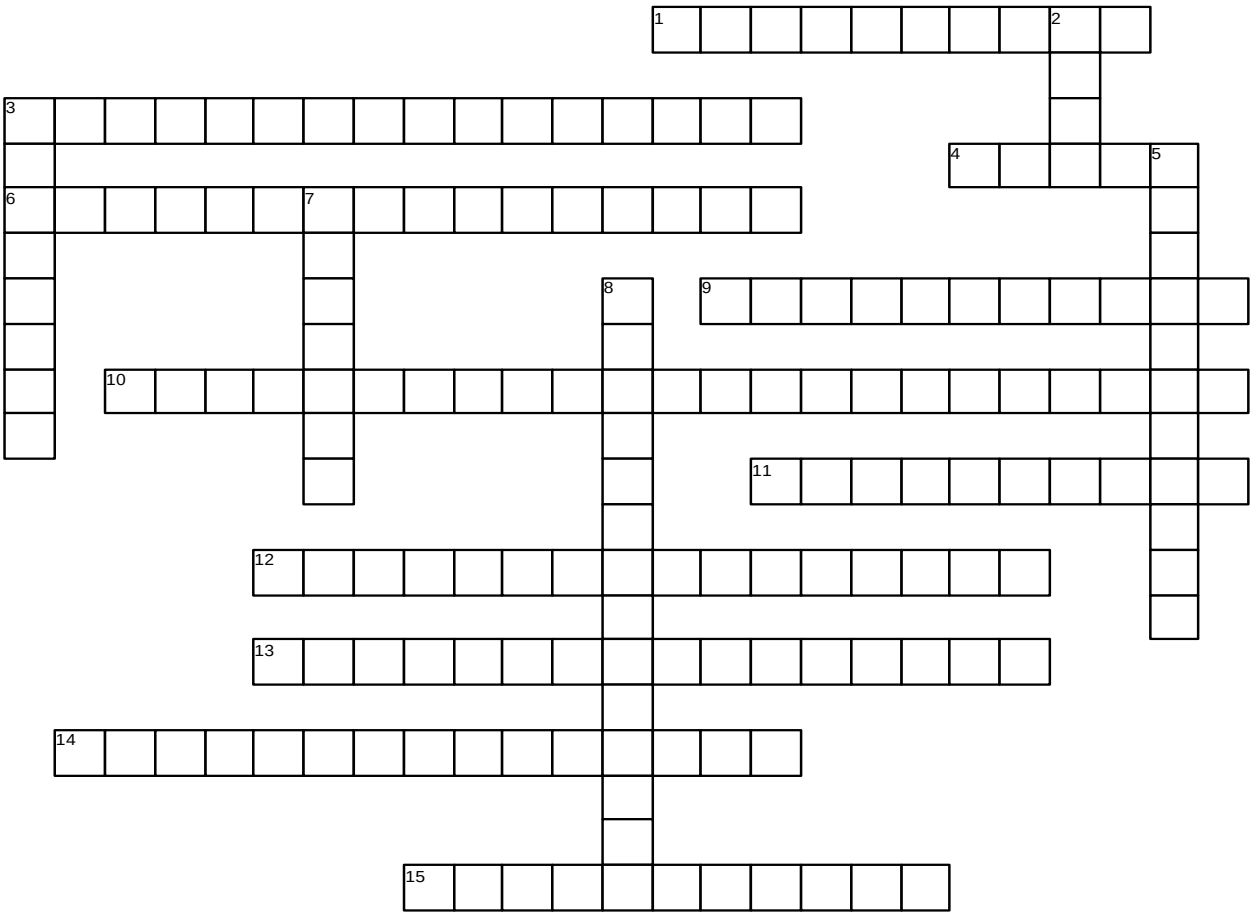
Gasoline Direct-Injection Systems

Chapter 23



http://jameshalderman.com

ACROSS

1 On disadvantage of direct injection vs. port-injection is the _____ ____ due to high-pressure pump and injectors.

3 The ____ ____ _____ sensor connects to the PCM with three wires.

4 With the combination of high-pressure _____ injectors and modified combustion chamber, almost instantaneous vaporization of the fuel occurs.

6 One advantage of direct injection vs. port-injection is a 12% to 15% reduction in _____ _____.

9 In the _____-_____ combustion design, the injector is placed in the center of the combination chamber and injects fuel into the dished out portion of the piston.

10 Several vehicle manufacturers are using _____ _____ _____, which sprays high-pressure fuel into the combustion chamber as the piston approaches the top of the compression stroke.

11 On disadvantage of direct injection vs. port-injection are there are more _____.

12 One advantage of direct injection vs. port-injection is the higher _____ _____.

13 One advantage of direct injection vs. port-injection is improved cold starting and _____ _____.

14 In _____ ____, the injector is pulsed one time to create an even air-fuel mixture in the cylinder.

15 One advantage of direct injection vs. port-injection is up to 25% improvement in ____ _____.

DOWN

2 GM refers to GDI systems as ____ systems.

3 The ____ ____ stores the fuel from the high-pressure pump and stores high pressure fuel for use to each injector.

5 One advantage of direct injection vs. port-injection is that it allows the use of _____-_____ gasoline.

7 Depending on when the fuel is injected into the combustion chamber, helps determine how the air-fuel is moved or tumbled.

8 In the _____ ____ of operation, the injection occurs just before the spark occurs resulting in lean combustion, reducing fuel consumption.