

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 10 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

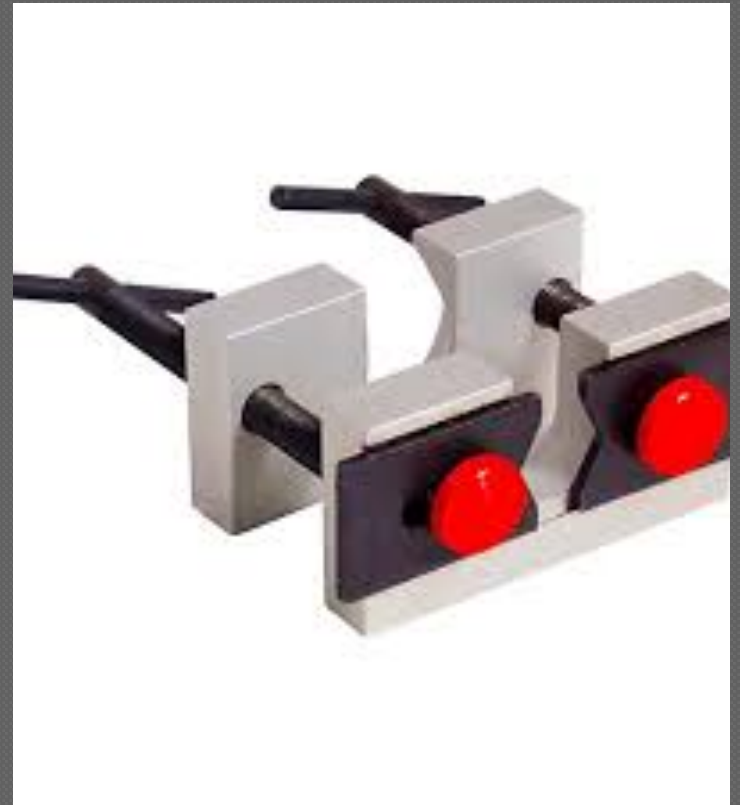
- As educators, we don't have time to look for every single problem
- Lets implement 10 second checks
 - Check to make sure everything looks "right"
 - lines are straight
 - Dents
 - keys moving and in the right place
 - "clicking" noises
 - check mouthpieces and reeds

Brass

- Brass instruments experience their own set of damages and maintenance that can be prevented as well.
- Always encourage your students to be lubricating their instruments properly and often
- Keep the kinds of oils used consistent
 - Don't mix petroleum and synthetic
 - They may react with each other and form a thick goo
- They need to be cleaned at least once a year to prevent internal growth and scale from forming

Stuck Mouthpieces

- If your mouthpiece becomes stuck, using the proper tools is essential to use the right tool(s) to remove it.
- Not doing so can cause damage such as broken solder joints, marring of the brass, bending leadpipes to the point they will need to be replaced, etc



Broken Solder Joints

- Solder joints is what keeps pieces of the instrument together
- If one becomes broken, it is best to have it repaired correctly
- However, if it'll take sometime to have it fixed, you can keep the instrument together with zip ties in order to prevent further damage due to the broken joint
- PLEASE, do not use duct tape or super glue. It does not help the situation and your tech may charging you more in order to clean up the mess left by the adhesive.



10 sec Check- Piston Valves

- ◉ Trumpets, Baritones, Euphoniums, marching brass
- ◉ Check to make sure nothing is in the bell
- ◉ Check that slides and valves move freely
- ◉ Check to make sure valves are in the correct order
- ◉ Check for broken solder joints or braces
- ◉ Check condition of water key cork

Valves

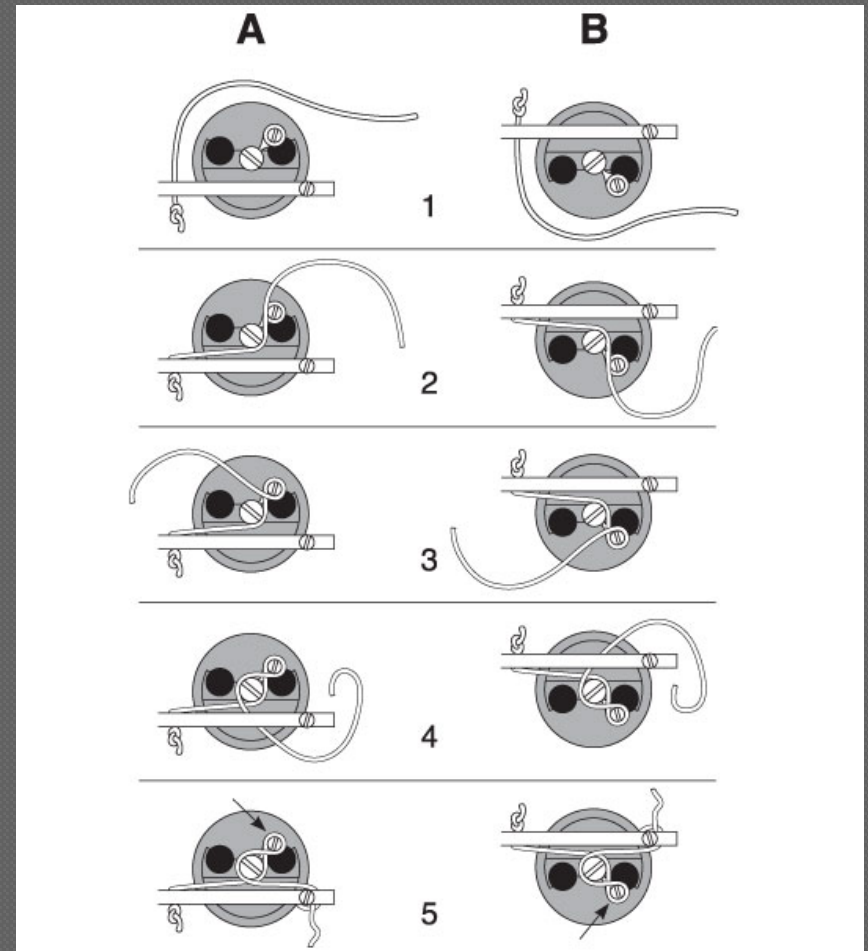
- Always inspect to make sure valves are in the correct order.
- Valve guides DO wear out. If the valve(s) are working intermittent, inspect the valve guide(s).
- Valve is frozen; Do not try to drive the valve by force. Will cause damage that cannot be corrected.
 - Instead, try oiling from both ends and let the instrument sit.
 - If it is still frozen, it is most likely due to damage to the valve or casing and must be trued by specially made tools. Sorry, this one may be out of your hands

Slides

- Slides can become frozen due to poor lubrication or damage.
- It's best to move all slides daily and keep them greased often
- To remove a stuck slide, first try using oil, penetrating oil, to try and break the corrosion
- use the rag trick; wrap a rag around the slide and tug firmly outward. If this does not work, wait. Put more oil in the slide and try again the next day. Sometimes, the oil needs time to seep down the slide tube and work.

Rotor Valves

- String be acquired from many music retailers
 - Yamaha sells yellow string in 3 meter sections
 - Practice on an instrument that isn't being used, it can be frustrating
 - Sometimes the know will pull through the hole; a helpful hint is to make a double knot on either ends. (A knot tied on top of the existing knot)



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
- 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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