



Processing Measures for the Beautiful Tone of the Electric Guitar

Tianchang Li

Orange County School of the Arts, Diamond Bar CA 91765, US

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Abstract: A beautiful tone can not only make the electric guitar present a better performance effect, but also enable the player to immerse himself in the performance atmosphere and convey his performance demands to the audience. However, the factors affecting electric guitar tone include multiple individuals in both software and hardware, such as pickups, string lengths, circuits, paints, and musician's musical aesthetic ability, so it is necessary to apply tone processing methods according to the basic tone requirements, apply differentiated tone processing techniques based on the construction of electric guitars, regulate the tone in steps in accordance with the basic process, and continuously improve the musician's artistic comprehensive literacy.

Keywords: instrumental performance, electric guitar, tone, processing measures

1. Introduction

The tone of an electric guitar refers to its main sound characteristics, for example, the tone of an electric guitar with a single-coil pickup is bright and thin, while that of a humbucker is dark and thick; a large volume knob tends to distort the tone of an electric guitar, and a large or small knob control makes the tone vary between bright and dark. But tone is also a relatively mysterious, difficult to capture things, each player for the use of the electric guitar to present the tone have their own understanding, are in pursuit of more beautiful tone, in order to achieve better performance and performance effects. This article is based on the general theory of electric guitar tone, and mainly discusses several feasible ways to deal with electric guitar tone under conventional conditions or operational needs.

2. Hardware and software factors affecting the beauty of electric guitar tone

2.1 Hardware factors

Hardware factors that affect the sound of an electric guitar include wood, headstock, pins, bridge, effective string length, pickups, circuitry, paint, strings, and string distance in several broad categories. For example, the electric guitar neck, body, fretboard, veneer are made of wood, wood origin, different types of wood, will make its tone difference: maple wood will make the electric guitar sound attenuation faster, strong fundamental tone, overtone color is weaker; mahogany used as an electric guitar body, it will present a relatively warm, rounded, full-bodied tone, and will be integrated with different wood can also present high-frequency extension effect of different tones. The combination of mahogany and different woods can also give different tones in the high frequency extension effect. The fixed bridge will conduct the sound directly to the body to make the electric guitar sound deeper and more powerful; vibrato bridge is connected to the body through the screws to achieve a small range of sound conduction, so that the electric guitar sound pressure source is different, the sustain is different, the sound characteristics of the natural greater difference.

2.2 Software factors

Software factors mainly refer to the musician's ability to use the equipment, matching ideas, playing ability and personal tone appreciation. For example, a guitarist with a stronger ability to recognize pitch, rhythm, and harmony can hear subtle changes in instrumental tone when debugging the equipment, determine the factors that may affect the tone, and flexibly adjust the tubes, amps, and speakers access according to different performance needs, and match the choice of strings, plectrums, and power supply to play the best sound effects. At the same time, individual performance level will also make the same set of equipment, the same electric guitar has a different tone or sound, such as a professional guitarist can adjust the strength of the piano, better to achieve the hands of the coordination, so that the speakers to send out a completely different grade of tone, but also to show their own signature tone.

3. The electric guitar beautiful tone processing measures

3.1 Application of tonal processing to basic tonal needs

The electric guitar can be shaped into many different kinds of tones, but its basic tones are four, one of which is the American tone, mainly characterized by bright, generous dynamic space; the second is the tone that tends to be overloaded, between pure and mixed; the third is the British tone, more high-end, atmospheric, quiet; and the fourth is accompanied by a delayed effect of the tone. The four tones with the appropriate guitar or effects can be relatively easy to cope with a variety of performance needs. When adjusting the sound, take into account the characteristics of the above four types of tones and apply different processing methods.

You can use a single-coil electric guitar when dealing with the first tone, the American tone, and set the amp to the clean tone effect, with the purpose of preventing the noise that may occur when using a humbucking electric guitar. To do this, choose a transparent effect and set it to be more detailed and smooth; try turning the effect off and on repeatedly to hear the subtle difference between the front and back of your playing, and play closer to the clean tone. When dealing with the second type of tone, i.e. the neighboring overdrive tone, you can connect the clean boost side of the effect to the amp to give a more balanced tone in the highs, lows and highs, so that the playing sounds smooth, but not overly low or dark. If necessary, you can also use the kot effect to achieve a boost, or to make other similar tones. When dealing with the third tone, i.e. the British tone, take into account the distortion effect presented by its stronger impact, match the demand for medium-high audio cuts, set the total volume to 11 points while adjusting the speaker preamp gain to 3 points, and appropriately amplify the volume of the output. However, do not make the volume too high to prevent feedback and reduce the impact of the sound. In addition, it is important to recognize the relationship between gain and tonal impact and dynamics when dealing with this timbre, and appropriately match the Faz effector to present a relatively wilder, more flamboyant, but also close to clear timbre. When dealing with the last timbre, the main thing is to make it appear the best acoustic effect and not change the timbre. This can be done by adding midrange and overdrive through the speaker's built-in excitation, or by setting up the lead tone with mid-range excitation, which at its core makes for a tight sound, but does not have a muddy low-frequency effect [1].

3.2 Apply differentiated tone processing techniques based on the construction of the electric guitar.

The above has been analyzed from the electric guitar construction of many hardware factors will affect its tone, so in the processing of tone, but also take into account the impact of different physical structures on the tone, such as the guitar and amp is the main tone adjustment "ingredients", the effects can be "seasoning", according to the needs of the core factors around the adjustment of the proportion of the different "ingredients" or "condiments" to be put.

One is to work on the choice of strings. For example, if you want a fuller tone, you can choose, for example, .008 gauge strings, which are heavier and thicker, and play a tone with more weight and flavor, and a stronger sense of impact and intensity. Second, you can work on your speakers. For example, a ceramic or magnet steel speaker with a heavier magnet means that it handles more power and is more likely to deliver the vintage tones of the near 1960s. And a speaker with a higher power rating will sound cleaner and less loose and chaotic at high volumes, better suited to the demands of rock and roll and the like. Third, you can work on adjusting the string length. The effective string length of an electric guitar is the length from the saddle to the 12th flat point multiplied by two, but the effective extension can be adjusted according to different playing or tonal needs. For example, tighter strings can make the separation between notes more pronounced at the same pitch and present a relatively clearer and brighter sound. Finally, based on the basic principles of tuning, refer to the necessary parameter values, the frequency processing of high and low frequencies, plus the spatial system or peripheral effects, with the role of the guitar volume and tone knobs, to achieve the best tonal effect [2].

3.3 Step-by-step adjustment of tones in accordance with the basic process

Toning is a delicate task that requires patience and following a certain process, not just doing whatever comes to mind.

First, try to raise the string height so that it vibrates freely, preventing pinging problems when playing vigorously or sweeping the strings. This process takes into account the relationship between tone quality and feel, making it clear whether you want to play smoother or emerge with better quality. Next, adjust the height of the pickup. If the guitar sounds too harsh when the pickup is close to the strings, its height can be lowered to make the sound relatively mellow and soft. Conversely, you can raise the position closer to the strings. Again, adjust the length and intonation of the strings. Repeatedly adjust the saddle back and forth, high and low, so that the length of one's strings is appropriate for the playing tension to be achieved, in order to improve the quality of the tone head. Next, one needs to place the monoblocks in an orderly fashion, with the basic sequence being wow tone-overload-distortion-noise reduction-periphery-delay. If you have higher requirements for

tone, you can also place the delay in the rear of the amp and the wow in the effects loopers. Then, depending on the playing effect, choose whether to place the wow tone at the beginning of the effects chain until the effects parameters make sense. If the tone processing or debugging process always think that there are certain details are not dealt with in place, it may also be caused by the strings are not clean, you can use a soft cloth to clean the strings, so that the sound is closer to the true, and then repeated debugging calibration. Or considering the noise that may be generated by the strings behind the saddle, use a foam pad to cushion the strings, or wrap the bridge spring that generates the noise, binding the strings around the location to reduce unnecessary interference. Finally, the amp needs to be adjusted so that it can sound like the sound you want to perform. For example, adjusting controls, circuits, and not using too much low end to leave a little room for the bassist [3].

3.4 Enhancement of musicians' overall artistic quality

Dealing with electric guitar tone is a systematic work, so the guitarist also has to have a good artistic comprehensive literacy. For example, to have a solid theoretical knowledge, you can seriously study the electric guitar pickup and other technologies, to understand the way to pick up the electric guitar speaker signals and other ways and means to do a good job of the electric guitar's pre-processing preparations for a better adjustment of intonation or change the strings, in order to turn on the power supply, the use of back-to-back control and placement of the microphone.

Secondly, it is important to carefully study or disassemble other electric guitar performance works, to draw experience and lessons from them, and to inspire the tone adjustment. For example, many movie music in the creation of the electric guitar distortion tone, guitarists can compare the "Immigrant Song", "Thriller" and other works that use the tone, analyze the role of its power chords in the harmonic construction, distortion tone and electronic tone, orchestral tone fusion, thinking about if they are the creation and performance of such works, and how to adjust the tone.

Finally, it is important to improve one's teamwork and communication skills. For example, to perform improvisation and accompaniment, you need to communicate with your team and partners before the performance, to understand their basic harmonic needs, the musical expression to be accomplished or the structure of the piece to be presented. Before the formal collaboration, you should simply process the tone in the general direction, and prepare according to the basic standard or main line of the collaboration. During the performance, pay attention to the changes of the overall musical effect, and flexibly adjust the volume buttons or the length and spacing of the strings, etc., in order to control the timbre.

4. Conclusion

Electric guitar plus superb tone often gives people a mature style, performance full of charisma, and in dealing with these tones need to be based on its manufacturing process, the basic principles of tone or performance basis, choose the appropriate debugging equipment, tone processing methods. Starting from the structural processing of the guitar, to achieve a reasonable choice of different thickness of the strings, control sound, speakers, adjusting the effects. Then to the technical level of playing, control the strength of playing, not to pursue low frequency, proper use of playing space. Ultimately, the sound of the electric guitar is heard and accepted.

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