

Uniquely Bassoon

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It is important for a repairer to understand what makes the bassoon different from all other woodwinds. Awareness of these unique aspects can aid in doing a better job of repairing a bassoon.

Maple Body

This detail is so obvious that it tends to get overlooked. A few instruments other than bassoons have been made using maple but only bassoons, contrabassoons and a few other obscure woodwinds are routinely made of maple. Ignoring metal bodied woodwinds, all of the other woodwinds are either made of grenadilla or of plastic.

Maple has certain requirements that are different from grenadilla. These are so significant that they will each receive separate treatment.

Oiling

It is important to oil the maple body of a bassoon. This is different than grenadilla. Oiling grenadilla is somewhat optional. While the question of whether or not to oil a grenadilla instrument will always be a topic for debate it remains a fact that the instrument will perform properly without any oil treatment applied to the body.

This is not true of a bassoon. If the maple body of a bassoon is left untreated the bassoon will not perform in a satisfactory manner. The value of oiling the body can be seen immediately when oil is applied to the body. The change is immediate and dramatic.

Wood Finish

Maple must have a finish applied to it. On the outside the finish appears primarily as an enhancement to the appearance of the instrument. Its value extends far beyond appearance. Unfinished wood deteriorates over time. The application and the maintenance of a proper finish is important to the life of the bassoon.

Bore Liners

The function of bore liners is to resist the effects of moisture.

Maple is vulnerable to the effects of moisture. Indeed, moisture is the greatest enemy of the bassoon, even greater than students, fathers and band directors!

The high natural resin content of grenadilla makes it essentially moisture proof. The lack of comparable resin content in maple allows it to absorb moisture. Over time the moisture can do serious damage to the maple body of the bassoon.

A few other woodwinds have used bore liners. Notably a few makes of oboes have used bore liners in the hopes of controlling the propensity oboes have for splitting. Despite these few exceptions only bassoons routinely are made by all makers with bore liners.

There are a few modern bassoons made without bore liners. These are the rare instruments that are not made of maple, usually of rosewood or palisander.

Two Parallel Bores in a Single Joint

The boot joint of the bassoon is unique among modern instruments in having two bores contained with a single body joint. There are other modern woodwinds that have parallel bores, such as baritone saxophones and bass flutes, but these bores are in separate joints.

A significant result of this two-bored joint is that the body shape is oval. This shape creates unique problems for padding.

U-Tube

In order for the two parallel bores of the boot joint to function they must be joined together. The u-tube assembly at the bottom end of the boot joint serves this purpose. It also places extra demands on the repairer.

Angle Drilled Tone Holes

Both the wing and boot joints feature angle drilled tone holes. This ancient form of tone hole drilling no longer exists in any other modern woodwind. It predates the logical tone hole systems brought about by the work of Theobald Boehm.

A necessary adjunct to angle drilled tone holes is that the body must be thickened in order for these holes to function. This is the reason for the strange body shape of the wing joint and, to a lesser extent, the boot joint.

Non-Coaxial Tone Holes & Facings

Normal tone holes and facings involve are drilled through a body bored and turned concentrically around a bore axis the tone holes are the conical facings are drilled perpendicular to the bore axis. The tone hole and facing are themselves drilled on a common axis, that is, coaxial.

The resulting geometry is simple. When the cone of the facing is truncated by the tone hole the resulting rim is plane. As a result woodwind repair techni-

cians always plan on putting a flat pad on a flat tone hole rim.

On the bassoon the six tone holes of the bass and bell emulate the simple geometry of other woodwinds. Two or three raised metal vent holes near the top of the wing joint are also geometrically simple. Other than that, all the tone holes and facings on the bassoon are a screwed up mess!

Bassoon tone holes are the result of asymmetric body shapes. While coaxial tone holes and facings can be drilled with a single position the non-coaxial tone holes and facings of a bassoon must be drilled with separate positions. When a cylinder (the tone hole) intersects with a cone (the facing) at an angle to the cone's axis the resulting shape is a oval not in a single plane. That's why bassoons are hard to pad. Trying to put a flat pad on a tone hole rim that is not flat doesn't work!

Action Rods Through the Body

The oval shape of the boot joint contains two more or less parallel bores. The space between the bores has been used for keywork mechanisms since the early days of the Heckel System bassoon. By pushing small rods back and forth through the body of the boot joint action could be transferred from one side of the boot to the other.

The first pin to be used was for the B \flat key. This probably dates back to the 1830's. It enabled Heckel to significantly improve on the old forked B \flat .

The pin operated by the "F \sharp rocker" dates from 1870. Actually, this key is properly the F \sharp to G \sharp trill key, but few people call it by that name.

The "through-bored" G key replaced the earlier wrap-around system in 1901.

On bassoons with single hole G \sharp mechanisms a fourth pin transfers the action of the thumb G \sharp key on the back of the boot to the little finger G \sharp key on the front of the boot.

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