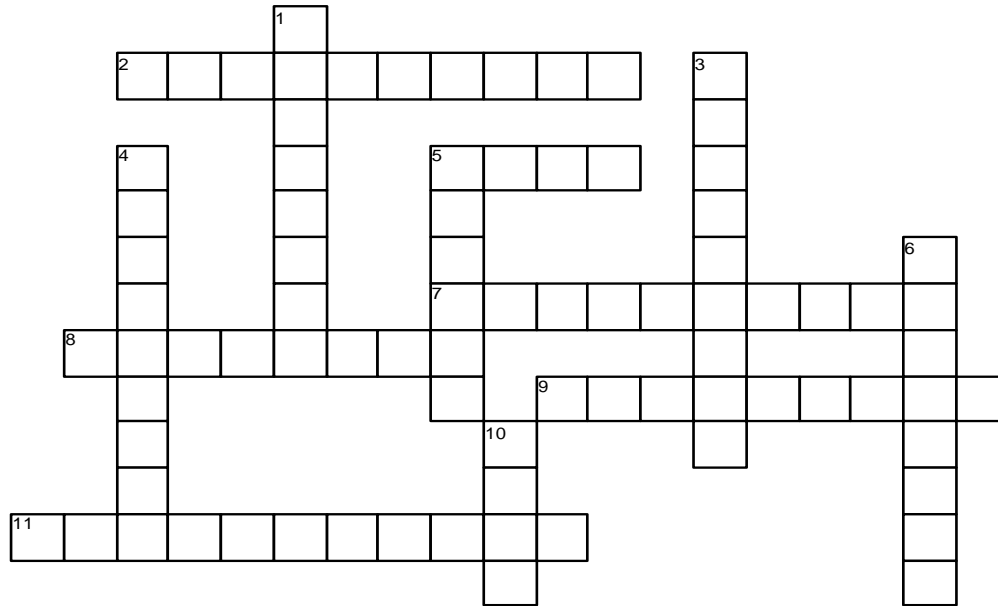


## Automotive Electrical and Engine Performance 9th Edition Chapter 38 - Fuel-Injection System Diagnosis and Service



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### ACROSS

- 2 The electrical balance test involves measuring the injector coil-winding \_\_\_\_\_.
- 5 \_\_\_\_\_-and-hold injector: A type of fuel injector that initially receives a high current to open quickly (peak), followed by a reduced current to hold it open (hold).
- 7 The state in which the injector is fully energized, meaning it remains open to allow continuous fuel flow.
- 8 The \_\_\_\_\_ balance test involves using an electrical timing device to pulse the fuel injectors on for a given amount of time, usually 500 milliseconds or 0.5 seconds, and observing the drop in pressure that accompanies the pulse.
- 9 Some vehicles may have been running in such a poor state of operation that the powertrain control module (PCM) may need to be \_\_\_\_\_.
- 11 Do not test an injector using a pulse-type tester more than one time without starting the engine to help avoid a \_\_\_\_\_ lock caused by the flow of fuel into the cylinder during the pulse test.

### DOWN

- 1 Another test of injectors involves pulsing the injector and measuring the voltage drop across the \_\_\_\_\_ as current is flowing.
- 3 A pulse-width \_\_\_\_\_ type of injector drive circuit uses lower-resistance coil injectors.
- 4 In a \_\_\_\_\_ switch-type injector-driven circuit, voltage (usually a full 12 volts) is applied to the injector.
- 5 One of the first checks that should be performed when diagnosing a no-start condition is whether the fuel injectors are being \_\_\_\_\_ by the computer.
- 6 A scope (analog or digital storage) can be connected into each \_\_\_\_\_ circuit.
- 10 \_\_\_\_\_ light: A diagnostic tool used to verify the presence of injector pulse signals by connecting it to the fuel injector harness.