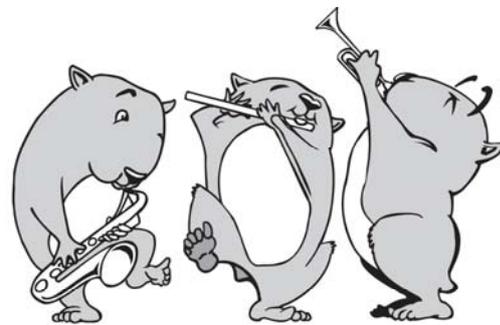


WOMBAT WOODWIND & BRASS



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GRENADILLA INSTRUMENT PREVENTATIVE MAINTENANCE

Martin Lukas

**A guide to maximising the life of your grenadilla clarinet, oboe, flute or piccolo
and extending the time between services.**

INTRODUCTION

The best maintenance is preventative maintenance. It costs nothing, makes the instrument more pleasant to play and avoids unnecessary trips to the repairer. The following golden rules serve as a guide to maximising the life of your grenadilla instrument and extending the time between services.

**Please note that this article is a companion to any one of the other Wombat Woodwind & Brass preventative maintenance articles for flute/piccolo, clarinet and oboe and should be used together with one of the other articles.

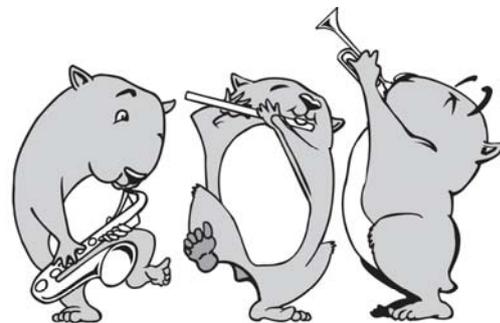
BACKGROUND

Grenadilla wood is hard, dense, very close grained and therefore able to be machined to extremely close tolerances. It is also a very stable and beautiful wood, making it the most popular choice for wooden clarinets, oboes, flutes and piccolos. Grenadilla wood is harvested and cut into "billets" and then left to settle and season prior to being manufactured into an instrument. Traditionally, the settling and seasoning period was 5-20 years. However, this relatively long period of time could not support the increasing demand and decreasing supply, so nowadays the wood is seasoned for as little as 6 months. As a result, there is very little wood available that has been naturally seasoned for the longer period of time. Consequently, new grenadilla instruments need more care and attention than ever before.

This guide is intended to

- give you an understanding of the main issues concerning grenadilla wood instruments
- provide recommendations based on current practices and research
- help you to take best care of your grenadilla wood instrument

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MOISTURE

Grenadilla wood is not as stable as plastic or metal. Like any wood, it absorbs and releases moisture. Grenadilla wood "breathes" and has dimensional changes as it gains and loses moisture. Moisture may be absorbed from the player's breath, condensation in the instrument tube or humidity in the general atmosphere. When an instrument is played its moisture content will rise and the wood will swell. When in storage, moisture levels will fall over a period of time and the wood will shrink.

A wooden instrument will perform most reliably when moisture levels remains constant. In an ideal world, a wooden instrument is stored and played year-round in the same atmospheric humidity, used for the same amount of time each day and dried thoroughly each day. This combined practice reduces the stress on wood.

A grenadilla instrument that is used and stored in consistent conditions will rarely experience problems. On the other hand, instruments that undergo large swings in moisture content will be stressed, potentially resulting in serious problems.

Variations in moisture content can be caused by the following

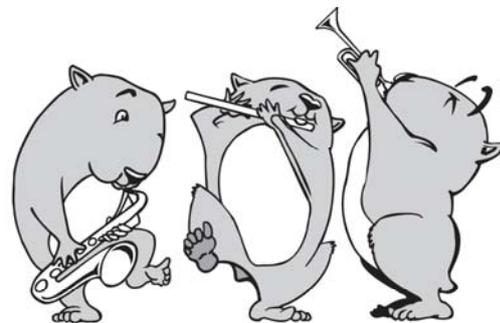
- relocation to an area with different atmospheric humidity e.g. moving from central Victoria to coastal Queensland;
- living in locations that have widely varying humidity, from season to season;
- an instrument remaining unplayed for long periods of time, then played heavily;
- storing an instrument in a centrally heated room with greatly reduced natural humidity;
- sudden bursts of practice before exams or concerts.

These variations can result in

- loose body posts and body rings;
- tenon joints that cannot be separated;
- tenon joints that no longer fit;
- cracks.

These comments about moisture content should not discourage people from playing or owning a grenadilla instrument, instead it is a matter of ensuring that grenadilla instruments are not subjected to extremes. With basic care and attention the player/owner of a grenadilla instrument can enjoy a predictable, reliable and fulfilling relationship with their instrument.

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TEMPERATURE

Grenadilla wood does not respond well to extreme or rapid changes in temperature. This applies to changes in both the internal and external temperature of an instrument. Playing a cold grenadilla instrument causes a sudden increase in the internal temperature of the instrument, while the external temperature of the instrument rises slowly. The increase in internal temperature causes a sudden expansion of the bore and places a great deal of pressure on the cooler external surface. The pressure caused by the difference in internal and external temperatures can cause the instrument to crack. The greater the swing in temperature, the more the wood is stressed, increasing the risk of the instrument cracking.

The following suggestions will help avoid sudden temperature changes

- Take time to warm up the outer surface of a cold instrument under your arms and with your hands before blowing into it, particularly the upper joint, head joint and clarinet barrel. This can take some time!
- Try to avoid playing in cold rooms, outside in the cold or in cold drafts. This sort of environment can cause a large temperature difference between the bore and the surface.
- If time is available, open the case and let a cold instrument sit in room temperature for some time to let it gently warm up before playing.
- Consider having a backup instrument for outdoor use.
- Store your instrument in its case at a comfortable room temperature, well away from air conditioners or heaters. Avoid leaving your instrument in a cold car overnight or a hot car during the day. A case cover provides the instrument with an extra layer of insulation.

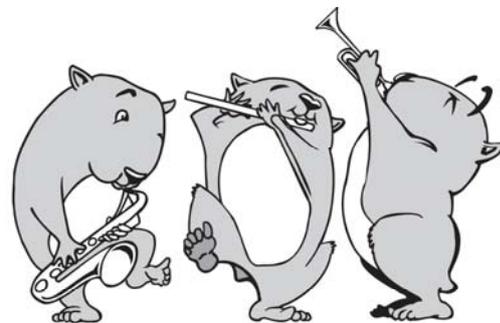
LOOSE BODY RINGS

If the body rings on your grenadilla instrument become loose, consider this an emergency and have the instrument repaired at once. Do not play the instrument until it is repaired! The joints supported by these rings are quite thin, so if left unattended, serious damage or cracking can occur.

DRYING

It is important to dry the inside of a grenadilla instrument with a swab after each time it is played. Drying the instrument prevents the wood from absorbing excessive moisture. By removing moisture from the bore, the life of the pads is also extended. Special care needs to be paid to drying the instrument sockets and tenons as moisture tends to collect there. Use a cloth or cotton bud to dry these particular areas. Excess moisture can cause the wood to swell and result in problems with joint fit.

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OILING

There are more myths and legends regarding oiling than with any other aspect of grenadilla instrument maintenance. Even reputable manufacturers do not agree, with some recommending that no oiling is necessary while others supply their instruments with “bore oil”. It seems that the jury is still out and has been for a couple of hundred years!

For new instruments, follow the manufacturer’s instructions so as not to void the guarantee. For everyday maintenance, I will cover the general consensus in the repair industry and let you decide.

Types of oils

There are two types of oil in general use;

- Petroleum based oils.

These are the “bore oils” most commonly sold in music stores and that are provided with some new instruments. Consensus amongst repairers seems to be that these may do some good and don’t do any harm. (Unless used to excess and seep onto pads)

- Organic oils.

These are usually one of sweet almond oil, light vegetable oil or olive oil with sweet almond oil being the most popular. Sweet almond oil is used as an emollient and sold by chemists. Consensus amongst repairers seems to be that these definitely do some good and don’t do any harm. (Unless used to excess and seep onto pads)

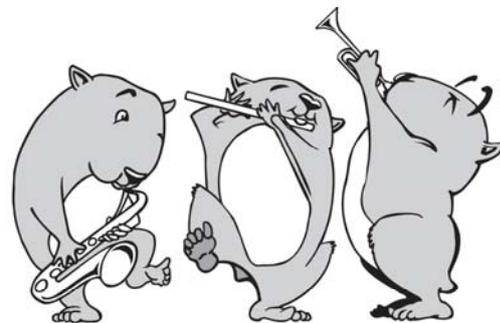
It is argued that petroleum oils are repelled by the moisture in grenadilla wood (petroleum oil and water do not mix) and only sit on the surface. There is no absorption but they can form some sort of barrier to reduce moisture absorption.

It is argued that organic oils have an affinity to water, (they come from plants that require water to live) bond to the surface and are absorbed by grenadilla wood. This makes the fibres of the wood more flexible and therefore able to cope better with the stresses of expansion and contraction.

Whichever oil you decide to use, the golden rule is not to use too much, as excess oil can damage the pads. All that is required is a few drops of oil on a swab, brush or feather, moved through the bore a dozen times to create a shiny finish.

For more information, you will find numerous articles by doing a web search for “organic bore oil” or “oil + grenadilla” etc.

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CRACKING

There is no guaranteed way of preventing your grenadilla instrument from developing cracks. However, you can reduce the chance of this occurring, by following the advice about moisture, temperature, drying and oiling.

Instruments can develop two types of cracks; surface cracks or cracks that extend into the bore.

Surface Cracks

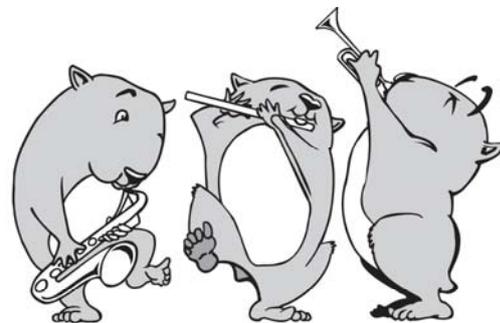
If an instrument develops a surface crack, then it should be taken to a repairer. The repairer will pin/bind and fill the crack. This process will prevent the crack from spreading. A professionally filled and pinned crack is almost undetectable. Some players even report that an instrument plays better after having a crack pinned and filled because inherent stresses in that area have been released.

The manufacture of quality instruments includes matching for good joint fit and the actual play testing of each instrument to ensure that all parts work well together. For this reason, it is often preferable to pin and fill a surface crack, rather than replace the entire joint; even if the manufacturer's guarantee offers this service.

Cracks that extend into the bore

If an instrument develops a crack that extends into the bore the joint needs to be replaced. If a replacement joint is not available then the crack can be pinned/bound and filled. However the results of such a repair cannot be guaranteed.

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PLAYING A NEW INSTRUMENT

When first playing a new instrument or one that has not been used for a while, it is important to raise the moisture content slowly and evenly to as to minimize the stress on the wood. A graded approach is required. Whilst there are many variations on this theme, almost everyone agrees on the following principals.

- WEEK 1 - A couple of 10 minute sessions per day followed by carefully drying the bore and sockets.
- WEEK 2 - A couple of 20 minute sessions per day followed by carefully drying the bore and sockets.
- WEEK 3 - A couple of 30 minute sessions per day followed by carefully drying the bore and sockets.
- WEEK 4 - A couple of 45 minute sessions per day followed by carefully drying the bore and sockets.
- WEEKS 4 to 8 - Extended periods of playing with frequent drying of the instrument.

Regular playing of a new instrument will cause the wood to expand slightly, therefore expect to make a trip to the repairer during the first 6 months for a tight fitting joint to be machined.

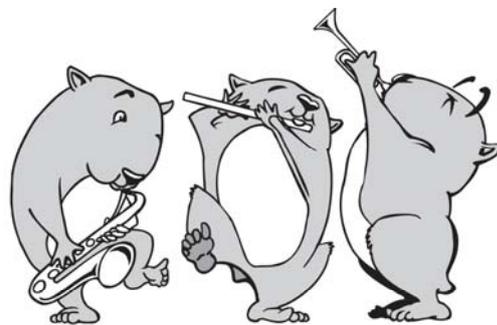
AUTHOR DETAILS

This article has been written by Martin Lukas, the proprietor of Wombat Woodwind and Brass. Wombat Woodwind and Brass provides a full range of woodwind and brass instrument sales and repair services to customers throughout Australia.

Martin holds formal qualifications in band instrument repair from WITCC Iowa USA, music performance and music education degrees from Melbourne University and has twenty years experience as an instrumental music teacher and high school band director. He also has many years of experience repairing instruments in both the USA and Australia.

This article reflects on Martin's accumulated experience as a qualified, experienced repairer and music teacher.

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TEN COMMANDMENTS OF GRENADILLA PREVENTATIVE MAINTENANCE

1. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY
2. DRY YOUR INSTRUMENT THOROUGHLY EVERY TIME, ESPECIALLY SOCKETS
3. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY
4. LOOSE BODY RINGS ARE AN EMERGENCY! DO NOT PLAY UNTIL THESE ARE REPAIRED
5. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY
6. IF OILING THE BORE, USE MINIMAL AMOUNTS & AVOID DRIBBLES ONTO PADS
7. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY
8. BREAK IN NEW INSTRUMENTS GRADUALLY
9. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY
10. AVOID SUDDEN CHANGES OF TEMPERATURE & HUMIDITY