Fandrich Vertical Action Regulation

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Regulation Steps

1. Key height/level/dip (Dip: 10mm at at point 10mm +/-5 from key end.)
2. Blow distance/hammer line (40-42mm)
3. Let-off (3mm)
4. Checking-Reconciling (13mm+/-1 tenor-treble, taper bass to 10mm at A1)
5. Hammer return springs (touch-weight 52g +/-2)
6. Repetition springs (slightly slower than a grand)
7. Damper timing (1/2 blow distance)

Overview

Often in new Fandrich pianos the dip feels deep. The hammer actually sits on the jack, rather than resting on the rest rail. Consequently, the back rail can be used as a soft pedal. Because there is no lost motion at all, there is no lost motion adjustment. The only adjustment for this aspect is setting the hammer line. Because of the pressure from the gravity-producing spring, grooves will begin forming in the back rail. The original key height was probably set between 19mm-21mm above the key slip. If it is at 22mm, then the hammer line is up a little. Use a wooden block gauge that is Tocheck the dip, either press the key slowly, or play it fast and then push the hammer back. The key should be 10mm down, although this varies from key to key. Make the back rail adjustment so the average dip is in this range. On the newer Fandrich uprights there is a tab. On the older ones there is an adjustment screw. The tab rests on a green felt pad. This rail has hinges that shove the back rail down onto the pad. To raise the backrail, stick some shims under the tab. If you don't do this, you'll have to put lots of key punchings under to change the dip. To adjust the older models, add punchings or turn the adjustment screws. Set the starting and stopping points of the keys and hammers. Touch up the regulation every couple years.

Aftertouch

Reconciling the aftertouch measurement is important. See if the jack is or is not pulling away from the butt. Test a few samples. When in check, the jack should be barely moved out. I will be brushing lightly on the leather at the optimum point. Put it in check, watch the hammer, put it out of check and see if it pulls slightly away or remains in contact with the butt leather. If the jack moves back, it puts more pressure on the spring, knocking the hammer out of check; the repetition spring is compressed. Too much air between the jack and the leather produces too much aftertouch. Too little distance will cause the hammer to bauble. When in check, the hammer should nudge slightly forward as in a grand. A test is to play it, then push the hammer back until it contacts the red felt, and then let go. The spring should be just solid enough that the hammer then moves forward a little on its own.

The keystroke, let-off and blow distance must already be set before adjusting aftertouch. To fine-tune the touch, put each hammer into check. Know the proper checking distance using a special tool. Using Irwin spring clamps, clasp a dowel with a

hole drilled into it into which an elastic cord is inserted. Use a bright lamp and position the guide cord. Set the end hammer samples. The shadow should be crisp across the hammer moldings. Once the samples are set using the block, rough-adjust the rest to this line.

1. Hammer line
2. Set checking.

Checking

To set checking, use a felt mute. The best distance is 13mm, except in the bass, which is 10mm. The bass tapers from 10 to 13, then stays at 13mm the rest of the way up. Stick a tapered felt mute under the whippen to freeze the hammer at the proper position. Once the two end samples are set, scoot the elastic string line by sliding it on the dowel without changing the clamp. With the bright light shining down, line the hammer tails with the line made by the shadow of the string. Using backcheck pliers to set the checking.

Key level

To set the key level, tap carefully on the fronts of the keys with a short straight edge. The high keys will move the hammers first. To change this, add or remove punchings, or make a light swipe with sandpaper for very fine differences. The goal is a nice crisp look. The dip block will give a good idea.

Blow

To determine the blow distance, find a sample or two where the dip is within the range, then reconcile with the checking. Let-off must be set on the sample first, then tweek the blow distance to get the proper amount of after-touch. The blow distance is not a given. Make sure the gauge is a 4mm notch.
Once the blow distance is set, set the end samples. The blow should be about 40mm. Use the gauge.

Let-off

The hammers will be sitting 5mm from the string, or with the block, they should be 4mm from the string at rest. Squich the gauge against the hammers, and use your thumb to push the wippen . Look how much the hammer is bumping off the notch, then adjust the screw. This makes let-off adjustment so easy that Darrell can adjust let-off from top to bottom in about ten minutes. Use the gauge to push the hammers against the strings, then nudge the wippens and average out the distance that they move away from the jig. This works best with hammers that are new, even and smooth, and not so well with uneven hammers.

Checking and Reconciling

With your string shadow, adjust the checking so it lines up with the shadow. Then push the hammer forward and see if the jack lines up with the wippen. Check the blow distance and the key height. If the key is too high, there is too much keystroke and the jack will kick out too far. Use punching to adjust dip. Check periodically with the block. If it is not staying on target, check the key height and the let-off. On newer pianos let-off will creep and sometimes needs to be nudged back. If all the other things have been done

carefully, chances are that the discrepancy is the key dip. The back-check line will be a shadow image of the shadow of the jacks. Change the dip and the back-check line will go to where it should be. Set a time deadline for yourself for reconciling and get it as close as you can within that time.

Repetition springs.
These springs are fairly stable and generally do not need to b e altered. Darrel made a special tool for adjusting both springs in the action. When you bend the spring, it will want to ease back to where it was before. We adjust springs to compensate for touch-weight. Put the weight on and the hammer should go in a fairly smooth movement about half-way to the string, on average. Hold the pedal down by inserting a couple felt wedges above the pedal to provide a smooth touch-weight reading. If it's moving too fast, then make the spring so it's shoving harder against the hammer. Grab about a third a way down the spring, and place a gentle bend between the butt and the jack. Remove the hammer rebound rail for ease of accessing the springs with the tool. Make a bend toward the plate or push it away and bend it towards the strings. Pull slightly and rotate; sometimes the pushing doesn't get strong enough, in which case you might have to grab the spring sand put a bend in it, which might be too strong and will have to be weakened again. Get all of them nice and equal and smooth so the hammer goes half-way. See how the hammer moves with the repetition spring. Do the touch-weight first. There is a little bulge in the back end of the spring that holds it in place with a polyethylene bushing. These springs are very strong.

Damper timing
Take the damper timing off a little and a heavy touch will lighten. Before setting the spoons, make sure that the dampers are lifting evenly. Push the pedal and see if they are lifting straight. The lift rod has a pin system with a heat-shrink tubing on some pianos; others don't have this. Adjusting the lift rod is quicker than bending all the damper wires. The German actions have little adjustment screws for the spoons, making adjustment easier and quicker. Damper timing is 50%. Todd uses the thin Renner spoon adjusting tool. Check the travel. There should be just a little amount of lost motion in the pedal. If the lost motion is too much, the travel can become too great. Look down and see that the dampers just nudge a little when you push the pedal down. To set the correct travel, glue some felt above the pedal.