

EXPERIMENT No. 4

To Study Cut Section Model of Two Stroke Petrol Engine

4.1 Introduction:

Any type of engine which drives heat energy from the combustion of fuel or any other source and converts this energy into mechanical work is known as a heat engine. Two stroke petrol engine is an internal combustion heat engine in which the working cycle is completed into two stroke of the piston or one revolution of crankshaft.

The two stroke petrol engine contains two strokes:

- 1) Compression Stroke (Intake & Compression).
- 2) Power Stroke (Exhaust & Expansion).

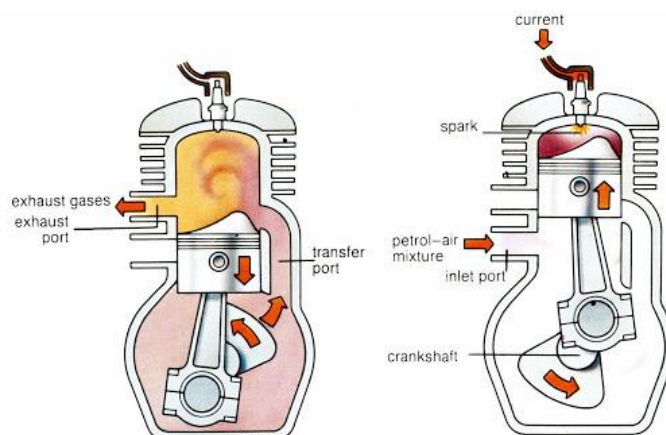


Fig. 4.1 Two Stroke Petrol Engine

4.2 Parts of Two Stroke Petrol Engine:

4.2.1 Piston:

A piston is a disk which is used in two stroke petrol engine to move upward and downward to derive motion.



Fig. 4.2 Piston

4.2.2 Spark Plug:

It is an electric plug used in two stroke petrol engine to provide an electric spark to the fuel for combustion.



Fig. 4.3 Spark Plug

4.2.3 Crankcase:

The case in which all the components of engine are placed and moved to produce mechanical work is known as crank case.



Fig. 4.4 Crankcase

4.2.4 Carburetor:

A carburetor or carburetor is a device that mixes air and fuel for internal combustion in two stroke petrol engine.



Fig. 4.5 Carburetor

4.2.5 Connecting Rod:

Connecting rod is used in two stroke petrol engine to connect piston and crankshaft.

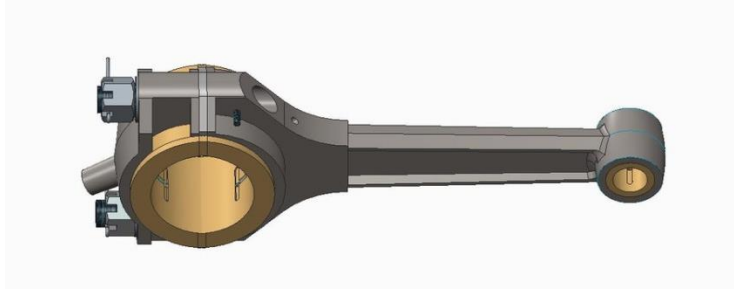


Fig. 4.6 Connecting Rod

4.2.6 Crankshaft:

Crankshaft is connected with a piston through connecting rod, which rotates when piston moves upward and downward.



Fig. 4.7 Crankshaft

4.2.7 Top Dead Center (TDC):

Top dead center is the maximum distance that a piston can cover upwards.

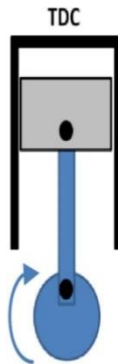


Fig. 4.8 Top Dead Centre (TDC)

4.2.8 Bottom Dead Center (BDC):

Bottom dead center is the minimum distance that a piston can cover downwards.

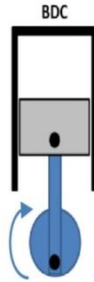


Fig. 4.9 Bottom Dead Centre (BDC)

4.2.9 Deflector:

Deflector pistons are used in two-stroke petrol engines to direct the gas flow in the engine for efficient results.

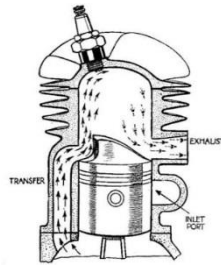


Fig. 4.10 Deflector Piston

4.2.10 Inlet & Exhaust Ports:

Inlet & Exhaust ports are the ports which are used to enter and remove the mixture of air and fuel gas, when it is burned by the spark plug.

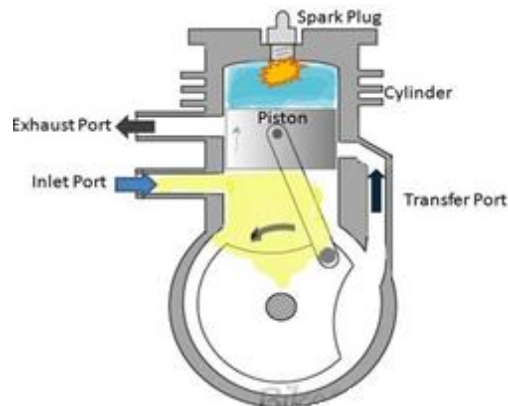


Fig. 4.11 Inlet & Exhaust Ports

4.3 Two Stroke Petrol Engine:

In two stroke petrol engine, the working cycle is completed into two stroke of the piston or one revolution of crankshaft.

The two stroke petrol engine contains two strokes:

- 1) Compression Stroke (Intake & Compression).
- 2) Power Stroke (Exhaust & Expansion).

4.3.1 Compression Stroke (Intake & Compression):

In compression stroke the two stroke petrol engine performs two functions. It intakes the mixture of petrol and air and it compressed the mixed fuel to the top dead center (TDC). First of all the inlet port opens and the air fuel mixture enters the chamber, due to the fuel the piston started to move upwards. Piston compressed the mixture of air fuel towards the spark plug.

When the piston is at top dead center (TDC) the inlet port is opened and the exhaust port is closed. When the piston is at bottom dead center (BDC) the exhaust port is opened and the inlet port is closed. The spark plug burn the fuel compressed by the piston in the combustion chamber.

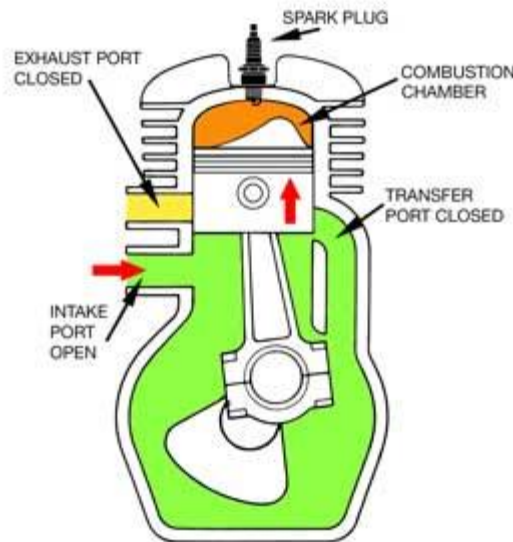


Fig. 4.12 Compression Stroke

4.3.2 Power Stroke (Exhaust & Expansion):

In power stroke the two stroke petrol engine performs two functions. It exhausts the burned air and fuel mixture gas through the exhaust port and moves the piston towards the bottom dead center (BDC). The exhaust port opens and the burned air fuel

mixture removes from combustion chamber through exhaust port, due to the pressure of the coming fuel mixture from transfer port. Piston moves downwards due to the pressure of the burned fuel mixture.

When the piston is at bottom dead center (BDC) the exhaust port is opened and the inlet port is closed. Similarly, when the piston is at top dead center (TDC) the inlet port is opened and the exhaust port is closed. The spark plug burn the fuel compressed by the piston in the combustion chamber and the burned fuel mixture is removed from the exhaust port.

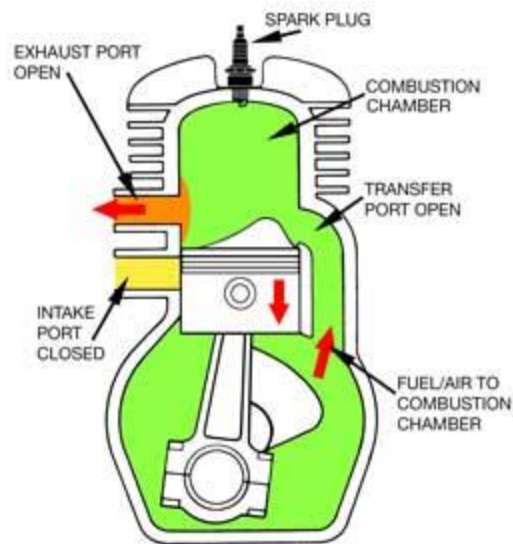


Fig. 4.13 Power Stroke