**Rolls-Royce Motor Cars**

## Phantom Bespoke Audio system

**Studio-quality design**

The marque had a clear brief when it began designing Bespoke Audio for Phantom: to integrate studio quality audio into a motor car. Indeed, the men and women who created Bespoke Audio for the brand’s flagship benchmarked the system against a recording studio’s playback room rather than systems created for automotive applications.

However, configuring an audio system for a motor car is significantly more challenging than creating an audio system for a static, purpose-built facility because external disruptions such as road surfaces, wind buffeting and ambient noise corrupt audio quality dramatically. Rolls-Royce Motor Cars’ response was to build the environment the audio system was destined for in tandem with the audio system itself.

**The Architecture of Luxury**

Only the Architecture of Luxury, the marque’s proprietary spaceframe, could allow the brand to meet its brief. Aluminum was selected as it has a higher acoustic impedance than steel, reducing external noise entering the cabin. Further optimising the material’s acoustic properties is the construction technique; engineers eschewed traditional methods, instead introducing extrusions and complex internal structures to both improve the rigidity of the motor car and minimise flat, resonant surfaces. The largest ever cast aluminum joints in a body-in-white and double-skinned bulkhead and floor sections better insulate sound; measures that both isolate external noise and optimise the performance of sound inside the cabin.

Designers also gave the acoustic performance of the bass speaker special consideration at the architectural stage. Exceptional low frequency performance is engineered into the very fabric of Phantom as it incorporates a resonance chamber into the body’s sill section; the frequency response of the Bespoke Audio speaker component defined the chamber’s size and shape. In essence, the motor car itself is a subwoofer.

**The world’s most silent automotive soundstage**

In addition, Phantom is equipped with 6mm thick acoustically dampened glass, which combines double-glazing with infrared and UV protection and high-strength laminated safety glass. 130kg of dense, high-absorption sound insulation is installed throughout the motor car. Its extensive application in the headliner, doors and boot cavity drastically reduce reverberation.

Rolls-Royce also worked closely with its tyre partner to invent ‘Silent-Seal' tires, which feature a specific foam layer placed inside the rubber carcass that reduces overall tyre noise by 9db compared with a standard alternative. When Rolls-Royce’s acoustic test engineer first reviewed results road and vibration tests, the sound levels were so low they paused to check their instruments were calibrated correctly. Once readings were taken it was noted that the Rolls-Royce Phantom is the most silent car in the world.

**Unrivalled control**

A powerful amplifier controls 18 channels (one for each speaker), providing a 1300-watt output. State-of-the-art optimisation technology and high precision magnesium-ceramic compound speaker cones enable near-infinitesimal changes in sound with an outstanding frequency response.

Two active microphones in the cabin also enable an adaptive function, detecting the absence or over emphasis of frequencies before triggering the amplifier to adjust the loudness of certain frequency ranges to counteract it. The Bespoke Audio system makes the most of the highest quality, uncompressed dynamic rate music providing an exceptional listening experience.

**Perfected by ear**

To finely tune the Bespoke Audio system, Rolls-Royce Motor Cars depends on the most sensitive of instruments – the human ear. This helps to judge the more intangible, subjective elements of audio, such as timbre, pace and responsiveness.

Thousands of miles are driven to ensure Rolls-Royce Motor Cars’ systems are the very best, listening to a wide range of music – from house to heavy metal, and trap to techno. Only when the engineers can truly ‘visualise’ musicians playing around them do they sign off the sonic delivery.

These factors contribute to a uniquely Rolls-Royce standard of sound for patrons of the marque, many of whom are themselves musicians and will settle for nothing less than perfection.

**A mobile recording studio**

Rolls-Royce Motor Cars has contributed to the mythology of contemporary music culture since the dawn of Rock & Roll. More than half a century later, this love affair endures and many of the world’s most prestigious recording artists continue to connect with the marque as a symbolic expression of success.

In 2018, Rolls-Royce Motor Cars announced a remarkable collaboration with Mercury Music Prize and MOBO award-winning musician Joseph Junior Adenuga, better known by his stage name Skepta, who conceived and recorded a track in its entirety from inside a Rolls-Royce Phantom.

Mr Adenuga was inspired by the phenomenal serenity afforded to those who are conveyed in Phantom, recording ‘Skepta RR’ while being chauffeured along the banks of Lake Lucerne and through the mountains of Switzerland.

**Testing**

Rolls-Royce’s audio experts drew on their own eclectic music tastes in establishing the parameters for the Bespoke Audio system. Played in a high-quality, ‘lossless’ format, the following tracks form a unique playlist for Rolls-Royce, specially curated by the company’s audio engineers to test the range and resolution of the Bespoke Audio system:

1. Wish You Were Here – Pink Floyd, Wish You Were Here [1975]
2. From Here to Eternity – Giorgio Moroder, From Here to Eternity [1977]
3. Across the Lines – Tracy Chapman, self-titled [1988]
4. Sad But True – Metallica, self-titled [1991]
5. Bembe / Abakwa – Terry Bozzio, Solo Drum Music II [1992]
6. Klangfarben Melodie – Terry Bozzio, Solo Drum Music II [1992]
7. Know Your Enemy – Rage Against the Machine, self-titled [1992]
8. Fistful of Steel – Rage Against the Machine, self-titled [1992]
9. Passion - Gat Décor (Naked Edit) [1992]
10. Where Did You Sleep Last Night? – Nirvana, MTV Unplugged in New York (Live) [1993]
11. Stimela (The Coal Train) – Hugh Masekela, Hope (Live) [1994]
12. Hotel California – The Eagles, Hell Freezes Over (Live) [1994]
13. Paranoid Android – Radiohead, OK Computer [1997]
14. Lyric Lickin – Del The Funky Homosapien, Future Development [1997]
15. Insomnia – Faithless, Insomnia [1995]
16. Raining in Baltimore – Counting Crows, Across a Wire: Live in New York City (Live) [1998]
17. Safe in New York City – AC/DC, Stiff Upper Lip [Deluxe Edition] [2000]
18. Scrappy – Wookie, Wookie (Deluxe Edition) [2000]
19. Marionette – Matthew Jonson [2004]
20. Intro – Nemesea, Pure: Live @ P3 (Remixed & Remastered) [2012]
21. Bass Solo – Nemesea, Pure: Live @ P3 (Remixed & Remastered) [2012]
22. Drum Solo – Nemesea, Pure: Live @ P3 (Remixed & Remastered) [2012]