

Name _____

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

1) What is the combined operation of the low-pressure and high-pressure turbocharger on the Nissan Titan equipped with a Cummins 5.0-liter V8 engine?

2) What is the purpose of the diesel exhaust fluid (DEF) in the exhaust aftertreatment system of a Cummins 6.7-liter engine?

3) Why does the variable geometry turbocharger used on the 6.7-liter Cummins engine not need a wastegate?

4) How does the glow plug module control the operation of the glow plugs on a Nissan Titan equipped with a Cummins 5.0-liter V8?

5) What is the purpose of the high-pressure common rail (HPCR) fuel system on the 6.7-liter Cummins engine?

Answer Key

Testname: LVDE1_SHORT24

1) The low-pressure turbocharger is located in the valley below the intake manifold. It is the larger of the two turbochargers and is the primary supplier of boost to the engine. The low-pressure turbocharger has a low-pressure turbocharger boost pressure sensor on the outlet side of the unit. It monitors the air pressure in the outlet side of the turbocharger. The unit also has a compressor bypass valve located in the outlet tube.

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2) The selective catalytic reduction (SCR) system allows the Cummins 6.7-liter diesel engine to meet the newest emission standards for oxides of nitrogen (NOx).

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3) The 6.7-liter Cummins engine uses a variable geometry turbocharger. The turbocharger uses variable vanes and an electronic actuator to control exhaust gases. As the angle on the vanes changes, the turbo boost will decrease or increase. A wastegate is not used, as the angle of the vanes can be used to regulate turbine wheel speed.

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4) The glow plug control module controls the operation of the glow plugs based on CAN Bus messages from the engine control module. The glow plugs are activated during the wait-to-start sequence and can continue to operate after the engine has started, if the engine control module determines they are needed.

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5) The high-pressure pump provides fuel under pressure to the common rail. The rail stores fuel until needed by the individual injectors. The rail acts as a pulse damper, minimizing the effects of pressure and volume drops when the injectors are energized.

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