Reference: - eagri.org

ENGINE COMPONENTS

Internal combustion engine consists of a number of parts which are given below:

1. Cylinder

It is a part of the engine which confines the expanding gases and forms the combustion space. It is the basic part of the engine.

2. Cylinder block

It is the solid casting body which includes the cylinder and water jackets (cooling fins in the air-cooled engines).

3. Cylinder head

It is a detachable portion of an engine which covers the cylinder and includes the combustion chamber, spark plugs or injector and valves.

4. Cylinder liner or sleeve

It is a cylindrical lining either wet or dry type which is inserted in the cylinder block in which the piston slides.

Liners are classified as: (1) Dry liner and (2) Wet liner.

5. Piston

It is a cylindrical part closed at one end which maintains a close sliding fit in the engine cylinder. It is connected to the connecting rod by a piston pin.

6. Skirt

It is that portion of the piston below the piston pin which is designed to adsorb the side movements of the piston.

7.Compression ring

Compression rings are usually plain, single piece and are always placed in the grooves of the piston nearest to the piston head.

Oil ring

Oil rings are grooved or slotted and are located either in lowest groove above the piston pin or in a groove above the piston skirt.

8.Connecting rod

It is special type of rod, one end of which is attached to the piston and the other end to the crankshaft.

9.Crankshaft

It is the main shaft of an engine which converts the reciprocating motion of the piston into rotary motion of the flywheel

10.Flywheel: Flywheel is made of cast iron. Its main functions are as follows:

a) It stores energy during power stroke and returns back the energy during the idle strokes, providing a uniform rotary motion of flywheel.
b) The rear surface of the flywheel serves as one of the pressure surfaces for the clutch plate.
c) Engine timing marks are usually stamped on the flywheel, which helps in adjusting the timing of the engine.
d) Sometime the flywheel serves the purpose of a pulley for transmitting power.

11. Top dead center

When the piston is at the top of its stroke, it is said to be at the *top dead center*

12.Bottom dead center

when the piston is at the bottom of its stroke, it is said to be at its bottom dead center.

13.Scavenging

The process of removal of burnt or exhaust gases from the engine cylinder is known as scavenging.

TERMINOLOGY CONNECTED WITH ENGINE POWER

1. Bore

Bore is the diameter of the engine cylinder.

2. Stroke

It is the linear distance traveled by the piston from Top dead centre (TDC) to Bottom dead centre (BDC).

3. Stroke-bore ratio

The ratio of length of stroke (L) and diameter of bore (D) of the cylinder is called stroke- bore ratio (L/D). In general, this ratio varies between 1 to 1.45 and for tractor this ratio is about 1.25.

4. Swept volume

It is the volume (A x L) displaced by one stroke of the piston where A is the cross sectional area of piston and L is the length of stroke

5. Compression ratio

It is the ratio of the volume of the cylinder at the beginning of the compression stroke to that at the end of compression stroke, i.e., ratio of total cylinder volume to clearance volume The Compression ratio of diesel engine varies from 14:1 to 22:1 and that of carburetor type engine (spark ignition engine) varies from 4:1 to 8:1.

6.Power

It is the rate of doing work. S.I. unit of power is watt. Watt = Joule/sec. (4.2 Joules = 1 Calorie).

In metric unit the power can be expressed in kg.m/sec