COMPONENTS OF AUTOMOTIVE ENGINE

1. Camshaft:

The camshaft is a type of rotating device or apparatus used in piston engines for propelling of operating poppet valves. The camshaft comprises of a series of cams that regulates the opening and closing of the valves in piston engines. The camshaft works with the help of a belt, chain and gears.

(2) Crankshaft:

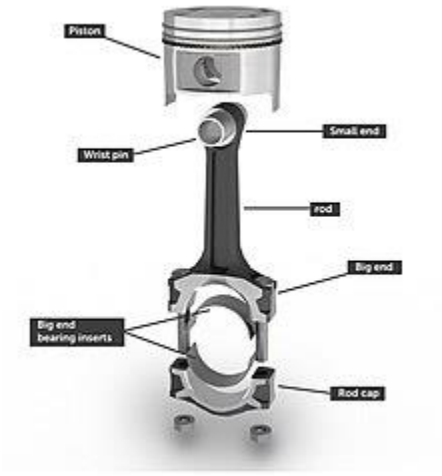
The crankshaft is a device which converts the up and down movement of the piston into rotary motion. This shaft is presented at the bottom of the engine and its main function is to rotate pistons in a circular motion. The crankshaft is further connected to the flywheel, clutch, and main shaft of the transmission, torque converter and belt pulley.

To convert the reciprocating motion of the piston into rotary motion, the crankshaft and connecting rod combination is used. The crankshaft which is made by steel Forging or Casting is held on its Axis around which rotates, by the Main Bearings, which is fitted around the main Journals provided.

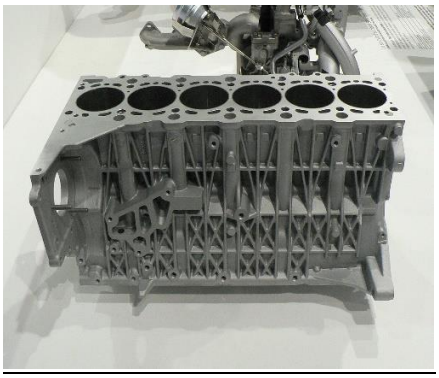
There are always at least two such bearings, one at the rear and another at the front end. The increase in number of Main Bearings for a given size of crankshaft means less possibility of vibration and distortion.

(3) Connecting Rod:

The connecting rods are made of metals which are used for joining a rotating wheel to a reciprocating shaft. More precisely, connecting rods are referred to as con-rods, and are used for connecting the pistons to the crankshaft. The load on the piston due to combustion of fuel in the combustion chamber is transmitted to the crankshaft through the connecting rod. One end of the connecting rod known as the small end is connected to the piston trough the gudgeon pin, while the other end known as the big end, and is connected to the crankshaft trough the crankpin.



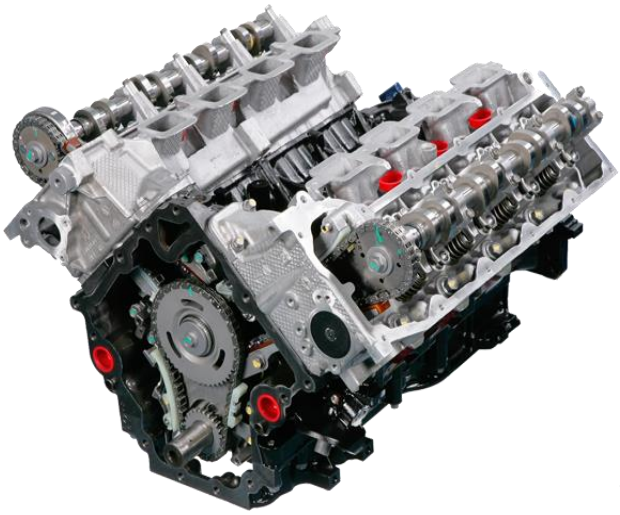
(4) The Crankcase:



The crankcase is a metallic cover that holds together the crankshaft and all its attachments. It is the largest cavity within an engine that protects the crankshaft, connecting rods, and other components from foreign objects. Automotive crankcases are filled with air and oil, while Magnesium, cast iron, Aluminum and alloys are some materials used to make crankcases.

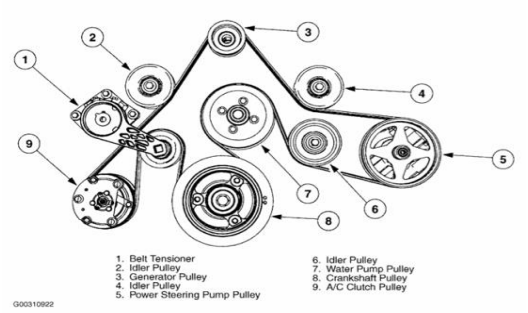
(5) Cylinder Heads:

The cylinder head refers to a detachable part, which is used for covering the closed end of a cylinder assembly in an automotive engine. It comprises of the combustion chamber, valve train and spark plugs. Different types of automobiles have different configurations such as straight engine, which has only one cylinder head, while a “V” type engine has two cylinder heads.



”V” type engine.

(6) Engine Belts:



Engine belts are the bands made of flexible material used for connecting or joining two rotating shafts or pulleys together. These belts work in coordination with wheels and axles for transferring energy. When the wheels or shafts are positioned at extremely different angles, then the engine belts have the ability to change the direction of force. Engine pulley is a type of machine or wheel having either a broad rim or groomed rim attached to a rope or chain for lifting heavy objects.

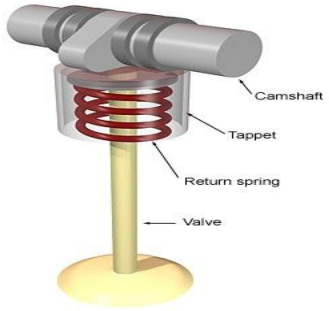
(7) Engine Oil:

Oil is one of the necessities of an automobile engine. Oil is distributed under strong pressure to all moving parts of an engine with help from an oil pump. This oil pump is placed at the bottom of the engine in the oil pan and is joined by a gear to either the crankshaft or the camshaft. Near the oil pump there is an oil pressure sensor, which sends information about the status of the oil to a warning light.

The different parts of the engine oil system include:

1) Engine Oil
2) Engine Oil Cooler
3) Engine Oil Filter
4) Engine Oil Gaskets
5) Engine Oil Pan
6) Engine Oil Pipe

(8) Engine Valves:



Automobile engine valves are devices that regulate the flow of the air-fuel mixture into the cylinder and assist in expelling exhaust gases after fuel combustion. They are indispensable to the system of coordinated opening and closing of valves, known as valve train. Engine valves are made of varied materials such as structural ceramics, steel, super alloys and titanium alloys. Valve materials are selected based on temperatures pressures the valves endure. The primary components of engine valves are:

1) Intake Valve
2) Exhaust Valve
3) Combination Valve
4) Check Valve
5) EGR Valve
6) Thermostat Valve
7) Overhead Valve
8) Valve Guide
9) Schrader Valve

Vacuum Valve