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Gasoline and Alternative Fuels

FIGURE 28.1 The crude oil refining process showing most of the major steps and processes.

FIGURE 28.2 A pig is a plug-like device that is placed in a pipeline to separate two types or grades of fuel.
FIGURE 28.3 A pump showing regular with a pump octane of 87, plus rated at 89, and premium rated at 93. These ratings can vary with brand as well as in different parts of the country.

FIGURE 28.4 This refueling pump indicates that the gasoline is blended with 10% ethanol (ethyl alcohol) and can be used in any gasoline vehicle. E85 contains 85% ethanol and can be used only in vehicles specifically designed to use it.

FIGURE 28.5 Many gasoline service stations have signs posted warning customers to place plastic fuel containers on the ground while filling. If placed in a truck or pickup truck bed equipped with a plastic liner, static electricity could build up during fueling and discharge from the container to the metal nozzle, creating a spark and possible explosion. Some service stations have warning signs not to use cell phones while fueling to help avoid the possibility of an accidental spark creating a fire hazard.
A pump for E85 (85% ethanol and 15% gasoline). E85 is available in more locations every year.

A flex-fuel vehicle often has a yellow gas cap, which is labeled E85/gasoline.

Propane fuel storage tank in the trunk of a Ford taxi.
FIGURE 28.9 The blue sticker on the rear of this vehicle indicates that it is designed to use compressed natural gas. This Ford truck also has a sticker that allows it to be driven in the high occupancy vehicle (HOV) lane, even if there is just the driver, because it is a CNG vehicle.

FIGURE 28.10 A CNG storage tank from a Honda Civic GX shown with the fixtures used to support it while it is being removed or installed in the vehicle. Honda specifies that three technicians be used to remove or install the tank through the rear door of the vehicle due to the size and weight of the tank.

FIGURE 28.11 This CNG pump is capable of supplying compressed natural gas at either 3,000 PSI or 3,600 PSI. The price per gallon is higher for the higher pressure.
FIGURE 28.12 (a) Regular diesel fuel on the left has a clear or greenish tint, whereas fuel for off-road use is tinted red for identification. (b) A fuel pump in a farming area that clearly states the red diesel fuel is for off-road use only.

FIGURE 28.13 Biodiesel fuel is available at some locations only.