

Automotive Engines 10th

Chapter 18 Emission Control Devices

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

1. What exhaust emissions do the PCV valve and SAI system control?
2. How does the computer monitor catalytic converter performance?
3. How does a catalytic converter reduce NOX to nitrogen and oxygen?
4. How does the DPFE sensor work?
5. How does the use of exhaust gas reduce NOX exhaust emission?

Answer Key

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1. Both PCV and SAI systems are used to reduce HC and CO emissions.
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2. The PCM monitors catalytic converters efficiency by checking the downstream oxygen sensor switch rates to the switch rate of the upstream oxygen sensor. If the switch rates are similar, the catalytic converter efficiency is low.
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3. As the exhaust gas passes through the catalyst, oxides of nitrogen (NO_x) are chemically reduced (i.e., nitrogen and oxygen are separated) in the first section of the catalytic converter.
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4. The DPFE (Delta Pressure Feedback EGR) works by measuring the pressure differential between two sides of a metered orifice to signal the PCM the amount of EGR needed.
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5. Recirculating a small percentage of the exhaust gases back into the intake, results in reduced combustion temperatures. The exhaust gases are chemically inert and do not enter into the combustion process.
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