

EXHAUST SYSTEM

8.1. Vocabulary

Ex. 1. Match the words to their definitions.

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| 1. pollution | a. the end section of the exhaust system where exhaust gases are expelled from the vehicle. |
| 2. tailpipe | b. a pipe that collects exhaust gases from multiple cylinders and directs them into the exhaust system. |
| 3. emissions | c. a protective barrier designed to prevent heat from damaging surrounding components. |
| 4. muffler | d. a valve that regulates the flow of gases between the crankcase and intake manifold, helping to reduce pollution. |
| 5. exhaust manifold | e. gases and particles released into the air, especially by vehicles or industrial processes. |
| 6. heat shield | f. the entire system responsible for removing and directing exhaust gases away from the engine and out of the vehicle. |
| 7. exhaust pipe | g. a device in a vehicle's exhaust system that converts harmful pollutants into less harmful substances. |
| 8. exhaust system | h. measures taken to reduce the amount of harmful gases and particles released into the |

	environment.
9. emissions control	i. the presence of harmful substances or products in the environment, often caused by human activities.
10. pcv valve	j. a pipe that carries exhaust gases from the engine to the outside of the vehicle.
11. catalytic converter	k. a device in the exhaust system that reduces noise produced by the engine.

Ex. 2. Complete the sentences with the given words:

heat, catalytic, manifold, muffler's, reducing, controlling, exhaust, emissions (2), pcv, tailpipe

The manufacturer recently installed a new _____(1) converter on all of their car models to reduce harmful emissions.

A proper exhaust system is crucial in _____(2) emissions and keeping our environment clean.

Regular maintenance checks are necessary to ensure the _____(3) control is functioning properly.

The exhaust _____(4) was cracked and needed to be replaced, causing excessive noise and decreased fuel efficiency.

Aftermarket exhaust pipes can enhance performance but they should still meet _____(5) standards.

In order to improve air quality, many cities have started implementing stricter regulations for _____(6) systems on vehicles.

A _____(7) shield acts as a protective barrier to prevent fires caused by overheating exhaust systems.

Due to the _____(8) damaged baffles, the car produced loud and unpleasant noises.

The production of electric cars is one solution to _____(9) pollution and dependence on exhaust systems.

A malfunctioning _____(10) valve caused an increase in harmful pollutants being released from the car's exhaust system.

A poorly maintained _____(11) can lead to dangerous fumes escaping into the environment.

8.2. Reading

Ex. 1. Read the text.

Exhaust System

The exhaust system is an important part of your vehicle. It controls the emissions, noise and pollution that your engine produces. The exhaust system consists of several parts: the exhaust manifold, catalytic converter, muffler and tailpipe.

Exhaust Manifold

The exhaust manifold connects the engine to the rest of the exhaust system. It collects the exhaust gases from each cylinder and combines them into one pipe. The exhaust manifold is usually made of cast iron or stainless steel.

Catalytic Converter

The catalytic converter is a key component of the exhaust system. It reduces harmful emissions by converting them into less harmful substances. It contains a catalyst, which is a chemical that speeds up a chemical reaction without being used up itself. In the case of the catalytic converter, the catalyst helps convert carbon monoxide (CO) into carbon dioxide (CO₂), nitrogen oxides (NO_x) into nitrogen (N₂) and oxygen (O₂), and unburned hydrocarbons (HC) into CO₂ and water (H₂O).

Muffler

The muffler, also known as a silencer, is another important part of the exhaust system. It reduces the noise produced by the engine. Inside the muffler, there are chambers and tubes that reflect and cancel out sound waves. Some mufflers also contain sound-absorbing materials, such as fiberglass, to further reduce noise.

Tailpipe

The tailpipe is the final part of the exhaust system. It directs the exhaust gases away from the vehicle. The tailpipe may extend all the way to the back of the vehicle, or it may end just before the rear wheels. Some tailpipes have decorative tips for aesthetic purposes.

Other Components

In addition to the main components listed above, the exhaust system may also include other parts, such as oxygen sensors, heat shields and resonators. Oxygen sensors monitor the amount of oxygen in the exhaust gases and help the engine control the air-fuel mixture. Heat shields are metal plates that protect other parts of the vehicle from the heat produced by the exhaust system. Resonators are chambers that can change the sound of the exhaust.

The exhaust system is subject to a lot of heat, pressure and vibration, which can cause it to wear out over time. Common problems with the exhaust system include rust, leaks, loose or broken hangers, and damaged components. A faulty exhaust system can lead to poor fuel efficiency, reduced engine performance, increased noise and increased emissions, among other issues.

To keep your exhaust system in good condition, it's important to have it inspected regularly and repaired as needed. In many countries, there are also emissions control requirements that your vehicle must meet. If your vehicle fails an emissions test, it may be necessary to repair or replace the exhaust system to reduce the emissions and bring it into compliance.

Ex. 2. Answer the questions.

1. What are the main components of an exhaust system?
2. What is the function of the catalytic converter in the exhaust system?

3. How does the muffler reduce engine noise?
4. What is the purpose of the tailpipe in the exhaust system?
5. Besides the main components, what other parts can be found in an exhaust system?
6. Why is it important to have the exhaust system inspected regularly?
7. What problems can occur with the exhaust system?

8.3. Communication

Ex. 1. Make sentences using the following words:

1. mechanic/checked/exhaust
2. normal/loud/noises
3. reduce/harmful/emissions
4. replace/muffler/car
5. how often/inspected/exhaust
6. crucial/vehicle/performance
7. recommend/good/brand
8. old/car/rusty
9. maintain/clean/regularly
10. signs/malfunctioning/exhaust