

# Gasoline Engine Operation

## Chapter 14

**ACROSS**

1 When two overhead camshafts per cylinder head are used, the design is called a \_\_\_\_\_

\_\_\_\_\_ design.

4 When one overhead camshaft per cylinder is used, the design is called a \_\_\_\_\_

\_\_\_\_\_ design.

6 All automotive and truck engines are constructed using a solid frame, called a \_\_\_\_\_

\_\_\_\_\_.

8 During the intake stroke, the \_\_\_\_\_ is open and the piston inside the cylinder travels downward, drawing a mixture of air and fuel into the cylinder.

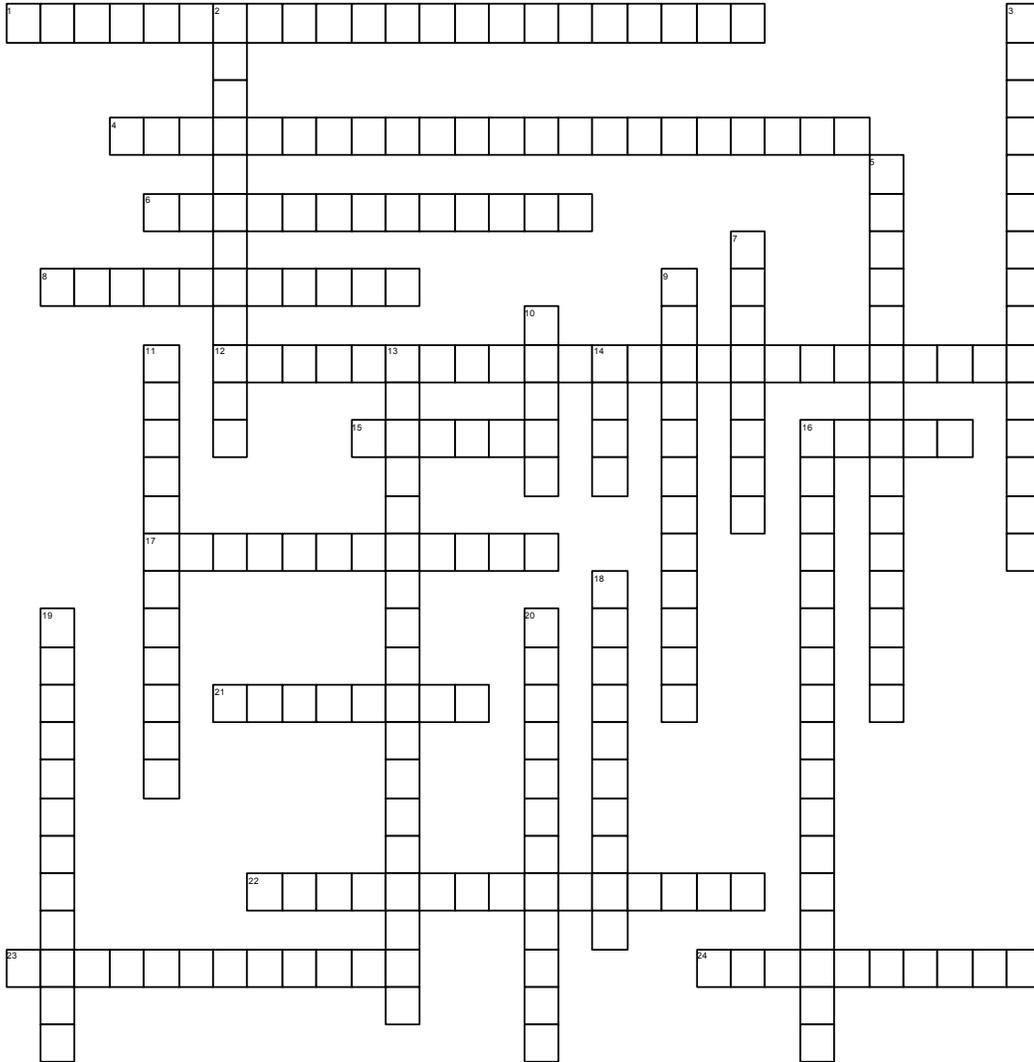
12 If engine combustion occurs within the power chamber, the engine is called an \_\_\_\_\_

\_\_\_\_\_.

15 The \_\_\_\_\_ of an engine is the distance the piston travels from top dead center to bottom dead center.

16 A \_\_\_\_\_ is a complete series of events that continually repeats.

17 A \_\_\_\_\_ is an engine-driven air pump that supplies more than the



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normal amount of air into the intake manifold and boosts engine torque and power.

21 The valves are opened by a \_\_\_\_\_.

22 The pressure developed within the combustion chamber is applied to the head of a piston to produce a usable \_\_\_\_\_.

23 A \_\_\_\_\_ is a one-way piston movement either from top or bottom to top of the cylinder.

24 \_\_\_\_\_ is the chemical energy in fuel is converted to heat energy by burning of the fuel at a controlled rate.

**DOWN**

2 An oil pump forces the oil

through the oil filter and then into \_\_\_\_\_ in the crankshaft and block.

3 The first \_\_\_\_\_ engine was developed by a German engineer, Nicklaus Otto, in 1876.

5 Mechanical force is converted into useful \_\_\_\_\_.

7 A piston

moves up and down, or reciprocates, in a \_\_\_\_\_.

9 \_\_\_\_\_ is the volume displaced or how much air is moved by all of the pistons.

10 \_\_\_\_\_ engines are often used in Porsche and Subaru vehicles.

11 The piston forces the residual burned gases out of the combustion

chamber through the \_\_\_\_\_ and into the exhaust manifold and exhaust system.

13 If atmospheric air pressure is used to force the air-fuel mixture into the cylinders, the engine is called \_\_\_\_\_.

14 The diameter of the cylinder is called the

\_\_\_\_\_.

16 Engines convert the chemical energy of the gasoline into heat within a power chamber that is called a \_\_\_\_\_.

18 The piston is attached to a \_\_\_\_\_ with a connecting rod.

19 The Mazda RX-7 and RX-8 represent the

only long-term use of the \_\_\_\_\_.

20 A \_\_\_\_\_ uses the heat of the exhaust to power a turbine wheel and therefore does not directly reduce engine power.