

EXPERIMENT ON TWO STROKE AND FOUR STROKE PETROL ENGINES

Prepared
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June 2014

AIM OF THE EXPERIMENT:-

To study about two stroke and four stroke petrol engines.

APPARATUS REQUIRED:-

Sl.no	Name of the apparatus	Specification	Quantity
01	Model of petrol stroke engine	2-stroke	1
02	Model of petrol stroke engine	4-stroke	1

THEORY:-

2-STROKE PETROL ENGINE:-

- A two stroke cycle petrol engine was devised by Dug lad clerk in 1880.

- In this cycle, the suction, compression, expansion, and exhaust takes place during two strokes of the piston. It means that there is one working stroke after every revolution of the crank shaft.
- A two stroke engine has ports instead of valves . the four stages of a two stroke petrol engine are described below:

1. SUCTION STAGE:-

- In this stage, the piston, while going down towards BDC, uncovers both the transfer port and the exhaust port.
- The fresh fuel-air mixture flows into the engine cylinder from the crank case.

2. COMPRESSION STAGE:-

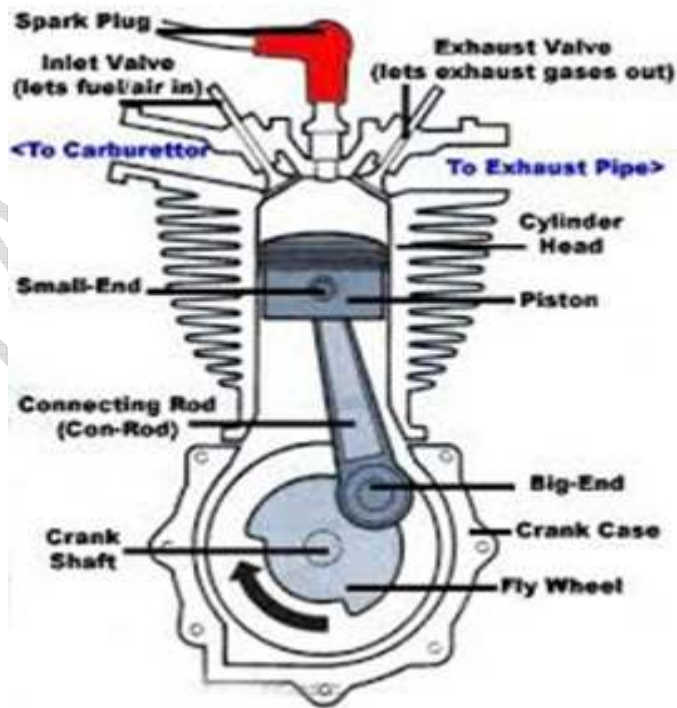
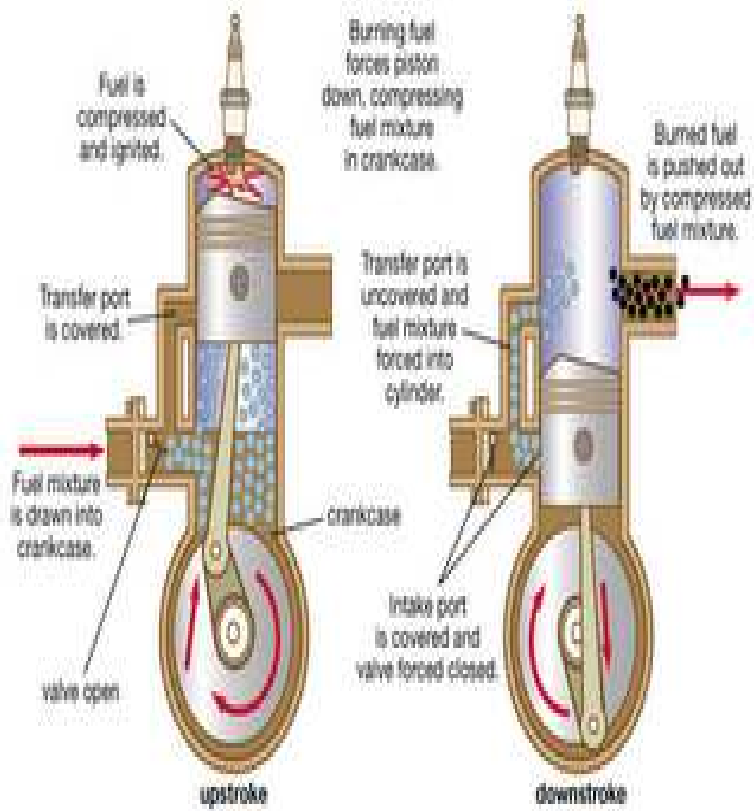
- In this stage, the piston, while moving up, first covers the transfer port.
- After that the fuel is compressed as the piston moves upwards BDC to TDC.
- In this stage, the inlet port opens and fresh fuel-air mixture enters into the crank case.

3. EXPANSION STROKE:-

- Shortly before the piston reaches the TDC (during compression stroke) the charge is ignited with the help of a spark plug.
- It suddenly increases the pressure and temperature of the product of combustion. But the volume, practically remains constant.
- Due to rise in the pressure, the piston is pushed downwards with a great force.
- The hot burnt gases expand due to high speed of the piston. During this expansion, some of the heat energy produced is transformed into mechanical work.

• EXHAUST STROKE:-

- In this stage, the exhaust port is opened as the piston moves downwards.
- The product of combustion, from the engine cylinder is exhausted through the exhaust port into the atmosphere.
- This completes the cycle and the engine cylinders ready to suck the charge again.



4- STROKE PETROL ENGINE:-

It requires four strokes of the piston to complete one cycle of operation in the engine cylinder. The four strokes of a petrol engine are described below:

1.SUCTION STROKE:-

- In this stroke, the inlet valve opens and the charge is sucked into the cylinder as the piston moves downward from TDC.
- It continues till the piston reaches its BDC.

2.COMPRESSION STROKE:-

- In this stroke, both the inlet and exhaust valves are closed and the charge is compressed as the piston moves upwards from BDC to TDC.
- As a result of compression, the pressure and temperature of the charge increases considerably.
- This completes one revolution of the crank shaft.

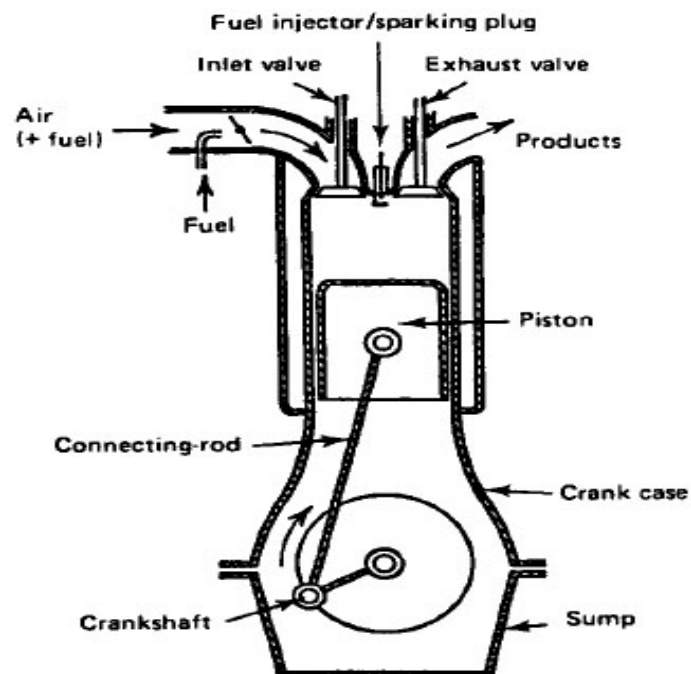
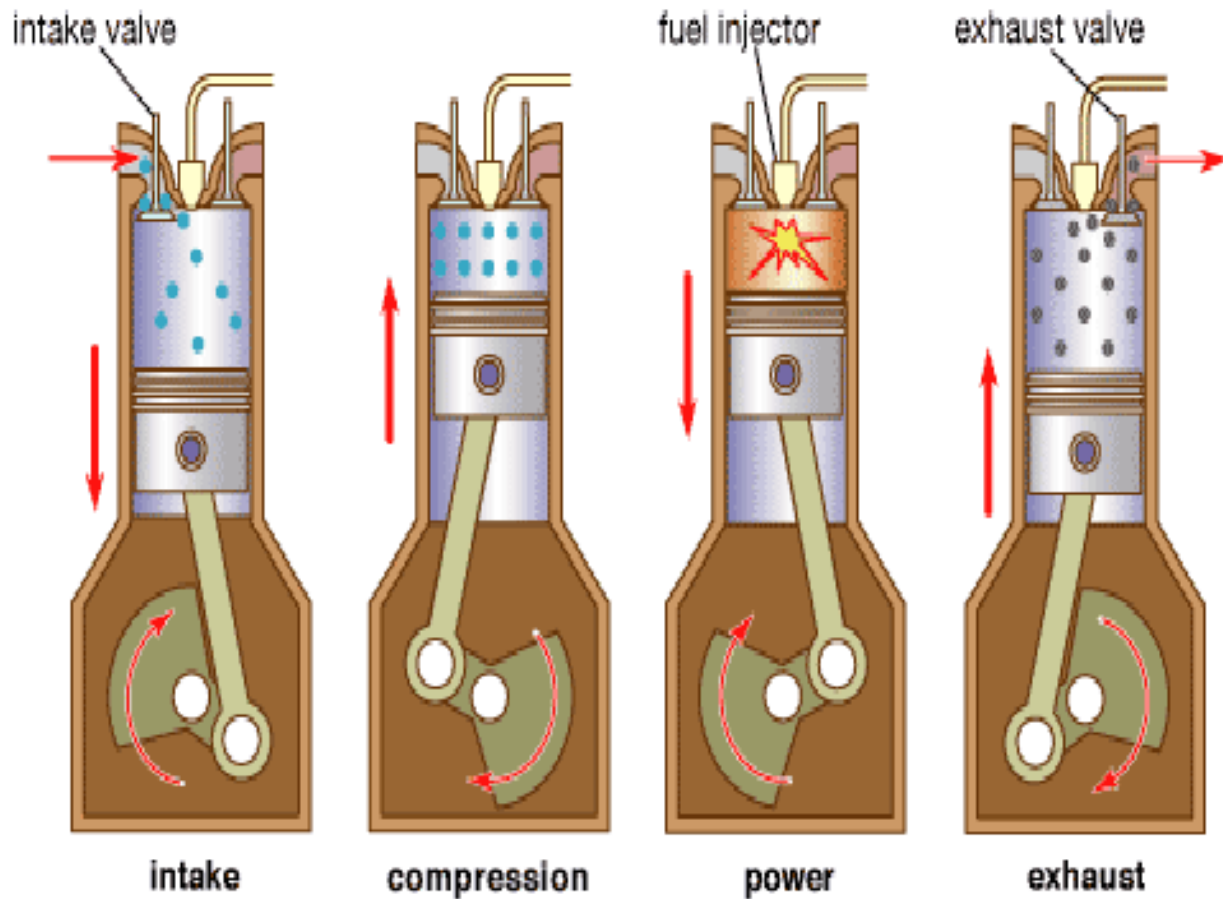
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- During this expansion,some of the heat energy produced is transformed into mechanical work.

4. EXHAUST STROKE:-

- In this stroke,the exhaust valve is open as piston moves from BDC to TDC.
- This movement of the piston pushes out the products of combustion, from the engine cylinder and is exhausted through the exhaust valve into the atmosphere.
- This completes the cycle, and the engine cylinder is ready to suck the charge again.

4- STROKE PETROL ENGINE



CONCLUSION:-

From the above experiment we have successfully studied about 2-stroke and 4-stroke petrol engines, their working principles and operation.

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