

Acoustic Design

The Evolving Sound of Yamaha Guitars part3

This article outlines how the Acoustic Design process shaped the back and neck joint of the FG9. The thickness of the back was developed to balance clarity and projection in order to produce more resonance. In addition, the bolt-on neck was designed to enhance articulation. Precise craftsmanship and meticulous joinery went into bringing out the full tonal character of the FG9, while elevating its playability and creating a beautiful finish.

Acoustic Design of FG9

Sound Design and Prototype Creation

Stories Behind the Body Design (2)

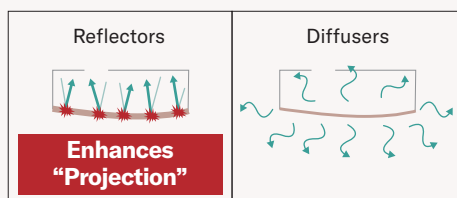
③Designing the Back

The back of a guitar is often overlooked but it plays a major role in how the sound projects. For the FG9, achieving tonal balance between the top and back was essential. After careful examination, it was discovered that the thickness of the back is crucial to this projection, so a new back was designed to enhance it.

Sound Characteristics Affected by Thickness

Let's compare two types of backs. The left diagram shows a thick back, which reflects sound and responds dynamically to even aggressive picking. The right diagram shows a thin back, which diffuses sound and lets delicate playing shine.

The FG9 uses a thick back to maximize projection, ensuring the guitar can keep up even when played at full intensity.



The Path of Trial and Error

It was initially unclear that a thicker back would project the sound forward. At first, the development team created multiple prototypes, but the results were not as expected. They then studied premium guitars with strong market acclaim, dismantling them to understand their design and construction. **Several prototypes were built and tested, and through trial and error, the team eventually determined the optimal thickness.**



Stories Behind the Neck Design

Importance of the Neck Joint

The neck joint also influences the tonal expression, determining articulation and sustain. During the development of the FG9, both dovetail and bolt-on necks were prototyped. A dovetail neck joint offers deep, rich resonance while a bolt-on neck provides quicker articulation and definition. **Yamaha adopted bolt-on necks for the first time to enhance the expressiveness of singer-songwriters through their chord strumming.**

Unique Approach of Yamaha

Yamaha does not simply fasten bolt-on necks with screws. A specialized wood glue is carefully applied to the top and fingerboard, connecting the neck and body just enough. With a bolt-on neck, the body and neck are separated, reducing projection, while fully gluing can send sound into the neck rather than forward, also weakening projection. **Yamaha combines bolt-on design with partial gluing to achieve optimal projection. This precise method in a mass-production model is unique to Yamaha and its expert woodworking.**



Benefits for Players

The FG9's neck joint delivers strong, responsive articulation, making fast, rhythmic playing effortless. Separately painting the body and neck results in a stunning finish and easier maintenance. Every detail—from performance to appearance—is designed for the player in mind. Our goal is simple: achieve the perfect balance and deliver the finest instrument to every musician.

Through these thoughtful Acoustic Design processes, the FG9 adds projection without compromising the clarity that Yamaha Guitars are known for.