

YOUR PROPANE AUTOGAS VEHICLE: IMPORTANT TIPS FOR SAFE AND EFFICIENT OPERATION

PROPANE SAFETY

CONGRATULATIONS ON YOUR MOVE TO PROPANE AUTOGAS.

As it is with any fuel, operator safety is the highest priority. With a good understanding of the facts and basics, you can easily make the transition from a gasoline- or diesel-fueled vehicle to a propane-autogas-fueled vehicle.

This easy-to-use guide will help you understand, manage, and operate your vehicle. It covers key points on safety and fueling and offers a number of facts, tips, and additional resources to ensure that your vehicle operates smoothly and efficiently. In addition to the information provided in this guide, you should always follow vehicle manufacturer recommendations and your company's policies on important safety and operating procedures to help ensure a safe and comfortable driving experience.

Propane is a safe, reliable, and clean-burning fuel. Vehicles fueled by propane autogas provide the same performance as conventionally fueled vehicles. The difference in the driving experience is negligible. In some vehicles, you may experience a slight delay in ignition once you turn the key.

Since propane autogas burns clean and is used more efficiently, it provides smooth acceleration, while offering the same horsepower and torque as a conventionally fueled vehicle. In addition, propane-autogas-fueled vehicles that have liquid injection systems have a cold weather advantage, as they avoid the cold-start problems associated with gasoline or diesel.

WHAT IS PROPANE AUTOGAS?

Propane autogas is simply propane used to fuel on-road vehicles. Popular propane-autogas-fueled vehicles include passenger cars, pickup and delivery trucks and vans, and school buses.

A RECORD OF DURABILITY AND SAFETY

Propane-autogas-fueled vehicles have been in use for more than 80 years. Like their conventional counterparts, propane-autogas-fueled vehicles must conform to strict safety standards. In the U.S., propane-autogas-fueled vehicles meet or exceed the rules and requirements of the Department of Transportation, the National Highway Traffic Safety Administration, the Environmental Protection Agency, the National Fire Protection Association, and the California Air Resources Board.

Vehicles fueled by propane autogas have a long history of performing safely under all operating conditions. Propane autogas offers the following safety advantages compared with conventional fuels:

- Propane autogas engine fuel systems are fitted with safety devices and shut-off valves that automatically shut down if the fuel line ruptures.
- Propane autogas requires a high temperature to ignite. Gasoline and diesel fuel will catch fire at temperatures as low as 495 degrees Fahrenheit, whereas propane autogas won't ignite until it reaches a temperature of at least 920 degrees Fahrenheit.

- Among alternative fuels, propane autogas has the narrowest flammability range. The flammability range of propane autogas is comparable to that of gasoline and diesel fuel.
- Unlike gasoline and diesel fuel, if propane autogas leaks, it does not puddle, but instead vaporizes and dissipates into the air without harming the environment.
- Since propane autogas is released from the tank as a vapor, it cannot be ingested like gasoline, diesel, or alcohol fuels.
- Propane is odorized so it can be detected in the unlikely event of a leak.

FEATURES OF PROPANE AUTOGAS VEHICLES

Propane-autogas-fueled vehicles are designed with a few components that distinguish them from their gasoline and diesel counterparts. In addition to accommodating the fuel type, these features improve safety and performance. Propane vehicle components also offer superior durability. Unlike gasoline tanks that are made of plastic, propane autogas tanks are made of steel and are stronger and more puncture-resistant.

Before getting on the road, familiarize yourself with the key parts of your vehicle:

FUEL TANKS.

Propane-autogas-fueled vehicles are equipped with one or more 312 psig-rated propane tanks that are specifically built to withstand road travel, pressure, and inclement weather. All tanks are fitted with a number of safety devices, including pressure-relief valves, overfill protection

devices, and automatic closures. In the rare event of a fuel line rupture, a tank's shut-off valves function automatically to stop the flow of propane.

TANK HARDWARE.

Depending on the type of vehicle, your fuel system and mounting hardware can be inside or outside the vehicle. In passenger cars, vans, and SUVs, they are inside. Interior system mounts offer extra safety with a sealed, protective enclosure to prevent leaks from entering the passenger compartment.

VEHICLE MARKINGS.

All propane-autogas-fueled vehicles must be marked. The propane autogas label is a black diamond-shaped decal with the word PROPANE. In Texas, the label is a blue diamond-shaped decal. The decal is typically attached to the right rear bumper of the vehicle. Other markings include the location of manual shut-off valves, making it easy for operators to turn off the fuel source quickly.

FUELING YOUR VEHICLE

Many companies opt to install propane dispensing stations on premises or arrange fueling with a local supplier. If you need to fill your tank while on the road, the Alternative Fuels Data Center's station locator, at www.afdc.energy.gov/locator/stations/, lets you search for propane stations by site or route map. On the website, you can also download an iPhone app or use a mobile version to search for stations. With more than 2,500 propane autogas fueling stations — and the number growing — you can easily find a station wherever you may travel.

Propane autogas dispensing systems are similar to gasoline or diesel dispensing systems, with a few important differences:

- Propane autogas dispensers are closed, pressurized systems to maintain propane's liquid state.
- Propane autogas dispensers use a nozzle that has a closed, threaded connection to maintain pressure while transferring propane.

- Propane-autogas-fueled vehicles have an overfill protection device to ensure that your tank is filled to no more than 80 percent capacity. This additional safety feature eliminates the potential for overfilling the tank.

To dispense propane safely, be familiar with the specific equipment you are working with and how to use it. For more information on how to safely fuel a propane-autogas-fueled vehicle, ask your propane supplier for a copy of the *Dispensing Propane Autogas Training Manual* prepared by the Propane Education & Research Council.

MAINTENANCE AND GARAGING REQUIREMENTS

Preventive maintenance will maximize performance and longevity of your vehicle. Check your owner's manual for the requirements and schedule specific to your vehicle. In most cases, maintenance will be similar to [or less than] that of a gasoline-fueled vehicle.

Keep a record of all routine maintenance and service. Track all work done on your vehicle, and keep it handy for quick reference.

Routine maintenance (such as oil and fluid changes) can be performed at a typical service garage, with no additional building or ventilation requirements.

Propane autogas vehicles are also safe to park or store in standard or parking garages.

For more information on service garage requirements, ask your propane supplier for a copy of the PERC brochure "Propane Autogas Repair and Maintenance Facility Requirements."

IN CASE OF AN ACCIDENT OR EMERGENCY

Consult your owner's manual and company policies to determine what steps should be taken in the event of an accident or emergency to ensure your safety. Depending on the severity of the occurrence, these

steps may include the following:

1. Turn the engine key switch to the off position. When you do so, your fuel system will automatically close the shut-off valve to prevent propane from escaping.
2. Open all doors to the vehicle to allow venting.
3. Turn off the manual shut-off valve if it is safe to do so.
4. Immediately leave the area and call 911 or your local fire department.
5. Do not return to the area or restart your vehicle until an emergency responder has cleared you, and a qualified professional has inspected your vehicle and ensured that there are no leaks or damage.

If you smell propane at any time while you are driving, turn off your ignition, get out of your vehicle, and call 911 once you are a safe distance away.

SAFETY TIPS

- Familiarize yourself with all key components of your propane autogas vehicle before you get on the road. Perform a visual check of your vehicle and fuel system. Ensure that vehicle markings are present and visible. Never enter or drive a vehicle that you suspect may be unsafe.
- Turn your ignition off before fueling. Do not smoke or use a cell phone while dispensing propane.
- Following recommended maintenance schedules will ensure your vehicle's fuel efficiency and engine performance, and maximize its service life.
- The most important thing to do in the event of an accident or emergency is to stay calm. Emergency responders are well trained in controlling potentially hazardous situations and mitigating issues. Stay a safe distance away from your vehicle until a qualified professional tells you that it is safe to return.