

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) What is the purpose of an active element air induction system?

2) Why is an electronic throttle control valve used on recent diesel engines?

3) How can a leak in the air induction system create poor engine performance?

4) How does EGR reduce NOx tailpipe emissions?

5) How does a dust-out failure occur?

Answer Key

Testname: LVDE1_SHORT10

- 1) Some air filter assemblies contain active elements that allow the powertrain control module (PCM) to select where the air enters the assembly based on performance or the environment. Most of these systems will use a dual air snorkel. Air will be pulled in from the front grill area under heavy load, and the fender area the balance of the time.
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- 2) Diesel engines produce little to no intake manifold vacuum. As a result, many manufacturers add an electronic throttle valve to induce greater EGR flow through the manifold. This valve is called the EGR air flow throttle control valve.
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- 3) Low turbocharger boost pressure and poor engine performance can be attributed to problems with the charge air cooler. One of the most common failures for these conditions is air leaks in the charge air cooler system. Most manufacturers provide a specific detailed process for pressurizing the charge air cooler system and then inspecting for leaks.
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- 4) The purpose of the exhaust gas re-circulation (EGR) system is to lower combustion temperatures and pressures by recirculating inert exhaust gases back into the air intake stream. The inert exhaust gases will displace some of the oxygen in the exhaust stream. The lowering of the combustion temperatures and pressures results in a lower level of oxides of nitrogen (NO_x) in the exhaust stream.
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- 5) Dust-out is a condition where small dust and dirt particles enter the air induction system by bypassing the filter. These abrasive particles are pushed through the system under pressure and can cause damage to the turbocharger, the charge air cooler, as well as internal engine components.
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