FEATURE

# Repair and Touch-Up of UV Wood Finishes

**By Randal Cain**

Repair and touch-up of UV finishes has long been a problem that has plagued manufacturers of UV-finished wood components. Touching up a UV coating can be a real challenge. Nearly all UV repairs are completed using conventional finishes. UV finishes are less likely to need repair due to their superior hardness and chemical resistance.

Unfortunately, some manufacturing facilities resemble suitcase-testing laboratories and even a UV finish can be scratched when proper handling practices are not followed. In these instances, conventional finishes are used so that the repair can be made in the manufacturing facility or off-site by a technician skilled in the process that is described in this article.

***This higher crosslink density gives UV finishes superior chemical and scratch resistance, but this makes them much harder to bond. You must rely on a mechanical bond to begin the repair.***

A UV-cured repair system should be completed in a controlled plant environment and would not be practical for assembled furniture or cabinets. Thus, the touch-up and repair references described are designed for repairs that may or may not be done in the manufacturing facility.

## Challenges to Repairing UV Finishes

The main difficulty in repairing UV finishes is getting good adhesion to the UV-coated surface. The higher crosslink density of UV finishes is the main reason that adherence is difficult. This higher crosslink density gives UV finishes superior chemical and scratch resistance, but this makes them much harder to bond. You must rely on a mechanical bond to begin the repair. This mechanical bond is achieved by sanding the area surrounding the repair with 400-600 grit sandpaper. Sanding with this fine grit sand paper is necessary to achieve a good mechanical bond without making scratches that can be covered by the repair coatings. After sanding the area, the repair process can begin.

The conventional repair of a typical UV-coated component will be discussed. The following items are always present in a good repair—base color, level, texture, grain and sheen.

## Base Color

When assessing the quality of the repair area, use these points to evaluate the repair process. First, the base color of the filling material should be the lightest color you see in the background of the surrounding area. It is better to be too light than too dark, as a dark area is difficult to lighten up. A wax stick, burn-in stick or an epoxy fill can be used to accomplish this base color. When using a wax stick for the fill, choose a color that appears slightly darker as a wax stick once applied will appear slightly lighter. A burn-in stick or a satin burn-in stick fill should be as close as possible to the exact color. An epoxy fill can be color adjusted very easily by mixing in the appropriate master blend powder color.

## Level

The level of the repair is critical to a good repair. To ensure a smooth and

level repair, the defect must be free of splinters, debris, puffed up or swollen fibers. Trim away any splinters or raised area with a razor knife prior to filling. With a wax stick repair, remove the excess wax stick with a plastic card or plastic scraper. Then, using a clean soft cloth remove any surrounding residue, being careful not to "hollow" out or dimple the repair area. Leveling a burn-in can be done with a hot burn-in knife with the aid of Magic Balm. Once it is level to the touch, sand the area very lightly with 400-600 grit wet or dry sandpaper lubricated with the Magic Balm residue.

## Texture

The texture of the repair is important. The texture can be affected by the use of a "hot burn-in" knife. This edge can be used to add grain lines in an open grain repair or smooth out the surface in a smooth finish. A "Hot Burn-In Knife" is similar to a soldering iron with a larger flat edge. In areas of heavy grain, a repair can stand out if it is too smooth or flat. With any aspect of a repair, "less is often more." Use the least amount of grain texture to achieve the desired effect. Be sure that the length, depth and direction of the grain texture flows well with the surrounding surface. Some surfaces may require a dust coat of aerosol clear spray to simulate an orange peel or pebble surface, while some surfaces may require wet or dry sanding to cut the surface perfectly flat.

## Grain

The grain over the repair area must replicate the surrounding area. There are several choices for replacing color and grain over a repair area. Depending on the level of repair needed, markers, graining pens, graining pencils, powders or toners can be chosen. When using a marker or a graining pen, it is best to apply the color with just the tip and immediately blend with your finger. These types of repairs should be top coated with a clear aerosol to enhance the durability of the repair.

## Finer Repairs

Repairs that get more scrutiny are good candidates for the use of powders. Powders allow precision with the color matching and application technique. Begin by putting an assortment of dry powders in a dish, and then in a second dish add some padding lacquer. Padding lacquer will provide the vehicle (liquid bonding agent) for the pigment. Blend a small amount of color as close to the background or lightest color of the surrounding area. Apply fine lines of color with a number 0 round sable art brush (the smallest art brush available), space slightly apart. Adjust the color slightly darker; apply a few more fine lines. Mimic the surrounding grain pattern, being aware of grain size, color and direction. Remember that less is more; using the fewest number of brush strokes will attain the desired effect. Adjusting the color of the powder mix in small steps helps create the illusion of depth. Be careful to use dry brush strokes, rather than heavy wet strokes that cause the repair to appear "muddy." Drying defined lines increases the clarity of the repair. Top coat the repair with a clear aerosol designed for UV, to protect the color and grain that has been applied.

The entire area's color can be adjusted with an aerosol toner. For small spot toner areas use a "shield," such as a piece of sandpaper with a whole torn in the center to pinpoint the toner to a specific area.

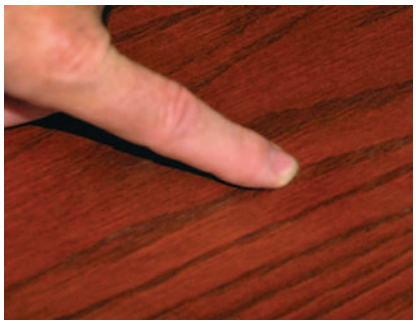
The key points to successful color replacement are:

- Grain color
- Grain size
- Grain direction
- Less is more, do not paint the area
- Mimic the surrounding area

*Burn-in stick should be as close as possible to exact color.*

*Powders allow precision with color matching and application techniques.*

*Magic Balm can help level out repair.*



*Base color, level, texture, grain and sheen are always present in a good wood repair.*

## Clear Coating and Sheen Adjustment

The next step is to apply an aerosol topcoat to protect the artwork placed over the repair area. The preferred aerosol is a precatalyzed lacquer. These aerosols offer excellent adhesion to the scuffed UV surface. The adhesion is enhanced by the sanding at the outset of the repair, creating a mechanical bond between the surfaces. After the precatalyzed lacquer has dried, the touch-up aerosol can be applied to adjust the sheen (gloss) of the area. This is a unique low-solids lacquer with a specially formulated retarder added to promote flow out, resulting in a "no halo" aerosol.

## Summary

Rest assured that your first repair may not be your best repair, but with practice you will be able to make your repaired panel look much like the undamaged finished wood to the untrained eye. As with most wood finishing projects, repairing wood finishes with the right products and the right tools will speed the repair process. The wood finisher will get better with age and experience.

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