petrol engine

from Collins English Dictionary

n
1 an internal-combustion engine that uses petrol as fuel

Summary Article: petrol engine
From The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide

The most commonly used source of power for motor vehicles, introduced by the German engineers Gottlieb Daimler and Karl Benz in 1885. The petrol engine is a complex piece of machinery made up of about 150 moving parts. It is a reciprocating piston engine, in which a number of pistons move up and down in cylinders. A mixture of petrol and air is introduced into the space above the pistons and ignited. The gases produced force the pistons down, generating power. The engine-operating cycle is repeated every four strokes (upward or downward movement) of the piston, this being known as the four-stroke cycle. The motion of the pistons rotates a crankshaft, at the end of which is a heavy flywheel. From the flywheel the power is transferred to the car's driving wheels via the transmission system of clutch, gearbox, and final drive.

The parts of the petrol engine can be subdivided into a number of systems. The fuel system pumps fuel from the petrol tank into the carburettor. There it mixes with air and is sucked into the engine cylinders. (With electronic fuel injection, it goes directly from the tank into the cylinders by way of an electronic monitor.) The ignition system supplies the sparks to ignite the fuel mixture in the cylinders. By means of an ignition coil and contact breaker, it boosts the 12-volt battery voltage to pulses of 18,000 volts or more. These go via a distributor to the spark plugs in the cylinders, where they create the sparks. (Electronic ignitions replace these parts.) Ignition of the fuel in the cylinders produces temperatures of 700°C/1,300°F or more, and the engine must be cooled to prevent overheating.

Most engines have a water-cooling system, in which water circulates through channels in the cylinder block, thus extracting the heat. It flows through pipes in a radiator, which are cooled by fan-blown air. A few cars and most motorcycles are air-cooled, the cylinders being surrounded by many fins to present a large surface area to the air. The lubrication system also removes some heat, but its main job is to keep the moving parts coated with oil, which is pumped under pressure to the camshaft, crankshaft, and valve-operating gear.

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The Internal Combustion Engine

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