

Practical Instrument Repair: For Band Directors and Music Teachers

Presentation By:

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Who am I?

- Professional repair technician in Central Indiana for 11 years
- Just started Moment's Notice Repair
 - Mobile instrument repair service



Terminology

- **PC- Playing Condition**
 - instrument will be repaired to the point is playable. This playable condition will vary from shop to shop and technician to technician. A play test of each instrument is necessary.
 - This can include annual maintenance, dent work, or solder work as well.
- **Repad- applies only to woodwinds**
 - instrument is taken completely apart, all pads and cork/felts are replaced, springs replaced as needed. It is then reassembled, pads leveled, adjustments regulated, and play tested. Having a break-in period is completely plausible and most shops offer a warranty to tighten up adjustments after a certain period of time.
- **Chemical Clean(chem flush, chem bath)- applies to brass instruments**
 - Instrument should be taken completely apart(slides, valves, rotors,), all parts washed in soap and water, placed in a de-liming chemical, mechanically scrubbed inside and out, dried, reassembled with the correct or requested lubricant, and then play tested.

Tools

- Good Screwdriver
- Spring Hook
- Oil with Applicator
- Teflon Tape
- Leak Light
- Smooth Jaw Pliers
- Pad Slick
- Mallet (plastic or rawhide)
- Heat source
 - Small butane torch
 - Hot air gun



Prevention

- The number 1 thing that you and your students can do:
- **Clean out your case**- Loose items in cases can lead to dents in valve casings, dents and scratches, cause pinhole leaks in pad seats
- Make sure to always use the hardware that comes with your instrument: end plugs, key clamps on some clarinets, any kind of bracing or padding for brass instruments
- Warning- “If it sticks out, it will bend”

10 Second Checks

- As educators, we don't have time to look for every single problem
- Lets implement 10 second checks
 - Check to make sure everything looks "right"
 - lines are straight
 - Dents
 - keys moving and in the right place
 - "clicking" noises
 - check mouthpieces and reeds

10 sec Check - Flute

- ◉ Make sure there is nothing in the bore
- ◉ Check for binding or sluggish keys
- ◉ Check for frayed pads
- ◉ Check head cork position
- ◉ Check Tenon Fit
- ◉ Check to make sure all springs are in the correct position

Flute

- Flute:
 - **Issue**: Plays consistently out of tune
 - Check the head cork position. Use a cleaning rod from the flute case
 - The wrong position will cause the air column of the flute to have the wrong length



Flute

- “My Flute doesn’t play at all and it did yesterday”
- A common cause is a broken spring on a trill key
- For a temporary fix, until a tech can replace the spring, use a hair tie to correct the action of the key
 - In this case, to keep the key closed while the key is not being depressed

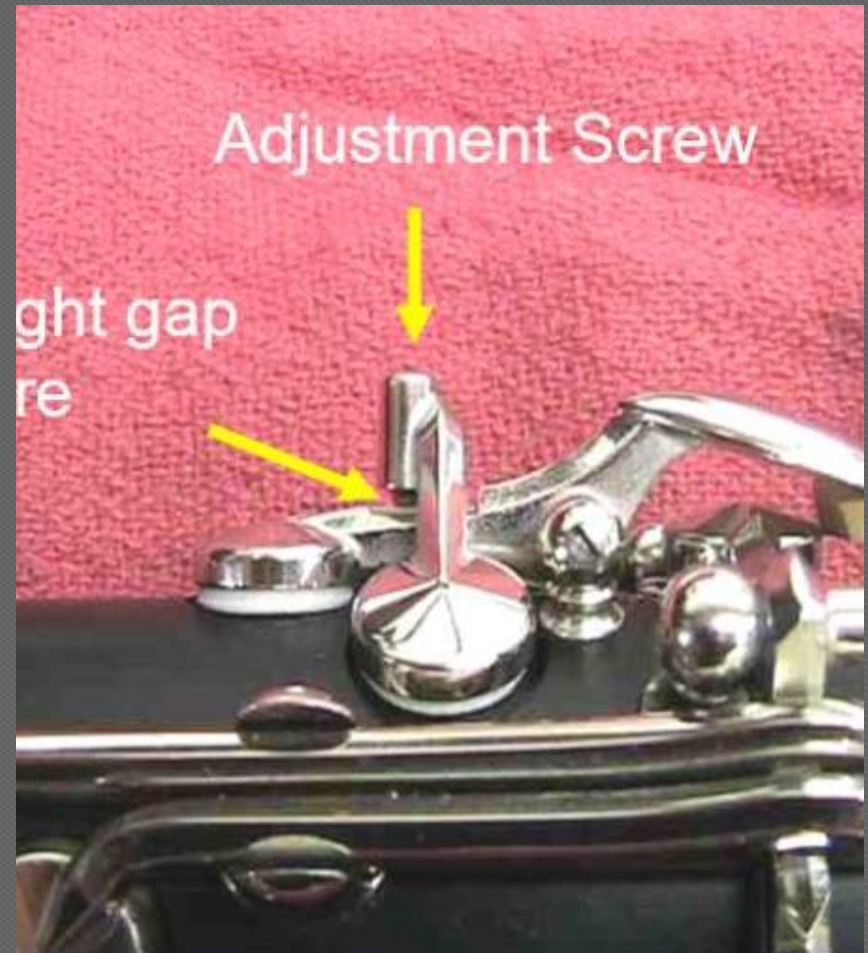


10 sec Check- Clarinet

- Make sure there's nothing in the bore
- Check A Key for lost motion
- Check for clicking noises, metal on metal
- Check keys for binding or sluggish action
- Check side keys are straight and working
- Check pad condition: look for missing skin, frayed pads, missing pads
- Check tenon corks and fit

Clarinet

- Clarinet will not play any note below throat tones
- Cause- The Ab adjustment screw is tightened too tight
- There should be a little “play” between the A and Ab key



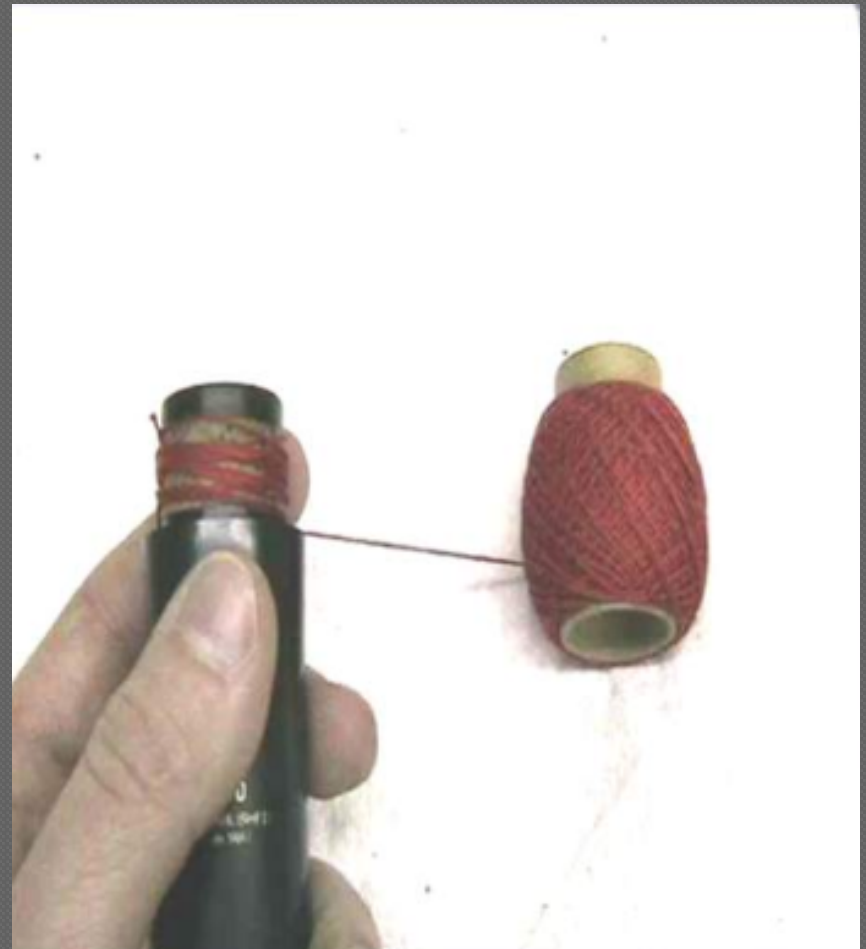
Clarinet

- ◉ 1 and 1 Bb sounds stuff or Lower joint notes do not play well
- ◉ Cause- The “Bridge key” adjustment is not correct.
 - Both the lower ring key on the UJ and the ring key on the LJ should close together



Clarinet

- Tenon cork is too loose or missing- Usually caused by too much cork grease
- You can build up the tenon cork with a few wrappings of teflon plumbers tape or thread
- Make sure to have joint properly replaced as this technique may cause damage body damage

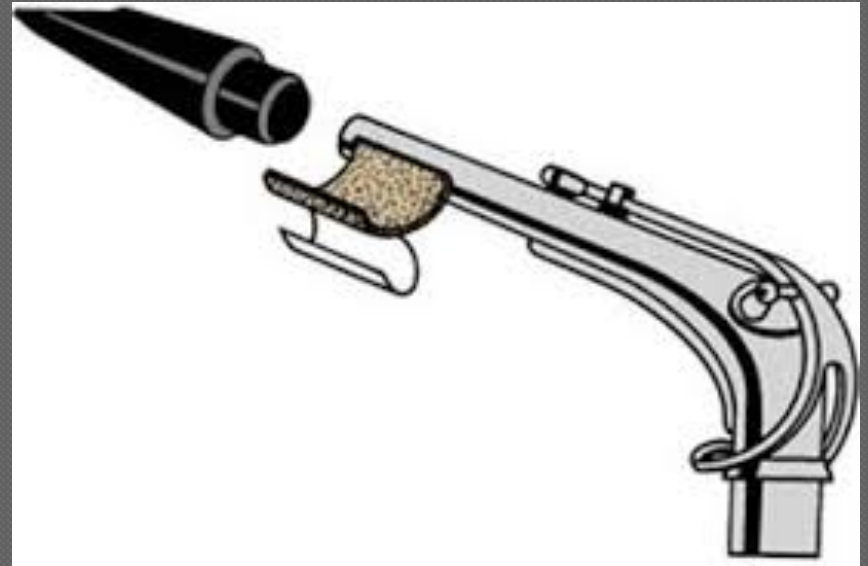


10 sec Check- Saxophone

- ◉ Make sure there is nothing in the bore:
body and neck
- ◉ Look for straightness of keys and guards
- ◉ Check keys for binding or sluggish
action
- ◉ Check lost motion on neck key
- ◉ Key palm keys for proper closing and
Eb key
- ◉ Check G# Adjustment

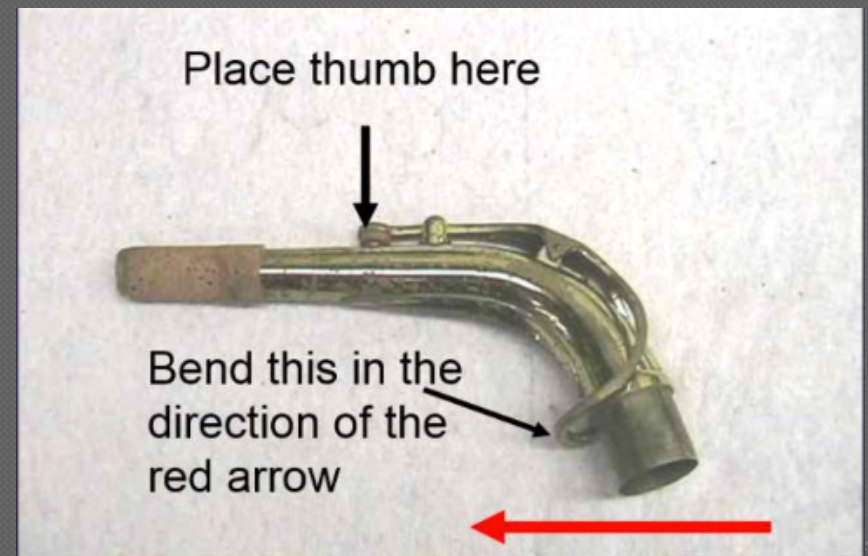
Saxophone

- Neck cork is too small or is coming apart
- Use paper to build up the cork in order to allow the mouthpiece to fit onto the neck properly.
- You can also use teflon tape if you need to build up a significant amount of cork
- Do have the cork replaced in order to avoid damaging the neck



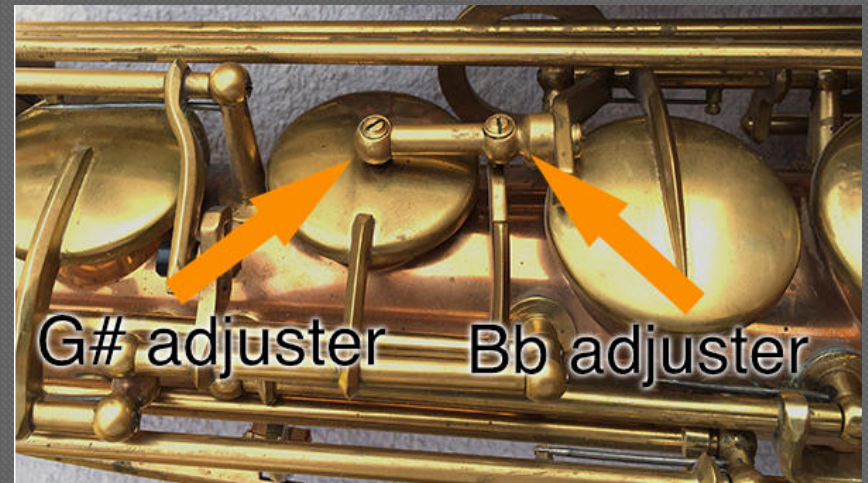
Saxophone

- The sax won't play the higher octave when the octave key is pressed or doesn't play at all
- Cause- Check the octave key. There should be a slight gap between the octave stem and the neck octave key yoke.



Saxophone

- Plays well to low C but low C#, B, and Bb don't respond well or do not play entirely
- Cause- Check the G# adjustment. Hold the F key down and actuate the G# lever. If you can hear or see the G# key move, it is out of adjustment and is causing the problem with the lower notes



Saxophone

- ◉ Sudden stop of function to the instrument entirely or to parts of the instrument
- ◉ Cause- Check to see if a rod or screw has worked themselves out of their proper placement.

Wooden Instrument Cracks

- Cracks happen- it's the nature of the instrument.
- Biggest reason- Extreme temperature change
- Also, trauma; being dropped, dropping case with instrument inside



- How to reduce the risk of a crack:
 - Always let a cold instrument warm up to room temp **SLOWLY**
 - Take special care to not cause body damage to the instrument.
 - If you must play a cold instrument, place the main bodies of the instrument under armpits to bring their temp up with warm, moist air

Recommended Tools and Supplies

- Mallet- Rawhide or nylon
- Super Glue- Gel
- Screwdrivers- Look for “Precision” sets
- Spring Hook- Homemade or Commercial
- Blade- Single edge razors or “Break-a-Blade”
- Teflon Plumber Tape
- Zip-Ties- 1 Foot length, a dozen or so
- Silly Putty
- Smooth Jawed Pliers- Homemade or Commercial
- Brass Mouthpiece truing tool
- Heat Source- Small torch, Soldering iron, etc.
- Assorted felts and corks
- Hair ties- Alternative to rubber bands
- Assorted oils and greases
- Nail file
- Paper clips
- Stick of hot glue

Tools Cont.

- These tools can be assembled from your local hardware store or online retailers
- You can also make most of the tools that may be expensive to purchase given you may not use them a lot.
- Online retailers:
 - Musicmedic.com
 - JLSmithco.com
 - Votawtools.com

More Resources/Information

- Books:
- Stuff Band Directors Need to Know: A Practical Repair Guide for Everyday Problems by Melody Choplin
 - Available on [amazon.com](https://www.amazon.com)
- Guide to Brass Musical Instrument Repair by Christopher Bluemel
- A Guide to Repair Woodwinds by Ronald Saska
- Youtube channel:
 - The United States Army Field Band
 - Playlists- Instrument Repair
- Talk to your local technicians
 - Most are more than willing to help through explanation of techniques and common practices.
 - Possibly invite them to talk with your students on proper maintenance of their instruments

Online Resources

- Facebook Groups
 - Hobbyist Instrument Repair
 - Professional Saxophone Repair
- Youtube
 - Musicmedic
 - The United State Army Field Band
 - Instrument Repair Series
 - Covers many other instruments
- “Guide for repairing woodwinds” -Ronald Saska
- “The Complete Woodwind Repair Manual”- Reg Thorp

Questions?

Thank You

- ◉ Thank you for allowing me to present to you today.
- ◉ Please feel free to reach out if I can be of any help to you or if you have additional questions
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