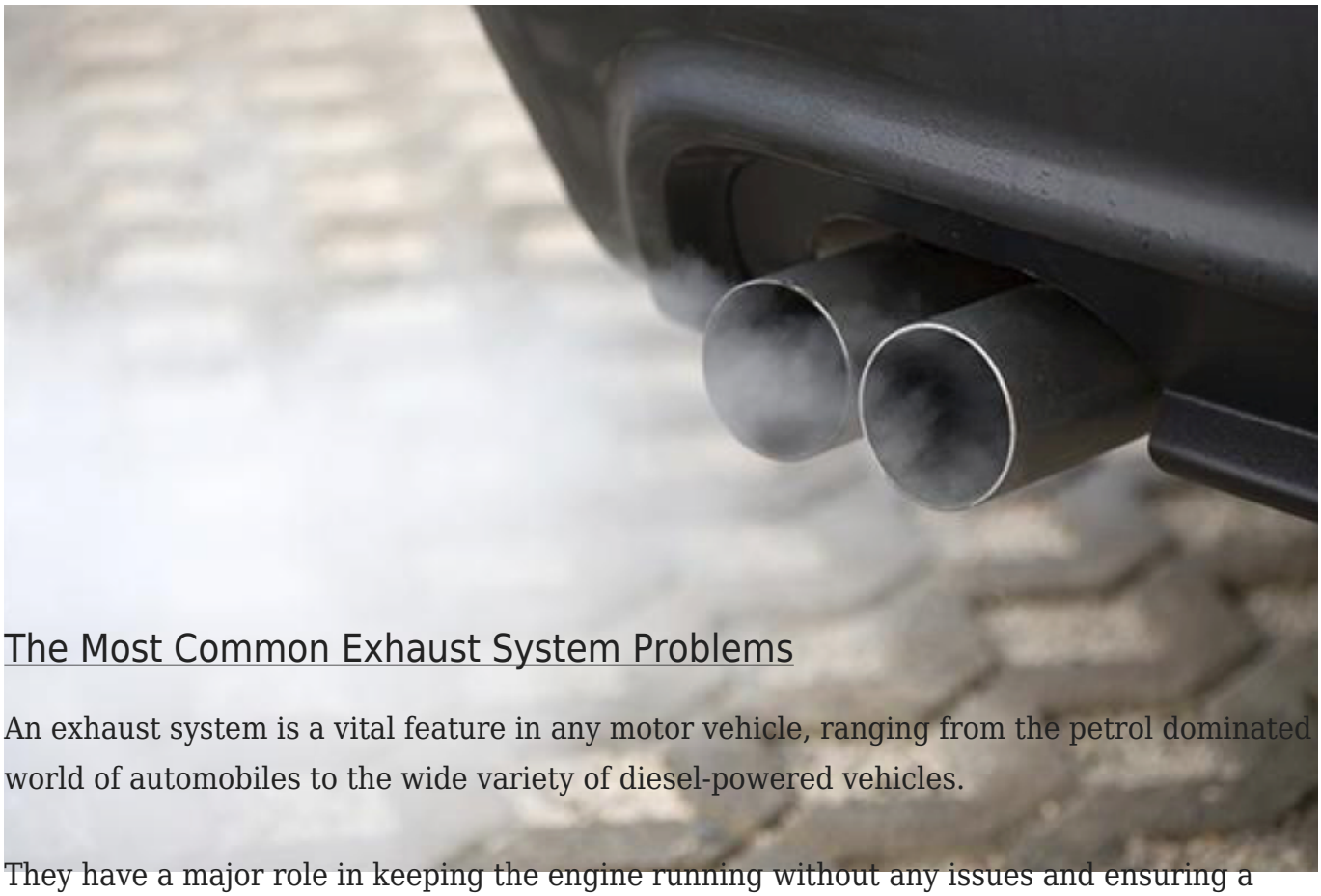
Exhaust systems and their ailments

Published: February 15, 2021

Author:

Online version: https://www.wheels-alive.co.uk/exhaust-systems-and-their-ailments/



The Most Common Exhaust System Problems

An exhaust system is a vital feature in any motor vehicle, ranging from the petrol dominated world of automobiles to the wide variety of diesel-powered vehicles.

They have a major role in keeping the engine running without any issues and ensuring a smooth drive that we all expect. However, like most components of a vehicle, they are susceptible to wear and tear, errors, faults, and issues that might affect your driving experience, and in some cases, be unsafe for everyone.

In this article, we are looking at the functioning of an exhaust system, and the common problems that arise in the system.

Note: This feature incorporates sponsored content.

Let’s get started!

The Function of an Exhaust System and its Parts

A vehicle exhaust system operates as any other exhaust set-up works in a given environment. It directs the fumes and unnecessary/waste gases away from the engine, allowing the heart of the vehicle to function as efficiently and smoothly as possible. Apart from driving the combustion products away from the engine, the exhaust system also works to reduce the noise from the engine as well as that caused by the fuel combustion process. Furthermore, it also works to improve the fuel economy of the car.

The exhaust system is vital to the overall health of a vehicle and can lead to disastrous results if not maintained properly. A faulty exhaust system can be the cause for poor mileage per gallon of fuel and below par performance or even carbon monoxide poisoning. For this reason, most car repair garages emphasise identifying the signs of a faulty exhaust system at the earliest stage.

The main components of an exhaust system are:

1. Exhaust Manifold
   This is a stainless steel, aluminium, or cast-iron unit that works to combine/accumulate the waste combustion process gases from the cylinders in the engine, passing them into the exhaust pipe(s).

2. Mufflers/Silencers
   Mufflers (silencers), as the name suggests, are used to dampen the sound created by the engine. Containing a series of baffles that work to diminish the sound of the engine combustion and gases, mufflers are an essential part of the exhaust system.

3. Catalytic Converter
   A catalytic converter is a crucial element in the exhaust system to prevent harmful gases from escaping into the atmosphere. By means of chemical reaction it is used to complete the

ignition/burning of gases that have been created in the engine's combustion chambers, minimising the amounts of carbon monoxide and nitrogen oxides entering the environment.

4. Tailpipe
   The tailpipe is the final component of the exhaust system, releasing the gases behind or above the vehicle.

So much for the function of an exhaust system and its main components. Now, let's take a look at some of the most common problems.

The Most Common Exhaust System Problems

Rust

Rust is an uninvited guest wherever there are automobile parts. As the exhaust system largely comprises steel and there is considerable contact with moisture, rust is one of the most likely problems that you will encounter. New car owners need not worry, since rust takes its own sweet time to spread and gather, typically a year or two. However, you must regularly check for signs of deterioration whenever you are inspecting your car's exhaust system in detail.

You're more at risk if you frequently take shorter trips as these allow water vapour to collect in the system, but it never gets hot enough to burn off. This condensation eventually encourages rust and starts to corrode the system from within. It leads to damaged parts, including holes, cracks, etc; eventually the system will disintegrate/fail. It is wise to have a full car service or routine maintenance carried out at regular designated intervals so that rusting can be discovered before it becomes serious or even fatal.

Oxygen Sensor

Oxygen Sensors (sometimes referred to as O2 or Lambda sensors) are entrusted with the responsibility to balance the air-fuel mixture. Even though the modern car contains

numerous oxygen sensors, a fault in one of them can lead to your vehicle's electronic management/control system ceasing to function correctly. A faulty oxygen sensor confuses the computer ('Electronic Control Unit' or E.C.U.) of your vehicle, leading to an incorrect air-fuel mixture. This creates a fuel mixture blend that is more fuel-rich or leaner than needed, consequently causing catalytic converter problems, running ailments and high levels of exhaust emissions.

Exhaust Leaks and Smoke

Leakage in exhaust systems is one of the most common failure aspects. If you live in a place where the roads are rocky and bumpy, your exhaust system may not last as long as it should. The constant bumps and jerks lead to added pressure on the joints, resulting in cracks (you may be able to hear the exhaust gases escaping from these damaged areas). These little cracks can prove to be extremely hazardous, allowing poisonous fumes to enter the passenger cabin. Of course, this is not good for anyone, and the vehicle requires immediate attention.

Whenever there is smoke emitting from your vehicle, it indicates a problem. However you can always identify the problem with the help of the colour of the smoke. For reference, blue smoke is usually indicative of burning oil in the combustion chamber, whereas black smoke indicates excessive burning of fuel/gas. If you encounter white/grey smoke, there may be coolant entering the combustion chamber(s).

Remember, no matter what colour the smoke, attention is required and you may need to take the car to a service centre and get it checked by professionals.

Loose Components

The exhaust system is not invincible to constant pressure, banging around, bumps, and jerks. The constant pressure and shakes can lead to some part of the system coming loose. For instance, hangers/supports are small but crucial parts meant to protect the exhaust system when you hit a bump. But once the hanger/support breaks, the exhaust pipes are

free to move around, causing chaos.

The system components can also come loose due to general wear and tear, and rusting, apart from rough roads. You should make sure there are no loose parts externally, as those can be inspected easily. However, if the loose part is internal, it can be a little more difficult to identify. Keep your ears open for any rattling sounds that may be coming from the vehicle as they usually mean something is out of place or order.

Faulty Exhaust Manifold Gasket

To prevent any gas leaks from the front end of the exhaust system, there is a component in the system known as the exhaust manifold gasket. It is placed between the exhaust manifold and cylinder head and acts as a seal between the two, allowing the gasses to reach the car's main exhaust pipework and tailpipe.

A faulty gasket results in a hissing or tapping noise in the engine, alerting you. This is especially noticeable during acceleration. Make sure you keep your ears open and if necessary contact a mechanic to fix it.

Blocked Catalytic Converter

Catalytic convertors are usually placed beside or close to the exhaust manifold. As already mentioned their job is to convert the harmful toxins into less dangerous exhaust fumes. The difficulty arises when the catalytic converter fails/becomes blocked.

The signs of a blocked catalytic converter are evident in a decreased power level from the engine, and a rotten egg smell that will manifest itself inside the vehicle. Another giveaway is that the floor of the car will be warm to the touch.

CONCLUSIONS

In every case, frequent checks and proper maintenance will help to identify any exhaust

system problems before they become serious and/or potentially dangerous, and will help ensure your car delivers optimum fuel consumption and low emissions.

This brings us to the end of our feature on the most common exhaust problems. We hope this was helpful. For more such informative articles, keep watching this space.

