



PRODUCT BULLETIN 13

Gel Coat Repair

Professional Solutions for Gel Coat Issues

- Chips
- Gouges
- Drilled Holes
- Scrapes
- Air Voids
- Stress Cracks

Repairing Damaged Gel Coat

Professional repair of damaged gel coat can be very expensive. The good news is that you can do a professional job yourself by investing a little of your time and patience and by using quality TAP products.

The basic steps needed for a cosmetic gel coat repair are included in this Product Bulletin. These instructions assume you have a basic knowledge of fiberglassing and the use of polyester resin. If you do not, a TAP salesperson will be glad to provide you with the necessary information.

Perhaps the greatest challenge in gel coat repair is matching the color of the repair to the existing color of the boat. Gel coat begins to change color (usually by getting darker) the day the boat is exposed to the sun's rays. Stock gel coat will never match faded gel coat, therefore custom colors must be used to make your repair invisible. How to custom mix gel coat color to your specific boat color is explained in this Bulletin.

There are four basic types of cosmetic repairs:

1. Air voids (caused by the manufacturing process).
2. Stress cracks (caused by the twisting and stress of the boat).
3. Drilled holes (usually due to removed hardware).
4. Scrape, gouge, or chip.

Each requires a different repair approach. This Bulletin will deal with the last two issues: repairing drilled holes and scrapes, gouges, and chips.

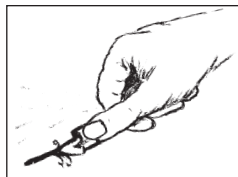
Supplies You May Need

Regardless of the type of repair you are doing, the same basic supplies are required:

- Gel Coat
- TAP Pigment
- Stir Sticks
- Disposable Brushes
- White Rags
- Razor Knife
- Sandpaper (#60, 80, 320, 400, 500, 600)
- Sanding Block
- Carbide Router Bit
- Stanley Surform File
- TAP PVA
- Respirator
- 3M Marine 1-Step Fiberglass Restorer Paste
- Catalyst
- Mixing Containers
- TAP Acetone
- Solvent-Resistant Brush
- Long Masking Tape (blue)
- Putty Knife
- Drill
- Dust Mask
- Preval Sprayer
- Gloves
- Goggles/Safety Glasses

Gouge, Chip, and Scrape Repair

Before beginning your repair, make a small batch of custom matched gel coat following the instructions for matching colors in this Bulletin.



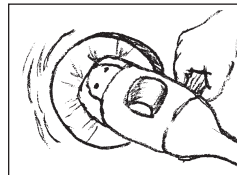
1. Using a razor knife, pick and scrape away loose, cracked gel coat so that only fully bonded gel coat remains.
2. Using 60 to 80 grit sandpaper, hand sand the gouge to bevel the edges of the gel coat. Be careful to sand only the damaged area.
3. Wipe the area with a dry rag to remove dust. (Do not use acetone yet as it can move wax from an undamaged area into the freshly sanded gouge and impair adhesion.)
4. Use Long Mask (blue) masking tape to mask off the area around the gouge. (Poorer quality tape often leaves adhesive behind when it is removed, which greatly complicates the job.) Mask the undamaged gel coat right up to the edge of the gouge.
5. Now you can wipe the gouge with a white rag and TAP Acetone (pure acetone) to clean it for repair.



6. Place a small quantity of color-matched Gel Coat on a piece of cardboard, a butter dish, etc. Do not catalyze it yet. Place it in the sun for about 15 minutes. This will cause some of the styrene thinner to flash off allowing the Gel Coat to thicken enough to apply to a vertical surface without sagging or dripping.
7. Catalyze the thickened Gel Coat. Be careful not to over catalyze as this can cause the Gel Coat to change color. Follow the labeled instructions.
8. Use a small brush (solvent-resistant brush) to apply the Gel Coat to the damaged area. Be sure to fill all the voids and build the Gel Coat to a level higher than the surrounding area.
9. Gel Coat does not surface cure (it remains tacky where it is exposed to air). To get a good hard surface cure for sanding, spray the surface with TAP PVA, using a Preval Sprayer—this will seal the surface.
10. Allow the Gel Coat to fully cure (12 to 24 hours), then remove the masking tape.
11. Using 320 grit wet/dry sandpaper, wet sand the repair with a sanding block. Be sure to focus the sanding on the repair area, not on the surrounding area. Sand the repair flush with the surrounding area until you can no longer feel the location of the repair.
12. If pin holes appear in the repair, re-mask the area with masking tape. Then apply catalyzed Gel Coat (unthickened-as it comes from the can) into the voids and re-spray with PVA. Let cure and remove the tape.
13. Continue wet sanding the area, using 400, 500, then 600 grits successively. Do not skip grits. By now your repair should be invisible.



14. Using Meguire's Professional Machine Cleaner 1 and a power buffer (2000-3800 RPM) or a hand drill with 3M's Marine Superbuff 6" pad to buff the area to a shine.



Finally, apply Meguire's Professional Machine Glaze 3 to the area for protection (UV resistant-great for entire boat).

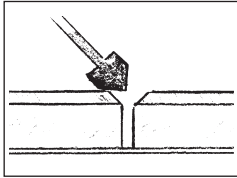
Repairing Drilled Holes

Unlike gouges, drilled holes go all the way through the fiberglass, necessitating a slightly different repair approach.

1. Using a drill and a carbide router bit, grind out the area to be repaired. Grind through the gel coat and into the underlying fiberglass slightly. Most holes also have stress cracks spreading from their edges. Grind these out as well. After grinding, use 60 to 80 grit sandpaper to bevel the edges of the remaining gel coat.
2. Most hardware was attached with some sort of sealer. This sealer often remains behind, coating the hole and preventing adhesion of the repair. Use a knife to remove any remaining sealer from inside the hole.
3. If you have access to the back side of the hole, place tape behind it to provide a backing for the resin/filler. Then from the front, put a pinhole in the tape to allow air to pass through as the filler is pressed into the hole. If you do not have access to the back side, wad up a small piece of masking tape and stuff it deeply in the hole to provide a backing for the resin/filler.

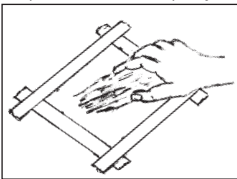
- Using masking tape, mask off the surrounding area to within 1/4 inch of the hole.
- Catalyze a filler compound (polyester with Cab-O-Sil or Microspheres works well) and press it completely into the hole.

6. Let the filler (compound or mixture) begin to cure. Before complete cure, remove the tape and use the surform file to remove high spots and create a slightly concave repair area.



7. Hand sand the repair with 80 and 120 grit sandpaper. The final repair area should be slightly concave.

8. Mask off surrounding area with tape and newspaper, since you will be spraying Gel Coat and will want to prevent over-spray from hitting any other part of the boat. Be especially careful to protect any acrylic windows or hatch covers near the repair area. Tape down all edges of the paper to prevent them from blowing into the work area and marring the finish.

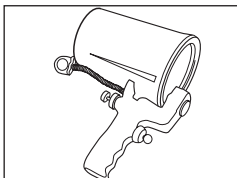


9. Wipe off the work area with acetone and a white rag.

10. Prepare your Gel Coat for the sprayer. This is done by thinning it with acetone to the viscosity of whole cream. If you over thin, let the acetone flash off (evaporate) and it will re-thicken.

11. Pour the thinned Gel Coat into an airbrush sprayer using a paint filter. Catalyze the resin (15 to 20 drops of catalyst per ounce of resin), mixing thoroughly with a clean stir stick.

12. After mixing, spray the unmasked area (wear a respirator). The sprayed coat should be thick enough to fill the concave shape of the repair. Don't worry if the Gel Coat cures with an orange peel appearance. This is normal and will be sanded off.



13. Allow some time for the acetone in the Gel Coat to flash off. Then spray with TAP PVA to assure a surface cure.

14. If you are working outside, be sure to use the TAP PVA early enough in the day so that it has time to dry before any condensation can form from the cold evening air.

15. After allowing the Gel Coat to cure over night, remove the masking and sand and buff according to steps 11 to 14 in the Gouge Repair section.

Matching Gel Coat Colors

Matching new gel coat to old, faded gel coat is the most challenging and perhaps the most important part of a successful cosmetic repair. (Unlike many other materials, when gel coat fades, it usually gets darker rather than lighter.)

Every repair requires some sanding. When the faded gel coat is sanded, some of the faded gel coat is removed and a truer color is revealed. In matching newly applied gel coat, it is important to match it to the sanded area. This new gel coat will quickly fade (within a month or so) to perfectly match the surrounding unsanded area.

To obtain a good color match use the natural light (outdoor) of morning or mid-afternoon.

- Wet sand the area to be gel coated with 320 grit sandpaper to remove any faded gel coat. Only remove .001" to .002".
- Finish sanding using 400, 500, and 600 grit. Then buff the area.
- Now you are ready to begin the color matching process. First, thin the Gel Coat with acetone so that it is water thin. This will allow the pigment to disperse and produce a much better color. When the final color is reached, allow the acetone to flash off (evaporate) for the desired Gel Coat consistency.
- Keep your color pigment or paste at room temperature so it will blend easily into the Gel Coat.

Need More Information?

Your TAP store has a wide variety of books which address all aspects of marine construction and repair. Ask your TAP Salesperson for more information or shop online: tapplastics.com.

- Using your best color judgment, add a very small quantity of pigment or paste to the un-catalyzed Gel Coat. While wearing gloves, touch the tip of your finger in the Gel Coat and smear it on the sanded area of the boat. Look at the color and decide what color pigment or paste needs to be added. Add a small quantity of the next color and repeat the process until you get a perfect match.
- If you are uncertain what color to add, smear a little Gel Coat on the boat and then smear a very small amount of pigment on the wet Gel Coat and swirl it in to mix the colors. Look at the result to determine if that was a good color choice.
- This process requires persistence to get a perfect match, and with a little patience you will achieve your desired results. The beauty of Gel Coat is that, unlike paint, it is the same color wet as it is dry, making this color matching method quite effective.
- When looking at the work area, be sure to look at it straight on, rather than at an angle. This will minimize reflections which can affect the color appearance.
- Once you have a color match, allow the Gel Coat to thicken enough for spraying and then catalyze and apply it with an airbrush, following steps 10 through 12 in the Repairing Drilled Holes section.

This color matching process assumes the repaired area is white or off-white in color. White Gel Coat is used as the base material to which pigment is added. It is not possible to add enough pigment to white Gel Coat to create deep colors. If a dark or brilliant color is desired, it is best to start with a neutral or stock color Gel Coat that is closer to your desired finished color.

General Information Safety

- Keep Out Of The Reach Of Children.
- These products are flammable. Keep away from sparks, flame, and heat sources.
- Wear safety glasses: In case of contact with eyes, flush with water for 15 minutes. If discomfort persists, seek medical attention.
- Wear gloves and protective clothing.
- Wear a dust mask when sanding.
- Avoid inhalation of vapors.
- Avoid eye or skin contact with resin, hardener.

Because we have no control over working conditions or methods, products should be tested to establish suitability for your individual application. Our liability is limited the price of the product.

Before You Start

- Read the instructions completely before attempting the repair.
- Check your supply list.

TAP Plastics stocks most of the products mentioned in this Bulletin—ask your salesperson to help you find them or shop online: tapplastics.com.

View all of TAP's how-to videos on plastic, fiberglass, mold-making, window films, and more at:

http://www.tapplastics.com/product_info/videos



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