

Wednesday, the 25th of February

Lesson 46

The Ignition System

1. Objectives (Цілі)

- **Technical Vocabulary:** Learn the names of key components (spark plugs, ignition coil, distributor, etc.).
- **Process Description:** Understand and describe the sequence of events in an ignition cycle.
- **Reading Skills:** Extract technical information from a diagram and text.

2. Warm-up (Розминка)

Discuss in groups (using English where possible):

1. What is the main purpose of an ignition system in a petrol engine?
2. What happens if the spark is too weak or happens at the wrong time?
3. Do diesel engines have spark plugs? (Spoiler: No, they use compression).

3. Professional Vocabulary (Професійна лексика)

Term	Translation	Function
Ignition Coil	Котушка запалювання	Converts low voltage from the battery into high voltage.
Spark Plug	Свічка запалювання	Creates an electric spark to ignite the fuel-air mixture.
Distributor	Розподільник	Directs high voltage to the correct spark plug at the right time.
Battery	Акумулятор	Provides the initial electrical energy to start the system.
Ignition Switch	Замок запалювання	The "key" or button that activates the electrical circuit.
High-tension (HT) leads	Високовольтні дроти	Cables that carry high voltage to the spark plugs.

4. Technical Overview: How it Works

Щоб зрозуміти систему, потрібно візуалізувати потік енергії.

The Step-by-Step Process:

1. The **Battery** supplies low-voltage electricity (usually 12V).
2. The **Ignition Coil** acts as a transformer, boosting the voltage to 20,000–50,000 volts.
3. The **Distributor** (in older systems) or the **ECU** (Electronic Control Unit in modern cars) sends this pulse to the specific cylinder that is ready to fire.
4. The **Spark Plug** receives the high voltage and creates a spark across a small gap.
5. The **Combustion** begins, pushing the piston down.

5. Reading Task: Modern vs. Conventional Systems

Read the short text and answer the questions.

"Modern vehicles have moved away from mechanical distributors. Instead, they use **Coil-on-Plug (COP)** ignition. In this system, each spark plug has its own dedicated coil controlled by the car's computer. This increases efficiency, reduces emissions, and eliminates the need for bulky spark plug wires."

Questions:

1. What is the main difference between older systems and COP?
2. Which component controls the timing in modern cars?
3. What are the advantages of Coil-on-Plug systems?

6. Practical Activity: Troubleshooting (Пошук несправностей)

Match the **Symptom** with the potential **Problem**:

- **Symptom A:** The engine "misfires" (works unevenly).
- **Symptom B:** The car won't start at all, and no lights turn on.
- **Symptom C:** Poor fuel economy and loss of power.
- **Problem 1:** Flat or dead battery.
- **Problem 2:** Dirty or worn-out spark plugs.
- **Problem 3:** Faulty ignition coil.

7. Homework: 1) Memorize the 6 key components and their functions. 2) **Writing Task:** Write a short paragraph (50-70 words) explaining why the ignition coil is necessary. (Hint: Mention voltage).