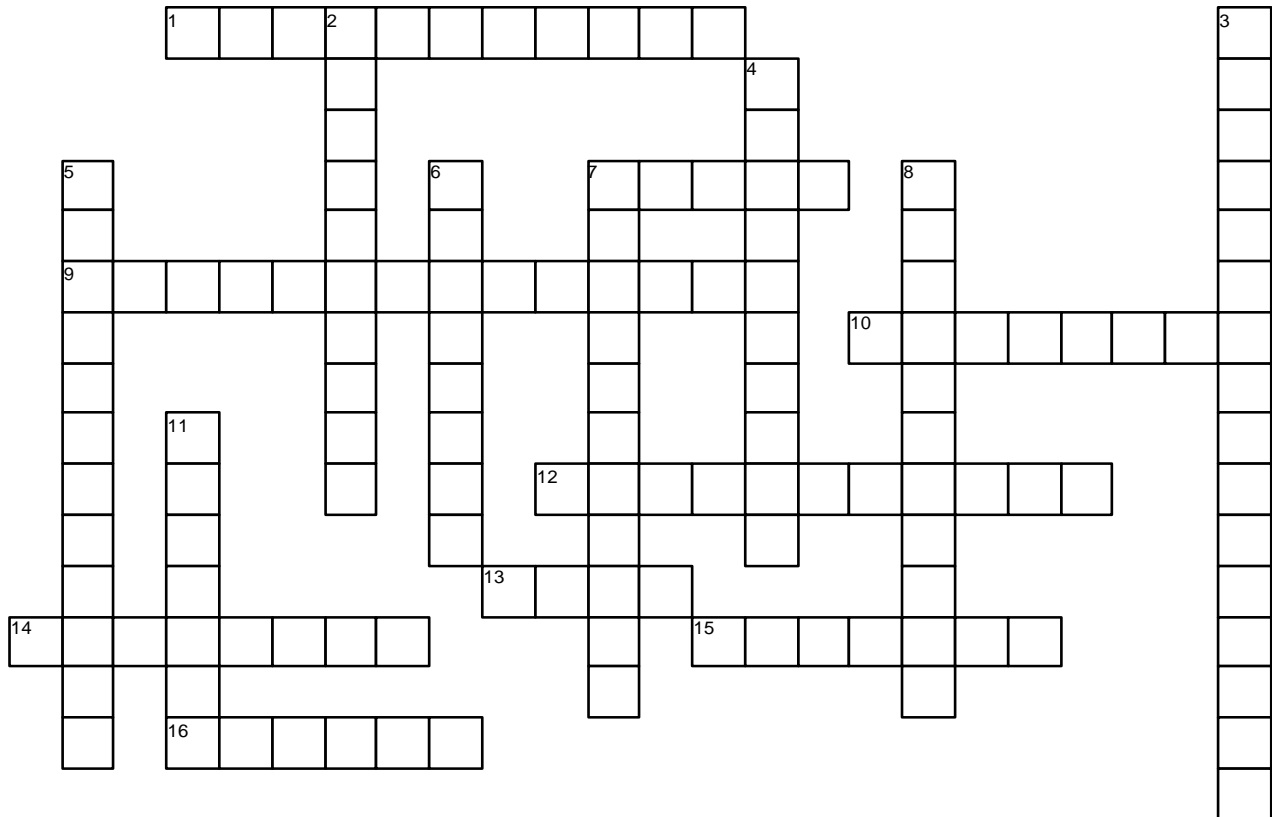


Gasoline Direct-Injection Systems

Chapter 76



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ACROSS

- 1 One advantage of direct injection v.s. port-injection is that it allows the use of ____-____ gasoline.
- 7 With the combination of high-pressure ____ injectors and modified combustion chamber, almost instantaneous vaporization of the fuel occurs.
- 9 Several vehicle manufacturers are using _____ injection, which sprays high-pressure fuel into the combustion chamber as the piston approaches the top of the compression stroke.
- 10 In a ____ injection system, the fuel is squirted into the intake manifold or intake port upstream from the valve.
- 12 One advantage of direct injection v.s. port-injection is up to 25% improvement in ____.
- 13 GM refers to GDI systems as ____ systems.
- 14 The ____ pressure sensor connects to the PCM with three wires.
- 15 An advantage of direct injection v.s. port-injection is a 12% to 15% reduction in ____ emissions.
- 16 ____ injection has more components compared with port fuel injection.

DOWN

- 2 One advantage of direct injection v.s. port-injection is the higher engine _____.
- 3 One advantage of direct injection v.s. port-injection is improved cold starting and _____.
- 4 In the _____ mode of operation, the injection occurs just before the spark occurs resulting in lean combustion, reducing fuel consumption.
- 5 In a typical GDI system, the ECM controls the output of the ____-____ pump, which has a range between 500 to 2,900 PSI.
- 6 The ____ stores the fuel from the high-pressure pump and stores high pressure fuel for use to each injector.
- 7 In the ____-____ combustion design, the injector is placed in the center of the combustion chamber and injects fuel into the dished out portion of the piston.
- 8 In _____ mode, the injector is pulsed one time to create an even air-fuel mixture in the cylinder.
- 11 Depending on when the fuel is injected into the combustion chamber, helps determine how the air-fuel is moved or tumbled.