THE OTTO CYCLE (ENGINE)

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Vice Principal

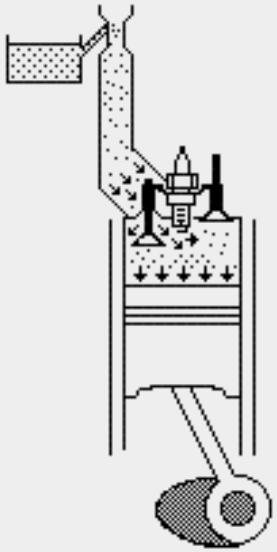
- **1876** - Nikolaus August Otto invented and later patented a successful four-stroke engine, known as the "Otto cycle".

THE OTTO CYCLE

Intake Stroke:

- Intake valve open
- Piston moving down
- Volume increases
- Constant pressure (atmospheric)

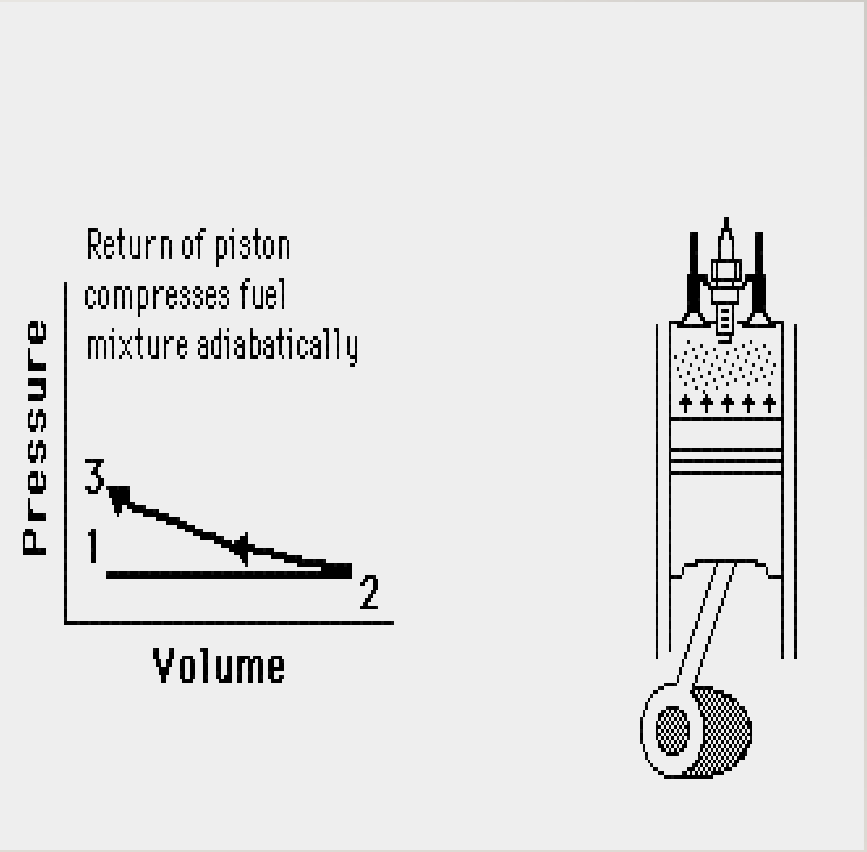
Temperature decreases



THE OTTO CYCLE

Compression Stroke:

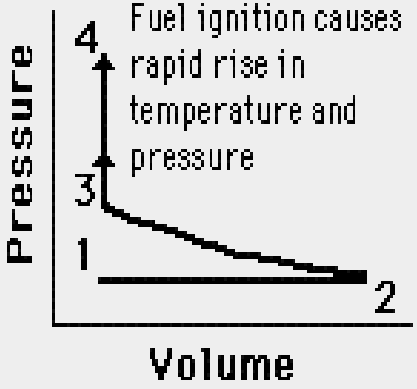
- Both valves closed
- Piston moving up
- Volume decreases
- Pressure increases
- Temperature increases

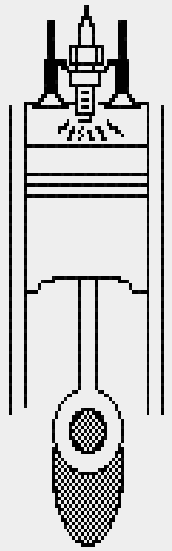


THE OTTO CYCLE

Ignition :

- Both valves closed
- Piston at topmost position
- Pressure increases
- Constant volume
- Temperature increases

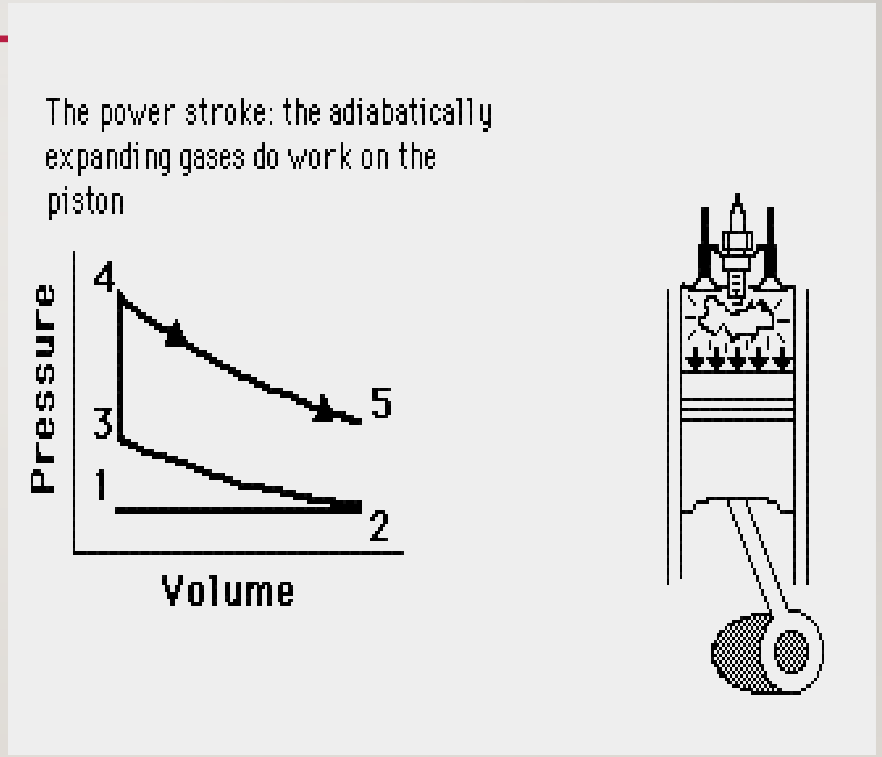




THE OTTO CYCLE

Power Stroke:

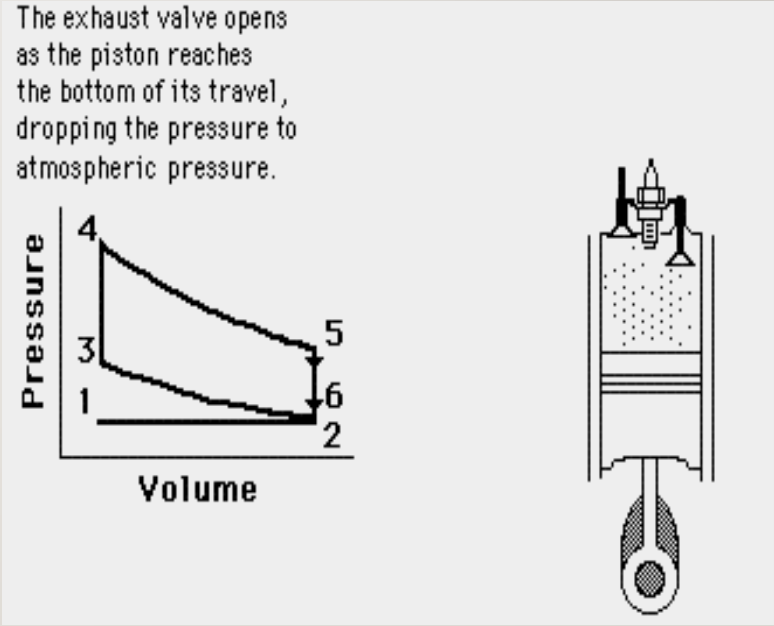
- Both valves closed
- Piston moving down
- Pressure decreases
- Volume increases
- Temperature decreases



THE OTTO CYCLE

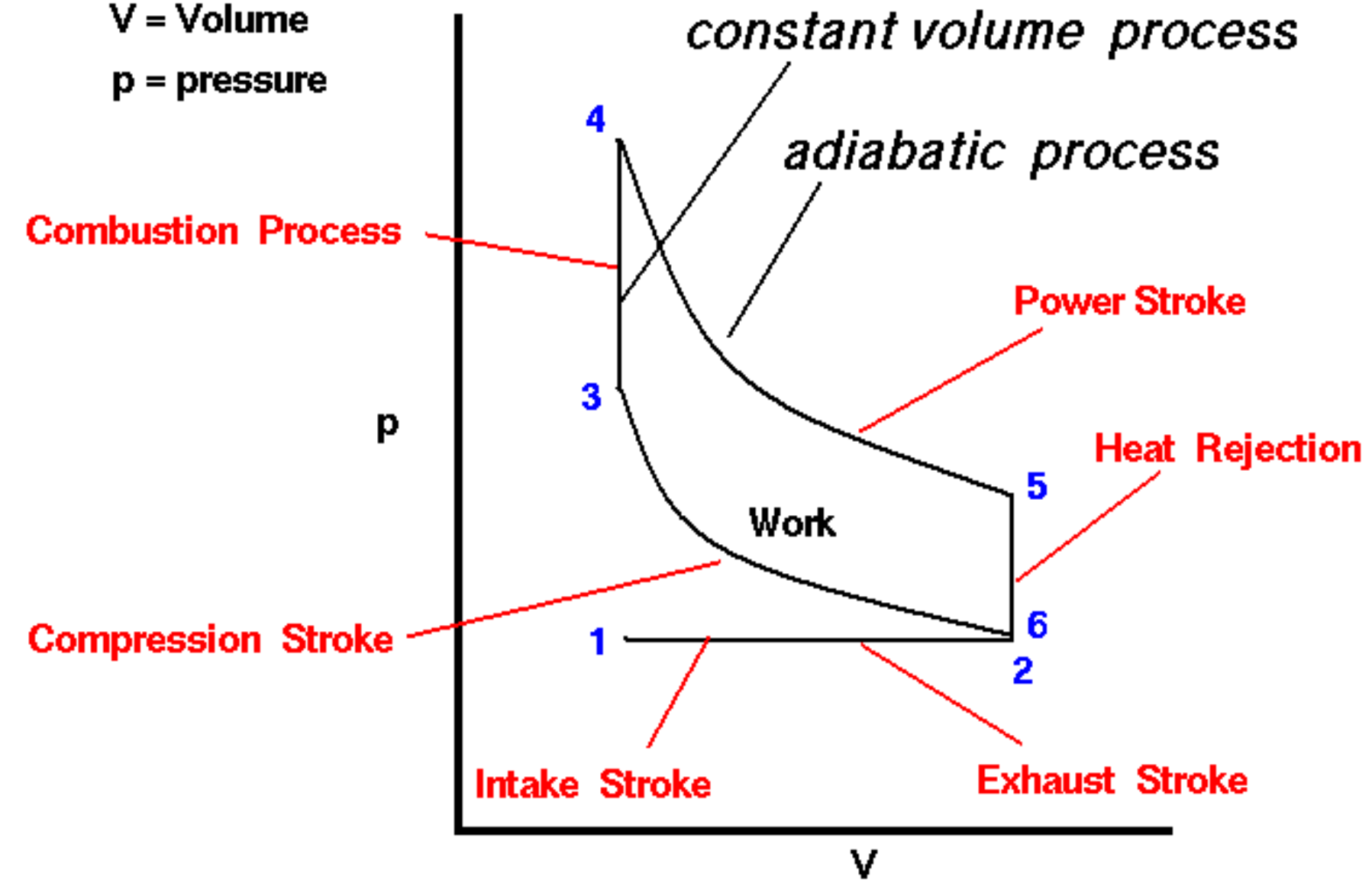
Exhaust Stroke:

- exhaust valve open
- piston moving up
- constant pressure (atmospheric)
- volume decreases
- temperature increases



Ideal Otto Cycle

p–V diagram



EFFICIENCY

- Thermal Efficiency
- Compression Ratio