

"ARE YOU REALLY ON THE LEVEL"
String Leveling and Related Issues
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Most frequently asked questions:

Do you need to level the piano?

The level of the grand piano needs to be determined prior to starting. I use the stretcher as a bench mark to give me the level of the piano. If the bubble is in between the lines and to the left, I use the left side of the line as my new mark. If the piano needs to be leveled as well to use the tool, place blocking under one leg. Old houses with settled floors can present problems.

What tools are needed?

The tools that I use besides the level are #313 string leveling hook and #315 seating rod. Of the two, I use the rod to seat the back scale and the hook for working the front where the level is used. Both tools have a groove at the tip to keep the (brass) tool from slipping off the wire. When used to push or rub the wire down I use the handle for all my tools #400. Both the rod and hook can be used inside the action cavity to push the string up. I mention this as there are several models of pianos that have a shelf that does not allow one to work the string close to the termination point. The closer one can work to the termination point the less likely there will be issues with false strings.

Which string do I move?

Starting out I would suggest leveling the bass bi-chords first. This will give you a better idea of what to expect when leveling the tri-chord unison. When leveling the tri-chord I first look to see if the center string is too high. This will show in two ways. The level may rock back and forth, or the the tool may stay tipped to one side with the other side ringing open when plucked. As it is harder to push a string down and we also want to reduce the curl at the termination points, I lift the outside strings until they are level and the center string is slightly low to them, then gradually lift the center string until all block when plucked (dampers are blocked up at pedal safety hook).

How often do strings need to be leveled?

The answer to this will depend a lot on how much you need to work the wire (how far it was changed) and humidity changes the piano is subjected to, pitch raises or lowering, what the piano is being used for (home use, concert, studio recording etc.). In any event, once leveled the following work should be much reduced. I have become used to hearing a unison that is not level, and you may, too.

How long does it last?

See above information on pitch raises or lowering.

Do you level uprights?

Only if there is a shifting action of which there are so very few. However, any upright will sound much better with seating of strings and mating of hammers to strings.

LEVELING PROCEDURE

New pianos

1. Check all plate screws.
2. Tune to pitch.
3. Tap or seat all hitch pins, back and front bridge pins. If the general pitch level of the piano has fallen over 15cents, retune.
4. Seat all tuning pin coils and gently lift or seat strings at upper (i.e., agraff) bearing points. * Avoid lifting near the strike point. *If needed, milk the string.
5. Retune. Older Pianos (5 years +) Steps one and two above.
6. Tap or seat all strings at bridge pins.
7. Check tuning pin coils to see if they are stable, as some older pianos will need some work in this area as well.
8. Retune, if needed.
9. Remove action and level strike point. Reshape hammers if needed and prevoice.
10. Level strings:
"Mother's" level is used by placing the foot of the level on the unison in front of the dampers, if possible, or in back, but as close to the strike point as possible.(90% to the unison). If doing a damper job, level the strings with the dampers removed. Blocking the dampers up with a rubber mute wedge saves the back. You are trying to get the same ping sound against the foot of the level on each string of the unison.
11. Replace the action into the piano and check hammer alignment.
12. Remove the action and tighten all flange screws.
13. Place a 1/8" felt strip between knuckles and jacks and carefully put the action back into the piano.** (This step will only work if letoff is fairly close, so you might have to set letoff as well.)
14. Lightly push down on the key stick and block the hammers one at a time to the string. While holding the hammer softly against the string, pluck each string. The hammer should mute all strings of the unison. If there are strings that are not being muted by the hammer, felt must be removed from the strike point of the string that is being muted, until all strings mute equally. Use soft chalk to mark the key stick, a short mark for just a little and a long mark for much felt to be removed.
15. Remove action and file strike point using the chalk mark guide. "Mother" also has a special tool designed for quick mating of hammer and string.
16. You should be done mating hammers to level strings. But!
17. Check the piano in shift, usually no changes are needed except at the tenor/treble strut, where the level cannot be used. 18. Remove all chalk marks with a damp rag.

Mother Goose String Level

The foot of this tool is the most important part of the tool.

If dented, it will give false readings of the bubble as well as change the sound of the foot sounding against the string.

Always keep this tool in a protective case.

If damaged the foot can be repaired using 320 grit sandpaper on a pane of glass, and drawing the foot across the paper, checking often the reflection of the foot and the level of the bubble when turned 90% to itself. The goal is to get the bubble within the lines and centered as much as possible. If the bubble is between the lines the level will be correct to + or - .003 over 1/2".

Always use the level with the window facing you. This will insure that your readings with the bubble will be consistent.