



88 ON PITCH | PIANO TUNING & REPAIR

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How A Grand Action Works

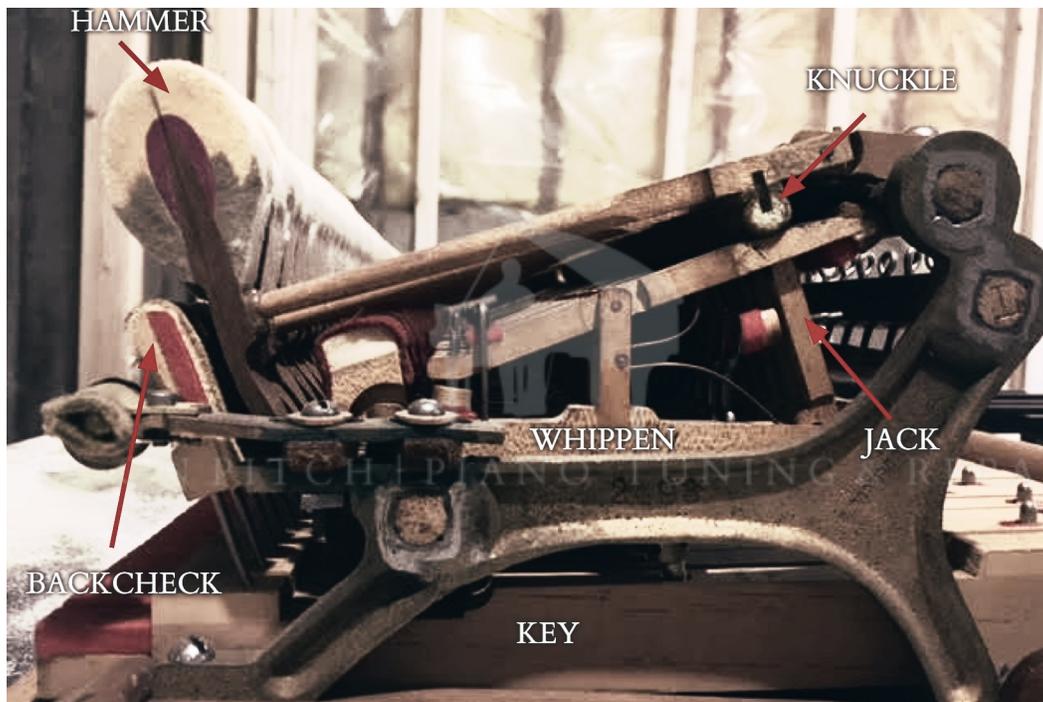


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When a key is pressed, the back end of the key lifts and engages a "V" shaped wooden part, comprised of about 50 other parts, called the "whippen". The hammer rests on top of the whippen. As the whippen rises, the hammer rises. During this time, the "jack" is moving up, pushing the "knuckle" up. As the whippen, knuckle, and hammer rise, when the hammer is about 1/8" from the string, it should drop away from the string (on a very, soft keystroke) and go into "check", meaning the wooden tail portion of the hammer is caught by the "bachcheck". It goes into check because the "jack" is escaping (the jack IS the escapement on a piano) from underneath the knuckle and the force of the hammer rebounding from the string causes the check.

If you were to play the key hard with a *mf-fff* blow, rather than the hammer dropping away from

the string and going into check, it would accelerate upwards and strike the string on its own inertia.

During all of this, about 1/2 way through a keystroke (as the front of the key is moving downward from a pianist's finger) a single damper is lifting off the string. The function of a damper is to engage a string when a key is not used to block it from vibrating. When a key is pressed, the damper rises so the string can sound.

With a hammer in check, the pianist is still holding the key down. A slight release (finger is lifted fractionally but still in contact with the key), the hammer should ever so slightly rise, allowing the jack to return underneath the knuckle. This even taking place is what allows the repetition on a well adjusted piano to outplay most all vertical (spinnet, console, studio, upright) piano.

What Regulation Does For A Piano

A complete action regulation allows me to change the height of the keys (for increased leverage), set the depth each key travels downward, change when the jack escapes, adjust the height of the checking position, correct the damper timing, adjust the pedals, recondition all parts, and square / align all 5,000 parts in the piano's action. There are 88 keys with approximately 50 parts per key sitting directly over each.

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