Small Shop - Big Results

Simple Grand Pinblock Replacement, part 4 – Drilling and Reinstallation

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In replacing a pinblock, precise drilling is essential. If the pinblock is to be drilled on a drill press, accurately centering the holes is a must. The method I use, although not the simplest (or only) approach, does ensures a perfectly duplicated pinblock.

Photo #1: Pinblock clamped firmly in place

Assuming that the pinblock of your project piano has been successfully fitted to the plate, the first task in drilling the pinblock is to mark the pilot holes for the plate screws. To make sure the holes are marked precisely, clamp the pinblock in place using the configuration of clamps shown in Photo 1 on either side of the plate. Notice that the c-clamp goes underneath the sawhorse, thus avoiding putting direct pressure on the webbing of the plate.

Next, use a creeper and roll yourself under the plate to mark the visible holes for the plate screws - a few will be concealed by the saw horse but you can get those a bit later. Use a sharp Ticonderoga pencil to mark the entire circle of the each hole as shown in Photo 2.The plate screw holes will be along the perimeter of the webbing and will be recognizable by their bevel. Do not mark the pin holes at this point. (I apologize, by the way, for the fact that the Photo 2 is slightly out of focus. I was lying on my back on my creeper looking up, marking a plate screw hole with my right hand while trying to take a picture with the camera in my left hand – an awkward job at best!).

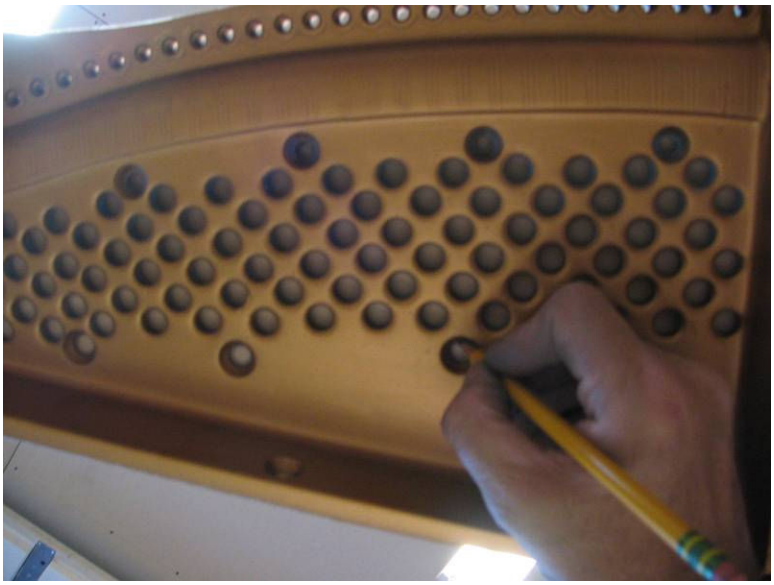

Photo #2: Things are looking up!

Once all the visible screw holes are marked, roll out from under the plate, unclamp the pinblock, and move on to the drill press.

The issue at this point is to select the right size bit to drill the pilot holes with. The drill needs to be larger than you would ordinarily select if you were turning your screws into pine, or even oak. The hardrock maple of the pinblock doesn't have much give to it, so you need a hole that the threads of the screws can bite into, without being so hard to turn that you twist the heads off of the screws. Use a piece of scrap pinblock material to conduct a trial run. Drill several sizes of holes in descending order, then put the test piece in your wood vise, and actually try one of the screws to determine a reasonable torque. I use a square-shanked screwdriver with a crescent wrench to help turn it. The head of the screwdriver should ideally be as wide as the slot in the screw, otherwise you risk having the screwdriver damage the slot. With the correct size bit selected, drill the pilot holes in the pinblock.

Photo #3: Drilling the pilot holes for the plate screws

When drilling both the pilot holes, and later the pin holes, adjust the drill press table so that the bit is a fraction of an inch above the block. That way, you can move the block with both hands and align it under the bit more accurately.

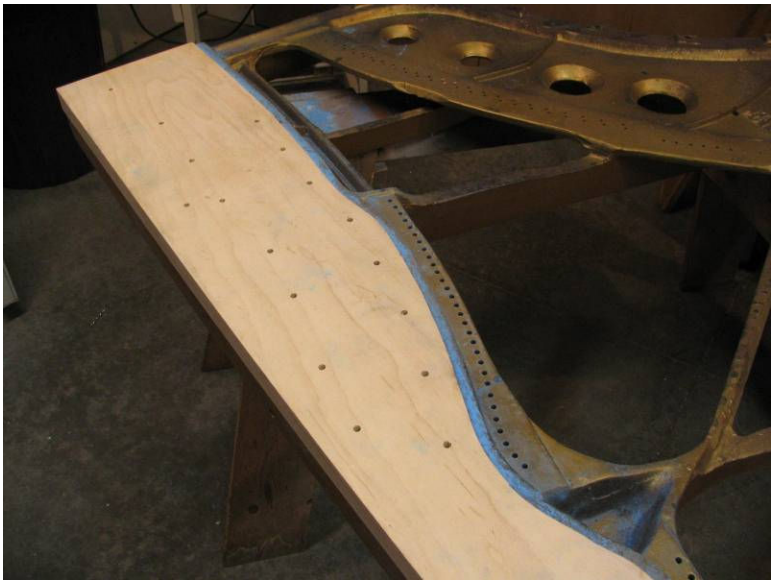

Photo #4: Pinblock back in place with plate screw holes drilled

With the pinblock back in place on the plate (Photo 4), I reposition it, reclamp it, and scoot back underneath on my creeper. From this position, I insert and tighten down two screws on either end in insure correct placement. At that point remove the clamps, and with the help of Dave, turn the plate with attached pinblock back over again.

At this point, I turn in the rest of the screws (Photo 5) to insure that when I use the punch to tap the centering points for the tuning pins, there will be no mistake about the positioning.

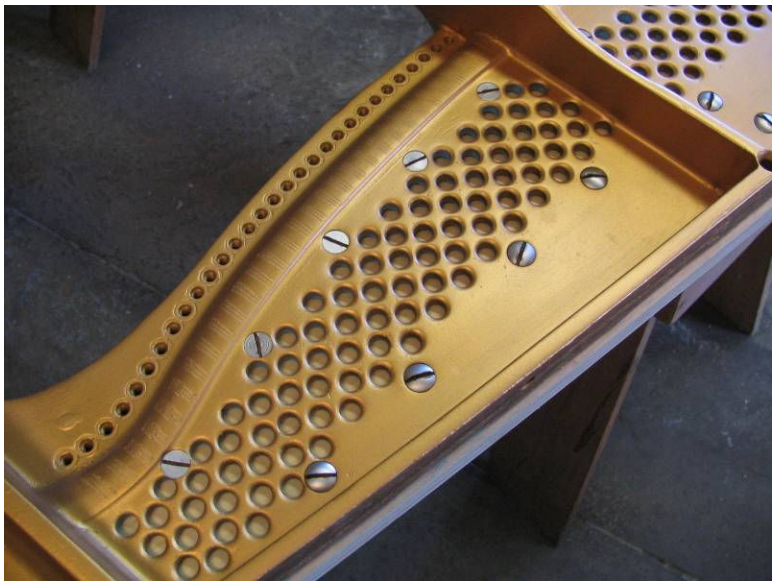

Photo #5: Pinblock ready to punch

Use a punch made for marking tuning pin holes (Schaff part #174C) and use a ball peen hammer to tap the center points (Photo 6). If the punch is loose at all in the hole, try wrapping the end with just enough electrical tape to eliminate any wobble. Make sure that as you are using the punch, you are holding it perpendicular to the face of the plate. If there's any tilt to the punch, the point will not be centered correctly.

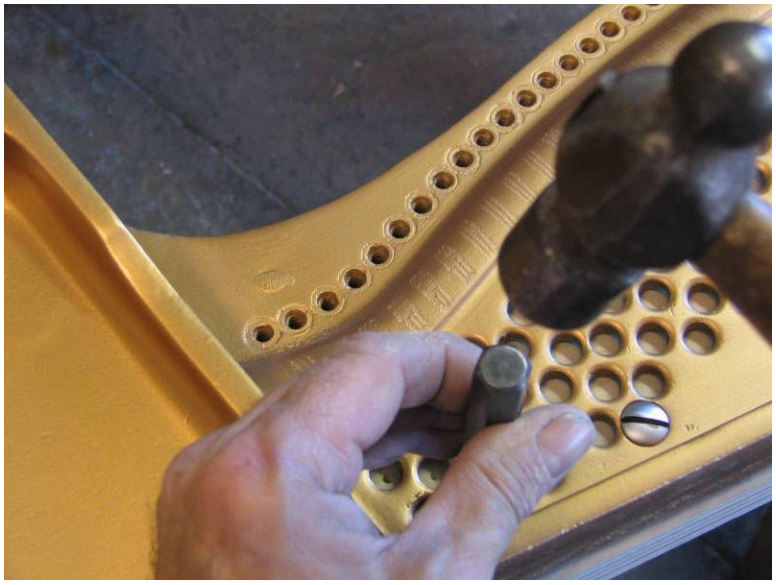

Photo #6: Punching the center points

With all the tuning holes centered (be sure to run your eyes over the webbing from side to side to make that each point has been punched), remove the plate screws and store them in the holder, and remove the pinblock from under the plate. Before I do anything else, I mark each end of the block with a slanted arrow (Photo 7) to indicate the direction that the slant of the pins will take, away from the fitted, curved edge of the pinblock. Better safe than sorry.

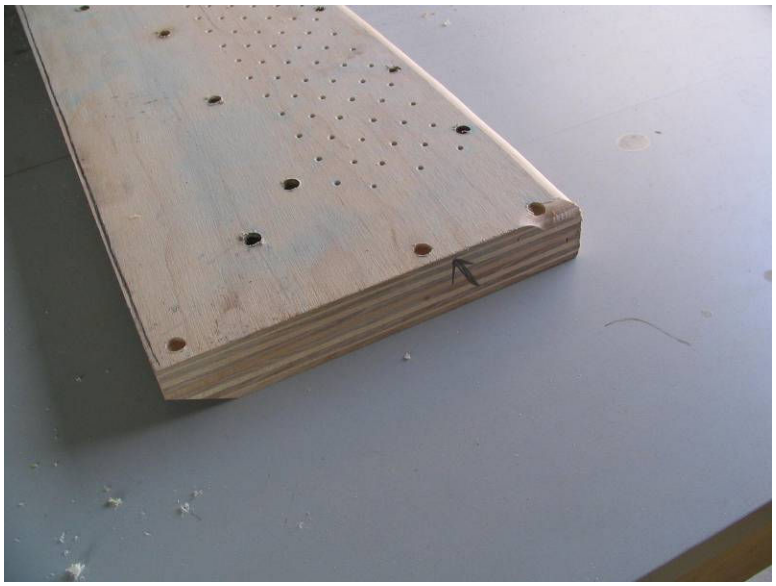

Photo #7: Making sure of the slant

Now, back to the drill press. The set-up I use in our shop was discussed in a previous Journal article (Installing Pinblock Panels in an Upright, June, 2008). Basically, I have an extra wide auxiliary bed clamped to the existing cast iron bed (to provide stable support for the pinblock as it is slid from side to side). The bed of drill is canted forward at a 7 degree angle, with the curved, fitted edge of the pinblock frontward. The bit is cooled by a continuous stream of compressed air as the drilling is taking place. Again, the drill press table height is adjusted so that the bit is very close to the face of the pinblock, to facilitate lining the bit up with the center point.

Photo #8: Let the chips fall where they may

I hold the block down with my left hand and arm while drilling (Photo 8), really leaning into it with my weight to prevent any movement of the block during the process. If you are not holding the block firmly enough, you'll feel a slightly 'bump' on the upstroke which indicates that the block has momentarily shifted. This will cause the hole to be slightly elongated, and must be avoided.

Drill at a continuous speed, so that the bit remains at a stable temperature. Your goal is producing pinholes which grip the pins tightly, consistently and without any hint of jumpiness. As any longtime reader of the Journal is aware, there is more than one way to drill a pinblock. This particular method has worked well for me for over 30 years, but I would be the first to say that there are other avenues of thought on the subject. Do your research, and find a method that works for you in your own shop.

With the pinblock drilled, reinstall the block in the plate. If the plate has not been cleaned or refinished, of course, do that first. Likewise, if the plate screws have not been polished at this point, do that also before replacing them in the plate. When installing the screws, tighten them down using a square shank screwdriver and wrench. Take your time with this step, to avoid having the screwdriver slip from the slot and mar the finish of the plate. For years, I've tightened the screws snug without the use of a torque wrench – going by feel instead. Using a calibrated torque wrench, however, to eliminate any guesswork in attaining a consistent tightness of each of the screws would what I would recommend for someone starting out.

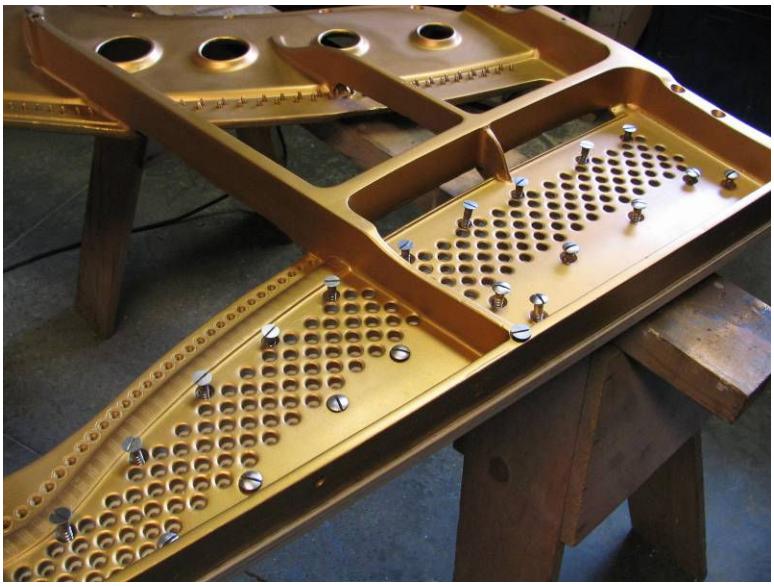

Photo #9: Screws polished and ready to be turned down

With the plate screws reinserted (Photo 9), and tightened down, the plate with attached pinblock is ready for installation in the piano.

Photo #10: Plate ready to reinsert in piano

With your hoist, over the plate, double knot the straps around the struts of the plate. Although I always attempt to locate the hook directly over the center of gravity of the plate and tie the straps with an even amount of tightness, usually when I start lifting the plate, one side comes up before the other, resulting in the plate being tilted at an odd angle (which you don't want). If this is the case, don't lower the plate and retie the straps. Instead, place weights on the high end to bring it down. What I use are freezer bags of

sand (Photo 10) – they won't mar the finish of the plate, and are easy to procure – just buy sandbox sand from any home improvement store, and fill your bags.

To avoid marring the finish of the inside of the rim – the last thing you want to have happen at this point – use dowels to help guide the plate down safely. The clearance can be very tight, but with dowels running down through the bolt holes of the plate and into the holes around the edge of the sounding board (Photo 11), it's much easier to lower the plate without touching the rim at all.

Photo #11: Guide dowels help lower the plate safely

Easy does it on the lowering process. If you are using an engine puller with a hydraulic lift (as I was doing in this case), turn the release valve to lower the hoist with extreme caution. This type of hoist has ample capacity for the job, but not the amount of feather control that a chain hoist provides.

Photo #12: The Eagle has landed

With the plate safely back in the piano (Photo 12), double check its positioning using wedges (see Journal article, March, 2008 – Removing the Cast Iron Plate, part 2). Tighten down plate screws as you would tighten the lug nuts on a car tire – going back and forth from one to the other several times to tighten down the entire plate evenly.

Congratulate yourself at this point. I always feel that I'm on the downward slope of the job at this juncture. Things start going back in the piano, and the completion of the job is within sight. Relish this part of the process, as the transformation of the instrument from an eyesore into a thing of beauty nears completion (Photos 13 & 14).

Photos # 13, 14: Before and after

Enjoy the journey.

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