

# Water Damage

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Water is the greatest enemy of a bassoon. Moisture is primarily introduced into the bassoon by the player. Failure to control the moisture, both by daily care and by periodic maintenance can contribute to the premature demise of an otherwise good instrument.

## **Boot Rot:**

The beginning of the unlined side of bore, at the u-tube, is the most vulnerable area on the bassoon. All of the bore preceding this point is lined to protect the wood from moisture.

Water accumulates in the u-tube while the instrument is being played. Failure to properly swab out the moisture from inside the instrument can eventually lead to a serious deterioration of the wood.

The area affected is usually quite predictable. The first area to be affected is immediately at the beginning of the unlined side on the thin outer edge, that is, the point furthest from the lined side bore. From there the affected area may proceed straight down the outer side of the bore or it may go directly toward the front (little finger) G# tone hole. This tone hole may also be seriously affected.

## **Diagnosing Boot Rot:**

The first hint of a problem will usually be observed by noting the condition of the G# pad. Moisture normally damages the leather faster than the wood. Boot rot should be suspected if this pad is noticeably in worse condition than other pads, or if it is the only new pad on the instrument.

After removing the u-tube look at the concentricity of the unlined bore and the opening of the brass u-tube bracket plate. Normally, these should be fairly well aligned. If the wood has visibly swollen into the bore there is a moisture problem. Keep in mind that these holes may not have been perfectly lined up when the instrument was made. However, they would have been reasonably closely in agreement.

With the u-tube still off, poke a sharply pointed tool, such as a #11 x-acto blade, into the wood at the outer edge of the unlined side. Compare the resistance to other areas around the bore. If the outer edge is noticeably softer boot rot may be a problem. In minor cases the difference in softness is not very great. In severe cases a knife point may not meet with any resistance until it gets to the brass band! Be sure to note how far down the bore the soft wood extends.

If you think the rot is more than superficial the u-tube bracket will need to be removed. Further examination of the extent of the rot will be possible and more effective treatment will be easier.

## **Treatment of Boot Rot:**

There are three objectives in treating the rot condition: eliminating the soft wood, restoring the bore and preventing future rot problems.

In minor cases the simplest treatment is to simply use some super glue on the affected area. The soft wood is highly absorbent and will suck up the glue like a thirsty drunk. After a first application has hardened apply a second coat to test the area. A single application may be all that is needed for a minor case. If a second application is needed the case may be more than minor and more aggressive treatment may be needed.

For more than a minor case the u-tube bracket should be removed. This will allow the super glue to be applied to the end grain at the end of the boot as well as in the bore. As before, the areas which have been affected will suck up the glue. The super glue will simply sit on the surface of good wood.

Having hardened the wood with the super glue, re-install the u-tube bracket if it had been removed. Any swollen areas now need to be restored to their original dimensions. Since it is extremely unlikely that you will have either the dimensions or the tooling to restore them, it is necessary to do a good job of approximating them. The brass u-tube bracket plate will provide some guidance in this. A half-round file with a curved side slightly smaller than the bore's curve will do a good job. Lay as much as possible of the length of the file against the side of the bore and file out the swelling until the bore is once again straight and the end of the bore again matching the hole in the u-tube bracket plate.

This method of restoring the bore dimensions may seem very crude but with a bit of care you will end up with a much better bore than existed when it was swollen. That swelling was causing problems for the player. They may have crept in so gradually that the player was blaming all of his problems on his reeds, or was searching for the right bocal. Don't be too surprised when the player announces that you have solved problems he has been suffering with for a long time.

Major boot rot requires major surgery. It will be necessary to bore out the end of the boot joint and insert a new piece of wood. The insert can also be

made of hard rubber or grenadilla. I prefer to use maple as I can finish the surface to better match the existing maple bore. This can better restore the value of the instrument than adding an obviously different material. The insert usually extends to a point past the problem area and to where it is least visible when looking through a tone hole.

Major boot rot often requires accompanying surgery to the G $\sharp$  tone hole. It is very likely that the wood of this hole is also in bad shape. The hole will need to be drilled out and filled with a new piece of wood. This is best done before replacing the bore segment underneath the hole, thus giving a better finished job in the bore. Be sure to line up the grain of the wood correctly. If done correctly there should be little evidence at a casual glance of the work that has been done.

All of the wood surfaces in the area need to be treated to prevent future problems. This can take longer than the main procedure. The wood should be oiled several times over a week or two. Finally a sealer coat of shellac should be applied over the area. It is not necessary to coat the entire bore segment, but certainly coat the first few inches of the unlined bore above the u-tube.

### **Other types of water damage:**

Beyond moisture problems near the u-tube, moisture problems tend to get more unique. Although there is no lack of opportunities for water damage there aren't many that occur often enough to describe. But there are a couple.

One signal of water damage that is somewhat unique to Fox and Renard bassoons occurs in the finish. These instruments are stained using a water soluble aniline dye. If moisture somehow comes from within the instrument and gets under the surface of the finish, the dye can be drawn away and the color in the area will fade. This is usually seen in the groove of the wing joint near the metal finger tubes or the C $\sharp$  tone hole. The cause is probably that moisture is getting around the tube at the bore liner and attacking the wood. A related condition often coexists. The wood swells to a degree that the pad arms for the E $\flat$  vent and for the E/F $\sharp$  trill and high E keys appear to have shrunk leaving the pad cups no longer centered over the tone hole facings. This problem should be called to the attention of Fox Products for correction.

### **Preventing water problems:**

Although regular maintenance including the use of bore oil can reduce the problem, effective prevention of water problems must originate with the player.

Proper holding of the instrument and swabbing after use are very important.

A bassoon in use must never be laid flat over the knees of the player. This is a common situation among young players. The instrument must be kept at an angle or straight upright. The use of a bassoon stand can help considerably.

The common problem of moisture in finger holes can be reduced by rotating the instrument correctly. The common habit when a player rests is to rotate the instrument so that the broad side of the boot joint lays flat against the player's leg. This leaves the finger holes in the most vulnerable position to intercept the flow of water in the bore. If the player learns to rotate the instrument the opposite direction the finger holes are kept out of the moisture flow and the problem is greatly reduced.

Swabbing of the boot joint should be done with a swab that pulls through the u-tube. This is most effective at removing the water that has collected in the u-tube. It is also more effective at keeping this part of the bore clean. The old style push swabs only push moist debris into the u-tube. They were originally intended to be used with the u-tube removed. They don't work with the u-tube in place.

Any moisture in the boot joint when the instrument is placed in its case immediately moves into the unlined side bore. This will happen in any bassoon case. Band directors who do not give their bands sufficient time or fail to insist on proper cleaning of the instruments are actively contributing to the damage of these instruments.

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