

PRACTICAL BOATER

72 | Repair gelcoat

76 | Friendly anchoring

78 | Keep fuel flowing



DIFFICULTY

Moderate

MATERIALS

- >> Masking tape
- >> Plastic sheet
- >> Acetone
- >> Gelcoat
- >> Styrene for thinning (if spraying)
- >> Paper towels
- >> Clean lint-free rags
- >> Compound and polish

TOOLS

- >> Respirator
- >> Latex or nitrile gloves
- >> Dremel tool with burr-type bit
- >> Mixing sticks
- >> Mixing cups
- >> Plastic spreader
- >> Waterproof abrasive paper in various grits from 180 to 400
- >> Sanding block

TIME

About two hours plus curing time

COST

About \$25 for materials



Easy gelcoat repairs

If your boat has a case of dock rash it could be time to think about repairing and refreshing your gelcoat

ARTICLE & PHOTOS BY MARK CORKE

No matter how careful you are, fiberglass boats collect dings and gouges over time. Many of these are minor and limited to the gelcoat – that smooth, shiny outer layer of the fiberglass layup. Shallow scratches can often be wet sanded and buffed out. But when larger cracks and gouges form, they need to be filled. In most cases, scratches in gelcoat are purely cosmetic and don't affect the underlying integrity of the actual fiberglass,

but you'll still want to address them to prevent moisture from migrating into the laminate as well as to preserve the appearance of the boat.

Many owners shy away from gelcoat repairs thinking it's a complicated and difficult project. But with the correct tools and materials, the right attitude, and a little time, professional-looking repairs are within reach for the average boat owner.

Before getting into the actual repair, it's important to understand what gel-

YOUR GUIDE TO PROJECTS, SKILL BUILDING + WHAT'S NEW

82 | Seacock service

86 | Ask the experts

90 | Seaworthy

Safety

Protect yourself, especially from dust and fumes. Use common sense, and read and understand all the safety instructions that come with your tools and materials. Catalyst is especially noxious; avoid breathing in the fumes. Wear a respirator, Tyvek suit, and disposable gloves. If you get gelcoat on your skin, wash it off right away with soap and water.

coat is. Gelcoat is the first thing sprayed into a female mold when a boat is built, usually to a thickness of .5 to 1 mm. Depending on the method of construction, layers of chopped mat and fiberglass cloth are then built up on top to form the hull, deck, and other molded parts. When the parts are taken out of the mold, it's the smooth, now outside layer of gelcoat that you see. Gelcoat doesn't fully cure when it's exposed to air, but because one side is against the mold and the other is covered by fiberglass and resin, air is excluded, and the gelcoat cures to form an impervious barrier between the water and laminate.

White is the most popular color for gelcoat, but there are other colors, too. When doing repairs, see if you can buy gelcoat from your boat's manufacturer so you'll know the color will match. If not, you'll need to buy white or clear gelcoat and tint it to match. Tinting kits are available from gelcoat suppliers.

Gelcoat is thin, almost like paint, and will run, especially on vertical surfaces. Use several thin coats or use gelcoat paste that is thicker with fewer tendencies to sag. Which type you use will depend on the repair and your method of application. For vertical surfaces, I prefer spray application using several thin coats.

As mentioned, gelcoat has to be sealed from the air for it to harden properly. Otherwise it will stay tacky to the touch. For this reason, you'll often see "waxed"

and "nonwaxed" gelcoat for sale. Gelcoat that has wax added will fully cure; the wax rises to the surface after application, sealing out the air and allowing it to cure. Nonwaxed gelcoat can be used when several coats are required, but that means having two different kinds of gelcoat on hand. The simpler way is to always use the waxed kind, lightly wet-sanding the cured surface between coats.

As with all repairs, preparation is key. Just slapping on some gelcoat will give disappointing results as well as look unsightly, and the repair will probably need to be redone within a year or two. It's better to do it right the first time.

If this is your first time repairing gelcoat, start with a fairly small repair in an inconspicuous place. Gain confidence before moving on to more visible spots on the boat.

Seaglass, my Grand Banks 32, had a small crack in the top of the forward cabin trunk that needed repairing. Here's how I did it.

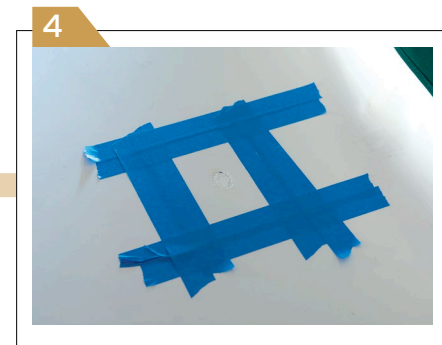
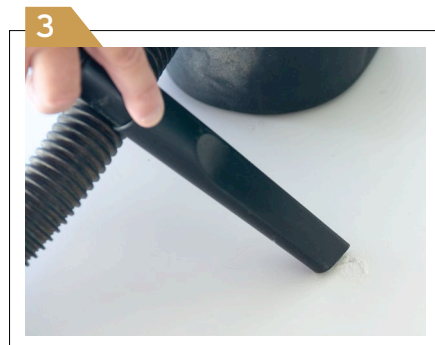
1. Start by wiping down the area to be repaired with acetone to remove surface dirt, contaminants, and any surface wax that might interfere with the bond of the new gelcoat.

2. Open up the crack a bit to give the repair the best chance of seamlessly blending into the existing gelcoat. This can be done using a sharp wood chisel or scraper; I prefer to use a Dremel tool fitted with a burr bit. If you start cutting into the laminates, you're going too deep.

3. It took about five minutes to create this V-shaped groove in the gelcoat. Vacuum up the dust and then wipe down the area to be repaired with an acetone-soaked rag.



Visit BoatUS.com/fiberglass-webinar to watch an in-depth webinar with Lenny Rudow on his favorite products, tips, and techniques to keep gelcoat looking great.



4. Mask off the repair, leaving about 2 inches all the way around. Use plenty of tape and a plastic sheet to protect the boat from damage and drips.

5. Mix the gelcoat thoroughly following the manufacturer's recommendations. Adding too much catalyst gives insufficient working time; too little, and the gelcoat won't properly cure. I'm using waxed gelcoat, which cures even when exposed to air.

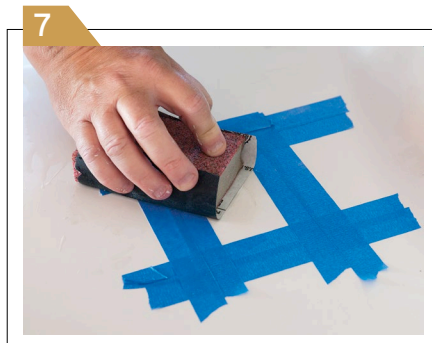
6. Use the mixing stick to run the gelcoat into the crack. Using a tapping motion ensures that there are no trapped air bubbles. Overfill the crack and leave it to cure overnight.

7. After the gelcoat cures (I gave it about eight hours), sand down the repair until it's flush with the surrounding surface. Start with 180-grit waterproof paper wrapped around a block until flat and smooth. Then switch to 240-grit

before finishing off with 400-grit or finer, which removes any scratches.

8. Remove the masking tape and plastic

sheet, then finish off the repair with cutting compound followed by a layer of wax polish. You can hand-buff, but a slow-speed buffer leaves a better finish.



Honoring the epoxy king

You may not know the name, but any DIYer worth his salt knows well his revolutionary creation that altered the way boats are built and repaired. **Meade Gougeon**, 78, died peacefully at home on August 27. Along with his brothers Jan and Joel, he founded Gougeon Brothers in 1969. Their employee-owned company became world-renowned for pioneering the use of epoxy for marine use.

The Gougeons were behind the formulation and manufacture of West



System and PRO-SET epoxies that were like nothing that came before them. Unlike polyester and vinylester resins, then commonly used to bond fiberglass components, epoxies are versatile (bonding to fiberglass, plastic, metal, almost anything), impermeable to water, resistant to osmotic blistering, and much stiffer and stronger.

The advantages

of epoxy resins were not lost on professional boatbuilders who were swift to embrace them. DIYers have also come to love the versatility offered by epoxy resins. Metering pumps that keep resin and hardener in the correct ratio, and a range of fillers and fairing compounds, have further extended epoxy applications. Most epoxy the company sells is for fiberglass repairs.

Initially the brothers obtained access to Dow Chemical's laboratories (through a relationship with Herbert Dow, an avid sailor) to develop an epoxy that could

be used for coating and bonding. In 1971, Meade launched *Adagio* – the first large, all-epoxy bonded and sealed wooden boat built without the use of fasteners. The brothers built the 35-foot trimaran, designed by Meade and Jan, in just six months.

They set up their small shop in 1973 in Bay City, Michigan, an epicenter for iceboat racing. They used their ground-breaking bonding process to become the largest builder of iceboats in the United States, and Meade was a champion racer. A year later, they moved

onto larger, more traditional boats.

In 1979, Meade wrote *The Gougeon Brothers on Boat Construction*. This iconic guide details composite construction techniques using epoxy and remains a favorite resource for professionals and DIYers alike.

Epoxy boats built by the Gougeons include monohulls, multihulls, and even outrigger canoes, all aided by their tough epoxy construction. The brothers also moved their process beyond boatbuilding to airplanes and even spacecraft.

NASA's Wind Energy Project


Office had Gougeon Brothers manufacture epoxy-laminated wood specimens for testing the strength of an epoxy bond between that and a threaded steel rod. The samples were so strong that they broke NASA's testing machine. GBI would go on to manufacture more than 4,000 wood/epoxy wind-turbine blades.

In 2015, Meade was inducted with his brother Jan, who died in 2012, into the National Sailing Hall of Fame. He is survived by his wife of 46 years, 10 children, and 14 grandchildren. — **RICH ARMSTRONG**

Lenny makes her shine!

In spring 2017, *BoatU.S. Magazine's* contributing editor Lenny Rudow held a webinar on maintaining and polishing fiberglass gelcoat, and showed us how to keep our hulls in top condition. After years of boat ownership, and using every product under the sun, he also revealed his personal favorite waxes and polishes, and how best to apply them. You can see the whole webinar on our website, but here's a preview:

- At least twice a season (beginning and end), apply two coats of thick paste wax by hand with application pads; Lenny's favorites are Collinite heavy-duty Fleetwax for Marine and Aeronautical or 3M Ultra performance paste wax. Then buff off with an orbital buffer with removable thick, soft bonnets. Change the bonnet when clogged with wax. (For this thick paste-wax application, he does not recommend liquid waxes with carnauba; that's good for later in the season.)
- Don't forget your outboard cowl. Paste wax to protect it. Then buff it off by hand with a microfiber cloth.
- Don't forget your I/O. Paste waxing your I/O helps deflect marine growth.
- During the season, shower your boat off with freshwater every time you use it. Lenny's favorites for wash and wax products are West Marine Boat Wash N'Shine, Star-brite Concentrated Wash & Wax Power Pine, and Orpine Wash & Wax.
- Later in the season, Lenny's favorite liquid wax is Eagle One Wax As You Dry

To find out about Lenny's favorite ways to remove rust stains from gelcoat; clean and shine nonskid; and for cleaning and sealing stainless steel, visit **BoatUS.com/Fiberglass-Webinar** to watch the webinar. It's full of great tips and techniques. 

– BERNADETTE BERNON

Resources: evercoat.com, jamestowndistributors.com, tapplastics.com, westsystem.com, preval.com

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