



FUEL

➤ Carburetor

The process of preparing air-fuel mixture away from the engine cylinder is called carburetion. and the device in which this process takes is called carburetor.

Functions of carburetor

1. To mix the air and fuel thoroughly
2. To atomize the fuel
3. To regulate the air- fuel ratio at different speeds and loads on the engine.
4. to supply correct amount of mixture at different speeds and loads

FUEL SUPPLY SYSTEM IN DIESEL ENGINE

Fuel Tank

It is a storage tank for diesel. A wire gauge strainer is provided under the cap to prevent foreign particles entering the tank

Fuel lift pump

It transfers fuel from fuel tank to inlet gallery of fuel injection pump

Preliminary filter (sediment bowl assembly)

This filter is mostly fitted on fuel lift pump. It prevents foreign materials from reaching inside the fuel line. It consists of a glass cap with a gasket.

Fuel filter

Mostly two stage filters are used in diesel engines

1. Primary filter
2. Secondary filter

Primary filter removes coarse materials, water and dust. Secondary filter removes fine dust particles.

Fuel injection pump

It is a high-pressure pump which supplies fuel to the injectors according to the firing order of the engine. It is used to create pressure varying from 120 kg/cm² to 300 kg/cm². It supplies the required quantity of fuel to each cylinder at appropriate time.

Air venting of fuel system

When air has entered the fuel lines or suction chamber of the injection pump, venting should be done properly.. Air is removed by the priming pump through the bleeding holes of the injection pump.



Fuel injector

It is the component which delivers finely atomized fuel under high pressure to combustion chamber of the engine.

LUBRICATION SYSTEM

IC engine is made of moving parts. Lubrication of moving parts is essential to prevent all these harmful effects.

Purpose of lubrication

1. Reducing frictional effect
 2. Cooling effect
 3. Sealing effect
 4. Cleaning effect
- Vegetable lubricants are obtained from seeds, fruits and plants. Cotton seed oil, olive oil, linseed oil, castor oil are used as lubricants.

COOLING SYSTEM

- The temperature produced on the power stroke of an engine can be as high as 1600°C and this is greater than melting point of engine parts.
- The best operating temperature of IC engines lie between 140°F and 200°F and hence cooling of an IC engine is highly essential.
- It is estimated that about 40% of total heat produced is passed to atmosphere via exhaust, 30% is removed by cooling and about 30% is used to produce power.

GOVERNOR: Governor is mechanical device, designed to control the speed of the engine within specified limit.

Governor regulation: The governor is fitted on an engine for maintaining a constant speed, even then some variation in speed is observed at full load and no-load conditions.

Governor hunting: Governor hunting is the erratic variation of the speed of the governor when it over compensates for speed changes.