

Photo 181: The soundboard is dry-stripped with a sharp chisel.



Photo 182: The soundboard with all of its original finish removed.

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Photo 183: The soundboard is rough sanded by hand with 100 grit paper to remove all residue of the old finish.



Photo 184: Even at this initial stage, the beauty of the spruce grain is beginning to show. The hairline crack visible at the center of the picture will be widened by a gradual drying process, and will be shimmed.



Photo 185: With the initial sanding done, several small cracks are already visible. With drying more cracks will gradually appear.



Photo 186: The drying apparatus is quite simple. Two 60 watt bulbs in portable spotlight holders are clipped to the sawhorses supporting the body of the piano. Blankets are draped over the piano, with one side left partially open for cool air to be drawn in. The warm air generated by the bulbs rises, and gradually dries out the board. This setup is generally left in place for 48 to 72 hours, or until white wood appearing on the inside of the cracks indicate that the board is as dry as it typically ever gets.



Photo 187: What was a hairline crack before is now opened up and ready to be shimmed. While the shimming is being worked on, the humidity of the air in the shop is kept to a minimal by the use of dehumidifiers running around the clock.



Photo 188: "Tools of the trade." Gouging tools and spruce shims.



Photo 189: With the gouging tool, the cracks are widened into a narrow 'v' shape. Care must be taken to draw the tool back smoothly and perfectly upright. Stops and starts produce a gouge which varies in width, while holding the tool at an angle produces a channel which is too wide. The crack is widened until the point of the gouge is to the bottom of the crack.



Photo 190: A small length of shim is used to check the width of the gouge. The gouge needs to be wide enough that the point of the shim extends through the soundboard, and narrow enough that the shim is not swallowed.



Photo 191: Gouging complete. A shim will be made for each gouge. The shims will be fitted, glued in place, then planed down on both top and bottom.



Photo 192: The shims are first marked to be notched around the ribs which are attached to the back of the soundboard. The lights under the piano help locate the position of these ribs. Inspection of the ribs has shown that they are absolutely tight to the soundboard.



Photo 193: The notch is started on one side with a razor. The bottom cut is made by first sloping down with the razor from the opposite side.



Photo 194: The notch is completed by cutting in with the razor on the side opposite to the first cut, then finishing out the bottom.



Photo 195: If the gouge starts or ends in the middle of the soundboard (see Photo 190), and doesn't run all the way to the rim or end at a bridge or nose bolt hole, the end of the shim shaped to resemble the bow of a boat. The first step is to rough cut the bottom of the shim with the band saw.



Photo 196: Once the rough shape has been cut, the shim is retapered. The easiest way to do this is to hold a block plane blade side up, and to pull the end of the shim across the blade.



Photo 197: The end of the shim, trimmed to fit. The gouge in the soundboard is shallow on the ends to provide a snug fit.



Photo 198: The shim is dry-fitted to check for a correct fit before glue is applied.



Photo 199: The inside of the gouge is moistened.



Photo 200: Gorilla glue is applied, and spread. <u>Always</u> wear gloves with this stuff.



Photo 201: Small blocks are placed along the length of the shim immediately after it is pressed into place. Each block is placed so that one end rests on the soundboard, and the other end on the shim.



Photo 202: Small sandbags are placed down on the blocks, and pushed down slightly to insure that contact is made with each block.



Photo 203: Weights are added on top of the sandbags. The sandbags help distribute the weight evenly to all the blocks.



Photo 204: The weights are left on overnight, then removed.



Photo 205: The majority of the excess wood of the shim is either planed off with a small block plane, or removed with a sharp chisel.



Photo 206: Shims ready for sanding.



Photo 207: Shims are sanded out either by hand, or with the use of a small palm-sander.



Photo 208: Complicated cracks which jump back and forth between grain lines are routered out with a wedge shaped router bit used in a plunge router. To clear the bridges a track system is built for the router to run back and forth on. The plunge feature allows for the bit to be slowly lowered until it barely skims over the tops of the ribs.



Photo 209: A saw blade is used to extend the cut to the inside of the rim.



Photo 210: The completed channel.



Photo 211: The oversized spruce shims used for this width of channel are notched for the ribs using a straight bit on the router table.



Photo 212: The oversize spruce shim with notches for the ribs.



Photo 213: The excess height of the shim is trimmed on the bandsaw before being glued in place.



Photo 214: Once glued in place, the shim is planed down to level with the small block plane.



Photo 215: With she shims completed, attention is turned to the bridges.



Photo 216: Since some looseness was evident in the bridge pins, all bridge pins were removed and treated with epoxy. I use a thick epoxy paste, which I roll each pin in. With its epoxy coating, a pin looks somewhat like a miniature Forth of July sparkler.



Photo 217: With its coat of epoxy, the bridge pin is pushed into the hole.



Photo 218: The excess epoxy is cleaned immediately for each pin after insertion.



Photo 219: The top of the bridge is scrubbed with steel wool.



Photo 220: The surface of the bridge where the strings slide over is then given a coating of DAG, a lubricant formulated for this type of use in pianos.



Photo 221: The soundboard with shims completed and treble bridge reconditioned.



Photo 222: Attention is turned to the bass bridge, which suffers from a broken apron, and loose bridge pins.



Photo 223: The pins are removed to be epoxied back into position, as was done with the treble bridge.



Photo 224: The broken piece of the apron is glued into place and reinforced from underneath with two flathead screws. The bridge is then place aside for the time being for the glue to cure.



Photo 225: The first coat of shellac is applied to the soundboard and treble bridge.



Photo 226: The finished soundboard with 5 coats of shellac.



Photo 227: The cast iron plate, in storage since the beginning of the project, is brought back out.



Photo 228: The plate is placed on sawhorses for prepping.



Photo 229: New bushings are to be installed with the new tuning pins. The old bushings are punched out using a wooden dowel and a mallet.



Photo 230: The old bushings show signs of deterioration.



Photo 231: With the old bushings out, and the plate given a gentle cleaning, it is lifted on the hoist for placing back in the piano. The bags of sand on the back of the plate are used to keep it on an even keel.



Photo 232: The plate is in position.



Photo 233: With the straps removed, the plate is ready to be bolted back into place.



Photo 234: Bolt and screw heads are wire-brushed on a grinder.



Photo 235: Before (insert) and after.



Photo 236: Each screw is carefully turned into place. The proper size screwdriver is essential to avoid marring the screwhead.



Photo 237: New bushings are punched into place.



Photo 238: More and more, the worn condition of the plate bothered me. The top part of the plate contained writing of a historical nature, and needed to be left untouched. The bottom portion, however, where no writing was in evidence, could be repainted with metallic gold paint.



Photo 239: Taking a step backwards, I removed all the lower plate screws and bolts, and covered the soundboard, treble bridge and the upper portion of the cast iron plate with newspapers. The exposed surface of the plate was scuff sanded with 400 grit sandpaper in preparation for painting.



Photo 240: The lower portion of the plate was sprayed with a metallic gold painted formulated for use on just such a surface. The discoloration and marring of the surface of the lower portion of the plate was improved vastly with this treatment, while the upper portion of the plate was preserved as is.



Photo 241: The area where writing extended downwards was protected. A light use of 0000 steel wool would feather the newly painted area into the original area.



Photo 242: With the newspapers removed, the improvement in the appearance of the lower plate is obvious.



Photo 243: The new bushings are reamed out with a size 2 bit.



Photo 244: The pressure bar, having been polished is reinstalled, using height measurements for the screws taken before the bar was removed to begin with.



Photo 245: Photos taken before disassembly help in the installation of new felt.



Photo 246: Everything ready for restringing.



Photo 247: The bass bridge is finished, with epoxied pins, and 5 coats of shellac.



Photo 248: Towels are used to cover newly finished surfaces before repinning begins.



Photo 249: New pins are driven in, with strings size taken from the stringing schedule recorded at tear-down.



Photo 250: The first few strings around the hitch pins. Stringing should be concluded within several days.