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Fiberglass Repair Instructions

Repairing a Fiberglass Part

Regardless of the amount of care taken in making fiberglass parts, some of them will have to be repaired. Some of these defects are caused by operator error or impacts during handling, storage, or use.

A. Minor Surface Repairs – Spot Patching

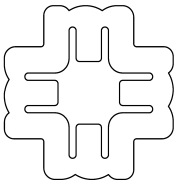
The following procedure is recommended for areas with damage to the gelcoat only or have a hole, gouge, or scratch deep enough to penetrate through the gelcoat to the fiberglass, but not deep enough to go into the laminate.

1. Rough up the surface of the damaged area using a hand held router , power drill with burr bit attachment, or coarse sandpaper. Feather the edge surrounding the blemish with finer grit sandpaper. Do not undercut this edge.
2. Be sure that the area to be patched is clean, dry, and free of wax, oil, or other contaminants. Solvents such as Ethyl Acetate and Methyl Ethyl Ketone are suitable for this purpose.

WARNING

Acetone and many other fast evaporating solvents are highly flammable and can be toxic. Consult the products Material Safety Data Sheet for physical hazards of these materials. You may also consult your supplier.

3. Thoroughly mix the proper amount (1-2%) of MEK Peroxide into the gel coat to give a working time of about 15 to 20 minutes at 77° Fahrenheit.
4. Work the catalyzed gelcoat into the damaged area with a knife or spatula. Slightly overfill the blemish, including the area around and above, to allow for shrinkage. Puncture and eliminate any air bubbles that may be entrapped within the gelcoat.
5. Cover the repaired area with cellophane, waxed paper, or partine film (PVA) while the patch cures. Let the patch cure thoroughly (approximately 2 to 3 hours) before doing anything further to it. The patch has not cured sufficiently if your thumbnail can make an impression in the gelcoat.
6. Sand the patched area 220 grit wet or dry sandpaper. Change to 320 or 400 grit, and then to 600 grit. If the patch shrinks to a point where the surface is not level with the adjoining area, repeat the patching process.
7. Complete the finishing process by buffing with rubbing compound until smooth. Then wax and buff the surface to a high gloss.



B. Patching Holes, Punctures, and Breaks

The following repair method is used for damage which penetrates completely through or deeply into the laminate.

1. Prepare the affected area by cutting away the damaged portion of the laminate to the sound part of the laminate. A keyhole or saber saw works well to cut away the ragged edges.
2. Rough up the inside edges of the affected area using a power grinder. Feather out the backside at least half the diameter of the hole to be patched.
3. Use a template to give "shape" to the part. Tape cellophane in place over a piece of cardboard large enough to completely cover the affected area with the cellophane. Use aluminum in place of the cardboard when contour is present.
4. Cut glass mat to the shape of and one half diameter larger than the hole to be patched. Total thickness of materials should approximate that of the part being repaired.
5. Thoroughly mix an ample amount of resin (approximately pt/sq ft) and catalyst (1/2 tsp/pt). Daub the resin onto the area to be repaired and onto the mat to wet it out. Apply the mat against the cellophane over the inside of the hole.
6. Roll or squeegee out all air bubbles in the glass mat. Repeat steps 5 and 6 until the laminate is built up to the same or a greater thickness than the original laminate.

Note: Large holes may require that a layer or two of glass mat be applied then allowed to cure before proceeding with additional layers.

7. After laminate has cured, remove the cellophane and backing from the outside of the hole. Using 80 grit sandpaper, smooth and blend the patch into the surrounding area.
8. Follow steps in **A. Minor Surface Repairs – Spot Patching** to repair the gelcoat.

C. Helpful Hints

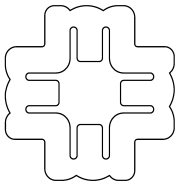
1. To speed up the patching process or for patching in cold working conditions, use heat lamps, space heaters, or prebuff before sanding.



Overheating may cause blistering and poor color match.



Patching materials are flammable.



2. As a general rule, keep any patch as small as possible.
3. If the patch is not cured thoroughly on the surface, wiping with suitably fast evaporating solvent will clean the surface sufficiently to allow sanding without clogging the paper.

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4. Check technical literature for the correct catalyst levels on all materials used.
5. Do not use excessive buffing pressure. Excessive pressure creates heat. This heat may cause print through and distortion. The heat and pressure can actually abrade the cured film of gelcoat away down to the laminate.

D. Troubleshooting Guide

Problem

Possible Cause

Color doesn't match

Wrong batch used for patching fillers added
Too many accelerators added
Catalyst level off
Patch under cured
Trapped solvent
Buffer developed too much heat

Patch is dull

Under cured
Low temperature
Sanding too quickly
Trapped solvent

Comet tails

Too course sandpaper used on last sanding
Buffing too hard
Dry pad

Low Gloss

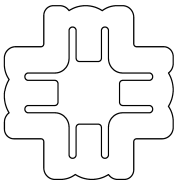
Excessive buffing pressure
Coarse compound

Sand marks

Too coarse sandpaper or rubbing compound used in last step – work up through 600 wet
Under cured

Ring around patch
(halo)

Edges not feathered
Not sanded properly
Porosity in original gelcoat – may have to overspray
Uncured patch
Improper level of patching aid



Problem

Possible Cause

Crack reappears

Crack was not fully ground out
Weak laminate

Patch is glossy, part is dull

Original gelcoat under cured
Buffer developed too much heat
Too much patching aid

Porosity or void in patch

Not sprayed or leveled properly
Filler not mixed in properly
Trapped solvent
Air not worked out

Patch is depressed/shallow

Patch will shrink – allow for this by overfilling
Patch sanded and finished before it was cured
“Hot” buffing caused patch to shrink
Patch needed conditioned by pre-buffing before sanding