

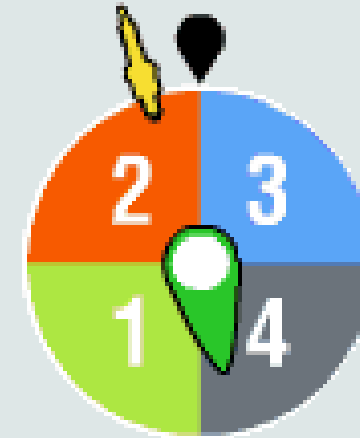
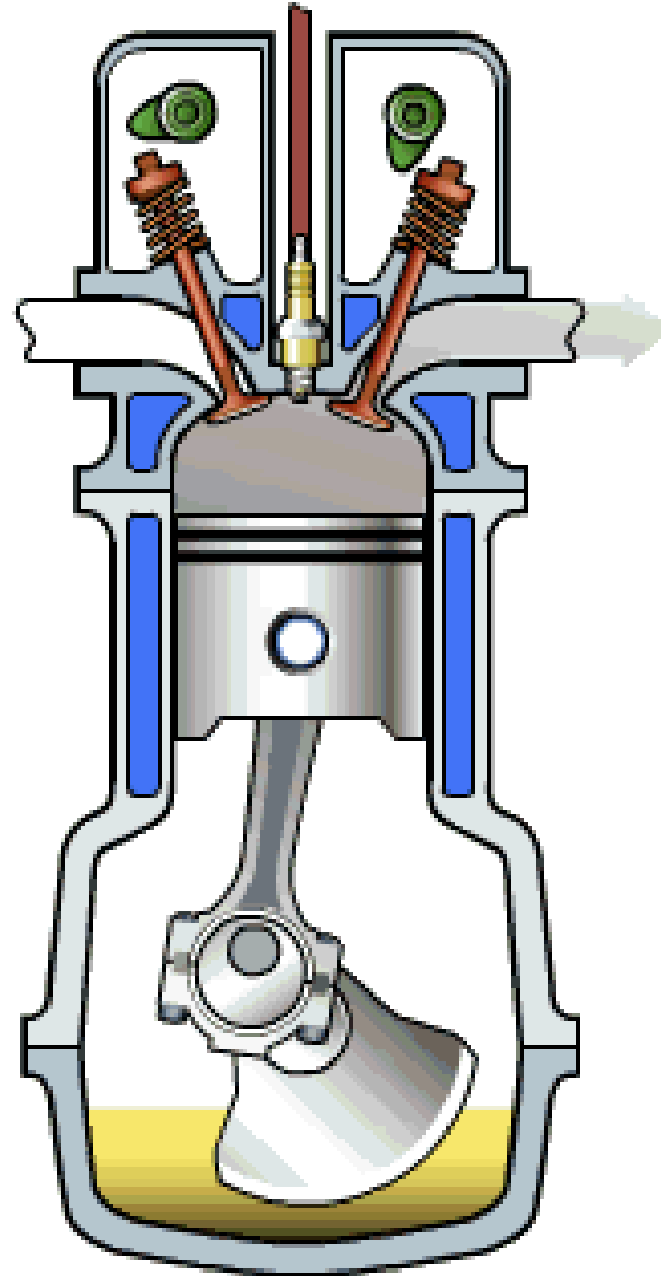
॥ नमस्ते ॥

AIR STANDARD CYCLE

Working of 4 stroke Petrol Engine

- 1. Intake stroke:** The intake valve (on the top left of each image) is open and as the piston travels downward, this suction pulls the air/fuel mixture into the cylinder.
- 2. Compression stroke:** Both valves are now closed and the piston compresses the air fuel into a much smaller volume, preparing the mixture for ignition.
- 3. Power stroke:** With both valves closed, the spark plug—located in the picture between the intake and exhaust valve will fire, igniting the air/fuel mixture. The resulting explosion forces the piston downward and rotates the crankshaft, which in turn propels the vehicle.
- 4. Exhaust stroke:** The exhaust valve (on the top right of each image) is now open, allowing the piston to push the spent exhaust gasses out of the engine as it rises. The 4-strokes (1 engine cycle) are now complete, and the process repeats.

How Engines Work



 Top Dead Center

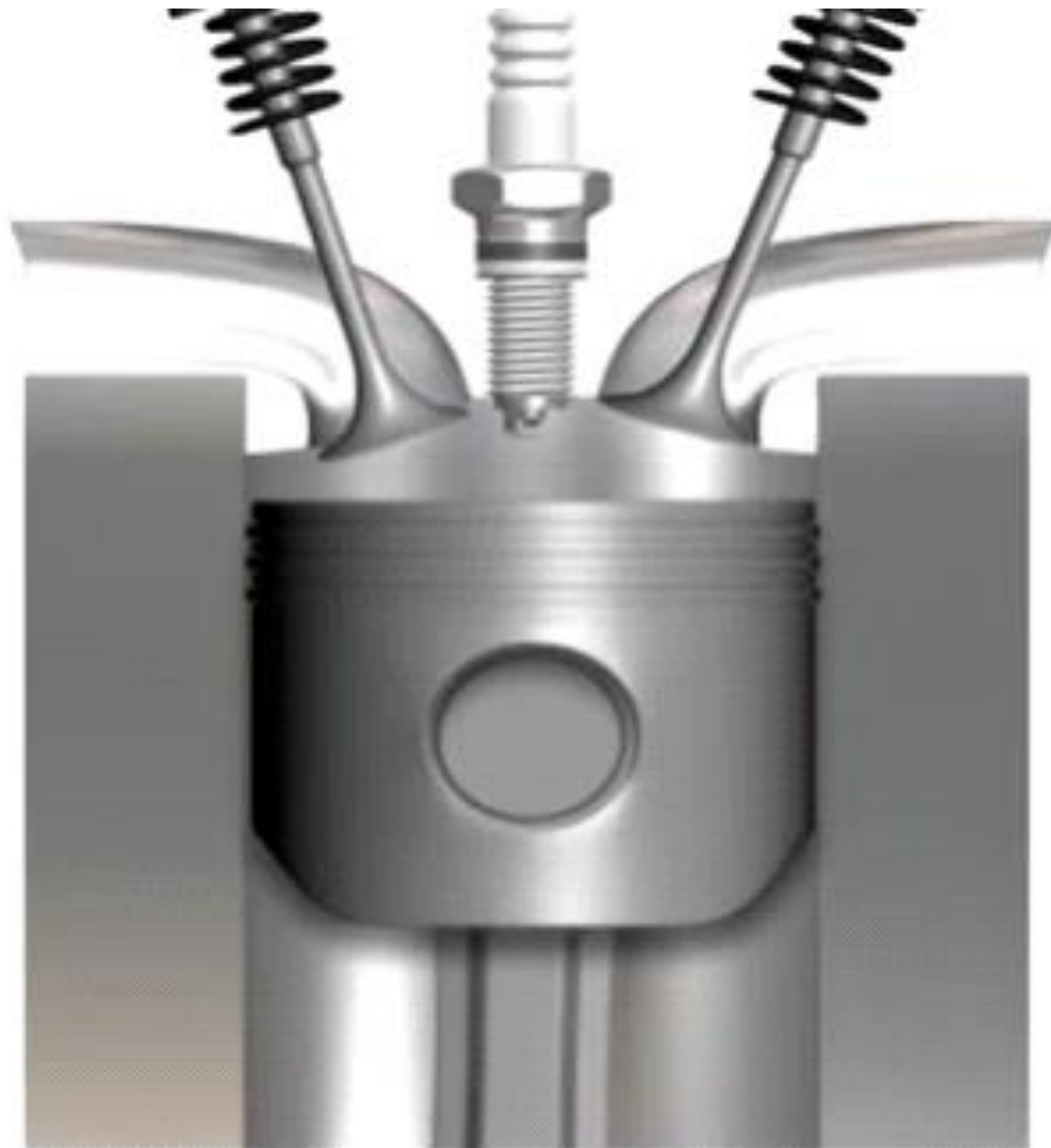
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- 1** INTAKE
- 2** COMPRESSION
- 3** COMBUSTION
- 4** EXHAUST

RESET

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DEFINITION:-

- We have been discussing the different internal combustion engines. Analyzing these internal combustion engines processes such as the Suctions, compression, combustion and exhaust are not an easy task.
- So this analysis is complicated with the real thermodynamic cycle.
- We have to make this cycle idealized by a few assumptions in these processes. Which is idealized cycle it will be easy to analyze these processes.
- This idealized cycle is called the air standard cycle.

ASSUMPTIONS IN AIR STANDARD CYCLE

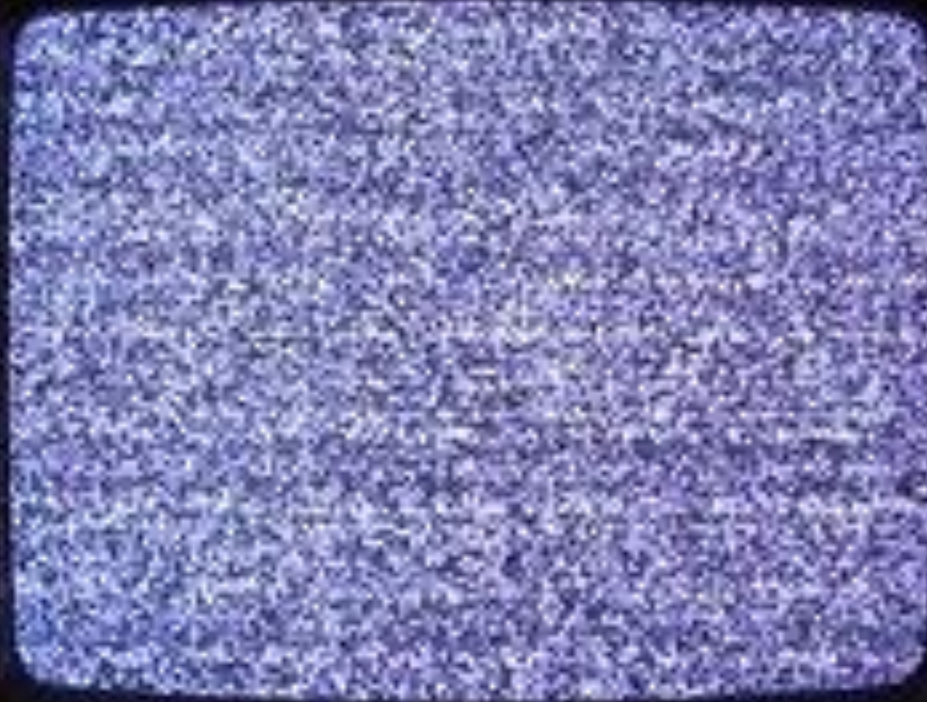
The remaining assumptions are as follows.

1. The working fluid is assumed to be a perfect gas.
2. There is no change in the mass of the working medium.
3. All the process that constitutes the cycle is reversible.
4. Heat is assumed to be supplied from a constant high-temperature source and not from chemical reaction during the cycle.
5. Some amount of heat will be rejected at the constant low-temperature sink during the cycle.
6. It is assumed that there are no heat losses.
7. The working medium has constant specific heats throughout the cycle.

- 8. The working fluid is air which behaves as an ideal gas**
- 9. All the processes are internally reversible**
- 10. The combustion process is replaced by the heat addition process**
- 11. the exhaust process is replaced by the heat rejection process which returns the working fluid to its original state**



Today's Amazing Fact!!



The static on your TV is caused by radiation left over from big bang about 13.7 billion years ago

धन्यवाद

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