Repair and Maintenance for Band Teachers

By Ewan Divitt
www.divitt-trumpets.com
ewandivitt@gmail.com

Regular maintenance can greatly extend the life of your instruments, and also reduce the cost of repairs when they do end up in the shop.

Renting vs Owning

Renting

- Maintenance is covered by the rental fee
- Instruments tend to be newer models
- Loaner or exchange may be available while the student's instrument is in for repairs
- Student's may not be able to afford to rent their own instrument.
- Rental contacts can be done individually or in bulk through the school/board.

School Owned Instruments

- Repairs and maintenance is the responsibility of teachers and students
- School or Board owned instruments tend to be older and often neglected
- More accessible for low income households who may not be able to afford a rental

Care and Maintenance of Brass Instruments

- The #1 cause of brass instrument problems is **DIRT.**
- Regular oiling and swabbing can increase the time between shop visits indefinitely
- The other causes of brass instrument problems are from **DAMAGE** and **DISTORTION**

Brass Tools and Supplies

Tools

Bobcat Mouthpiece Puller. Small Rawhide/Plastic/Leather Hammer (NOT METAL!!!!). Soft Jaw Pliers. Small Screwdriver. Mouthpiece Shank Arbour. Small wire cutter. Trombone rod

Supplies

Waterkey corks in 2-3 sizes. Waterkey Springs, Valve, Rotor & Slide Oil, Anhydrous Lanolin, Cork Glue, Cheesecloth

Common Brass Problems

Stuck Mouthpiece: 99% of stuck mouthpieces can be removed with the Bobcat puller. Light taps on the receiver with your small hammer can help shock the mouthpiece free. Never use pliers or try to twist the mouthpiece out.

Stuck Slides: Usually caused by dirt due to lack of lubrication and cleaning.
Light twisting action can often free a slide that won't move when pulled. Listen for a *Click* sound. Gentle tapping on outer slides may help. The mouthpiece arbour can help with trumpet valve slides. Never hammer on the inside of a slide crook.
Another method of stuck slide removal is to use a length of cord or a cloth wrapped twice around the crook. Once wrapped around the crook, a sharp tug on the cord or cloth in the direction the slide moves may be enough to free it. Be very mindful of the direction that you pull, because pulling the cord at an angle can cause more problems!

Stuck Valve Caps: Use your rawhide hammer to give a sharp tap to the cap at a 45° angle. This should shock most stuck caps free. Soft Jaw Pliers are also a big help for stuck caps.

No Air Goes through instrument or it sounds stuffy: Check that each valve is in the correct spot. Most trumpets have the valve numbers facing the player when inserted. Twist valves until you hear a click that they are sitting in the casing correctly. If it is still not working, check the valve guides to make sure they are installed correctly.

Valves make a scraping sound: Check that the springs are properly seated in the valve guide, or on the bottom cap. They should be in the middle of the place that they are in the valve and not rubbing against the wall of the valve or spring box.

Waterkey corks: Corks can deteriorate over time and may leak. They are easily replaceable. Remove old cork with a small screwdriver. Make sure there are no leftover pieces in the cup. Put a drop of cork glue on the cork and place it in the cup. If the cork is too thick, it will leak at the front of the waterkey hole. If it is too thin, it will leak at the back. Check the thickness before installing. Adjust the key so the cup is centred above the waterkey hole.

Waterkey Springs: It is often easier to replace a waterkey spring than try to reinstall the old one. Place the loops of the spring around each side of the hinge tube. The back of the spring goes on the underside of the waterkey lever. Squeeze the spring on the sides so it doesn't slip off of the waterkey and insert in to the waterkey saddle. Insert screw and add a drop of oil. Use wire cutters to trim the spring legs short enough so they don't poke a student's fingers when using the slide.

French Horn Strings: https://youtu.be/s6rcQaHBKrM The screw located on the rotor stop arm adjusts the height of the lever. Once the string is properly wrapped and screwed down, adjust the stop arm screw so all 3 levers are the same height and are not hitting the body of the horn when activated.

Broken or Loose Braces: If a brace comes loose, NEVER use super glue or contact cement. The fumes from heating the glue during removal at a repair shop are toxic, and also make the repair more time consuming (costly). Plastic zip ties that you use to tie cables together are a great way to clamp a part that doesn't damage the instrument and are very quick to remove. Tape also leaves sticky residue that takes a long time to remove.

Care and Maintenance of Woodwind Instruments

- Instruments in the woodwind family vary in layout and design, but are all operated by similar mechanisms and components.
- Playability issues are often the sum of many small leaks, rather than the one that is most obvious.
- A leak in an instrument will cause problems for every note below it.
- Pads and corks are considered consumables, and do not last forever. Over time, they shrink, dry out, and become brittle.
- Many woodwind springs are made from NEEDLES and will try to poke you every chance they get.

Woodwind Tools and Supplies

Tools

1 Long and 1 Short screwdriver, Spring hook, Parallel pliers, Thin Duckbill Pliers, Flute Cleaning Rod

Supplies

Cork Grease. Key Oil. Pad Paper/Rolling Paper. Paraffin Wax, Brown Contact Cement (the clear stuff doesn't dry quick enough), Microfiber cloth.

Common Woodwind Problems

Key doesn't come back up when pressed, or key is floppy: Check that the needle spring is properly seated in the spring cradle. Use your spring hook to reseat it if it has popped out. Common keys that springs pop out on are Flute trill keys & foot joint keys, Sax low C/Eb, G# lever and 8ve key, Clarinet bottom joint keys.
These springs get knocked out of their cradles because they are in areas used to hold the instrument while assembling them, or get caught on clothes.

Key Spring tension is too heavy or too light: The spring hook can be used to push or pull a needle spring to increase or decrease the spring tension. Some springs can't be unhooked from the cradle without disassembling the instrument. These springs can be 'massaged' with the spring hook near the post that the spring comes out of to adjust the tension.
Keys that are sprung shut when not touched, such as Flute trills, G# & Eb, Sax G#, Low C & C#, Clarinet high G# & Low Eb/Ab will leak if spring tension is too low. Many of these keys are operated by the pinky finger, so a balance must be found between keeping the key closed, and being usable without excess effort.

Bent Keys: Certain keys, such as Flute G# & Eb, Sax palm keys, bell keys & Low C, and Clarinet trill keys and Bridge key can bend easily due to their long levers or position on the instrument. If the bend isn't severe, and the pad doesn't have a double seat in it, the key can be careful pushed back in to position.
Isolate the bent area with one hand and use the other hand to gently push the key back in to position. Sometimes, Flute G# and Eb keys can develop a leak after adjusting the bent touchpiece. If this happens, it must be corrected by a repair technician.
Keys that are repeatably bent and straightened will eventually fatigue and snap.
To adjust the Clarinet Bridge Key, assemble the clarinet and adjust the angle of the key until the upper and lower joint bridge keys are parallel to each other where they connect. Press down the 3 ring key on the lower joint until the pad seals. With the other hand, press down the A/D Ring key on the upper joint. If the A/D Ring Key doesn't close all the way when the 3 Ring Key is pressed down, adjust the angle of the A/D Ring Key bridge until both keys close together.

Tool Suppliers

These suppliers all carry similar items and will sell to anyone.
Many of these tools, such as the rawhide hammer, spring hook, screw drivers, and pliers can be sourced locally through Amazon, or craft & jewellery supply stores.

- J.L. Smith https://www.jlsmithco.com/
- Ferree's Tools https://www.ferreestoolsinc.com/
- Music Medic https://www.musicmedic.com/
- Votaw Tools https://votawtool.com/