



Hiram lives in Cleveland, Ohio and works as a Steinway concert piano technician with the recognized licenses issued by Steinway for tuning concert piano for world-class piano masters.



*Hiram Abi Elshaddai*

Senior Concert Piano Technician  
Steinway- The World-Class Piano Company

# 王晓光

世界一流钢琴公司 Steinway

音乐会高级钢琴技师



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Rebuilding, Regulation, Voicing, Tuning**



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With the famous pianist Lang Lang





Hiram's family

As a Steinway senior concert piano tuner, Hiram works and lives in Cleveland Ohio. His double certificates were awarded by Steinway Company specifically for tuning pianos for world-class concert pianists. The tone of the piano tuned by Hiram is known for its extremely pure and sweet quality. Hiram not only does tuning but also performs tasks of Regulation, Voicing and Rebuilding (old piano refurbishment).

作为一个Steinway 音乐会高级调音师，Hiram工作并生活在Ohio州Cleveland。获有双份Steinway公司颁发的专为世界级一流钢琴大师音乐会调琴的认可执照。所谓之琴以极为清纯悦耳著称。 Hiram不但调琴，也作Regulation, Voicing 和 Rebuilding（旧钢琴翻新）。



Before rebuild.



After rebuild

This is a 1926 Steinway 9-foot concert piano. Hiram rebuilt it in his own workshop and completely renovated it into a new piano.

这是一台 Steinway 公司 1926 年生产的 9 尺音乐会琴。Hiram 在自己的工作间，将其完全翻修成一台新琴。



The piano sounds very melodious and the touch of keys are very nimble after rebuild. It fully complies with the standard of a concert piano.

翻新后的琴声优美悦耳，触键灵活敏捷。完全符合音乐会标准。



Daily works in the Steinway Company  
在公司里的日常调琴工作

## Q&A 问与答

Q: Why does a piano require tuning annually?

问：钢琴为什么要每年调音？

A:

There are two large seasonal variations every year. Piano pitch is maintained by the tension of the strings. Among the factors impacting tension changes, seasonal variation is the major one followed by the amount of play. Tuning piano regularly is just like changing the oil in the car. An oil change is relatively inexpensive, but the negative result of not changing the oil can be costly.



答：

因为一年有冷热两次大的季节变化。钢琴的音准是靠琴弦的拉力维持的，季节变化是影响拉力改变的主要因素，其次才是弹奏的多寡。按时调琴就像按时给汽车换机油一样，换机油所需花费并不大，但长时间不换机油所产生的负面代价却大的多。

**Q: How should the piano be best placed?**

问：钢琴怎么摆放最好？

A:

The piano should stay away from factors of instability. Three things should be avoided in placing a piano: 1. too close to the window; 2. too close to the heating source; 3. too close to the external wall. These are the causes for instability. If the situation is such that the piano can only be placed close to the external wall, the east wall is better than the west wall and north wall is better than south wall. Leave a space of at least 6 inches from the wall.

答：

要远离不稳定因素。钢琴摆放的位置有三忌：一，忌靠窗太近。二，忌靠暖气太近。三，忌靠外墙。这些都是让钢琴不稳定的因素。如果您家情况只能靠外墙，无内墙可靠，那也是东墙比西墙好，北墙比南墙好。而且离墙至少要半尺远。

**Q: What temperature and humidity are best for a piano?**

问：多少温度和湿度对钢琴最好？

A:

The temperature and humidity with which people feel most comfortable are also the best for the piano. The wood cells are similar to human cells. The trick is to maintain a

constant environment. Do not allow environmental conditions change too much in short time. The most favorable environment for a piano is that of the art museum. To prevent the paintings from fading, the museum spend a great deal of effort to keep the temperature and humidity stable. But in the general household it is not easy to do that. You just try your best. Do not be too worried about it. Piano is more tolerant than baby. Data shows that the temperature range of 68°F - 73°F and humidity 42% - 47% are the preferred piano environment. Small ups and downs are acceptable, but big changes in a short time are not good for the piano. The humidity affects the piano more than the temperature. Too dry a condition could cause the soundboard to crack. On the other hand, the strings and other metal materials could rust if too wet.

答：

让人感觉最舒适的温度与湿度对钢琴也最好。人体由细胞构成，造钢琴的木材也是细胞结构，所以是相似的。其关键是保持恒定，不要在短时间内大起大落。钢琴最喜欢的环境是像美术博物馆里的那个环境，为保持古画不褪色，博物馆要花费大量的成本，以保持温度和湿度稳定。但一般家庭里不易做到那样，你只要尽力而为就行，也不要太过于担心，钢琴比小婴儿还是要强壮许多的。有资料显示，温度 F68° 至 F73°，湿度 42%至 47% 是钢琴最喜欢的。上下小幅度的差异变化它还是能忍耐的，短时间内的剧烈变化对琴不好。湿度比温度更容易影响钢琴的稳定性。太干，木质音版容易开裂。太湿，琴弦等金属材料容易生锈。

**Q: Can installing the piano moisturizing system keep the piano in tune?**

**问：你认为给钢琴装保湿系统能帮助钢琴不跑音吗？**



A:

Moisturizing system refers to a special device including an electric heater and a water box mounted inside the piano. This system can regulate the humidity, but still cannot offset the outside environmental impact on piano. If you can use the air conditioning system, heating system, dehumidifier and humidifier to control the room environment, installing the moisturizing device is irrelevant.

答:

保湿系统。指的是在钢琴里装一个特殊装置，一个电热管和一个水盒。这系统能起一定调节湿度作用，但还是比不上大环境对钢琴的影响大。如果您能做到利用空调系统，供暖系统，除湿机和增湿机等对大环境进行控制，装不装钢琴里的保湿设备我个人认为都不重要。

Q: Why do my piano keys sometimes stick? Can tuning solve this problem?

问：为什么我的琴键有时会黏住不起来？调音是否会解决这个问题？

A:

The key sticking is caused by the wood swelling due to moisture. To correct this situation requires special repair procedures. Tuning itself involves the strings to solve the tone problems. Sometimes moisture changes will un-stick the keys. The best approach is for you to jot down which keys stick and let me know. I will be able to do the repair work while tuning. Repair costs are usually not included in the cost of tuning.

答:

琴键黏住不起来是湿气使键木膨胀所导致的。这需要特殊

的修理程序，调音本身只是调节琴弦张力解决音准问题。有时随着湿气的改变黏键会不治自愈，但您还是应在问题发生时用纸笔记录下来是哪个键黏住不起，告诉我，好趁调音时一同修理。通常修理费用并不包括在调音费用之内。

## Regulating and Voicing a Piano

### 钢琴的整调和音色调整

Regulating a piano refers to making the proper alignment of all the action parts, in such a way that the instrument can give its top performance. The action of a grand piano has more than five thousand parts, and many of those parts consist of wood and felt. Both wood and felt are subject to variables such as temperature and humidity.

The regulating is to makes all the moving parts in the action have to move freely, and yet have to be firm, without any side play.

The Steinway Accelerated Action is one of your piano's patented features. It is the most sensitive and responsive action yet devised for the piano. In order to keep it as responsive as it was designed to be, it will from time to time require the attention of a professional piano technician. In normal use the action of your piano will eventually depart from the evenness which was established when it was originally regulated in factory. The need for regulation is to a certain extent a function of the use which the piano gets.



A piano which gets normal home use will probably need regulation every 2 to 3 years. Keep in mind that the action of a concert grand is regulated as a matter of routine before every performance.

钢琴整调指的是钢琴击弦机所有零部件的线性定位校准，通过这一步骤可使该乐器的性能达到最佳状态。三角钢琴的击弦机有超过 5000 个以上的零部件，其中许多部件是由木材和毛毡构成的。它们极易受温度和湿度的影响而变化。

整调就是使击弦机所有零部件都可以稳定而自由的运作，彼此间没有任何不良干扰。

施坦威钢琴的专利特性之一是它的加速击弦机。这一击弦机的设计，使你的钢琴有最敏感敏捷的反应能力。为保证这琴击弦机能按设计正常运作，它会不时需要一个专业钢琴技师的关注和照顾。你的琴在正常使用的情况下，会渐渐失去它在工厂时所得到的整调基准。整调的需要度一定程度上取决于击弦机使用的强度和基准偏离的程度。

通常一台正常使用的钢琴根据它的磨损度可能每 2 至 3 年会需要作一次整调。常规的大型音乐会，整调是每次演出前的例行之事。

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Let us say now that we have regulated a piano very well, and it is also in tune, then we can talk about “voicing” or “tone regulating.” “Tone building” is such a sensitive area that the technician has to be a good musician, with good hearing, to be able to work on it.

Some pianists prefer “bright” voicing while other prefers a mellower sound. Regardless of its original voicing, every piano will acquire a somewhat brighter tone with time, because the hammer felts will be compacted as they are thrown repeatedly against the strings.

Therefore, depending on your taste and the amount of use your piano gets, it ought to be voiced when your ear tells you the time has come. Experience has taught us that a piano which receives normal use in the home will need to be voiced every 2 or 3 years.

In the voicing process the resilience of the hammer felts is adjusted with special tools and then all notes are balanced so that the tone is uniform throughout the keyboard. This is obviously a job which demands special skills and should be attempted only by a professional piano technician.

Regulation and Voicing are jobs for a specialist. They are usually done at the same time.

钢琴的整调作好了，音律也调准了，就可以来谈谈音色调整的问题了。音色调整是一个非常敏感的领域，这一工作技术需要钢琴技师有一个优秀的音乐家的素质，要具有良好的听力才能胜任这一工作。

有些钢琴家喜欢“亮”一点的音色，而有的却更喜欢圆润一点的声音。无论其原有的音色如何，每架钢琴都会在使用过程中，随着时间的推移，音色会越来越亮。因为锤毡会因敲击而被压缩，变得紧凑。

何时需要音色调整取决于您的口味和您的钢琴使用情况，让您的耳朵来告诉您何时需要音色调整吧。经验告诉我们，在家里正常使用的钢琴，大约每 2 或 3 年需要音色调整一次。

在音色调整过程中，技师要用专用工具来调整锤毡的弹性，要使整个钢琴键盘的音色都达到均衡统一。这显然是一份需要特殊技能的工作，只能由专业的钢琴技师来完成。

整调与音色调整是专业技术性很高的工作，通常应由有资格的技师来完成。一般这两项工作是要合在一起作的。因为好的音色与击弦机能否高效运作密切相关。

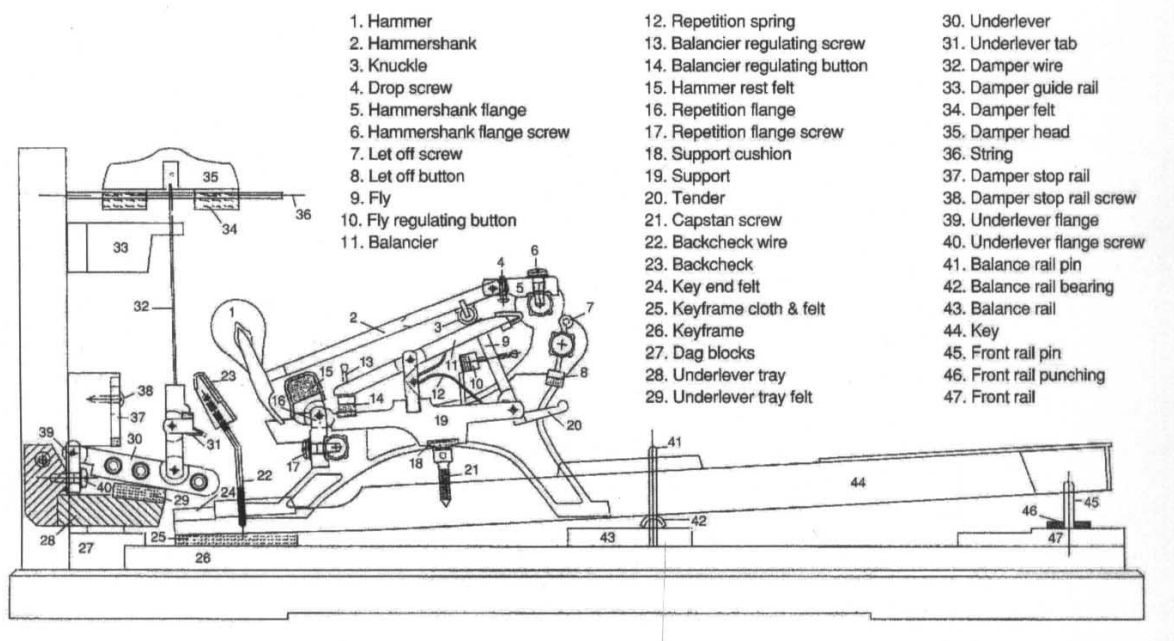






This is a key of Steinway grand piano's action.

这是一台 Steinway 三角钢琴的击弦机的一个键。



Each key has 47 points needing regulation. A piano has 88 keys and a total of 4,136 points to be worked on.

一个键有 47 个点需要整调，一架琴有 88 个键，加起来就是 4136 个工作点。