

REPAIR PROCEDURE



UTILITY TRAILER MANUFACTURING CO.

RP-11-012

March 27, 2019

Translucent Roof Repair Guide

Please read the attached repair guide from Crane Composites regarding Translucent Roof Repair. The attached repair procedure will cover safety precautions, general information, and different methods of repair.

Any further questions may be directed to the Field Service Department at 1 (800) 423-6591.

Field Service Department UTILITY TRAILER MANUFACTURING COMPANY

Utility hasn't independently evaluated the information contained in the attached product information letter from Crane Composite; it is making this available as a convenience and for information purposes. You are encouraged to contact Hendrickson at (1.800.435.0080) if you have any questions concerning the content of the document, or how these issues affect trailers you are servicing.

TRANSLUCENT ROOF REPAIR GUIDE

REPAIR KIT FOR SMALL AND LARGE ROOF REPAIRS

FOR USE WITH ALL R50T-FIX REPAIR KITS

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

Depending of the severity of the damage to the roof panel, the Translucent Roof Repair Kit can be used as follows:

- Small puncture and holes are repaired with quick-set epoxy and silicone sealant (follow Repair Method #1 as outlined within)
- Small gouges and tears are fixed by the wet lay-up method using fiberglass mat and polyester resin (follow Repair Method #2 as outlined within)
- Large tears or gouges where the roof material has been torn completely away may require a rigid fiberglass patch (follow Repair Method #3 as outlined within)
- Extensive damage calls for replacing part of the roof with a new panel the full width of the trailer, very similar to sectioning an aluminum roof (follow Repair Method #4 as outlined within)



NOTE: It is recommended that all roof damage be repaired immediately to prevent further damage. Do not allow the trailer to travel at highway speed until repairs have been made.

DISCLAIMER

PLEASE READ ALL INSTRUCTIONS BEFORE BEGINNING

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 Translucent Roof Repair Kit to be used with Crane Composites roof products.

Translucent Roof Kit Contents Include:

Part Number: R50TFIX

- 1Qt. of T-Mix* Repair Mix
- Chopped Glass Mat (R13508): 1 pc, 2' 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

Recommended Tools Needed (Not Included):

- Silicone Sealant (high grade)
- Two-Part, Quick-Setting Clear Epoxy
- Note:** Epoxy tends to yellow quickly. Covering the repair with silicone will reduce the yellowing.)
- Acetone for Clean-up
- Caution:** Acetone is extremely flammable
- Masking Tape, 2" wide
- Clean Rags
- 60-80 Grit Sandpaper
- Pneumatic Disc Sander
- Pneumatic Drill
- Pull Rivet Gun and Rivets
- Vise Grip Clamps

NOTE: T-Mix, Glass Mat, and Film (embossed or smooth) are available separately.

*T-Mix has a shelf life of 1 year when stored at room temperature. Do not freeze.

METHOD #1 - REPAIR OF SMALL HOLES

The Quick Seal Process

CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!

The quick seal process using Crane Composites' translucent roof repair kit has proven to be successful for repairs of small punctures and holes with quick-set epoxy and silicone sealant. Use this method to repair damage up to 1/4" in diameter; consider Method 2 for larger damage exists

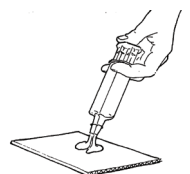
1. Holes 1/4" or less in diameter can be repaired in 15 - 20 minutes and the trailer can go back into service immediately.
2. Thoroughly clean the hole and an area about 4" around it with acetone. Make sure the area is completely dry before continuing.
3. Mix a small dab of 5-minute epoxy and press it into the hole from the underside. It will cure in a few minutes.
4. Then, cover the epoxy with a small amount of silicone sealant and feather out to make a neat job.
Note: Epoxy tends to yellow quickly. Covering the repair with silicone will reduce the yellowing.
5. To be sure of a long lasting, trouble-free repair, seal the repaired area with silicone sealant on the top also.



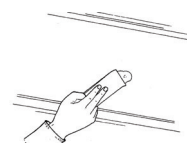
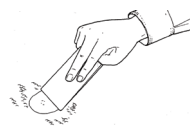
Step 1



Step 2



Step 3



Step 4



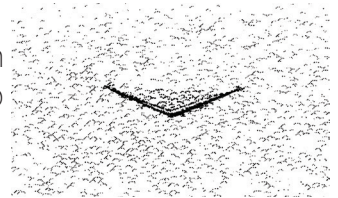
Step 5

METHOD #2 - FOR SMALL GOUGES AND TEARS

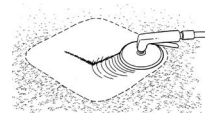
The Wet Lay-Up Repair Process

CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!

The wet lay-up repair using Crane Composites' translucent roof 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 roof panel. Use this method to repair damage up to 3' in length where the roof material is intact and not missing; consider Method 3 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

1. Using a power sander with 60-80 grit sandpaper, sand the top side of the damaged surface enough to remove the embossment. Do not weaken the panel by sanding too deep. Extend the sanded area 4"-6" beyond the damaged area. Do not cut off any roof material left by damage.



Step 2

2. Remove dust and wipe the area with acetone. For areas smaller than 12", use a top-side, wet lay-up only repair, and fill the back in with silicone sealant. For areas larger than 12", use the wet lay-up repair on both sides. Leave the top side and go inside to complete the underside part of the repair.



Step 4

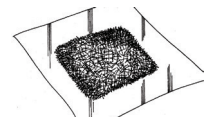
NOTE: Performing the wet lay-up repair on both sides gives optimum strength.

3. Abrade the same area underneath as on the top, then remove dust and wipe the area with acetone.



Step 5

4. Prepare a flat work surface for mixing, cutting the fiberglass mat, and wetting out the fiberglass with T-Mix. A sheet of plywood on saw horses works well.



Step 6

5. Spread a sheet of smooth polyester film on your work surface that is at least 8" larger on all sides than the sanded area.

6. Cut a piece of fiberglass mat 1" smaller on all sides than the sanded area, and place it in the center of the film.



Step 7

7. Catalyze a quantity of T-Mix with 1%-2% of hardener (20 drops ~1cc). Carefully follow the mixing instructions on the label. Be sure to make enough T-Mix, 200cc of mix will repair a 12" x 12" area. The T-Mix will start to set after 20 minutes.

8. Spread a heavy layer of mix over the entire area of the fiberglass mat. Build-up the resin to at least 1/8". If repairing both sides, you can use 1 layer of glass mat on each side. If only repairing top side, use 2 layers of glass mat.



Step 8

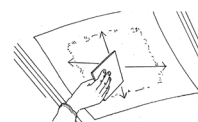
9. Lift the mat-and-film sandwich up to the abraded area and press it in place.



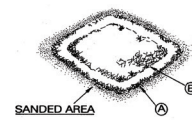
Step 9



10. Using a plastic spreader as a squeegee, stroke outward from the center to the edges with slight pressure to work the T-Mix through the glass mat until it is completely saturated. If there are areas not saturated with T-Mix, pull back the film and add more; squeegee again. Continue lightly feathering T-mix out to the edge of the abraded area. Pick up any excess and feather again. Tape down edges of the film to hold in place. Let it cure.



Step 10



Step 11

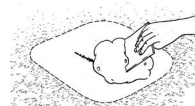
11. Cut two pieces of mat. The first should be 1" smaller on all sides than the sanded area. The second, 2" smaller on all sides than the first.



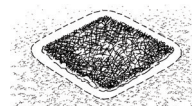
Step 12

12. Catalyze more T-Mix. Mix same amount as previous plus an additional 50%.

13. Spread the catalyzed T-Mix on the abraded area 1/8" deep.



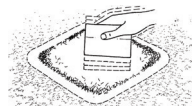
Step 13



Step 14

14. Center the first, larger piece of glass mat over the damaged area and press it into the T-Mix. Be careful not to disturb the underside repair.

15. Tap the glass mat lightly and repeatedly with the spreader to wetout the glass mat. When this layer is saturated, spread T-Mix on the second piece of glass mat 1/8" thick.



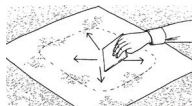
Step 15

16. Center the second piece of glass mat on top of the first, T-Mix side down. Tap with spreader to saturate the second mat. Continue with the squeegee more firmly to work out excess resin. Feather it to the edge of the abraded area, picking up any excess and continue feathering. Make sure the glass mat is thoroughly wetout. Spread a thin layer of resin on top of the glass mat.



Step 16

17. Place a sheet of embossed polyester film over the area. Use the spreader or a rag, stroke lightly from the center outward to work the T-Mix out to the edge of the abraded area. Do not use too much pressure or the embossment will be crushed.



Step 17

18. Tape down the edges to hold the film in place; let it cure. To test for cure without disturbing repair, set aside leftover T-Mix and check it occasionally. When the T-Mix has cured, trim off excess film around the repairs (on both sides) using a razor knife or scissors. The embossed film that is in contact with the cured resin bonds to the repair.



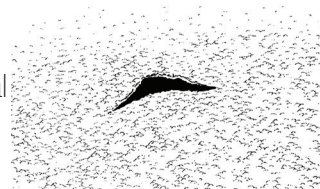
Step 18

METHOD #3 - FOR LARGE GOUGES AND TEARS

The Rigid Overlay Repair or Patch Process

CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!

The rigid overlay repair using Crane Composites' translucent roof repair kit has proven to be a successful repair method for large, damaged areas (up to 2' x 2'), where the roof material is broken away and missing. An overlay of 0.075" translucent roof material is recommended for this method. The appropriate size patch is adhered to the top surface with highly flexible silicone adhesive and is mechanically fastened with pull rivets at the corners and every 6" around the perimeter.



1. Prepare the area by sanding away loose material and abrade the surface 6" on all sides of the broken area to assure a good bond.

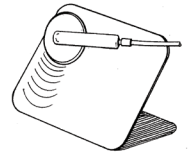


Step 1

2. Remove the dust and wipe the area with acetone to be sure the surface is free of grease, grime, exhaust residue, and moisture.
3. Cut a rectangular patch of roof material. Abrade and clean the underside of the patch with acetone. Plan to position the patch so its corner-to-corner axis is parallel with the length of the roof. Round the corners slightly.
4. Apply silicone in 1/4" diameter beads 1" apart over the prepared area.
5. Set the patch in position. Press down firmly and shift it back and forth slightly to completely embed the patch in silicone and eliminate air pockets. Drill the appropriate size hole, and install the pull-out rivet. Drill another hole in the opposite corner, and install the second rivet. This will secure the patch, and then the remaining holes can be drilled and riveted.
6. Cover the edges of the patch and the rivet heads both top-side and underneath with silicone and feather out to make a neat job.



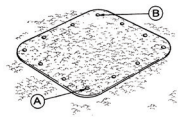
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Step 3



Step 4



Step 5



Step 6

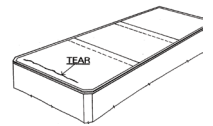
METHOD #4 - FOR EXTENSIVE DAMAGE

The Partial Roof Replacement Process

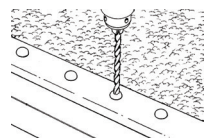
CAUTION: WEAR APPROPRIATE PROTECTIVE EQUIPMENT BEFORE BEGINNING REPAIR!

When damage is severe and exceeds 3' in any direction, it's best to install a new section of roof panel. This is accompanied by first cutting and removing the damaged portion just ahead of a roof bow. Second, installing a new section that overlaps the good roof by 12". Third, securing the seam with mechanical fasteners and an aluminum cap strip top and bottom. Clear silicone sealant is used between the panels at the overlap.

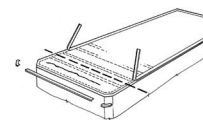
1. A section of roof may be replaced anywhere along the length of the trailer provided the new section underlaps at the forward edge and overlaps at the trailing edge with a roof bow underneath to support the overlap.
2. Drill out the rivets surrounding the area to be replaced. Remove the aluminum fastener strips. Along the side, "J" strips can be folded back.
3. Cut off the damaged portion of the roof 6" in front of the first roof bow in the good section.



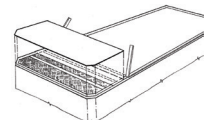
Step 1



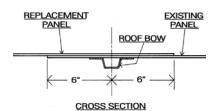
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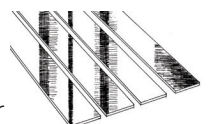
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Step 4



Step 5



Step 6

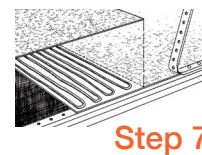
4. Cut a replacement panel of translucent 0.075" thick material. Add 12" to the length for the overlap, plus an additional amount if tensioning will be done.

Note: If the repair is in the center of the trailer, two overlaps will be required.

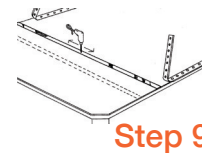
5. The new panel section will overlap 12" (6" in front of the roof bow and 6" in back of the roof bow). Sand and thoroughly clean the overlapping surfaces with acetone. Be sure they are free from grease, road grime, exhaust residue, dust, dirt, and moisture.
6. Cut 4 cap strips from standard 0.04" or 0.05" aluminum; 2" wide by the width of the trailer roof.



7. Lay down beads of silicone on original roof 1/4" in diameter, 1" apart along the length and width of the overlap. Treat the perimeter edges as you would normally. Set the new panel in position. When the panel is properly positioned, press down firmly at the overlap to seal the panel in silicone. Clamp it at the top rail to hold it in position.



8. Set one of the previously prepared aluminum cap strips in position at the rear edge of the overlap and clamp.



9. Fastening will begin in the center of the rear overlap.

10. Use double-sided tape to hold the inside cap strip in position while the first fastener hole is drilled and riveted. Continue fastening every 2"-4", working from the center toward the rail.

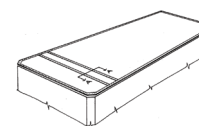
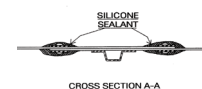


11. Repeat the same procedure at the front overlap.

12. After riveting the overlap, tension the panel and seal and fasten the perimeter at the top rail as usual.



13. To complete the job, seal the overlap edges and rivet heads with silicone at the new overlap splice, along the perimeter "J" strip.



Step 13