

Oxygenated Fuels

Some conventional gasolines are being blended with alcohol or an ether compound. These gasolines are collectively referred to as oxygenated fuels. To meet clean air standards, some areas of the United States and Canada use oxygenated fuels to help reduce emissions.

If you use an oxygenated fuel, be sure it is unleaded and meets the minimum octane rating requirement.

Before using an oxygenated fuel, try to confirm the fuel's contents. Some states/provinces require this information to be posted on the pump.

The following are the U.S. EPA and Canadian CGSB approved percentages of oxygenates:

ETHANOL (ethyl or grain alcohol)
You may use gasoline containing up to 10 percent ethanol by volume. Gasoline containing ethanol may be marketed under the name "Gasohol."

MTBE (Methyl Tertiary Butyl Ether)
You may use gasoline containing up to 15 percent MTBE by volume.

METHANOL (methyl or wood alcohol)
Your vehicle was not designed to use fuel that contains methanol. Methanol can corrode metal parts in the fuel system, and also damage plastic and rubber components. This damage would not be covered by your warranties.

If you notice any undesirable operating symptoms, try another service station or switch to another brand of gasoline.

Fuel system damage or performance problems resulting from the use of an oxygenated fuel containing more than the percentages of oxygenates given above are not covered under warranty.

If you are planning to take your Honda outside the U.S. or Canada, contact the tourist bureaus in the areas you will be traveling in to find out about the availability of unleaded gasoline with the proper octane rating.

If unleaded gasoline is not available, be aware that using leaded gasoline in your Honda will affect performance and fuel mileage, and damage its emissions controls. It will no longer comply with U.S. and Canadian emissions regulations, and will be illegal to operate in North America. To bring your vehicle back into compliance will require the replacement of several components, such as the oxygen sensors and the three way catalytic converter. These replacements are not covered under warranty.

Emissions Controls

The burning of gasoline in your vehicle's engine produces several by-products. Some of these are carbon monoxide (CO), oxides of nitrogen (NO_x) and hydrocarbons (HC). Gasoline evaporating from the tank also produces hydrocarbons. Controlling the production of NO_x, CO, and HC is important to the environment. Under certain conditions of sunlight and climate, NO_x and HC react to form photochemical "smog." Carbon monoxide does not contribute to smog creation, but it is a poisonous gas.

The Clean Air Act

The United States Clean Air Act* sets standards for automobile emissions. It also requires that automobile manufacturers explain to owners how their emissions controls work and what to do to maintain them. This section summarizes how the emissions controls work.

* In Canada, Honda vehicles comply with the Canadian emission requirements, as specified in an agreement with Environment Canada, at the time they are manufactured.

Crankcase Emissions Control System

Your vehicle has a positive crankcase ventilation system. This keeps gasses that build up in the engine's crankcase from going into the atmosphere. The positive crankcase ventilation valve routes them from the crankcase back to the

intake manifold. They are then drawn into the engine and burned.

Evaporative Emissions Control System

As gasoline evaporates in the fuel tank, an evaporative emissions control canister filled with charcoal adsorbs the vapor. It is stored in this canister while the engine is off. After the engine is started and warmed up, the vapor is drawn into the engine and burned during driving.

Onboard Refueling Vapor Recovery

The onboard refueling vapor recovery (ORVR) system captures the fuel vapors during refueling. The vapors are adsorbed in a canister filled with activated carbon. While driving, the fuel vapors are drawn into the engine and burned off.

Exhaust Emissions Controls

The exhaust emissions controls include four systems: PGM-FI, ignition timing control, exhaust gas recirculation and three way catalytic converter. These four systems work together to control the engine's combustion and minimize the amount of HC, CO, and NOx that comes out the tailpipe. The exhaust emissions control systems are separate from the crankcase and evaporative emissions control systems.

PGM-FI System

The PGM-FI System uses sequential multiport fuel injection. It has three subsystems: air intake, engine control, and fuel control. The powertrain control module (PCM) in automatic transmission vehicles or the engine control module (ECM) in manual transmission vehicles use various sensors to determine how much air is going into the engine. It

then controls how much fuel to inject under all operating conditions.

Ignition Timing Control System

This system constantly adjusts the ignition timing, reducing the amount of HC, CO, and NOx produced.

Exhaust Gas Recirculation (EGR) System

The exhaust gas recirculation (EGR) system takes some of the exhaust gas and routes it back into the intake manifold. Adding exhaust gas to the air/fuel mixture reduces the amount of NOx produced when the fuel is burned.

Three Way Catalytic Converter

The three way catalytic converter is in the exhaust system. Through chemical reactions, it converts HC, CO, and NOx in the engine's exhaust to carbon dioxide (CO₂), nitrogen (N₂), and water vapor.

Replacement Parts

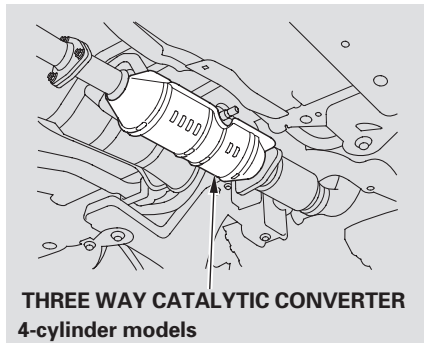
The emissions control systems are designed and certified to work together in reducing emissions to levels that comply with the Clean Air Act. To make sure the emissions remain low, you should use only new Honda replacement parts or their equivalent for repairs. Using lower quality parts may increase the emissions from your vehicle.

The emissions control systems are covered by warranties separate from the rest of your vehicle. Read your warranty manual for more information.

Three Way Catalytic Converter

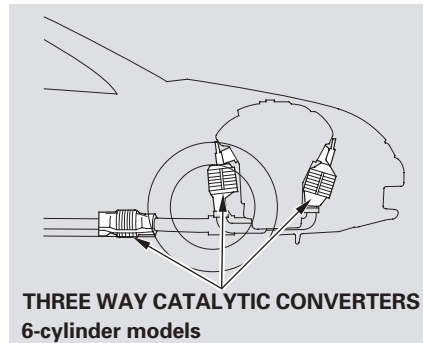
The three way catalytic converter contains precious metals that serve as catalysts, promoting chemical reactions to convert the exhaust gasses without affecting the metals. The catalytic converter is referred to as a three-way catalyst, since it acts on HC, CO, and NOx. A replacement unit must be an original Honda part or its equivalent.

The three way catalytic converter must operate at a high temperature for the chemical reactions to take place. It can set on fire any combustible materials that come near it. Park your vehicle away from high grass, dry leaves, or other flammables.



A defective three way catalytic converter contributes to air pollution, and can impair your engine's performance. Follow these guidelines to protect your vehicle's three way catalytic converter.

- Always use unleaded gasoline. Even a small amount of leaded gasoline can contaminate the catalyst metals, making the three way catalytic converter ineffective.



- Keep the engine tuned-up.
- Have your vehicle diagnosed and repaired if it is misfiring, back-firing, stalling, or otherwise not running properly.

Testing of Readiness Codes

If you take your vehicle for a state emissions test shortly after the battery has been disconnected or gone dead, it may not pass the test. This is because of certain “readiness codes” that must be set in the on-board diagnostics for the emissions systems. These codes are erased when the battery is disconnected, and set again only after several days of driving under a variety of conditions.

If the testing facility determines that the readiness codes are not set, you will be requested to return at a later date to complete the test. If you must get the vehicle re-tested within the next two or three days, you can condition the vehicle for retesting by doing the following.

- Make sure the gas tank is nearly, but not completely, full (around 3/4).
- Make sure the vehicle has been parked with the engine off for 8 hours or more.
- Make sure the ambient temperature is between 20° and 95° F.

- Without touching the accelerator pedal, start the engine, and let it idle for 20 seconds.
- Keep the vehicle in Park (automatic transmission) or Neutral (manual transmission). Increase the engine speed to 2,000 rpm and hold it there until the temperature gauge rises to at least 1/4 of the scale (about 3 minutes).

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State Emissions Testing

- Select a nearby lightly traveled major highway where you can maintain a speed of 50 to 60 mph (80 to 97 km/h) for at least 20 minutes. Drive on the highway in D (A/T) or 5th (M/T). Do not use the cruise control. When traffic allows, drive for 90 seconds without moving the accelerator pedal. (Vehicle speed may vary slightly; this is okay.) If you cannot do this for a continuous 90 seconds because of traffic conditions, drive for at least 30 seconds, then repeat it two more times (for a total of 90 seconds).

- Then drive in city/suburban traffic for at least 10 minutes. When traffic conditions allow, let the vehicle coast for several seconds without using the accelerator pedal or the brake pedal.

If the testing facility determines the readiness codes are still not set, see your dealer.