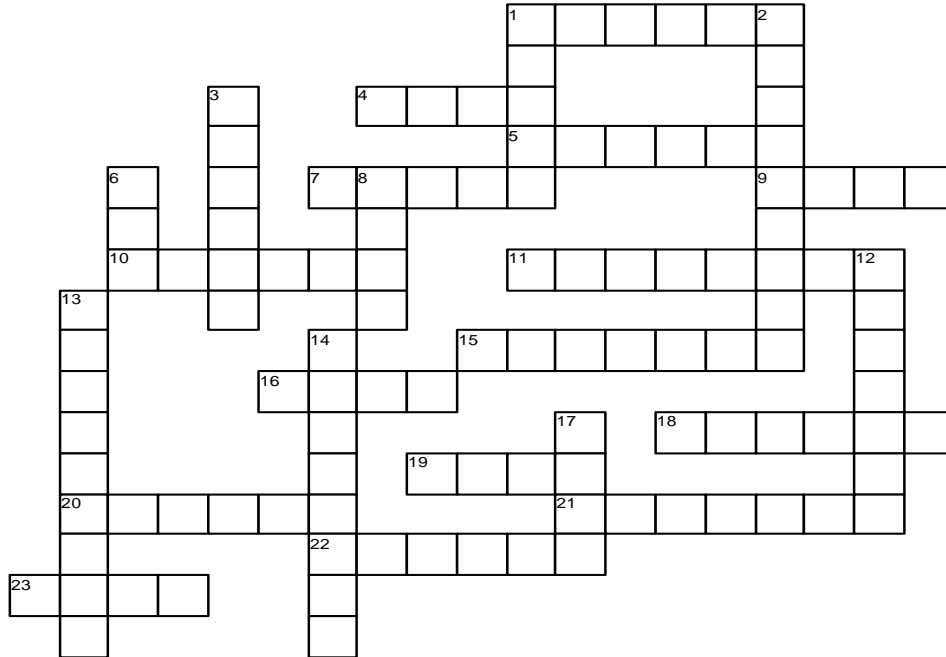


Advanced Engine Performance Diagnosis 8th Edition

Chapter 19

Narrow and Wide-Band Oxygen Sensors



www.CrosswordWeaver.com

ACROSS

- 1 _____ design: A specific design of oxygen sensor where the sensing element is shaped like a finger to enhance its sensitivity and response time.
- 4 _____ trim: The adjustments made by the engine control module to the amount of fuel injected, based on feedback from the oxygen sensor.
- 5 _____ cell: A type of oxygen sensor that uses only one sensing cell to measure oxygen levels in the exhaust.
- 7 _____ rich: A condition where the oxygen sensor falsely indicates a rich air-fuel mixture, possibly due to contamination or wiring issues.
- 9 _____ temperature vulcanization: A type of sealant used to protect oxygen sensor wiring and components from environmental damage.
- 10 A type of oxygen sensor design where the sensing elements are arranged in a flat plane, allowing for faster response times and more accurate measurements.
- 11 A ceramic material used in oxygen sensors for its ability to conduct oxygen ions at high temperatures.
- 15 _____ design: A traditional design of oxygen sensors where the sensing element is enclosed in a small thimble-shaped housing.
- 16 _____-band: oxygen sensors: Sensors

capable of measuring a wide range of air-fuel ratios, providing more precise control over the combustion process.

- 18 _____ loop: A mode of operation where the engine control module uses feedback from the oxygen sensor to adjust fuel delivery for optimal air-fuel mixture.
- 19 _____ cell: A component in a wide-band oxygen sensor that pumps oxygen ions to control the air-fuel mixture more precisely.
- 20 _____ cell: The part of the oxygen sensor that produces a voltage based on the difference in oxygen concentration between the exhaust gas and the outside air.
- 21 _____ side electrode: The electrode in an oxygen sensor exposed to the exhaust gases, responsible for measuring the oxygen content in the exhaust.
- 22 _____ sensors: Sensors that measure the amount of oxygen in the exhaust gas to help control the air-fuel ratio.
- 23 _____ cell: A type of oxygen sensor that has two sensing cells to provide more accurate readings of the exhaust gas oxygen levels.

DOWN

- 1 _____ lean: A condition where the oxygen sensor falsely indicates a lean

air-fuel mixture, often due to sensor contamination or electrical issues.

- 2 A stable voltage or air concentration used as a comparison point in oxygen sensors.
- 3 _____ electrode: The part of the oxygen sensor that sends the measured voltage signal to the engine control module.
- 6 _____ design: A type of oxygen sensor design where the sensor elements are enclosed in a cup-like structure.
- 8 _____-fuel ratio sensor: A sensor that measures the ratio of air to fuel in the exhaust and helps the engine control module adjust fuel injection for optimal combustion.
- 12 _____ side electrode: The electrode in an oxygen sensor exposed to the outside air, used as a reference to compare with the exhaust gas side.
- 13 _____ dioxide: A specific type of zirconia used in oxygen sensors to detect changes in oxygen levels in the exhaust gases.
- 14 _____-_____ time: The time it takes for an oxygen sensor to reach its operating temperature and begin providing accurate readings.
- 17 _____ loop: A mode of operation where the engine control module ignores oxygen sensor feedback, typically during engine startup or heavy acceleration.

HALDERMAN

WWW.JAMESHALDERMAN.COM