Kawai America

Grand Piano Damper
~ Regulation and Service ~

KAWAI

THE FUTURE OF THE PIANO

KAWAI

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Grand Piano Damper Regulation and Service

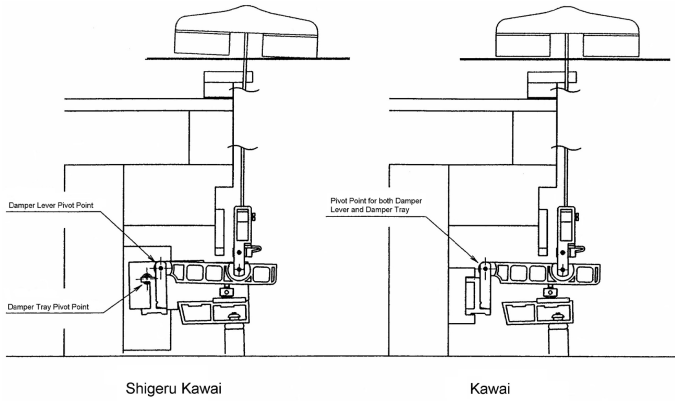
a PTG Technical Seminar
by Don Mannino RPT

Introduction

- Kawai damper system is similar in design to other pianos from Asia or Europe.
- Damper flange rail is mounted directly to piano cross block.
- Damper tray pivots on flanges in line with lever flanges.
- Quiet and stable system, very little wear on tray felts.

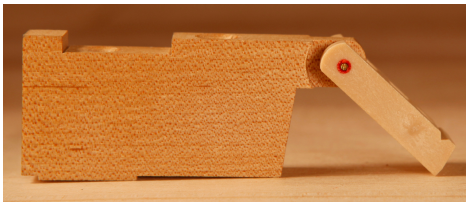
Shigeru Vs. Kawai damper action

- Shigeru system is modified so that the entire system pivots on end blocks.
- Damper flange rail and damper tray are locked together.
- Damper Pivot axis is different from damper lever center pin, giving more sensitive half pedaling function.

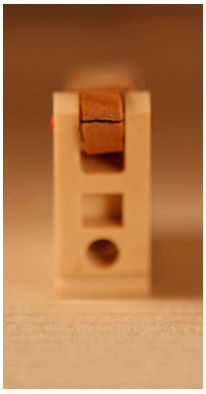


Damper Tray Block Service

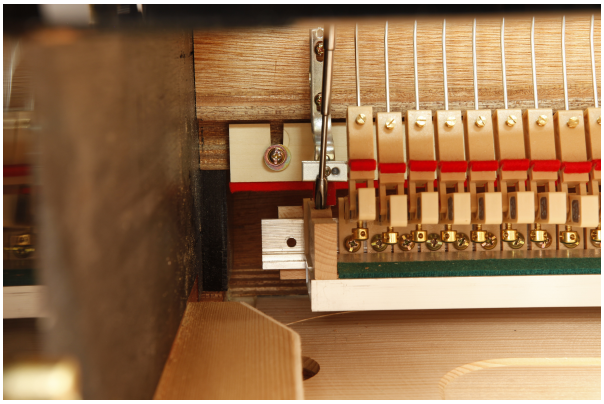
Noisy Damper Tray



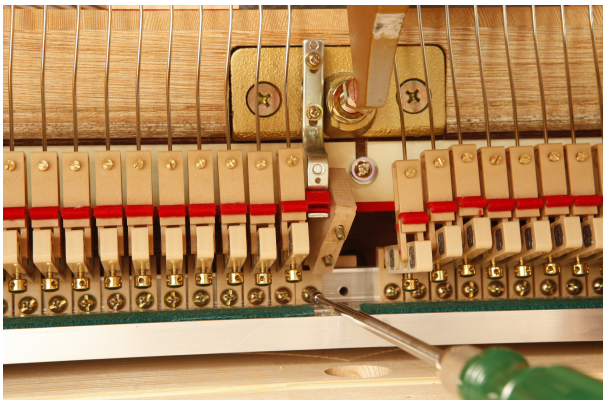
- In dry conditions the blocks can become loose – can be repaired by tightening screws.
- If center pin is working out, block must be removed and re-pinned.
- If block is cracked at the birds eye it must be replaced.
- Important: Broken blocks or damaged flanges have a cause – you need to also fix the underlying problem in order to keep them from going bad again!
- Heavy pedaling combined with excess pedal travel stresses the damper tray flanges and also pushes the upstop rail too high.
- Make sure pedal travel is correct. If pedal stop capstan is not strong enough, replace with block of wood or hard felt cut to the correct thickness.
- Set the pedal lever stop (capstan under keybed) so that the dampers are lifted just slightly less than they are lifted with the black keys.
- Hold the pedal down then play the black keys – the damper heads should just barely wink.
- This will prevent stress on the damper action, and will also make it easier to set the upstop rail correctly.



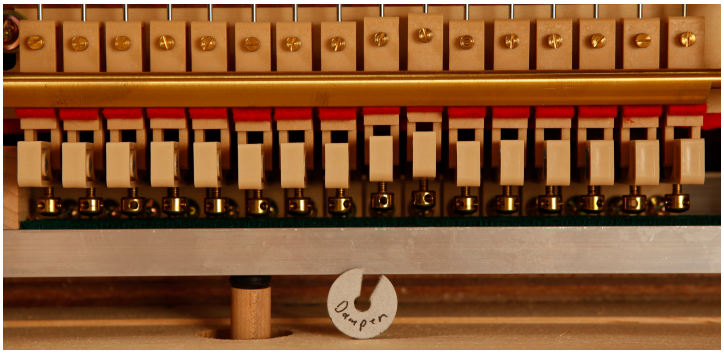
Servicing Damper Tray Blocks



- Loosen Sostenuto Pitman Screws
- Disengage Pitman from Sostenuto Rail.
- Loosen Sostenuto Rod Retaining Screws, turn clamp 90 degrees.
- Remove rod but leave felt in place.
- Remove damper and sostenuto pedal rods from pedals.
- Remove Pitman from Sostenuto Pedal Lever.
- Lift Sostenuto Pitman up through the keybed to remove.
- Raise Upstop Rail All the Way.
- Remove Damper Pitman.
- Remove Back Action Mounting Screws (4).
- Lift dampers up, pull rail out.
- With action pulled forward, you can access the block screws.
- If only loose, tighten them and reassemble action.
- If a block needs repinning or replacement, loosen both screws, lift block up, and remove flange screw (see photo).
- Replace center pin for tight fit in birds eye.
- Pin fit in the bushing should be much tighter than normal action parts.
- If the Damper Tray Block is cracked, order a replacement from Kawai.



Regulating Lift



Sample levers are stepped, 2mm pitman shim is ready to be installed.

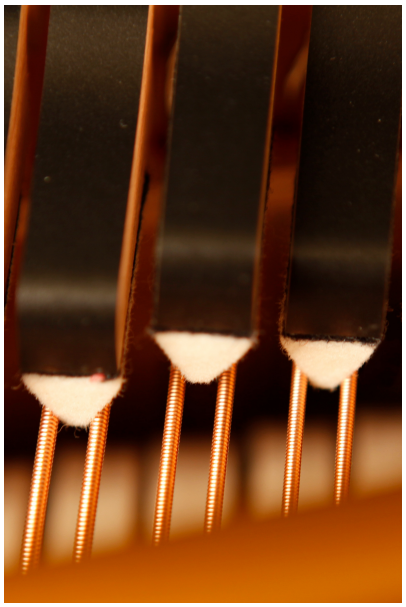
- Damper should begin moving when hammer is ½ way to the string.
- Early lift makes action feel heavy, tone seems dull. Legato play is easier and smoother, *staccato* not super sharp and clear.
- Late lift makes action feel light, tone bright. Legato play is more difficult, *staccato* very dry and short.
- Uneven lift makes for uneven touch and poor articulation for pianist.
- Set 3 sample damper levers in stair-step fashion.
- Install action, check to find which one is at the correct lift point.
- Mark damper head with chalk.
- Remove action, install 2mm shim at pitman.
- Adjust pedal rod end so that damper tray is supporting the sample lever exactly at rest – damper is on string, also is contacting the tray.
  - Pressing down on tray does not move sample damper lever.
  - Lifting up on tray lifts the lever immediately – no lost motion.
- Loosen all damper wire screws.

Regulating Lift (cont.)

- Let damper levers rest on tray, check that all damper heads are resting on strings with screws loose.
- Regulate damper lever capstans.
  - Levers should be perfectly level resting on the tray.
- Once all damper levers are level, then re-tighten wire screws.
- In ABS parts these don't need to be too tight – just snug enough to hold.
- For flat dampers, hold heads straight with one hand, tighten screws with other.
- Remove 2mm shim from top of pitman dowel
- Lift tray by hand and look for uneven damper lift.
- "Tap" the tray up on the damper levers, watch for levers that jump
- Wink the tray up and look for late levers.
- Don't use capstans – this will create uneven lift with keys.
- Loosen wire screws of incorrect dampers, re-tighten at correct position
- Straighten crooked dampers by twisting wire in the block using pliers

Damper Function: Troubleshooting Alignment And Damping Effectiveness

- Play loud chord with pedal, slowly release pedal, listen for late notes.
- Play every note *Staccato - forte.*
- Listen for leaking notes, high partial rings, loud "oinking" cutoffs
- Play *mf* with una-corda pedal, listen for noisy trichords.
- Chalk mark problem dampers
- For late cutoff notes, check damper lever height to see if it is level with neighbors.
  - If it is even, use capstan to make lift even with others.
  - If it is not even, use wire screw to reset lever height.
- Also check that felt is seating into strings – head may need alignment.
- Or felt might need trimming to keep it from hanging up on strings.
- For leaking notes, check for uneven string spacing or uneven wedge widths.
- Look for wedges that seat slowly because they are too wide.
- Squeeze and trim wide side to fit strings.
- Squeeze trichord strings to see if string spacing can be improved.
- Wedge felt must be centered on unison.
- Damper head should seat evenly front to back.
- Lifting slightly early at the back can improve ½ pedaling, but must never cause leaking harmonics.
- Flat felt must sit evenly on the unison, side to side and front to back.



Un-centered bichord will cause leaking tone.

Wire bends at head

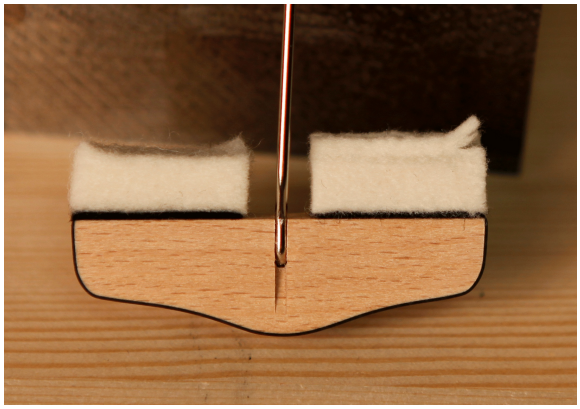
- Upper wire bend underneath the head makes head level with the strings.
- 2nd wire bend under the head aligns damper head side to side with the unison.
- Front to Back tilt can be adjusted so that dampers sit flat front to back.
- You can often do these adjustments in the piano, but sometimes it is more safe to remove the damper.

Wire bends under the strings

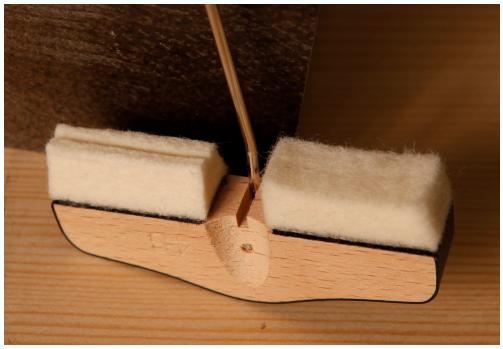
- Upper bend makes head travel straight up and down.
- Lower Bend aligns wire with the damper block, and adjusts the side tension on the bushing.
- Some pianos have very loose fitting bushings, require some side tension. Kawai pianos normally do not.
- End result should leave all damper heads moving as one unit with the pedal. Damper heads should be evenly spaced, with no side movement or twisting motion.
- Slow release of dampers should provide a quiet damping action, no extra noises or ringing partials.

Trichord Felt Trimming

- Extra Felt below the strings causes noise when dampers lift, especially with the pedal. Becomes worse as felt wears, settles, and ages.
- Remove damper from the piano, and you can see the string mark on the felt.
- Felt can be trimmed just below the string line, then rounded.
- Be sure to have a sharp razor knife for cutting felt
- Quality scissors are essential!
  - Available in Barber supplies and high-end knife shops.
  - Pianoforte Supply also sells excellent scissors.
  - If they cost less than $50, be suspicious!

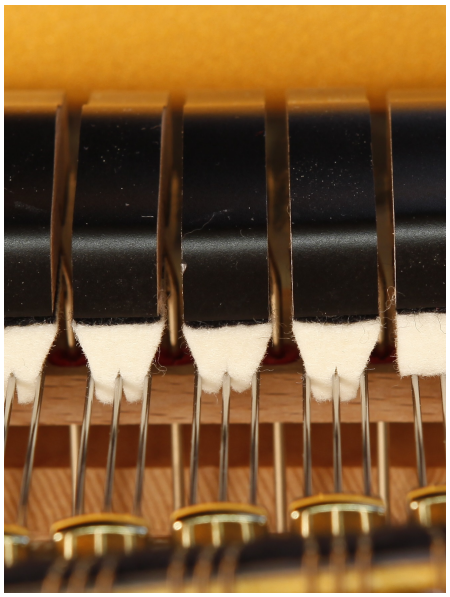


Sample snip made to show location. Note that it is completely below the string mark.



After cutting bottoms are flat. Side edges must be rounded for quiet damping.

- First check to see that the center cut is deep enough, center string should not be at the bottom of the cut.
- Wedges should be parted and not pinch in on the center string. If needed make center cut deeper with razor knife.
- Very firm felt can also be spread wider using a length of cotton string pushed into the center cut.
- With good scissors, make one smooth cut straight to the end of the wedge. Then cut the other side of the wedge.
- This leaves the bottom rather flat. The side edges need to be rounded with very gentle scissor cuts.
- After Trimming, rounded bottoms should just extend below strings, no straight-cut side felt is left to rub strings.
- Trichord felts can sometimes get noisy again over time. High humidity can exacerbate the problem, as can heavy playing and compacting of the felt over time.
- Felt type also impacts the sound – vertical felt fibers have less noise than horizontal, but may be more noisy when damping, especially with una-corda pedal playing.
- For some damper felt (like Kawai's) it is makes the dampers more quiet to insert some string in the center cut to spread the felt apart slightly. #5 Perling String works extremely well for



After trimming, trichords are rounded and just nestle between strings.

Concluding Comments

- A well functioning damper system can have a large impact on the pianist's comfort level at the piano.
- Besides just making sure the dampers don't leak, a well regulated and smoothly functioning damper system makes the piano easier for the pianist to play.
- Providing correct lift, silent damping action, and consistent lift for legato tone eliminates a level of difficulty from the piano, so the pianist doesn't have to work hard to 'learn the piano' and adjust to it.
- Dampers should never be a concern for the pianist – they should just work smoothly and effectively.

SHIGERU KAWAI