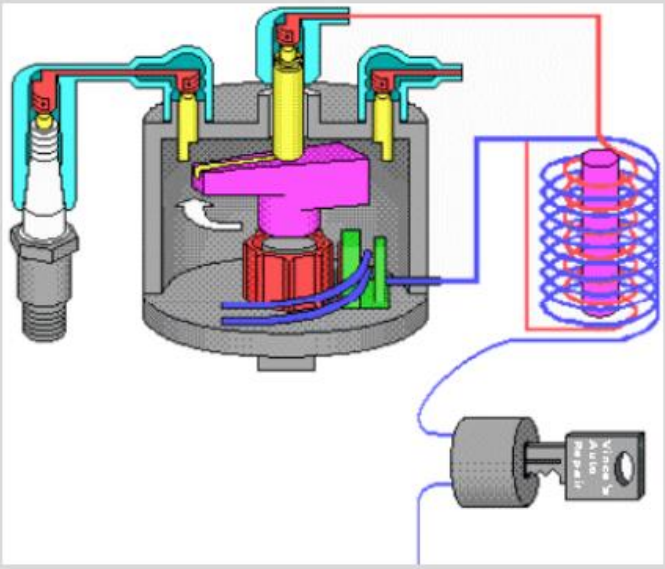
SI Engine Ignition System

Buland I. Dizayi
Ph.D.

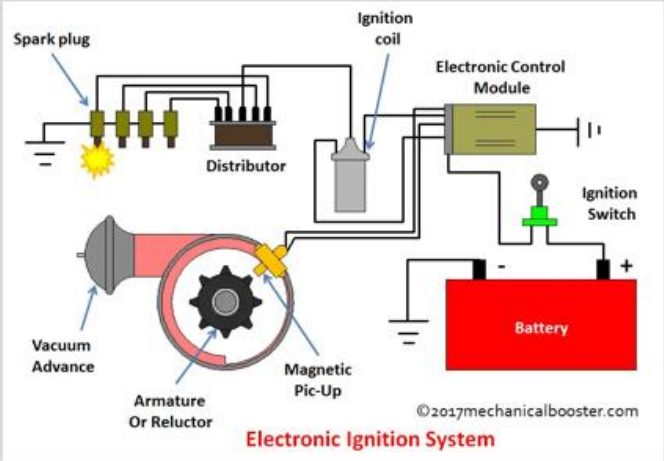
SI Engine Ignition System

- The amount of stress applied to the mixture is not enough to start combustion.
- The ignition system triggers the combustion process.
- The battery 12 volts is amplified to 30 000 volts.
- This high voltage jumps between the electrodes of the spark plug.



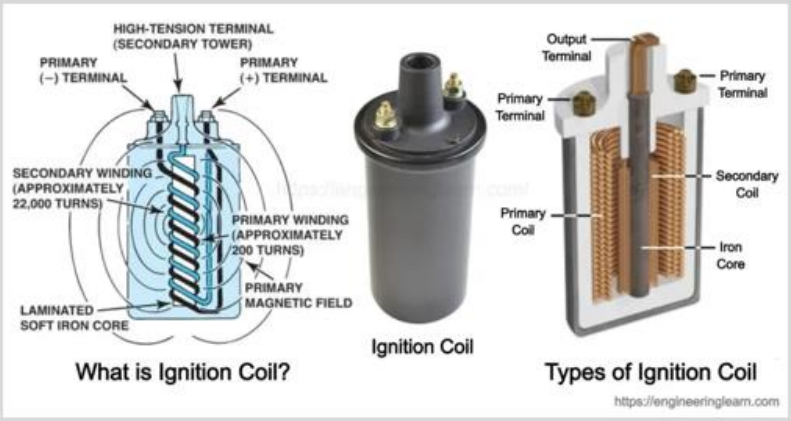
Ignition System with Magnetic Pic-up

- The magnetic pic-up acts as a trigger to actuate the electronic control module.
- The electronic control module controls the ignition timing and intensity.



The Ignition Coil

- The ignition coil amplifies the voltage by producing an induced emf in the secondary winding.
- The secondary winding posses a larger number of turns of a very thin wire.

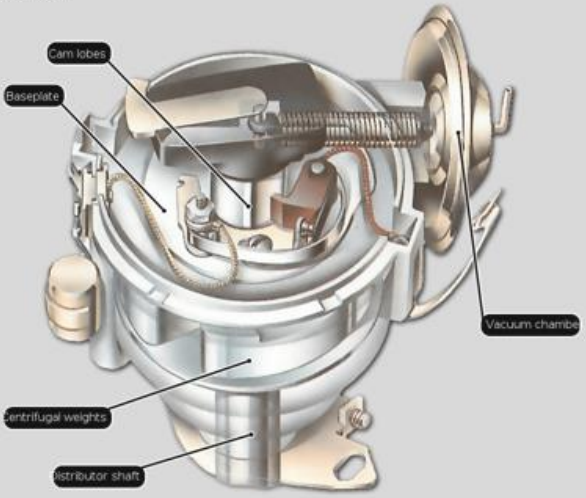


Types of Ignition Coil

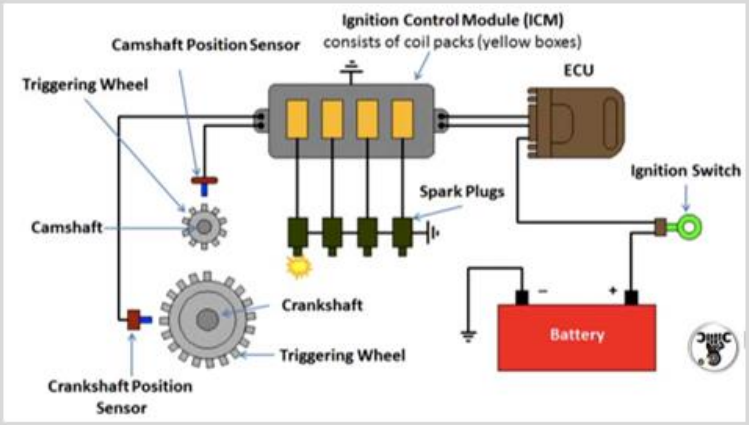
- The ignition coil is either separated or built-in as individual coils on each spark plug.

The Spark Distributer

- The high voltage line is distributed by a rotor driven by the camshaft.
- The contact braker opens and closes the primary electric circuit of the coil to convert the DC current to an intermittent current.
- This will produce the induced emf in the secondary winding.
- The vacuum advancement unit is attached for spark advancement at engine start and during sudden changes in engine speed.
- Two counterweights are also used for gradual spark advancement at cruising speeds.



Distributerless Ignition System (DIS)



Individual Ignition Coils