

# TECHNICAL BULLETIN

## • Pitch Raising

Your piano, just like every piano, is designed to sound its best when tuned to A-440 (the A above middle C vibrates at 440 cycles per second), the international pitch standard. It has been designed to perform at a specific tension, and when strings stretch beyond, or drop below this tension, pitch adjustments are required to bring it back to A-440. It's important to remember that maintaining your piano at standard pitch allows you to play along with other instruments which are all designed to this same standard. Through neglect, pianos may deviate from this standard, making them unsuitable to play with other instruments and causing them to lose market value. In addition, lower pitched instruments can compromise the pianist's ear training.

It's important to note that pianos do not go flat or sharp uniformly. Some strings will invariably change more than others.

### ***If I haven't had my piano tuned regularly, how can I get it back in good playing condition?***

After years of regular use, your piano may have fallen silent when the family member who studied music moved away from home. Though your home is no longer filled with music, it's important to remember your piano is still a living, breathing thing. Its wood continues to expand and contract with seasonal changes in temperature and humidity, and the string tension also fluctuates accordingly. If your piano has gone without tuning for an extended period, its pitch may have dropped far below the pitch at which it was designed to perform. It may require a procedure technicians call a "pitch raise."

### ***Why has my piano become out of tune?***

Changes take place because your piano's overall pitch is dependent upon changes in the relative humidity. In some temperate regions of the country, the relative humidity increases in the summer resulting in a higher moisture content in the soundboard and a higher string tension (pitch). In the winter, when heating systems dry the air, the soundboard loses moisture and contracts, causing the pitch to drop. The drop in the winter tends to exceed the rise in the summer, so the net result is a drop in pitch each year that the piano isn't serviced. In some parts of the country where the cold season is exceptionally long, the annual drop can be considerable. In other parts, mild winters combined with dry summers cause the cycle to be reversed. You can, however, greatly increase the stability of your piano's pitch by maintaining a relatively consistent humidity level in the room.

### ***Why is a pitch raise necessary?***

When the tension of each string on a piano is raised back up to pitch, the additional load on the piano's structure causes the pitch of previously adjusted strings to change. The only way to achieve a fine, accurate tuning on a piano is to have the tension of all the strings so close to their proper place that altering the tension of one string would not affect the others. Therefore, a piano must already be fairly close to standard pitch in order to be finely tuned.

### ***Wouldn't it be easier to just tune the piano to the lower pitch?***

Tuning to anything other than the international standard of A-440 is seldom appropriate. If a very old piano has been allowed to remain appreciably below pitch for a long time, some strings may break if the piano is restored to A-440. Your technician will advise you as to whether repeated tunings will correct the problem, or if the piano should be completely restrung or rebuilt.

If a piano has dropped in pitch, the drop will not be even. The middle (tenor) section of the piano usually drops most along with the high treble section. The bass section tends to drop least. Consequently, a piano that is tuned to a pitch that is below the international pitch standard would have to have significant adjustments made to the tension of every string, resulting in an unstable tuning. It's much more reliable to bring the piano up to standard pitch and then to proceed with fine tuning.

### ***How far from the standard pitch must a piano be before a pitch raise is necessary?***

Pianos that have been subjected to severe changes in humidity routinely need pitch raises before a fine tuning can be achieved. For example, if A-440 has drifted only two cycles per second to A-438, a separate pitch raise is advisable. Most recreational musicians would want to have their pianos tuned before the pitch drops that far. Even if you aren't bothered by a slightly out-of-tune piano, it's best to tune the piano on a regular basis to avoid tuning instability and the extra cost of a pitch raising procedure.

Like your car, your piano is a major investment which deserves to be protected by regular servicing, which can head off preventable problems in the future. But most importantly, your piano will sound its best and give you and your family the most pleasure when it is tuned regularly and kept in proper playing condition.