

The Four Stroke Engine

Name: _____

The Four Stroke Engine

The sound of a Harley-Davidson® motorcycle is highly recognizable and unmistakable. But what causes that significant sound?

The heart of a Harley-Davidson motorcycle is the engine. Harley-Davidson motorcycles are powered by an internal combustion engine. This means the engine burns fuel inside.

There are four strokes or stages in the engine cycle. The four strokes of the cycle are intake, compression, ignition, and exhaust. Bike lingo for this is: suck, squeeze, bang and blow. Each 180 degree turn of fly-wheel is one event stroke. The flywheel must make two revolutions to complete one power cycle of the motor.

WORD BOX

cylinder – A chamber in which a piston slides to compress a fluid

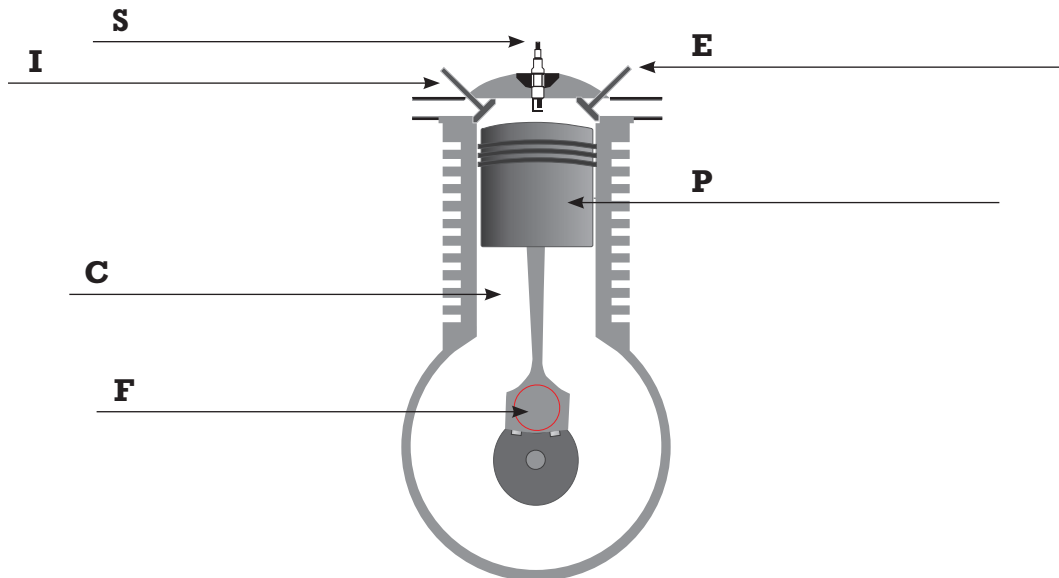
exhaust valve – A valve through which burned gases from a cylinder escape

flywheel – A heavy wheel that stores kinetic energy and regulates the operation of an engine

intake valve – A valve that controls the flow of fuel-air mixture to be drawn into the cylinder

piston – A round piece that fits inside a cylinder and moves up and down under fluid pressure

spark plug – A device that fits in the head of an engine cylinder that ignites the fuel-air mixture by means of an electric spark



In the picture above, label the following parts of the engine: cylinder, intake valve, exhaust valve, piston, flywheel and spark plug. The first letter has been filled in for you.

Use one of the following websites to see a four stroke engine in motion.

http://www.k-wz.de/vmotor/v_omotore.html

http://en.wikipedia.org/wiki/Internal_combustion_engine

<http://auto.howstuffworks.com/engine1.htm>

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The Four Stroke Engine (cont'd)

Intake Stroke	
	<p>During the intake stroke, the flywheel draws the piston downward drawing in an atomized mixture of air and fuel into the cylinder.</p>
Compression Stroke	
	<p>The intake valve closes. The piston moves upward and compresses the air/fuel mixture.</p>
Ignition Stroke	
	<p>When the piston reaches the top, the spark plug fires and the compressed air/fuel mixture explodes. As the mixture burns, it expands driving the piston downward again.</p>
Exhaust Stroke	
	<p>The piston moves up the cylinder and the exhaust valve opens allowing the exhaust to escape and the process starts again.</p>

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