



SNS COLLEGE OF TECHNOLOGY AN AUTONOMOUS INSTITUTION



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DEPARTMENT OF AGRICULTURAL ENGINEERING

COURSE CODE & NAME: 19AGT301 & HEAT POWER ENGINEERING

III YEAR / V SEMESTER

UNIT : 2 CLASSIFICATIONS AND PRINCIPLES OF IC ENGINES

TOPIC 4 : Four Stroke Petrol Engine



Petrol Engines

Classification of Petrol Engines

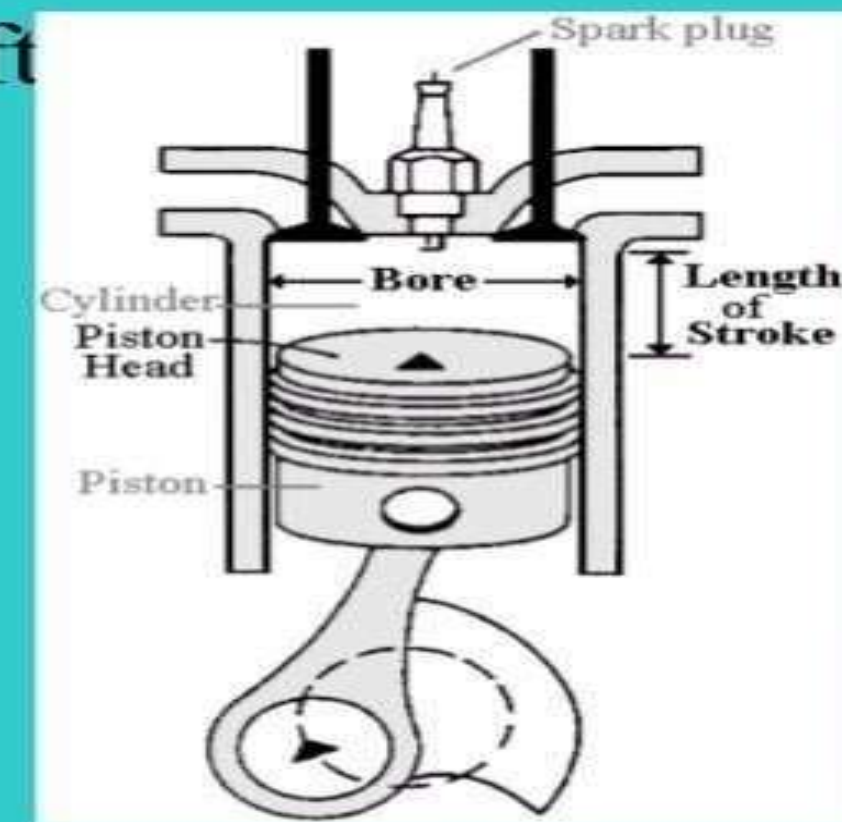
- **Two Stroke cycle Petrol Engines**
- **Four Stroke cycle petrol Engines**



Four stroke cycle Petrol Engines

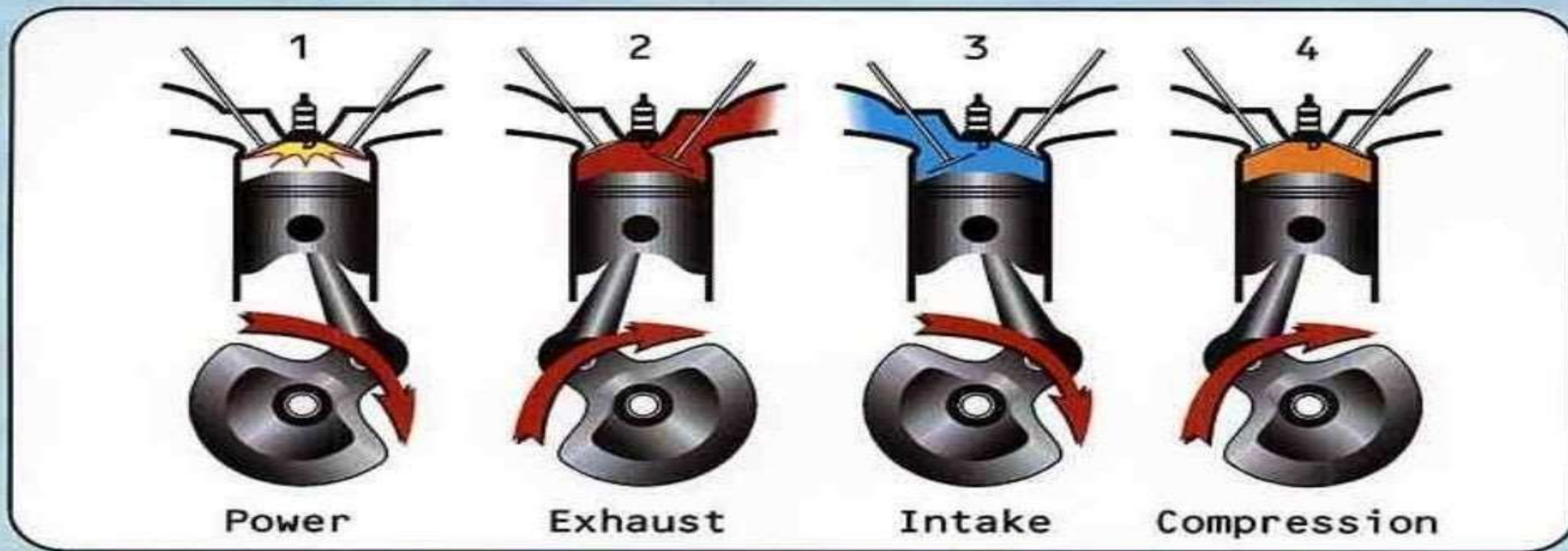
Construction :

- A piston reciprocates inside the cylinder
- The piston is connected to the crank shaft by means of a connecting rod and crank.
- The inlet and exhaust valves are Mounted on the cylinder head.
- A spark is provided on the cylinder Head.
- The fuel used is petrol





Four Stroke Petrol Engine- Working

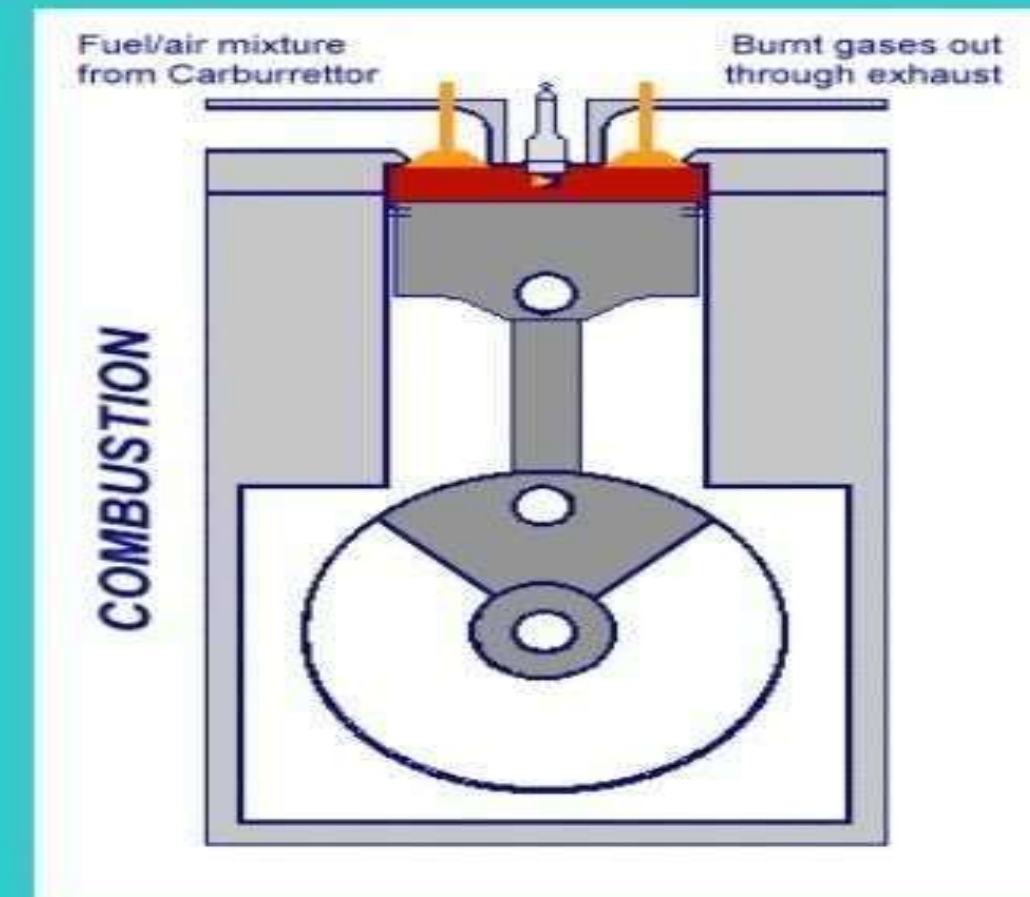




Four Stroke Petrol Engine - Working

(a) Suction Stroke (First Stroke of the Engine)

- Piston moves down from TDC to BDC
- Inlet valve is opened and the exhaust valve is closed.
- Pressure inside the cylinder is reduced below the atmospheric pressure.
- The mixture of air fuel is sucked into the cylinder through the inlet valve

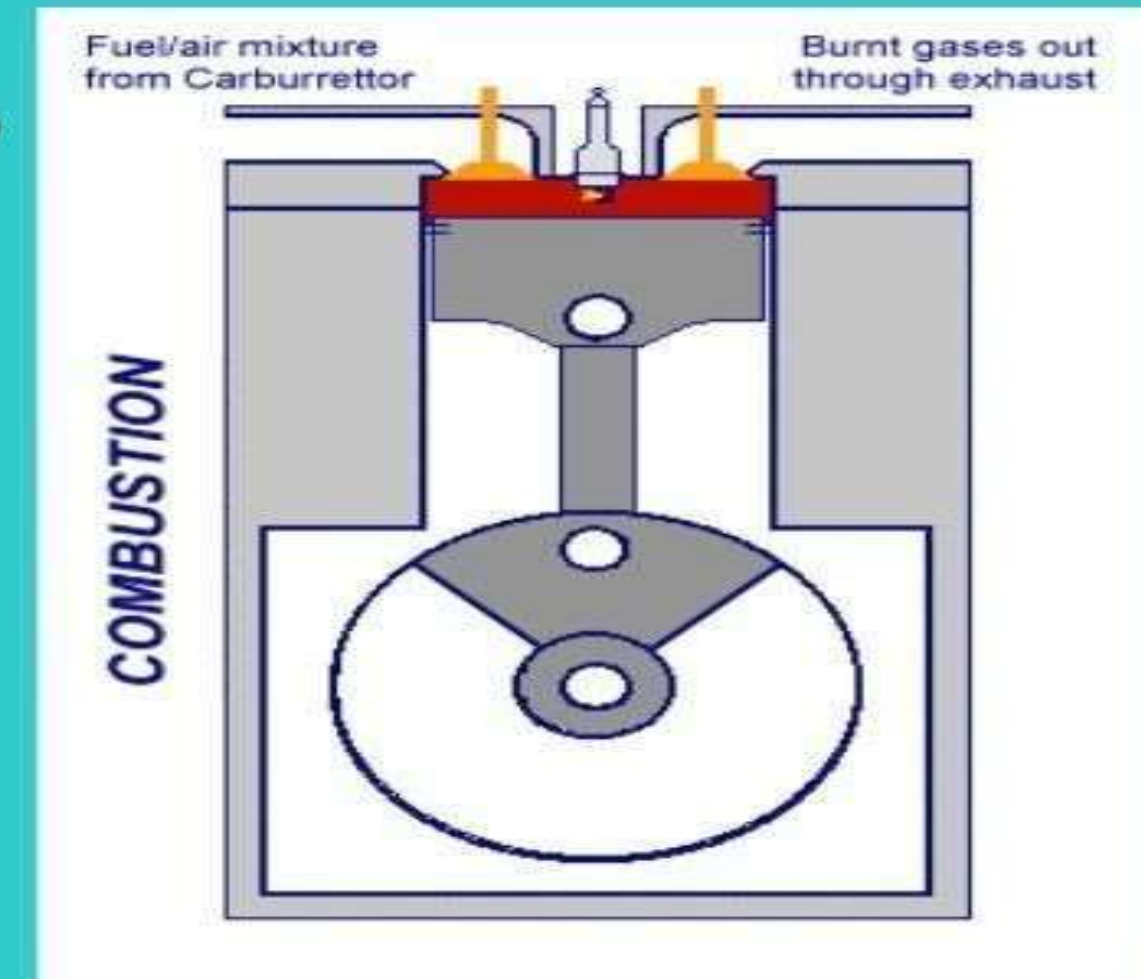




Four Stroke Petrol Engine - Working

(b) Compression Stroke : (Second Stroke of the piston)

- Piston moves up from BDC to TDC
- Both inlet and exhaust valves are closed.
- The air fuel mixture in the cylinder is compressed.

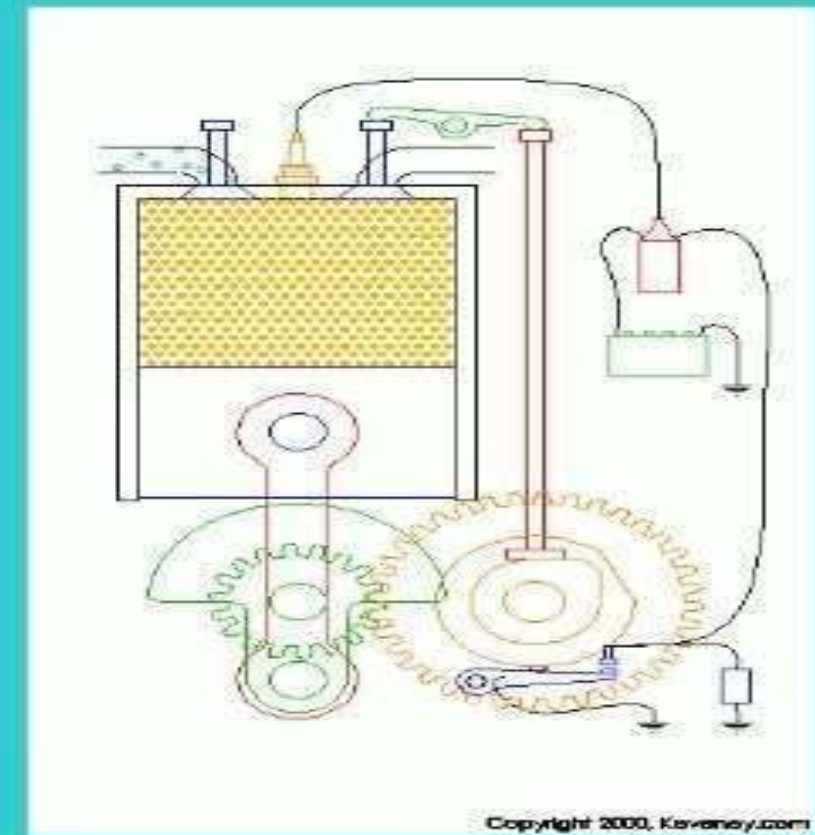




Four Stroke Petrol Engine - Working

(c) Working or Power or Expansion Stroke: (Third Stroke of the Engine)

- The burning gases expand rapidly. They exert an impulse (thrust or force) on the piston. The piston is pushed from TDC to BDC
- This movement of the piston is converted into rotary motion of the crankshaft through connecting rod.
- Both inlet and exhaust valves are closed.

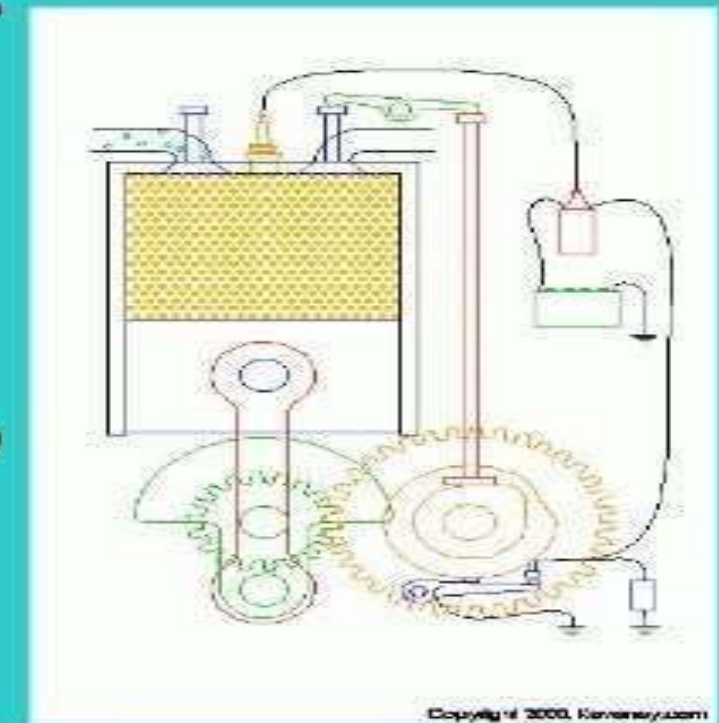




Four Stroke Petrol Engine - Working

(d) Exhaust Stroke (Fourth stroke of the piston)

- Piston moves upward from BDC
- Exhaust valve is opened and the inlet valve is closed.
- The burnt gases are forced out to the atmosphere through the exhaust valve (Some of the burnt gases stay in the clearance volume of the cylinder)
- The exhaust valve closes shortly after TDC
- The inlet valve opens slightly before TDC and the cylinder is ready to receive fresh charge to start a new cycle.

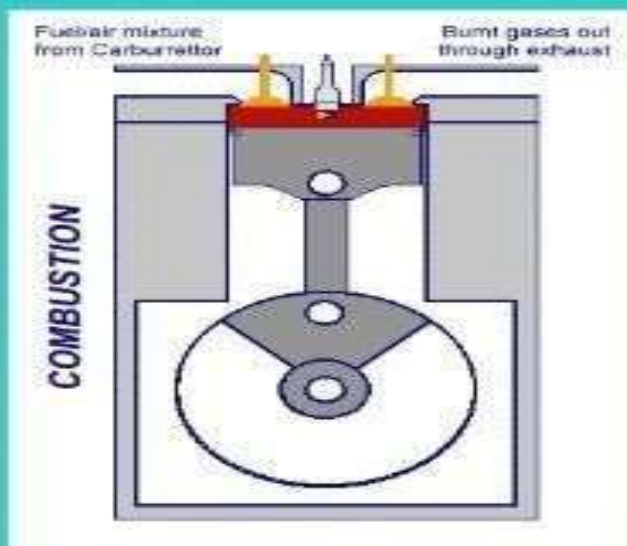
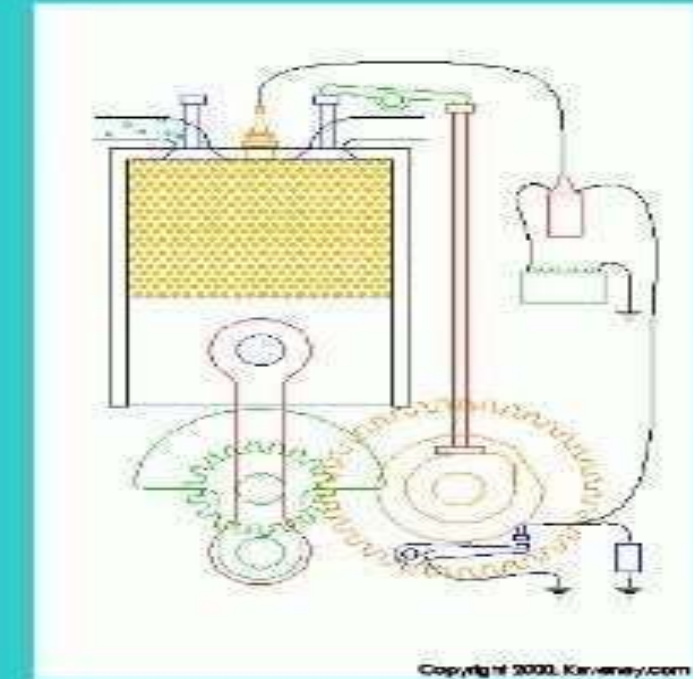




Four Stroke Petrol Engine - Working

Summary :

- Compression ratio varies from 5 to 8
- The pressure at the end of compression is about 6 to 12 bar.
- The temperature at the end of the compression reaches 250°C to 350°C





THANK YOU..!!