

Bassoon Bore Oiling

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The maple body of a bassoon requires oiling in order to work properly. A bassoon made of completely dry, unoiled maple would play terribly; oiling it would immediately make it play well. Older instruments which have not been oiled for a number of years will also benefit from being oiled. Different types of oils can have produce different tonal qualities and can provide different levels of benefit to the instrument. Several methods and frequencies of applying the oil can be used.

Reasons and benefits of oiling the body of a bassoon

Maple, unlike grenadilla, does not have a high level of resin. The high resin content of grenadilla seals the wood against air leakage and reduces moisture penetration into the body. Without this resin maple bodied bassoons are vulnerable to moisture damage and can literally leak air through the body.

The act of oiling a bassoon can give a dramatic change in the performance of a bassoon. The magnitude of the change depends on how dry the instrument was before the oiling. At the worst, a completely dry bassoon simply doesn't play! The benefits of oiling are such that the change from unplayable to playable are immediate.

Most bassoons will show some degree of performance improvement immediately after oiling. Typically, they become more willing to perform, their response is more immediate, their sound more resonant and they will have a greater dynamic range. Much of this performance improvement comes from the oil sealing the wood against air leakage. Dry maple leaks air. A perfect padding job cannot help an instrument's performance when the air leakage occurs through the body.

Oil is also an important agent in controlling the damaging effects of moisture on the body of a bassoon. The moisture resistance of oils varies among different types of oils and some can actually encourage the absorption of moisture by the wood.

How often should oiling be done?

This is one of the all time favorite questions about oiling a bassoon. There is no single answer. Indeed, the instrument itself must answer the question. If oil applied to the wood disappears quickly, the wood probably needs oiling. If the instrument demonstrates a dramatic improvement in performance, it probably needed oiling. By contrast, if the wood shows little

inclination to absorb the oil, it may not be in need of additional oil.

The most effective means of oiling a bassoon is to do it lightly in multiple applications over time. If the instrument shows a need for oil, apply a light application every two to four weeks. As the instrument demonstrates less need for oil reduce the frequency to every month or two. For an instrument in good condition, light applications once or twice a year should be sufficient.

Types of oils that can be used in bassoons

There are many oils that have been used as bore oils. The following listing does not attempt to be complete.

Linseed Oils: This is actually a rather complex topic. The two commonly available types of linseed oil described next are just two of many versions of oils that all come from the seeds of the flax plant. Linseed oils are used in many ways, including foods, printing inks and paints. Most of the world's production of linseed oil comes from varieties of the plant that produce a higher percentage of oil but are sensitive to cold weather. A smaller amount of Baltic linseed oil comes from plants that grow in colder climates in northern Europe. For use as a bore oil the Baltic oil is superior to other linseed oils. Obtaining it, however, is very difficult as the largest markets for linseed oil use the non-Baltic oils.

Boiled Linseed Oil: This is a poor bore oil. It is intended as a surface coating. Regular commercial grades of boiled linseed oil use chemical dryers to hasten the drying of the oil rather than actually boiling the oil. Its penetration into the wood is very limited. It tends to brighten the tone. It has surprisingly low resistance to moisture and maple can actually take up moisture easier after an application of this oil than when it is dry! Boiled linseed oil may have some use as a surface finish but should not be used as a bore oil. Boiled linseed dries quickly and any unabsorbed oil must be removed within 30 minutes.

Raw Linseed Oil: This has been used for many years as a bore oil but its value for that purpose is questionable. It shares some qualities with boiled linseed oil including undesirable tonal changes and poor moisture resistance. Its slower drying time allows for greater penetration into the wood than boiled linseed but the penetration is still not very deep. Raw linseed can be useful as part of an oiling system that includes other oils but is not very good alone.

Light Mineral Oil: This is a good, effective oil that is very safe to use. It can be readily obtained from pharmacies but must be specifically ordered. (They will have *heavy* mineral oil on hand which you don't want; be sure to order *light* mineral oil.) This is a non-drying oil with a small molecule that can penetrate deeply into the wood, displacing water at the cellular level. It tends to darken and enhance the tone quality of the instrument. Use this oil sparingly as excess oil will get onto the pads. It is also effective when applied to the outside of the body. Using it to clean the finish will also enhance the appearance and the performance of the instrument; unlike many solvent cleaners, mineral oil does not damage finishes. Its only negative quality is that it is not an enduring oil; the benefits of other oils might last longer.

Sweet Almond Oil: This is a traditional oil that has been used by generations of musicians. Its value as a bore oil is probably overrated. However, it does the job well and should certainly be included in any list of bore oils. Almond oil is a slow drying oil that leaves a soft, waxy surface on the wood. Almond oil has two problems: it is too heavy for good penetration and it can smell bad. Almond oil will work better if it is thinned with an equal volume of refined paraffin oil, often sold as lamp oil. The addition of about 10% sweet orange oil (sold as flavoring for commercial baking) completes the mixture. This mixture is an outstanding bore oil.

Walnut Oil, Peanut Oil: These nut oils can be good bore oils. They have excellent moisture resistance and good tonal qualities.

Rapeseed Oil, Canola Oil: References to the use of rapeseed oil go back a long way. Weissenborn gave instructions for its clarification. Modern methods of purifying the oil may have made it less usable for a bore oil than it once was. Canola oil is a modern version of rapeseed oil.

Lemon Oil: Lemon oil is a common household product. It is basically mineral oil with the addition of lemon scent. It should work fine as a bore oil. There may be no industry standard formulation for lemon oil meaning that one brand of lemon could be very different than another. The lemon scent may be annoying to some people.

Olive Oil: *Do Not Use Olive Oil!* When used as a bore oil, olive oil can turn rancid, encourage bacterial growth and decay and cause serious damage to the instrument. Despite claims that these bad habits can be controlled by adding certain chemicals olive oil has no beneficial aspects that are worth the risk. Use olive oil in your kitchen—not your bassoon.

“Bore Oil”: The problem with “bore oil” is that it isn't identified. That name can be used on any oil that can be used in a woodwind instrument without

identifying just what the bottle really contains. It is probably okay but how can you know for certain unless you know what it really is?

Applying oil

There are several approaches to applying bore oil to a bassoon, ranging from a light application to complete immersion of the body. In general, the more oil that is applied in a single event, the greater the likelihood of problems arising. Following heavy applications of oil, bleeding of oil from the wood can occur which may last for days, or even for years. It is usually more effective to give multiple light applications of oil over a period of months.

Immersion is the most radical method of oiling a bassoon body. The body, with the keys removed, is submerged in a tank of oil for a period of time. The immersion time frame could be anything from a few hours to weeks. The mess can be greater than the benefit. This procedure should be reserved for use as part of major repair procedures that involve the complete removal of all posts, bands and other hardware from the body of the instrument. In general, immersion oiling is not recommended.

A liberal swabbing is more practical in a repair situation when all of the keywork is off of the instrument. This can be messy, but with all of the keys removed the mess is easy to clean up. Be sure to remove all traces of unabsorbed oil. Also, wait a day or so for the oil to settle before reassembling the instrument.

A light swabbing is the simplest method of oiling a bassoon. A very small amount of oil on a woolly type push swab will apply the oil with only a small chance of getting oil on the pads. This procedure can be easily done by the player. Be sure to remove the u-tube so that the unlined side of the boot bore is fully accessible. Don't oil the wing bore or the lined side bore of the boot joint. This type of oiling can be repeated every couple of weeks if the response of the wood suggests that it is needed.

Recommended procedure

Slightly different procedures are suggested for players as opposed to repair technicians. This is based on two factors. A repair technician is likely to do this with all of the keys removed while a player is likely to prefer leaving the keys in place. A repair technician will only see an instrument infrequently while a player has essentially unlimited access to the instrument.

Light mineral oil is recommended. It is readily available, has low potential for causing trouble, can give the greatest benefit and provides a beneficial tonal contribution. In addition, it can be used on the

outside of the instrument to clean up the finish while simultaneously benefiting the performance of the instrument.

For a repair technician, first remove all of the keys and inspect the tone hole facings. If the facings are raw wood they should be scraped or sanded smooth and sealed with polyurethane. Apply the oil liberally to the unlined bores with a pull swab, push swab or with a rag on a rod such as a trombone cleaning rod. After a few hours wipe any unabsorbed oil from the bore surfaces. Also examine the tone holes and facings and remove any oil from those areas. Leave the instrument unassembled for a day or two before putting the keywork back in place. Premature reassembly may result in oily pads.

External applications of mineral can be beneficial. The light mineral oil is capable of entering the wood around the bases of posts and other hardware. By vigorously scrubbing the oil with a key cleaning brush the bases of posts can be clean and embedded dirt in the finish will be removed. This type of application will often seal body leaks than cannot otherwise be located. Be sure to clean up all of the oil before reassembling the instrument.

For a player, the oil can be applied using a woolly type push swab—the type that is useless for normal swabbing but is excellent for this purpose. The keys can be left in place but the u-tube will need to be removed from the bottom of the boot joint. Drip a small amount of oil onto the swab. Less than a teaspoon of oil distributed over the length of the swab should be more than sufficient. Too much oil on the swab can get the pads oily which will require their replacement. Simply swab the bell, bass and unlined boot joint bores with the oily swab. Be sure to remove the u-tube from the boot joint to get access to the most important area to be oiled. This procedure can be repeated every couple of weeks for a dry instrument. After several applications the need for oil will be less and the frequency of oiling can be reduced. For an instrument in good condition a couple times per year should be sufficient.

Getting into trouble

There are a couple ways that oiling a bassoon can damage the instrument.

The worst mistake that can be made is to use a drying oil, such as boiled linseed oil, and allow unabsorbed oil to remain on the interior surfaces of the instrument. It is absolutely essential as part of any oiling procedure that all traces of unabsorbed oil must be removed from the surfaces of the bore.

Boiled linseed oil is a fast drying oil that is a basic component of oil paints. Left exposed on any surface, it will quickly begin oxidizing and within a very

few hours become an insoluble coating, much like a coat of paint. This coating can destroy the critical dimensions in the bore of the bassoon potentially destroying the instrument.

There are only a couple of ways to remove dried linseed oil from bore surfaces and neither one of them is particularly practical. Paint remover will remove the coating. However, paint remover is very unfriendly to bassoons. The use of it is a very radical procedure which must include additional stages to restore the wood to proper condition. The other method of removing the coating is to ream it out of the bore. This can only be done by the maker as it is extremely unlikely that the correct reamers would exist any where else.

A relatively mild form of trouble can occur when oil gets on the pads. This can happen with any type of oil. If this occurs, the tone holes and pad seats should be cleaned and the pads replaced. Since the pads are normally replaceable anyway, this damage is more of a nuisance to be avoided than a disaster.

One additional problem can occur as a result of oiling. Different types of oils can change the tone of the instrument. In some cases this can go in an undesirable direction. This is more of a problem for sensitive performers than for students. For a school instrument the benefits of oiling will be much greater than the sensitivity of the players to any tonal change.

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