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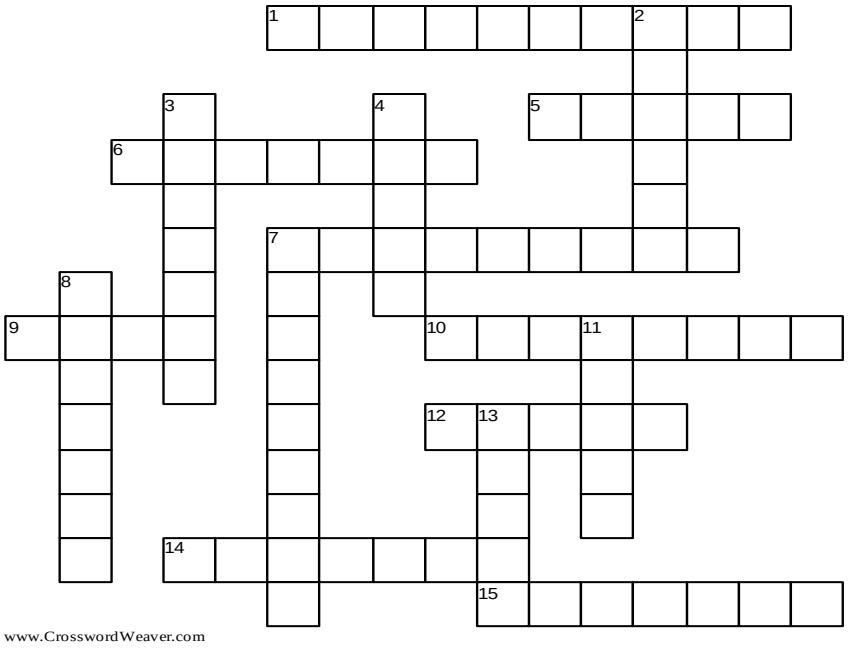
Advanced Engine Performance Diagnosis 8th Edition

Chapter 13

Ignition System Operation, Diagnosis, and Service (Part 2)



ACROSS

1 An electronic switch used in modern ignition systems to control the flow of current in the primary ignition circuit.

5 _____-spark: A type of ignition system that fires two spark plugs simultaneously, with one spark igniting the air-fuel mixture in the power stroke cylinder and the other spark occurring in the exhaust stroke cylinder.

6 _____ ignition circuit: The low-voltage part of the ignition system that includes the battery, ignition switch, and ignition coil. It controls the flow of current to the ignition coil.

7 _____ ignition circuit: The high-voltage part of the ignition system that delivers the spark to the spark plug. It includes the ignition coil, spark plug wires (if applicable), and spark plugs.

9 Spark _____: The part of the ignition waveform that represents the duration of the spark as it burns across the spark plug gap.

10 _____ spark plugs offer longer life and more reliable performance compared to traditional spark plugs.

12 _____ knock: A knocking or pinging sound caused by abnormal combustion in the engine, also known as detonation.

14 Secondary _____: The high-voltage winding in the ignition coil, where the high voltage is generated through electromagnetic induction. This voltage is then delivered to the spark plug.

15 _____ trigger: A type of circuit used to clean up signals from sensors, ensuring that the signals are clear and consistent for use in electronic ignition systems.

DOWN

2 Spark _____ A diagnostic tool used to test whether the ignition system is producing a spark.

3 A device or sensor that signals when the ignition coil should create a spark, usually based on the position of the crankshaft or camshaft.

4 Refers to the path that high-voltage ignition currents follow, including the spark plug wires and other ignition components.

7 The process of turning the primary circuit on and off to control the flow of current to the ignition coil, which creates the high-voltage spark.

8 Primary _____: The low-voltage winding in the ignition coil that creates a magnetic field when current flows through it, which is essential for generating high voltage in the secondary winding.

11 _____ ratio: The ratio of turns of wire in the primary winding compared to the secondary winding in the ignition coil. This ratio determines how much the voltage is stepped up from the battery to the spark plug.

13 Spark _____: Components in the ignition system that deliver the spark to ignite the air-fuel mixture in the combustion chamber.