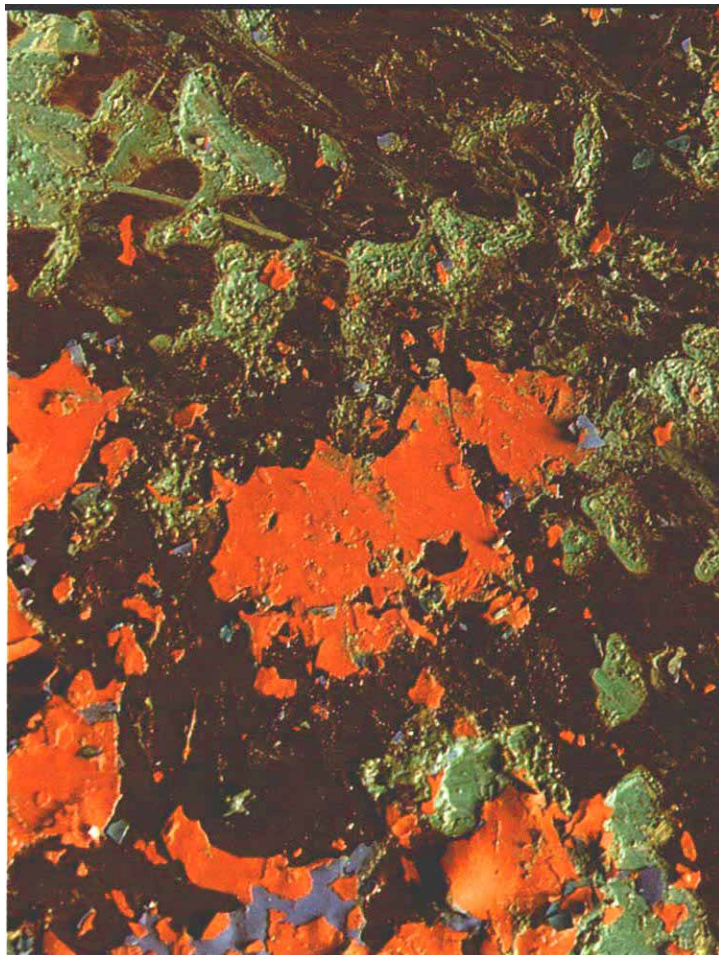


Removing an Old Finish

A chemical stripper will do the work for you

by Michael Dresdner



Refinishing has developed a bad reputation over the years, and most people view it as a troublesome and messy task. But, there are times when it is the best, if not the only way to restore the beauty of a good but worn piece of furniture. Of course, if your table or chair is an antique and its rich patina and worn finish are part of its pedigree, you should never touch it without first checking with a museum conservator or other expert.

If you just want to spruce up the more ordinary furniture most of us live with, refinish away. Actually, the process is much less daunting than you might expect, if you remember that refinishing consists of two simple steps: stripping an old finish and putting on a new one. Once the old finish is off, you are merely at the first step of the finishing process, just as if you had built the piece yourself, and it is no harder to finish old wood than it is to work on new wood. In fact, it is often easier, since the sanding has already been done for you by the original finisher.

Choosing a stripping method

You have several options for removing a finish, but the three most common methods involve scraping it away with abrasives, melting it with heat or dissolving it with chemical solutions. For almost every case the average woodworker might encounter, I'd recommend removing the finish chemically, which is both the simplest and most controllable method and the one I'll discuss in detail. You might think it would be easy to remove a finish with sandpaper, a cabinet scraper or (heaven forbid) a piece of glass, but you'll regret it. Using glass is dangerous, and sanding or scraping makes hard work of a simple operation. In addition, sandpaper and scrapers don't know when to stop; they usually remove wood along with the offending finish.

Melting a finish with a propane torch or heat gun is even less appealing. First of all, the heat is likely to release some very harmful vapors. In addition, heat, like sandpaper, is sadly non-se-

lective and will cheerfully burn wood along with the finish. In some cases, industrial polyester finishes won't budge under any chemical remover, so heat may be your only resort. But be extra careful; wear an organic-vapor mask, goggles and heat-resistant welders' gloves. Work outdoors or with the windows open, a fan blowing and a fire extinguisher handy.

In contrast, chemical removers only affect the finish and not the wood. Most commercial strippers won't harm even old veneered wood or destroy already weak glue bonds. And your local paint or hardware supplier can help you find a stripper that meets your needs fairly precisely and with a minimum of potential health hazards. I'll talk more about the different chemical removers in the sidebar on page 86.

Tools for refinishing

In addition to a chemical stripper, you'll need some other equipment, most of which you probably already have around the shop. Those big, old splayed brushes you've been saving, without quite knowing why, are perfect for applying the chemical solution. It doesn't matter if they are clean or crusty. You'll also need a scraper or putty knife for scooping off the goo. It's a good idea to round the corners of the putty knife, so they won't dig into the wood. Gather up some wood shavings from the planer or jointer, a wooden dowel sharpened to a point in a pencil sharpener and a few stiff, nylon-bristle scrub brushes. You'll also need some coarse (0 or 1) steel wool, or better yet, some 3M Scotch-Brite general-purpose hand pads, a handful of rags or paper towels and a few containers—old steel or porcelain bowls, or even large tin cans. Then grab a stack of old newspapers, and put a drop cloth over the floor or anything else you want to keep clean.

You'll also need some masking tape to cover any unfinished areas, like the insides and sides of drawers. Before you apply the stripper, remove any hardware from the furniture, and take



enough of the piece apart so that you can work on horizontal surfaces as much as possible. Be sure to cover the screw holes for drawer or door handles from the inside with masking tape to prevent drip through.

Let the paint remover do the work

The key to easily removing an old finish is to let the paint remover do the work while you take it easy. You'll need to keep the furniture surfaces wet with stripper until the old finish is completely off. With liquid strippers, that means immersing the wood in the solution or continually rewashing it to keep it wet. Unless the piece is small, or you have extra time to kill, you'll probably find a semi-paste stripper will lighten your work load. These thick solutions flow less quickly than the liquid strippers, so they are easier to control, especially on vertical surfaces. Also, the semi-paste removers contain either waxes or clays that rise to the top and form a crust that slows down the evaporation of the active solvents, thus keeping the remover wet and active longer. That means you don't have to keep going back to rebrush the remover. In fact, if you do rebrush, you'll break up the crust and defeat its purpose.

To apply the semi-paste remover, shake the can a few times, lay a rag over the cap to block any spurts and open the cap slowly to release the pressure gradually. Pour some remover into one of your cans or bowls, and daub it all over the finish with your biggest, floppiest brush (see the photo at right). After applying a nice thick coat, *leave it alone*. Remember to take full advantage of the remover. Make sure the entire surface is wet; if you see any dry spots, go back and daub on some more paste.

Now sit down and enjoy at least a 10- to 15-minute break, but keep an eye on the stripper. If any dry spots develop, re-wet them. If you let the mixture of finish and remover dry completely before taking it off, the resulting crust will be far more difficult to remove than the original finish. After 15 minutes, scrape a small area to see



Apply semi-paste strippers with a big, floppy brush. Lay a thick coat on but don't rebrush it, or you will break the crust and allow the active solvents to evaporate. Always wear good-quality neoprene gloves when handling strippers that contain methylene chloride or alcohol.

Chemical strippers will remove paint or clear finishes without harming the wood's surface. The large photo above reveals what the author found after stripping several coats of paint from the chair in the inset photo—oak with only minor blemishes.

if the finish comes off to the bare wood (see the inset photo on the next page). If it doesn't, but the remover is still wet, leave it alone for a little while longer. When your test area shows bare wood or when your patience is exhausted, carefully scoop the goo off the wood and onto some of those old newspapers. If the wood is not completely clean in all areas—and don't be surprised if it isn't—re-wet the area with more remover immediately before it dries completely. For carved or fluted areas, grab a handful of wood shavings and scrub them into the softened finish to help absorb and dislodge it. Then take a stiff bristle brush and scrub out the loaded shavings, as shown in the top photo on the next page. In very tight corners, use the pointed dowel to clean out the recesses (see the bottom right photo). If the paint refuses to come out of the pores of large-pore wood, like ash or oak, use the stiff bristle brush to scrub the pores while the remover is still wet. In severe cases you may have to resort to a fine brass-bristle brush to clean the pores. Re-apply the remover as often as needed to make sure everything is dislodged, and give the piece a final scrub with a

Scotch-Brite pad soaked in remover just to be sure (see the bottom left photo). Then wipe off the surface with rags or paper towels.

At this point the wood should look clean, but it probably contains wax, silicone or other oils that may impede the finishing process. The wood may also contain old filler and stains you'd be better off without. The best way to remove these contaminants is with a series of solvent washes. Using a clean piece of Scotch-Brite, scrub down the wood with a liberal amount of lacquer thinner, followed by a scrub with alcohol and then one with mineral spirits or naphtha. It is not necessary to wipe off the wood in between washes. If you'd rather avoid working with these flammable solvents, scrub the surface with a solution of water and trisodium phosphate (TSP), a degreaser found in most paint and hardware stores. Just mix the solution according to the directions on the box. It is not as effective as the solvent sequence, but it is better than nothing. Finally, scrub down the wood with a solution of ammonia in warm water (about 2 oz. of household ammonia per quart of water), and then wipe off any excess liquid. During this final wash, the wood should look clean

Methylene chloride strips best, but there are other options

Identifying an old finish is a lot like determining what species is what in a mixed pile of lumber—it's easy if you've had a lot of experience, but frustrating for a beginner. Most finishes look pretty much alike to a neophyte, so rather than having anyone agonize over identifying a finish and selecting a stripper specifically for that finish, I recommend buying a good, wide-spectrum commercial remover that contains enough methylene chloride (a powerful stripping agent) to be classified as non-flammable.

Generally, you'll find a wide variety of removers at any good paint or hardware store. Most of these products fall into one of four general categories.

Paint and varnish removers: These strong solvent mixtures will remove a wide range of finishes and are the ones I recommend most often, especially if the identity of the old finish is not known. Some of these are flammable and most smell and produce annoying and harmful fumes. Most are poisonous if swallowed and contain solvents you should avoid getting on your skin. They're sold both as thin liquids and heavy-bodied semi-pastes, which I prefer because they cling better to vertical surfaces and stay wet longer.

One common thread among these removers is methylene chloride, a very fast and effective solvent. An interesting feature of methylene chloride is that adding it to a flammable solvent mixture can make the mixture non-flammable. Another curious aspect of methylene chloride is that as a stripper, it works from the bottom up rather than from the top

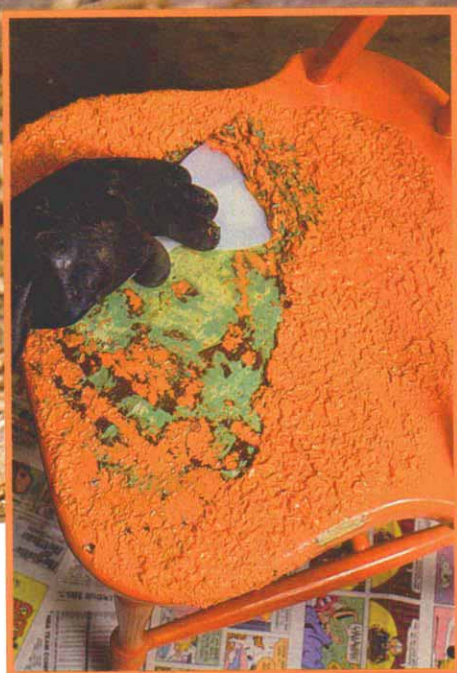
down. This means that once the remover is put onto the surface, it drops down through the coating and softens it at the wood line, allowing most finishes to peel off in sheets rather than turning into sticky gunk. That can translate into less material waste and easier disposal. When working with these materials, observe the safety precautions outlined in the sidebar on p. 88.

Wood refinishers: A refinisher is a thin, watery mixture of common finish solvents, usually alcohol, toluene and acetone, which dissolves shellac, lacquer and some varnishes but has little effect on most paints and polyurethanes. To see if the material will work on your finish, apply some refinisher to a small, obscure spot, and see if it melts the finish. If the refinisher turns the old finish into a liquid, you have a few options: move the finish around with rags or abrasive pads to "re-knit" an old checked or cracked surface, remove most of it and leave only the barest sealer coat, or keep washing down the wood until the old finish is completely gone. Admittedly, leaving only a partial finish that still looks good will take some practice. Because refinishers contain only solvents and no waxes, they leave the wood surface clean and ready to refinish. On the down side, refinishers are very flammable, create lots of solvent vapors, evaporate quickly and generally smell awful.

"Safe" strippers: The new so-called safe strippers utilize solvents that are considered to be much safer than their

predecessors, but they are not as effective on all types of finishes. Some manufacturers specify that their material works on only one class of finish, such as oil-based materials; others offer two or more different formulations to cover all the bases. Generally, these strippers are thick, slow drying and non-flammable; they have very little odor and won't burn or harm bare skin. (One company offers a product so gentle to the skin that it can be used as a hand cleaner.) The fumes that do come off are regarded as safe so that work can be done indoors. The trade-off is that these strippers work slower than methylene chloride or harsh solvent mixtures and frequently cost more. But they are the ideal choice for people who are particularly sensitive to hard solvents or people who must work indoors.

Caustics: Certain types of paint, such as milk paint, won't respond to most solvents but can be softened with strong acids or alkalies. Caustic strippers, like lye, were the most common type before methylene chloride mixtures were developed, but they have virtually died out along with the milk paints that necessitated them. Some people still like the idea of using lye to remove paint, but it can burn and discolor wood if it's left on too long, soften some glues and seriously raise the grain of old wood. More importantly, it will seriously burn skin and eyes, and the fumes are antagonistic to the nose, throat and eyes. Take precautions and, above all, keep your wits about you and watch where the lye splashes. Better yet, select another method.—M.D.



After waiting 10 or 15 minutes, use a plastic scraper to see if the finish will come off to the bare wood (inset photo above). If there are several coats of paint, as there are on the chair shown here, you may have to remove the goo, and apply another coat of the stripper.

In hard-to-reach places on turned or carved parts, rub a handful of wood shavings into the softened finish to help remove the residue. Then scrub out the shavings with a stiff bristle brush (large photo above).

Scotch-Brite pads are ideal for scrubbing down the wood with a final coat of stripper, as shown at right, and for washing the surface clean with lacquer thinner after all the finish has been removed.

A sharpened dowel is handy for cleaning stripper and finish residue from very tight corners, as shown in the far right photo.



and the color should be somewhat uniform. If the water wets the wood unevenly or leaves splotchy areas, not all the residue has been removed. Go back to the paint remover and repeat the stripping- and rinsing-solution sequence outlined above. When the wood is clean as a whistle, let it dry overnight.

Cleaning up

That sludge you've collected on the newspapers, rags, steel wool and paper towels is considered toxic by most communities, and shouldn't be treated as normal trash. Check your local regulations before disposing anything. Your community may have a special collection site for used oil, paint and solvents. If it's going to end up in a landfill, let the residue dry completely prior to disposal. The residue will become hard and crusty, which is less damaging than the solvent-laden sludge. Before the residue hardens, you can clean your brushes, putty knives and even the Scotch-Brite with lacquer thinner, but disposing of the dirty lacquer thinner will be regulated just like the sludge.

Removing stains

Even though the wood is now free of finish, it may still be marred by both intentional and accidental stains, which you may want to remove. Intentional stains are whatever dyes or pigments the first finisher applied to the wood; accidental stains are the various water rings, ink spills, uneven sun fading and other marks of age and use. Many people feel that these accidental stains add character and history to furniture and should remain under the new finish, but for the most part, these are the same people who believe that old furniture should never be refinished. Though not all stains and discolorations can be removed, there are ways of dealing with some. First, let's deal with the intentional stains.

Wood stains are either pigments or dyes. Most, if not all, of the pigments should have been removed by the solvent scrubs; whatever is left now is likely to remain forever. But most aniline dyes can be denatured by using either commercial decolorant solutions

or chlorine bleach, which is sold in grocery stores as laundry bleach. These bleaches are generally rather weak concentrations (usually a 5% solution), so they will work slowly and require several applications to remove the dye. You can make a stronger solution by mixing swimming-pool chlorine (sold under various names) into water. The label on the pool treatment will indicate the percentage of active ingredient, usually 65% to 85% of either calcium or sodium hypochlorite. Get the highest percentage available. Add the white crystals to a glass jar of hot water; let them sit a few minutes and stir occasionally. Keep adding the pool treatment until no more will dissolve and a layer of white residue settles to the bottom of the jar. Wear rubber, protective gloves, and use a synthetic sponge to flood the wood surface with the warm mixture; then let it dry overnight. In the morning, you'll see a layer of dried crystals on the wood, which should be washed off to remove the stain. A second wash will be even more effective.

Oxalic acid (sometimes sold in liquid form as deck brightener) is often effective on water rings and ink stains and on "silvered" weathered wood. But it works best for quickly and completely removing the blue/black iron stains often found when oak and other high-tannin woods contact iron hardware or nails. Make sure you remove the nails or hardware before bleaching, or you may create new stains as the wood dries. If you can't remove the nails, counter-sink them, and putty over the holes before you apply the oxalic acid.

Both stain removal processes require a lot of water, which often raises the grain of the wood. Although it is usually not necessary to sand wood when refinishing, it will probably be necessary after stain removers are used. Use a very fine sandpaper (220-grit or finer) and scuff-sand quickly and lightly. For turnings and carvings, use Scotch-Brite pads instead of sandpaper. □

Michael Dresdner is a finisher in Perkasie, Pa. This article was adapted from his forthcoming book, The Woodfinishing Book, to be published in the fall by The Taunton Press, 63 S. Main St., PO Box 5506, Newtown, Conn. 06470-5506.

Fresh air and common sense reduce refinishing hazards

Every paint-remover manufacturer suggests that you work in a well-ventilated area, but few explain what that means. I think the ideal situation is a shady area outside in 75° weather with a light breeze, but ordering good weather is difficult. If you can't strip outdoors, open the windows, and turn on a fan to bring in fresh air and to carry off any contaminated air. Unless you've chosen a so-called safe remover, stripping furniture is not a wintertime activity. Ventilation is particularly important with methylene chloride. When you inhale the fumes, your body metabolizes them to carbon monoxide. This is not good for anyone, but it can be particularly dangerous to heart patients who should avoid the chemical totally. Goggles are good to protect your eyes from splashes, and good-quality neoprene gloves are essential to

protect your skin. Both alcohol and methylene chloride can be absorbed through the skin, and methylene chloride in particular will carry with it heavy metals, such as the lead often found in old paints. Also, if you're working with flammable compounds, avoid sparks and flames.

Even if you're working outdoors on an ideal spring day, I'd suggest closed shoes (not sandals), long pants, long sleeves and a plastic apron to protect against splashes. Buy extra-long gloves, and turn the ends up into a cuff when you put them on. That way, when you lift your hands, the paint remover will run into the cuff and not down your arm. (Remember, some of these chemicals can burn sensitive skin) Finally, use common sense; if the smell of the stripper starts to sicken you or makes you dizzy, *stop*, get some fresh air and a new game plan.

When working with dry bleach crystals, wear a nuisance-type dust mask when you handle the irritant and when you subsequently sand the wood. Though neither chlorine nor oxalic bleaches are severe caustics in solution, gloves and goggles are always in order. Most bleaches will "eat" natural fiber brushes and rags, so use synthetic sponges and brushes (nylon or polyester).

If these warnings have you wondering whether refinishing is really worth all the trouble, you have one other alternative. Look in the yellow pages and find a commercial furniture stripper to handle the job. But make sure the company specializes in wood stripping because outfits that work mostly with metals frequently use caustic strippers, and these may loosen glue joints and play havoc with the wood grain. —M.D.