Automotive Technology 7th Edition
Chapter 81: Positive Crankcase Ventilation and Secondary Air-Injection Systems
Short Answer Quiz

Name: Date:

1. Describe the primary function of the Secondary Air-Injection (SAI) system when directed to the catalytic converter.

2. At what engine coolant temperature does the PCM turn on the SAI pump during start-up, and what is the typical duration of operation for an electric SAI pump?

3. Explain the purpose of the check valve in an air-injection system and the consequences of its failure.

4. How does the PCV system affect the crankcase pressure at 2,500 RPM, and what are the implications for exhaust emissions?

5. What is the role of the electric heater in the PCV valve as used by Ford, and how do other manufacturers like General Motors prevent ice blockage in the PCV system?

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6. Discuss the methods used to distribute air from the SAI pump to the exhaust system and the differences in application between smaller and larger engines.

7. What is the significance of the centrifugal filter in a belt-driven air pump, and how does it function?

8. Explain the process of testing the SAI system using a four-gas exhaust analyzer and the expected changes in HC, CO, and O2 readings when the system is functioning correctly.

9. Describe the PCM's control over the SAI pump solenoids and the conditions under which the PCM energizes the relay to turn on the SAI pump.

10. What are the symptoms and diagnostic trouble codes that might indicate a problem with the SAI system, and how would these affect the engine's performance?