IMPROVING THE CONSTRUCTIVE CHARACTERISTICS OF THE BASS GUITAR (1970'S)

PERFECTIONAREA CARACTERISTICILOR CONSTRUCTIVE ALE CHITARELOR BAS (ANII 1970)

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This article is dedicated to the issues of developing the design construction of the bass guitars in the 1970s. It examines the innovative prototypes of the Fender Fretless Precision, Alembic Series 1 Bass and, Music Man StingRay, as well as the bass instruments produced by the Travis Bean Guitars. Of particular interest are the design characteristics of these models, based on the search for exclusive design solutions.
***Keywords**: bass guitar, Fender Fretless Precision, Alembic Series I Bass, Music Man StingRay, Travis Bean Guitars*

Acest articol este dedicat aspectlor legate de formarea caracteristicilor constructive ale chitarelor bass in anii 1970. Sunt analizate prototipurilr innovative Fender Fretless Precision, Alembic Series I Bass și Music Man StingRay, precum și instrumentele bas produse de compania Travis Bean Guitars. Un interes deosebit îl prezintă caracteristicile constructive ale acestor modele, bazate pe căutarea unor soluții de design exclusive.
***Cuvinte-cheie:** chitară bas, Fender Fretless Precision, Alembic Series I Bass, Music Man StingRay, Travis Bean Guitars*

Introduction

By the early 1970s, the role of the electric bass guitar in musical and dance groups had expanded significantly. This was facilitated by the development of playing skills on the instrument related to sound extraction technique, as well as the strengthening of the importance of the bass guitar as an important component of a pop ensemble. Being not only an accompanying but also a solo instrument, the bass guitar managed to combine several performance functions at once, bringing to the forefront the original arrangement of the bass parts. The subsequent popularization of the instrument allowed soloists to offer various individual interpretations of bass guitar performance, including complex polyphonic presentation of musical material.

Trying to expand their artistic potential, bass guitarists regularly followed design innovations. Feeling the growing interest of performers in playing the bass guitar, leading companies producing musical instruments created innovative models capable of satisfying market demands.

Fender Fretless Precision Bass Guitar

In 1970, the world's largest musical instrument company, *Fender*, launched the *Fender Fretless Precision* bass guitar, based on the first mass-produced bass guitar, the *Fender Precision Bass* (1951). At this time, the company began to realize that there was a small but growing demand for fretless bass guitars. Up until this point, many bass players removed the frets from their instruments themselves to achieve the desired sound, and *Fender* picked up on this idea [1].

The instrument's body was made of alder, the neck was made of a single piece of maple, and the fingerboard was made of rosewood. The single pickup with a *Split Single coil* and the tailpiece (bridge)

were hidden behind special metal plates. *Sunburst* body color was offered in the company's advertising poster as the main color. Subsequently, *Fender* designed many modifications of the *Fretless Precision*, but the basic form of the *Precision Bass* remained the main one in the instrument's design.

It should be noted that *Fender* produced fretless instruments in limited quantities, and needed bright performers who could popularize this bass prototype. Only a few years later, thanks to the artistic activity of the outstanding jazz bass guitarist Jaco Pastorius, using *Fender* instruments, it was possible to expand the performance capabilities of the fretless bass guitar, including as a solo instrument. This influenced the next generation of talented musicians: Steve Swallow, Gary Willis, Pino Palladino, Steve Bailey, Michael Manring, etc.

Pic. 1 *Fender Fretless Precision*

***Alembic Series I* Bass Guitar Model**

In 1972, the newly created American company *Alembic*, specializing in the production of preamplifiers, began developing a line of electric guitars and bass guitars. The company's concept was based on the production of handmade instruments from high-quality materials, as a result of which *Alembic* bass guitars cost several times more than the then popular *Fender Jazz Bass* and *Rickenbacker 4001* models. According to the authors of *The Bass Book: A Complete Illustrated History of Bass Guitars* Tony Bacon and Barry Moorhouse, "it was Alembic that started the trend of high-quality, high-price bass guitars" [2 p. 35].

It is known for certain that the company's first musical instrument was the six-string bass guitar *Alembic Series I Bass VI* (1972), made for the bass guitarist Jack Casady by special order. The instrument was tuned an octave below the tuning of a traditional electric guitar and was something between an electric guitar and a bass guitar. However, the prototype was not widely distributed and was discontinued that same year.

At the same time, the company released a four-string bass guitar, the *Alembic Series I Bass*, which had a unique wood proportion. The body of the instrument was made of *teak*[1] or mahogany, the neck was made of maple with an ebony fingerboard. It should be noted in passing that the neck passed through the body (*neck-through body*) and consisted of several types of wood. Unlike instruments from other manufacturers, the

Pic. 2 *Alembic Series I Bass*

Alembic Series I Bass had a short scale of 30.75 inches. The bass guitar used an Alembic tuning peg mechanism, developed on the basis of Schaller tuning pegs, and the head of the neck was engraved with the company's metal logo. In describing the design features of the Alembic bass guitar, Make Your Own Electric Guitar and Bass notes: "Based in the center of the San Francisco psychedelic scene, they produsedinstruments with high-quality active electronics neck-through-body construction with exotic hardwoods, and hand-machined brass hardware" [4 p. 6].

Of particular interest was the sophisticated active electronics, consisting of two single-coil single-coil pickups and an active noise-canceling coil. This configuration gave the pickups a humbucking effect – a low-noise dual-coil pickup used by *Alembic* to this day. The electronics featured individual volume controls, a pickup selector switch, and a built-in stereo/mono output. In this regard, Jim Reilly notes: "Alembic saw the need for the increased sonic range

1 *Teak* is a tree from the southwestern part of the Indian peninsula, which produces high-quality wood [3 p. 394].

of low-impedance[1] pickups, too, and is credited as being among the first to successfully design an active onboard preamp directly installed into guitars and basses" [5 p. 19].

The bass guitar was powered by a dedicated external preamp, or by two 9-volt Krona batteries located on the rear panel of the instrument. Later, the different pickup configurations became known as the *Alembic Series I* and *Alembic Series II* models.

It should be noted that in 1976, *Alembic*, in collaboration with bass guitarist Jimmy Johnson, developed the first five-string bass guitar tuned H_2, E_1, A_1, D, G. Thus, a low fifth string was added to the traditional four strings of the bass guitar. It is curious that in the company's advertising catalog, this model of bass guitar was marked as „standard". It should be mentioned that such outstanding bass guitarists as Stanley Clarke, John Entwistle, John McVie, Mark King and others played *Alembic* bass guitars.

***Travis Bean Guitars* Bass Prototypes**

In 1974, Californian luthier Travis Bean, along with two of his colleagues Marc McElwee and Gary Kramer, founded *Travis Bean Guitars*, a company specializing in the production of electric guitars and bass guitars. The prototypes featured a neck design made of machined aluminum, which significantly increased the weight of the instrument and was tactilely cold [4 p. 6].

At the same time, the aluminum neck of the bass guitar passed through the body of the instrument, and the pickups were attached directly to an aluminum plate with a rosewood overlay, located on the back of the bass guitar body. The neck was inlaid with rectangles or mother-of-pearl dots, without a truss rod. The scale length was 33.25 inches. Another original design solution was the tuning fork-shaped headstock.

Most *Travis Bean Guitars* instruments had a solid *koa*[2] wood body equipped with two pickups (usually humbuckers), a three-position pickup selector switch, and volume and tone controls for each pickup.

Pic. 3 *BassGuitar TB2000*

A year later, *Travis Bean Guitars* colleague Gary Kramer decided to leave the company and founded his own – *Kramer Guitars*, also focused on the production of electric guitars and bass guitars. The first prototype of G. Kramer's bass guitar was an instrument with an aluminum neck, using wooden inlays and an *ebonol*[3], fingerboard, which reduced the weight of the bass guitar and avoided copyright infringement.

It should be noted that the headstock, like the *Travis Bean Guitars* models, used a tuning fork-shaped design. Other design features of the neck included aluminum dots and a zero fret. The bass guitar body was usually made of high-quality walnut or maple. However, the assembly of instruments with aluminum necks was expensive, as a result of which the engineer reoriented the design to wooden necks, which allowed to keep production costs low in the future. The production of bass guitars with aluminum necks ended in 1982.

Meanwhile, in 1975, the famous American bass guitarist Anthony Jackson, together with the master Carl Thompson, designed a six-string bass guitar, tuned H_2, E_1, A_1, D, G, c_1. This prototype was the first instrument of the fourth tuning of the extended range. E. Jackson called his invention „contrabass guitar", which was later called „six-string bass". Discussing the design of E. Jackson's innovative bass guitar, the Dutch researcher Sander van Maas emphasizes that "The systematic approach to the instrument's refining also led him to introduce a new, organologically correct name, the 'contrabass guitar'" [7 p. 210].

Unlike the first six-string bass guitars, tuned an octave lower than a traditional electric guitar, the new instrument featured an extended neck, due to which the distance between the strings became

1 *Impedance* is a characteristic of an element of an electrical circuit that prevents the flow of current [6 p. 662].

2 *Koa* is a tree species endemic to Hawaii, which has great ecological and economic importance [8 p. 65]

3 *Ebonol* is a synthetic material used as a substitute for ebony in the production of string and woodwind instruments [9 p. 146].

significantly larger, which made it easier to switch to it from a four-string bass guitar model. In one of his interviews, E. Jackson admitted: "While practicing with a collection of Jimmy Smith organ trio records, I kept finding myself running out of room while walking – wanting to get down underneath the bottom register and wanting to move to the upper register without feeling like I was going to run out of space. I had been tuning the instrument down a half- or whole-step since the first band I played in, at age 12" [10]. Over the next 15 years, the musician improved the design of the six-string prototype, collaborating with such famous masters as Ken Smith and Vinny Fodera, creating more than ten experimental models until he got the desired result.

***Music Man StingRay* Bass Guitar**

In 1976, the *Music Man Company*, led by Leo Fender, Tom Walker, and Forrest White, introduced the innovative *Music Man StingRay* four-string bass guitar, which was similar to the first mass-produced bass guitar, the *Fender Precision Bass* (1951). The new instrument featured an elegant design, in particular, a dual-coil electromagnetic humbucking pickup mounted on the body of the instrument, located near the hardened steel tailpiece (bridge). This position of the pickup created a denser, richer sound, which was also provided by an active preamplifier powered by a 9-volt Krone battery. According to *Learn To Play Bass Guitar*, "The original StingRay was the first instrument to feature an active EQ preamp system (powered by an internal battery). This could boost specific frequencies instead of simply reducing them, as the traditional „tone pot" design had done; it gave the instrument a huge tonal range, despite being fitted with a single humbucker pick-up" [11 p. 241]. The preamplifier had a two-band equalizer with a fixed frequency.

The *Music Man StingRay* body was made of ash, the neck was made of maple with a rosewood fretboard. The headstock had a non-standard arrangement of tuning pegs: 3 at the top and 1 at the bottom. Despite further experiments with electronics, pickup arrangement and the number of strings, the original design of the bass guitar has remained unchanged to this day.

Pic. 4 *Music Man StingRay Bass Guitar*

Conclusions

Thus, the design of innovative bass guitars with electrical amplification in the 1970s was associated with the peculiarities of professional performance practice, which was largely facilitated by the active spread of pop and jazz music. Thanks to the technological process and possibilities of electrification, engineers opened up new acoustic possibilities of the instrument, capable of providing the bass guitar with a rich pitch and tonal range. The use of active electronics with a built-in stereo/mono output and active noise cancellation coils made it possible to obtain a bright and dense sound, as well as to ensure the reproduction of the bass guitar at an extremely low noise level.

Various design improvements to the bass guitar, carried out by leading companies, were dictated by the evolution of string bass instruments, as a result of which the 1970s are considered the time of the greatest distribution of the bass guitar. At the same time, the desire to provide musicians with the necessary tools contributed to the further development of guitar construction, which undoubtedly influenced the subsequent formation of bass guitar performance in general, and the development of innovative prototypes, in particular.

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