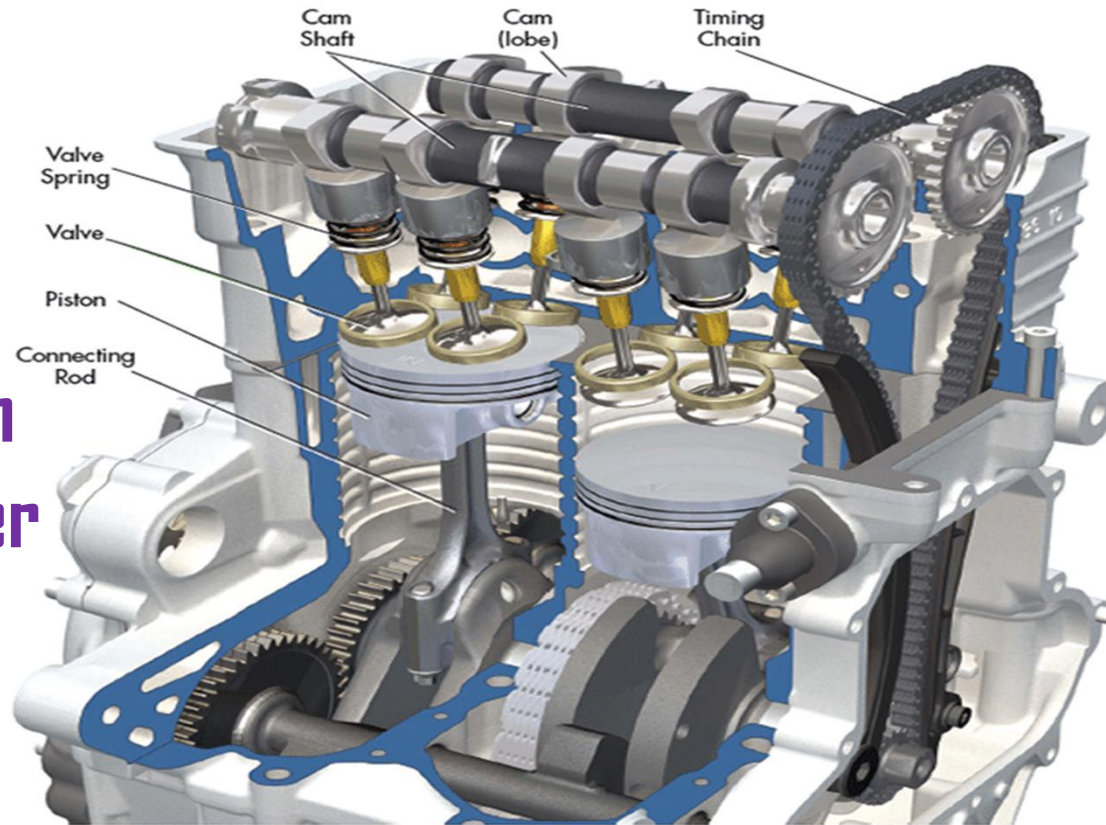


I C Engine, Steam & Nuclear Power



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Fuel Air Ratio - When the mixture is slightly richer say around 10%, the temp are very high coz of this higher temp the ignition lag is less and this higher temp also result in velocity of flame propagation but the effect of reduction in ignition lag is more and hence the knocking tendency increases at about slightly richer mixture therefore to suppress detonation the mixture is made either richer or leaner.

Pre-ignition - Ignition of homogeneous mixture of air and fuel before the initiation of spark is known as pre-ignition. ~~It~~ it is caused by local over heating of combustion mixture.

An SI Engine 'uniform A/F mixture' is supplied, but CI Engine A/F mixture is not homogeneous and fuel remain in liquid particles. therefore quantity of air supplied is 50% to 70% more than stoichiometric mixture.

The combustion in SI Engine starts at one point and generated flame at the point of ignition propagates through the mixture for burning of the mixture. Where as in CI Engine the combustion take place at NO. of points simultaneously and NO. of flames generated are also many.

Stage of combustion in CI engine

Stage of Combustion in CI Engine

- 1- Ignition delay period / Pre Flame combustion
- 2- ~~uncontrolled~~ uncontrolled combustion / ^{Period of Rapid} combustion
- 3- controlled combustion
- (4) After burning.

From ^{Fuel} injection to start of combustion

ignition lag

(1) ignition delay → The fuel does not ignite immediately upon injection and actual burning this period is known as the ignition delay period.

two parts

ignition delay is divided into two parts (0.0015 second) ^{total time}