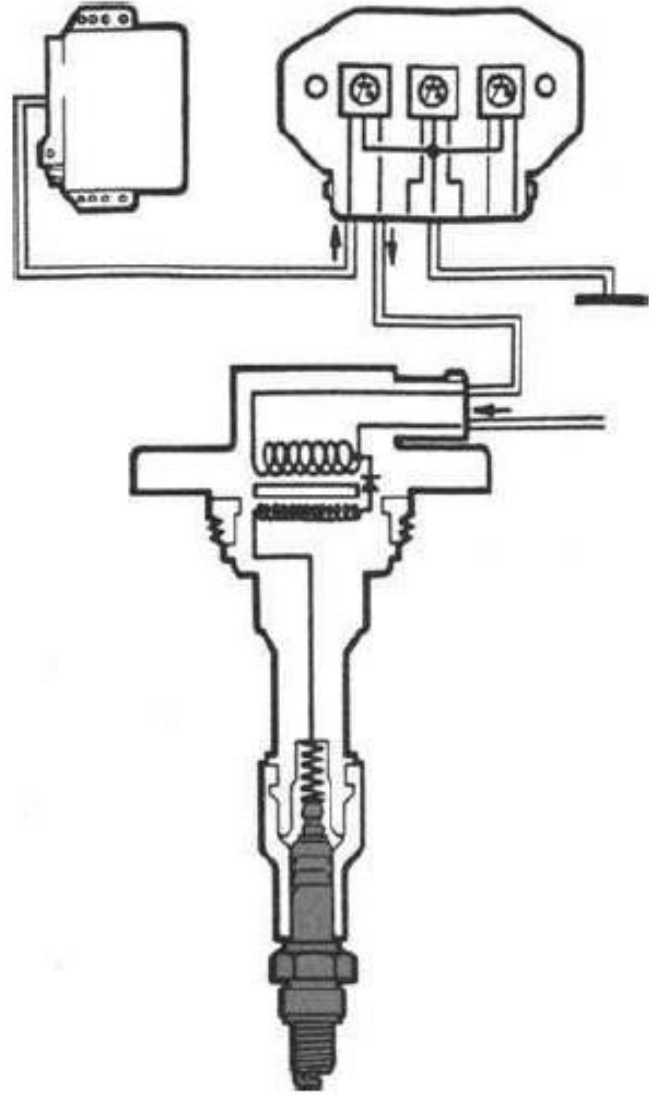


# 19M0611 - AUTOTRONICS

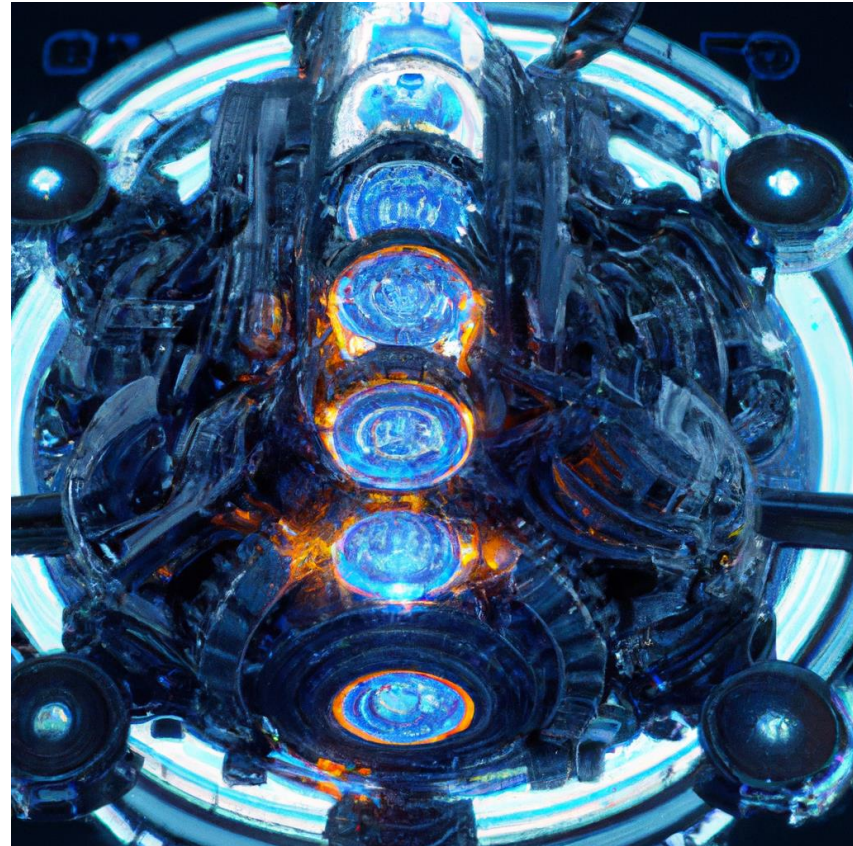
## UNIT 2 - DIRECT IGNITION

---



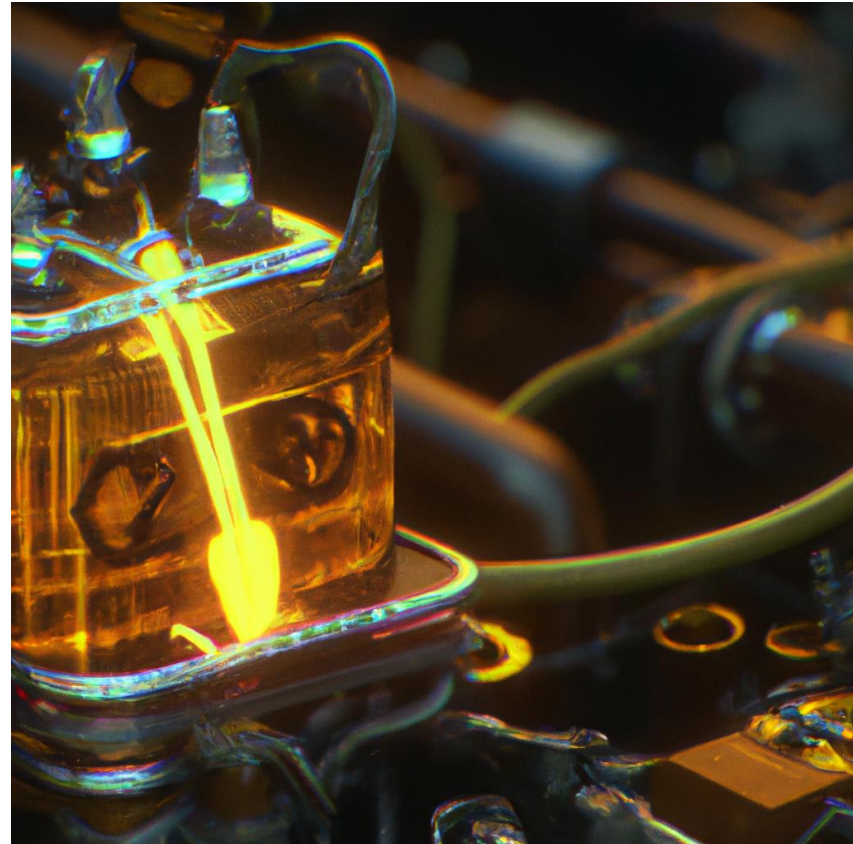
# INTRODUCTION TO DIRECT IGNITION

- ❑ Direct ignition is a modern technology used in internal combustion engines that has replaced the traditional distributor-based ignition system. This system uses individual ignition coils for each cylinder, which are controlled by the engine's electronic control unit (ECU).
- ❑ The direct ignition system provides several advantages over the traditional ignition system, including improved fuel efficiency, reduced emissions, and better engine performance



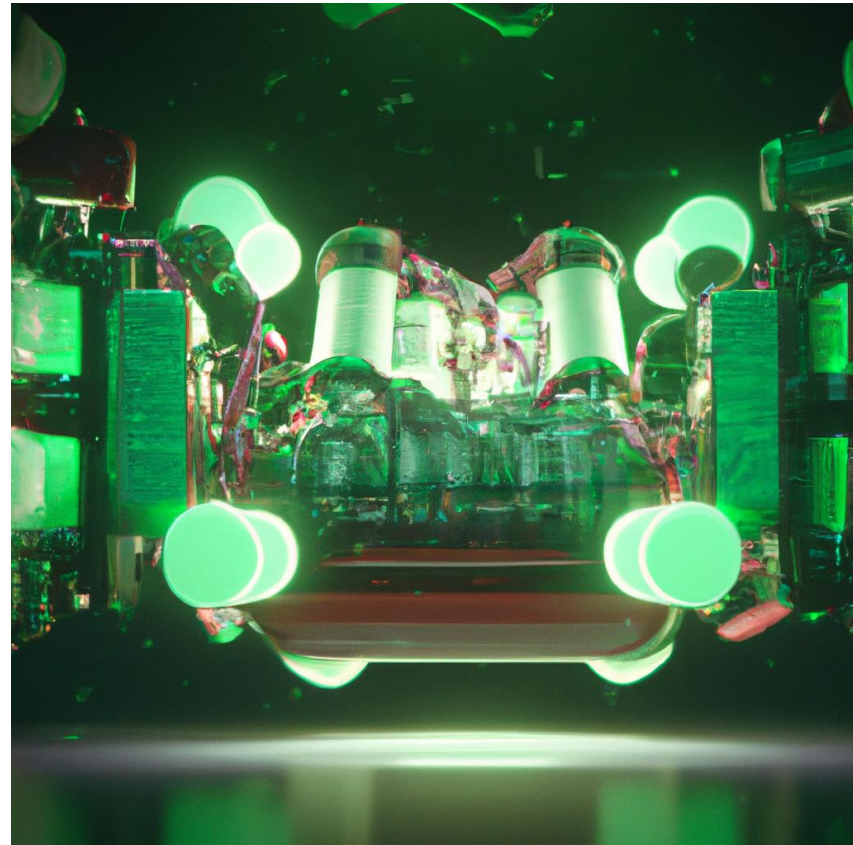
# HOW DIRECT IGNITION WORKS

- ❑ In a direct ignition system, each cylinder has its own ignition coil that is mounted directly on top of the spark plug. The ECU controls the timing and duration of the spark, ensuring that each cylinder fires at the right time.
- ❑ The direct ignition system also allows for more precise control of the spark, which leads to more efficient combustion and better engine performance. Additionally, because each cylinder has its own ignition coil, there is no need for a distributor cap or rotor, reducing the number of moving parts in the engine.



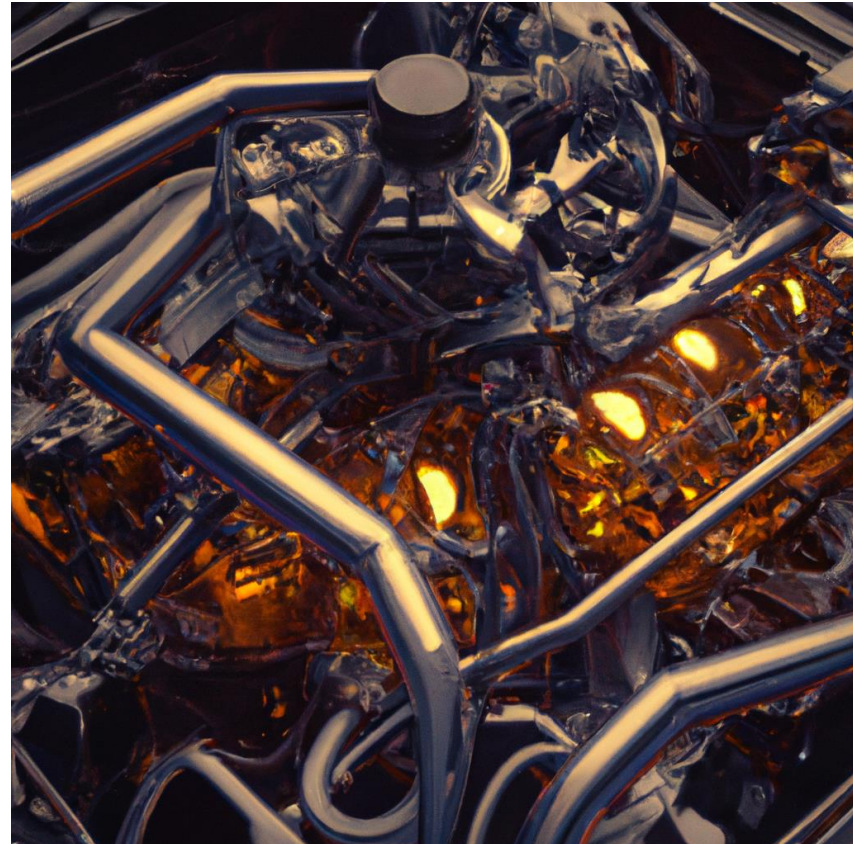
# ADVANTAGES OF DIRECT IGNITION

- ❑ One of the main advantages of direct ignition is improved fuel efficiency. Because the system can control the timing and duration of the spark more precisely, it can optimize combustion and reduce wasted fuel.
- ❑ Direct ignition also reduces emissions, as it allows for more complete combustion of the fuel. This leads to lower levels of pollutants such as carbon monoxide and unburned hydrocarbons. Additionally, because there are fewer moving parts in the system, there is less chance of failure or malfunction, leading to increased reliability and lower maintenance costs.



# APPLICATIONS OF DIRECT IGNITION

- ❑ Direct ignition is commonly used in modern gasoline engines, particularly those with four or more cylinders. It is also used in some diesel engines, where it is known as a coil-on-plug system.
- ❑ Additionally, direct ignition is becoming increasingly popular in high-performance and racing applications, as it allows for more precise control of the ignition timing and duration, leading to improved power output and throttle response.





***THANK YOU***