New soundtrack

11/08/2020 It is a Porsche tradition that a GTS always sounds special and the Acoustics Department in Weissach has composed a sound with a strong character for the new Porsche Cayenne GTS Coupe. The sound issues from an optional dual-branch Sport Exhaust system featuring centrally positioned tailpipes.

Expressing a strong identity as a sound and then putting this into words proves rather more difficult. The new Porsche Cayenne GTS Coupe sounds sporty; everyone involved in its development is sure of that. Markus Sitzler, Team Lead Vehicle Periphery SUV-Engines, describes the sound of the newly developed Sport Exhaust system featuring central tailpipes as follows: “The sonorousness you would expect from a V8, flavored with a dash of GT racing.”

Rico Löscher, Specialist for Complete Vehicle - Product Line SUV, joins in, adding that the exhaust note makes him think of race cars: “The sound reminds me of high-revving naturally aspirated engines.” Sitzler attempts to paint a vivid picture of the sound composed by Porsche. We listen to his words and at the same time the new soundtrack of the Cayenne GTS Coupe.

Developed in house, with a sonorous burbling

The Sport Exhaust system with two centrally positioned oval tailpipes was the brainchild of Jörg Winkel, Head of Acoustics, who is now enjoying retirement, having handed over the reins to his successor Stefan Hader at the start of 2018. Sitzler explains that, at the time, there was a brief for a concept idea, and the team around Winkel started working on it about four years ago. “Like all exhaust systems from Porsche, the sound of the in-house development is 100 percent genuine,” he says. “Highly emotive with sonorous burbling on the overrun.” Just as impressive for Sitzler: “The simplicity of the pipe layout as well as the material and weight saving – this is an approach we will definitely keep pursuing.”

The difference compared with the Sport Exhaust system with the tailpipes located at the outer edges is its even throatier sound, which is due to the special internal structure of the muffler, providing a vivid acoustic underpinning to the sporty appearance of the 4.0-litre eight-cylinder engine.

Separate exhaust pipes with bypasses

The challenge for the team led by Sitzler, and component manager Tim Graf, was as obvious as it was complex: the sportiness should be unapologetically heard on starting the engine, under heavy load and at higher engine speeds. However, it also had to be possible to experience the volume of the twin-turbo V8 acoustically at low engine speeds and there are also country-specific requirements on noise emissions. “The already powerful eight-cylinder sound should therefore become more intense depending on the engine speed, real and emphatic, but not too loud. So as not to get any unwanted

damping, we separated the exhaust branches from the two cylinder banks, over the center muffler through to the rear muffler and the outlets to the open air."

Sitzler runs both hands along the main left and right tracts. Arriving at the bypasses, he explains the difference between an open and closed exhaust flap: "When the exhaust flap is closed, at low revs, the exhaust gas flow follows the bypass. In essence, it travels along an additional loop through a chamber of the main muffler with a perforated inner bottom before it returns to the main tract and is then discharged to the outside."

The GTS sound is therefore quieter than when it is under full load, but the bass tones are still rich. The sound intensity is dependent on the position of the flaps, which are continuously controlled depending on engine speed and load. The new Sport Exhaust system's sound varies depending on what percentage of the exhaust gas passes through the main branch, bypass and muffler. The special design of the twin-branch, central Sport Exhaust system means that it reveals even more of its sporty sound than the standard Sport Exhaust system with its tailpipes arranged at the outer edges, especially at high engine speeds. In the passenger compartment, the engineers deliberately reduced the amount of insulation material, mainly in the rear of the car, which makes the sound experience more intense for the passengers and enhances the GTS driving experience, with no compromise of comfort.

Sounds like eight cylinders

Since the return of the V8 engine to the new Cayenne GTS models they now boast 457 lb.-ft. of torque, which is 15 lb.-ft. more than their predecessors. As expected of a Cayenne, power is sent to all four wheels by an eight-speed automatic Tiptronic S transmission. In the 4.0-liter twin-turbo V8 engine, the exhaust gas turbochargers are arranged inside the cylinder V, which enables them to be installed lower in the vehicle. Speaking of low, the body is 1.18 inches (30 mm) lower than a Cayenne S as standard thanks to standard Air Suspension and model-specific Porsche Active Suspension Management (PASM) dampers.

Porsche Torque Vectoring Plus, which is also standard equipment, ensures the best traction and a dynamic steering response when accelerating out of corners. With the Sport Chrono package fitted as standard to the GTS Coupe, the new Cayenne sprints from 0-60 mph in 4.2 seconds. After its debut in the Cayenne GTS Coupe, the Sport Exhaust system including Center Mounted Tailpipes will also be available later on the Cayenne Turbo Coupe and the Cayenne Turbo S E-Hybrid Coupe, always in conjunction with the optional lightweight sports package on all models.

Returning once more to the story, we are sitting in a Cayenne GTS Coupe. This is a Porsche with the athletic exhaust note of a sports car. It has a bigger engine with more cylinders than before and we celebrate the return of the V8 to the Cayenne GTS, not to mention the Porsche orchestra, which has given the car the sound it deserves: a composition of powerful V8 sports car sound blended with memories of the rack track.

MEDIA ENQUIRIES



Frank Wiesmann

Manager, Product Communications, Motorsport and Brand Heritage
Porsche Cars North America
404-539-5031
frank.wiesmann@porsche.us

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Subline: Markus Sitzler, Team Lead Vehicle Periphery SUV-Engines, with the new sports exhaust system

Path: Cayenne GTS Coupe Sport Exhaust System/Images/img_4.jpg
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Subline: Sounds like a fit athlete: the Cayenne GTS Coupe

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