

An Introduction To Piano Servicing

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Objectives

- To offer suggested guidelines for piano tuner-technicians:
 - To cut through the chase of multiple guidance being offered
 - To focus on the important job requirements
 - To enable best value-add to your customers
 - Suggested Do's and Don'ts!

Main Learning Categories

- Main topical areas which piano tuner-technicians must grasp:
 - 1) Tuning
 - A separate set of charts is available for “Learning Aural Piano Tuning” *
 - 2) General Guidance, with key principles
 - This set of charts
 - Fourteen topics. Many are similar to “Do’s and Don’ts”
 - 3) Voicing / Tone Regulation
 - A next set of charts
 - 4) Apprenticeship / bench work
 - A vast and very important topic
 - See a few comments on this topic later in this chart set

* On my Web site. <https://potomacpiano.com/tuning-articles>. “Learning Aural Piano Tuning”

Contents

- 1) Learn Tuning Pin Stability
- 2) Tuning Hammer Technique
- 3) Tune Ambidextrously
- 4) Muting and Unisons
- 5) Aural versus Electronic Tuning
- 6) Recognize Confusing Statements about Aural Tuning
- 7) Piano Technician Groups
- 8) Get Benchwork Experience
- 9) Learn the Value of Hearing Aids
- 10) Loose Tuning Pins
- 11) Humidity Control
- 12) Soundboard Cracks
- 13) Pitch Raise
- 14) Use of lanolin

(1) Learn Tuning Pin Stability

- Objective after tuning:
 - Stable pitch, even with loud playing
- Learn via practice to achieve:
 - Neutral pin twist
 - Neutral pin bend
 - String neutrality at friction (bearing) points
 - On a pitch rise: go sharp, ease flat
 - Opposite for pitch decrease
 - Factor in length of non-speaking length
 - The longer the length, the more change typically needed
- Strong key blows are NOT necessary
 - Save your hearing! You only have one set of ears
 - Learn the proper tuning hammer technique. Practice it

(2) Tuning Hammer Technique

- Slow movement only
 - Remember: pin blocks are made of wood. Wood fibers (like a cloth string) are more resilient under slow stress than with a fast “snap” or impact.
 - No impact tuning, no jerk tuning
 - Rare exceptions only for particular pins or sections of pins with explicit problems
- Be prepared to decrease tension first
 - If there is a hidden rust bond, string to bearing felt.
 - Initial “zing”
- No hard blows to the keys as you tune
 - Preserve your hearing
 - Potentially less risk of tinnitus or hearing loss
 - Stabilize and settle the tuning pins without hard blows

(3) Tune Ambidextrously

- Tune grands right-handed
 - Except for the upper section
 - Tune uprights left-handed
- Angle the tuning hammer such that you are never compressing the pin block while raising pitch
 - Regardless of whether the manufacturer uses bushing sleeves or not
 - Avoids shortening the life of the pin block
 - Avoids unnecessary additional compression of the wood
- The combination of tuning ambidextrously + avoiding impact tuning:
 - There should be no significant degradation of pin tightness in the pin block of a quality piano after 40 years of tuning!
- The phrase that “time is money,” is NOT appropriate here
 - Slow + ambidextrous is worth money to your customer, not the speed of the tuning
- You too can learn to tune ambidextrously.
 - Even if you are right-handed (or left-handed) for everything else
 - Just decide that you will learn to do it

(4) Muting and Unisons

- First tune only one string per note
- Traditional strip muting works fine
 - For a grand piano
 - I use a strip mute for the temperament octave only, and rubber mutes beyond
 - For an upright
 - I strip mute all multi-string notes except for just above the treble break
- For grands I tune note-to-note unisons as I progress beyond the temperament octave
 - Traditional “Triple-String Unison” approach works fine
 - 1) Tune one string;
 - 2) Tune second string to the first string;
 - 3) Tune third string to the second string
 - On uprights, tune the third string to the first and second strings together

(5) Aural vs Electronic Tuning – 1 of 2

- Both approaches achieve good accuracy
 - Electronic Tuning Apps are a little quicker to learn
- Consider using aural tuning
 - Tune with your ears, not your eyes
 - You will tune unisons aurally anyway
 - Keeps your ears trained
 - Including for tuning evaluation purposes as well as voicing
- Aural tuning is “enjoyable and exciting”*
- See my separate presentation on Learning Aural Piano Tuning**

* Ben Gac. Steinway Technical Trainer

** On my Web site. <https://potomacpiano.com/tuning-articles>. “Learning Aural Piano Tuning”

(5) Aural vs Electronic Tuning – 2 of 2

- Aural tuning works well based on the principles followed throughout the twentieth century
 - Such as the John Travis approach that I use and teach
 - John was the first co-president of the PTG in 1957
 - NO need to stress out on
 - Learning music theory
 - 10ths, 12ths, 17ths, 22nds, etc etc
 - Enharmonics. Such as A## versus B
 - Understanding music chords
 - Diminished 7ths, dominant 7ths, etc.
 - Keep it simple and powerful
 - Equal temperament
 - Mathematical. Physics of music.
 - Utilize native piano-based inharmonicity
 - While maintaining the necessary octaves, double-octaves, etc.
 - Lots of current proposed aural tuning “refinements”
 - Subtle differences / new complexities / adjustments for inharmonicity / new tests / etc.
 - Each refinement touted as superior to others
 - Suggestion: simplicity is distinguishable as the best approach!
- Keep with the proven quality backed by tradition
 - Rachmaninoff, Hoffman, Rubinstein, Horowitz, Hess, etc

(6) Recognize Confusing Statements About Aural Tuning

- Different messages are currently being propagated for Equal Temperament
 - By different individuals and schools
- An objective evaluation of new (21st century) proposals and claims would help avoid confusion
 - Perhaps form an investigative commission?
 - Examples of new / differing thoughts (that I urge caution with!):
 - Tune by fifths, not octaves
 - Always tune two-strings at a time
 - A tuning fork cannot be used in setting A4 via a 5:2 (10th) interval from F2
 - Octaves need stretching beyond the piano's natural inharmonicity
 - Use of pure 12^{ths}, 19ths, and/or 22nds in tuning
 - Never test with octaves and double-octaves
 - Piano tuners have a requirement to understand music theory
- But there is agreement on certain fundamentals
 - Among those who tune conventionally
 - Per piano industry standards for over 100 years
 - Progression of intervals like M3, M6, m3, P4, P5, etc

(7) Piano Technician Groups

- Consider association with groups of other tuners
- A couple good formal technician groups are:
 - Master Piano Technicians of America (MPT)
 - Piano Technician Guild
- Look for acceptance based on the quality of your work
 - Regardless of whether you tune aurally or with an ETD
- Options include joining / following several excellent online Piano Tuner list servers
 - Best opportunity, besides with direct apprenticing, for learning benchwork
- Look for apprenticeship work in your community

(8) Get Benchwork Experience

- Best approach: apprenticeship
 - And schools / academies
- Piano Technician Listservers. Examples:
 - Master Piano Technicians of America Facebook group
 - <https://www.facebook.com/groups/masterpianotechs/>
 - Facebook's Piano Tuner's group
 - <https://www.facebook.com/groups/pianotunersgroup/>
 - Piano Technicians Guild
 - <https://my.ptg.org/communities/community-home/digestviewer>
- Lots of good YouTube and other sources available online
 - Regulation example:
 - <https://www.youtube.com/watch?v=pHKdPNCa4aA>
 - Tone regulation example:
 - <https://www.youtube.com/watch?v=NrORPqRzSN0>

(9) Learn the Value of Hearing Aids

- No longer always necessary to switch to use of Electronic Tuning Devices (ETDs) if your hearing degrades with age
- Great progress in hearing aid technology in the past several years
 - Computer-based (in your ears) and wireless
 - Bluetooth for control and for optional audio to/from the hearing aids
 - A control app on your phone to adjust
 - Gain, frequency response, filtering, noise reduction, etc
- Potential for normal, or better than normal, hearing*
 - Enhanced capabilities
 - Ability to real-time adapt to problem situations like
 - Background filtering for noisy environments
 - Temporary gain or frequency adjustment for unique piano issues

* Ensure that any noise suppression and frequency compression are appropriately remote controllable

* Ensure that safe limits for loudness are not exceeded in your control of the hearing aids

(10) Loose Tuning Pins

- Move up one size only
 - Achieves adequate tightness
 - Avoids a wedge effect on the pin block / wrest plank
 - Extends its life
 - Minimize impact on neighboring pins
- Screw the old pin out
 - First remove and preserve the old becket / coil
- New tuning pin
 - Use the best quality pins
 - With threads cut
 - Including after any nickel plating
 - Screw the new pin in
 - Estimate the height
 - To include the coil and re-tightening
 - Do not drive it in
 - If you feel you must drive it in, be sure to first brace the underside of the pin block in grands

(11) Humidity Control

- Humidity control is very important for musical instruments like pianos
- Humidity gauges are a desirable home device
 - Inexpensive and accurate digital versions (with memory) are readily available
 - For less than \$15
- In order of preference:
 - (1) Whole home units are most preferred
 - Very common in colder areas like DC
 - Forced hot air humidifier systems use flowing water
 - (2) Room humidifiers are next best
 - Cost range \$50 to \$150
 - If no air conditioning for the Summer:
 - Might want to include a piano dehumidifier rod & controller
 - (3) Piano specific humidifier/dehumidifier aftermarket systems are last choice
 - Regular maintenance when piano is tuned
 - Check for corrosion, particularly with hard water
 - Be sure to first disconnect the electricity before any maintenance
 - Advise customers on regular use of anti-bacterial agents and electrical additives in the water
 - Advise on potential health issues from standing water or mold, such as Legionnaires Disease
 - Be careful (health-wise) in handling the old pads when replacing them

(12) Soundboard Cracks

- Important to control the range of humidity and temperature of a piano
- Soundboard cracks need to be repaired when soundboard bonding to the ribs is compromised / threatened
 - Glue joint to ribs broken near the crack
 - Protect the integrity of the downbearing at the bridges
 - Protect the crown of the soundboard
- Simplest repair approach appears to be the most desirable & effective
 - Screws to re-bond the soundboard to ribs
 - Example: #5 x 1" or #5 x 1 1/4" round-head screws
 - Tools: drill, starter bits and pass bits
 - Long drill bits sometimes required
 - Apply screws from soundboard side
 - Or from rib side if soundboard side is not accessible
 - Optional: inclusion of glue
 - Lifetime of bond found to be good / indefinite
 - At the least, more than 30 – 40 years
- Rapid, inexpensive, and important repair

(13) Pitch Raise

- Very common situation
 - You are asked to tune a piano quite low in pitch
 - Been neglected over many years
- Various options for the tuner, including
 - Double tuning
 - Use an ETD set for a pitch raise
 - Set it to estimate the amount to over-tune
- My preference: do a “normal” tuning to proper pitch
 - Exception for drop-action spinets
 - Advise the customer ahead of time on the impact
 - Quality of this first tuning will suffer
 - Will need tuning again within 2 to 6 months
 - Piano will need several weeks to adjust to the new tension
 - Continual decrease in pitch
 - Explain that other customers have been pleased with the result
 - And that the next tuning will be better quality and will hold better
 - Make the follow-up tuning appointment

(14) Use of Lanolin

for Reducing String Bearing Friction

- Problem: piano strings can break when tension is increased
 - Friction points can be an issue
 - Particularly including under-string corrosion (rust) at the string bearing felt on the front side of the agraffes
 - In some cases, must first release the tension when tuning
 - Wait for the loud “zing” before re-tightening
- Lanolin rubbed into the string bearing felt
 - A permanent fix that I occasionally use
 - Stops the wicking of moisture
 - Restore original friction pattern
 - 100% pure lanolin
 - A natural product of wool
 - Rub it into the felt by hand
 - Give it a few weeks to continue to work its way into the bearing felt under the strings
 - You may not notice any immediate effect
 - No risk, unlike with a liquid, of the lubricant traveling to the pins
 - When applied to bearing felt
 - Available at pharmacies
 - A grease / wax / wool-fat form in a jar
 - Yes, lanolin is very sticky/messy on your fingers!
 - But you will eventually get it off!

Summary

- Presented a core set of principles for piano tuners-technicians
- Questions, suggestions, and discussions are welcome
- Happy to arrange a Zoom session

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