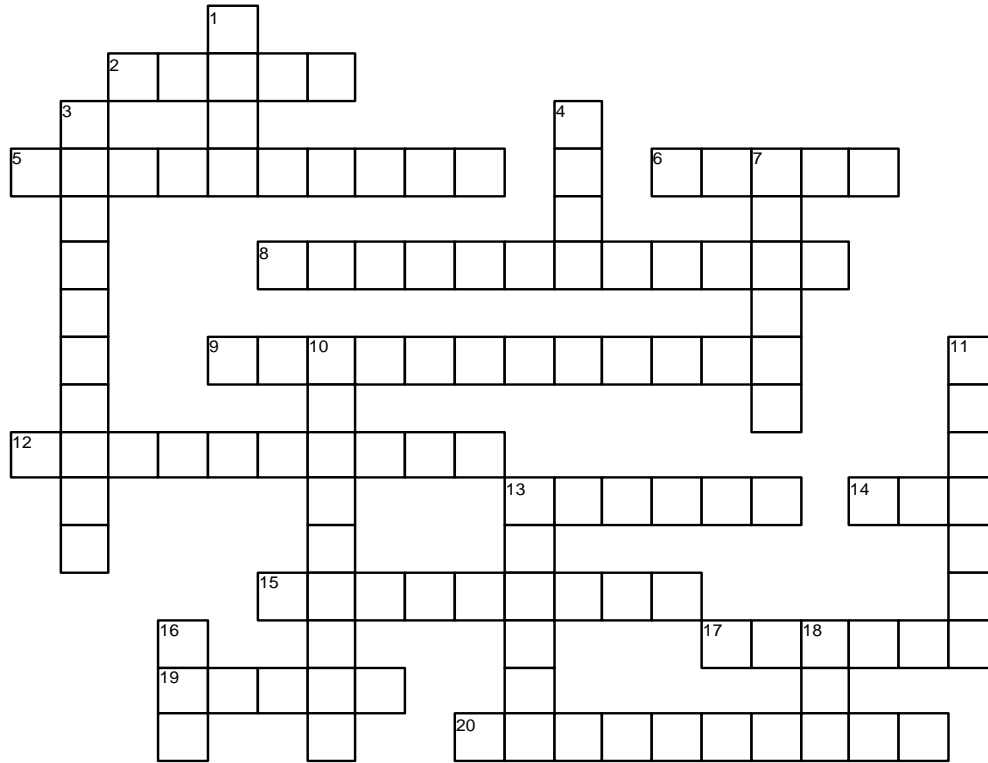


# Gasoline Engine Operation, Parts, and Specifications

## Chapter 15



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### ACROSS

- 2 A \_\_\_\_\_ is constructed of cast iron or aluminum and provides the foundation for most of the engine components and systems.
- 5 The piston is attached to a crankshaft with a \_\_\_\_\_ rod.
- 6 The pressure developed within the combustion chamber is applied to the head of a piston to produce a usable mechanical force, which is converted into useful mechanical \_\_\_\_\_.
- 8 \_\_\_\_\_ is the cubic inch (cu. in.) or cubic centimeter (cc) volume displaced, or how much air is moved by all of the pistons.
- 9 the \_\_\_\_\_ end of the engine is opposite the principal end and is generally referred to as the front of the engine, where the accessory belts are used.
- 12 The chemical energy in fuel is converted to heat energy by the burning of the fuel at a controlled rate. This process is called \_\_\_\_\_.
- 13 A piston \_\_\_\_\_ is a oneway piston movement either from top to bottom or bottom to top of the cylinder.
- 14 The crankshaft rotates 180 degrees from top dead center (TDC) to bottom

dead center (\_\_\_\_) and the camshaft rotates 90 degrees.

- 15 The oil pan, bolted to the bottom of the engine block, holds 4 to 7 quarts (4 to 7 liters) of oil. an oil pump, which is driven by the engine, forces the oil through the oil filter and into passages in the crankshaft and block. these passages are called oil \_\_\_\_\_.
- 17 The \_\_\_\_\_ valve is open and the piston inside the cylinder travels downward, drawing a mixture of air and fuel into the cylinder.
- 19 A \_\_\_\_\_ is a complete series of events that continually repeats. Most automobile engines use a four-stroke cycle.
- 20 The pressure developed within the combustion chamber is applied to the head of a piston to produce a usable \_\_\_\_\_ force.

### DOWN

- 1 The diameter of a cylinder is called the \_\_\_\_\_.
- 3 The first \_\_\_\_\_-\_\_\_\_\_ cycle engine was developed by a German engineer, Nickolaus Otto, in 1876.
- 4 When one overhead camshaft is used, the design is called a single overhead

camshaft (SOHC) design. When two overhead camshafts are used, the design is called a double overhead camshaft (\_\_\_\_\_ ) design.

- 7 a successful alternative engine design is the rotary engine, also called the \_\_\_\_\_ engine
- 10 If atmospheric air pressure is used to force the air-fuel mixture into the cylinders, The engine is called \_\_\_\_\_ aspirated.
- 11 Horizontally opposed 4- and 6-cylinder engines have two banks of cylinders that are horizontal, resulting in a low engine. this style of engine is used in porsche and Subaru engines and is often called the boxer or \_\_\_\_\_ engine design.
- 13 the \_\_\_\_\_ of an engine is the distance the piston travels from top dead center (TDC) to bottom dead center (BDC).
- 16 If engine combustion occurs within the power chamber, the engine is called an internal combustion engine abbreviated \_\_\_\_.
- 18 the crankshaft rotates 180 degrees from top dead center (\_\_\_\_) to bottom dead center (BDC) and the camshaft rotates 90 degrees.