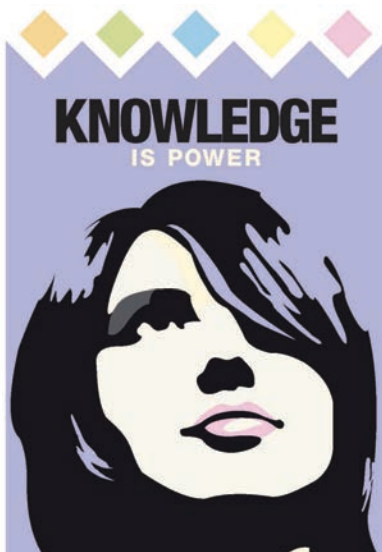


# Under the Hood



## 5 THINGS YOU NEED TO KNOW ABOUT CAR MAINTENANCE

1. Warning lights and indicators – No one likes to see the engine light illuminate on the dashboard, but when one of the warning lights comes on and stays on while driving, check your owner manual and follow its advice. Waiting to do repairs can be costly and even dangerous.
2. Oil – Engine oil not only lubricates and cools internal engine parts, it collects and traps dirt, as well as contaminates from the combustion process. That's why you should have it changed regularly.
3. Air filter – Don't let your vehicle's air filter get too dirty. A clogged filter restricts airflow, robbing horsepower and potentially fuel economy. If you're unsure about when to change the filter, have your ACDelco-affiliated technician check it out.
4. Heater/Defroster – The heater/defroster in your vehicle draws its heat from the circulation of hot engine coolant. If you smell a sweet, syrupy odor inside the vehicle or spot a greasy mist on the inside of the window, there may be a leak in the heater core. Have it checked it out.
5. Tire pressure – Underinflated tires waste gas and can prematurely wear out the tires, because they generate more friction on the road. Making sure your tires are properly inflated is one of the easiest things you can do to optimize fuel economy and tire longevity.



## FREE ACDelco BOOKLET FOR WOMEN HELPS TAKE THE SCARE OUT OF CAR CARE

Many women feel intimidated when it's time to take a vehicle to the service shop. A free booklet from ACDelco called "Knowledge is Power" is designed to help them make informed car care and repair decisions. You can request a copy at [ACDelco.com](http://ACDelco.com).

The "Knowledge is Power" booklet is designed to fit in a glove box. It was developed by professionals who specialize in training and uses easy-to-understand, consumer-friendly terms. The booklet isn't a "how-to" manual, but it gives women two very important tools – knowledge and confidence – the next time their cars need service. The booklet covers:

- Preventive car care services and when they're needed
- How to accurately and completely describe vehicle troubles to a technician
- A glossary of commonly used automotive service terms
- Symptoms, noises and smells that may indicate potential problems
- Tips for safe motor vehicle travel
- How occupant safety restraints such as safety belts and air bags work
- Child passenger safety and teen driving tips
- How to stay safe in the event of a vehicle breakdown



### 5 MORE THINGS YOU NEED TO KNOW ABOUT CAR MAINTENANCE

1. Brakes – Your vehicle's brakes should feel smooth and perform quietly. If you feel shuddering or hear a grinding sound when you step on the brakes, they should be inspected as soon as possible!
2. Coolant/Antifreeze – Different cars require different types of antifreeze. If you need to top off the coolant in your vehicle, check the Owner's Manual for details on the correct type. You could harm the cooling system or engine with the wrong coolant. Your ACDelco-affiliated technician can assist you with this.
3. Timing belt – If your vehicle has 50,000-70,000 miles or more, it's a good idea to check the Owner's Manual for the recommended

service interval for the engine's timing belt. It can break without warning, leaving your car immobile until it's changed – be it your driveway, workplace parking lot or on the highway.

4. Tire vibration – A vibration felt at certain speeds or one that increases in severity with the speed of the vehicle can indicate out-of-balance tires or tires that need replacement. Either way, don't ignore the vibration – get it checked!

5. Alternator – If your vehicle's battery or charge indicator light comes on, it may not be a battery problem, but a faulty charging system. The red light is essentially a warning that the system isn't charging the battery and you don't have very far to drive before the battery goes dead. Pull off the road as soon as it's convenient to prevent stalling on the road. With luck, your cell phone will be charged, because you'll likely need to call for assistance – and probably a tow truck if you're far from home.



### New Filters Breathe New Air into You and Your Car

Just as filters improve the efficiency of your furnace, ACDelco engine and cabin air filters do the same thing for your car. The engine air filter blocks particles that can harm the combustion chamber. The cabin air filter helps keep common airborne particles out of your vehicle.

ACDelco Engine Air Filters:

ACDelco engine air filters use world-class filter element technology to block airborne dust and dirt – including particles as small as a grain of salt – that can harm expensive internal engine parts such as the cylinders and pistons. According to the U.S. Environmental Protection Agency, replacing a clogged air filter on a fuel-injected engine can increase acceleration by up to 11 percent.

ACDelco Cabin Air Filters:

About 80 percent of the cars and trucks sold today have at least one cabin air filter. Why? Because tests have shown the air inside your vehicle may contain a higher concentration of contaminants than the air outside. ACDelco cabin air filters help prevent molds, pollen, allergens, smoke, fumes and odors from entering your vehicle. They also can help reduce wear on your vehicle's heating, ventilation and air conditioning system.

**!!New Years Discount!!**  
**10% Off Your Entire Invoice\***

\* excludes tires

## CHEVROLET VOLT PROPULSION: WHAT YOU NEED TO KNOW

The all-new, revolutionary Chevrolet Volt hits the streets at the end of 2010. Regardless of whether your customers show up in your store with one, you may get questions about how it works. Here are the basics:

The Volt is an electrically driven vehicle designed and engineered to operate in all climates, with a range of up to 350 miles. Powered by GM Voltec propulsion system, it consists of a 16-kWh lithium-ion battery pack and electric drive unit that provide pure electric range between 25 and 50 miles, depending on terrain, driving techniques and temperature.

A 1.4L gasoline-powered engine extends the range up to an additional 310 miles on a full tank of fuel by operating the vehicle electric drive system until the car can be plugged in and recharged or refueled. This distinguishes the Volt from electric-only vehicles, which cannot be operated when recharging is not immediately available – such as during a power interruption or on a long-distance trip.

The Volt long-life battery consists of a 5.5-foot, 435-pound (198.1 kg) T-shaped, 16-kWh lithium-ion battery pack. It supplies energy to an advanced, 111-kW (149-hp) electric drive unit to propel the vehicle. When the battery energy is depleted, the Volt seamlessly transitions to extended-range mode. Power is inverted from a technically advanced, 1.4L 63-kW (84-hp) gasoline-powered onboard engine to the electric drive unit to provide up to 310 additional miles of range.

An electro-hydraulic regenerative brake system captures energy for transfer back to the battery. The 2011 Chevrolet Volt will be available in CA, TX, MI, NY, NJ, CT and Washington, DC at the end of 2010.



## TECH SPOTLIGHT: TIRE PRESSURE MONITORING SYSTEM

A common new feature on cars, trucks and SUVs is the Tire Pressure Monitoring (TPM) system. Some vehicles have offered them for years, but the U.S. government mandated them as standard features on all vehicles, starting with those built on and after Sept. 1, 2007.

In a nutshell, the TPM system warns if pressure in any of the tires drops below the recommended level. Sensors in the valve stems initiate a radio signal and a warning message is illuminated in the main instrument display, indicating a wheel(s) has lost pressure. The warning may be a message that pops up on an electronic information display or a simple illuminated icon on the dashboard of vehicles without an electronic information center.

When the TPM system warning illuminates, it should be taken seriously. Underinflated tires can cause traction and handling problems. Also, underinflated tires generate greater friction that can damage the tire, as well as reduce fuel economy and tire longevity. If the light continually illuminates but the tire pressure checks out OK, there may be a problem with the monitoring system. Regardless of the cause, when that warning pops up, have your vehicle inspected.

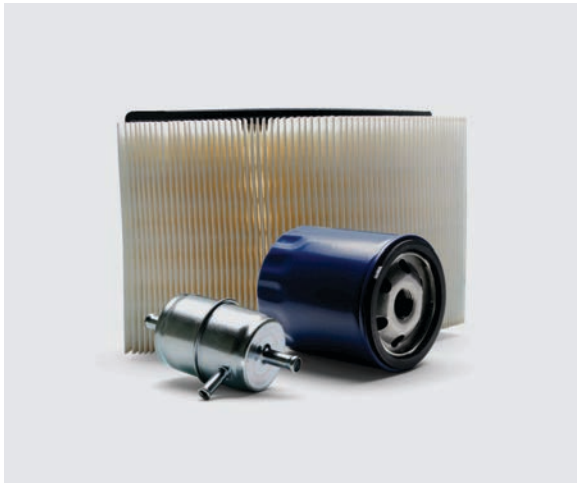


## Wieland's Auto Repair Is Your Import Shop

We are factory trained for all Asian and European Vehicle repairs and maintenance.

We are also the only shop in the area that has earned the ASE Blue Seal of Excellence!





## FILTER FACTS

Cars, trucks and SUVs are full of filters of all types. Each serves as a vital barrier between dirt and other contaminants that could harm your vehicle's engine. Here a quick guide to help you learn about the filters found in most vehicles and their role in protection:

**Engine air filter** – Helps block particles that are harmful to the engine combustion chambers. ACDelco engine air filters can block even microscopic dirt and particles as small as a grain of salt.

**Cabin air filter** – Designed to filter out common airborne pollutants from the interior of the vehicle, including molds, pollen, allergens, smoke, fumes and odors. When changed regularly, cabin air filters can help reduce wear on the vehicle heating, ventilation and air conditioning systems.

**Oil filter** – Helps keep vitally important engine oil clean. It can capture contaminants that can affect the engine performance and life span. ACDelco makes oil filters to fit 97 percent of all the cars, light trucks and SUVs on the road today.

**Fuel filter** – Maintains a consistent fuel flow by helping prevent contaminants – including dirt, scale and rust – from flowing into it. Fuel filters are used on all types of vehicles, including modern fuel-injected models and those with older, carbureted engines. ACDelco offers a wide range of fuel injection in-line-style and fuel injector filters, as well as in-carburetor-type filters.

**Transmission filter** – Designed to help maintain the operating life of the transmission and keep it operating at optimum levels. ACDelco transmission filters use special composite materials of plastic, steel, brass and felt to produce a reliable filter that sealed without gaskets or sealants – and ACDelco offers a wide variety of them to fit many of the vehicles on the road today.

## SHOP TALK: STRUTS VS. SHOCKS

Most of us know that struts and shock absorbers are part of the suspension and seemingly do the same thing – dampen the impact of bumps to help provide a smoother ride. Technically, they reduce excessive motion of the springs. Shocks can be found in the front and rear of the vehicle, while struts are typically only used on the front suspension. Struts also serve as the pivot point for steering. Most modern cars and crossovers use a strut-type suspension, while most trucks and SUVs use shocks on the front suspension.

An inspection of your vehicle shocks or struts should be carried out if:

- Your vehicle “rolls” more going around corners
- Your vehicle seems to dip excessively during braking
- Your vehicle seems to sway or bounce excessively on bumpy surfaces
- It's been more than 50,000 miles since their last inspection.



## DID YOU KNOW?

Through a program with ACDelco, your ACDelco affiliated service center has access to technical training that enables its technicians to stay on top of the latest in automotive repair procedures, technology and more. Every year, ACDelco offers dozens of specialized courses, from general topics such as air conditioning to model-specific courses. ACDelco also delivers a number of technical bulletins and other communications that give the technicians an edge when it comes to diagnosing and repairing your vehicle. So, when you see that ACDelco sign at your favorite service center, it means more than just great service – it means the technicians there are well-equipped to handle just about anything.