Regulating Tips

Bill Spurlock

11/25/2007

Let-off

A number of adjustments are difficult to see how closely they move because the action goes so quickly. Measure 1/8" with a lid hinge pin. To adjust let-off, get a stick 5/8" by 7/8" and lay it between the shanks and the rest rail. Take a tuning mute and wedge the moving part of the hammer rail forward until the hammers are at the let-off position. Look at the gap between the hammers and the strings. If the let-off is correct, when you play a key, the jack will wink and just press the hammer butt. If there is no wink, the let-off is too wide. If there is a lot of wink, it is too narrow. With the let-off adjuster on the screw, play the key and turn the screw simultaneously until there is a little wink. Go onto the next one and continue. Using this method might take ten minutes to adjust the entire rail. Using this method you can hear an audible click when the shank hits the jig stick.

On verticals the jack tender is so short that the closeness is touchy. If the regulating button felt is squishy, the hammer might block. The rail itself might flex as well. Consequently don't cheat and make the let-off too close. Use a cup-shaped Mahafee tool for turning the screws. A magnetic rail or stick is OK, but you might be pushing the hammer too far into it to feel a release, which will make the let-off too close and could cause blocking.

Damper Lift

Use this same stick for setting damper lift. Put the gauge inbetween the shanks and the hammer rail and adjust with tuning wedges to the point where the dampers lift at the right hammer distance. Look between the dampers and the jig and watch that they lift just as the hammer hits the jig.

Spoons

Use a thin spoon bender. Because you can't see what you're doing, practice. First, loosen the action nuts, tilt the action back and look to see what happens when you put the tool in. The bass spoons lean to the right. Get used to the sensation on your fingertips and the sound when the metal contacts metal. When it is engaged it will get tight; if you are not down far enough it will fell loose and disconnected. Once kyou have practiced, push the action forward with the spoon bender in place. Put one hand on the spoon bender and the other on the whippen. Lift up on the spoon bender while pushing down on the whippen. Slide the tool down and then back up again and listen for the click when it engages. Take it out, put it back in, and voila! You have learned how to use a spoon bender! On some pianos there is not enough height to bend the tool down, so the keys will have to be removed. Set samples and use them as a target. Do anything often enough and you can go quite fast.

Voicing

Most pianos can benefit from voicing, especially new pianos and low-end pianos. Since uprights are not worth spending a lot of time voicing and yet they are more difficult and take longer, it would be nice to have a short-cut. On a grand it is easy to support the hammer tails for needling.

1. Squeeze the shoulders of the hammers with pliers. Driving needles into the shoulders of a hard hammer would require hundreds of times, which would, after a while, deform the hammer. By grabbing the hammer with pliers and squeezing just as you see a little bulge, this can be done in an instant. On grand pianos, use mini vice grips. It takes too long to pull an upright action in and out, so convert a pair of needle nosed vice grips. The resulting effect is equivalent to the tone achieved from deep needling. Use this technique with discretion. Don't go farther up than maybe note 60 or 70. In the bass, this eliminates the gong sound. This quickly gets shrill pianos under control.
2. For the attack sound, to simulate what we would get with higher shoulder needling and shallow needling to effect the medium playing, controlled steaming works really well. On grands it is easy to roll the hammer and put it in a stream of steam. This is harder with uprights. Use a hammer iron with a curved heated anvil iron on it, drape a damp, wrung-out cloth over the hammer and now you can do the bottom and the top of the hammer. It will only steam where you touch it with the tool. This technique will drive the steam fairly deeply into the hammer. Focus on the 10:00-11:00 and the 1:00-2:00 area. Touching the striking point will muffle the tone very quickly. Follow by filing and you have

a restored a firm crown to get the attack back. For very hard dense hammers slide the iron all the way from one side right over the strike point to the other. Do a sample first before doing more, since there is quite a variety in hammer felt density. You can really even things out in a hurry and customize individual notes. If the hammer is too bright, lightly steam over the crown. Be careful and cautious because you can easily go too far. Experiment first because no two pianos are the same.

3. To check if the hammer is hitting the string squarely, play the note and lightly push the hammer tail into the strings. Listen for oinking or ringing. To even out the ends of the hammer filing, use a sanding strip, push the hammers against the strings and pull the strip up between the hammers and the strings.
4. Get a needle-sized collet for the dremmel tool. The needle is spinning so fast that it will heat the needle and burn the felt. With a low-speed cordless dremmel, the needle pushes right in and the holes are barely visible. This can be done in the piano without putting force on the action parts.

Grand keybed action support

Pianotek and Bill Spurlock both make a device that fastens onto the front of the keybed. This enables the entire regulation easy to do right in the piano. Use rip-stop nylon for a drop cloth. It is durable and doesn't shred, which makes it easy to protect carpet, your tools, etc. Place the jig under the keybed, tap a tool up through the hole to make an impression, then hand-drill a hole to the measured depth. A ¼' bit fits the universal handle. Since it is a new hole, put bees wax or bar soap on the screw threads and thread it up.

Key support for leveling grand keys

Set adjustable screw blocks over front rail pins #1 and #88. Lay a straight-edge across these two keys and eye-ball. Use split punchings instead of removing the stack and using lead weights. Place the punchings slightly under the front rail punchings to hold them in place. Pull the action out and tip it on end, being careful not to scratch the drop screws on the stretcher. Use alligator forceps, push the key up and slip the punching over the pin.

An alternate method is to use a key-lifting tool. This exposes all the balance rail punchings, which makes it easier to lift the punchings and to insert the paper punchings. This eliminates the need to stand the action up, and enables both the sharps and the naturals to be done all at the same time.

When we laid out our punchings for the natural keys, we laid out our punchings in place. How about the sharps/ They haven't been measured yet. Place a block that is cut 12 mm (for Asian pianos) by ½" (for American pianos) on the end white keys that are already blocked. Put the straight edge across and a lot of time is saved.

For a touch-up leveling, use a short piece of anodize L aluminum. This is useful for checking hammer travel, key level, etc. Also check for keys that need to be squared. Use this L rod to tap the balance pin; since aluminum is way softer than the steel, it won't scratch.

Setting grand jack position

Use a clear transparent strip of plastic with a line drawn on it. Use a word processor and print out a series of row lines without any columns. Store it in a cardboard envelop sliced to the right size.

Lay this strip over the tops of the whippens and drop one hammer at a time down to see if the knuckle core is lined up over the jack. Once it is in position, lift up one at the end and site down one knuckle core and look at the jack that is exposed. Grab the screw and adjust. If the knuckles are not in a straight line, each jack will have to be custom adjusted.

Grand let-off jig

First, carefully pre-set let-off samples at the end of each section. Pull the action out. Set the jig in a section and adjust it until you hear the click and see the wink. String height won't be very straight in the middle section, except for Japanese pianos that are incredibly uniform. Now that the jig is set, pull the action out onto the support and adjust each let-orr screw to match the same click and wink as the samples. Besides assuming that the string line is even, the second assumption is that the hammer bore line is even, both because they are all bored the same and the hammers are all filed the same.

Having set let-off, set **drop** while the action is still out in the same position. Set jack position, then jack in the repetition cradle, once those are set the jack on the drop screw and the whippen on the drop screw should be simultaneous. If the drop stops the rep lever too soon, then there will be lots of drop. Adjust the

bumping by feel. It feels very solid when two points are touching at once. When you feel the bump, press a little further and the jack will come out. Hold up a neighboring hammer, push the key down and see how much this sample drops. This is how much we want them all to drop. Push the second one down, adjst and so forth. As you go down you are feeling the contact become more solid. Always leave the previous hammer up so you can see the comparison.

Key dip block with a crosspiece
This makes the dip value adjustable. You can put spacers across to alter the distance. It also avoids the feeling, judging & guessing. You know immediately by hearing the click. Screw a little hardwood strip onto your dip block.

Mate hammers to the strings
If the let-off is not close, they will slip through. It is hard to lift the hammers to the strings to see where they are. Lay a strip of bushing cloth between the whippens and the knuckles. Everything is delayed – let-off, drop, etc., and everything is higher. By lifting the key, it lifts the damper. Now it is easy to block the hammer against the string. Pluck each string and listen for any ringing. This is a quick way to check for total contact. This also is useful for spacing hammers quickly. Carry a couple different thicknesses of cloth for various pianos. Muffler rail felt is a good thin one, and thick bushing cloth is good for a higher lift.

Setting grand damper timing
When installing grand damper heads and adjusting for even pedal lift, support damper levers in a straight line at desired heightwith a jig (PTG Journal 6/96, pg. 35), then lay a 1# bag of rice, split peas, etc. on top of the damper heads to simjulate the missing weight of the damper levers while tightening the set screws. Damper lift will be more accurate and heads will turn less as screws are tightened.