

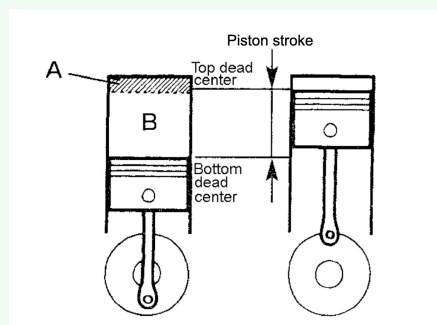
### OPERATION OF DIESEL ENGINE

fundamentals

**flash point** temperature at which diesel fuel will briefly ignite when a flame is near it.

**ignition point** lowest temperature at which it will spontaneously ignite **without** a spark.

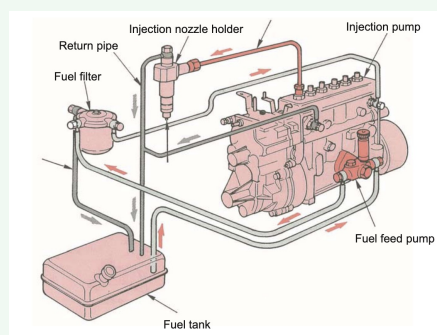
Compression ratio =  $(A+B) / A$



Diesel oil has a **lower ignition point**

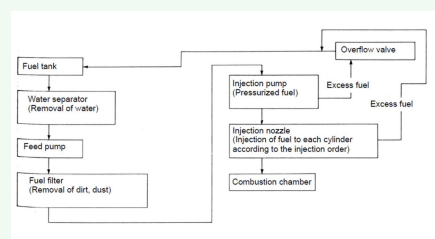
Diesel engine have a **higher compression ratio** compared to petrol engine is the **self-ignition system** that uses **heat created compression** to ignite fuel.

### Fuel System



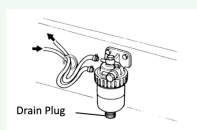
Used to **pressurize** fuel and inject it into the combustion chamber.

### Out line



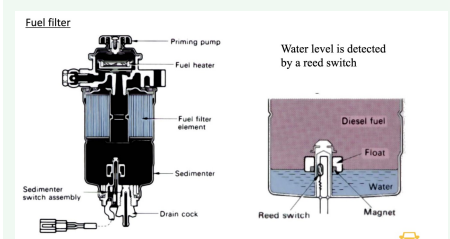
Consists of fuel tank, **fuel feed pump** to supply fuel to the **injection pump**, a fuel filter to remove contaminants, an **injection pump** to **pressurize** the fuel and to deliver an **appropriate quantity** of it under pressure at **optimal timing**, **injection nozzle** to inject high pressure fuel into the combustion chamber and components connected.

### water separator



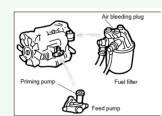
**Water separator** separates water that is in the fuel due to the **difference in the specific gravity** from diesel oil.

### CONSTRUCTION AND FUNCTION (copy)



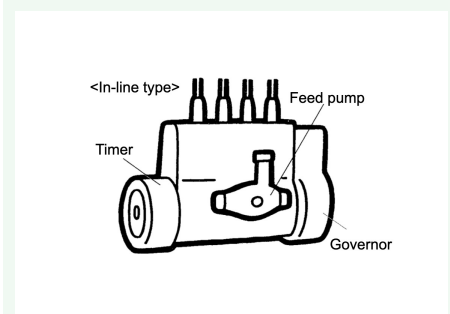
**Fuel filter** Spiral V-shaped paper with pore size of 8  $\mu\text{m}$  or less is commonly used for cartridge in modern systems. **Sediment** is usually fitted under filter for **water collection** to **avoid corrosion** fuel injection components.

### CONSTRUCTION AND FUNCTION (copy)



**Feed pump** used to **feed fuel** from the tank to the **injection pump**. Controls fuel pressure to **prevent any unusual status**. Also **designed to bleed air**

### Injection pump



**Injection pump** applies pressure to fuel to be **injected** in the **combustion chamber** or **uniformly injects** the **appropriate amount** of fuel at **optimal time** (the function of timer) according to the engine revolution.