

INTERNAL COMBUSTION ENGINE

1.1. Vocabulary

Ex. 1. Match the words to their Russian equivalents.

- | | |
|-------------------|---------------------|
| 1. cylinder | a. приямок |
| 2. crankshaft | b. картер |
| 3. engine block | c. поршень |
| 4. crankcase | d. поршневое кольцо |
| 5. sump | e. тяга |
| 6. head | f. блок двигателя |
| 7. piston ring | g. клапан |
| 8. piston | h. цилиндр |
| 9. connecting rod | i. коленчатый вал |
| 10. valve | j. головка |
| 11. spark plug | k. свеча зажигания |

Ex. 2. Translate the sentences into English.

1. Цилиндр является важной частью двигателя.
2. Головка двигателя должна быть надлежащим образом прикреплена к остальной части блока.
3. В блоке двигателя находятся все компоненты, которые обеспечивают работу автомобиля.
4. Поршень движется вверх и вниз внутри цилиндра, вырабатывая энергию.
5. Клапан управляет подачей топлива и воздуха в двигатель.

6. Поршневые кольца помогают уплотнить зазор между поршнем и цилиндром.
7. Поддон собирает излишки масла в двигателе.
8. Свеча зажигания воспламеняет топливную смесь в цилиндре для запуска двигателя.
9. Шатун помогает передавать движение от поршня к коленчатому валу.
10. Коленчатый вал преобразует возвратно-поступательное движение поршней во вращательное.
11. Картер - это корпус для коленчатого вала и других внутренних частей двигателя.

1.2. Reading

Ex. 1. Read the text.

The Internal Combustion Engine

The internal combustion engine is an engine in which the burning of a fuel (usually petrol or diesel) occurs in a confined space called a cylinder head. The energy created by the controlled burning of the fuel is then used to move a piston up and down in the cylinder head. The movement of the piston is then transferred to other parts of the engine, such as the crankshaft, via a connecting rod.

The main parts of an internal combustion engine are the engine block, the cylinder head, and the sump. The engine block is the largest part of the engine and houses the cylinders. The cylinder head is attached to the top of the cylinders and seals them. It also contains the valves, which allow the fuel and air into the cylinders and the exhaust gases out of the cylinders. The sump is attached to the bottom of the engine block and contains the oil used to lubricate the moving parts of the engine.

Each cylinder in an internal combustion engine has a piston, which moves up and down inside it. The piston is connected to the crankshaft by a connecting rod. As the piston moves up and down, it turns the crankshaft. The crankshaft converts the linear (up-and-down) motion of the pistons

into rotary (circular) motion, which can then be used to power the wheels of a car, for example.

The four-stroke cycle is the most common cycle used in internal combustion engines. In this cycle, there are four strokes: intake, compression, power, and exhaust. During the intake stroke, the piston moves down, allowing a mixture of fuel and air to enter the cylinder through the intake valve. During the compression stroke, the piston moves back up, compressing the fuel-air mixture. Just before the end of the compression stroke, the spark plug ignites the fuel-air mixture, causing an explosion. This explosion forces the piston back down, creating the power stroke. Finally, during the exhaust stroke, the piston moves back up, pushing the exhaust gases out of the cylinder through the exhaust valve.

The pistons in an internal combustion engine are sealed by piston rings. These rings prevent the fuel-air mixture from leaking past the piston and into the sump. They also prevent oil from the sump from entering the combustion chamber. The spark plug is used to ignite the fuel-air mixture in the cylinder head. It produces a spark that ignites the mixture at the correct moment.

Ex. 2. Answer the questions.

1. What is the purpose of the internal combustion engine?
2. How does the internal combustion engine convert energy into motion?
3. What are the main parts of an internal combustion engine?
4. How does the four-stroke cycle work in an internal combustion engine?
5. What is the role of piston rings in an internal combustion engine?
6. How does the spark plug contribute to the operation of an internal combustion engine?
7. Why is the four-stroke cycle the most common cycle used in internal combustion engines?

1.3. Communication

Ex. 1. Make sentences using the following words:

1. car/runs/engine
2. how/work/internal
3. mechanic/fixing/internal
4. powers/boat/internal
5. gasoline/used/internal
6. change/oil/internal
7. revolutionized/transportation/internal
8. explain/difference/diesel
9. invented/19th/century
10. inside/internal/engine