

# An Introduction To Piano Servicing

Norman Brickman, MPT

March, 2021

# 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
  - Learn the proper touch. 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 (21<sup>st</sup> 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<sup>ths</sup>, 19ths, and 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
  - 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 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 indefinite
    - At 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 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
  - 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 points
  - 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

# An Introduction to Piano Servicing

Norman Brickman, MPT  
Potomac, Maryland

<https://potomacpiano.com>  
potomacpiano@verizon.net