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SOUND AMPLIFICATION PROBLEMS IN LIVE CONCERTS

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Abstract

The article is devoted to the basis of some problems and shortcomings arising in live concerts and their solution. In the process of studying these problems, three main factors – technical, psychological and aesthetic – were considered separately. Alternatively, in addition to the main requirements imposed on the sound director when voicing live concerts, difficult situations that occur in some cases – the fact that the performers in the Vocal Ensemble have different character or timbre, and the way out of this situation was covered in detail.

Keywords: *live concert, sound director duties, technical shortcomings, sound director of performance events*

Introduction

Complaints about the sound quality in live concerts are commonplace. Listeners who come to listen to the concert criticize the quality of the sound, while the musicians on the stage are not satisfied with the work of the sound directors: cases in which someone singularly praises the excellent sound of a live concert are extremely rare. Up to this point, one of the highest praise given by appreciators of high-quality Hi-Fi and Hi End equipment was: “it’s like ringing in the Hall!” has been an analogy. This means that the sound of the equipment is very clear and retains naturalness. By now, the opposite concept in concert practice is the analogy that the highest praise is: “it’s like a sound in a studio”. This means ringing sounds are noise and distortion-free. The cause of the problems that arise as sound in live concerts re-

lies on three factors: technical, psychological and aesthetic factors. At the same time, each of these factors is so interconnected that separating one from the other is a difficult task.

Any technical solution that is incorrectly implemented in the process of sound amplification of a musical instrument – becomes the reason for its poor-quality ringing. This, in turn, is the result of the sound director having an inadequate technical competence, or a false idea of how exactly this musical instrument should sound. The main cause of problems with sound quality in live concerts is a significant change in sound from the original sound Hal as a result of sound amplification. Often from the audience, we can hear complaints about the excessive volume of the voice, but the reason for the poor-quality sound is harmonious. Analyzing their complaint when the audience talks about

the volume, you understand that the bottom of the problem is deeper than just excessive pressure.

In fact, an excessively loud sound negatively affects almost all sound sources. That is, the negative effect is manifested here in the loss of naturalness in the ringing of the sound source, in addition to amplitude pressure. Therefore, the main problem goes back to preserving the original timbre of sound sources. If we make a Phonogram of a musical instrument (acoustic guitar or harp) that does not have a loud sound from nature, loud in any room or studio, except for the hush, it will sound uncharacteristic to us. The fact is that each musical instrument has its own *AchX* (amplitude frequency characteristic) and its own natural spectrum. With a general increase in sound power, some parts of the musical instrument spectrum “bulge” leads to a violation of the overall frequency balance. Each musical instrument has its own pitch limit when amplifying its sound, and the naturalness of the sound disappears if we go beyond that limit. This applies not only to musical instruments with a low sound, but also to any instruments. For musical instruments with a strong sound, the pitch boom is raised accordingly.

The same laws apply to the vowel. When we talk about the “proximity effect” inherent in cardioid microphones, the level of low frequencies in the sound spectrum increases sharply when the signal source approaches the diaphragm of the microphone. In addition, we will never listen to a vocalist in life at a close proximity of several centimeters: therefore, the sound of the voice, taken from a nearby microphone and amplified many times in relation to the height of the natural voice, is sharply distinguished by its timbre and general character from the familiar and natural voice. The Gap turns out to be exaggerated not only in the “proximity effect”, but also in the hearing of the functioning of the muscles of the sound apparatus at close range, articulation of consonant sounds, especially noisy “s” and “sh”. In general, the microphone and Sound Amplification System Act as a kind of “magnifying glass” – they not only increase the benefits of sound, but also brutally open and exaggerate the shortcomings. Whatever it is – it is unnatural for a

person to listen to the sound at a very close distance. Therefore, singing to the microphone is equivalent to singing directly to the ear. Nevertheless, the sound director should work precisely with such a situation, with such tools and equipment.

How to preserve the naturalness of musical instruments and especially sound? At the same time, the next problem with this task is how to combine the provision of sound volume at the concert, which is convenient in terms of sufficient level and subjectivity?

Usually modern pop singers use mainly dynamic microphones on stage, although capacitor microphones of a “handheld” design have recently been developed. Dynamic microphones have a lot of disadvantages in terms of the smoothness of sound transmission, and one of them, the “proximity effect” drawback, is not the only one. In addition, most singers sing very close to the microphone, which also breaks the real timbre of the voice. In its signal, the upper formants increase significantly, so the sound is not only resonant – it remains good, but also sharp and metallic – it is bad.

As for the Variety singer – let’s take as an example a vocal group consisting of three girls and a guy. The difficulty of working with these Guru singers is that the voices of all three girls are very different from each other in terms of timbre. The first singer has a loud, sharp voice of the “folk” type. The second is mezzo (solo) in the direction of variety. The third is a low-pitched, weak, timbre-less singer. In fact, in such a situation, it would be the same provision for the leader of the team to carry out the necessary “personnel changes” in the ensemble. But there is no such thing in the hands of the sound directors. So you have to do something a do from what you have. The task before the sound director is to combine the “colorful” ensemble of singers with the help of all the technical equipment that exists in it and make it even.

In this situation, without processing, it is difficult to adjust the balance of the voices only with a mixer, since the timbre color will not harmonize with the chord, giving a very uneven sound. That is why it is necessary to disappoint the decision of the solo singer to perform “comb” on the floor, sacrificing the individual timbre paints of the remaining

singers to the timbre and character of the voice.

In the process of working with a Soprano, the high frequencies in it are lowered by adding reverberation to the voice. The sound softens significantly, but not due to frequency processing, but as a result of “softening” by adding reverberation to the main signal. In addition, due to reverberation, the vocals are pushed aside and move away. As a result, the tension in the voice of this singer disappears.

As mentioned above, in order to equate it with others due to the weak bottom, alto voice in the women’s group, it is necessary to raise

it much further in the mixer than in the rest of the group. An equalizer cannot correct the density of the Alt party, since in performance shortcomings, The Equalizer practically does not help. In this case, the “proximity effect” – that is, singing from a distance of centimeters to the microphone – significantly increases the level of low frequencies, while affecting the clarity in articulation. Alt is hardly given a reverb and thus retains its clarity. The compressor also performs a great service for alt here-it must be applied to avoid dynamic irregularities when standing close to the microphone of course.

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