

# PIANO TECHNICIANS Journal

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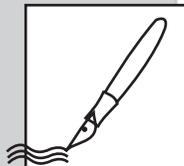
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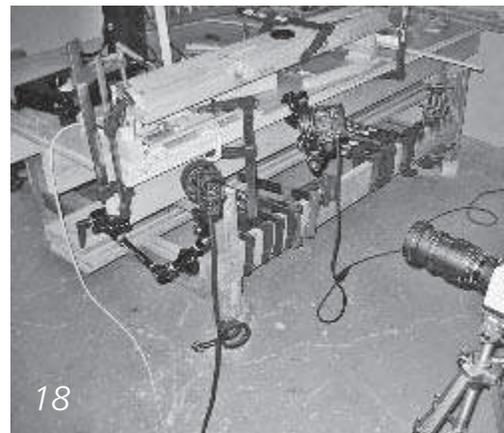
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# Steps to a Quality Refinishing, Part 4

## *Building a Formal Piano Finish and Applying a Fallboard Decal*

By Kevin E. Hancock  
Washington, DC Chapter

In Part 3 of this series (July 2006 *Journal*), we covered sanding and coloring wood in preparation for applying a finish. Now we are ready to discuss applying filler, sealer, topcoat, and decals.

### Paste Filler

At this point in the job, you might be anxious to get into the finishing room and complete the project. Instead, take a little more time to get the wood completely ready for the finish. Once the dye has been applied to the wood, the large open pores of the wood need an application of paste filler in order for the finish to build easier on the wood. Many finishers hate paste fillers. Some even attempt to fill the pores of woods such as mahogany with the finish itself. While you may think this is a more efficient way to build a finish on open-grained (or ring porous) woods, it is not. You have to sand a lot more between coats and the finish will be much less stable. Conversely, by packing the pores with paste filler before you apply the finish, your top-coats will be stable for many years.

While paste filling is not my favorite finishing task, I do find it to be a very important step in a quality piano refinishing shop. It does require some patience and quite a bit of elbow grease, but it is definitely not a waste of time if you plan to build a formal finish like those on many fine pianos.

### What is Filler?

Both water and oil-based fillers are available. (I prefer the oil-based fillers, even though they require more drying time.) Oil or alkyd-based fillers start with an inert pigment (ground quartz). This is made into a paste with oil, oil varnish, or alkyd binder, and a solvent. The paste is forced into the pores of open-grained woods like mahogany, walnut, oak, and rosewood. With colorant added, the filler can accentuate just the pores of the wood for many appealing effects. Once the pores are filled, the finish will build up much faster.

Here are some of the challenges presented by fillers and ways to overcome them:

*Filler is too hard to remove.* A three-step process that involves a wash coat, burlap and ScotchBrite® solves this problem (see below).

*Filler leaves “gray” grain.* If there is not enough oil or alkyd binder in the filler, the filler may look a little gray in

contrast with the rest of the surface, especially on mahogany. Add colorant to the filler to achieve the necessary color.

*Filler “bleeds.”* If the filler has not had adequate time to dry, it will bleed as soon as it is hit by the solvents in a fresh coat of finish, creating a muddy look. The only cure for this preventable mistake is to get out the stripper and start over.

*One application of filler will not completely fill the wood pores.* If you want the pores level with filler, expect to fill twice.

*It takes too long.* Be patient. Let’s face it – if we were not a patient group, we would not have gone into finishing wood!

### Getting Started

After sanding the wood for the finish, vacuum or blow the sawdust out of the pores. If you plan to dye-stain your wood, do it before filling. (See Part 3 for details.) Always allow plenty of drying time before the next step. Dye only needs about 30 minutes before it can be sealed with a wash coat of shellac sealer thinned with 75 percent thinner (alcohol).

Even if you do not plan to dye a piece, it is still a good idea to apply a wash-coat. This thinned sealer makes it much easier to wipe off the drying filler. On a dyed piece, the wash-coat seals the dye and prevents the solvents in the filler from pulling the dye out of the wood. It also allows the filler to color the grain of the wood only without letting the colorants change the rest of the surface.

Apply the paste filler with a bristle brush (see Photo 1). I use Sherwin-Williams filler and add either UTC (Universal Tinting Colorant) or oil-based pigment colorants to get the desired color. Other paste fillers on the market have the colorant already added.

Use a 4-in. putty knife to trowel off the excess filler and scoop it back into the can of filler (see Photos 2 & 3). This makes it much easier to remove the filler with burlap in the next step.

When the filler starts to dry to a pale dull sheen, take a fresh piece of burlap and wipe the filler into the pores by



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6

scrubbing across the grain (see Photos 4 & 5).

When most of the filler has been removed with the burlap, use a piece of maroon ScotchBrite to rub the surface lightly in the direction of the grain to remove any remaining filler (see Photo 6).

Allow the filler to dry for two days. At that point, rub the filler once more with fresh ScotchBrite to make sure the wood is clean and ready for sealer. Check the areas that might not show in the end, such as the hinge attachment areas or the underside of parts, to make sure no excess filler remains.

For picking the filler out of the nooks and crannies, sharpen the end of a 3/8-in. dowel rod like a pencil (see Photo 7). Use this pick stick to clean the grooves on joints and board edges.

### Before Spraying

Before the piano enters the spray room, tape and paper off the bottom of the piano, the keybed, and the plate to completely protect them from finish overspray. Tape off the areas that will ultimately be felted, such as the bottom edge of the fallboard and the grooves on the music desk. If you plan to replace the leather buttons with replicas, mask off those areas also. This quick step makes the final detailing stage go much more smoothly (see Photo 8).

### Apply the Sealer

After the filler has dried, spray a coat of de-waxed shellac sealer. I use Zinsser's "SealCoat," cut with 25 percent thinner (alcohol). Avoid the use of sealers that contain sanding

*continued on next page*



Photo 7



Photo 8

## Steps to a Quality Refinishing

*continued from previous page*

stearates. Stearated sanding sealer makes the finish much easier to sand, but it does not make a good base for your finish. **(Editor's Note: Stearates are added to finishes to make them easier to sand.)** The over-building of sanding sealer will actually weaken the final finish and possibly cause finish cracking in future years. Have you ever seen a nicely built up finish that has very fine "shattered glass" cracks throughout the film? This is often caused by filling pores and building a finish with steared sanding sealer and then applying a top-coat of clear or opaque lacquer over that. One good coat of SealCoat is a much better base. Allow to dry for about an hour, and then lightly sand the sealer with 320 paper.

### Topcoats

For the topcoat, choose a quality nitrocellulose or acrylic lacquer made for wood application. Pneumatic spray equipment is necessary for the efficient application of lacquer. All "build" coats should be gloss lacquer. If you plan on a satin finish, use satin lacquer for the final coat or two only. Apply the first coat of clear gloss lacquer and let it dry for at least a few hours. The longer you let each coat dry, the better your finish will build up and sand between coats. It is often tempting to apply three or four coats in a

single day, but that can get you into trouble. A coat of lacquer may feel dry to the touch, even when some solvents have not yet evaporated. If you continue to build multiple coats in a short period of time, you will trap solvent in the coating that will take days or weeks to evaporate from the film. Be patient, spray just a few coats a day, and allow ample drying time in between.

Color adjustments and touch up of blemishes should be applied between coats of finish (see Part 3 of this series). Use colorants early in the building of the finish (see Photo 9) and apply at least three coats of lacquer over any touch up, glaze, or shading colorants.

Between every other coat, sand the finish with 320 finishing paper (see Photo 10). Avoid using steel wool as the oils in the wool can cause adhesion problems later. As the finish builds, it can be sanded more thoroughly. After five to six coats of lacquer, you should be able to sand the finish to a dull sheen without any gloss grain showing.

Now you are ready for the final coats. Spray a coat, allow it to dry for 10 minutes, and then apply a second coat (see Photo 11). Some parts may take a few more or a few less coats to get a "ready to rub" look.

After the finish has been sprayed, let it sit and cure for at least a week. A month is even better. The longer the finish is





Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 20

allowed to cure, the better it will rub out.

Use a cork, felt, or rubber block to back your sandpaper (see Photo 12). The finish can be sanded in any direction. The goal is to get the surface as flat as possible, so that the next coat will more smoothly on top. Do not expect that multiple coats of finish will “level” a wood surface. The coating will flow to the shape of the surface’s imperfections, which can only be removed by sanding.

### Fallboard Decal Application

Replacement decals are available for nearly all pianos. Decals Unlimited has a great selection. Apply a few coats of lacquer and complete all color matching work before applying the decal. Any shading work should have at least one coat of clear lacquer on top of it. Make sure the surface is clean and dry, though it need not be sanded com-

pletely flat.

Place a piece of masking tape near the center of the fallboard, measure to the fallboard’s exact center, and mark it with pencil on the tape (see Photo 13).

Establish the location of the decal using a square from the bottom edge. Measure up to a letter on the left side of the decal and tape it in place. Place the square on the right side of the decal so that the right side is the same distance from the bottom of the fallboard as the left side, and tape this side in place (see Photos 14 & 15).

Cut off the corner of the paper to remove the staple that holds the backing paper to the decal.

Carefully slide the tissue paper halfway out from under the decal. Rub the decal onto the fallboard with the burshing tool (see Photo 17). Working from the center out-

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Steps to a Quality Refinishing  
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Photo 21



Photo 22



Photo 23



Photo 24

ward and keeping the decal sheet flat on the board, continue to slide the tissue from under the decal. Finish burnishing the decal onto the fallboard (see Photo 18). Slowly lift the decal sheet up before you remove the tape. If the decal has not completely transferred to the fallboard, you can lay the paper back down and continue burnishing (see Photo 19). Use a rubber roller to go over the decal to be sure it has stuck

well to the fallboard (see Photo 20). Remove the sheet and the tape from the fallboard (see Photos 21 & 22).

Spray a very light coat of lacquer over the decal (see Photo 23). The first few coats should be very light “dust coats” to prevent the lacquer from destroying or lifting the decal.

Photo 24 shows the completed and rubbed fallboard. ❑



## Graduate to: **TuneLab**

**Lesson 14: Measuring Inharmonicity.** Select the note you want to measure and mute all but one string. Tap on the **M** for **measure** or press the **M** key. TuneLab displays **Measuring, (trigger?)**. Play the note. **Trigger** changes to **Listening**. Hold the note until **Listening** changes to **Calculating** or until results are displayed.

Fund:	---
par 2:	---
par 3:	1.45
par 4:	2.97
par 5:	4.38
par 6:	5.48
par 7:	7.46
par 8:	---
par 9:	---
par 10:	12.13
IHook:	0.195

The sample results shown here are from a measurement of the note C2 on a medium-sized grand. The number shown for each partial is the offset in cents for that partial. The offset is missing for some of the partials in this sample because the pitch is too low or because the partial is weak or unstable. The offsets shown are used by TuneLab to calculate the inharmonicity constant, which is 0.195 in this case. TuneLab uses the sampled inharmonicity constants to calculate the inharmonicity pattern for the whole scale.

*If you don't already have TuneLab and would like to try out these measurements, download a **free trial** from our website.*

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