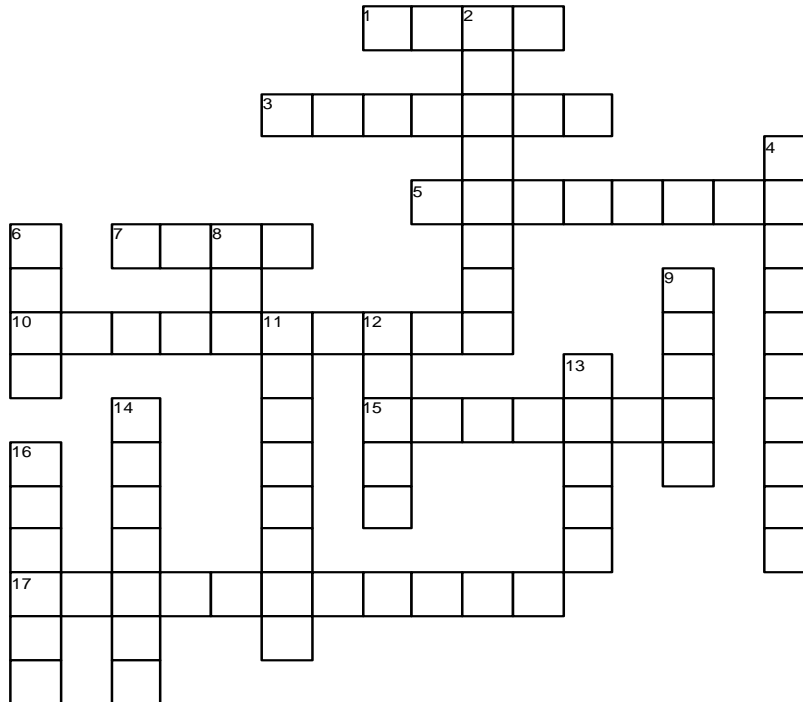


## Automotive Electrical and Engine Performance 9th Edition

### Chapter 41 - EVAP and EGR Systems



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#### ACROSS

- 1 \_\_\_\_ Valve: A normally open valve that allows the EVAP system to vent to the atmosphere when not under test conditions, and closes during testing to seal the system.
- 3 \_\_\_\_ EGR Valve: An electronically controlled valve used to regulate the flow of exhaust gases back into the engine for emissions control.
- 5 \_\_\_\_ Organic Compounds (VOCs): Organic chemicals that evaporate easily at room temperature and contribute to air pollution.
- 7 \_\_\_\_ Tank Pressure (FTP) Sensor: A sensor that measures the pressure in the fuel tank to monitor for leaks and control evaporative emissions.
- 10 A process where molecules adhere to the surface of a material, such as when the carbon canister traps fuel vapors in the evaporative system.
- 15 \_\_\_\_ Gas Recirculation (EGR): A system that reduces nitrogen oxide (NOx) emissions by recirculating a portion of the exhaust gases into the intake manifold to lower combustion temperatures.
- 17 \_\_\_\_ Control (EVAP) System: A system that prevents fuel vapors from escaping into the atmosphere by storing them in a carbon canister and purging them into the engine.

#### DOWN

- 2 \_\_\_\_ Oxides (NOx): Pollutants formed during combustion at high temperatures, which contribute to smog and acid rain.
- 4 An abnormal combustion event where the air-fuel mixture ignites prematurely, causing knocking or pinging sounds and potentially damaging the engine.
- 6 \_\_\_\_ Detection Pump (LDP): A pump used in the EVAP system to pressurize the system and detect leaks by monitoring pressure changes.
- 8 \_\_\_\_ Valve Position (EVP) Sensor: A sensor that monitors the position of the EGR valve to ensure proper flow of exhaust gases into the intake system.
- 9 \_\_\_\_ Pressure Feedback EGR (DPFE) Sensor: A sensor that measures the pressure differential across a metered orifice to monitor the exhaust gas recirculation (EGR) system's performance.
- 11 \_\_\_\_ Feedback EGR (PFE) Sensor: A sensor that monitors pressure changes to ensure the EGR system is functioning correctly.
- 12 A property of a substance that does not chemically react, as with exhaust gases recirculated by the EGR system.
- 13 \_\_\_\_ Valve: A valve that controls the release of stored fuel vapors from the EVAP system into the engine's intake manifold.
- 14 \_\_\_\_ Refueling Vapor Recovery (ORVR): A system that captures fuel vapors during refueling and prevents them from escaping into the atmosphere.
- 16 \_\_\_\_ EGR Valve: A type of EGR valve that provides precise control of exhaust gas flow based on engine operating conditions.