

Initial Inspection for Bassoon Repairs

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A properly made inspection of any instrument prior to initiating repair procedures can do much to reveal the physical problems of the instrument. Such an inspection must examine the physical body of the instrument as well as the keywork.

I usually start with the peripheral items before getting to the main event. It is too easy to forget the case and the bocals until the last minute. By checking them first I know that when I have the bassoon back together it is ready to return to the customer.

Start With the Case

The function of the case is to take care of the instrument. Check to see that the case is in good condition.

Start on the outside. Are the hinges and latches functioning properly? Are the handles usable? Are there any punctures or fractures of the shell?

What does everything look like when the case is opened? If joints are out of place the blocking may be broken or loose. Joints that aren't properly held in place will cause damage to themselves or to adjacent joints. Body damage is frequently caused by unwanted movement in the case.

How much debris is loose in the case? Bassoon cases frequently contain fragments of old reeds. Such bits and pieces are likely to get under pads and cause leaks.

Clean cases are the exception. Even the finest of musicians rarely think of cleaning the inside of their cases. Dirty cases can contribute to performance problems.

Bocals

These slim tubes that serve to connect the reed to the instrument can cause a lot of trouble. Take a few minutes to try to find the problems first.

Is the bocal appropriate for the instrument. It would be too easy to say that the make of the bocal should match the make of the bassoon and it wouldn't be correct! There have been times when widely distributed makes of bassoons came with absolutely terrible bocals. The bassoons were all but unplayable with their original equipment bocals. Even the cheapest bocal from a better maker made the bassoons playable.

Watch out for bocals that are so "good" that the maker of the bocal wouldn't even put his name on it! The only possible virtue to such a bocal is that it was probably cheap. (To pay anything for something that is worthless is to pay too much!) Apparently some

band directors must believe that it is more important for a bassoon to look complete than to be playable.

East German bocals often have the vent buttons placed in such a position that on any other bassoon the bocal must be positioned at an impossible angle. Those bocals might work fine on their own instruments but not on any other. Don't even attempt to get this type of mismatch to coordinate. You're doomed to failure.

Does the bocal fit into its socket in the wing properly. If it's too loose it can leak. If it's too tight it might actually cause the bocal to split. It should be comfortable to fit easily into place and should stay firmly in place.

Is the bocal clean inside? Some bocals never get properly cleaned out. Be sure to have a bocal brush on hand for cleaning bocals.

Is the bocal vent button loose? I'm always amazed at the number of bocal buttons we sell as repair parts. Bocal buttons are soft soldered in place. Warming them up with a bit of flux will probably reset them even without additional solder.

Is the vent hole open? If the hole is plugged up several notes will not sound clearly, particularly the octave C# and D just above middle C. The hole size should be about 0.036" (#64 drill). There's plenty of other opinions about the size but that's a good point of reference.

Check the seal on the tube. It should hold a vacuum without any question. If it cannot hold a vacuum check for a loose vent button or splits. More elusive leaks can come from the stamped markings on the side of the bocal.

Splits need to be fixed. However, a split that is distorted or so wide you can see inside probably should not be fixed.

Assemble the instrument

The disassembled instrument is just a collection of parts. They can't become a musical instrument until they can be put together. Inspect the tenons and sockets.

If the thread or cork wrappings of the tenons are too tight or too loose you will need to plan on correcting this problem. In general, thread wrappings are preferable to cork. However thread wrappings do not work well for instruments with straight tenons for which cork is preferable.

Broken tenons are usually obvious. It's the split tenons that need a closer look. Bass joint tenons are particularly at risk for this. With a finger in the bore

at the end of the tenon, put some stress on the wood and watch closely for movement along the sides of splits. Some minor splits can be fixed with super glue. If too many splits exist or if their existence is obvious they need to be fixed. If left unfixed the splits may eventually worsen to the point that tenon replacement is the only option.

Split sockets are not usually as obvious as split tenons. The most frequent location is at the thin outer edge of the large socket of the boot joint. The socket of the bell is a close second. When the tenon is inserted into the socket the split may widen causing a leak passing around the tenon and causing performance problems in the lower range of the bassoon. Proper repair of socket splits requires removing the band and reinforcing the wood. Attempts at gluing the edges of the split together will not be successful.

Some makers place metal bands around the ends of their tenons. Check that these bands are secure. Rarely, better makers will sometimes make caps for their bass tenons. Caps cover the ends of the tenons and are far superior to bands that only wrap around the end of the tenon. Loose caps or bands are more likely to be a problem during the dry winter months.

All lined wing joints have caps over the ends of the tenons. Check that the wing tenon cap is secure. Also check that there is no gap between the end of the bore and the tenon cap. This would be an indication that the cap has been loose in the past. It may be necessary to replace the cap in order to eliminate the gap.

The socket in the boot joint for the wing is always lined with a brass or nickel silver socket. Makers who cap their bass joint tenons may also use socket liners for those tenons to fit into. Check that the socket liners are securely in place. Check for a gap between the end of the bore and the bottom of the socket liner. Liners that have partially pulled out and become stuck in that position will have a raised edge above the end of the joint. If left unfixed this rim will eventually be flattened out making eventual repair more difficult. Also, moisture may gain access to the end grain of the wood behind the bottom of the socket liner and cause damage to the wood.

The U-tube

This area of the bassoon is easy to check. It is also too easy to overlook. Problems in this area can seriously degrade the performance of a bassoon.

Remove the boot cap and visually examine the u-tube. There is no reason for this being dented since it is protected by the cap. However, dents are common! Dents from the outside suggest that the cap does not fit as well as it should. If the cap were securely in place, yet still removable, the u-tube would never have been exposed to risk. Dents from the inside are

another matter. Small dents or even a raised ridge indicate the overly aggressive use of a swab that has a metal center. Any type of swab that must be pushed into a boot joint should not be used. The proper swab for a boot must pull completely through the joint, including the u-tube.

Check for a leaking u-tube system before removing the keys. With the boot cap removed and the u-tube in place submerge the end of the boot in a bowl of water deep enough for the water to just cover the beginning of the finished surface of the wood. With all of the tone holes closed cover one socket while blowing into the other to pressurize the inside of the boot. (Rubber stoppers in the sockets with flexible tubing entering one of the stoppers can make this easier.) Observe the submerged u-tube system. If everything is okay no air should be bubbling out. If air bubbles are showing determine whether they are coming from the gasket or from under the bracket assembly. The gasket is easily replaced—the bracket assembly takes more effort.

Boot Rot

While you're checking out the u-tube system take a look at the beginning of the unlined bore immediately past the u-tube. Negligent care over a period of years can cause serious deterioration of the wood in this area.

Visually, the wood should not show any discoloration or swelling. Either of these conditions suggest that moisture has been allowed to settle in this area when the instrument was put away unswabbed. Discoloration is usually an early sign of the problem. Swelling indicates a more advanced stage. A swollen bore can cause performance and tuning problems.

Check for softening of the wood. The area where this is most likely to be found is at the outer edge furthest from the lined side bore. Use an X-Acto knife with the sharply pointed #11 blade. Poke the point of the blade into the wood within the first ¼" of the bore. If there is an area that is obviously soft then action needs to be taken.

A small amount of soft wood to a shallow depth can be corrected without major surgery. Superglue will usually penetrate into the softer wood and harden it.

In serious cases the point of the X-Acto knife may not meet with any real resistance until it makes contact with the brass band of the u-tube socket. This condition will require major surgery. Several inches of the bore will need to be replaced. Do not attempt to fill the soft wood with epoxy—it won't succeed.

Bell Ring

The condition of the bell ring may seem a minor detail. Certainly, the bell ring has more of a cosmetic role than a serious one.

A bell ring in bad condition fails in two purposes. Physically, it must protect the end of the bell from damage. Cosmetically, it is supposed to enhance the appearance of the instrument rather than to degrade its appearance.

Consider the attitude of a student playing on a school owned bassoon with a broken bell ring. If the school doesn't care about the instrument enough to properly maintain the instrument why should the student. It can be small details like this that cause the premature demise of an expensive instrument.

Except for a few makes of bassoons replacement bell rings are not readily available. Custom made bell rings can be made to fit any bell.

Metal bell rings are also seen on many bassoons. The most common problem with metal bell rings is that they come loose. Since they are set into a groove it is unusual that they actually fall off, but they can rattle. The original installation required shrinking dies to secure the bell ring. It is unlikely that a repair shop would have shrinking dies for tightening the rings. A simpler approach is to use super glue or silicone sealer to secure the ring. Use care so that the adhesives do not show.

Body Finish

The condition of the finish on the body of the joints does affect the instrument. More than that it signals the condition of the rest of the instrument.

An instrument with the finish in good condition is probably well maintained in other ways. Finishes degrade because of other factors. Moisture in the wood attacks the finish from within, lifting the finish off the wood. Ironically, wood that is dry from lack of oil tends to have more problems with moisture. Properly oiling the wood can help to preserve the finish.

Certain types of finishes are more vulnerable to problems than others. Brittle finishes are vulnerable to the normal movement of wood. It is not uncommon to see such hard shell finishes breaking off of the wood.

Simply because of the way bassoons are held while being played certain areas of the instrument will be vulnerable to wear. It is difficult to restore such areas. Eventually the instrument will require refinishing.

Bad Repair Work

Too often the worst part of a bassoon's condition is the presence of bad repair work. Many such conditions are visually obvious. A good rule of thumb is

that if it doesn't look correct it probably isn't correct. Another way to express this is to ask if the maker would allow his work to look this way.

Epoxy is not usually a good material for repairing maple bassoons. In general epoxy is a poor adhesive for wood. In particular, the oils in maple bassoons cause problems for the epoxy which turns soft and rubbery. Epoxy adhesives were never intended as coatings and don't bond well to a single surface. Epoxy in thin layers is brittle and breaks easily. Never use epoxy as a filler or as a coating. It doesn't work well. Too often the use of epoxy is based on the idea that if a little is good a lot must be better. In reality, the less used the better. To use less be sure to first have parts that fit together properly. Epoxy is best used for joining dissimilar materials together. For instance a metal socket liner can be installed using epoxy.

The most common form of bad repair work on bassoons is the use of incorrect pads. Saxophone pads are generally thicker than bassoon pads. Use of any excessively thick pad is simply bad repair work. The worst pad mistake is the use of riveted pads on the B \flat or A tone holes of the boot on which the rivet would be sitting on wood instead of in a hole.

Dry Wood

Maple bassoons need to have oil in the wood. The wood in the bore should have the appearance of being oiled. If the wood appears dry or lifeless it needs some attention.

A "never-oiled" bassoon simply doesn't play. This is true no matter how well padded the instrument might be. It's unlikely that you will ever encounter such an instrument. If you do you will find that simply oiling the body of the instrument immediately enables the instrument to perform.

The old style wooly swabs that are useless as swabs are excellent for a light application of oil. A few drops of light mineral oil distributed over the length of such a swab provides a quick and easy way to improve the condition of a bassoon.

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