Achieving a 'Piano Finish'

One of the universal truths in finishing, observes piano-restoration specialist Kevin Hancock, is that a rubbed finish is uniquely pleasing to both the eye and the touch. Here's a look at how he produces these rubbed finishes, which convey slightly different sheens from slightly different viewing angles and offer a feel his clients praise as being soft as silk.

By Kevin Hancock

In my piano-restoration business, I strive for a perfect rubbed finish. I do so because discriminating owners of pianos demand this quality – in fact, the ultimate rubbed finish is often called a "piano finish."

The truth, however, is that owners of *all* furniture appreciate these finishes, especially on tabletops. And it's also true that these finishes are not all that difficult to produce, particularly with the aid of mechanized rubbing tools.

In rubbing a finish, you're basically putting fine scratches into the surface in a sequence of finer and finer grits until you achieve the gloss (or "sheen") you're after. There are many tools, sequences and materials that can be used to achieve similar results; through the years, I've developed an approach that works for me, and in this article I will explain the tools, methods and materials I use.

Keep in mind that although I'm using pianos for my examples, the exact same procedures can be used on all finished surfaces.

Preparing the Way

There are three steps in preparing a surface to receive a piano finish:

❑ Fill the pores of open-pored woods such as mahogany, walnut and oak with paste-wood filler. Using paste-wood filler is far more effective than trying to fill the pores with the finish itself. Not only is paste-wood filler more stable in the pores (meaning it doesn't shrink as much), but it also requires less time, less physical labor and less product expense to apply and make level.

❑ Apply enough finish so you don't rub through. There aren't any exact rules for determining how much finish is enough because everyone sprays and sands differently. I usually apply 6 - 10 coats of lacquer (after I've filled with paste-wood filler) and sand every other coat with 320-grit sandpaper. When there's no more grain showing (paste-wood filler never fills it entirely), I apply my final two or three coats in preparation for the final rubbing. I prefer to thin my lacquer more than most people, however, so you might not have to apply so many coats.

❑ Allow the finish to dry for as long as possible so most of the shrinking is completed. Because lacquer continues shrinking for a considerable time as solvent leaves it, I let the finish sit for at least a week before beginning to rub it– a month if possible.

Note: For my piano finishes, I use nitrocellulose lacquer most of the time because it

rubs the easiest to the most beautiful final appearance and feel, but all finishes can be improved by rubbing. I usually stop at a satin or semi-gloss sheen, rarely rubbing to a gloss.

By Hand and Machine

After 25 years of refinishing pianos, I've learned that rubbing by hand is very taxing on the body, so much so that I find myself relying more and more on dual-pad, in-line rubbing machines to get the job done. These abrade back and forth in straight lines (not in circles or swirls) and can dramatically reduce the labor and fatigue involved in rubbing a finish.

These dual-pad sanders are capable of removing a lot of material over a large area in very little time and are powered by compressed air, so there's no shock or fire hazard as there is with electric-powered machines. The sanders come with tubular-rubber or felt pads – the rubber pads for sanding and the felt pads for sanding or polishing with a rubbing compound. I prefer using the felt pads for everything.

The higher-end machines have a built-in connection for feeding water to the abrasive. With the less expensive machines, you have to supply the water or other lubricant to the surface separately. In my shop, I just use a plant mister to supply the liquid.

The biggest concern in using these rubbing machines is that you have to have enough air, measured in cubic feet per minute (cfm), to power them. Even the smaller machines consume 7 cfm at 60 to 100 psi, and the larger ones need as much as 18 cfm. To supply this much air and not wear out your compressor as it tries to keep up, you need a dedicated 5-horsepower, 60-gallon compressor at a minimum for the smaller machines and an even larger compressor for the big machines.

Here are the various tools, methods and materials I find useful in my rubbing.

Rubbing a finish without first sanding it level just rounds over the imperfections – and they can still be seen in reflected light. So I always begin by sanding the finish perfectly flat, starting with 500- or 600-grit sandpaper whether I'm sanding by hand (Figure 1) or using a machine (Figure 2). I like to dry-sand so I can see what progress I'm making without continually having to dry off a wet board. The sandpaper I currently like best is the new-


FIGURE 1


FIGURE 2


FIGURE 3


FIGURE 4

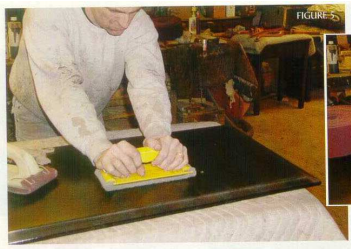
FIGURE 5


FIGURE 6

er 3M Gold 216U paper.

Once I've cut the finish back to a uniform, dead-flat sheen and completely eliminated the orange peel and the shrinkage in the grain, I move to the next higher grit. At this point I need to consider what my final sheen is going to be in order to determine how thoroughly I need to remove the 500-grit scratches.

If I plan on a satin sheen, I follow 500 grit with 600 grit in preparation for rubbing with #0000 steel wool. If I intend to take the final sheen to semi-gloss or glossier, I completely remove the 500-grit scratches with 600-grit and then 800-grit sandpaper and then rub with rottenstone or another fine-grit rubbing compound.

For rubbing with steel wool, I like to unwind the wool, tear it in half lengthwise and refold it by wrapping it around my hand (Figure 3). This makes for a smooth pad of steel wool with no ridges or rough spots that can cause rubbing streaks. (I also check to make sure there aren't any clumps in the steel wool.)

I usually start rubbing with dry steel wool and then move on to steel wool and water. With the dry steel wool, I can easily see my progress in removing the scratches made by the 600-grit sanding (Figure 4). I always do my final passes with fresh steel wool.

Sometimes I substitute synthetic abrasive material for steel wool. When rubbing by hand, I mount this material on a drywall-sanding block (Figure 5). When using a machine, I mount the material on both pads (Figure 6).

Avoiding Trouble

I've learned from experience that there are a couple things to watch for in rubbing out finishes.

❑ The most common problem when rubbing finishes is rubbing through the finish on the edges.

• When preparing the wood for a finish, sand the edges with 150- or 180-grit sandpaper to remove the sharpness and round them over slightly.

• With each coat of sprayed-on finish, shoot all around the wood's perimeter before shooting the entire surface. This builds more finish near the edges so you'll be less likely to cut through later.

• While you're building up the finish, lightly sand the edges with one or two strokes using 320- or 400-grit sandpaper. As improbable as this may seem, since you're actually cutting off some of the finish, it's my experience that a very light scuffing helps subsequent coats build better on the edges.

• When sanding or rubbing with the grain near the edges, use your fingers as a guide to keep from rubbing over the edges.

❑ A second common problem is how to create a uniform sheen over a large surface, especially making the two or three inches in from the edges match the middle. Here are some tips.

• Use fresh materials to finish up the rubbing sequence and keep the same pressure from the beginning to the end of each rubbing stroke.

• Use your second hand as a pressure and steering guide for your rubbing hand by placing it over your rubbing hand.

• Let your rubbing strokes swipe past the end of the wood rather than change direction and start back the other way. Just be careful not to rub over the edge.

• Rub the surface near the edges with short strokes right up to the edge and then blend the whole surface with long straight strokes going with the grain.

• Rub with the palm of your hand, not your fingers.

❑ My third tip is a timesaver. As is shown in the photograph, use a photographer's squeegee to remove water or lubricant much more quickly than you can dry it off with a cloth.

– K.H.


FIGURE 7


FIGURE 8

The synthetic material works great for producing nice straight rubbing scratches across large surfaces such as lids or tabletops.

Unless I'm rubbing to a higher gloss, I usually finish off by rubbing with steel wool or synthetic-abrasive material along with water or soap and water (wool wax or Murphy's Oil Soap) (Figures 7 and 8). In Figure 9, I'm using the largest dual-pad rubbing machine on the market, the 30-pound Stuhr 600.

The finished piano is shown in Figure 10.

Kevin Hancock owns and operates Hancock Restorations, a small piano-restoration shop in Monrovia, Md.


FIGURE 9


FIGURE 10

Rubbing Machine Resources:

Cooper/Stuhr
670 Industrial Drive
Lexington, SC 29072
(803) 359-1200
www.coopertools.com

National Detroit
1590 Northrock Court
Rockford, IL 61103
(815) 877-4041
www.nationaldetroit.com