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Рало О. Компоненты системы звукообразования и их функционирования при игре на мелодических клавишных ударных инструментах. *Статья посвящена всестороннему изучению и теоретическому обоснованию компонентов системы звукообразования и их функционирования при игре на звуковысотных клавишных ударных инструментах. Большое внимание уделено малоисследованной в научно-методической литературе проблеме функциональной дифференциации основных и дополнительных системообразующих конструктивных элементов инструмента. Теоретические вопросы, которые были рассмотрены, освещаются в тесной взаимосвязи с исполнительской практикой.*

Ключевые слова: *маримба, вибрафон, исполнительство, конструкция, компоненты, педаль, палки.*

Ralo O. Components of sound formation and their functioning when playing at altitude sound keyboards percussion instruments. *Marimba and vibraphone, almost for its centenary history, took their firm place in both jazz and academic music, as in orchestral and ensemble and a solo performance. This process contributes to the creation of new, more advanced, designs tools that have a wide range of artistic and expressive possibilities. In contemporary music performance palette observed shift from orchestral performance percus-*

sion ensemble and solo to where the proportion of use of pitch percussion instruments quite significant.

Executions on vibraphone and marimba today is developing rapidly, created an extensive guidance and artistic material, a whole galaxy of brilliant performers, but the theoretical framework necessary for the most complete understanding of this movement remains understudied. In this regard, a comprehensive analysis of the mechanical components of the process of performing a game of pitch on the transformed keyboard percussion instruments is relevant.

Executions of pitch on drums – a complex process, which includes a wide variety of events, and a number of interacting components, which are aimed at achieving the final sound result. The purpose of this work – to reveal the essence and functional differentiation of the individual components of the system of sound production in association with music theory and performance practice.

Modern marimba is a collection of wooden and vibraphone – Metallic plates arranged in two rows (on the basis of a piano keyboard). Under each cavity is a tube. A distinctive feature of a design vibraphone resonators is that the upper part, inside it, is placed "petal" – a thin metal plate. All are rigidly fixed to two special terminals, which can be rotated by an electric motor.

Modern design vibraphone and marimba are fully consistent with the basic provisions of the theory of N. Garbuzova, according to which, every musical instrument, regardless of the device can consist of a sounding body vibration exciter sounding body and the amplifier volume.

Sounding body (vibrator) – marimba and vibraphone plate excited by a blow with a stick, make sounds with a complex waveform resulting from the total sound pitch (fundamental frequency of oscillation) and partial oscillations (vibrations of the plate). To maximize the freedom of oscillation of the plate or another, its point of support (fixing cords) arranged at positions corresponding to the two nodes of vibrations, which are separated into three sections vibrator. The central portion is approximately $\frac{5}{9}$ the length, and two end – $\frac{2}{9}$ for the entire length of the plate.

Pathogen sounding body – sticks. Marimba and vibraphone main way of sound – one: a blow with a stick, in which in the arsenal of the musician has a wide variety of performing techniques that affect the character of the sound of the instrument. Stick directly affect the three qualities: volume, tone and duration of the sound, and the volume depends on the tone and strength, and the last – on the value of the oscillation amplitude of the sounding body, and their choice depends on the nature, dynamics, strokes of the pieces and game modes.

Leading manufacturers of pitch percussion instruments offer a wide variety of different sticks for marimba and vibraphone for. They differ in weight, length, material and configuration of the head. Nevertheless, this variety of structures stacked into three types, according to the degree of rigidity heads (soft, medium, hard), and three types, depending on the winding material. Sticks affect the change of tone characteristics of an instrument.

Amplifier volume – a tool resonators. In marimba and vibraphone apply individual resonators are tuned to the same frequency with the plate. They are used primarily to enhance the formation of the desired sound and voice.

A distinctive feature of the design of the marimba vibraphone is not only metal plates, but also the presence of the damper device and the fan mechanism vibrato.

The design of the damper pedal mechanism and a bracket, generally allows its use as a "direct" pedal, to use terminology piano. Despite the fact that the action of the pedal always is complex, there are two basic functions: communication and dynamic.

Fan mechanical vibrato device performs a function which is responsible for the periodic modulation of the pitch, volume and timbre. It should also be noted that the use of mechanical vibrato vibraphone contributes to a significant enrichment of timbre.

As part of our article is not possible to cover fully all the issues related to the study of this phenomenon as performing on the keyboards of pitch percussion instruments. Therefore, in our work, we have considered only the function of structural parts of tools, investigated the mechanical components of the process of performing their acoustic features.

Key words: *marimba, vibraphone, performing, construction, components, pedal, mallets.*