Servicing the Steinway Key Frame

Glen Bingham & Daniel DiBiasio, Steinway
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Glenn
In 2014, Glenn was chief technician for Spirio, and now works for Steinway. On the west coast there are Steinway stores in Seattle, Portland, and Los Angeles, selling Steinway, Boston, and Essex. All these stores are employees of Steinway, and the contractors are technicians. Steinway has been working on many changes, so the newer models have a new sostenuto, new exterior, and new materials. The improvements have seemed slow, but there has been constant improvement. The goal to unify the look of the NY & Hamburg models. Only 9% of NY grands are high gloss. In 2014, Steinway introduced Spirio an electronic piano with 100's of hours of music. Now Spirio also comes in a recorded model. Currently, 50% of Steinway sales are Spirio. Steinways also shifted from lacquer to high gloss. A small amount of sales are verticals. The market for verticals has shifted on the factory showroom.

Daniel, president of the NY chapter of PTG.
After his training, Daniel's first task was to regulate a piano. While the task looked easy because the piano was already quite accurately regulated, Daniel did not know that the instructor had altered the bedding of the keyframe. The key bed is crowned, and the key frame is a reverse crown, held down by the cheek blocks. Changing the bedding can change adjustments, so it is wise to check the bedding before starting to adjust anything else.

The first thing Daniel does is to put on a apron. In his apron is a dip block. First, he samples the dip of all the C's. He takes out a pen and writes comments on paper as to which keys are deep or shallow.

Then he removes the fall board and the key slip, making it easier and quicker to fix anything he might notice while tuning. The best way to remove the fallboard is to lift the key lid and rest it on the sharps, making sure the cheek blocks don't fall on the floor. While lifting the fallboard, slide the fallboard to the left and remove the right cheek block. Then slide it to the right and remove the left cheek block.

The cheek blocks have several functions. If the action is pressed completely back into the dags, the action will be too far back.

- The cheek blocks position the action correctly.
- When the cheek blocks are tightened, they put downward pressure on the key frame. The crown of the key bed in the middle is about 1/32".
- The cheek blocks act as a hinge for the fallboard.

The Hamburg key block (cheek block) is heavily engineered and has several adjustments that can be accessed from the outside of the piano. All new factory pianos have a new style key block adjuster. There are feet on the adjuster, a dimple to hold it in place, and a conical screw that presses the adjustment plate down. The downward pressure can be adjusted, but the key block must be removed to reset the plate manually. The treble block has a fore and aft adjustment, which is accessible from the front screw. This adjustment is not on the bass block, because the difference in tone is not as sensitive.

Before tuning, check that the keyframe is bedded. Also, adjust the key block settings. Some people carry dedicated tools for adjusting the blocks instead of just a tuning hammer. It is easier to use a low-profile tool to adjust the glides. With this tool there is room to tap on top of it.

Let's assume that the key bed is way out of adjustment. In the factory, the key bed is set with the glides floating. For the first step, we want to make sure that all the glides are floating. This gives us a good sense as to where the glides are. We want to hear a distinct knock from each individual glide. Start at the end in the bass, tap and listen to the knocking. Tuck your elbow under the rest plank and use the angle of your arm to tap on top of the tool, which is an old Hale tip welded onto a piece of steel. Another tool is a motorcycle spokes wrench, and Schaff makes a tool with a square slot, or you can make your own.

If you're not sure if it knocks, press down on the neighbor and listen. Sometimes one glide will support another glide. Don't be satisfied until you are sure that there is a distinct knock from each glide. Let's say you turn and turn, and you still don't hear a knock. If it is so high that it is not making contact, one way to determine if it is too high is to press down on the top of the glide with two fingers; if the hammer line moves, that means it is too high.

A quick way to test for bedding is to rest the hand lightly on the tops of some keys in the bass, without pressing the keys down, and lightly tap on the center notes. You should feel a little bouncing. The energy from the pianist is going into this energy sink and not into the piano's performance. Most likely the glides are too high. Yes, you could turn all the glides down and put the action in and say you're done, but this is not proper bedding.

Now that all the glides are floating, re-install the key blocks. There is a nylon washer on each key block screw to keep it in position when the block is removed. Daniel uses a flat-head screwdriver that fits into a tuning hammer tip. Tap along the front edge of the key frame by sliding a dowel along the ledge and tapping on top of the dowel. Turn the screw on the key block up and down until the knocking is gone.

If the key block is turned down too tightly, removed the key block and turn the conical screw to re-set the plate. Put the block back in and tap along the key frame with one hand while turning the adjustment screw on the block until it is quiet. The screws should be snug but not overly tight.

Now that the blocks are adjusted downwards, adjust fore-and-aft. This is good voicing practice. With the key block out, move the action in and out while playing note 88 until the tone is pure. Pull with one finger on the pin and push with the thumb on the frame. When the block goes back in, it should fall into place. Especially with the old style, the adjustments wear out. An easy way to place the block in is to press the unicorda pedal and it will drop in. In the old style there is a knife blade that wears out and was adjusted with a paper shim.

Now it is time to turn the glides down. One can use any sequence from one through six, but it helps to develop a system. Start with the bass and the treble because they are more supported than the middle. This gives us a foundation for the remainder, so that we are not influencing the other glides. We want them all independently and simultaneously dead. Turn the treble glide until the knocking stops. Because the ends are difficult to tap on, use a damper hook to transfer the tap onto the glide. Using the dog-like shape of the tool enables holding the handle more vertically. Otherwise, tap with your fingers.

First, know that all the glides are floating. Start with the bass and the treble. Turn the glides until they stop knocking. To test, turn them back up until they slightly knock again, and then set them so they are quiet. Now go to number two through number five. Turn them just to the point where they stop knocking. Go back and double-check the ends and they should still be quiet.

What happens when the pianist uses the pedals? The key bed is flexed downward by the weight of the pianist's foot. With this in mind, place the left foot on the sostenuto pedal and the right foot on the sustain pedal; press both feet down and you should hear a knock. With both feet on the pedals, turn the glides down until the knocks are gone.

Another thing to be careful of is pressing too hard on the pedals and flexing the key bed too much. When the pedals are released, the knocks on the ends will appear. If the adjustments were made with the pedals pressed too hard, turn the glides in the center back up again while tapping.

A well-bedded keyframe has three distinct requirements:

1. No knocks
2. Lifting the action by holding the hammer flange rail in the center should produce a knock
3.

If the key dip is shallow, that means the key bed frame was too low. By screwing down the glides we are essentially raising the balance rail. Thank yourself that you checked the key dip before ever doing anything. With a shallow dip, there is no after-touch. The Steinway key level is crowned 1/32" to mirror the concavity of the key bed.

The back rail is flat: the key bed and the key frame are both flat at the back, and are gently held down by the dags. When pulling out an action, never pull the action from the glides. Place fingers on the key-stop rail, or from the keyframe edges, making sure not to push down any keys. With the action out, take a moment to wipe, brush, or vacuum the key bed.

On the new Steinway actions, the let-off eyelet tools have gotten larger, so the ratcheting wrench no longer fits. Use the flat two-ended hex tool. Steinway purchased Renner last year, and in that process, New York Steinway is using the same parts as Hamburg Steinway, except for hammers. The shanks, bushings, flanges, jacks, etc. are Renner. New York started making the repetition levers black rather than green. Steinway wants to remain distinct, so the primary distinction is that the New York and the Hamburg hammers are different. All other parts are becoming more uniform. New York grands have a sostenuto on the action instead of the belly rail, so different tools are needed. Add 3/8" to your ½"and 7/16" wrenches, and Allen wrenches: 4 mm and 3.5mm.

On the sostenuto rod, there are two nuts that act as collars, threaded on both the outside and the inside. The outside nut makes the collar that makes the two pieces into one piece. In order to get the solid piece of brass with a blade attached to it, the part needs to be in two pieces. Don't try to adjust the nut or you will damage the sostenuto. It is a very long nut. A ½" wrench fits on it, but don't use it. On the top there is another nut. The monkey is no longer necessary. Now it is connected to a rod in a ball joint at the other end of the trapp work. It pushes up, and as it is pushed up, the blade is rotated. By elongating or shortening the rod, the angle of the blade can be adjusted. A nut is fused to the rod; this is the adjustment nut, and there is a lock nut on top.

To adjust the pedal, block the back of the pedal up with a shim, and slide a block of felt at the top. Make a pencil mark on the felt, rub the felt to see the spot, and shave off felt to make it fit. For soundboards, New York uses spruce, and Hamburg uses sugar pine. Hamburg plates are now being made in Ohio. The Hamburg style will start appearing on New York pianos because the company believes it is a better engineered system. As this production phases out, certain old parts might become rare.