

Name _____

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

1) How does the PCM use the pressure differential sensor to determine if the diesel particulate filter has a restriction?

2) What is the role of an O₂ sensor (if equipped) in the exhaust aftertreatment system?

3) What happens if the customer fails to maintain the diesel exhaust fluid at a minimum level?

4) How does a temperature sensor verify the operation of a diesel oxidation catalyst?

5) What is the difference between a passive and an active regeneration event?

Answer Key

Testname: LVDE1_SHORT15

- 1) A differential pressure sensor is used to determine if a restriction exists in the DPF, indicating a need for service or replacement. The sensor compares the pressure at the inlet and outlet of the DPF, and uses that data to determine if a regeneration event is needed. The sensor is mounted near the DPF and is connected to it with long metal tubes.
Page Ref: 172
- 2) Newer diesel vehicles use a wide-band oxygen sensor that is capable of accurately monitoring the oxygen (O₂) level in the exhaust stream throughout its broad operating range. Unlike a gasoline engine, the diesel oxygen sensor is not being used to adjust fuel delivery, but rather to control and monitor the EGR system. The PCM will monitor the level of oxygen in the exhaust stream during the EGR process. By comparing the data during the event to expected results, the PCM can control the EGR valve at the desired level of operation and it can monitor performance against fault setting criteria.
Page Ref: 173
- 3) Most vehicles will consume the DEF at a rate of 1% to 4% of fuel consumption, depending on driving conditions. The system is designed to warn the driver when the system fluid level gets low.
Page Ref: 170
- 4) The temperature sensor may be used to verify a component is operating as designed. For example, the normal operation of a diesel oxidation catalyst (DOC) will generate heat. The PCM can monitor the temperature at the outlet of the DOC under specific operating conditions, and determine if it is functioning as designed. This is a critical input when meeting the OBDII monitoring requirements. The temperature sensors can also be used to control the operation of a system.
Page Ref: 172
- 5) Passive Regeneration—During a passive regeneration event, the engine load is sufficient enough to create the exhaust temperatures needed to eliminate the particulate matter.
Active Regeneration—During an active regeneration event, heat is created by adding fuel to the exhaust stream. This fuel can be added either through a post-injection shot at the cylinder or through a dosing valve in the exhaust. The temperature of the diesel particulate filter (DPF) is hotter during an active regeneration event than a passive event.
Page Ref: 171