

Gel Coat Repair Manual

This guide will help composite fabricators repair minor damage or imperfections on a Vibrin® gel coated surface. A properly applied gel coat patch will allow the surface to look and perform like the original high quality surface.

The technician's experience and skill is critical in determining whether a particular surface imperfection can be effectively patched. Contact your AOC sales or distributor representative if you need technical help or advice in making this determination. If a particular surface problem is reoccurring, a specific technical issue may need to be addressed. Again, your AOC sales or distributor representative can offer assistance.

What You Will Need to Get Started

Materials

- 50 grams Vibrin® gel coat supplied by AOC or AOC distributor. When ordering, please specify the Vibrin® gel coat product number of the original surface. Also, if the gel coat used in production is still in inventory, use the same lot number.
- 10-20CC Vibrin® Patch-Aid D (patch additive)
- 2 cc catalyst
- Dykem® 1 tooling layout dye or equivalent
- Wiping solvent such as acetone
- Water – or oil-based, medium-cut glazing compound

Optional Materials

- Diluent or thinning solution such as styrene (if you are using a Preval® spray unit)
- Polishing wax (if enhanced gloss is desired)

Equipment

- 8 oz. cup or container
- Tongue depressor, spatula or similar stirring device
- Masking tape and other masking material such as clean kraft paper
- Clean, dry rags or lint-free wipes
- Buffer with buffing pads
- Sandpapers of various grit (e.g., 120, 180, 320, 400, 600, 1000, 1200, 2000 grits).

Optional Equipment

- Dual action sander
- Heat-gun or heat lamp
- Small brush (for applying glazing compound if a rag is not used)

Repairing the Problem

1. Preparing the Patch Area

1. Prepare the area to be patched by sanding the area with sandpaper of 180-400 grit maximum. Prepare an area that is larger than the area that you plan to spray. This will help you “feather” the sprayed area and reduce the possibility of halos.
2. Clean the area with a clean dry rag, then carefully inspect the patch area surface to be sure that there are no glossy areas. To get a good mechanical bond of the Vibrin® PA patching material, **NO GLOSSY AREAS SHOULD BE SEEN.**
3. Clean the area with a solvent such as acetone on a clean, lint-free rag.
4. Mask or tape around the area to be sprayed. Be sure to extend the masked or taped area well beyond the spray area to help prevent over-spray and reduce sanding or cleanup.
5. Wipe the area once more with a clean rag and check inside the masked-off area for shiny spots. If there are shiny spots, repeat Steps 1, 2 and 3 on and adjacent to the shine. When there are no glossy spots, you are ready to spray.



*Problem Identified
Patch any surface
imperfections before
the molded part is
shipped.*



*The area to be
patched is masked
and free of glossy
areas.*

2. Mixing the Gel Coat

1. Be sure the Vibrin® gel coat is less than 90 days old.
2. Mix well by stirring thoroughly with a tongue depressor, spatula or similar device for about one minute. For optimum handling and results, the temperature of the gel coat, patch additive and catalyst should be between 70°-90°F.
3. Reduce the gel coat by mixing in Vibrin® PA patch additive. This is especially formulated by AOC chemists for superior compatibility and optimum results. If a Preval® spray unit is used, it may be necessary to further reduce the patching mixture with up to 10% styrene by volume.
4. The mixture should typically be 9 parts gel coat to 1 part patch-additive by weight.
Example
90 grams Vibrin® + 10 grams
Vibrin® Patch-Aid D = 100 grams of patching material
5. Catalyze the mixture by adding 2% to 2.5% catalyst by weight of the total mixture.

Example

100 grams of material + 2 to 2.5 gram of catalyst

CAUTIONS: Using the “drop” method to estimate the amount of catalyst being added will lead to inaccurate measurements. If the patching mixture is overcatalyzed, the sprayed area may not match the surrounding area when sanded. Overcatalyzation may also cause porosity. If the patching mix is undercatalyzed, cure is not complete, color is poor, and poor adhesion between the gel coat and matrix leads to delamination.



*Mix the
Ingredients well.*

Repairing the Problem

3. Spraying the Repair Area

1. Always check to ensure that the air supply is clean. Blow the air into a clean rag, if water or oil is detected, **DO NOT SPRAY UNTIL THE AIR LINES HAVE BEEN CLEANED**. Air may also be aided through the use of a Preval® portable spray unit. Follow the manufacturer's directions for proper use.
2. Set the air pressure on the spray equipment as low as possible. This will help reduce over-spray and orange-peel in the repair area.
3. Start by spraying a light 2 to 3 mil thick coat over the repair area. Do not spray all the way to the mask or tape because this will cause a hard line in your repair that is very hard to sand out. Pause for one minute then continue with another 2 to 3 mil pass. Repeat until you have a total of 10 to 12 mils of patching mixture on the repair area.
4. After the spray is completed, the repair should set for a minimum of one hour before sanding. Colors will need to set longer.
5. If you use a heat-gun or heat lamp, wait until the spray has gelled before applying the heat. **DO NOT OVERHEAT THE REPAIR AREA BECAUSE COLOR CHANGE AND DISTORTION MAY OCCUR.**

4. Sanding the Spray Area

1. After the masking or tape has been removed, mix 5% Dykem® Tooling Layout dye to 95% acetone. Wipe the dye mixture over the entire spray repair area. The dye mixture will make sanding and feathering easier by showing all scratches and orange peel.
2. Start the sanding process with 320-400 grit sand paper. Sand the area until all the dye has disappeared. After all scratches are gone, dye the area again and move to the next higher grit sand paper (320-400-1200-2000). The higher grit sandpaper will give the finished repair a higher gloss.



Half the dyed repair area has been sanded until the dyed scratches disappear.



Use several passes to build a total coating of 10 to 12 mils.

Repairing the Problem

5. Buffing the Repair

1. Use a buffer that is designed for 1750-2800 RPM.
2. Use a good medium cutting compound that is water- or oil-based. Do not start buffing with a glazing compound that is animal fat based. These types of compounds will glaze over any remaining scratches during buffing. However, when the fat dries, the scratches will return. Animal fat based compounds are good as a finishing glaze, after all scratches have been removed with the cutting compound.
3. Use a rag or a small brush to apply a thin layer of compound over the repair area.
4. Start the buffer off the part, and then move it onto the part. The buffer and compound will give you the best results when you use the center of the buffing pad for working the compound. Compound may need to be applied two to three times.
5. After all scratches have been removed, apply a finishing glaze at low speed with a buffer and a clean buffing pad.
6. You can apply wax to enhance the gloss if desired. Only use a wax that is recommended for application to gel coat surfaces.



Start buffing with a water – or oil- based, medium cutting compound.

After: Problem Solved



The surface is repaired to the original high quality surface.



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For gel coats, colorants, additives, resins, materials systems and support that will sharpen your competitive edge, contact your AOC sales or distributor representative. You may also visit our website at www.AOC-Resins.com, e-mail sales@aoc-resins.com, or call our World Headquarters in Collierville, Tennessee, at (901) 854-2800.

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