small amount, be sure to clean the area before removing the reservoir cap to prevent dirt contamination. Also, be sure to open the reservoir only as long as it takes to check or add fluid and then close it again. Brake fluid absorbs moisture and can become contaminated if left exposed to the atmosphere for long periods. Finally, to keep your brake system in optimal condition, it is a good idea to change your brake fluid every two years.

Check your power steering system - Every oil change

Power steering pumps can be located in some "out of the way" places on some vehicles, but because the pumps are always driven by a fan belt, you should not have a great deal of difficulty in finding the pump on your vehicle. Just follow the path of the fan belts to see what devices they drive and you will inevitably find the power steering pump. When checking power steering system (be sure engine is cool, turned off and ignition key is removed!) you should be looking for the following: fluid level, pump fan belt (see fan belts

for tips) and system leaks. In the case of leaks, use Aran power steering treatment and Stop Leak.

Check your transmission fluid - Every oil change

Check the fluid level according to the manufacturer specified procedure, usually found in the owner's manual. Most often, the transmission is checked while HOT, with the vehicle in park, the emergency brake on and the engine idling.