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## In the rear-view mirror: Audi celebrates the 50th anniversary of the legendary five-cylinder engine

Von Jürgen Pander

1-2-4-5-3 - experts will immediately recognize this series of numbers. The classic five-cylinder engine from Audi, which was first launched in 1976 in the Audi 100 model, 50 years ago. The numbers indicate the firing order of the individual cylinders, and it is precisely this rhythm that is the engine's distinguishing feature, because it creates a special sound. However, the sound was not the only facet that made the engine a cult powerhouse.

With more than 825,000 units built, the first generation of the Audi 100, which appeared in 1968, laid the foundation for the upswing of the Audi brand, which had only been reintroduced three years earlier. The successor generation of the model, the Audi 100 C2, known internally as the Type 43, was not only intended to continue the success story, but also to position the model series somewhat higher overall. The upgrade was also evident in the engine compartment: while the car had previously only been available with four-cylinder engines, the new model was also available with a five-cylinder petrol engine for the first time.

The initiative to launch the new Audi 100 with a five-cylinder engine came from Ferdinand Piëch, who had become Audi's Board Member for Technology in 1975. The fact that this engine type was chosen was due to the circumstances: An in-line six-cylinder engine would not have fitted into the available engine compartment, and a V6 engine would not have been part of Audi's drive range at the time. As a result, the Audi 100 5E top model was the world's first production car with a five-cylinder petrol engine.

The engine with the designation EA828 was based on the Volkswagen Group's four-cylinder engine with the abbreviation EA827, which was used between 1972 and 2013 and is considered one of the Group's most frequently built engines. Five-cylinder engines are generally considered to be smoother and more powerful than four-cylinder engines, and the 1-2-4-5-3 firing order gives them a particularly full, throaty sound. The reason for this is that the cylinders work alternately in direct proximity and then at a distance from each other. The five-cylinder engine from Audi had a displacement of 2.1 liters and, with intake manifold injection - hence the "E" for injection in the type abbreviation - from Bosch, produced 100 kW (136 hp) in the new saloon. In 1978, the engine was also launched in a carburetor version (Audi 100 5S) with 85 kW (115 hp) and a 2-litre five-cylinder diesel unit (Audi 100 5D) followed in the same year.

Further upgrades of the five-cylinder engine followed steadily. For example, the turbocharged version in the Audi 200 5T from 1979 with an output of 125 kW (170 hp). And, of course, the legendary Audi Quattro from 1980, the so-called Ur-Quattro. The coupé was the world's first production car with permanent all-wheel drive and a five-cylinder turbo engine which, thanks to the intercooler, mobilized an output of 147 kW (200 hp). This paved the way for racing. Audi won the 1982 one-make world rally championship with the Quattro, Finland's Hanno Mikkola took the title of world rally driver champion in 1983, which the Swede Stig Blomqvist achieved again in 1984 - in the Audi Quattro A2. The five-cylinder power unit also provided the necessary oomph for Walter Röhrl's spectacular record-breaking drive up Pikes Peak in 1987. In this case, the engine even developed 430 kW (598 hp). In 1989, an Audi five-cylinder racing car even competed in the US touring car series IMSA GTO with an output of 530 kW (720 hp) from less than two liters of displacement.

These were the hey-days of the five-cylinder engine. The engine was regarded as powerful and reliable, a kind of metalized fulfillment of the promise of "Vorsprung durch Technik" that Audi's advertising made at the time. And the series models also fulfilled this promise. For example, the Audi 100 TDI, which made its debut in 1989 with a five-cylinder turbodiesel direct injection engine, and the Audi Avant RS2, which was launched in 1994

with a five-cylinder petrol engine and an output of 232 kW (315 hp). These highlights of five-cylinder technology also marked its temporary end. From the mid-1990s onwards, new V6 engines gradually replaced the five-cylinder engines, which had long since become classics.

Temporarily, it must be added. Because in 2009, the five-cylinder engine made a comeback at Audi. This was in the Audi TT RS model, which came onto the market with a transversely installed 2.5-liter five-cylinder turbo engine and an output of 250 kW (340 hp). Once again, the engine proved to be a stable powerhouse, so that seven years later it was even redeveloped from the ground up: lighter, more efficient and even more powerful. The current generation of the engine, the 2.5 TFSI, which is used in the Audi RS3, for example, weighs just 160 kilograms and is less than 50 centimetres long. Thanks to turbocharging and direct injection, the engine develops an output of 296 kW (400 hp) and a maximum torque of 500 Nm.

The five-cylinder engines are built at the Audi plant in Győr, Hungary, and are assembled entirely by hand without the use of robots. Skilled workers assemble the unit at a total of 21 stations, which is then filled with operating fluids after completion and finally subjected to the so-called hot test. The machine is started for the first time and tested under load. If the parameters are right, the green light is given and a crane lifts the engine onto a transport pallet: the next five-cylinder engine is ready for its use in an Audi - and for the task of continuing the formula of the legendary concept: 1-2-4-5-3. (aum)

## Images for article

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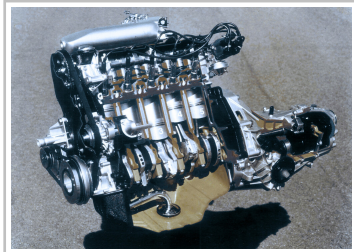


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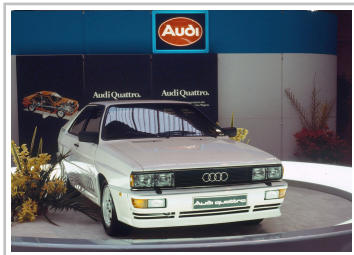


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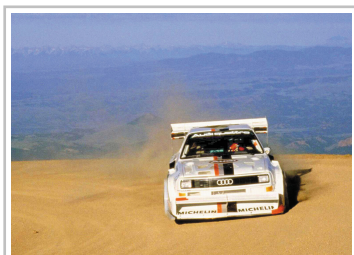


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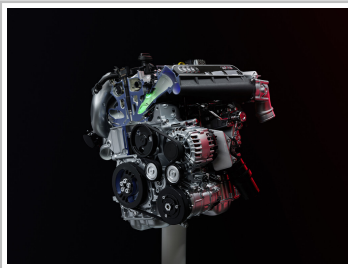


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