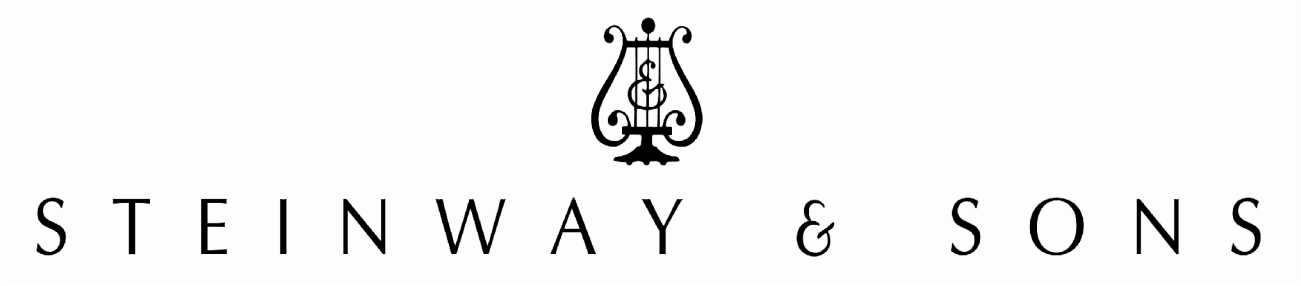
World-Wide
Technical Reference Guide

Grand Dampers
and Sostenuto



Boston PIANO
DESIGNED BY STEINWAY & SONS®

Essex PIANO
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the Family of Steinway Designed Pianos

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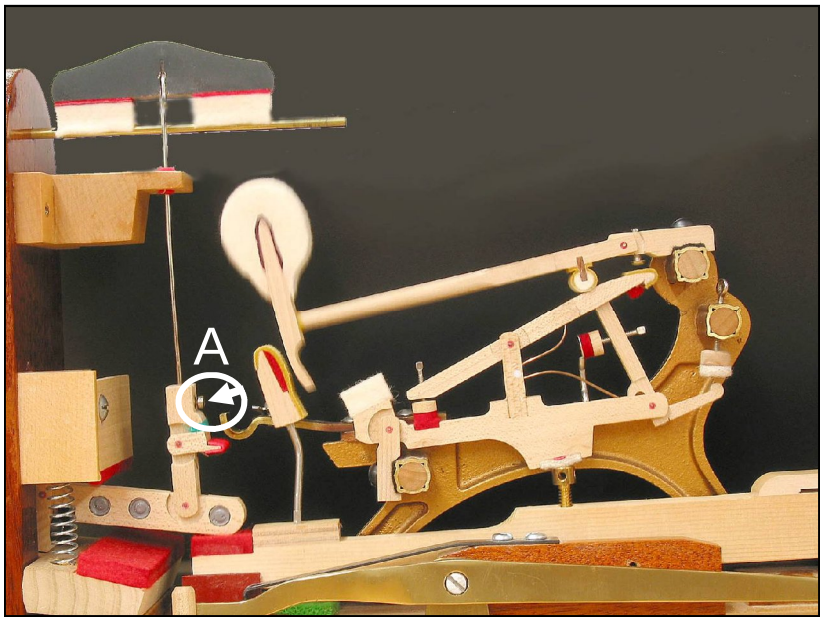
DAMPERS

Step 1. Adjust damper touch—The factory adjusts the damper touch so that when a natural key is depressed approximately 1/8", the key end makes contact with the underlever. This will begin to raise the damper head approximately one third into the hammer travel.



The key should start to pick up the damper at approximately 1/3 of the hammer travel.

This regulation is made by adjusting the depth to which the damper wire is inserted into the underlever and is achieved by loosening the damper wire screw (Point A above) and tightening it when the wire is in its proper position within the underlever.

How: When changing the touch for the entire damper system it is helpful to "set up" guide dampers in each section, and use them to match the remaining underlevers. To adjust for these damper guides, loosen the damper wire screws so that when finger pressure is applied to the damper head and its corresponding key, the wire will move within the underlever without being able to move freely on its own.

To set up the guide, hold the damper head, and depress the key 1/8" allowing for the damper wire to move within the underlever. Then, remove the action and tighten the damper wire screw. Loosen all remaining damper wire screws, and adjust each damper wire into the underlevers from these samples.

Hint: It is acceptable for the technician to regulate the touch of the dampers so that the damper is activated between 1/3 and 1/2 of the hammer travel. Within reason, adjusting the dampers "early" or "late" can be used to customize the action regulation. Timing the dampers slightly "late" will result in an action with a somewhat lighter touch, as the damper will begin to lift farther into the key stroke.

Step 2. Bending damper wires below the damper guide rail—Each damper wire is individually bent underneath the damper guide rail, so the damper wire travels in a straight and vertical path from the underlever, through the damper guide rail, to the point where the wire enters the damper head. Using wire-bending pliers, adjust the damper wire so that:

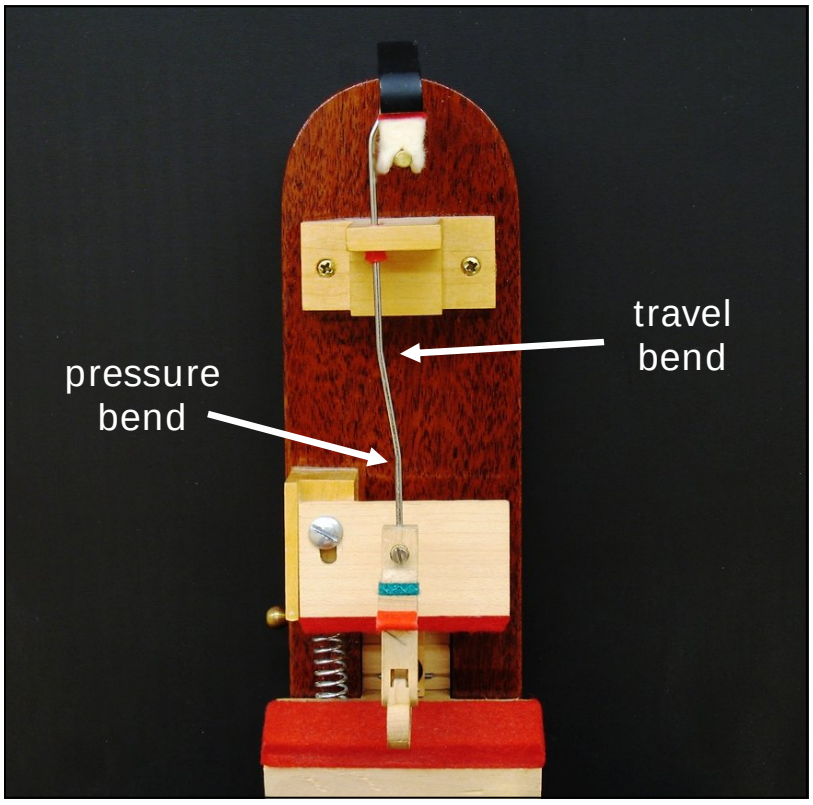
The wire travels vertically in a straight path. (determined by the "travel bend")

The bass damper wires bear "slightly" on the treble side of the damper guide rail bushing. The treble damper wires bear "slightly" on the bass side of the damper guide rail bushing. This is adjusted by the "pressure bend" as shown below.

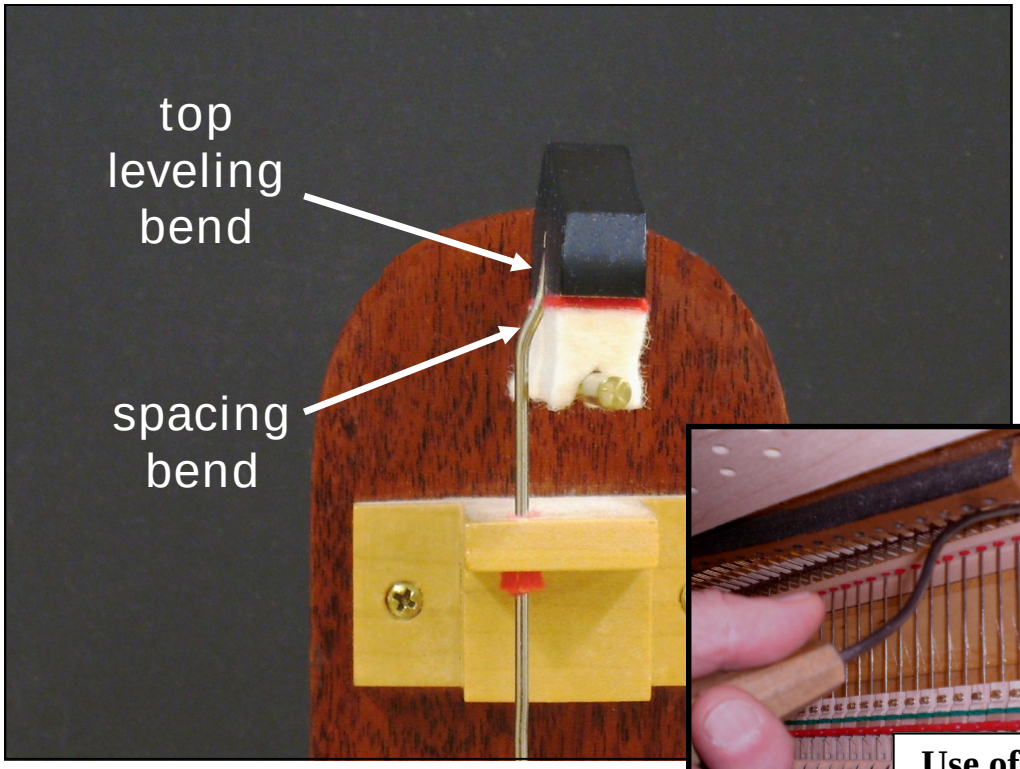
At this point, check for restrictive friction on the damper wire. This can be checked by lifting each underlever and feeling for friction. If the damper guide rail bushing needs to be eased, reaming the bushing with a heated umbrella-type wire works well to reduce the size of the bushing.

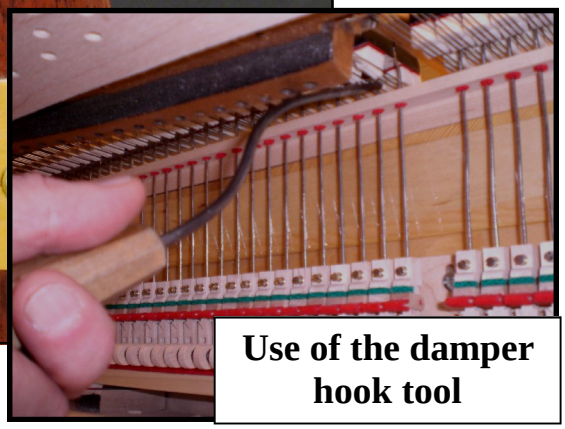
Use care not to push the bushing cloth out of the guide rail since Steinway does not glue this felt into the guide rail.

Note: Straight or nearly straight damper wires below the guide rail may be acceptable as long as they result in correct travel and pressure.



Step 3. Bending damper wires above the damper guide rail—Correct seating of the damper head to the strings is accomplished by bending the damper wire at the point where it enters the damper head. A damper hook is a useful tool to accomplish the desired results. (See photo insert below)





Use of the damper hook tool

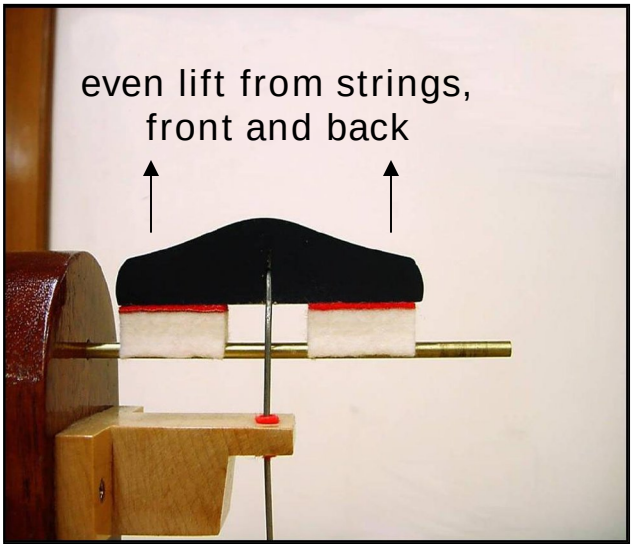
Three adjustments must be made which are not mutually independent. Therefore these steps may require repetition:

The damper head must stand vertically, and not leaning toward the bass or treble.

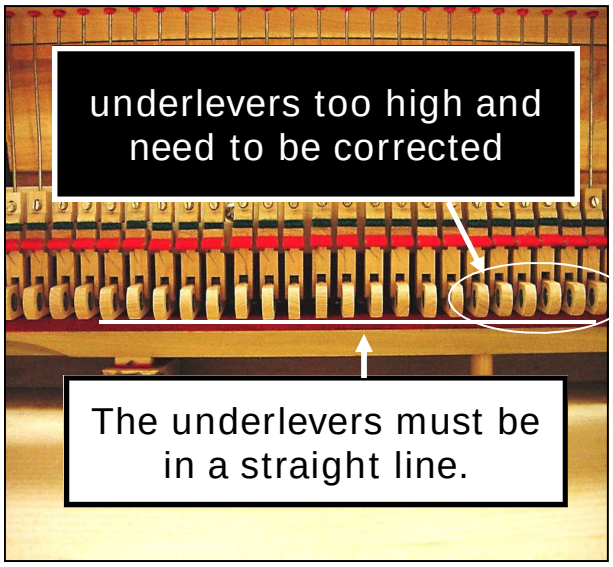
The damper head should be positioned directly over the strings being damped.

Both the front and rear of each damper head must seat on the strings simultaneously.

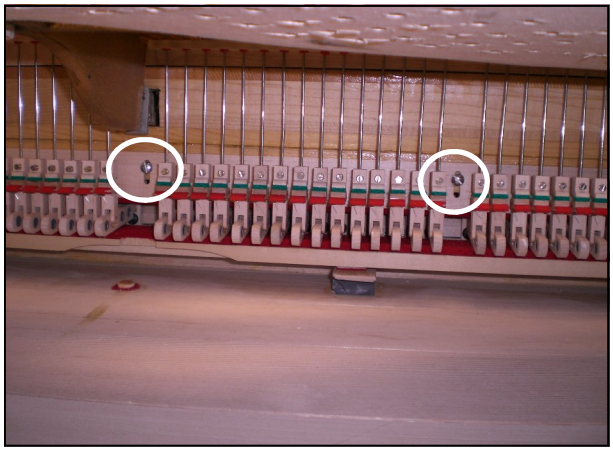
At the same time, check with a small straightedge to see that the rear edges of all dampers are cosmetically aligned.



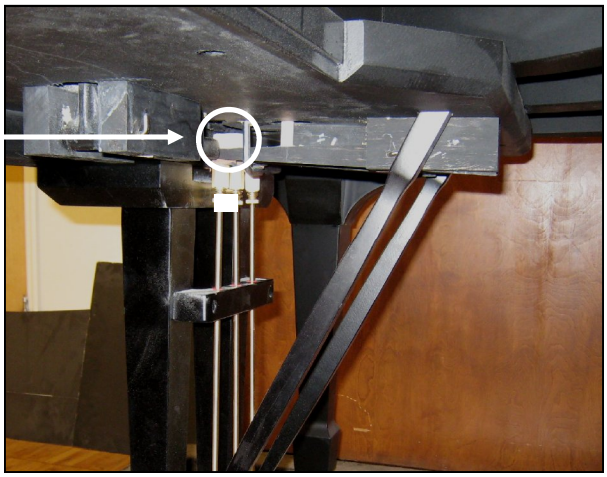
Step 4. Recheck damper lift—As a result of wire bending, the line of underlevers may need to be readjusted. Check for individual fast or slow dampers by operating the damper pedal, while observing the damper lift from bass to treble. Correct any fast or slow dampers by regulating the depth of individual damper wire into the underlever.



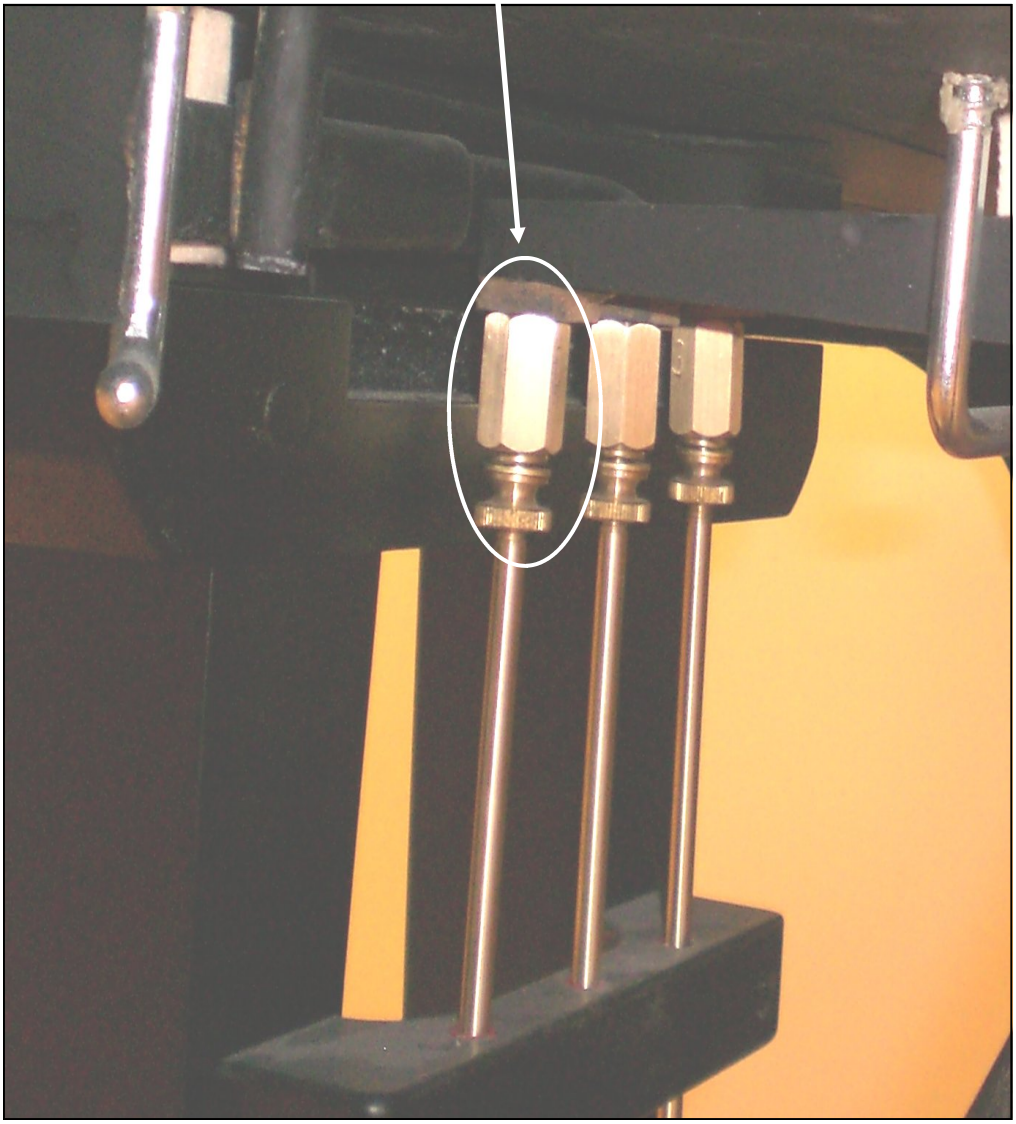
Step 5. Adjust damper stop rail—This is checked while depressing and holding down a sharp key with one hand while lifting the damper head with the other hand. Adjust the damper stop rail so there is approximately 1/16" play in any damper head in the treble section, and approximately 3/32" play in the bass.



Step 6. Adjust damper pedal travel—Adjust the thickness of the blocking felt that is located between the bottom surface of the keybed and the trapwork lever. When depressed, the damper pedal should raise the underlevers to a point below the damper stop rail, and slightly below the point where the sharp keys will lift the underlevers.



Step 7. Adjust height of underlever tray—Adjust the damper pedal rod so there is approximately 1/8" lost motion between the underlever tray and the line of underlevers.



Hint: When the pedal is depressed, the trichord wedge dampers may brush the strings, creating a "whooshing" sound. To reduce this feature, the damper head may be tilted slightly to favor the flat felt. Doing this will allow the wedge felt to lift away from the string while the string is still being partially damped by the flat felt.

Further noise reduction may be achieved by removing the damper head and carefully trimming off the excess felt below the string line. **Extreme caution** is required to maintain the damper function.

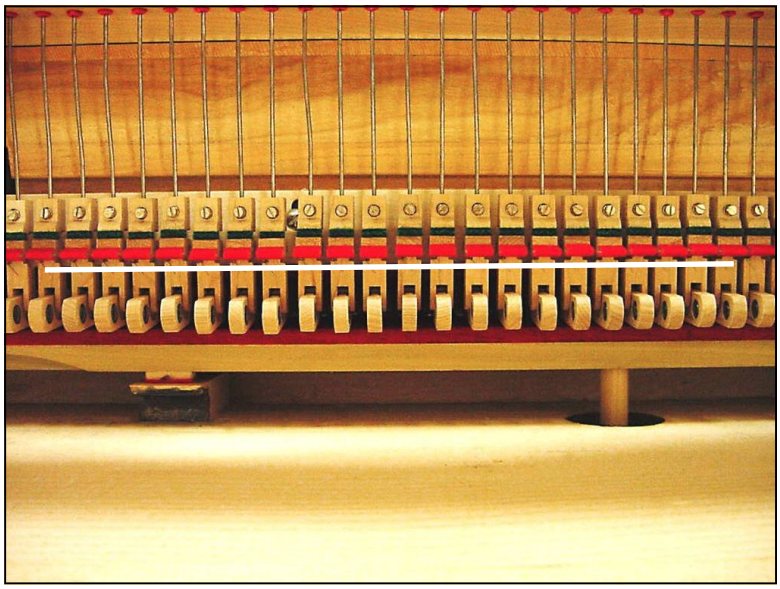
SOSTENUTO ROD ADJUSTMENT

Step 1. Check for correct alignment of the sostenuto rod in relation to the line of underlever tabs:

HOW: Depress the damper pedal, and then depress the sostenuto pedal. When the damper pedal is released, all dampers should continue to be supported by the sostenuto rod. If some dampers fall, the rod may be positioned too far from the underlever tabs.

When slowly releasing the sostenuto pedal, all dampers should fall on the strings.

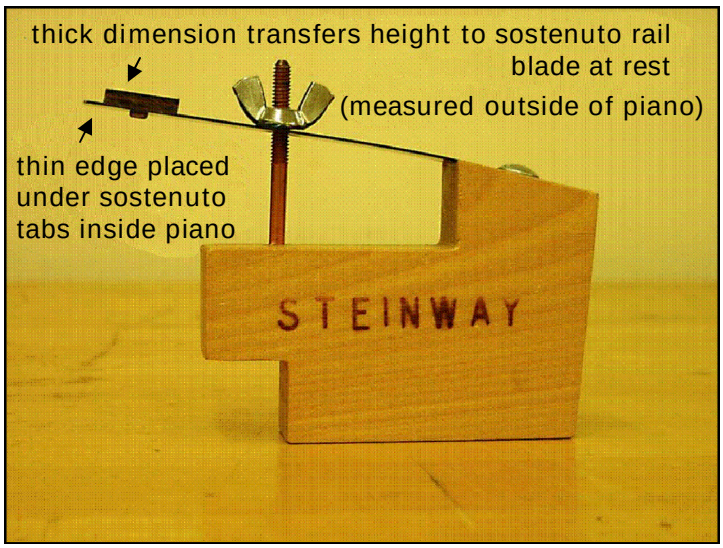
Also: While fully depressing and holding the sostenuto pedal firmly, play each note to make sure there are no hang-ups. If there is, the sostenuto rail is too close to the tabs.



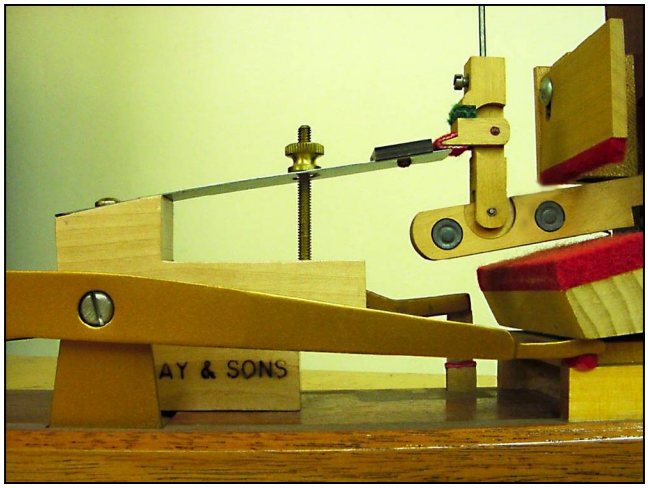
Step 2. All sostenuto tabs of the underlevers should be "in line" horizontally.

Correct any misaligned tabs by either placing traveling paper between the tab and its rest felt, or by reducing the size of the tab's rest felt by ironing it with a heated knife blade.

Step 3. Adjust the height of the sostenuto rod by using a sostenuto height gauge.



Remove action/keyboard from piano and place on bench.



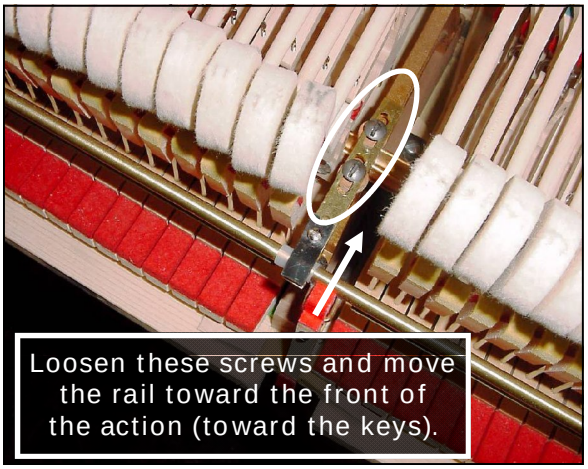
Place the gauge in the action cavity and adjust its lip so that it is directly underneath the line of sostenuto tabs.

Use the gauge to adjust the height of the sostenuto rod with the action on the bench. Bend the sostenuto rod brackets as necessary.

Sostenuto height gauges are available from the Steinway Parts Department.

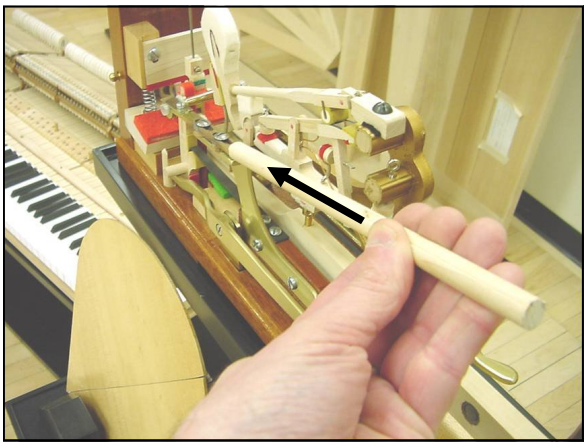
Step 4. Adjust the inward/outward position.

With the action on the bench, loosen the sostenuto bracket screws so the sostenuto rod can be moved easily while still maintaining a sure grip.



By tapping the sostenuto rod, move it in a direction away from the underlever tab.

Place the action in the piano and secure its position by using the keyblocks.



Using a rod (pedal rod or wooden dowel), gently tap the sostenuto rod in place, in small increments, from bass to treble, back and forth until it is properly positioned. Continually check its position by using the damper pedal and sostenuto pedal technique mentioned in Step 1, until the rod is in its correct position.

Remove the keyframe and action from piano, and tighten the sostenuto rod brackets.

Recheck sostenuto rod position in piano, using damper pedal and sostenuto pedal as previously explained in Step 1.

Step 5. Adjust travel of sostenuto pedal—Adjust the thickness of the felt block located between the sostenuto trapwork lever and the bottom of the keybed. The sostenuto pedal should travel the damper head slightly higher than its position when using the damper pedal; however, not allowing the underlever to jam against the damper stop rail.

Hamburg Sostenuto System

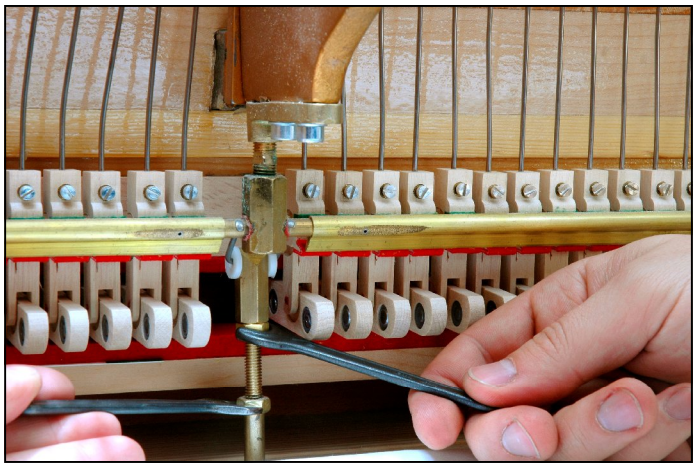
The current Hamburg sostenuto system, which is mounted to the crossblock instead of the original installation on the action frame, was developed around 1975. The regulation specifications are the same as with the former system:

1. With the pedal at rest, while looking vertically down onto the sostenuto rod from directly above (through the strings), the rotation of the rod should be set so that approximately 1 mm of the blade/lip of the rod extends visibly in the direction of the underlever tabs.

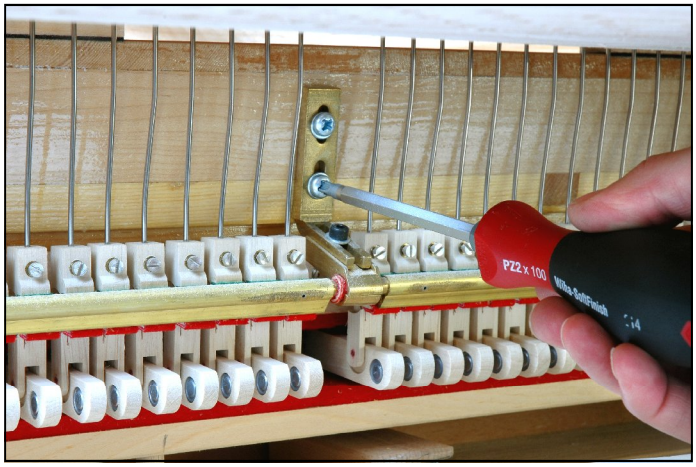
2. While looking at the rod from across the keybed, the red-colored underlever tabs must line up approximately 1.5 mm below the sostenuto rod.

3. With the pedal at rest, the distance between the sostenuto rod and the tabs should be approximately 2 mm (while looking from above through the strings).

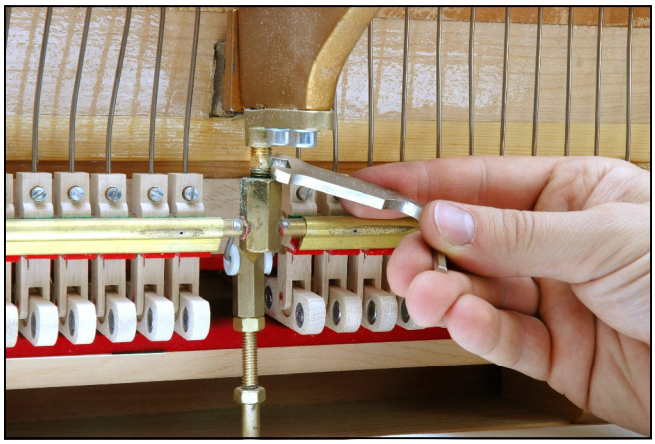
The adjustments must be carried out as follows:



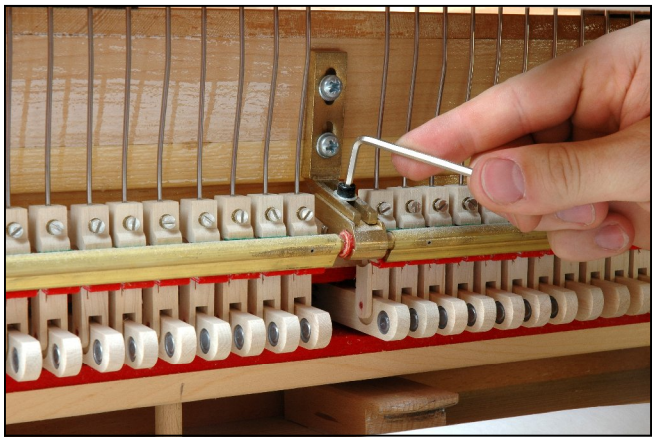
By using two 10 mm wrenches, the securing nuts of the upper screw (which moves the rod and is connected to the pedal trapwork) can be loosened and the screw turned in order to shorten or extend the screw. By this screw the whole rod can be turned in either direction slightly and the desired blade/lip position (rotation) established.



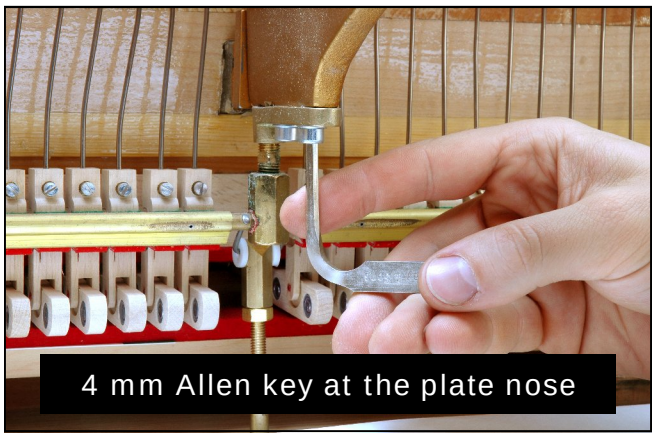
The height of the rod can be adjusted by loosening the screws that hold the three rod brackets to the crossblock and pushing the brackets up or down slightly.



Additionally the bracket at the plate nose must be height-regulated as well by means of a 6 mm wrench. If individual red tabs don't line up 1.5 mm below the rod perfectly, their height can be corrected by inserting thin traveling paper or by removal of a thin layer of felt.



The distance between the rod and tabs can be established by means of a 3 mm Allen key at the three crossblock brackets (and with a 4 mm Allen key at the plate-nose bracket as shown in the photo below). The individual screws just need to be loosened and the brackets moved in the desired direction. Remember to tighten the screws immediately afterwards.



4 mm Allen key at the plate nose

Please note: The adjustment of the rod's distance from the tabs will also influence the height of the rod because of the angled design of the crossblock bracket. Therefore the rod height must be checked and corrected accordingly (if necessary) after the distance regulation.

tools required for the Hamburg sostenuto adjustments