

**CLASSICAL IN THE 911**

How do you show the sound of an orchestra? Ideally with first-class musicians. We asked the Leipzig Gewandhaus Orchestra to help us out with an unusual photo shoot—and they were only too happy to be of service. Beginning in the 2011/12 season, Porsche will be the main sponsor of the Gewandhaus Orchestra, supporting the tours and concerts of the world-renowned ensemble. Two seminal classics and premium brands in their respective fields have come together to form a special partnership. For *Christophorus*, the new 911 Carrera S made a stop in the foyer of the Gewandhaus and doubled as the stage for the performances of the soloists, transforming the generous skills of the musical virtuosos from a listening experience into a feast for the eyes.



# MUSIC

WHAT MAKES A PORSCHE SING SO SWEETLY?

By Jo Clahsen  
Photos by J. Sebastian Hänel

*The tone makes the music. And the sound is the story. Fortune smiles on the driver who can enjoy Porsche sound and the Bose system.*



## REHEARSAL WITH SPECIAL GUEST

IN THE LEIPZIG GEWANDHAUS  
THE MUSICIANS INVITE  
THE NEW 911 TO A VERY  
SPECIAL REHEARSAL.



### GEWANDHAUS ORCHESTRA

**Conductor:** Riccardo Chailly  
**Members:** 185 musicians from 20 countries  
**Age:** Founded in 1743, oldest symphony orchestra in the world  
**Venues in Leipzig:** Gewandhaus, Oper, Thomaskirche  
**Performances/year:** Worldwide about 200, including 75 concerts in Leipzig  
**Ticket sales:** 12,500 season ticket holders and 151,000 concert guests  
**Weight:** Five tons of baggage on tour



*A violinist plays to the beat of a percussionist's drum. The Bose system probes the interior with music over nine optimally tuned channels.*

# I

Exactly fifty years later, Dr. Amar G. Bose began to build his first custom music systems for cars, starting with the Cadillac Seville before moving on to the Corvette. Bose, a lecturer at the renowned Massachusetts Institute of Technology (MIT), had by that time already revolutionized home audio systems. The avid violinist had—like Ferry Porsche with the car—simply developed technology of his own to listen to music at a level of quality up to his discerning standards. With his 901 speaker, Bose utilized not only direct but also reflected sound from the transducers. The music world was amazed, and Bose's "garage start-up" quickly grew into a prosperous enterprise based in Framingham, Massachusetts.



*It was supposed to be Europe's "favorite auto companion" (advertising slogan): the Autosuper AS 5. Alas, the first car radio from Blaupunkt, presented at the Berlin Funkausstellung on August 19, 1932, turned out to be a colossal flop, tipping the scales at 33 pounds (15 kg) and with a volume of 610 cubic inches (10 liters), powered by sensitive glass tubes and controlled via Bowden cables. Not to mention the fact that it cost a fortune: for the price of three "auto companions," thrifty souls could buy a whole new car. It did not find favor for long, as only 400 units were sold.*

Bose Automotive grew out of circumstances similar to those that had given rise to the Bose Corporation. After searching in vain for a car with good sound, Amar Bose again sat down and simply designed a custom system himself, though of course this time he had the advantage of being able to draw upon the fourteen years of research and know-how amassed by the Bose Corporation.



*The world-class musicians symbolize the classic endurance test for the system. The sound system is tested with various musical styles before going into production.*

It was not until 1998 that Porsche and Bose crossed paths. The mission that emerged from this fateful meeting found its first expression in the 996 series of the Porsche 911—the Bose sound system for Porsche. The timing was auspicious, for by the mid-1990s the digital age had reached the car as well. While the first system in 2001 was “relatively uncomplicated compared with today’s Bose systems,” in the words of Marc Mansell, director of Research & Development in the Automotive Division, the first update of the system saw the introduction of Bose Digital Signal Processing (DSP), AudioPilot, and bus technology in the 911. AudioPilot Noise Compensation Technology monitors ambient noise, filters it out, and adjusts the playback accordingly. Media Oriented Systems Transport (MOST), a serial-bus system, transforms pure music systems into complete infotainment packages. In addition to the proven and widely acclaimed audio signals, the systems have included integrated speech and data signals into the sound system. The music remains, but telephony, navigation, voice control, and many more features have been made possible by lightwave conductor technology.

Yet the digital revolution is only one part of the equation when it comes to sound in cars. Porsche drivers will surely agree that sound is made by the engine, and that sound is as important to avid Porsche drivers as the car’s performance itself. The sound from the car’s speakers is another matter. The bar was set high right from the very beginning of the Porsche-Bose collaboration, and even the first system was no mean feat. Ten years later, it is a classic.



The developments that ensued in the field of home audio systems—such as the reduced-data MP3 format and Surround Sound for room-filling sound from five channels and a subwoofer (5.1)—were transferred to the car by Porsche through the Bose system in subsequent upgrades. First, however, engineers and acousticians dedicated their efforts to the speakers. New high-performance materials such as Neodym for the magnets (2004) and new placements for the bass speakers first pushed the limits of sound quality in the 911, then

in the Porsche Cayman (2005) and finally in the Panamera. “One element of this continuous process,” says Mansell, “is to test different types of music on the system to see whether the results live up to our quality standards. Then we continue the same process with Porsche engineers to make sure that the quality standards are in line there as well. If there are even the tiniest deviations, we go back and fine-tune everything again.”

Surround sound depends on having a central speaker, which in a car—like all other speakers—is hard to place. Speakers have to be ever-lighter and ever-smaller while demonstrating improved performance, tonality, and impulse strength—a tightrope act of the sort Porsche engineers know all too well. They too are called upon to achieve seeming contradictions, such as vehicles whose performance goes up while their consumption goes down.



“In Porsche we have a partner that thinks a lot like we do at Bose,” says Mansell with regard to the cultures and objectives of the two companies. “Porsche places a lot of importance on audio. And we both always strive for perfection, setting the highest of standards for the final product. Porsche’s development department has been very successful in pressing its objectives internally. When we set ourselves the goal of building lighter music systems to increase the

sustainability of cars, it’s a classic win-win situation for both sides.” In a highly competitive environment, Bose came up with an algorithm to generate five channels for elegant playback from compact discs. The engineers in Framingham also ensured maximum wading depth for the Cayenne by making the potentially threatened speakers waterproof.



The current version of the Bose sound system in the 991 series of the 911 Carrera certainly has what it takes to become drivers’ “favorite auto companion.” Nine digital channels (including the subwoofer stage), even lower weight, enhanced DSP with Centerpoint Surround technology, and AudioPilot. In short, be it classical music, where a diminished fifth may make all the difference, or jazz, where the sixteenth notes on the hi-hat have to be heard—it’s all good. Even the reduced data volumes of MP3 files are decoded in a way that leaves little to be desired.

The auto companion has a name, and after ten years of ambitious collaboration with Porsche, that name is Bose. The American-made sound system is so ingenious and refined that when you really stop and listen to the music, you get the comforting yet stimulating feeling of being enveloped in a wave of sound that fills your mind and the Porsche cockpit with the effects of the all-encompassing surround sound. Only when you emerge from the wave do you notice what an incredible feat Bose has pulled off. Choosing between the ferocious purr of the engine and the sound system is harder than ever.

Mansell, himself an enthusiastic guitarist, puts it this way: “When I drive a Porsche—which unfortunately is not as often as I would like—first I just want to hear the engine. You have to listen to it by itself. But after the warm-up, I sit back and enjoy my Bose sound system.” The hum of the car and the sounds of song in perfect harmony: a passionate affair. ●



*There’s music in there: one of thirteen Bose speakers. On the left above the instrument panel, one high- and one mid-range speaker create the perfect sound.*

**911 CARRERA S (TYPE 991)**

**Engine:** Six-cylinder boxer  
**Displacement:** 3,800 cc  
**Power:** 400 hp (294 kW)  
**Maximum torque:** 440 Nm at 5,600 rpm  
**0–100 km/h:** 4.5 (4.3\*) sec.  
**Top track speed:** 304 (302\*) km/h (189/188\* mph)  
**CO<sub>2</sub> emissions:** 224 (205\*) g/km  
**Fuel consumption**  
 City: 13.8 (12.2\*) l/100 km  
 Highway: 7.1 (6.7\*) l/100 km  
 Combined: 9.5 (8.7\*) l/100 km  
 \* with Porsche double-clutch transmission (PDK)

**911 (TYPE 991)**

**CO<sub>2</sub> emissions:** 224 g/km (the new Carrera S) to 212 g/km (the new Carrera)  
**Fuel consumption:** 9.5 l/100 km (the new Carrera S) to 9.0 l/100 km (the new Carrera)

**911 (TYPE 997)**

**CO<sub>2</sub> emissions:** 326 g/km (GT3 RS 4.0) to 242 g/km (Carrera Black Edition)  
**Fuel consumption:** 13.8 l/100 km (GT3 RS 4.0) to 10.3 l/100 km (Carrera Black Edition)

**CAYENNE**

**CO<sub>2</sub> emissions:** 270 g/km (Cayenne Turbo) to 189 g/km (Cayenne Diesel)  
**Fuel consumption:** 11.5 l/100 km (Cayenne Turbo) to 7.2 l/100 km (Cayenne Diesel)

**CAYMAN**

**CO<sub>2</sub> emissions:** 230 g/km (Cayman S) to 221 g/km (Cayman)  
**Fuel consumption:** 9.8 l/100 km (Cayman S) to 9.4 l/100 km (Cayman)

**PANAMERA**

**CO<sub>2</sub> emissions:** 270 g/km (Panamera Turbo/Turbo S) to 167 g/km (Panamera S Hybrid)  
**Fuel consumption:** 11.5 l/100 km (Panamera Turbo/Turbo S) to 6.5 l/100 km (Panamera Diesel)