Voicing Without Needles

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Why voice? If customer asks, find out what sound they like or don't like. Pick one or two notes they don't like and show them how you can improve. If they don't's ask, but you think tone can be better, ask if they're happy with tone, suggest it can be improved at zero to minimal extra cost.

You know piano could sound better, but hard to sell expensive 2-4 hour job of filing hammers and needling. What if you could make much better in 10-20 minutes at minimal cost? Or include with usual tuning charge. It's smart in the long run to see your job as not just "tunint" but "servicing" the piano, spend part of the time they're paying for to make minor adjustments, repairs, improve touch or tone. It will repay you in their loyalty, recommendations, enhanced reputation, job satisfaction and self-esteem.

Voicing means improving tone, by any means. Donts immediately think jabbing needles or jicing lwith lacquer. Instead, think why doesn't this piano sound as good as it could and what's the best, fastest & cheapest way to improve it?

Re-shaping and needling hammers are important skills to have and use, but you can make big improvement without these. Some bad sounds cannot be fixed by hammer work because not caused by hammers. Learn to diagnose different sounds and how to deal with them.

Before doing anything, check everything: tuning, acoustics, regulation, and friction all effect tone.

Tuning. A slightly mistuned unison, octave, 5^{th} 4^{th} can make the whole piano sound bad. Make sure it's well-tuned before trying other voicing techniques.

Acoustics. Voicing can be as simple as changing acoustics – rug under piano, rubber caster cups, drapes, string cover, change location or angle of piano or other furniture.

Regulation. Parts alignment, blow distance, dip, let-off, jack position and other specs; too much or too little can have dramatic effect on tone.

Friction. Correct & lubricate: Tight or loose action centers, key bushings, balance rail holes. Remove the grand stack, turn it upside down and lubricate all the whippen cushions.

Poor tone on individual keys can be diagnosed by the sound. You can learn to hear the difference and immediately know how to fix. Five commonly heard unpleasant sounds:

1. **Whine:** unisons not clean. Solution: carefully tune unison.
2. **Zing:** unison strings not level, or hammer not level. The strings are not all at the same height. Three strings not struck at the same time so vibrations are out of phase. Solution: level strings and/or mate hammer to strings, because the hammer pushes the strings up. On a grand, pull up the two low strings. On an upright, move the high strings backbecause the hammer pushes the strings back. Wire has a memory. To find out the string level, don't push the jack against the knuckle the jack compresses the knuckle and leaves a permanent mark. Using a string hook will tilt the hammer, so it is not truly straight up. Instead, pull out the action, lift all the hammers

and lay a long wide felt over the whippens. Lay the hammers back down & replace the action. Now by pressing the keys the hammers will contact the string. Raise the string by using a wire hook that is attached to a handle rod. Don not change the chape of the string. If you use a T-hook, lift & slide the hook away from the agraffe. Always bring the string up and then lightly massage it. Check every wire from 1 to 88 to make sure all the strings are level.

3. **Wah-wah:** sounds like #1 but can't be eliminated by tuning so is false beat. Solution: isolate which string(s) have false beat, "shock" the string to slow or eliminate the beat by lightly tapping the string as close to the V-bar or agraffe as possible with a shaped brass rod.
4. **Blah-blah:** Weak, unfocused tone. Solution: seat strings on bridge. Find the curve of the wire by the bridge pin and lightly tap the brass tool with the palm of the hand to eliminate the curve that occurred due to age. Retune the drop in pitch.
5. **Screech!** Sounds like breaking glass. Solution: sand stick on hammer surface, or do "angel shots" (see PTG Journal, December 2011 & January 2012).

After-Touch
Set between 1-2mm.

Jack Position
Adjust the jack under the knuckle so that it clears freely.
Any time the jack is moved, re-level the hammer and adjust the whippen height to the jack.
If the jack is too far away from the knuckle
Feel the friction and brushing of the jack.
Set also the back-check and the whippen spring.

Hammer shape
Another technique for voicing without needles is to change the hammer shape. There are three hammer shapes found on most pianos:

Pear: mix of high and low partials. Older Yamaha and Asian pianos. A weak, unfocused tone on a piano with pear-shaped hammers can be greatly improved by reshaping by reshaping in diamond form. This makes a spinet sound like a grand.
Diamond: brings out high partials: brighter tone. American Steinway. An overly-bright, loud piano with diamond-shaped hammers can be given a fuller, rounder tone by reshaping to pear style. This makes an old Yamaha sound like a Steinway. When giving hammers a diamond shape, location of "points" on shoulders give different results. High shoulder give faster effect. Low shoulder gives clearer tone. Forming the diamond shape cuts off layers that connected the strike point to the shoulders. This allows for very soft pianissimo playing, without losing the ability to play fortissimo.
Egg: brings out low partials. Bechstein and other European pianos.

Hammer shape is chosen by manufacturers to bring out best tone for their design, but is not always the right choice. Old pianos with worn hammers can be improved by restoring or changing shape of hammers. When putting new hammers on a piano, choice of shape can restore original tone or change to preferred tone. Changing the shape of a hammer will significantly change the tone.

The closer the felt gets to the molding, the harder the hammer gets.

Note: If you file a lot of material from hammers, regulation is changed and must be corrected.

Angel Shots

Use a chopstick voicer through the strings – a much quicker way to voice and test. Often one shot can change the tone enough. The needle should angle from the strike point towards the outside. Trying to push the needle straight in is harder and will damage the hammer. Place the needle 1/3. You can feel that the needle goes in easily.

Ask the owner how soft they want the sound. Make three samples, but don't tell which one is 1mm, 2mm or 3mm; ask which the owner prefers. The needle touches the felt and you can feel it stop; then count from there how far you go. How hard is the hammer, and what level of tone does the customer want. Place the needle three times, once on each groove. Push from the key side with the needle going back to the damper side. The sound should be thick and not big.

Uprights are easier to work on than grands. On uprights or grands it's always the side of the hammer farthest from the tuning pins that we needle. The strike point is the point of power to lift the string high so it can sing; therefore we needle from the side so as to preserve the strength in the tip of the hammer.