Supercharging

What is supercharging ?

It is the process of increasing the mass or density of air fuel mixture in S.I.engine or air in C.I. engine sucked into the engine cylinder.
It is done with the help of compressor or blower called as supercharger.
In S.I. engine it is mounted before carburetor which reduce the size of carburator.

Effect of Supercharging

1. To maintain power o/p of an engine working at high altitude, where less oxygen is available for combustion.
2. To reduce the space occupied by the engine.
3. To reduce the consumption of lubricating oil.
4. To reduce the mass of engine per B.P.
5. To increase mechanical and thermal efficiency.
6. To increase volumetric efficiency.
7. Specific fuel consumption is less.
8. Chances of detonation due to high pressure.

Turbocharging

What is Turbocharging

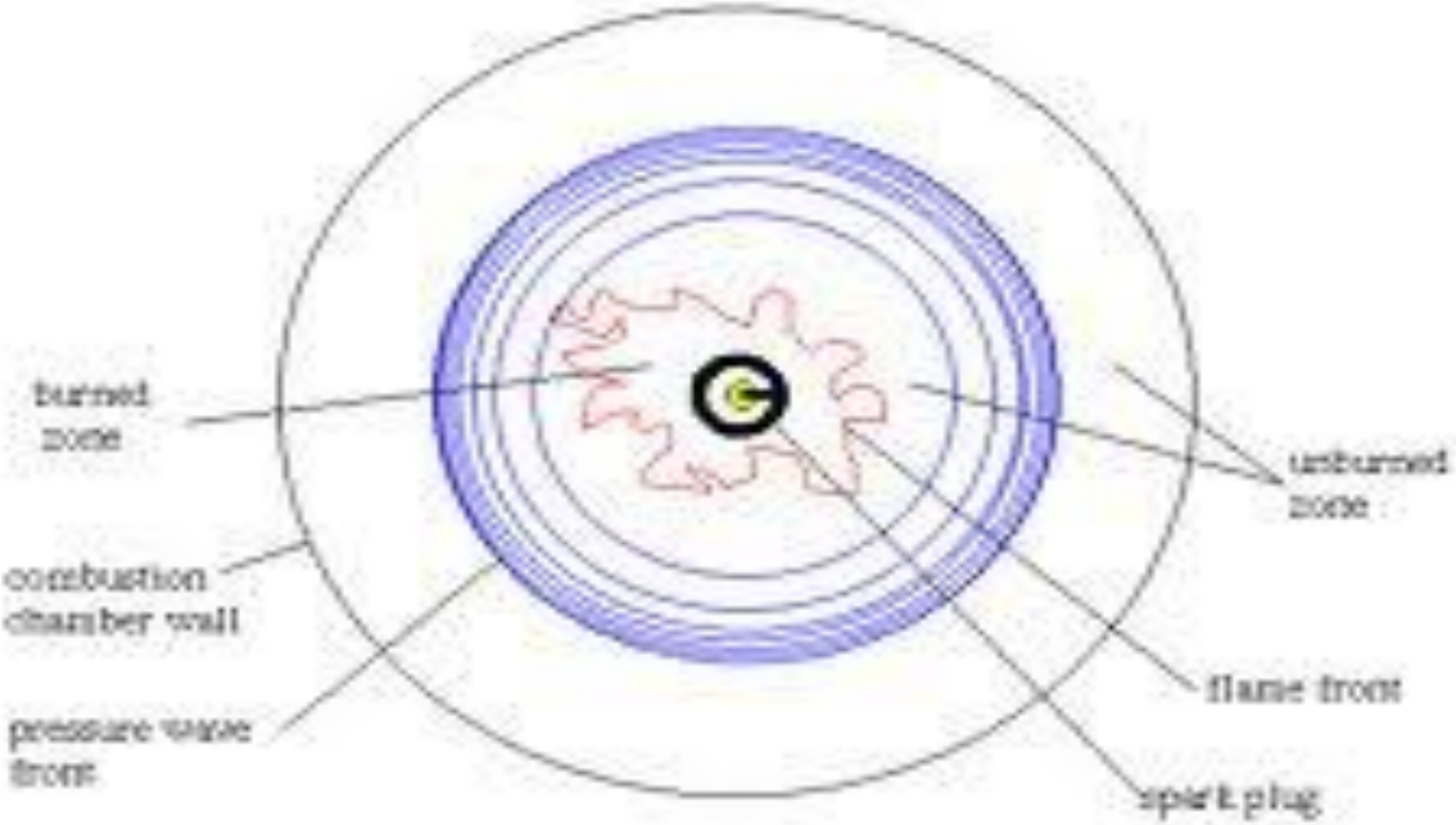
It is the process in which energy extracted from the exhaust gases by the turbine is utilized to drive the supercharger i.e. centrifugal compressor.
About 30 % of heat goes out through the exhaust gas.It depends on type of engine and operating conditions.
This gas turbine is directly coupled to the centrifugal compressor.

Detonation in IC Engine

What is Detonation

The loud pulsating noise heard within the engine cylinder.
Due to auto-ignition of unburnt fuel high pressure waves are created.
These high pressure waves may break the piston.

Fig. 1 – Combustion Process – Top View



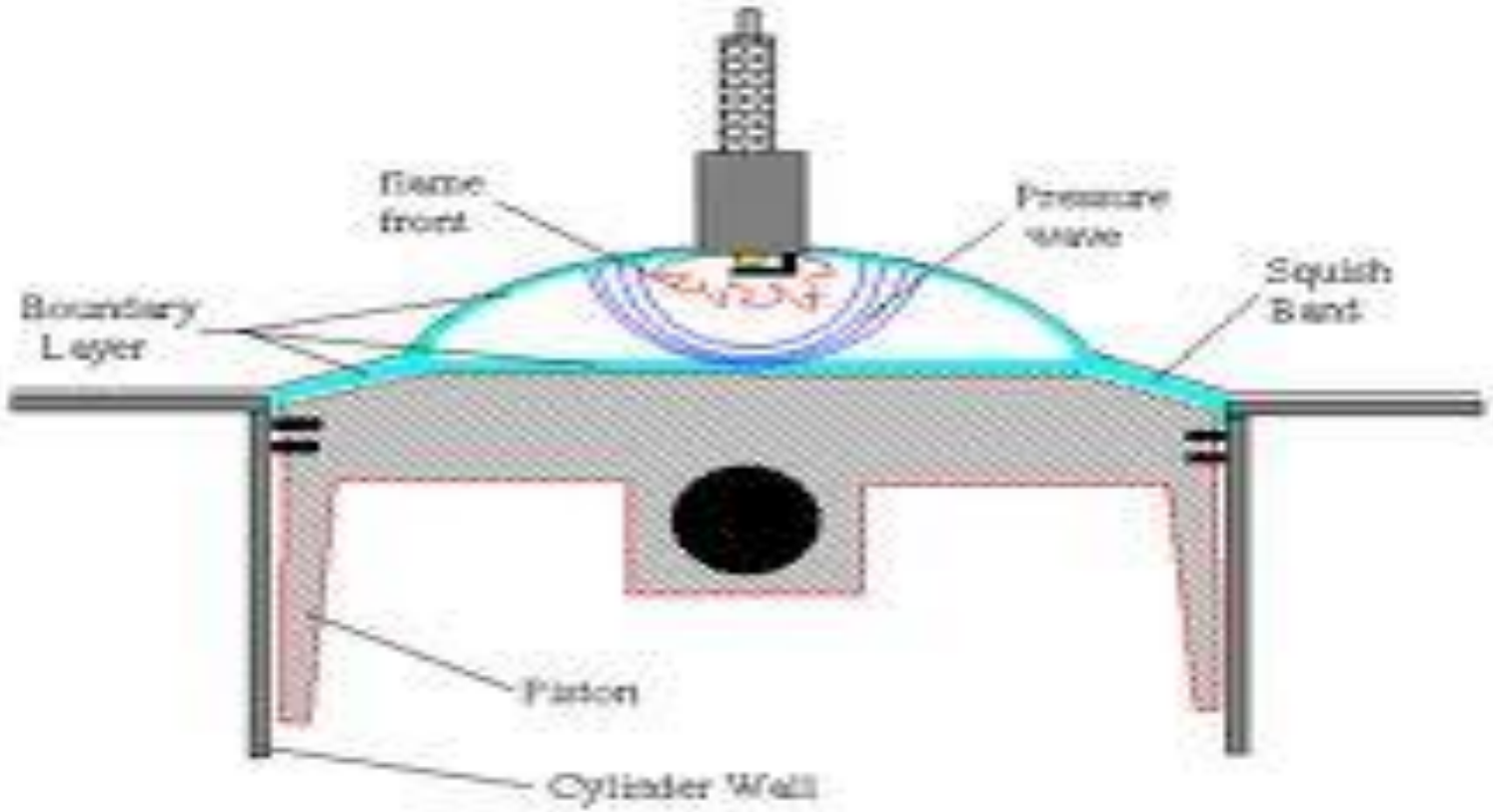
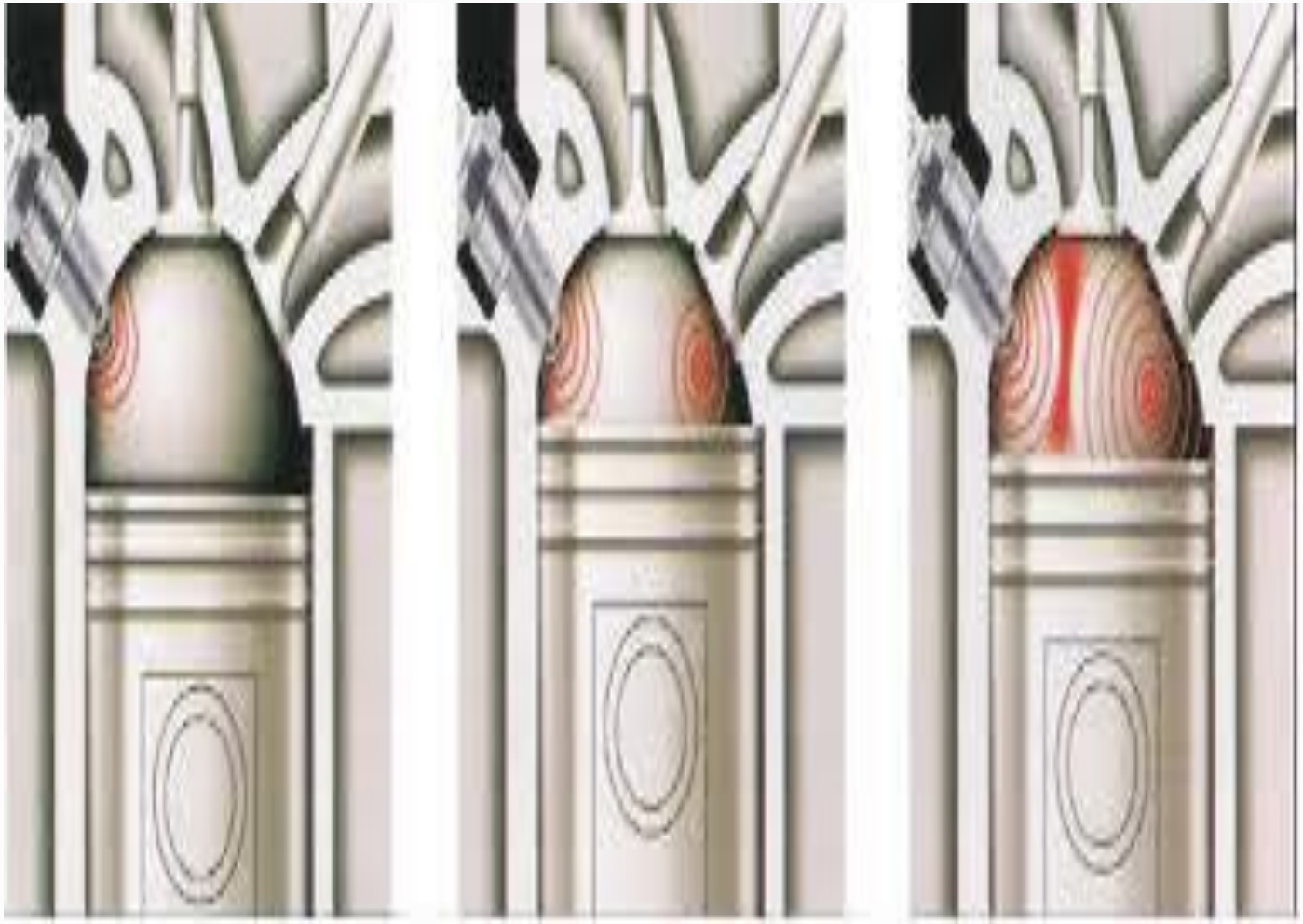


Fig. 2 – Combustion Chamber Side View



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Thank you