

**TWO PIONEERS**  
*BOUND BY*

# SO UND

BOWERS & WILKINS AND VOLVO CARS

Thanks to today's technology, we can listen to our favourite artists whenever and wherever we like. As a result, music has become an integral part of our lives. Now, Volvo Cars has teamed up with British Hi-Fi specialists Bowers & Wilkins to make the music we love an integral part of our cars as well. After all, every journey deserves a great soundtrack.

**1966** was quite a year for music. The Beatles, The Beach Boys and Bob Dylan all released groundbreaking albums that completely transformed the cultural landscape. But while Lennon and McCartney and their contemporaries were busy reinventing the way music was made, a classical music enthusiast called John Bowers was focusing his attention and expertise on reinventing the way we listened to it.

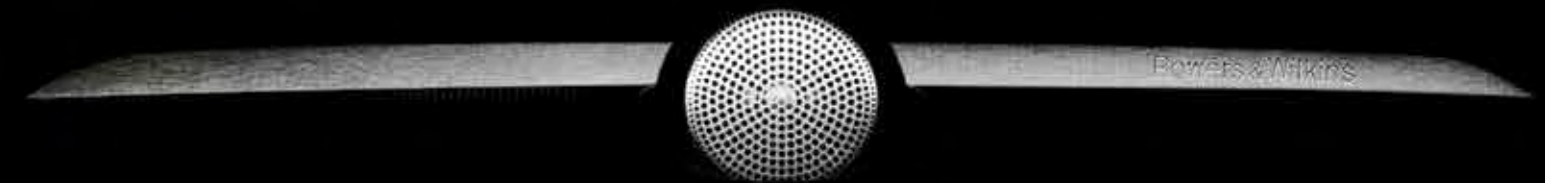
**THE SEARCH FOR 'TRUE SOUND'**

A small TV repair shop in the sleepy English county of West Sussex may not seem the most likely setting for a musical revolution, but it was here that John Bowers first began designing and building the loudspeaker that would later become the speaker of choice for serious audiophiles all over the world. After discovering the stereo recordings of his favourite classical pieces rarely recreated the thrill and vibrancy of a live performance, Bowers set himself the task of designing a loudspeaker that would enable the listener to experience music in a way that was pure, satisfying and as faithful to the artists' original intentions as possible. Bowers called this

Now, creating great sound in a room in a house or studio is one thing, creating consistently great sound in a moving car is an entirely different matter. Cars vibrate, they are exposed to an infinite range of ambient sounds and they offer limited space to work with. But Volvo Cars rose to the challenge and, together with Bowers & Wilkins, turned the constraints of the cabin and its unique acoustics to their advantage, creating an unparalleled listening experience that perfectly suits the unique cabin environment of each individual Volvo car.

**QUALITY, NOT JUST QUANTITY**

The key to successfully recreating the signature Bowers & Wilkins sound in a Volvo lies in the meticulous tuning and unique placement of the speakers. Tuning the sound system in a car is an art form that requires hours of listening, a lot of patience and more than a few pairs of expert ears. So you can imagine the amount of time, effort and expertise that went into tuning and positioning the 19 premium speakers that are integrated into the new 90 series. Built using only the finest materials and the finest loudspeaker technology, each speaker



'true sound.' Now, fifty years on, wherever a premium audio experience is paramount, you'll find the 'true sound' of Bowers & Wilkins – whether it's the world-famous Abbey Road studios, the Primavera Sound Festival or the latest Volvo cars.

**A COLLABORATION IN PERFECT HARMONY**

Volvo Cars and Bowers & Wilkins have a lot in common. Both companies share a proud pioneering heritage as well as a passion for engineering excellence and an obsessive attention to detail. But most importantly, both companies design everything around a desire to meet the needs of people. So, when it came to creating the premium sound system for the new 90 series Volvo cars, naturally, Bowers & Wilkins' expert engineers and designers were involved from day one. It was a collaboration that worked in perfect harmony and the result was an exceptional listening experience that effortlessly combined superior sound with stunning Scandinavian design.

occupies a unique position in the car to help achieve optimal sound quality. These speaker positions are worked on for years in advance of production and five decades of audio expertise and countless computer simulations are utilised to help find the perfect audio sweet spot. However, once the sweet spot has been located, the fixed nature of the cabin allows the engineers to achieve extremely accurate levels of tuning.

Of the 19 speakers on-board, one in particular stands out. Tweeter-on-Top is a feature found in Bowers & Wilkins most advanced Hi-Fi speakers and has never before been used in a car's audio system. Strategically centred on the dashboard, the exposed Tweeter-on-Top speaker points back into the cabin rather than upwards towards the windscreen. This helps minimise acoustic reflection from the windscreen and removes almost any interference. This ensures a superior level of sound that is more detailed, pure and authentic – especially when it comes to reproducing vocals.

**SOUND SHAPED FOR PERFECTION**

As well as the Tweeter-on-Top technology, the new 90 series sound system includes one of Bowers & Wilkins most well-known innovations – Kevlar® speaker cones. Made from the same material used in body armour, Kevlar® speaker cones are particularly effective in cars as they feature unique break-up characteristics that help prevent distortion and improve off-axis performance, i.e. sound that doesn't travel directly from the speaker to the listener's ear. As well as the conical Kevlar, the system also features spiralling diffusion channels that reduce echoes to a minimum. These spiralling channels were inspired by another of Bowers & Wilkins legendary innovations, the Nautilus speaker. Based on a brief given by John Bowers to his engineers just before his death, the Nautilus speaker was the iconic result of a five-year research and development project whose aim was to create a loudspeaker that was as close to perfection as possible – regardless of cost. Twenty years later, there is still nothing that looks or sounds like the Nautilus.

Another element of the speakers' design that helps contribute to the crystal clear sound is the high-quality stainless steel speaker mesh. As well as being extremely stylish, the solid properties of the stainless steel help reduce vibrations and interference, while the holes in the mesh are precision etched to help deliver just the right levels of acoustic transparency. This is achieved by placing the

largest holes at the centre of the cone and allowing them to get gradually smaller as they move outwards.

As a final touch, and to ensure that the distinctive 'true sound' of Bowers & Wilkins is in place, each car's audio system is calibrated by the same engineers who calibrate the Bowers & Wilkins home speaker systems. Once the system has been calibrated and the sound given the thumbs up, then it's time to roll – or rock depending on your musical preference.

**FIFTY YEARS AT THE FOREFRONT**

After fifty years of uncompromising audio innovation, Bowers & Wilkins are still following their own unique path and staying true to John Bower's sound set of principles. It's this dedication to developing groundbreaking new technologies combined with a complete disregard for fashion or current trends that has enabled the company to remain at the forefront of audio exploration for as long as it has.

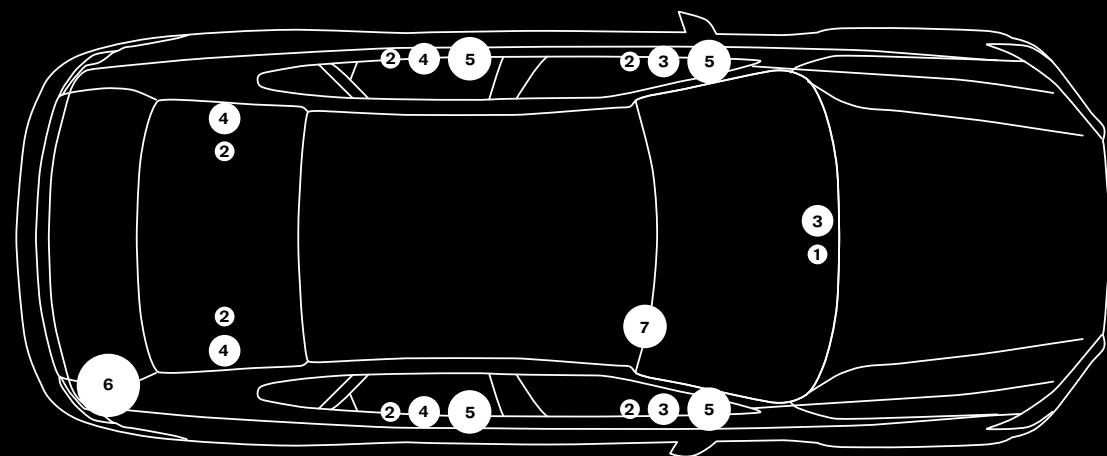
With their desire for innovation, appreciation of genuine craftsmanship and unwavering belief that form should follow function, Bowers & Wilkins fit perfectly with Volvo Cars' Scandinavian design philosophy. Not only that, they embody the same adventurous spirit. Volvo Cars and Bowers & Wilkins. Two pioneers bound by sound. ■

**LOVE HERTZ!**

**HOW BOWERS AND WILKINS CREATE TRUE SOUND IN A VOLVO.**

Seamlessly integrated into the cabin architecture, every speaker in the 19-speaker Bowers & Wilkins' sound system has been positioned for optimum acoustics and tuned by expert ears to produce the most realistic and immersive sound possible.

- 1 1 x 25 MM NAUTILUS ALUMINIUM DOME TWEETER FEATURING TWEETER-ON-TOP TECHNOLOGY
- 2 6 x 25 MM NAUTILUS ALUMINIUM DOME TWEETER
- 3 3 X 100 MM KEVLAR® CONE MIDRANGE
- 4 4 X 80 MM KEVLAR® CONE MIDRANGE
- 5 4 x 170 MM LONG-THROW 'TECHNORA' WOOFER
- 6 1 x 250 MM FRESH-AIR SUBWOOFER WITH CARBON FIBRE CONE
- 7 1 x 1400W, 12 CHANNEL, CLASS D AMPLIFIER



The best loudspeaker isn't the one that gives the most; it's the one that loses the least.

John Bowers, founder of Bowers & Wilkins