Audi TT RS Coupé and Roadster – 2.5 TFSI, powertrain

Lighter and more powerful than ever before: the 2.5 TFSI
The five-cylinder achieves a good 17 percent more output from the unchanged displacement of 2,480 cc – 294 kW (400 hp) means a specific value of 161.3 hp per liter. The maximum torque of 480 Nm (354.0 lb-ft) is available from 1,700 rpm and remains constant up to 5,850 rpm. The new Audi TT RS Coupé thus accelerates from 0 to 100 km/h (62.1 mph) in 3.7 seconds; the Roadster takes 3.9 seconds. Standard top speed is a governed 250 km/h (155.3 mph). Audi will raise the top speed to 280 km/h (174.0 mph) upon request.

At less than 50 centimeters (19.7 in) in length, the 2.5 TFSI engine is extremely compact and is 26 kg (57.3 lb) lighter than the previous model. Its crankcase is made of aluminum, which alone saves 18 kg (39.7 lb). The overall weight of the new TT RS and its axle load distribution benefit significantly from this. Elaborate measures reduce internal friction while at the same time increasing power output. The cylinder barrels are plasmacoated; the crankshaft main bearings are six millimeters (0.2 in) smaller in diameter. The crankshaft is hollow bored and is therefore 1 kg (2.2 lb) lighter; the aluminum pistons integrate channels for the oil cooling. In the short warm-up phase after a cold start, the switchable water pump does not circulate the coolant in the cylinder head – the 2.5 TFSI engine reaches its operating temperature more quickly. This lowers the coefficient of friction and reduces fuel consumption.

The gas exchange of the five-cylinder engine is designed for high throughput. The large turbocharger forces the intake air into the combustion chambers at up to 1.35 bar. The intercooler with its efficiency level of 80 percent reduces the temperature for the highest possible oxygen percentage. Intake and exhaust camshafts can be adjusted as required. On the exhaust side, the Audi valvelift system (AVS) changes the duration of valve opening depending on the throttle and engine speed at two levels – for moderate fuel consumption at low and partial load as well as more spontaneous throttle response and high pulling power at full load. For better mixture preparation, the new 2.5 TFSI engine works with a dual injection system. It provides the option of injecting fuel into the intake manifold as well as directly into the combustion chamber. The duration and type of injection can be variably optimized for each engine operating point.

Inimitable five-cylinder: the sound
The 2.5 TFSI has a firing interval of 144 degrees. Because of the 1-2-4-5-3 ignition sequence, ignition alternates between adjacent cylinders and those far apart from one

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another. This delivers a very special rhythm and character. The uneven number of cylinders results in harmonic frequencies that accompany the basic tone. The engine control unit also contributes to the unmistakable sound. At higher throttle, the flaps in the exhaust system open for an even fuller sound. The driver can influence control of the exhaust flaps for both the standard RS exhaust system and the optional RS sport exhaust system with black tailpipe trims by pressing the sound button on the center console.

Status: 9/2016

Source: www.audi-technology-portal.com
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