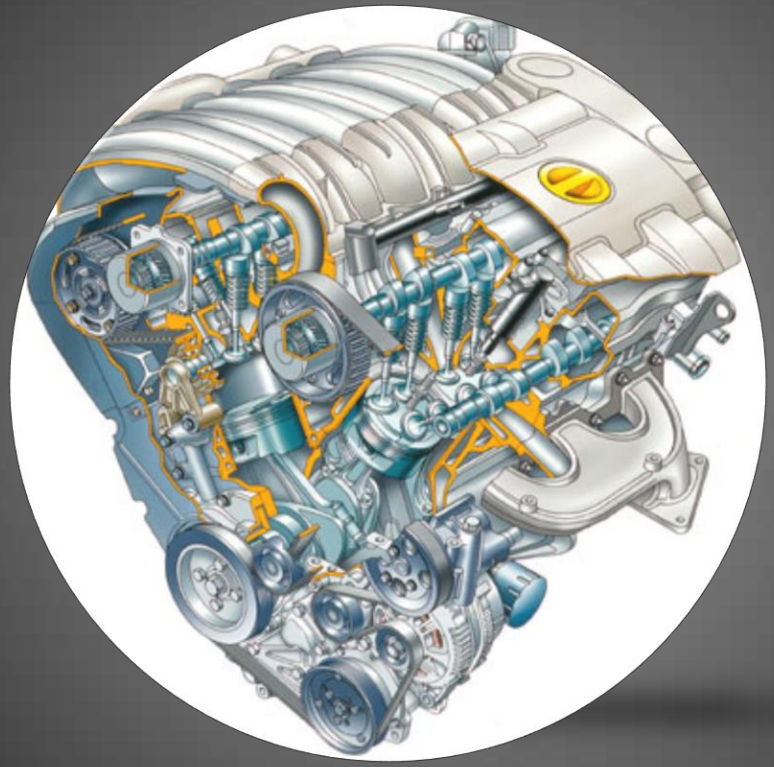
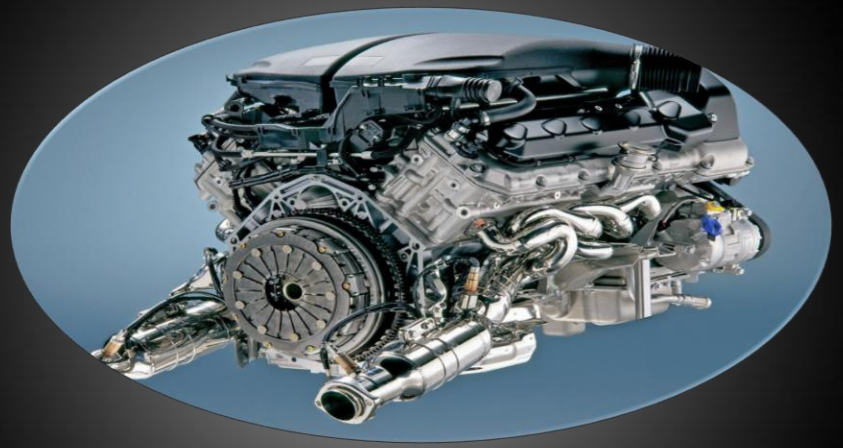


Engines

Section no.4: Fuel delivery system

Section 4



The importance of fuel system

Know the importance of a fuel system

01

Types of fuel delivery systems

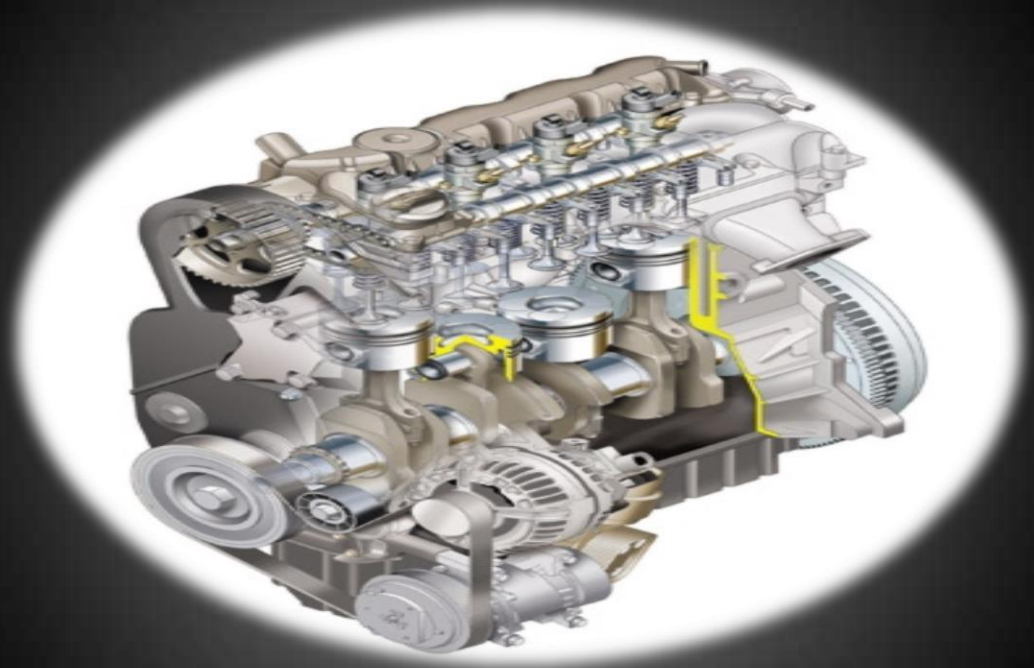
Know the different types of a fuel system

02

Fuel system components

Know the components of a fuel system

03

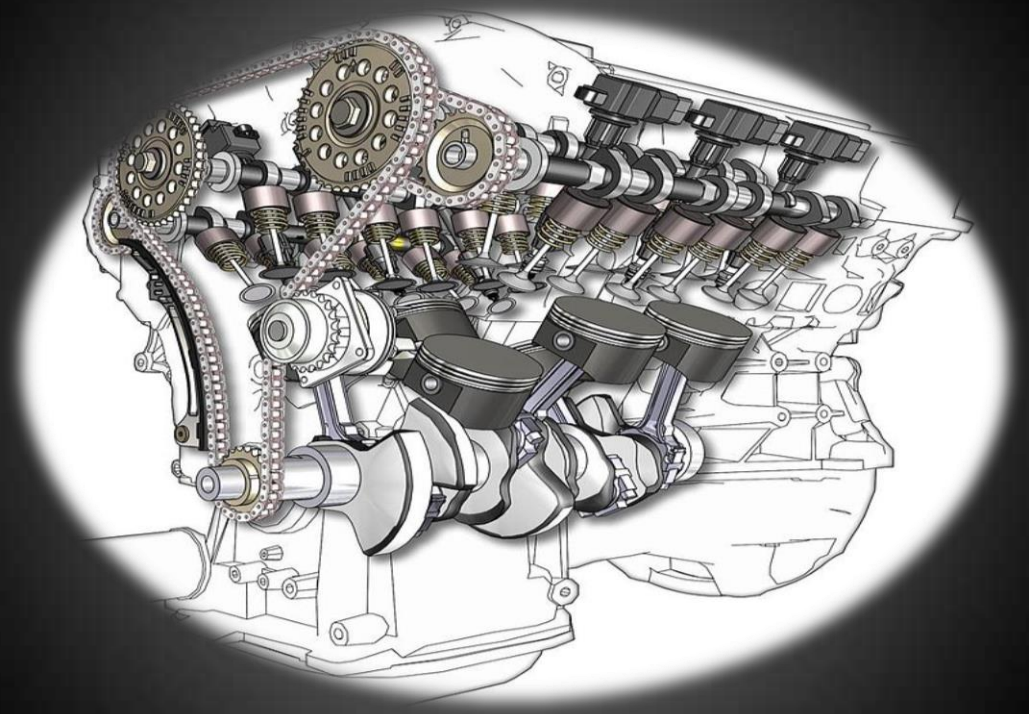


The importance of fuel system

Know the importance of a fuel system

The importance of fuel system

- Is to supply a combustible mixture of air and fuel to the engine in the case of the petrol engine.
- it is supply only the fuel in a diesel engine whereas in a diesel engine is that diesel fuel is mixed with compressed air in the cylinder.

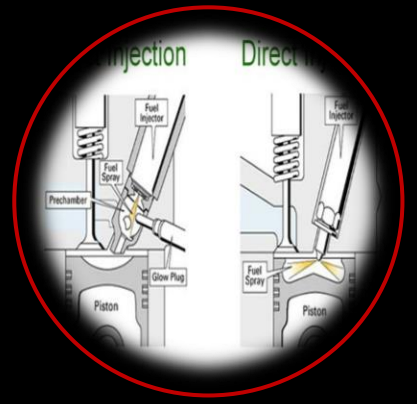


Types of fuel system

Know the different types of a coolin system

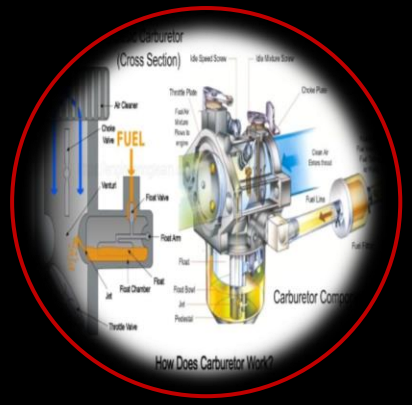
Types of fuel delivery systems

In gasoline engines



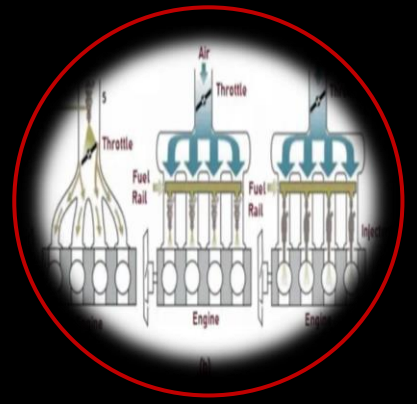
In diesel engines

Types of fuel delivery systems in gasoline engines



Mechanical control

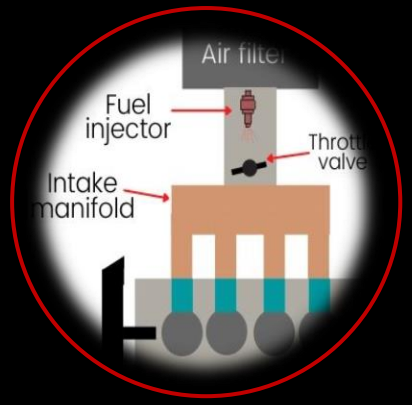
Carburetor



Electronic control

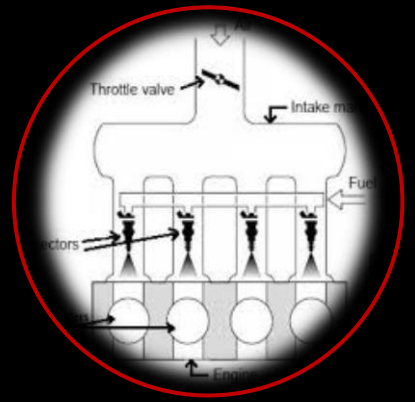
TPI – MPI - GDI

Types of fuel delivery systems with Electronic control



Throttle point injection (TPI)

uses one injector in a throttle body mounted similar to a carburetor on an intake manifold



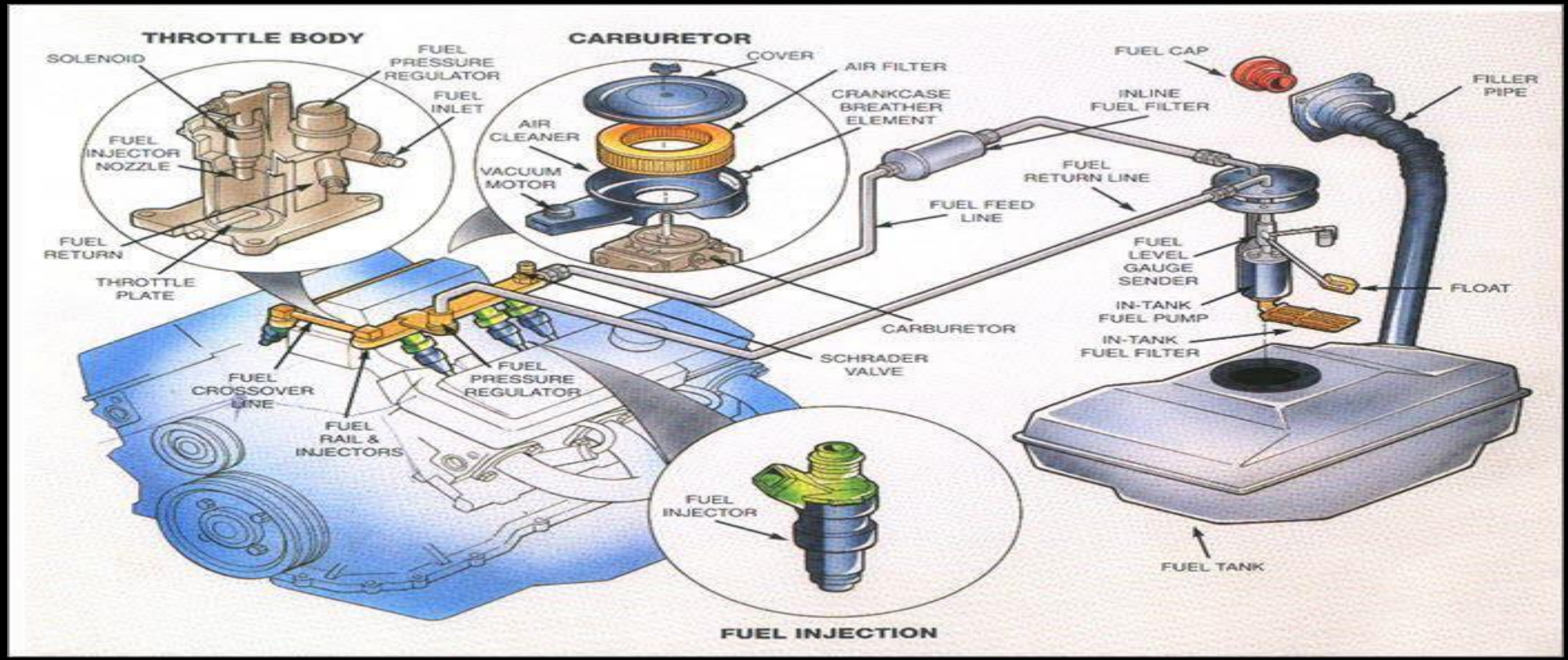
Multi-point injection (MPI)

a way of injecting the fuel in the engine through multiple ports located on the intake valve of every cylinder the motor has

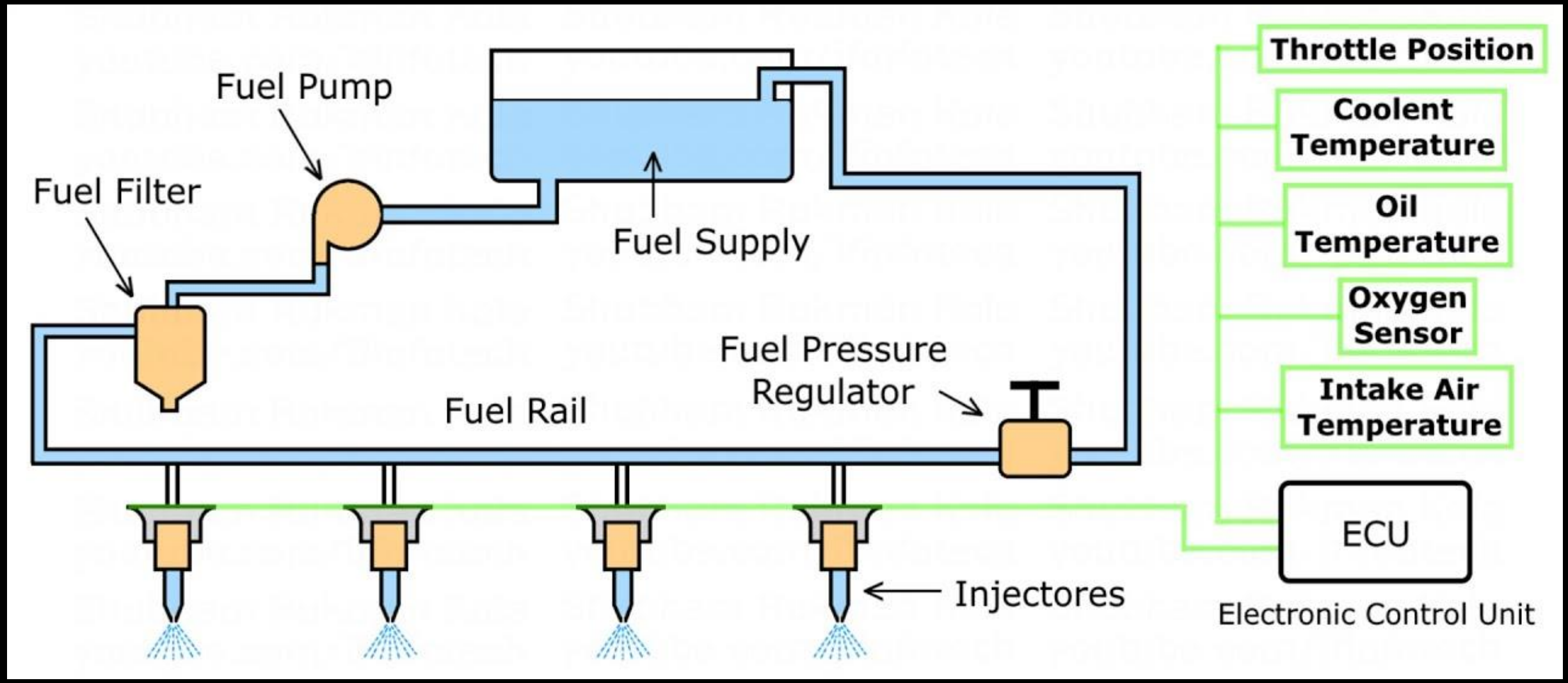
Gasoline Direct injection (GDI)

The **fuel** is **injected** dire ctly into the combustion chamber by high-pressure injectors.

Carburetor & TPI fuel system

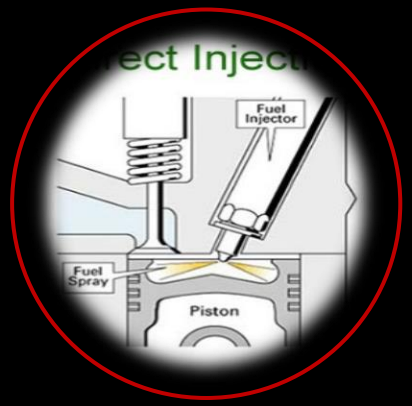


Multi point injection fuel system



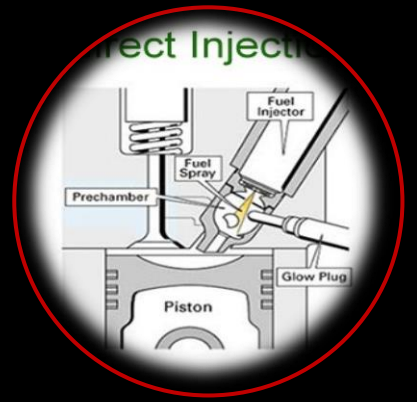
Gasoline direct injection fuel system

Types of fuel delivery system in diesel engines



Direct injection

the fuel is injected directly into the combustion chamber

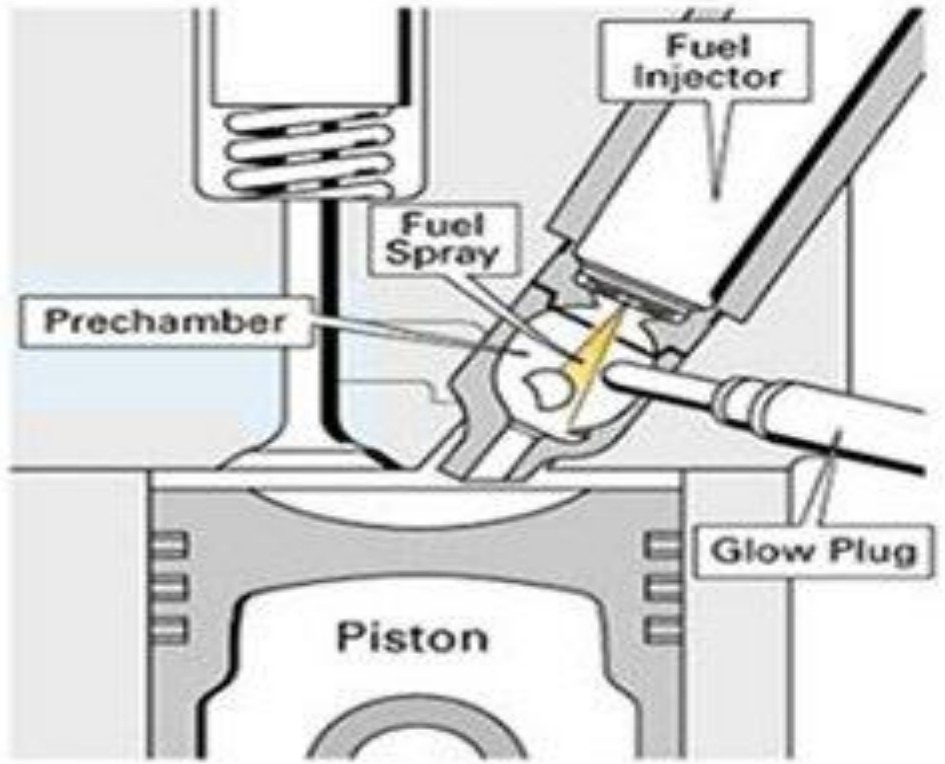


In direct Injection

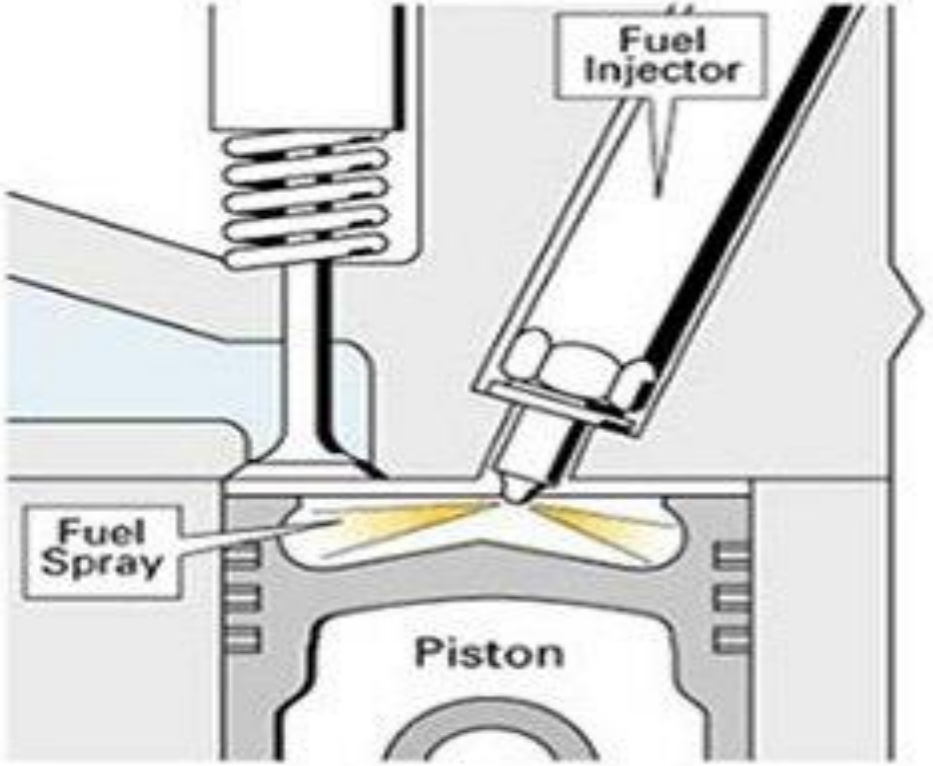
Delivers fuel into a chamber of the combustion chamber, either a pre-chamber.

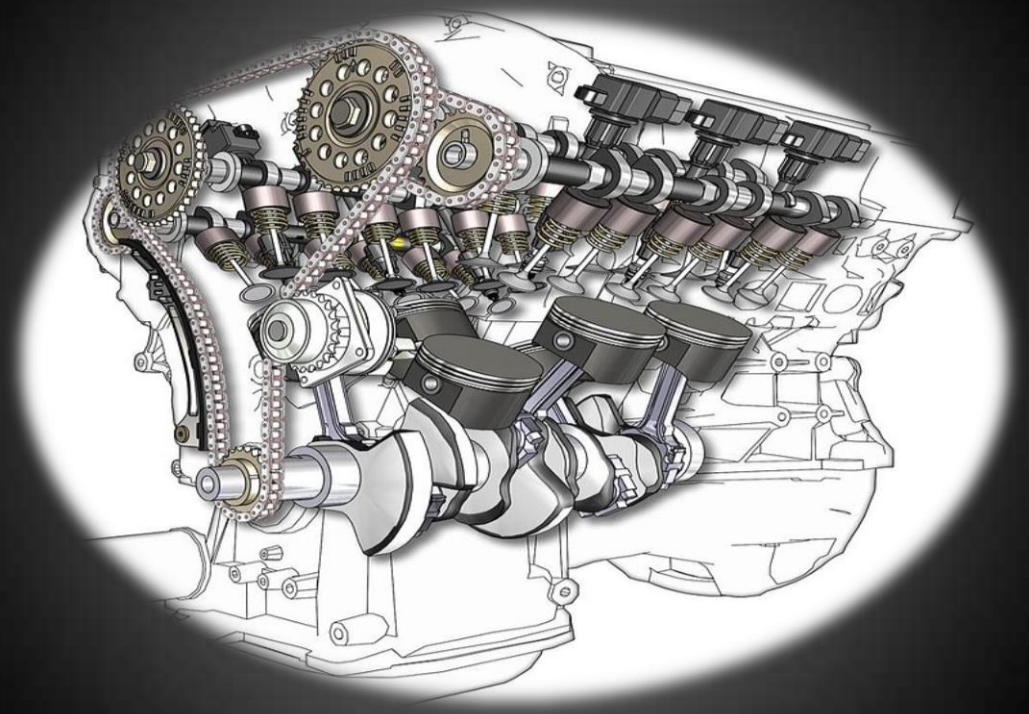
Direct & indirect injection fuel system

Indirect Injection



Direct Injection

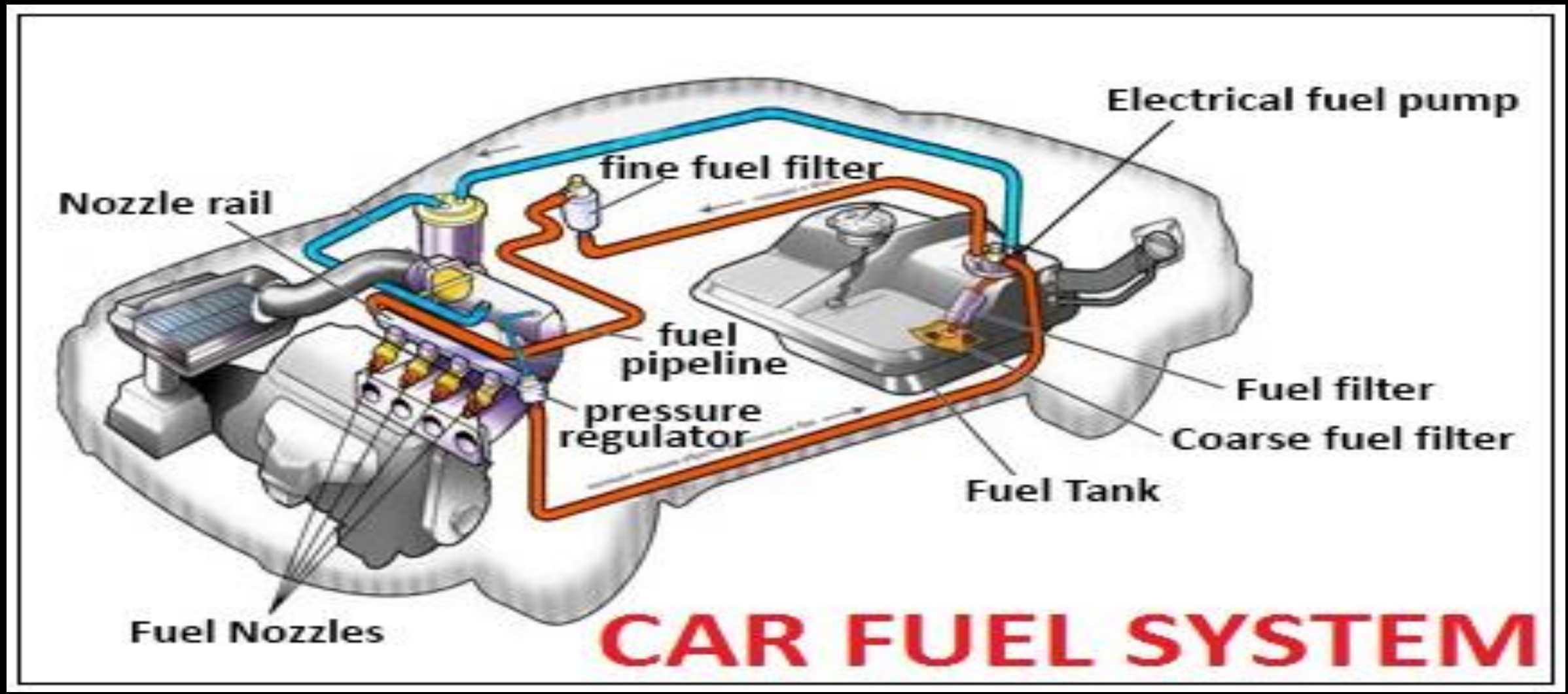




Fuel system components

Know the different types of a fuel system

fuel system components



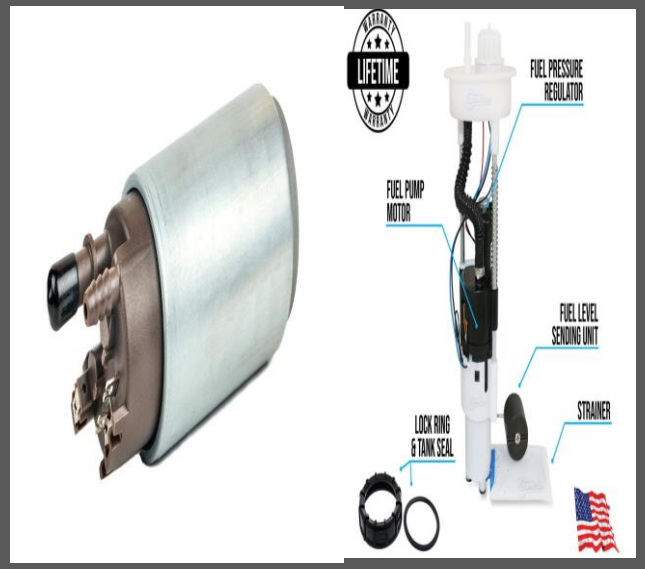
Fuel tank

- holds the fuel supply and helps maintain its temperature at a level below its flash point.

Fuel filter

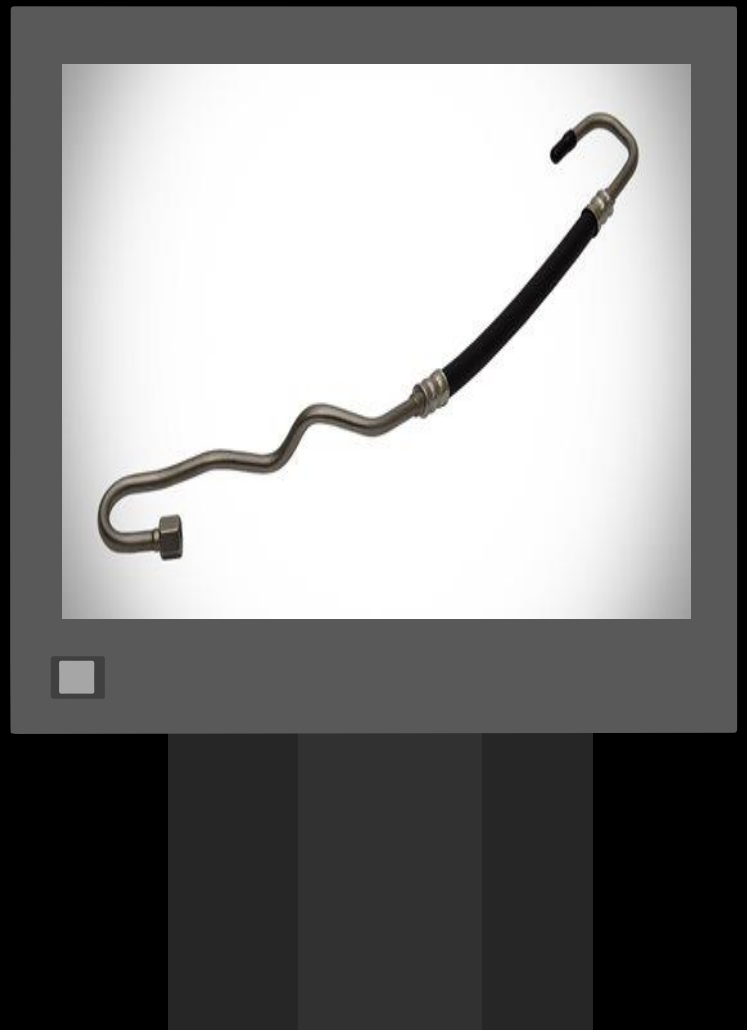
- The fuel filter filters off impurities in the fuel which could impair the function of the injection system.

Fuel pump



- The fuel pump maintains a continuous flow of fuel from the tank.
- It can be installed either within the tank itself (in-tank) or mounted externally in the fuel line (in-line)

Fuel pipeline



- A hose or pipe used to transfer fuel from one point in a vehicle to another.

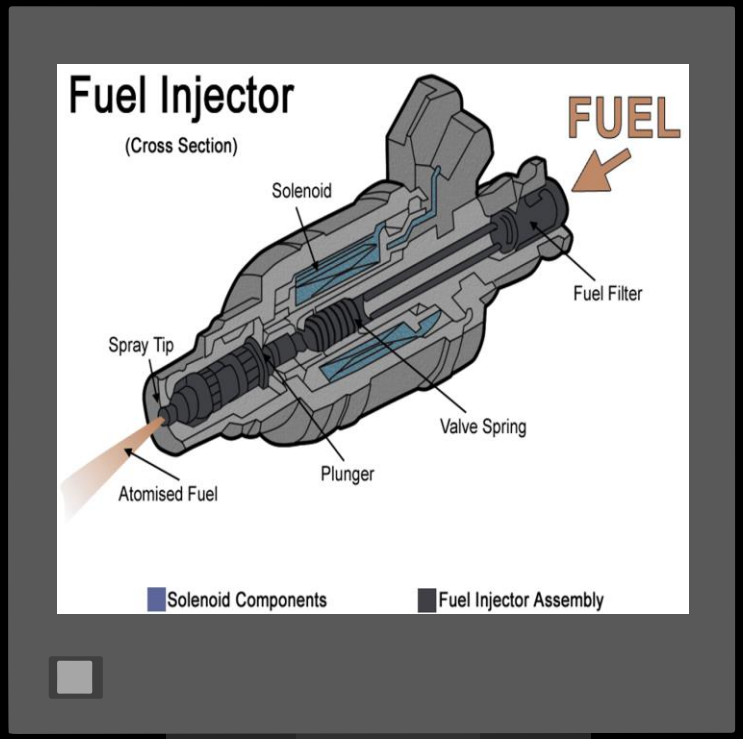
Pressure regulator

- Controls the amount of pressure that enters the injector and any extra fuel is returned to the fuel tank.

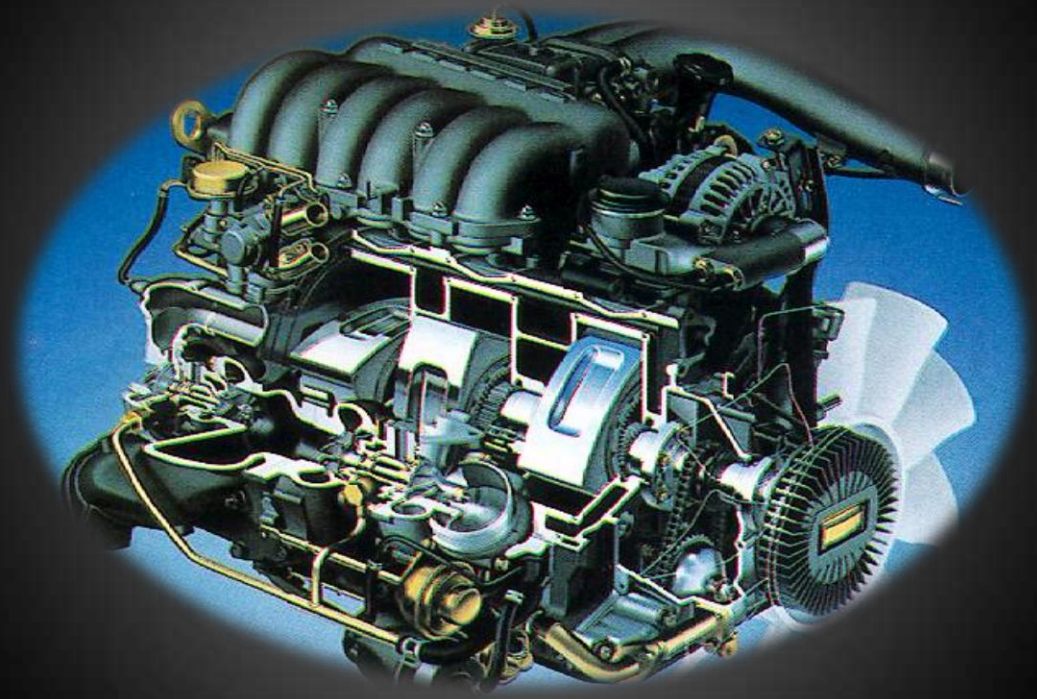
Fuel rail

- The fuel rail supplies all injection valves with an equal quantity of fuel and ensures the same fuel pressure at all injection valves.

Fuel Injector

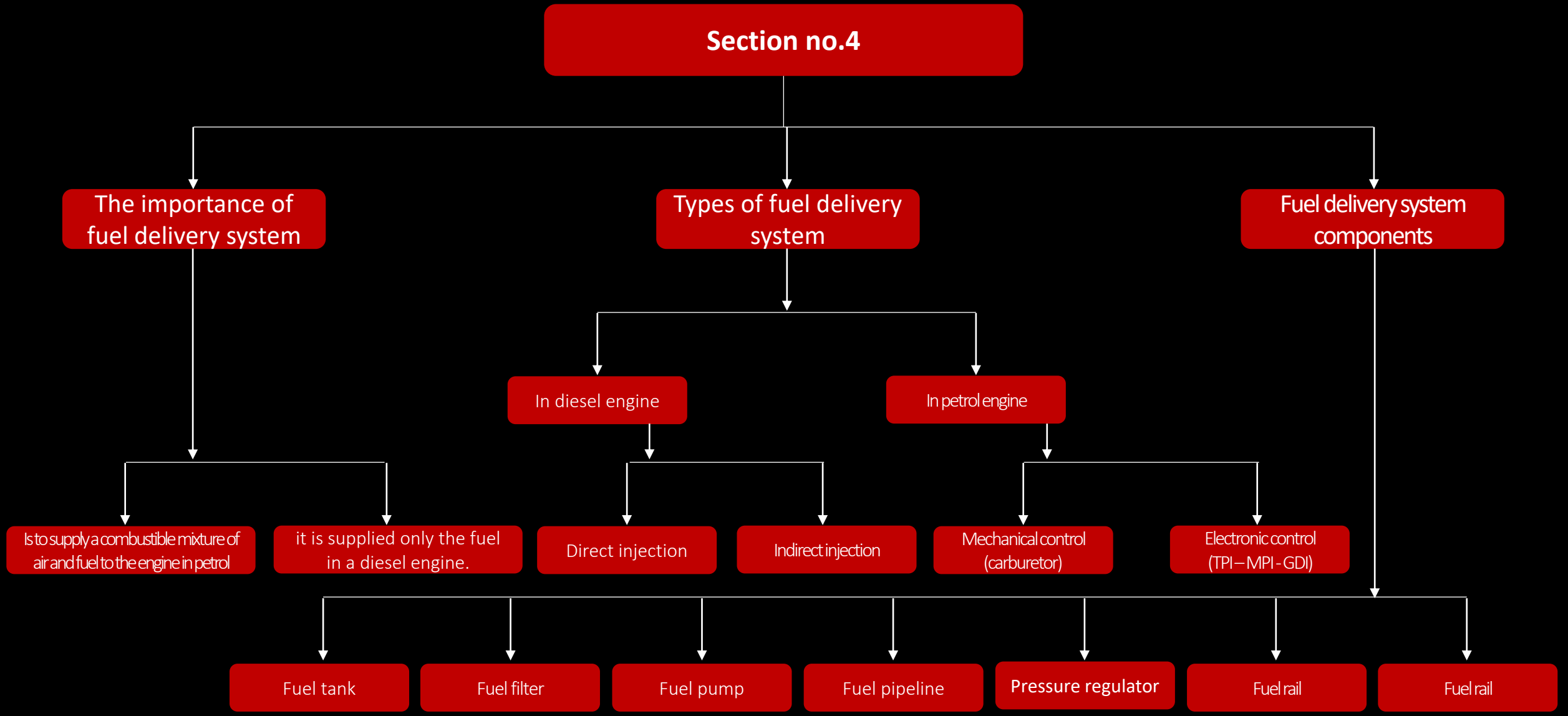


- Is simply a coil or solenoid-operated valve.
- Spring pressure holds the injector closed.
- When engaged, the injector sprays fuel into the engine.



Summary

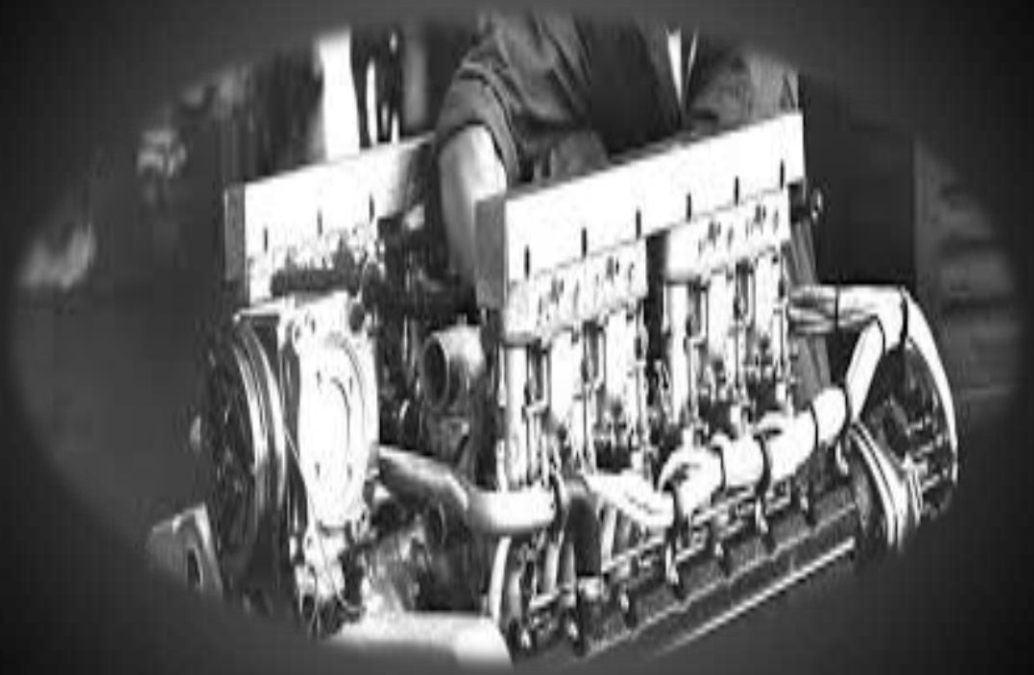
Summary


Section no.4
The importance of fuel delivery system
Types of fuel delivery system
Fuel delivery system components
In diesel engine
In petrol engine
Is to supply a combustible mixture of air and fuel to the engine in petrol
it is supplied only the fuel in a diesel engine.
Direct injection
Indirect injection
Mechanical control (carburetor)
Electronic control (TPI – MPI - GDI)
Fuel tank
Fuel filter
Fuel pump
Fuel pipeline
Pressure regulator
Fuel rail
Fuel rail

Videos

Videos to illustrate what has been explained

- **How the Engine Fuel delivery System Works (https://www.youtube.com/watch?v=dOR186gJexE).**



Activity

Activity

- **Report about Different types of fuel delivery systems (use – advantage – disadvantage).**

With my best wishes

Eng./ Gamal Ahmed Hendy