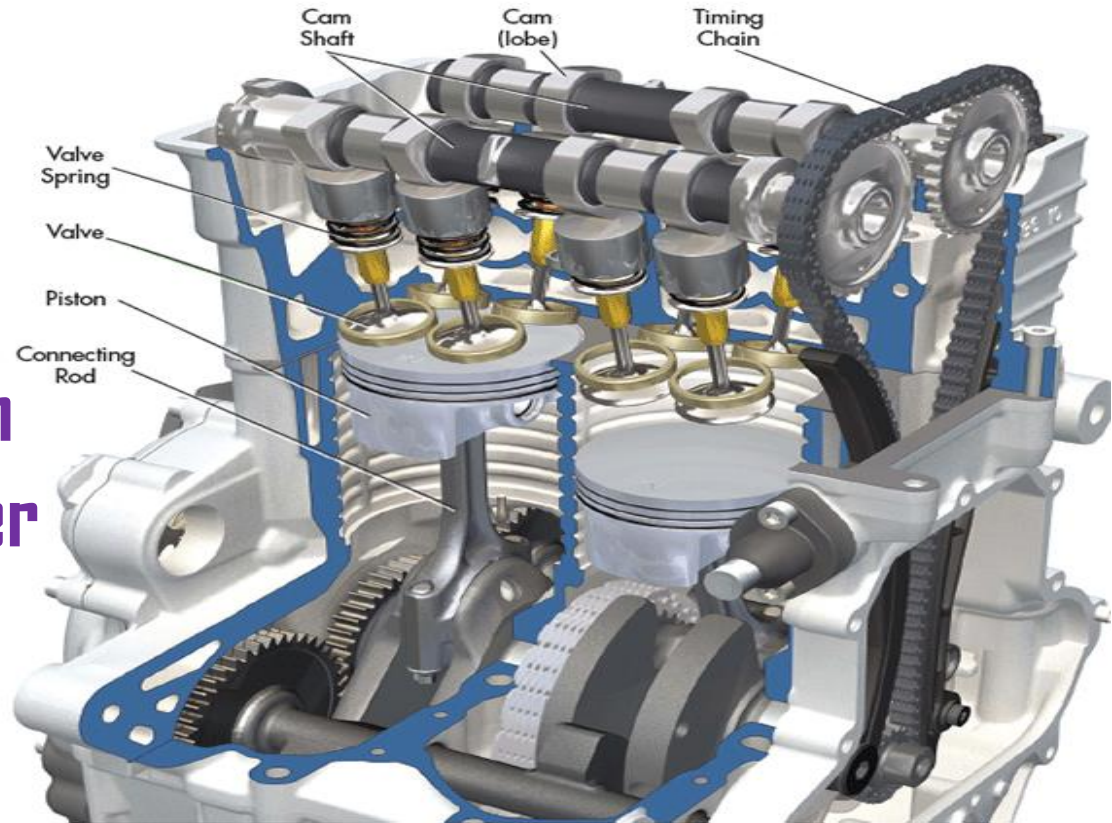


# I C Engine, Steam & Nuclear Power



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# Supercharging

We know that  $I_p = \frac{P_m L A N}{60}$

$I_p$  can be increased by increasing the value of  $P_m$ ,  $L$ ,  $A$ , &  $N$ .

(1) increasing the piston displacement -

Increases the size and wt. of engine and introduces additional cooling problems.

(2) Running the Engine at higher speed -

↑ increased mechanical friction losses and imposes greater inertia stresses on Engine speed.

(3) Increasing the density of the charge or air

This allows a greater mass of charge to be introduced into same volume.

Supercharging →

the method of increasing air capacity of an engine is known as supercharging. the device used to increase the air density is known as supercharger.

# type of Super charging

↓  
Mechanical  
Super Charging

↓  
turbocharging

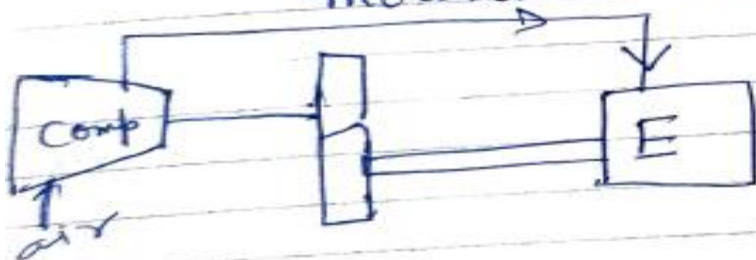
Super charging done by blower or  
compressor.



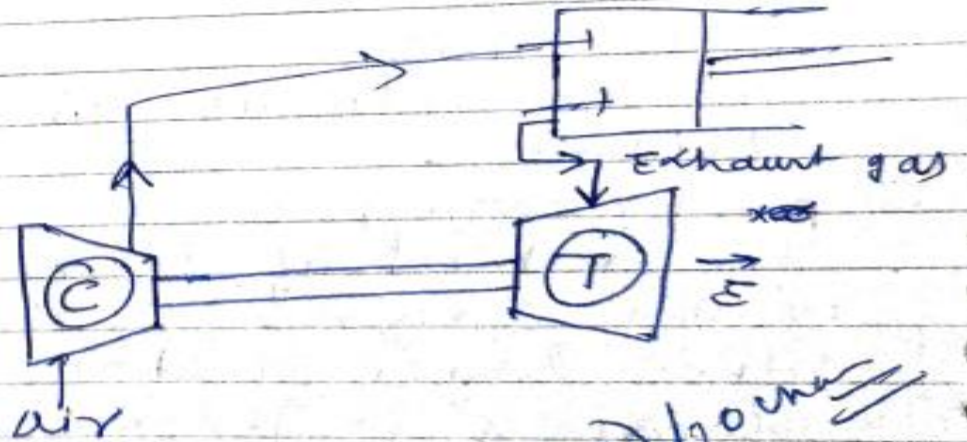
## Mechanical Supercharging →

The Blower or Compressor is driven by the Engine Crank Shaft  
Turbochargers are driven by Engine Exhaust gas.

↓  
Blower/Compressor and the Turbine mounted on the same shaft.



M-Super



(Turbocharger)

## SI Engines

Supercharging in SI Engine is ~~done~~ Employed only in aircraft and racing car Engine

↑ the intake temp.

→ This reduce ignition delay.  
↑ increasing flame speed.

due to this increasing the tendency of ~~NoC~~ Knocking.