Audi R8 Spyder V10 – Drivetrain

From 0 to 100 km/h (62.1 mph) in 3.6 seconds, 11.8 seconds for the sprint from 0 to 200 km/h (124.3 mph) and a top speed of 318 km/h (197.6 mph) sum up the dynamic performance of the new Audi R8 Spyder*. It sprints to 100 km/h (62.1 mph) two-tenths of a second faster than its predecessor, reaches the 200 km/h (124.3 mph) mark six-tenths of a second sooner and delivers 7 km/h (4.3 mph) more top speed.

From its 5,204 cm3 displacement, the free-breathing, high-compression (12.7:1) V10 engine develops 397 kW (540 hp) of power and 540 Nm (398.3 lb-ft) of torque at 6,500 rpm. That’s 15 hp and 10 Newtonmeters (7.4 lb-ft) more than the first-generation R8 Spyder. The power-to-weight ratio is just 3.19 kilograms (7.0 lb) per hp.

Unmistakable music: the free-breathing V10 engine
The ten-cylinder engine responds lightning fast to the accelerator and spins up effortlessly to 8,700 rpm. At the redline, the pistons are traveling nearly 27 meters (88.6 ft) every second. With the ignition sequence 1 - 6 - 5 - 10 - 2 - 7- 3 - 8 - 4 - 9 and alternating firing intervals of 54 and 90 degrees, it plays a very unique, unmistakable music: a hissing and roaring that becomes increasingly voluminous and exhilarating as the revs rise. Sound flaps in the exhaust system are standard; the optional sport exhaust system with gloss black tailpipe trims gives the sound an added edge.

New efficiency technologies: lower consumption
Compared with the previous model, NEDC fuel consumption has declined by ten percent thanks to potent efficiency technologies. The cylinder on demand (COD) system deactivates one cylinder bank at low to intermediate load, and the dual injection system injects fuel directly in to the combustion chambers (FSI) and into the induction pipe (MPI) as needed.

When the car comes to a stop, a start-stop system deactivates the engine. The new Audi R8 Spyder thus consumes on average 11.7 liters of fuel per 100 kilometers (20.1 US mpg) and emits 277 grams CO_2 per kilometer (445.8 g/mile).

Like in a racing car: dry sump lubrication
The oil system is designed as a dry sump system. In contrast to a conventional oil pan bolted on below the engine, the separate oil tank – an upright aluminum vessel behind the engine – allows the V10 engine to be installed in a lower position, thus enabling the car’s very low center of gravity. The system is designed for racing and ensures the flow of oil up

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to 1.5 g of longitudinal or lateral acceleration.

The system architecture of the dry sump lubrication system is complex. A high-performance pump module combines the coolant pump with a multistage oil pump. The motor oil and blow-by gases from the crank chambers, the chain box and the cylinder heads are extracted via the suction stages and pumped through the oil cooler into the oil tank. The discharge stage pumps the lubricant from the tank through the oil filter back into the engine to the various bearing points.

Drivetrain
Breathtaking cornering speeds, highly precise and always stable handling – the new Audi R8 Spyder* is also at the head of the pack when it comes to the drivetrain. It combines three high-tech components: a seven-speed S tronic, a newly developed, fully variable multi-plate clutch and a locking differential.

Freewheeling mode: the S tronic
The ultra compact and lightning-fast seven-speed S tronic is placed behind the V10 engine, and commands are transmitted strictly electrically – by wire. The driver can shift gears manually using the gear selector lever or the shift paddles on the steering wheel. Or the driver can have the S tronic shift automatically in the D or S program. At the push of a button, the launch control system automatically engages the clutch at approximately 4,500 rpm to enable maximum acceleration from a standing start.

If the driver lets off the accelerator at a speed of over 55 km/h (34.2 mph), the transmission opens both clutches and the new R8 Spyder coasts at idle with minimal fuel consumption.

Status: 10/2016

Source: www.audi-technology-portal.com
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