

GENERAL ACP REPAIR MANUAL

- Stains and Discolorations

Often when boats are stored uncovered over time and temperature leaves, pollen, grass clippings etc., can discolor or stain the plastic. Small particulates such as rust or diesel fuel residue can also find their way into the surface of the boat. If this has occurred, wash the boat thoroughly with a brightening cleaner such as **Softscrub Gel with Bleach** or a marine boat wash and a non-abrasive sponge. Abrasive scrubbing pads work well but will scratch the surface of the plastic and will need to be buffed out with a rubbing compound to return the finish to an even luster. Once clean, wet cloths with Bleach (this can be diluted with water if desired) and place the wetted cloth over the stained area. Keep the cloth damp with Bleach until the stain has lessened or is removed. Rinse the area thoroughly after the poultice is removed. If the stain is still present, scrub the area with 3M Heavy Duty Rubbing Compound cut with a little Bleach acting as a mild abrasive for the stain. If the area is still discolored, wet sanding may be required. Begin sanding the area with 220 or 400 grit sandpaper depending on how 'deep' the stain appears. Sand the area in sequence from 220 to 400 to 600 to 1500 or 2400 grit to return the original luster of the plastic. Buffing or polishing the area can also quickly restore the plastic's shine.

- Shallow Scratches

Most scratches and dings less than 1/8" deep can be wet sanded and polished out much quicker and easier than attempting to fill the areas. Begin sanding the area with 220 grit Wet/Dry Sandpaper until the scratch is removed. Next, use 400 grit encompassing a slightly larger area than previously sanded. Continue with 600, 1500 and 2400 grit sandpaper in progressively larger circumferences to help 'feather-out' the sanded area. Once the sanded area begins to 'bead water', this is a good sign that the area is perfectly smooth and un-scuffed. The area can be buffed or polished with compounding material or plastic polisher if desired.

- Scratches, Dings and Dents

More severe scratches, gouges and dents will need to be filled to make the surface fair again. Several products such as Marine Grade Bondo or Marinotex (polyester-based products) may be used to fill the damage. Use 220 grit sandpaper to rough up the dent or gouge and approximately 2" surrounding the damage to ensure a good bonding surface. Make sure the scratch or gouge is deburred – that there are no ridges or burrs of material. Clean the area thoroughly with isopropyl alcohol and dry completely. These repair products have the consistency of paste and are easily applied in thin coats with spatulas or Popsicle sticks. They also have the advantage of being easily sanded and are white in color possibly avoiding painting or color-matching based on personal preference. However, these materials will become brittle over time and will eventually need to be recoated or removed and refilled.

The permanent solution is to fill the area with a 2-part methyl methacrylate called **Plexus**. Wal-Mart sells it under the brand name *Devcon High Strength Plastic Welder #S220/22045 (\$2.58)*. The surface is prepared and cleaned as described above, but the Plexus has a slightly softer consistency than the polyester materials. Plexus is also applied in thin coats with a squeegee or Popsicle stick, but it cures with a much greater exothermal reaction – it goes off much hotter – than the others. If applied too generously, the Plexus will blister and bubble and could possibly ‘burn through’ or melt the surrounding plastic. Plexus fuses to the surrounding area and will not embrittle or flake away over time. However, Plexus is a much harder material and requires a little more elbow grease to sand flush and fair – another good reason to apply it moderately. Plexus is also yellow in color and will need to be sanded down to 400 grit to then be painted white.

Painting is also a matter of personal preference as a white spray paint in a can – such as **Krylon Glossy White 1501 or Krylon Fusion 2320 Gloss White** – will be a simple, close match for some, whereas others will have an automotive store professionally match the color with an aliphatic paint to perfection. Once the paint has dried and hardened (per the instructions provided with the paint) the area can be wet sanded and buffed to its original luster.

- Small Cracks

If the material cracks, immediately drill a small hole (1/8" or 3/32") at either end of the crack to prevent the crack from propagating. A 3" crack left unattended over the winter could grow to 3' as the boat expands and contracts with temperature changes. Once the crack has been stopped, it will not expand and can be repaired at your convenience. The repair begins by opening the crack to a V-shaped groove with a dremmel tool, sand paper, or a mat knife. Sand the surrounding area with 220 grit sand paper and clean and dry the area thoroughly. Fill the crack with Plexus using a spatula or Popsicle stick to spread the material evenly and sparingly. Once the Plexus has set – approximately 45 minutes – it may need to be skim coated again. To recoat the area, simply rough up the repair with 220 grit sandpaper, clean and dry the area. Once the crack has been filled and sanded flush to 400 or 600 grit tolerances, it is ready for paint. Please see the above description for painting and finishing recommendations.



- Major Damage

Although ACP construction is over five times more impact resistant than traditional fiberglass construction, it is not unbreakable – hoists do let go, boats do come off trailers on the road, and sometimes major collisions are unavoidable. Fortunately though, these types of impacts rarely penetrate all three layers of the composite...often the foam and fiberglass are intact and leave you with the perfect backing for your repair. Unlike holes in traditional fiberglass boats, you do not have to work from the inside outward, creating a backing surface to lay-up on. Rather, the repair begins with preparing the damaged area for filling. Make sure all edges are deburred, sanded and cleaned. Repairs are then made in the same manner as traditional fiberglass repairs although the bi-directional fiberglass (a 9 to 13 oz. Glass is easiest to work with) is wet out or impregnated with Plexus rather than epoxy resins. Care should be taken to avoid over-heating the repair as discussed above, with progressive layers of material being added in expanding circumferences to help feather in the repair.

Large cracks are also glassed to help 'knit' the areas together again. Here, the plastic should be ground down 3/32" to 1/8" on either side of the crack to create a trough for the glass to lay flush in. This will save much time and trouble when sanding out the repair. Please see the above sections for discussions on skimming and sanding techniques. Once the repair is structurally sound and close to fair, it is often easiest to skim coat the Plexus and glass with a Marine Bondo to facilitate finish sanding. Do note that thick layers of Bondo will tend to crack over the top of the repair especially in high flex areas such as rails and shears. Prepare the surface for painting to seal the repair. Again, as with any repair, the most challenging portion is the color matching and paint application.

ACP REPAIR

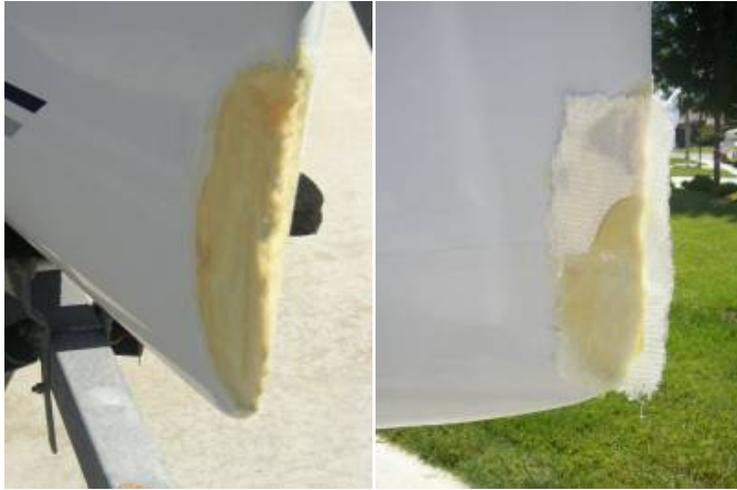
How Easy?



Hard hit on dock



Using a utility knife, cut back to solid. Sand away the loose foam and taper plastic.



Two part Plexus epoxy is used to firm up the damage and give a smoother repair area.
Unidirectional cloth is layered over repair area, working the epoxy in well.



Continue to work repair to shape



A finish coat of plexus id applied and a light guide coat is used to make sure repair is smooth and sand scratches are removed



Repair is painted and polished the next day. This is the only place I vary from factory recommendations, I use a two part urethane made by BASF, matched at the local automotive paint store. Plexus is sold under the name Devcon Plastic Welder.











