**HOW DOES AN INTERNAL COMBUSTION ENGINE WORK?**

Combustion, also known as burning, is the basic chemical process of releasing energy from a fuel and air mixture.  In an internal combustion engine (ICE), the ignition and combustion of the fuel occurs within the engine itself. The engine then partially converts the energy from the combustion to work. The engine consists of a fixed cylinder and a moving piston. The expanding combustion gases push the piston, which in turn rotates the crankshaft. Ultimately, through a system of gears in the powertrain, this motion drives the vehicle’s wheels.

**HOW DOes an IC engine differ from a diesel engine?**

Spark ignition gasoline and compression ignition diesel engines differ in how they supply and ignite the fuel.  In a spark ignition engine, the fuel is mixed with air and then inducted into the cylinder during the intake process.

**THE MAIN COMPONENTS OF IC ENGINE**

**1.Cylinder block**  
Cylinder is the main body of IC engine. Cylinder is a part in which the intake of fuel, compression of fuel and burning of fuel take place. The main function of cylinder is to guide the piston. It is in direct contact with the products of combustion so it must be cooled.

**2. Cylinder head**  
The top end of the engine cylinder is closed by means of removable cylinder head. There are two holes or ports at the cylinder head, one for intake of fuel and other for exhaust. Both the intake and exhaust ports are closed by the two valves known as inlet and exhaust valve.

**3. Piston**  
A piston is fitted to each cylinder as a face to receive gas pressure and transmit the thrust to the connecting rod. It is a prime mover in the engine. The main function of piston is to give tight seal to the cylinder through bore and slide freely inside the cylinder. Piston should be light and sufficient strong to handle gas pressure generated by combustion of fuel.

**4. Piston rings**  
To provide a good sealing fit and less friction resistance between the piston and cylinder, pistons are equipped with piston rings.

**5. Connecting rod**  
Connecting rod connects the piston to crankshaft and transmits the motion and thrust of piston to crankshaft. It converts the reciprocating motion of the piston into rotary motion of crankshaft. There are two ends of connecting rod; one is known as big end and other as small end. Big end is connected to the crankshaft and the small end is connected to the piston by use of piston pin.

**6. Crankshaft**  
The crankshaft of an internal combustion engine receives the efforts or thrust supplied by piston to the connecting rod and converts the reciprocating motion of piston into rotary motion of crankshaft. The crankshaft mounts in bearing so it can rotate freely.

**7. Flywheel**  
A flywheel is secured on the crankshaft. The main function of flywheel is to rotate the shaft during preparatory stroke. It also makes crankshaft rotation more uniform.

**8. Camshaft**  
Camshaft is used in IC engine to control the opening and closing of valves at proper timing. For proper engine output inlet valve should open at the end of exhaust stroke and close at the end of intake stroke.

**9. Valves**  
To control the inlet and exhaust of internal combustion engine, valves are used. The number of valves in an engine depends on the number of cylinders.

**HOW DOES A diesel ENGINE WORK?**

It operates on either a two-stroke or four-stroke cycle; the diesel engine induces only air into the [combustion chamber](https://www.britannica.com/technology/combustion-chamber) on its [intake stroke](https://www.britannica.com/technology/intake-stroke).

**HOW DOes a diesel engine differ from AN IC ENGINE?**

An IC engine takes a mixture of gas and air, compresses it, and ignites the mixture with a spark. A diesel engine takes air, compresses it, and then injects fuel into the compressed air. The heat of the compressed air ignites the fuel spontaneously. A diesel engine does not contain a spark plug.

**Some of The Important Diesel Engine Parts and Their Functions**

**1. Piston and Piston Rings**

The Piston is a very important part of a cylinder and it moves up and down. It comprises of several different parts. On the other hand, piston rings are on the edges of the inner and outer of a cylinder. These rings perform two important roles in diesel engines. One important role is of sealing the valve so that the fuel, air, or combustion does not leak out during the process of combustion and compression.

**2. Crankshaft**

This is one of the diesel engine parts which is designed to convert the piston’s up and down motion into rotational.There are one or even more offset shafts in crankshaft to convert the motion. So, when the piston is moving up and down, it only pushes the offset shaft and in turn, rotates the crankshaft.

**3. Oil Pan**

The oil pan is also known as Carter. This is a special tub which accommodates the engine oil. It is just a container of engine oil, but this is one of the diesel engine parts that cannot be made or installed carelessly. Usually, these components are made of thin zinc which is iron like.

**4. Fly Wheel**

Initially, the flywheel works to balance the overall engine speed. Solid iron is used to make it. This is one of the reasons why the flywheel can balance the engine speed. On the other hand, it also serves to power the engine and this can be noted from outside of the flywheel which has several wheels. To start the engine, the gear will be connected to the starter motor pinion.

**5. Connecting Rod**

The piston and crankshaft are connected by the rod. the power of rotation at each end lets it change angles flexible because the rotating shaft rotates and therefore the piston moves.

**6. Sump**

The sump contains some oil and surrounds the crankshaft.

**7. Valves**

There are inlet and outlet valves in an engine. The inlet valves let in air and fuel, and the outlet valves let out the exhaust fumes. Both have high importance in keeping the engine running at optimum temperatures. When combustion and compression take place, then both the valves stay closed. The combustion chamber remains sealed at that time.