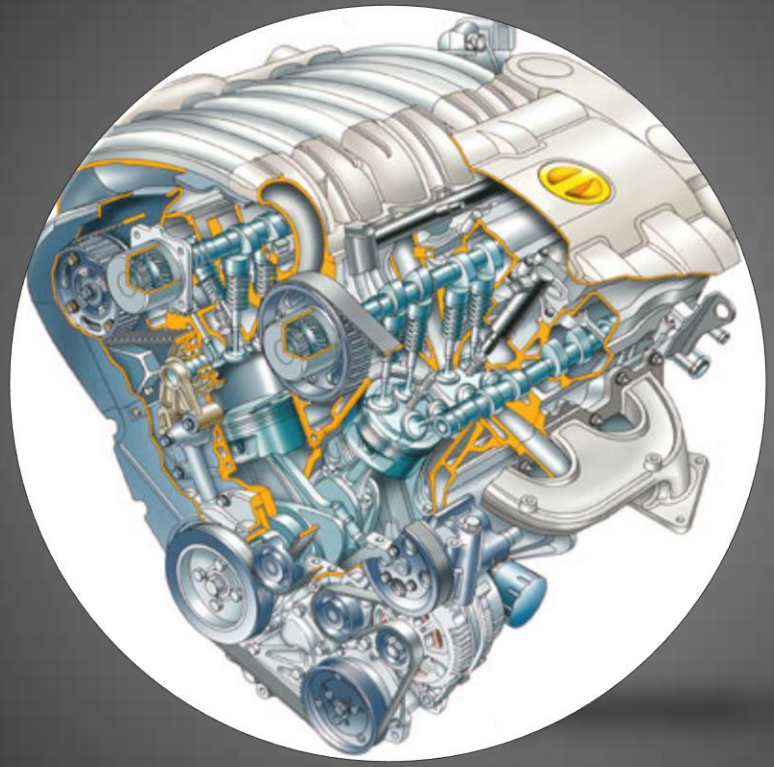
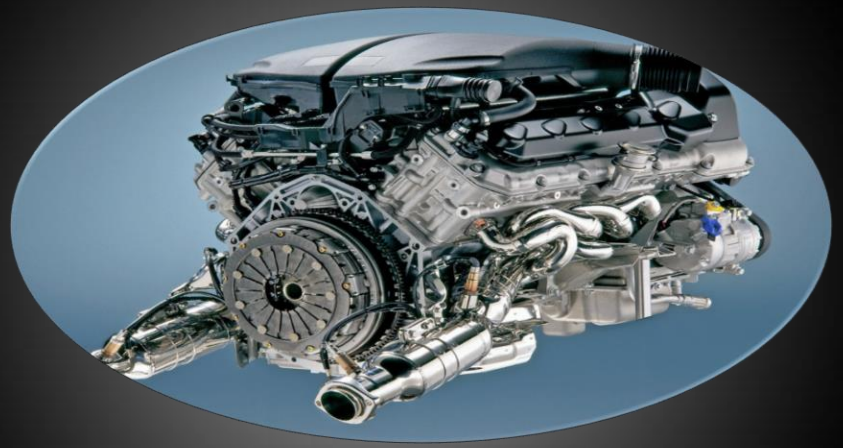


Engines

Section no.5: ignition system

Section 5



The importance of ignition system

01

Know the importance of a ignition system

Types of fuel ignition systems

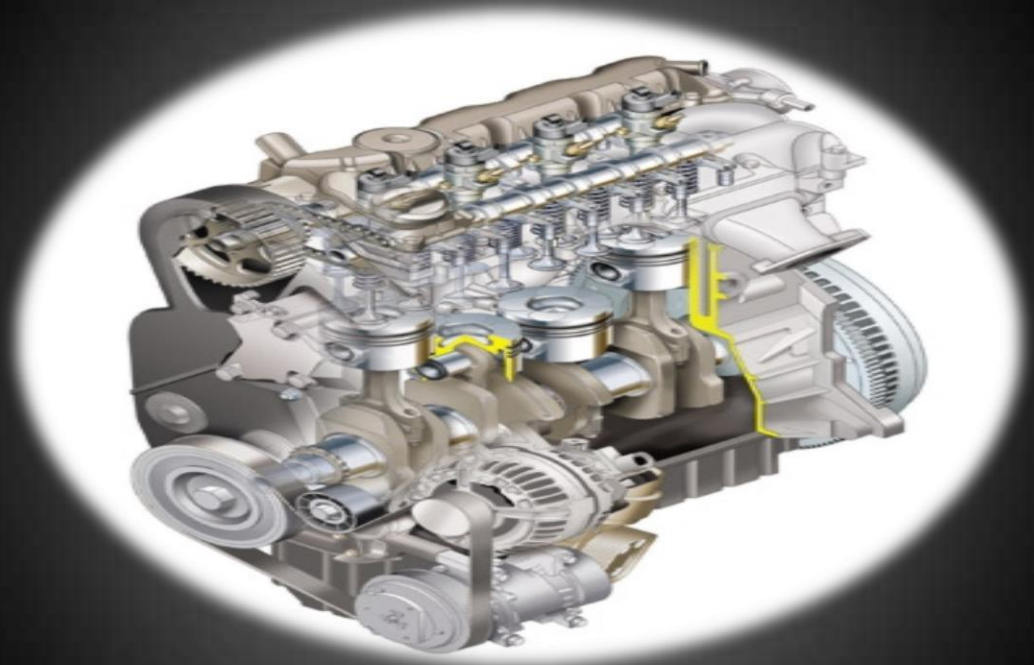
02

Know the different types of a ignition system

Ignition system components

03

Know the components of a ignition system

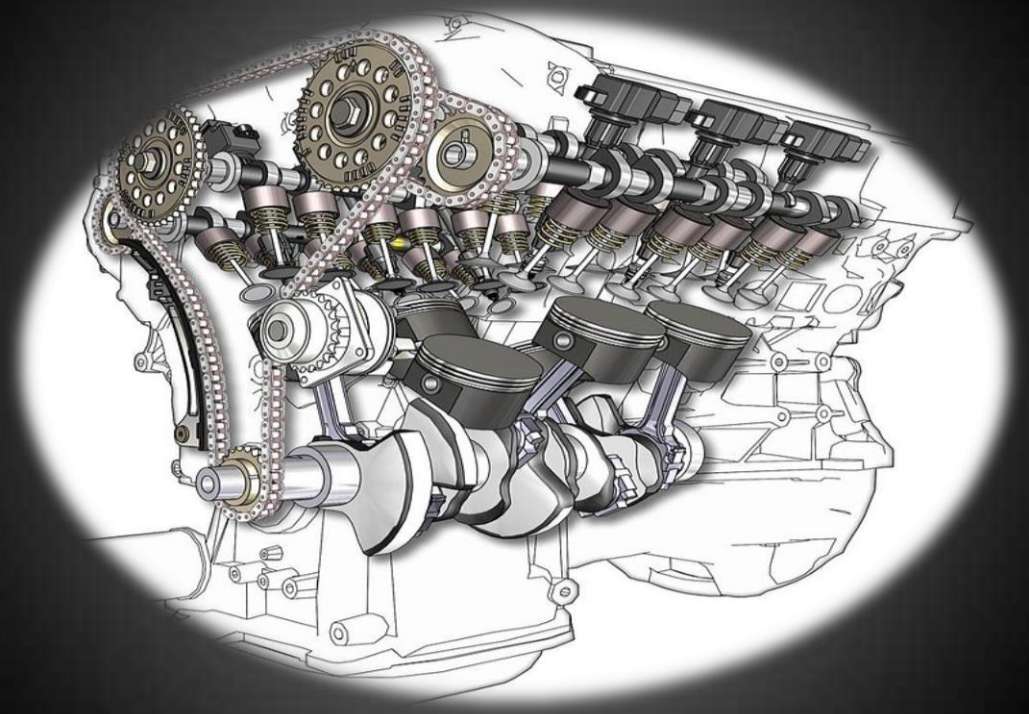


The importance of ignition system

Know the importance of a ignition system

The importance of ignition system

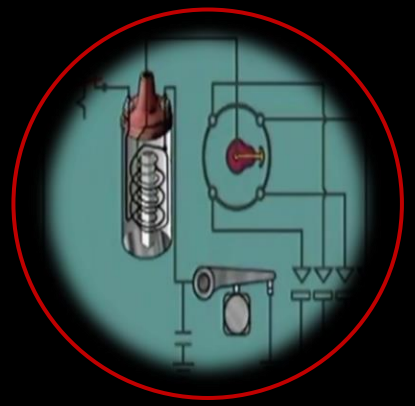
- Produce high voltage.
- Create electric arc to jump spark plug gap.
- Spark ignites air / fuel mixture when piston is close to top of compression stroke to burn it properly.



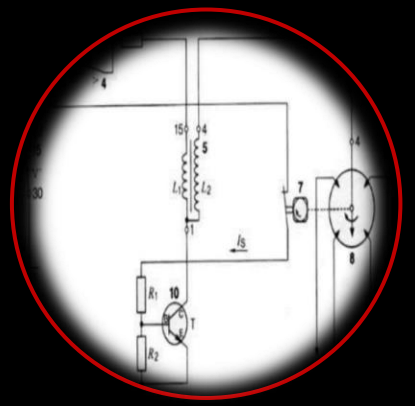
Types of ignition systems

Know the different types of ignition systems

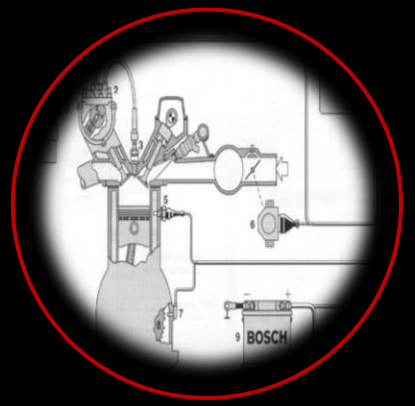
Types of Ignition systems



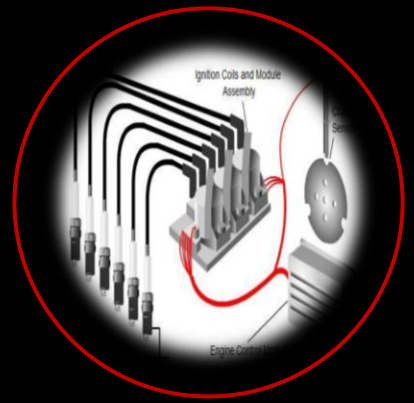
Break point ignition (conventional coil ignition)



Transistorized ignition (TI)

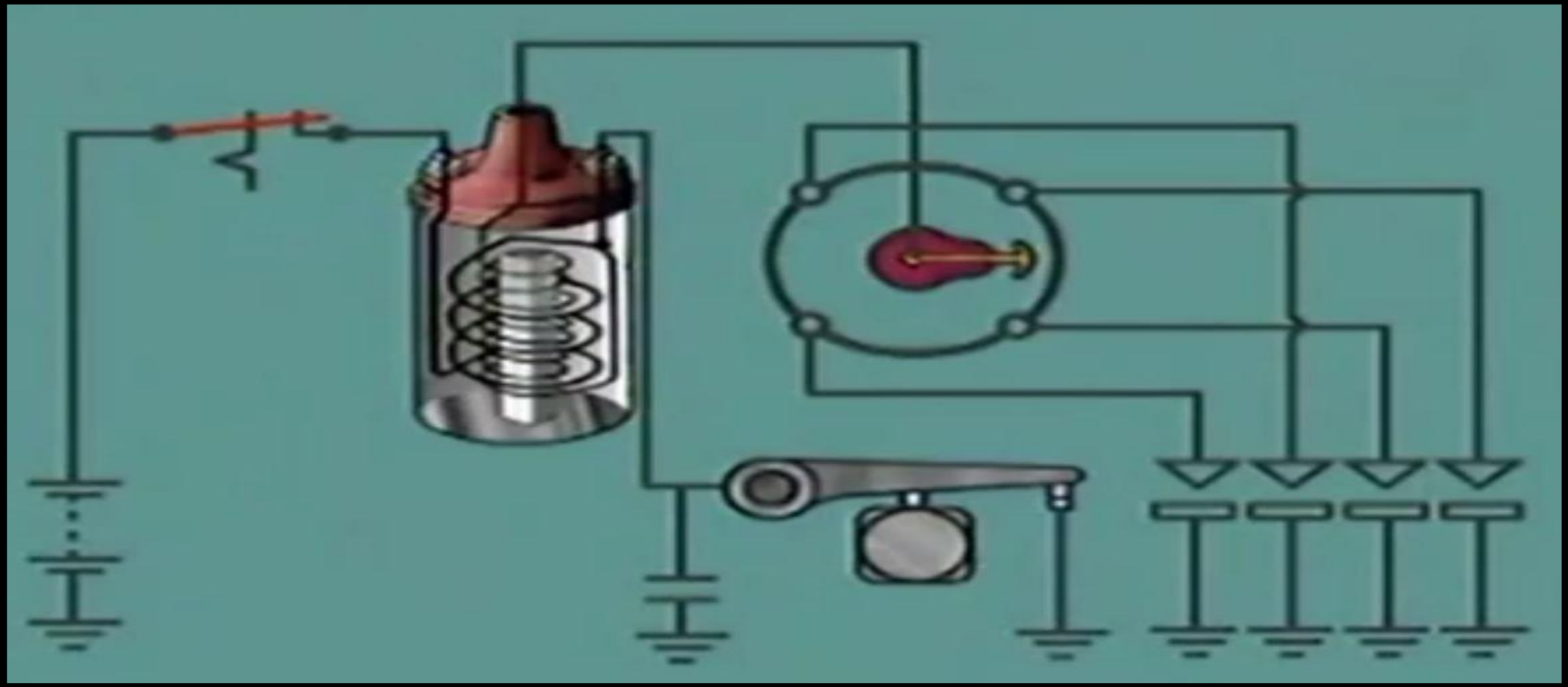


Semiconductor ignition (SI)

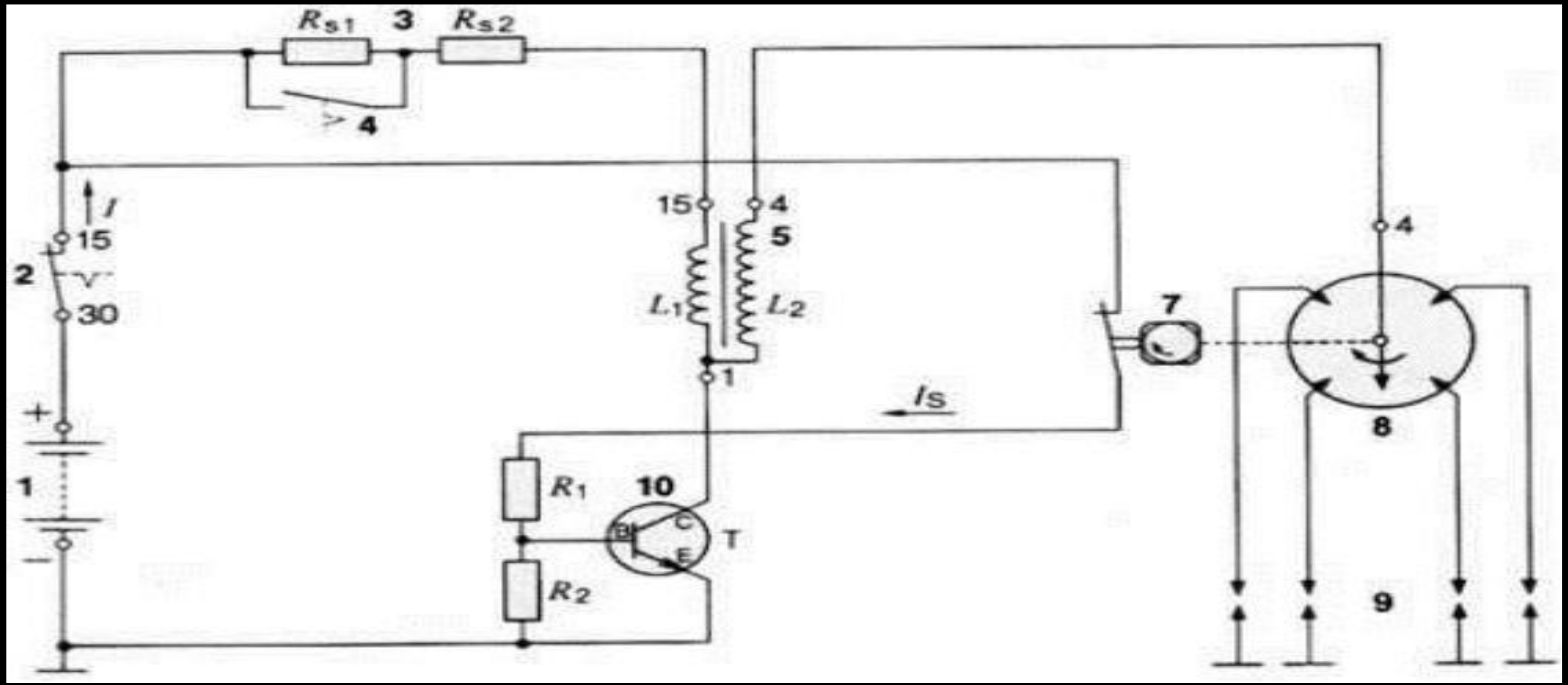


Electronic distributor–less ignition (DLI)

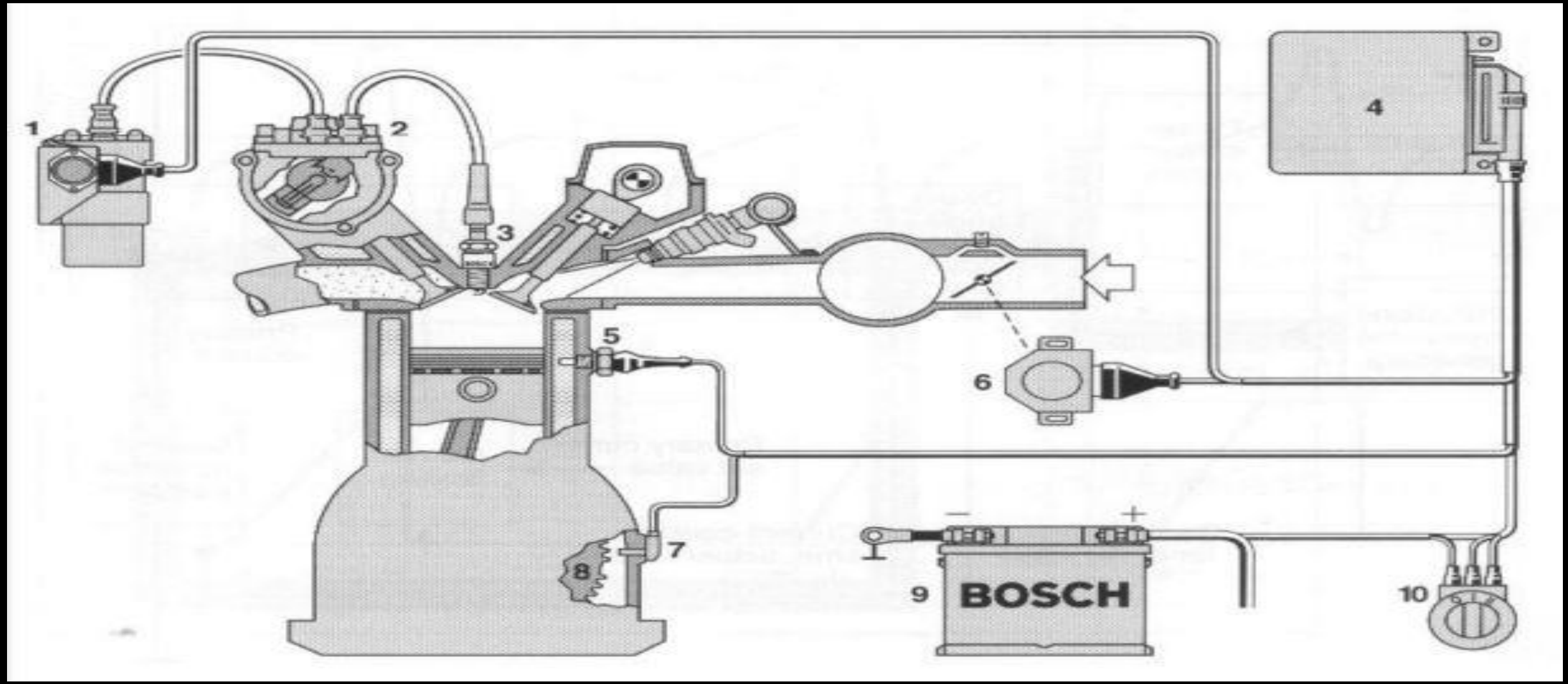
Break point ignition (conventional coil ignition)



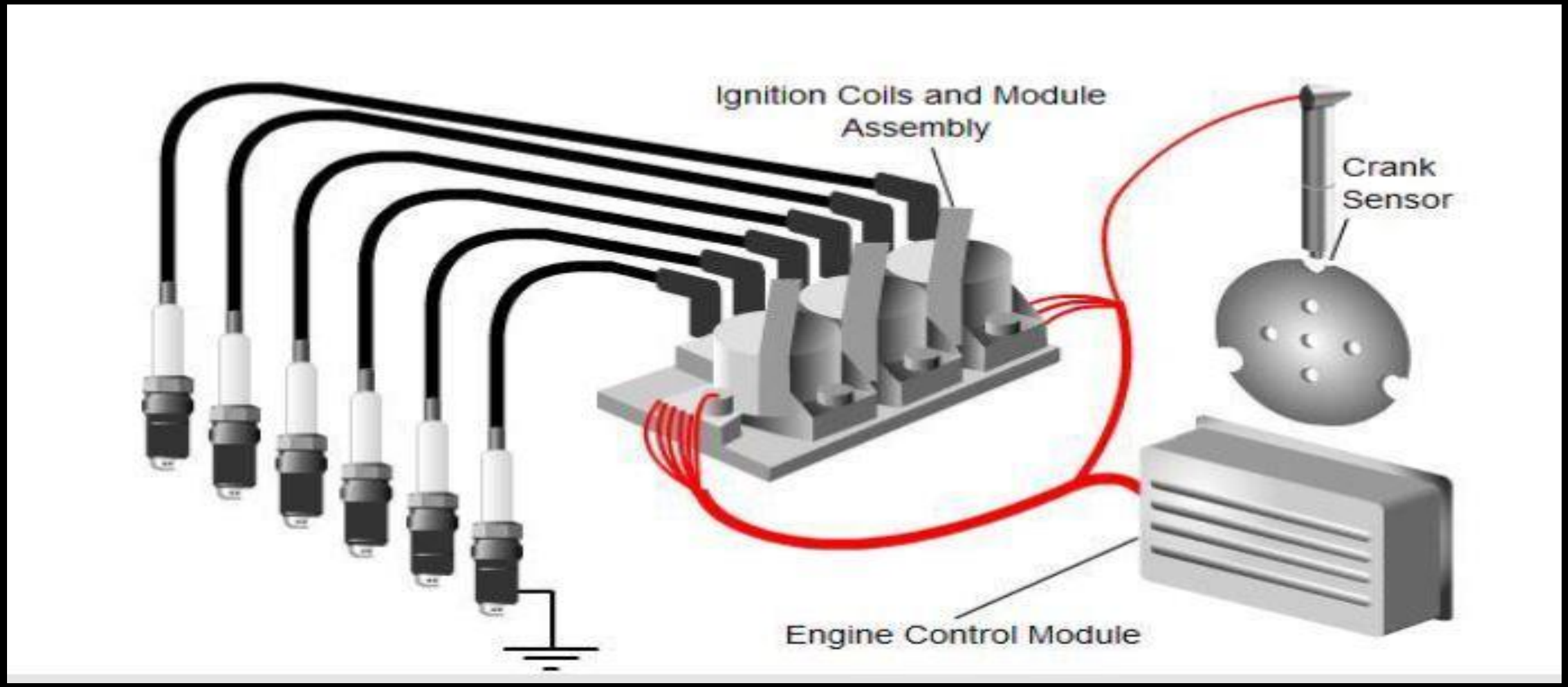
Transistorized ignition (TI)

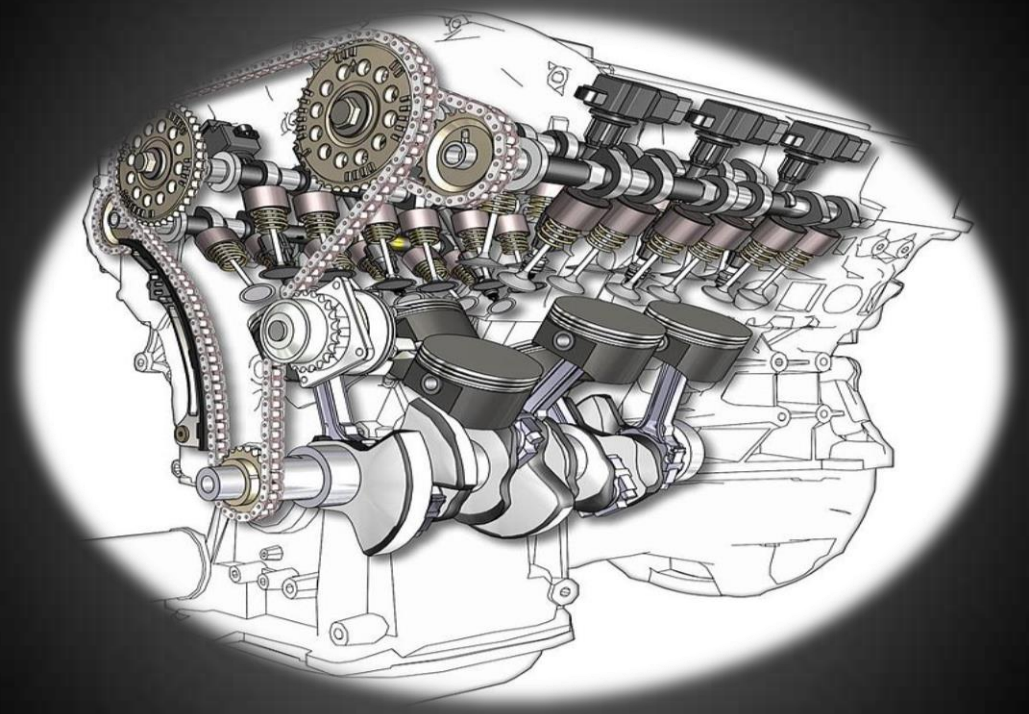


Semiconductor ignition (SI)



Electronic distributor–less ignition (DLI)





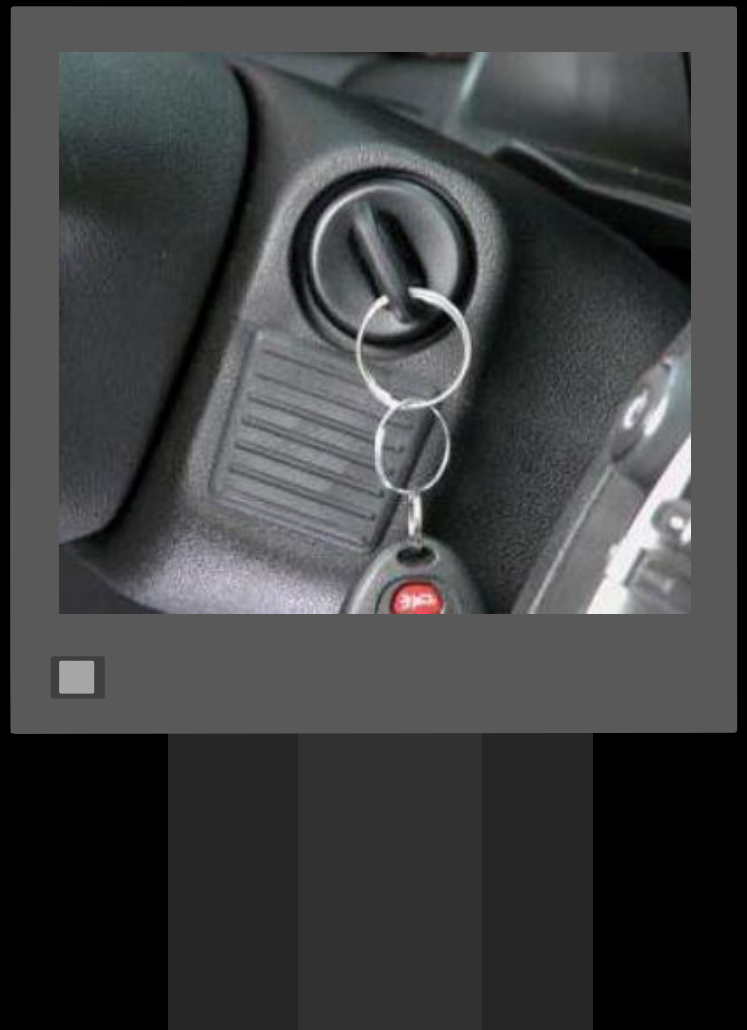
Ignition system components

Know the different types of a fuel system

Battery

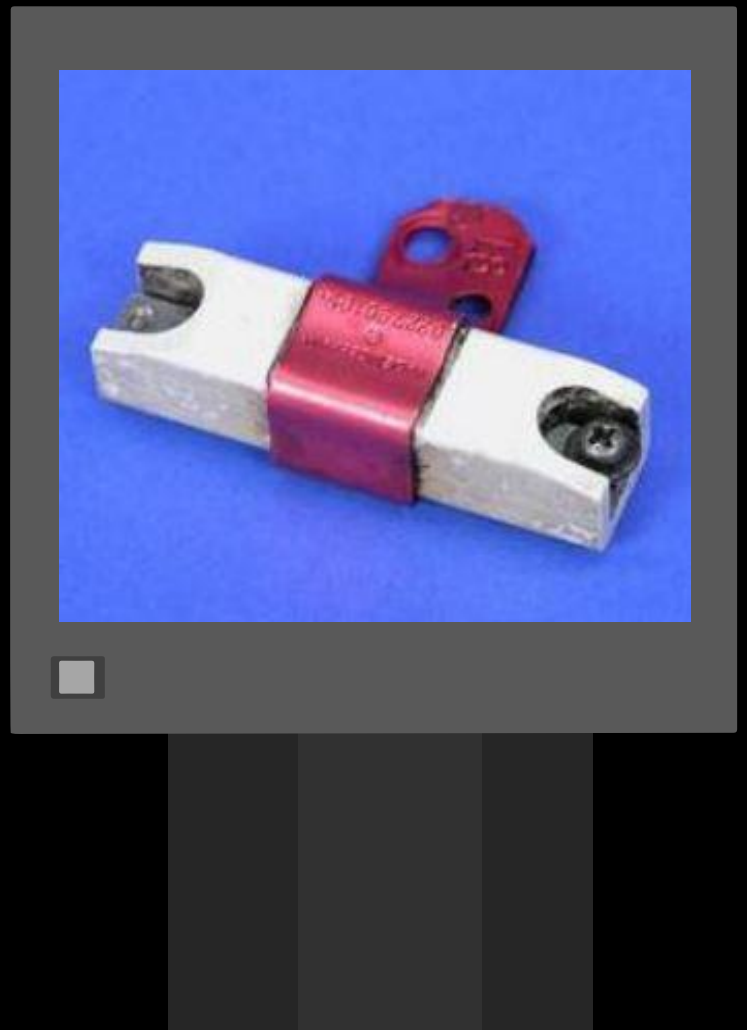
- Generates energy to start engine.
- Supplies low voltage to primary side of ignition system.

Ignition switch



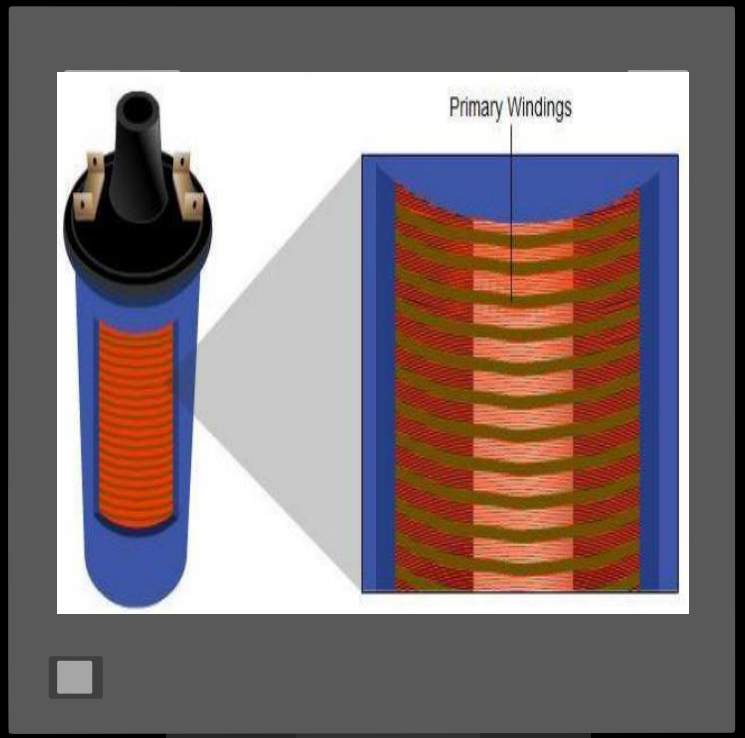
- Turns engine on and off.
- Powers starter motor when engine is starting.

Ballast resistor



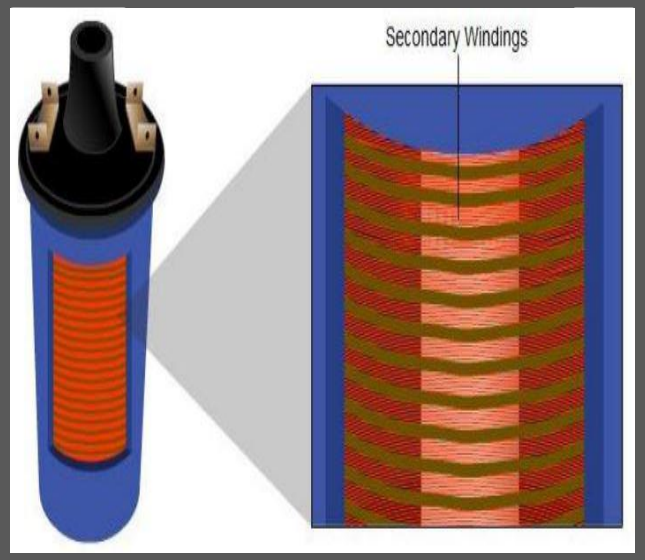
- Protects Ignition system components.
- Decreases current flow.
- Provides steady supply of low voltage.
- Located between ignition switch and coil.

Primary windings



- Hundreds of turns of heavy gauge wire.
- Wrapped around soft iron core inside ignition coil.
- Carry battery voltage when circuit is closed, allowing magnetic field to build up around windings.
- When magnetic field collapses, high voltage is induced into secondary windings.

Secondary windings



- Several thousand turns of wire wrapped around soft iron core along with primary windings.
- When current flows through primary windings, magnetic field is generated.
- When magnetic field in primary windings collapses, it induces current into secondary windings.
- Current is transformed into high voltage and carried to distributor cap.

Break point or contact point

- Switching device attached to distributor advance plate.
- If points are closed, current flows.
- If points are open, current is interrupted.

Condenser

- Connected to break point.
- When points open, voltage spike is absorbed.
- Protects points from burning.

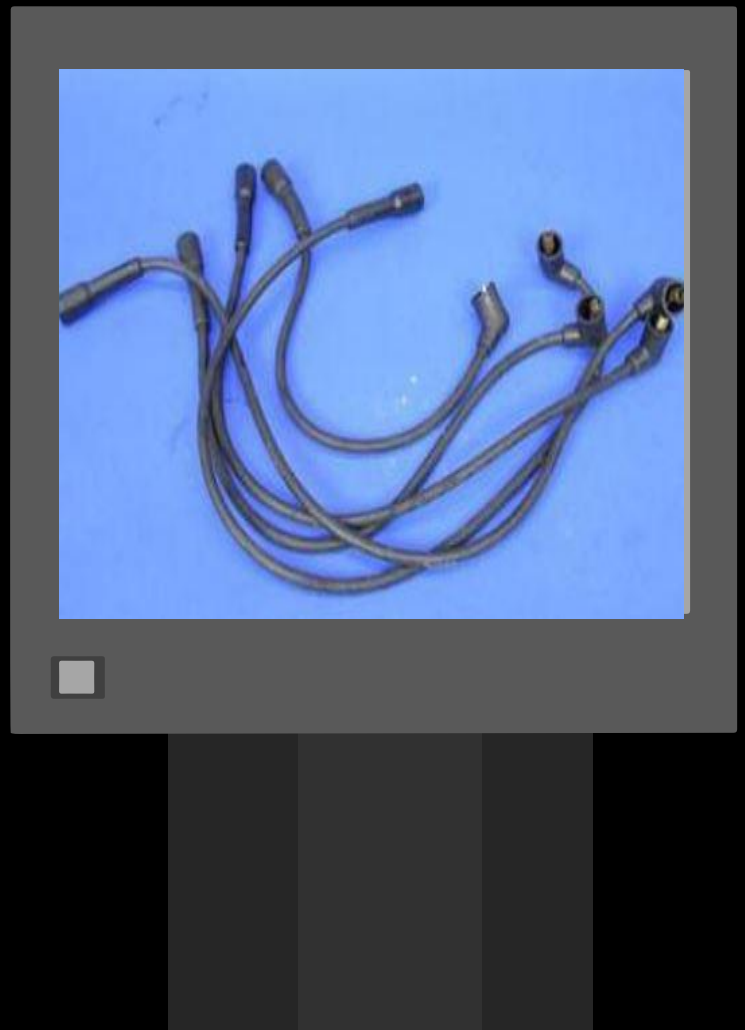
Distributer cap

- Center terminal carries voltage to rotor.
- Outer terminals carry voltage to spark plug.

Distributor rotor

- Spins to distribute high voltage from distributor cap to spark plugs.

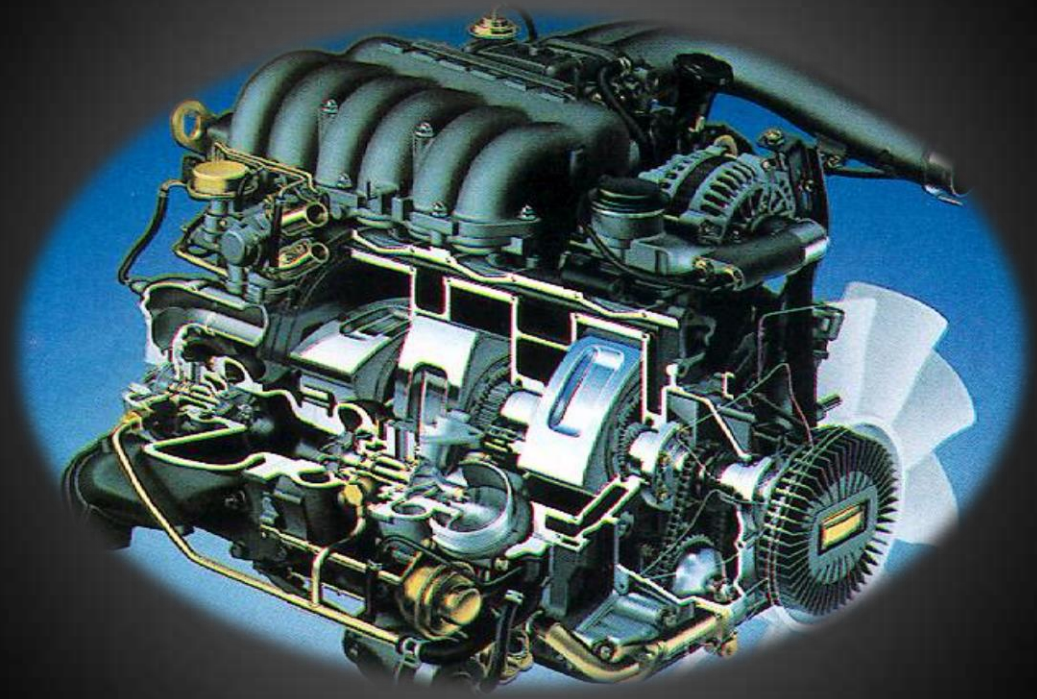
Spark plugs wires



- Carry high voltage from distributor cap outer terminals to spark plugs.

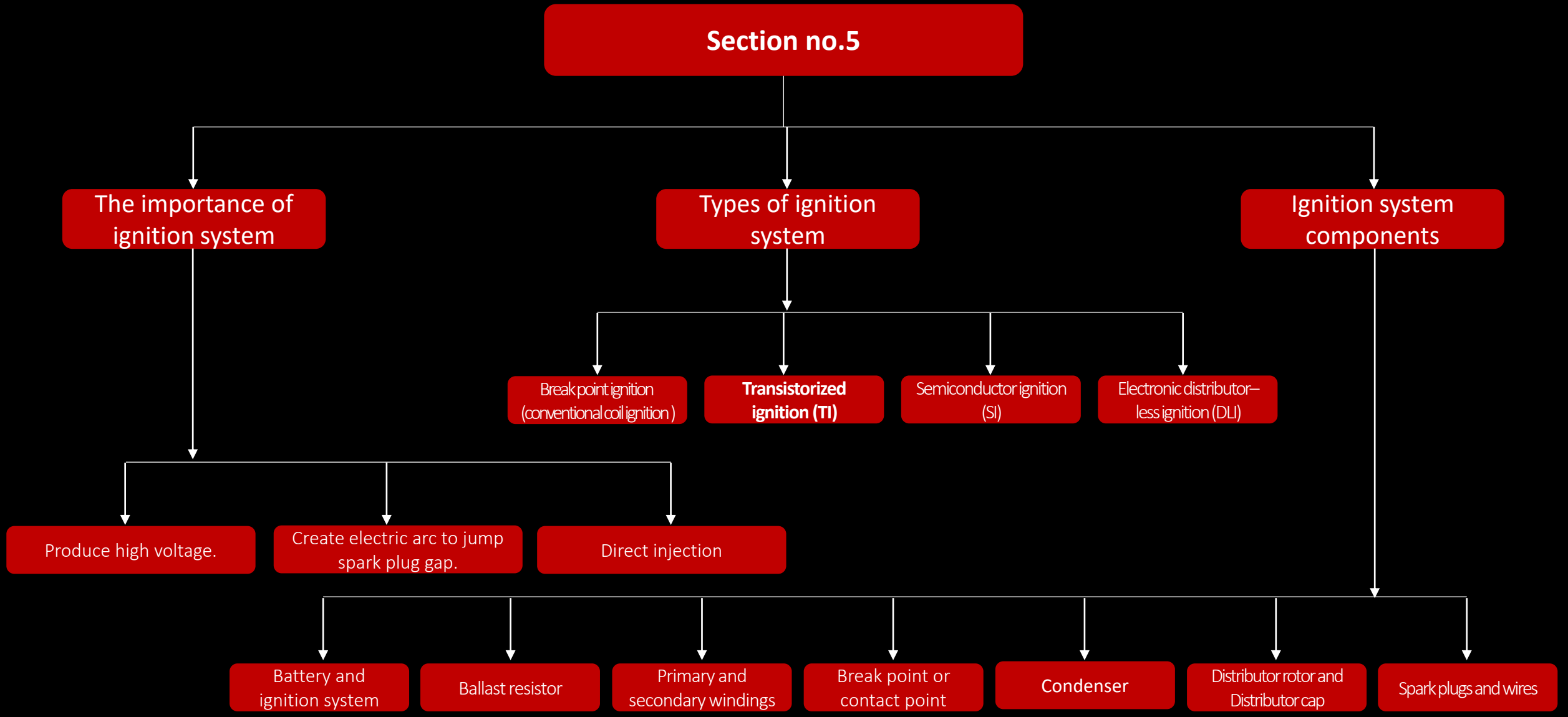
Spark plugs

- Receive high voltage from ignition coil.
- Produce spark to ignite air / fuel mixture in combustion chamber.



Summary

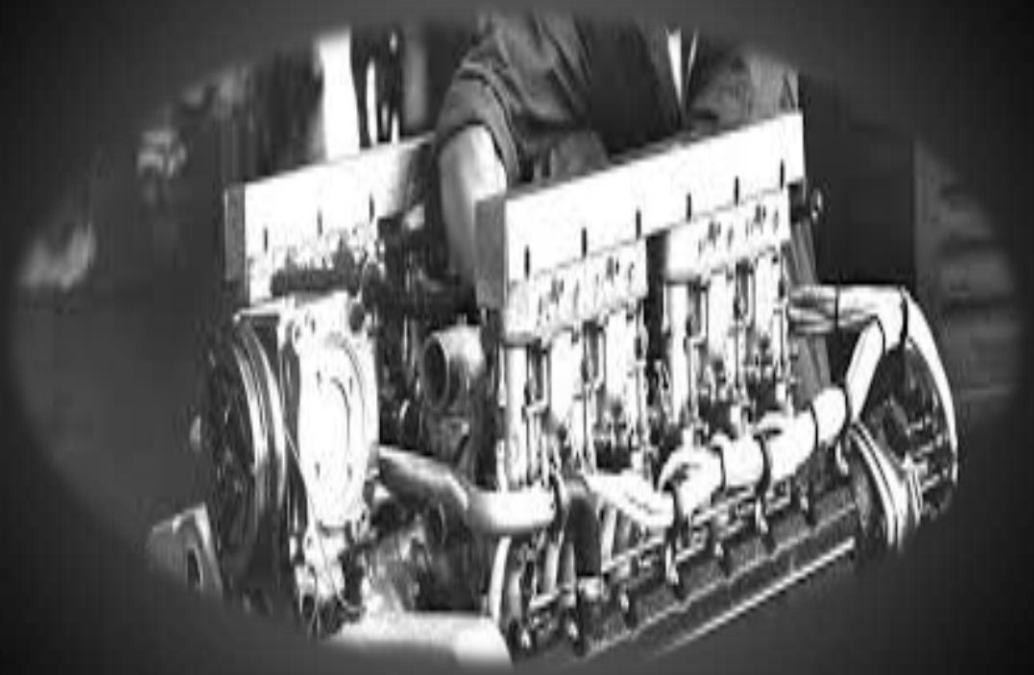
Summary


Section no.5
The importance of ignition system
Types of ignition system
Ignition system components
Break point ignition (conventional coil ignition)
Transistorized ignition (TI)
Semiconductor ignition (SI)
Electronic distributor–less ignition (DLI)
Produce high voltage.
Create electric arc to jump spark plug gap.
Direct injection
Battery and ignition system
Ballast resistor
Primary and secondary windings
Break point or contact point
Condenser
Distributor rotor and Distributor cap
Spark plugs and wires

Videos

Videos to illustrate what has been explained

- **How the Engine conventional ignition System Works (https://www.youtube.com).**
- **How the Engine electronic ignition System Works (https://www.youtube.com).**



Activity

Activity

- **Draw and illustrate every section summary.**

With my best wishes

Eng./ Gamal Ahmed Hendy