

Fuel Delivery System

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Abstract: *Fuel delivery systems play a critical role in internal combustion engines by ensuring the accurate supply of fuel required for efficient and stable engine operation. These systems regulate fuel storage, filtration, pressure, metering, and injection to achieve an optimal air-fuel mixture, which directly influences engine performance, fuel economy, and emission levels. Modern fuel delivery technologies have evolved from simple mechanical carburetors to advanced electronically controlled fuel injection systems such as Multi-Point Fuel Injection (MPFI), Gasoline Direct Injection (GDI), and Common Rail Direct Injection (CRDI) for diesel engines. These innovations provide greater precision in fuel atomization, injection timing, and pressure control, resulting in improved combustion efficiency and reduced environmental impact. Current research focuses on enhancing injector design, optimizing electronic control strategies, and improving compatibility with alternative and low-carbon fuels. As global emission standards become increasingly stringent, advancements in fuel delivery systems remain essential for improving engine sustainability, reliability, and overall performance.*

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