CRANE Composites

frp Fiberglass Reinforced Panels

REPAIR GUIDE for interior liner repairs

for use with repair kit #R50RK85

repair guide for small + large interior liners

The Liner Repair Kit is a technique specifically designed for repairing damage to Crane Composites' liner panels. The kit includes all necessary components for quick and durable repairs.

Depending of the severity of the damage to the liner panel, the Liner Repair Kit can be used as follows:
- Repairs for small tears and punctures (follow Repair Method #1 as outlined within)
- Repairs for large tears of holes (follow Repair Method #2 as outlined within)

NOTE: Due to the unique finish of Crane Composites panels, an exact match is impossible to achieve with a repair

DISCLAIMER

PLEASE READ ALL INSTRUCTIONS BEFORE BEGINNING INSTALLATION
These guidelines are provided in good faith, but without guarantee. The manufacturer and distributor of the product bear no responsibility for actions taken or not taken. There are many nuances of repair techniques that are assumed to be general knowledge; such nuances are not included in these instructions. Rather, these guidelines are strictly recommendations and are not intended to serve as a step-by-step, foolproof repair checklist. Selection of an experienced repair facility is the sole responsibility of the owner.

Since conditions of use are beyond Crane Composites' control, all risks are assumed by the user. Nothing herein shall be construed as a recommendation for uses which infringe on valid patents or as extending a license under valid patents.

If you have any questions about repair techniques for your particular project, please call 1.800.435.0080 or 1.815.467.8600 and ask for Customer Care or e-mail sales@cranecomposites.com.

CAUTION: Wearing disposable latex gloves, goggles, and use of an appropriate respirator as per the SDS are recommended. Read and follow all manufacturer safety recommendations on labels of materials used for repair. Some materials may be flammable and should be used with caution. SEE OUR MOST CURRENT SDS AT CRANECOMPOSITES.COM/SDS.HTML PRIOR TO WORKING WITH OUR PRODUCTS.

SAFETY PRECAUTIONS

1. Protect your eyes with goggles, wear an appropriate respirator as per the SDS, wear protective gloves when cutting and sanding fiberglass and wear chemical resistant gloves when using polyester resin, epoxy, and acetones.
2. CAUTION! Resins and solvents are highly flammable. Keep away from all sources of ignition. Do not smoke or use electric tools that cause sparks. Always read the caution labels on all solvent containers and take the necessary precautions.
3. Make sure the work area is well-ventilated.

GENERAL INFORMATION

In the pages to follow, you will find instructions for the Liner Kit to be used with Crane Composites liner products. Depending on your liner, there are two kit options to choose from. The Kemlite® Liner Repair Kit (R50RK85) should be used with our Kemlite® brand of liners, including the following product codes: LTR, AFL, and LHS. The ArmorTuf® Liner Repair Kit (R50RK85TUF) should be used with our ArmorTuf® brand of liners, including the following product codes: EARM, ARMT, ANXT.

Kemlite® Liner Kit Contents Include (#R50RK85):
- 1Qt. of RK85 Repair Mix
- Chopped Glass Mat: 1 pc, 3' x 4'
- Embossed film (R06503): 1 pc, 3' x 4'
- Smooth film (R04506): 1 pc, 3' x 4'
- Bondo 912 Hardener (catalyst): 2 tubes, 11cc
- Spreaders: 2
- Gloves: 1
- Mixing cup (500cc graduated): 2
- Mixing Sticks (tongue blades): 4
- Instruction Manual: 1
- SDS Resin: 1
- SDS Bondo Hardener: 1

ArmorTuf® Liner Kit Contents Include (#R50RK85TUF):
- 1Qt. of RK85 Repair Mix
- Woven Roving 18 oz. Fabric: 1 pc, 2' x 2'
- Embossed film (R06503): 1 pc, 3' x 4'
- Smooth film (R04506): 1 pc, 3' x 4'
- Bondo 912 Hardener (catalyst): 2 tubes, 11cc
- Spreaders: 2
- Gloves: 1
- Mixing cup: (500cc graduated): 2
- Mixing Sticks (tongue blades): 4
- Instruction Manual: 1
- SDS Resin: 1
- SDS Bondo Hardener: 1

Recommended Tools Needed (not included):

- Acetone for Clean Up (CAUTION: acetone is extremely flammable)
- Rags (White)
- Masking Tape 1" or 2" wide
- White Spray Paint (acrylic or urethane)
- Utility Knife
- Sander with Medium Grit Paper
- Wire Brush
- Stiff Bristle Brush
- Putty Knife
- Scissors
- Jigsaw or Router
- Drill

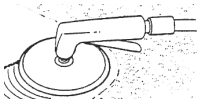
METHOD #1 - FOR SMALL TEARS, PUNCTURES, AND HOLES

The Wet Lay-Up Repair Process

CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!

The wet lay-up repair using Crane Composites' liner repair kit has proven to be the best universal method for repairing rips, tears, and gouges that have broken through the surface of the fiberglass liner panel. Use this method to repair damage up to 2' in length where the liner material is intact; consider Method 2 if material is missing.

The success of a wet lay-up repair depends on proper preparation of the fiberglass surface. The surface must be abraded for good adhesion between the resin mix and the liner panel. The surface must be dry and free of grease, dust, and dirt for adhesion to succeed.


Step 1


Step 2

1. Sand damaged area; extend sanding 2" beyond the damage in every direction.


Step 3

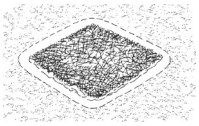
2. Clean damaged area with acetone or a similar solvent.


Step 4

3. Cut the glass mat 1/4"-1/2" smaller than the sanded area on every side. Place the glass mat on smooth film. Cut the embossed film 2" larger than the damaged area on all sides. If the sanded area is 6" x 6", the film should be 10" x 10".


Step 5

4. Measure the repair mix into a plastic beaker (100cc is needed for an 8" x 8" repair). Add 1%-2% of Bondo hardener to the repair mix (1% = 1cc or 20 drops per 100cc of mix). Combine the hardener and mix for 45 seconds. The repair mix will gel in 25-40 minutes with 1% hardener (15-20 minutes with 2% hardener).



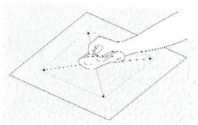
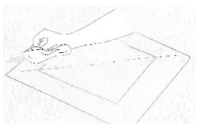
Step 6

5. Spread a layer of mix 1/8" thick over the sanded area using the plastic squeegee. Leave 1/2"-1" space between the mix and the edge of the sanded area.

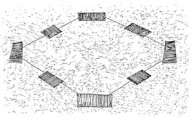

Step 7

6. Place the glass mat in the center of the sanded area. Use the squeegee to wetout the glass with the mix and smooth any wrinkles in the glass mat. Add mix to the topside of the glass if needed.

7. Spread a thin layer of additional mix on top of the glass mat or on the embossed film. Be sure glass is thoroughly wetout, especially at the edges of the repair.



Step 8

8. Center the embossed film over the glass mat. Match the alignment of the embossed film with the embossment of the panel. Using light pressure, take a soft rag and lightly work the mix to the edges of the sanded area.
NOTE: When the repair is completed, but before it has cured, wipe off excess mix that went beyond the sanded area (use a white rag and acetone). A full cure should be achieved in 1-2 hours. Apply moderate heat using a heat gun or heat lamp to speed up cure time. Afterwards, trim off excess film with a knife.


Step 9

9. If the embossed film is curling up at the edges, tape edges down with masking tape. If repairing the ceiling, tape film down to prevent sagging.


Step 10

10. After the repair has cured, the color may be slightly different than the panel. A white acrylic enamel or urethane paint can be used to blend the repair into the liner panel. Wear appropriate respiratory protection when spraying paint.

METHOD #2 - FOR LARGE TEARS AND HOLES

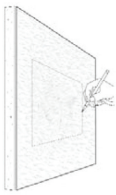
The Panel In-Lay Repair Process

CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!
The panel in-lay repair using Crane Composites' liner repair kit has proven to be the best repair method for large tears and holes that have removed part of the fiberglass liner panel.

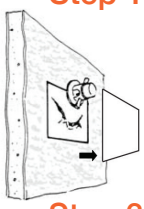
Use this method to repair damage where the liner material is not intact or missing. If material is not missing you will want to consider method 1.

The success of a panel in-lay repair depends on proper preparation of the fiberglass surface. The cut-out must be straight; also, both the replacement section and damaged liner surfaces must be clean. Some steps require surface abrading.

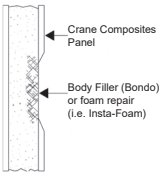
Step 1



Step 2



Step 3



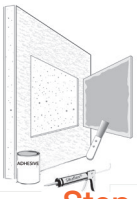
Step 4

1. Cut a section of the replacement liner panel that is at least 2" larger than the damaged area on all sides.

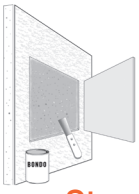
2. Center the replacement liner panel over the damaged area. While holding securely, trace around the perimeter of the replacement panel.

3. Cut along the traced lines using a jigsaw, router, or electric shears.

4. Repair any foam damage using foam repair material (such as Insta-Foam™) or body filler (such as Bondo®). Bring the repaired foam area level with the bottom of the original liner panel.

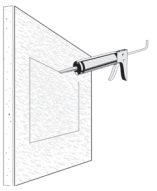


Step 5
Option A

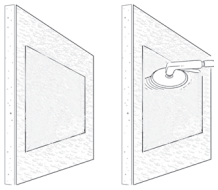


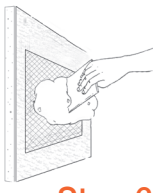
Step 5
Option B

5. Please choose one option below:
   Option A: Allow the foam repair to cure, then sand if necessary. Bond the replacement liner section to the cut out section using a urethane adhesive (such as Sikaflex®). Brace the replacement panel until the adhesive has cured. Clean off any excess adhesive that squeezes out around the seams.
   Option B: The replacement liner panel will bond to polyester or epoxy based body fillers and to urethane foam repair materials. After filling the cavity with repair foam or body filler, (but before they cure) place the replacement liner. Excess foam or body filler may be required to assure good contact with the back of the replacement liner section. Clean off any excess foam or body filler that secretes from the seams. Brace the replacement panel until the foam or body filler has cured.



Step 6
Option A

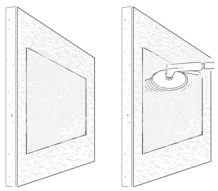


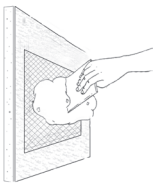


Step 6
Option B

6. Seam Treatments | There are Three Approaches:
   Option A: For smaller, non-structural repairs, fill the seams with a white, silicone caulk or catalyzed repair mix.
   Option B: For Medium Areas (6" x 6" - 18" x 18")
   - For smaller, structural repairs (or areas that will get abused) sand over the seams and the entire patch area; go at least 1" - 2" beyond the seams on the undamaged side of the panel. Then, do a wet lay-up repair using repair mix and glass mat over the entire patch. See Repair Method 1 for more in depth information on the wet lay-up process.
   - Sand entire patch.
   - Apply wet lay-up repair to entire patch area using glass mat and catalyzed repair mix. Cover with film and smooth with a soft rag

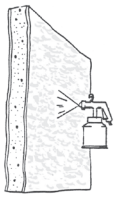
   Option C: For Very large Areas (Greater than 18" x 18")
   - For larger, structural repairs (or areas that will get abused) sand over the seams 2" - 4" on each side of the seam. Complete a wet lay-up repair using repair mix and glass mat over the seams. See Repair Method 1 for more in depth information on the wet lay-up process.
   - Sand seams and apply wet lay-up repair to seams using glass mat and catalyzed repair mix. Cover with film and smooth repaired seam areas with soft rag.

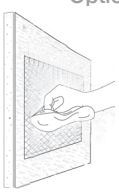




Step 6
Option C

7. After the repair has been completed, there may be a color difference between the original liner and the replacement liner section. A white acrylic enamel or urethane spray paint can be used to blend the two areas together. Wear appropriate respiratory protection when spraying paint.





Step 7

A global leading provider of resilient wall and ceiling coverings. Kemlite® was established in 1954 and the company changed names to Crane Composites in 2007. Crane Composites is headquartered in Channahon, IL and all our products are manufactured in the United States. We work with hundreds of distributors, ensuring our products are easily accessible and readily available to our customers.