TECH BULLETIN

TB0409-05

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Repairing Fiberglass Sumps

Note: Contact FFS Technical Service Department BEFORE doing repair to a fiberglass sump that is still under warranty. All repairs to fiberglass sumps under warranty will require before and after pictures to be submitted to FFS Technical Services department for approval.

Note: Under **NO** circumstances can a repair be made to the bottom seam of a turbine sump. **All** sumps must be hydrostatically tested for 2 hours after completion of the repair.

These Instructions are for repairing damage to the sump, such as a discovering a hole was drilled in the wrong location and must be repaired.

Surface Preparation

1. Abrade, **down to the glass fibers**, on the components being fiberglassed together.
2. The fiberglass sump should be sanded using a power sander with coarse, green core 40 grit sandpaper (DA Sander works best).
3. Remove dust created by the abrasion process with a tack rag.
4. Wipe abraded areas clean with acetone because this will help the mat adhere to the abraded areas of the components that are being fiberglassed together.

Repairing the Sump

Note: This repair assumes you have a cut-out piece to use to fill the errant hole.

1. Clean the area to be repaired of any dust or grease.
2. Cut a section of cardboard approximately two-times the size of the hole, and tape it over the hole on the inside of the sump.
3. Take the piece of fiberglass that was cut out, and place it in the opening, against the cardboard.
4. Mix putty per instructions below.

Mixing putty and catalyst:

- The putty and catalyst mixing ratio is 5 mL (0.17 oz) of catalyst per 236 mL (8 ounces or one cup) of fiberglass putty. Use a measuring beaker or cup to measure out the catalyst.
- For best results, ambient temperature should be above 70° F when fiberglassing. If the ambient temperature is below 70° F, cure times will be longer and the catalyst ratio must be adjusted when mixing putty with resin.
- When mixing putty and catalyst, always mix from the bottom up.
- Mix the catalyst and putty together until the catalyzed putty is thoroughly, uniformly mixed with no color streaks.

5. Smoothly apply the catalyzed putty with a putty knife to the outside area of the repair, pushing putty down into the edges of the repair piece.
6. Create a smooth surface for the mat to bond to by using a Bondo knife to smooth the catalyzed putty around the repair. Make sure that there are no cracks or holes in the putty because this layer is what creates the watertight bond to the sump.
7. Allow the putty to harden
8. Sand the area to match the existing surfaces.

Remove the cardboard and repeat steps 1 through 8 on inside of the sump.

Mixtures and Cure Times for Resin and Catalyst

Important Things to Know

- Resin hardens quickly, so have all setup items prepared ahead of time. Spending extra time on setup items prior to mixing the resin will help ensure that you have enough time later to work with the resin before it hardens. Before mixing resin, check that your roller works properly.
- For best results, ambient temperature should be above 70° F. If the ambient temperature is below 70° F, curing time will be extended (refer to the time chart for approximate cure times).

Resin/Catalyst Mixtures

Resin	Catalyst in cool or overcast conditions: 2% per weight	Catalyst in standard conditions: 1.5% per weight	Catalyst in hot or sunny conditions: 1% per weight
16 fl. oz. (0.47 L)	0.3 Oz. (9 mL)	7 mL	5 mL
32 fl. oz. (0.94 L)	0.64 oz.(19 mL)	14 mL	9 mL

Cure Times

Ambient Temperature	Minimum Set-up Time
35 F	20 Hours
40 F	14 Hours
50 F	8 Hours
60 F	5 Hours
70 F	3 Hours
80 F	2 Hours
90 F	1 Hour
100 F	½ Hour

Cure times given are for reference purposes only, exact times may vary.

1. Cut several pieces of fiberglass mats to size to extend at least 4" beyond the repair edges.
2. Mix one pint of catalyzed resin at a time, starting with a small amount so that the mixture does not cure before applying it to the sump.

Note: Use at least 1% per weight of catalyst per mixture, or resin will not fully bond to the surface of the sump and mat.

Applying Resin and Mat to Sumps

When applying mats to a sump, use three layers of fiberglass mat strips (the ones you cut in Step 1 in the *Mixtures and Cure Times for Resin and Catalyst* section). Apply one layer of mat at a time, centering the mats on the area being fiberglassed.

Note: Do not store mats in humid or wet environments. If a mat comes in contact with liquids or humidity, it will begin to release the chemicals that allow it to adhere to the fiberglass sump. A wet or damp mat will not adhere to a sump and should be disposed of immediately.

1. Start on the outside of the sump. Apply catalyzed resin generously to the repair area using a disposable paintbrush that is 4" or 6" wide. Wet out (apply a large amount of catalyzed resin [to]) the area being fiberglassed larger than the repair area.
2. Apply a fiberglass mat to the area wetted out in Step 1. Saturate this layer of mat with catalyzed resin.
3. Using a 4-6” grooved roller, roll over the layer of fiberglass mat and remove any air bubbles. Make sure that air bubbles are not present in the layer. White areas in a mat indicate the presence of air pockets.
4. Roll over the mat horizontally and vertically with the roller as many times as needed to eliminate air bubbles
5. Repeat Steps 1 through 4 over the repair area, overlapping each mat with the one previously applied. Three layers of mat need to be applied to each repair area.

Note: Resin will soak through the first layer, so apply slightly less resin to the second and third layers.

6. Finalize the mat installation by spreading some extra resin across the mat. Again, remove any air pockets that may be caught in the resin.
7. Refer to the Cure Times chart for approximate cure times.
8. When outside sump repair is complete and cured, repeat steps 1-7 on the inside surface.

Finishing

1. After the fiberglass has cured, lightly sand the area (preferably by hand using coarse, green core 40 – 60 grit sandpaper) to remove all excess fiberglass material.
2. Dust the sump clean.
3. If Gel Coat repair is needed, refer to FFS manual 602019023: Single Wall Fiberglass Sump Installation
4. Hydrostatically test the sump for 2 hours.
5. Take pictures of the completed repair if submitting for a sump still under warranty.