Bassoon Bocals

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Bassoon bocals tend to be a problem for anyone involved with bassoons. They are simultaneously an integral part of the instrument and yet are also an accessory to the bassoon. Bassoonists often indulge in an eternal search for the perfect bocal. As a result we tend to buy, sell, trade and collect bocals.

There are a number of names for bocals. A few other common names would include crook, esse and pipe,

Handling bocals

Bocals are expensive and can be damaged by improper handling.

When installing a bocal in the wing, or adjusting its position, it is very important to hold the bocal properly. Improperly twisting the bocal in its socket can cause serious damage to a bocal. This is the most common way of splitting a bocal's seam. Always hold the bocal at the top of the bend closest to the wing joint. Never move the bocal from near to the reed end; the closer to the wing the better.

The tip of a bocal is a critical part of the entire bassoon. Care must be taken to avoid damaging the tip. It is not uncommon to see distorted tips. This can often be straightened by using a reed mandrel but that same method can also flare the tip the wrong way, or split the seam at the tip, or distort the tip in a way the makes it difficult to put the reed on the bocal.

Variations

Part of the fascination of bocals is that they come in so many variations. Just a simple list of variables includes bore, length, material, alloy, temper, thickness, bore surface, plating, bend, vent position and vent design.

Beyond the list of variables comes the incredible sensitivity of bocals to the most minute of details. The slightest change in a bocal can alter its performance qualities.

As a result of all of these variables there is no such thing as consistency among bocals. The higher the quality level the more this is true.

Markings

All bocal makers mark their bocals with numbers to indicate the length of the bocal. Typically these numbers range from 0 to 4 with a lower number being shorter and a higher number being longer. There is approximately 1/8" difference in physical length between one number and the next.

Don't expect perfect agreement in effective pitch between the numbering of various makers. For instance, Heckel and Fox bocals are almost one number apart with Fox bocals effectively about one number shorter than the same number Heckel bocal. That is, a #2 Fox bocal would play at about the same pitch level as a #1 Heckel bocal.

In general a player is best off using an average length bocal. (At Fox, number 2 length bocals account for the greatest quantity of bocals sold.) Attempting to correct a very flat or very sharp instrument by using an extremely short or long bocal is generally not recommended, especially since these problems are often the result of the way student bassoonists are playing rather than a deficiency of the instrument.

Some makers also add markings to their bocals to indicate the type of the bocal. These are usually letters. There may be a single letter or a set of letters. In addition to be a model designation they letters may also indicate specific details of that bocal's design. These letter codes are specific to each maker and are not relevant to bocals from another maker.

When specifying a particular type of bocal it is customary to use both the design letters and the length number. Both parts are important but their sequence is not. Either "#2 CVX" or "CVX #2" is equally valid.

Material

Most bocals are made of either brass or nickel silver.

Nickel silver tends to be more popular among professional level bocals as its sound projects well. Musically, it tends to be on the stiff side.

Brass vibrates easily, making it responsive at low dynamic levels. It is less preferred at the professional level as it doesn't project as well as nickel silver.

Other metals are seen rarely. Sterling silver has a pleasant dark sound and is easy to blow but has poor projection. In addition to sterling silver Heckel also offers bocals of gold and palladium.

Plating

Although subtle, the plating on a bocal does make a difference to the performance of a bocal.

Nickel is the most common plating for bocals. It typically gives the darkest and most resonant sound with a big, full voice. It tends to be a bit stiff compared to silver

Nearly as many bocals are made with silver plating as with nickel plating. Silver plating tends to

blow easier than nickel. It also tends to be a bit softer in tone quality with less projection than nickel.

Bocals are sometimes made with no plating. They tend to vibrate easily but the tone can be a bit on the dead side and lacking in character. Also, they tend to have less bottom in the sound, tonally centering a bit higher.

The amount of plating can have an effect. Too much plating is not desirable. In general the plating on a bocal should be thinner than the on keywork.

Bends

Nearly all bassoon bocals have essentially the same bend. There are a few other bends that are available.

One controversy that exists with the standard bend concerns just how the tip position relates to the big end of the bocal. In general if the big end is placed squarely near the edge of a flat surface the tip will be very close that surface. The question is whether the tip is above or below that surface.

Players who support their bassoons with a seat strap tend to hold their bassoons a bit more vertical than players who use a neck strap. As a result players using a seat strap typically want the tip of their bocals above the level of the big end. Players who use a neck strap will typically want the tip of their bocals below the level.

The "British Bend" is probably the second most common bend. The tip of this bend ends up an inch or so above the level of the big end. This allows the player to hold the bassoon slightly lower. This bend works particularly well with instruments supported by floor pegs, which are often used in England. It is also good for tall players and can relieve stress on their shoulders and arms.

The most extreme bend is the Waterhouse bend, named for the prominent British bassoonist who designed it. To use it requires very long arms. Some persons who try this bend cannot even reach the keys on the boot joint!

Using a bocal with a different bend places the bassoon at a different height relative to our ears. As a result we perceive the sound differently as a player even though a listener may notice no difference.

It is possible to make small adjustments to the bend of a bocal. However, if this done incorrectly it is equally easy to destroy a bocal. In general, take care that you do nothing that changes the bend of a bocal. If you have a good reason to alter the bend of your bocal get some assistance from someone who has experience in doing this.

Vents

There have been vent holes in bassoon bocals for hundreds of years, even though the modern whisper key did not come into existing until 1905. The existence of this mechanism imposed a need for standardization on the placement and shape of the bocal vent button.

Prior to the adoption of the modern whisper key bocal vents were commonly left open. Sometimes a key was mounted on the bocal with a pad that could close the vent hole. This was not a key that could be operated while playing—it was either on or off.

There is a surprising level of consistency between various makers in the position of bocal vents and whisper key pads. As a result it is usually possible to use any make bocal in any make bassoon.

Some differences do exist in bocal vent and whisper key positions, however. There are some makers, particularly from the former East Germany, that use a different vent position. The position is fine on their own instruments made to suit that position. When someone tries to use one of these bocals in a bassoon made for the conventional vent position (or vice versa) the reed ends up in a position so far off to the side that is quite impossible to use.

Bocals for schools

Schools purchasing replacement bocals for their school owned bassoons suffer from two problems: budget and instrument care.

For many schools the only function of a bocal is to connect the bassoon reed to the bassoon and to make the result look like the student is actually playing the instrument. The thinking is that no one can hear the bassoon in a band anyway so why waste money on a quality bocal when a cheap bocal will suffice. For band directors who think this way there are cheap bocals available that are so bad that the makers won't even put their names on them!

Fortunately, there are many schools where the music program understands the importance of quality instruments and provide their students with good bocals. These schools find the means to get good bocals that help their students play better.

Unfortunately, the standards of care that most instruments receive in most schools is terrible. For a bassoon bocal this often means that it is mishandled. Repair technicians routinely see bocals with large dents, kinks in the tube, missing vent buttons and split seams. With this in mind it is not unreasonable for a school band director to seek a good bocal while not spending the money for a top end bocal.

Bocals for a student bassoonist.

The high cost of a bassoon means that most student bassoonists play on school owned instruments.

It can be highly desirable for a student bassoonists playing on a school owned bassoons to purchase their

own personal bocals. A careful selection of a quality bocal can do a lot to help the student's performance.

It is often believed that a good bocal can make a cheap bassoon play better. Sometimes that's even true. Certainly, a good bocal will improve on the performance of a bad bocal.

Obtaining a bocal of a quality level above what a school will purchase can be a good move. The student will benefit from a better bocal. Keep in mind, however, that if the instrument itself is in bad shape no bocal will be able to improve its performance.

Bocals for the professional

When a professional buys a bocal a different set of standards come into play.

A professional musician is interested in performance above anything else. It doesn't really matter who made the bocal or what it looks like as long as it performs.

Actually, certain makes, types and vintages do become important. In seeking a new bocal these details can define bocals with certain desirable characteristics. For instance, some players have a strong preference for pre-war Heckel bocals, while other players feel that those same bocals do not provide the qualities they are seeking.

Bocal damage and repairs

Bocals do get damaged and will need repair. It is important to know that almost any serious repair may change the way the bocal performs.

Just about the only repair that won't change a bocal is to have it re-corked. When a bocal cork gets too loose in the socket, or is breaking off of the bocal, get it replaced. This is a service that any woodwind repair technician can do.

Replacing a vent button is a relatively simple procedure. This may also provide a way to correct a vent hole that has been drilled out too large.

Relocating a vent hole to a different position can be done but should be avoided. Relocating might be desired to coordinate a bocal with the whisper key pad. The hole for the button at the old position must be patched and a new hole drilled for the button. The patch could cause problems for the bocal.

A similar problem occurs when a player requests that a bocal be shortened for tuning reasons. The tip of a bocal is a very special area and must not be cut back. The correct place to alter the length of a bocal is at the big end. This would also require patching the old hole as part of relocating the button.

Dent work, kinks and splits raise issues of whether fixing a particular bocal should be done. Bocals are so extremely sensitive that bocals that must require these repairs will not be the same afterwards. It the repair is well done the cost may exceed the practical value of some bocals. The condition of some damage may dictate that repairs might be a waste of effort. For instance, a bocal that is split wide open so that you can see inside the bocal should probably be thrown away.

Removing dents in a bocal is extremely difficult. If the bocal is performing satisfactorily, leave the dents alone.

Kinks in the tube where the tube has been bent sharply at one point are also difficult to repair. Kinks weaken the tube to the point that continued used of the bocal may further damage the tube. Even if the kink can be straightened the very localized damage of a kink may create a place that will be vulnerable to future kinking.

The seams of bocals can split open if the bocal is twisted. The most common reasons for this occurring include a cork that is too tight in the socket or mishandling of the bocal by attempting to move the bocal from too far from the wing. Bocals with hairline splits that have not be distorted can be fixed. Split repairs are done be either re-silver soldering the split seam or by soft soldering a patch over the split. Both methods are valid and there are often reasons for either method to be better than the other in specific situations.

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