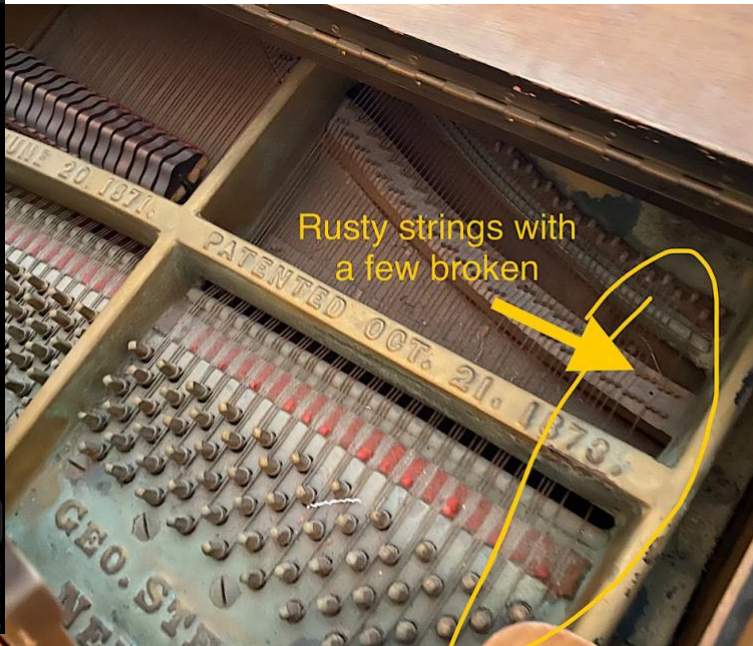


# What is a *Pitch Raise* and How Does It Work?



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What is a *pitch raise* and why would my piano need one? How does it work? I've had a number of clients in my career so far that own pianos which required a certain repair called a "pitch raise". After our discussion from the beginning of the year pertaining to the history of musical pitch and how standards were set, describing a pitch raise and what is involved seemed like the next logical step.

A pitch raise is quite strenuous to a piano because it is a major change in string tension, forcing the piano to adapt to a much greater amount of string tension in a short time. It is not the same as a fine tuning of the piano and is messy in terms of tuning quality because its goal is to get the strings near to the appropriate tension, not to make the piano sound good. On average, pianos hold around 40,000 lbs of string

tension when in tune at standard pitch A440Hz, and can only be fine tuned when the current sounding pitches are close to the expected standard. A dramatic change in string tension causes instability in the string and it will need to be tuned again for it to be at pitch and stable.

The first pitch raise a piano receives is right after the strings have been installed. The strings are installed somewhat slack and must be tightened to a tension close to standard, usually a little higher to allow the new metal strings to stretch slightly. New strings stretch about 3/8 of an inch after installation meaning multiple tunings are required for stability. This first pitch raise is referred to as "chipping" because a pick of some sort is used to pluck the strings instead of the action being used. Chipping is done at the factory or rebuilding shop.



Once the new piano strings have been tuned a number of times to get them to tension and stable, it is possible that the piano will never require a pitch raise again if it is properly maintained, meaning at least two tunings a year for the life of the strings. If the piano is not tuned, the soundboard will shrink with age and flatten out, putting less pressure on the strings, making them go slack, and causing the pitch to go flat. The soundboard will do this anyway, but tuning the piano adapts the pitch and tuning to the aging of the instrument. If the strings are allowed to slacken over many years of not being tuned, the pitch will go flat. At this point, a pitch raise will be required to get the strings up to the appropriate

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tension before the piano can be fine tuned for musical use. In raising the string tension, the pitch will also rise, bringing the piano closer to the tuning standards upon which the instrument was designed and built. Maintaining the piano at a pitch it was not designed for may cause problems if the tension is much farther off from what the piano was manufactured to hold.

Needing a pitch raise is to be avoided if at all possible. A piano that has not been tuned for a long while will not be as stable when tuned as a piano that is tuned more often, and one cannot expect immediate stability from a dramatic pitch raise as the piano will require time to adapt and settle. Pianos needing a pitch raise often have older, tarnished or even rusty strings. Being that piano strings are made from high tensile strength steel wire, they are very durable and will last decades under normal conditions, but like most things, will become brittle over time. Older piano strings are not nearly as stretchy and flexible as new piano wire. When adding a lot of new tension to an old, brittle, rusty string that has been lying dormant for years, there is a good possibility that the string will break. Besides a string missing, a broken string replaced with new wire in a piano of old wire will sound different than the old wire before it broke. There are ways to help prevent old strings from breaking, but sometimes the string is just ready to be done. When many strings break during a pitch raise, it is a clear sign that the piano needs new strings and the process starts all over again.

Keep your piano tuned so it never needs a pitch raise.