

## Common Rail Diesel Injection System

The Common Rail Diesel Injection System delivers a more controlled quantity of atomized fuel, which leads to better fuel economy, a reduction in exhaust emissions and a significant decrease in engine noise during operation. In the Common Rail system, an accumulator, or rail, is used to create a common reservoir of fuel under a consistent controlled pressure that is separate from the fuel injection points.

A high-pressure pump increases the fuel pressure in the accumulator up to 1,600 bar or 23,200 PSI. The pressure is set by the engine control unit and is independent of the engine speed and quantity of fuel being injected into any of the cylinders. The fuel is then transferred through rigid pipes to the fuel injectors, which inject the correct amount of fuel into the combustion chambers.

Common rail injectors are controlled by a magnetic solenoid on the injector. Hydraulic force from the pressure in the system is used to open and close the injector, but the available pressure is controlled by the solenoid triggered by the Electronic Diesel Control unit.

The electronic diesel control unit precisely meters the amount of fuel injected, and improves atomization of the fuel by controlling the injector pulsations. This results in quieter, more fuel efficient engines; cleaner operation and more power output.

