

## Press Release

DEKRA experts and a historic steam-powered vehicle

### **High-pressure inspection on a special classic car**

- ▶ U.S.-built and more than 100 years old
- ▶ Kerosine burner heats water to generate steam
- ▶ Pressure vessel undergoes a strength test every two years

**When people think of alternative powertrains today, they usually have electric cars, hydrogen, or natural gas systems in mind. But even in the early days of automotive engineering, resourceful engineers used steam to power road vehicles. A rare, 102-year-old “Stanley Steamer” was recently inspected again by DEKRA in Germany. Unlike vehicles with conventional powertrains, the standard periodical-technical inspection isn’t enough – pressure vessel experts must regularly inspect this steam-powered vehicle.**

There it stands: a cobalt-blue Stanley Steamer 750 B from 1924. Wooden-spoke wheels, leather seats, and the distinctive radiator with “Stanley” lettering make it immediately clear: this classic car hails from a different era. Among the numerous classics in collector Jörg Pühler’s garage in Ladenburg, Germany, however, it is not only the most beautiful – it is also the most technically extraordinary.

#### **The fourth-to-last of more than 10,000 cars**

The “Stanley Motor Carriage Company” in Newton, Massachusetts, produced more than 10,000 steam-powered cars in total between 1898 and 1924. Jörg Pühler’s vehicle is the fourth-to-last one produced. It was first restored in the U.S. in the 1960s and came to England in 2010. The German collector purchased it there in 2017.

In the summer of 2026, DEKRA pressure vessel expert Franziska Ellinghaus, together with her colleague Alexander Czech is tasked with conducting the mandatory biennial strength test on the boiler. Of course, owner Jörg Pühler is there as well. He has already removed the burner so that the inspector can more easily access the boiler and the flue pipes from below.

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Unlike the general vehicle inspection, which the Stanley must undergo separately, this test does not include vehicle-related components such as wheels, brakes, or lighting. The focus is on the steam boiler and its attachments as central and particularly safety-critical components.

### **How does the steam drive work?**

Between 40 and 50 liters of water are heated in the boiler using a kerosene burner. The resulting steam is fed at high pressure through valves into the two cylinders of the steam engine near the rear axle, where it drives the pistons. "The operating pressure in the boiler is about 42 bar", explains inspector Franziska Ellinghaus. By way of comparison: a car tire is inflated to between 2 and 3 bar.

To test the strength, the DEKRA expert increases the pressure to well over 60 bar. This test pressure is mandated and must be maintained for half an hour to ensure the safety of the system. As the pressure gauge – connected to a pressure pump – climbs, the inspector answers the question of whether she's afraid given the enormous pressure: "No, not really," she says calmly. "I am mindful of the necessary precautions for the process, but if I were afraid, I'd have to find another job."

### **High test pressure must be maintained**

Once the test pressure is reached, the most nerve-wracking part of the roughly one-hour test begins: waiting and monitoring. The inspector's gaze keeps wandering back to the pressure gauge. Any drop in pressure would indicate that water is leaking somewhere. She carefully inspects all the pipes, connections, and the boiler itself. Is there a leak anywhere? Are tiny water droplets forming? Is everything staying dry?

Finally, the inspector moves directly beneath the boiler, where the heating coil and flue gas pipes are located. Arranged in a circle about 75 centimeters (~30 inches) in diameter, these tubes cause the water to evaporate during operation. Here, too, no droplets should form.

Jörg Pühler watches it all with curiosity and visible enthusiasm. The owner of the Stanley Steamer knows every screw in his extraordinary vehicle. After purchasing it in England, he completely disassembled the vehicle. "I can't say whether it was curiosity to explore every detail or the little flaws here and there that drove me to do it," says Pühler.

He spent a total of four years restoring the vehicle. Once he had it roadworthy again, his search in Germany for experts to perform the pressure vessel strength test

remained unsuccessful for a long time: “Many people didn’t know what to make of a steam boiler in a car and an operating pressure of over 40 bar. It was only through a friend that I came across DEKRA in Heilbronn. They were able to help me there,” the collector explains.

Once again, the inspector’s gaze wanders to the pressure gauge. The needle remains motionless. Everything is still dry along the pipes and beneath the boiler as well. Only now does the tension ease: The steam boiler – which was newly manufactured in England in 2013 based on original drawings and replaced the original – has passed the pressure test. For Franziska Ellinghaus, this marks the end of a very special inspection. For Jörg Pühler, it means the certainty that his extraordinary Stanley Steamer will keep being allowed to safely go “full steam ahead”.

### **Captions**

1: DEKRA pressure expert Franziska Ellinghaus checks the Stanley Steamer’s heating coil and flue pipes for leaks, which would be indicated by water beads or droplets.

2: Partially disassembled for the pressure vessel strength test: the Stanley Steamer 750 B.

3: Classic car collector Jörg Pühler (left) shows DEKRA pressure experts Franziska Ellinghaus and Alexander Czech the documentation for his Stanley steam car.

### **About DEKRA**

*For more than 100 years, DEKRA has been a trusted name in safety. Founded in 1925 with the original goal of improving road safety through vehicle inspections, DEKRA has grown to become the world's largest independent, non-listed expert organization in the field of testing, inspection, and certification. Today, as a global partner, the company supports its customers with comprehensive services and solutions to drive safety and sustainability forward. In 2025, DEKRA generated revenue of 4.4 billion euros. More than 48,000 employees are providing qualified and independent expert services in approximately 60 countries across five continents. DEKRA holds a Platinum rating from EcoVadis, placing it among the top 1% of the world's most sustainable companies.*