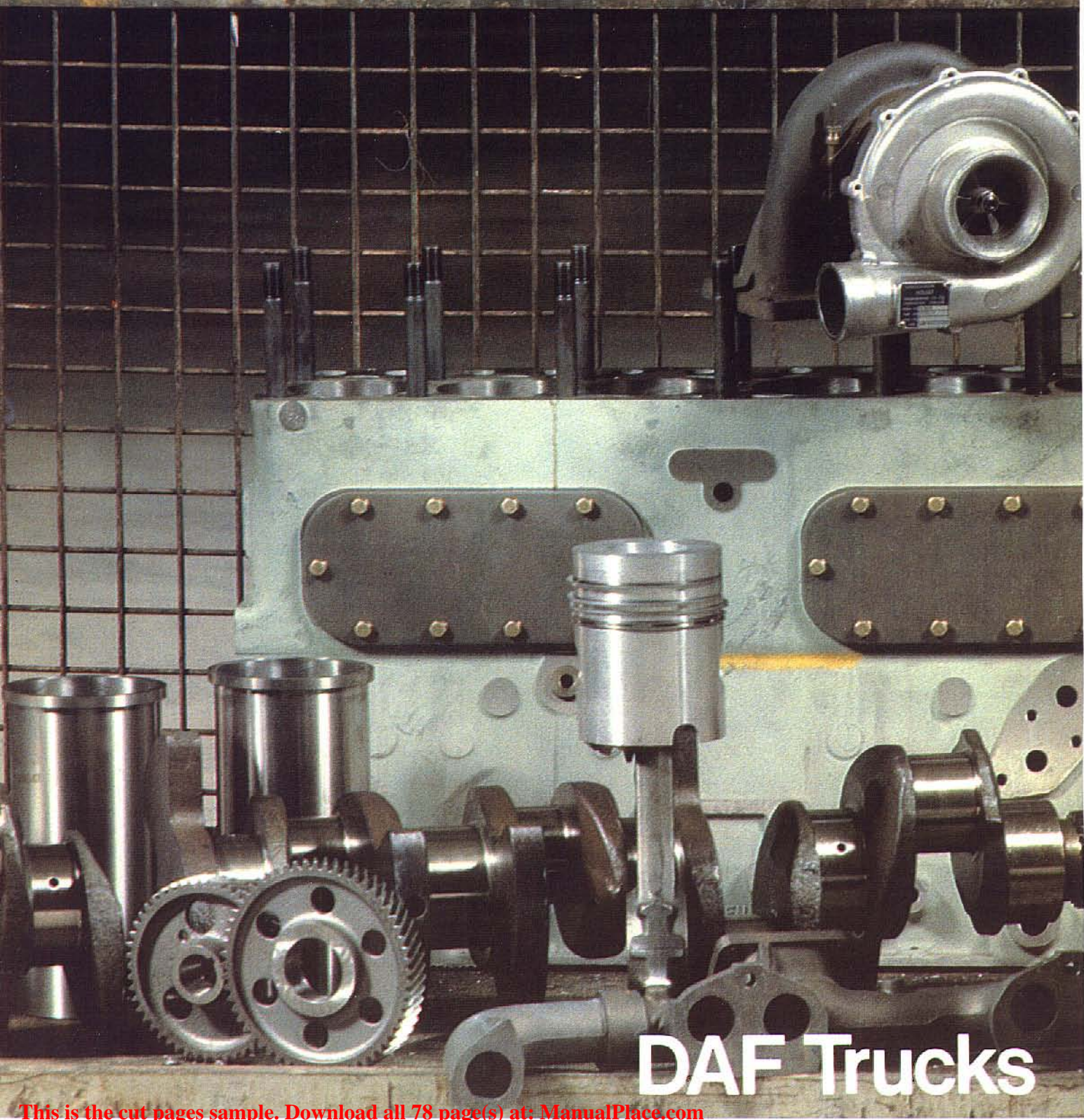


the diesel engine



DAF Trucks

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the diesel engine

A DAF Trucks publication

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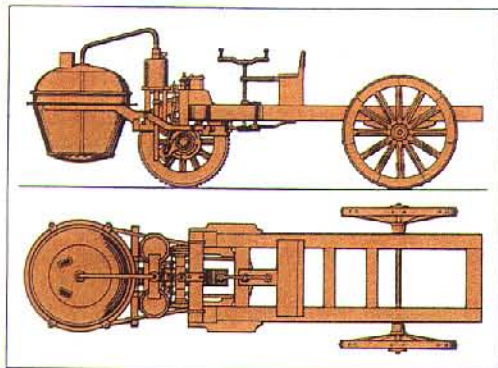
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A page from history

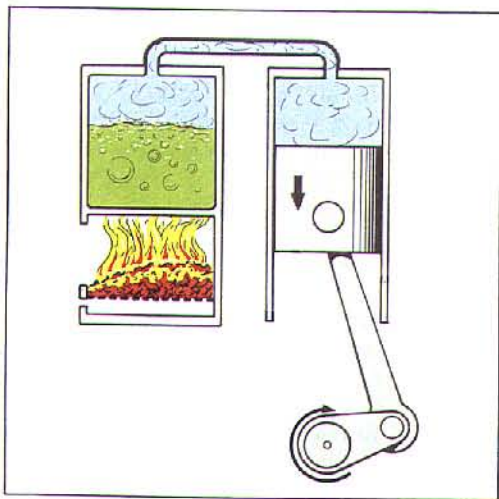


1769: the first automobile, Nicholas Cugnot's steam car.

The steam engine

The development of the automobile and its power unit begins in the 18th century after the invention of the steam engine. In 1769 the French engineer Nicholas Cugnot constructs a three-wheeled artillery tractor driven by a steam engine. This vehicle is generally considered as being the first self-propelled vehicle.

The steam engine is an **external combustion engine**, in which steam is generated in a separate boiler by heating.

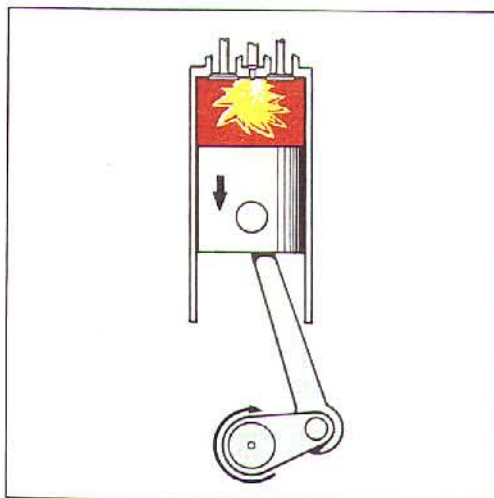


The principle of the external combustion engine. In a separate boiler steam is created by heating water. The pressure of the steam forces the piston downwards. The best known example of this principle is to be found in the steam powered locomotive.

The pressure of this steam causes the movement of the piston in the cylinder. This immediately explains why the steam engine is only used to a limited extent in automobiles. The big steam boiler and the water required to enable steam to be generated make the steam engine too heavy. The steam engine does herald the Industrial Revolution, however, thanks to its application in factories, in mines and on the railways. So it has most certainly played an important role in the world of transportation. The best known example is the steam powered locomotive. A tremendous machine, which still makes the hearts of young and old beat faster.

The Otto engine

The first breakthrough in the development of engines takes place in 1862. In that year the French engineer Lenoir constructs the first **internal combustion engine**, a **compressionless** gas engine. This Lenoir engine arouses great interest among other design engineers, including a certain Nicolaus August Otto. In 1878 Otto succeeds, together with



The principle of the internal combustion engine. The combustion of air and fuel takes place in the cylinder above the piston. The pressure of this combustion forces the piston downwards. Both the diesel engine and the petrol engine are internal combustion engines.