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Fix leaking seams in aluminum boats with G/flex® 650 Epoxy

ALUMINUM BOAT REPAIR

By Randy Zajac

We wanted to experiment with using G/flex to fix leaking aluminum boats. I was quite surprised to find that every aluminum boat owner I talked to said they had some sort of leak. Within 3 hours, I had several co-workers volunteer their aluminum boats for the experimental fix using G/flex.

Finding the leaks

The first step is to find the leak. This is fairly easy—just fill the inside with water up to the waterline. To reduce the possibility of destruction or distortion, I tilted the boat and only filled one end at a time since filling the boat up entirely might have done more damage to the seams.

On each boat I repaired, I found many rivets that merely seeped water. However, I also found at least one that poured a constant stream. These bigger leaks were the main cause of water inside the craft during normal use. One boat actually carried a bilge pump to help keep up with the bailing. I circled any leaking rivet or seam with a black marker.

Making the repair

With the leaks identified and marked, here are the techniques used for the repair.

Flip the boat over for easier access to the bottom and prepare the surface for bonding. For the seams, clean out any debris that might still be stuck inside. On the rivets, I used a wire brush in a circular motion to abrade the surface. A wire brush attachment on a cordless drill made the job even easier.

Once everything is clean and well scuffed, gather the needed materials: a handheld propane torch, a heat gun, an 804 Syringe, paper towels, and G/flex 650 Epoxy.

Mix the G/flex 650 Resin and Hardener together and fill the syringe. I cut the tip of the syringe to enlarge the hole to about 1/16". Heat the repair area with a propane torch (a heat gun will work) up to 180–220°F to dry out the repair area. The heat drives moisture from the seam and thins out the G/flex, allowing it to flow more easily into the seams and rivets.

Then fill the seams and rivets in this area while the aluminum is still warm. Use the heat gun (do not use a propane torch for this step) in one hand while applying the G/flex from the syringe with the other. The forced air from the heat gun keeps the repair area warm and lets you direct the G/flex where it needs to go. This lets you do the repair without flipping the boat over.

After you have applied enough G/flex, pull the syringe plunger back slightly and lay it on a paper towel for the next rivet or seam. Keep applying heat until the G/flex has gelled and no longer moves with the forced

Left—After the area around the leaky rivets is cleaned and well scuffed, heat the area with a propane torch to drive off moisture and warm the metal. Then fill around the rivets with G/flex 650 Epoxy.

Right—Apply heat with a heat gun until the epoxy has gelled. The heat initially thins the epoxy, allowing it to seep into the smallest crevice, and then speeds the gel time.

Left—Clean the area around the leaky seams. Then heat the area with a propane torch to drive off moisture and warm the metal.

Right—Force G/flex 650 into the seam with the syringe while the metal is still warm. Apply heat with a heat gun until the epoxy has gelled.

air from the gun. Then, you can either let the G/flex® cure at ambient temperature or continue using the heat gun on a lower setting until the epoxy is fully cured.

Complete heating and filling each rivet or seam section before moving on to the next to avoid too much heat loss.

Testing the results

Once the epoxy is cured, you are ready for an immediate water test. The boats I repaired in our shop were taken right out to the water and thoroughly abused. After repeated beaching and thermal cycling, the G/flex still holds strong. ■