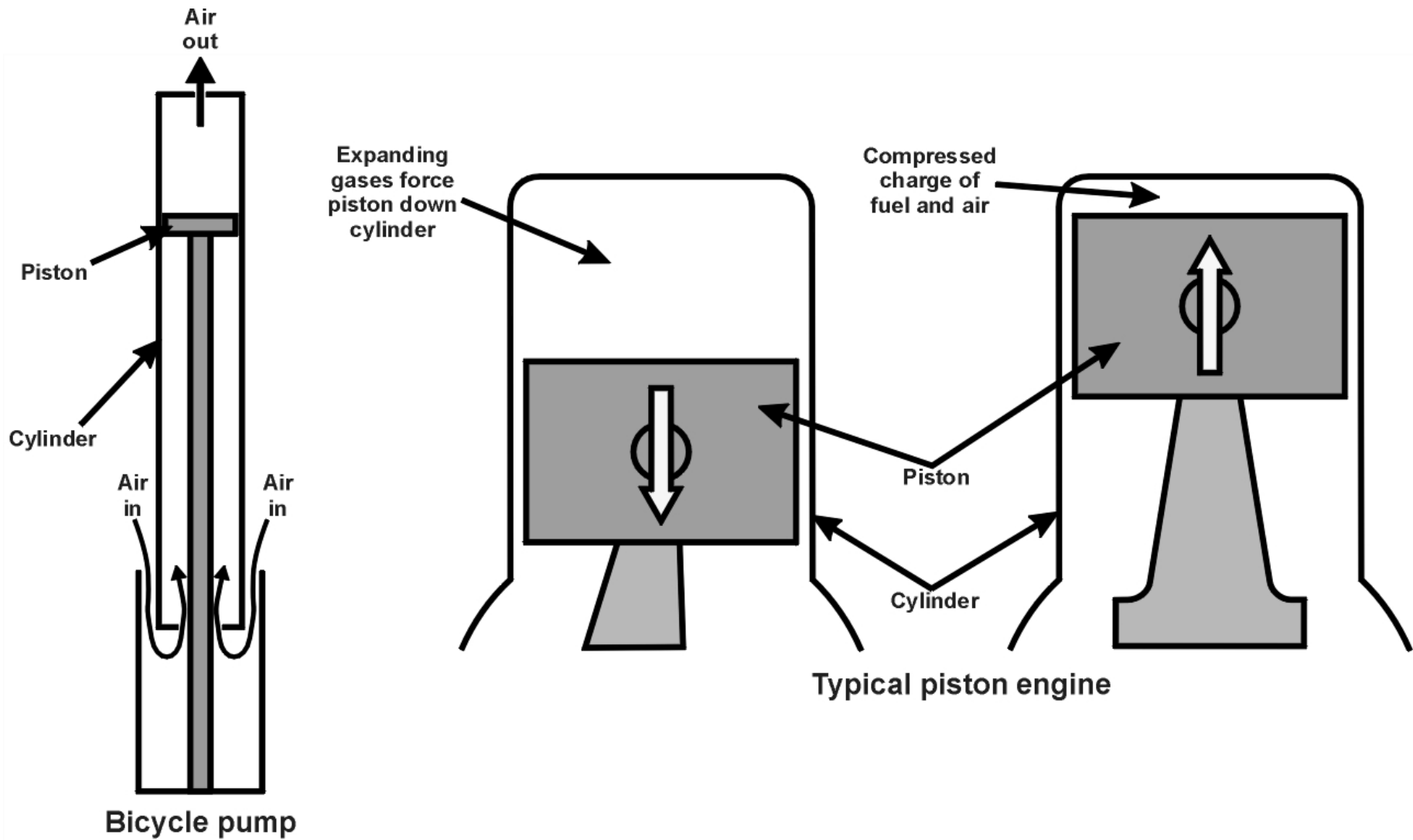


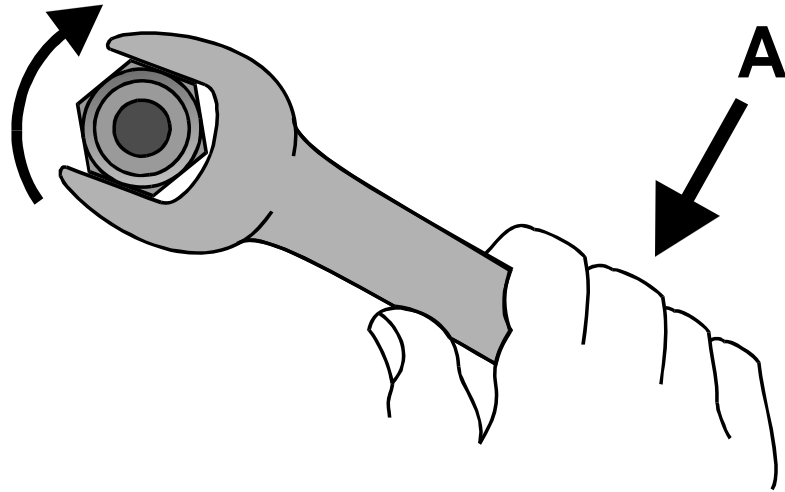
# Mechanical Arrangement

## Piston Engines

The main bits and pieces that make up the piston engine

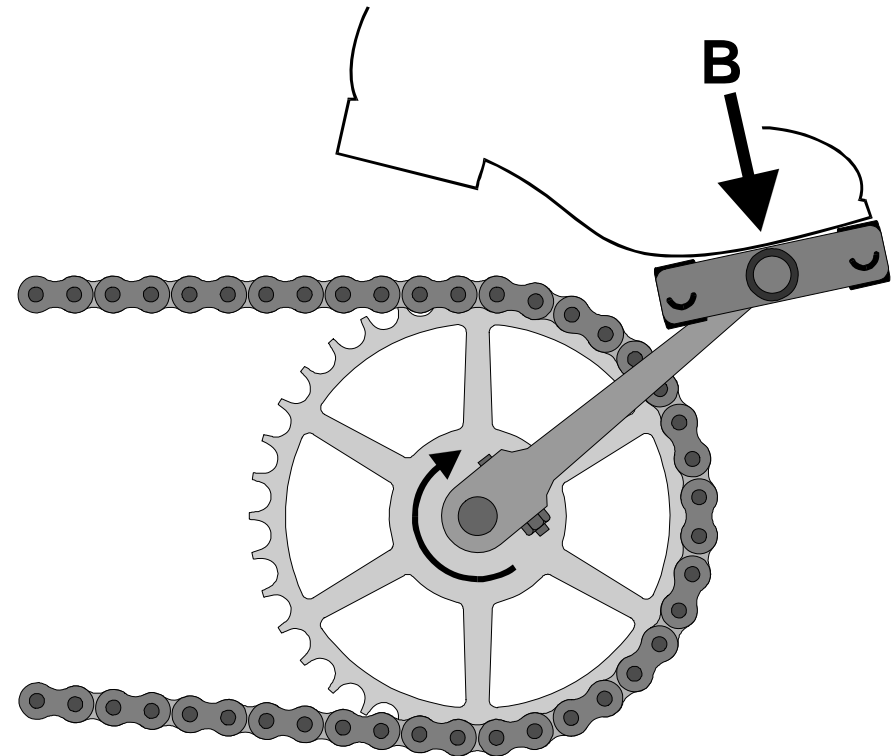


## Mechanical Arrangement - Basics

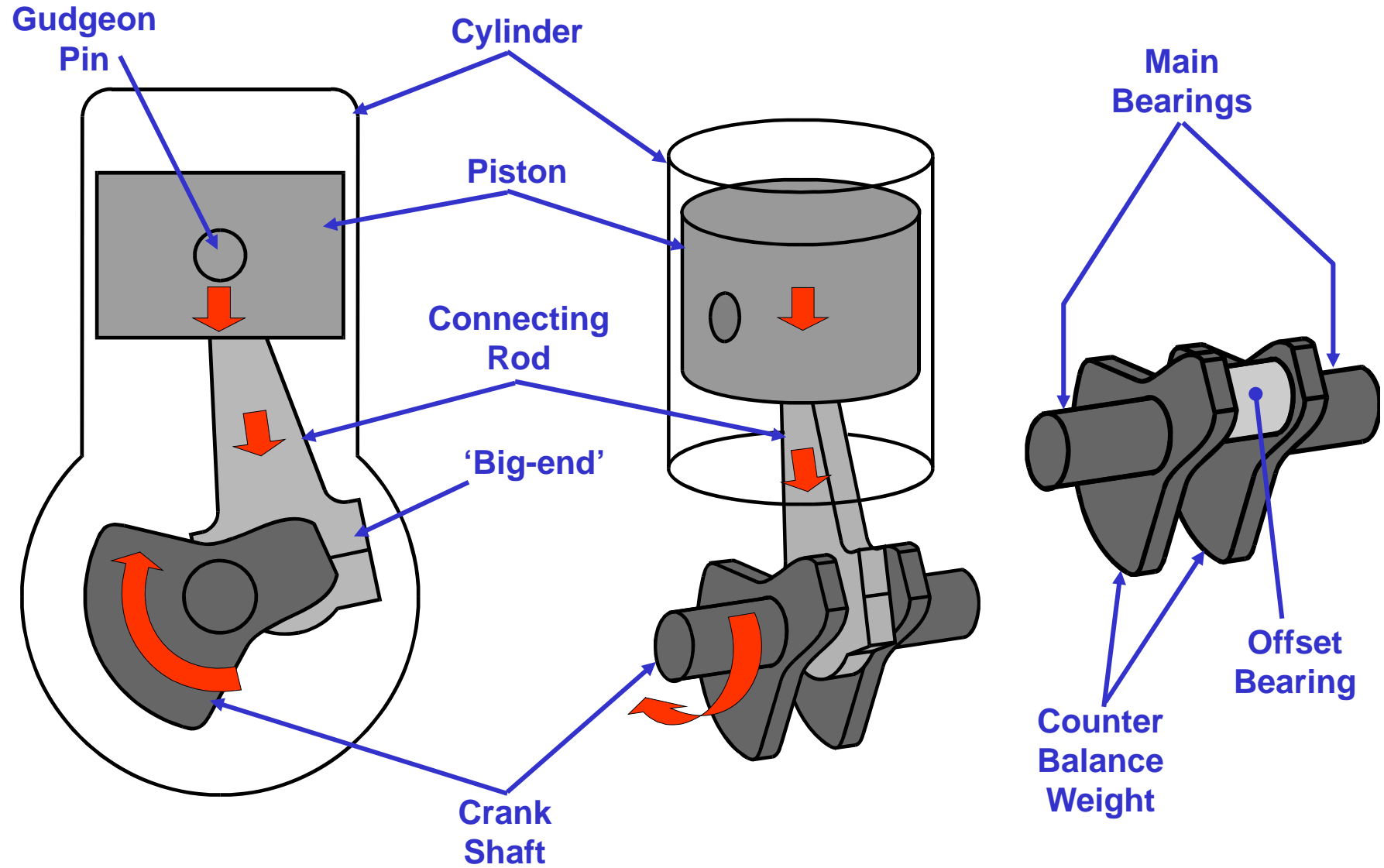


Hand force in direction 'A' gives rotational force on nut

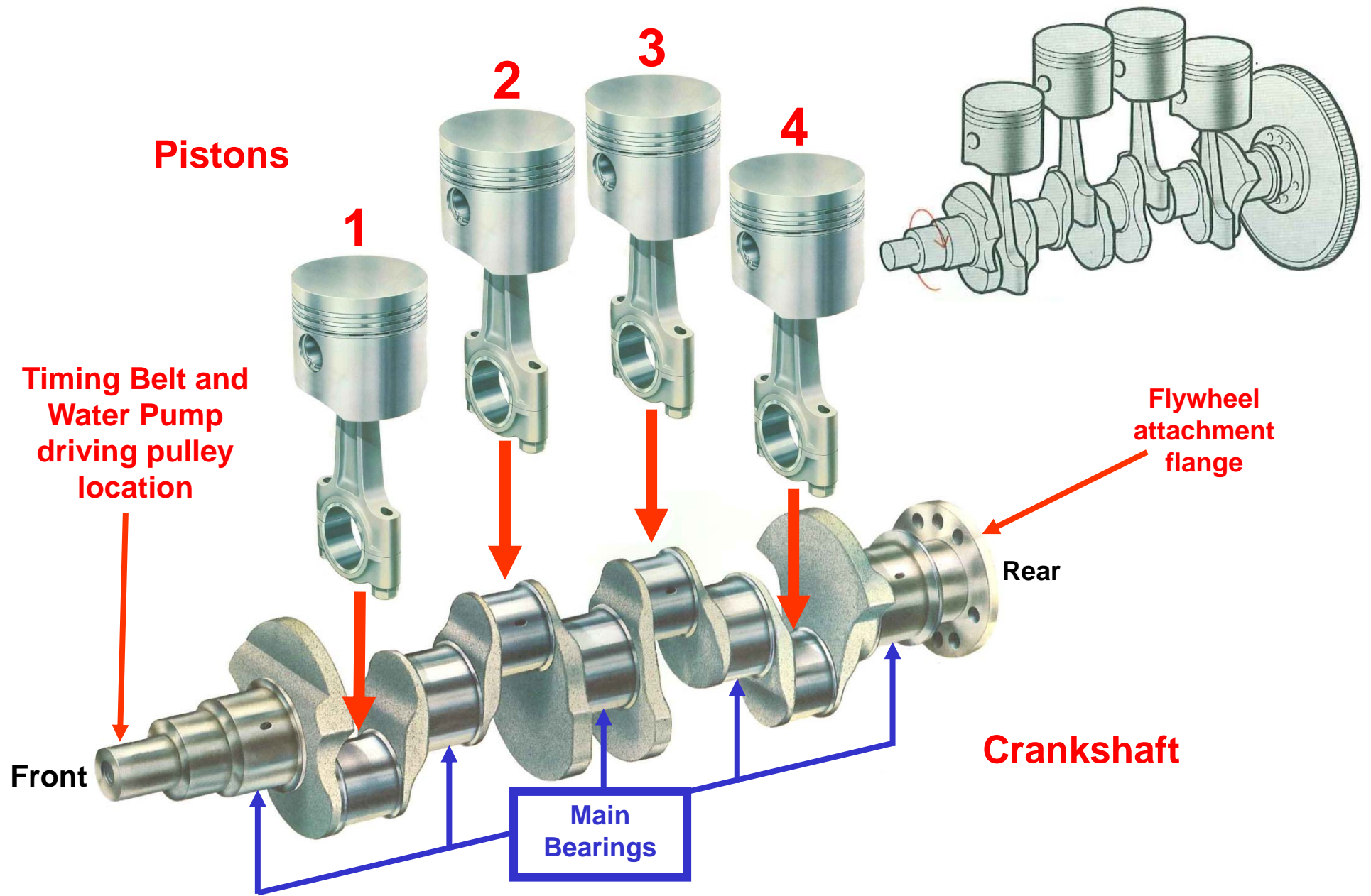
Leg force in direction 'B' gives rotational force on pedal/crank propels bicycle along



## Mechanical Arrangement - Basics

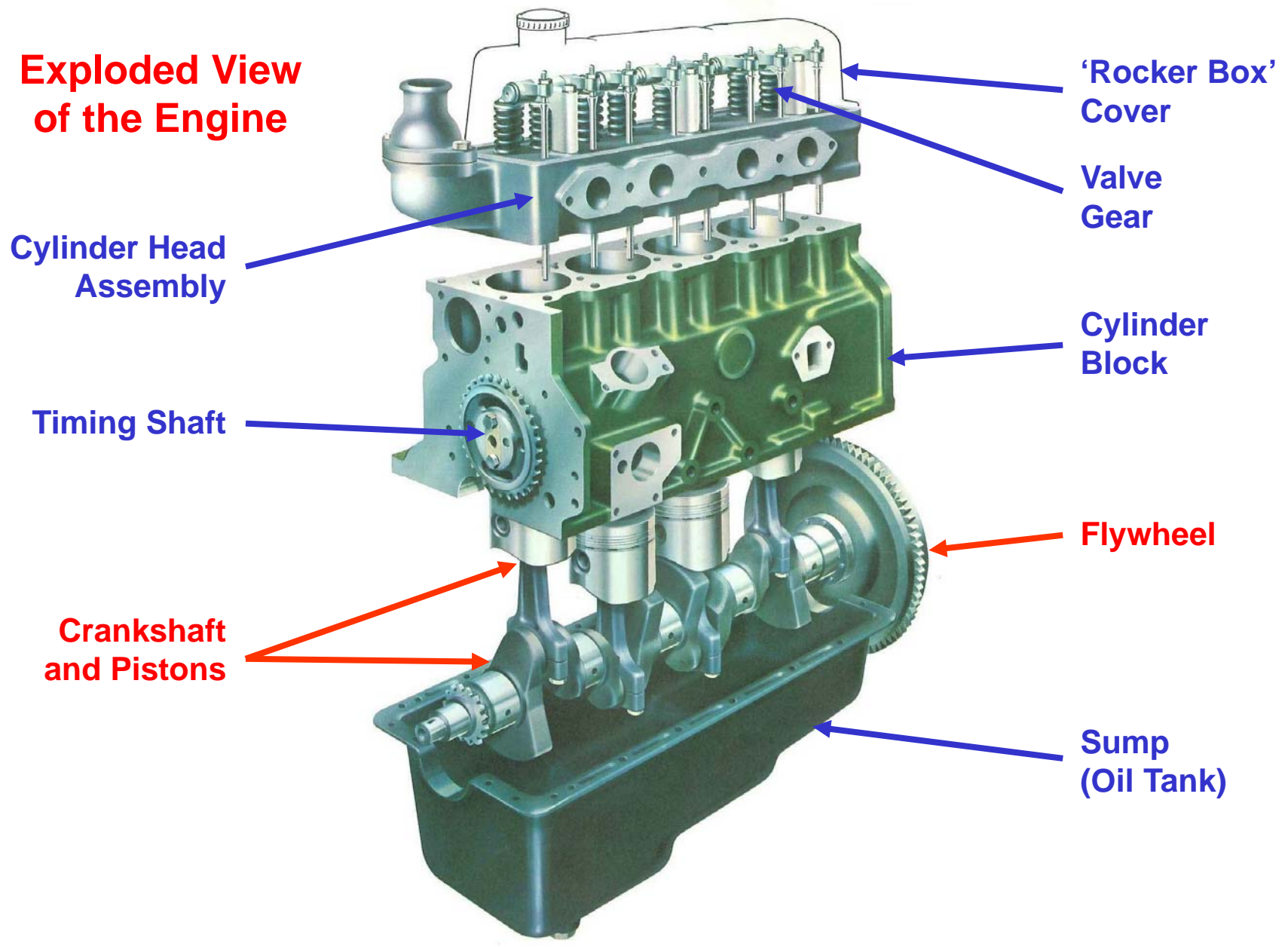


## Mechanical Arrangement - Basics



## Mechanical Arrangement - Basics

**Exploded View  
of the Engine**

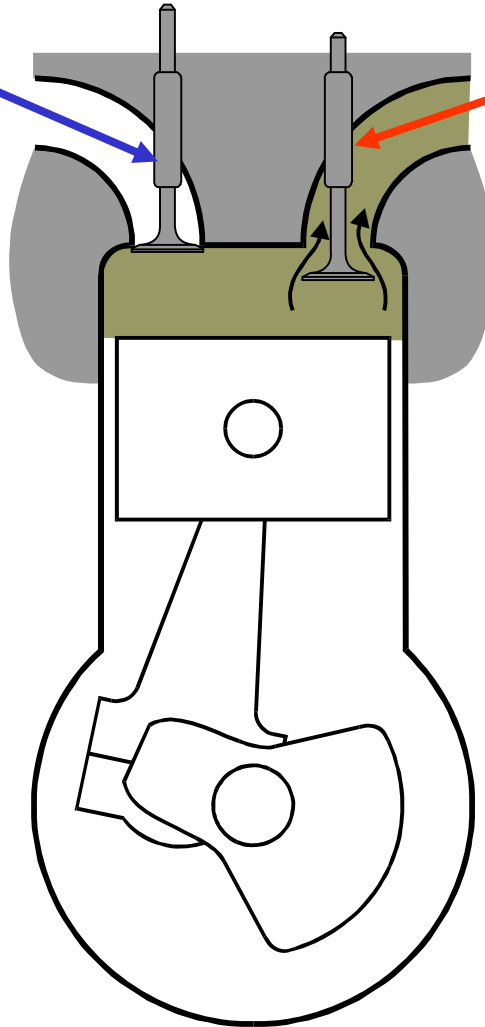


**Mechanical Arrangement – Main Parts**

## Valve Operation

Inlet Valve

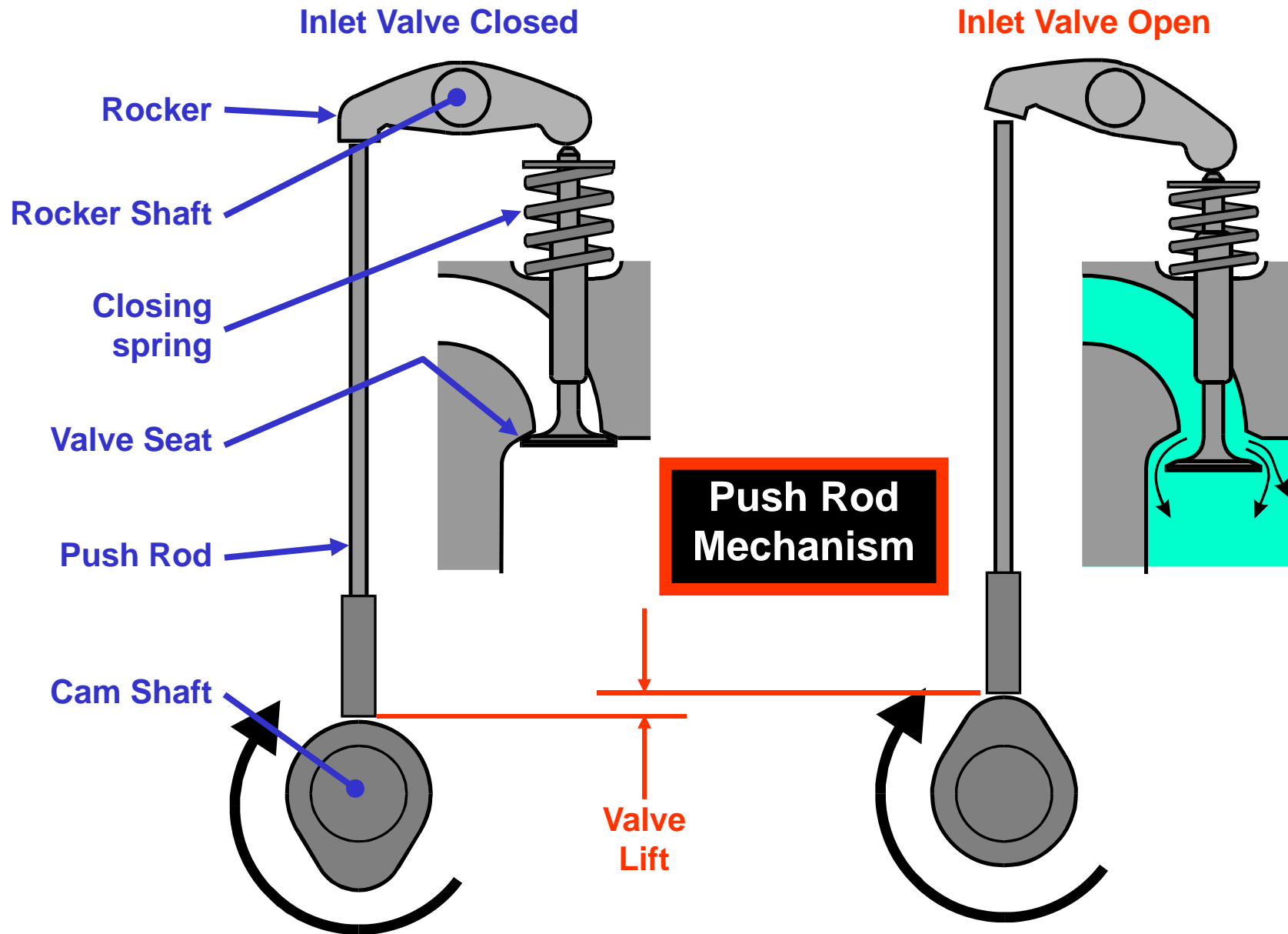
Exhaust Valve



The Inlet Valve  
needs to be open to  
allow fuel/air  
mixture in

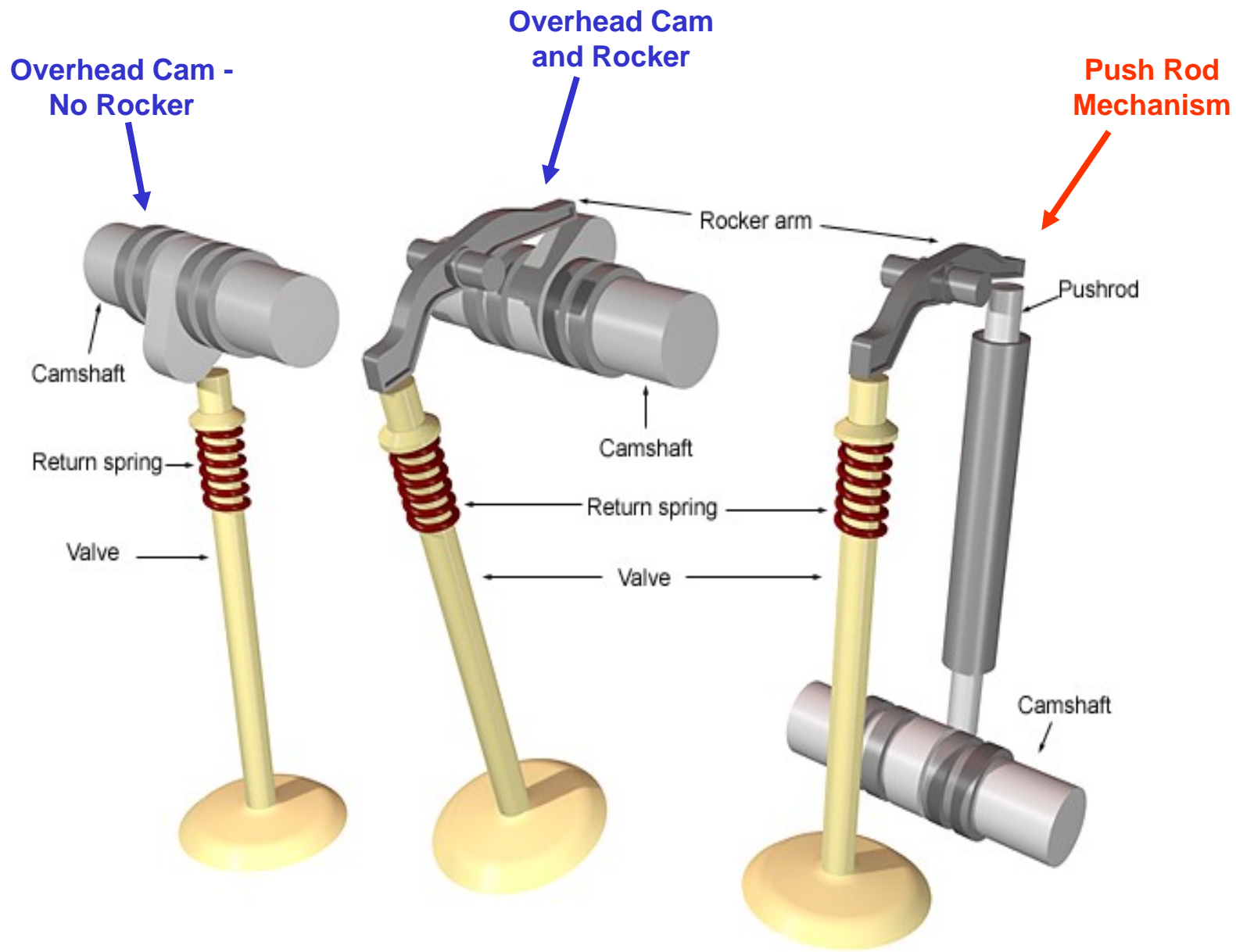
The Exhaust Valve  
needs to be open to  
allow burnt gases  
out

## Mechanical Arrangement – Valve Gear



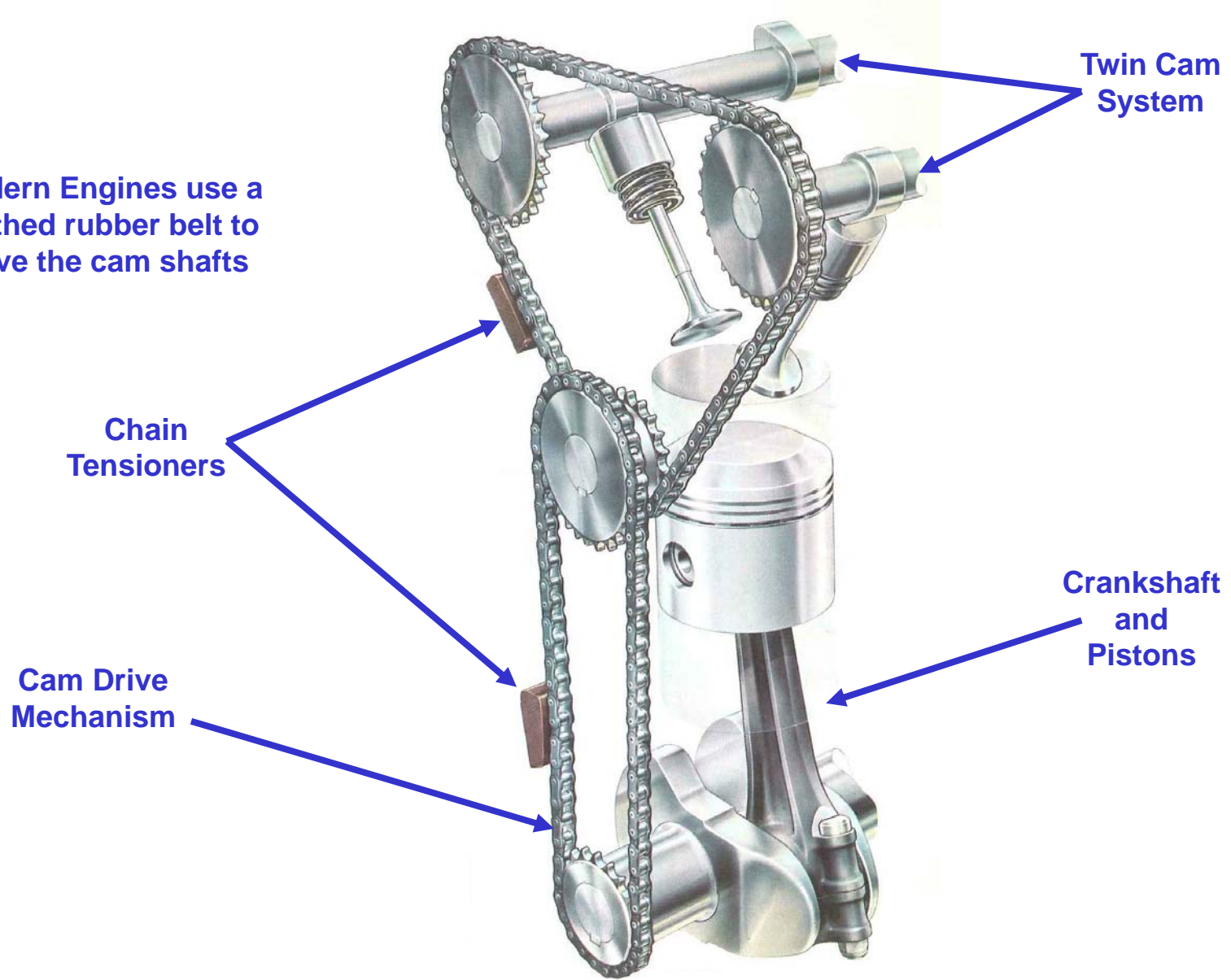
**Mechanical Arrangement – Valve Gear**





## Mechanical Arrangement – Valve Gear

Modern Engines use a toothed rubber belt to drive the cam shafts



Twin Cam System

Chain Tensioners

Cam Drive Mechanism

Crankshaft and Pistons

## Mechanical Arrangement – Valve Gear

**Put it all together**

**How does it work?**

**Mechanical Arrangement**