

FIBERGLASS REPAIR BASICS

Understanding Cracks, Stress Fractures, and When to Call a Pro

If you own a Corvette, you own a fiberglass car. Every Corvette ever built—from the first 1953 roadster to the last C7 in 2019—uses fiberglass-reinforced plastic for its body panels. Understanding how fiberglass behaves, why it fails, and what proper repair looks like will help you make better decisions about your car's maintenance and value.

How Corvette Fiberglass Works

Fiberglass isn't a single material—it's layers of woven glass fiber cloth saturated with polyester or epoxy resin, then cured into a rigid shell. The glass provides strength, the resin provides shape, and the layup pattern determines how the panel handles stress.

Factory Corvette panels are laid up in molds with specific fiber orientations designed to handle the loads of normal driving. When a panel is damaged or improperly repaired, those load paths are disrupted, and the result is cracking, flexing, or delamination that gets progressively worse.

Types of Fiberglass Damage

Stress Cracks

Stress cracks are fine hairline fractures in the gel coat (the smooth, painted outer surface). They're caused by flexing, thermal cycling, and age. Common locations include the corners of headlight openings, around door hinges, near body mount points, and along bonding strips.

Stress cracks are largely cosmetic in early stages but indicate that the gel coat is losing flexibility. Left untreated, water intrusion through the cracks can delaminate the underlying fiberglass layers.

Impact Damage

Cracks from impact—a parking lot ding, a stone chip, or a collision—differ from stress cracks because they often damage multiple layers of the laminate, not just the surface. The visible crack on the outside may mask a much larger area of delamination underneath. Always inspect the backside of an impact-damaged panel before deciding on a repair approach.

Delamination

Delamination is the separation of fiberglass layers. It feels soft or hollow when tapped and may appear as bubbling or lifting under the gel coat. Delamination is serious because the panel has lost structural integrity in that area. Small delaminated spots can be repaired by injecting resin, but large areas typically require cutting out the damaged section and re-laying fiberglass.

THE C3 BONDING STRIP ISSUE

C3 Corvettes (1968–1982) use internal steel and fiberglass bonding strips to join body panels to the birdcage structure. These strips can separate from the body over time, causing panels to shift, doors to misalign, and cracks to appear along panel joints. Bonding strip repair requires experience—improper techniques can make the problem worse and lead to expensive rework.

When to DIY vs. When to Call a Pro

You Can Handle

- Small gel coat chips and scratches (gel coat repair kits are widely available)
- Surface-level stress cracks that haven't penetrated the laminate
- Minor cosmetic touch-ups on non-structural panels

Call a Professional For

- Any crack that goes through the full thickness of the panel
- Bonding strip separation or panel alignment issues
- Delamination larger than a few inches in any direction
- Damage near structural mounting points or the birdcage
- Any repair that will be visible after paint (show-quality finish)
- Impact damage where the underlying structure may be compromised

What Good Repair Looks Like

Proper fiberglass repair is invisible when done correctly. The key principles are: clean the damaged area thoroughly, remove all loose or delaminated material, taper the repair area so new material bonds gradually to old, use the correct resin system (polyester for factory-original repairs, epoxy for maximum strength), apply multiple thin layers rather than one thick layer, and finish with careful sanding and priming before paint.

Poor repairs show themselves quickly. Watch for visible texture differences under paint, cracking along repair edges within months, and panels that don't quite fit the way they should. These are signs of shortcuts—too much filler, not enough structural repair, or inadequate surface preparation.

Heat and Fiberglass

One of the most common mistakes in fiberglass work is generating too much heat during sanding. Fiberglass softens when heated, and aggressive power sanding can distort panel contours in ways that are extremely difficult to correct. Always use slow speeds, light pressure, and frequent breaks when sanding fiberglass. If the surface feels warm to the touch, stop and let it cool.

FIBERGLASS IS OUR SPECIALTY

At Corvette Connection, fiberglass repair is one of our core competencies. We've been working with Corvette fiberglass since 1974, and we understand the material at a level that comes only from decades of experience. Fiberglass and body work is billed at \$140.00 per hour. Call us at 860-645-0184 to discuss your repair.