

INTRODUCTION

This manual has been designed to assist in making small, simple repairs to the Filon® frp skin on the outer surface of a recreational vehicle. Although the techniques are fairly straightforward, they do rely on the technician having a reasonable knowledge of wet lay-up fiberglassing and experience in automotive paint spraying.

Section 1	Supplies, Equipment, and Safety Precautions	pg. 2
Section 2	Repair	
	• Severe Damage - damage to fiberglass and lauan backing	pg. 4
	• Shallow Scratch - minor surface scratch	pg. 8
	• Deep Scratch/Puncture - deep into fiberglass but doesn't break through to lauan	pg. 9
Section 3	Finishing Method for Filon sidewalls	
	• "Spiderweb" Texturing Method	pg.10
	• Paint Pen Texturing Method	pg.12
	• Plastic Wrap Texturing Method	pg.15
	• Lacquer Automotive Method	pg.17
Section 4	Finishing Method for Medallion	pg.18

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Filon products are manufactured by Kemlite Company, Inc. While the repair procedures presented in both the repair video and repair manual are well-researched and offered in good faith, Kemlite cannot accept responsibility for the quality of workmanship or materials utilized in these repairs.

SUPPLIES

PAINTS, FILLERS & FIBERGLASS

- Polyester resin*
 - Fiberglass mat
- (for rebuilding integrity of sidewall panel)
- Clear lacquer*
 - Lacquer thinner*
 - Color matched lacquer/paint*
- (for restoring the surface finish)
- Hand glaze*
 - Sandable primer*
 - Color matched two-part polyurethane paint*
- (for paint pen or plastic wrap texturing method)
- Two-part spot filler*
(for shallow scratches and pin holes)
 - Glass-filled, low-shrink polyester filler*
(for deep depressions)
 - Acetone or other acceptable cleaning solvent*
(for degreasing and tool clean-up)
 - Acrylic sealer*
(for plastic wrap texturing method)

GENERAL SUPPLIES

- Cellophane film
- Plastic wrap (for plastic wrap texturing method)
- Sanding discs — silicone carbide, grits from 60 through 320
- 400 grit pad
- Buffing compound*
- Cups for mixing resin
- Mixing sticks and spreaders
- Utility knife
- Paint brush — 2 inch disposable
- Masking tape
- Clean rags
- Non-porous surface (for mixing fillers)
- Paint Pen (for paint pen texturing method)

*Caution: These materials are flammable. Proper precautions for use must be followed. Read manufacturers' directions carefully before beginning repairs.

EQUIPMENT

EQUIPMENT

- Disc sander
- Air compressor
- Three spray guns
- Buffer
- A bench-type work surface

SAFETY PRECAUTIONS

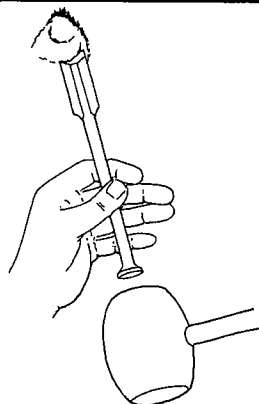
1. Protect your eyes with goggles, cover your nose and mouth with OSHA-approved respirator and wear gloves when cutting and sanding fiberglass and using polyester resin and cleaning solvent.
2. Resins and solvents are highly flammable. Do not smoke or use electric tools that cause sparks. Always read the caution labels on all solvent containers and take the necessary precautions.
3. Make sure the work area is well ventilated.

SEVERE DAMAGE



Deep gouge or tear

1.



Use a chisel to dig out all broken pieces of Filon skin and lauan.

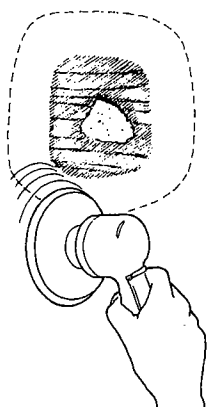
2.



Use coarse, 60 or 80 grit sandpaper and sand away the fiberglass skin.

Expose 4" to 6" of lauan backing and remove all traces of bonding adhesive.

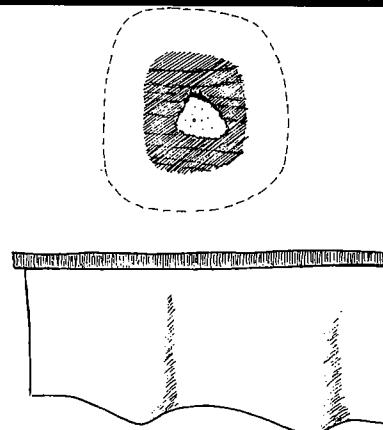
3.



Sand a 2" taper from the inside edge outward all around the lauan on the fiberglass skin.

Abrade the Filon surface another 4" to 5" beyond the taper with 120 grit sandpaper to eliminate gloss and assure good adhesion of repair materials.

4.



Blow off all the dust and wipe the area with a clean rag and solvent.

Mask the area below the repair to catch any resin run-off.

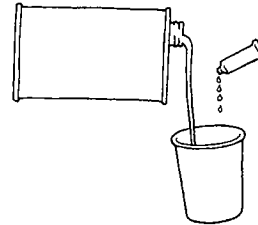
SEVERE DAMAGE

5.



On the work surface cut a small piece of fiberglass mat into small chunks and set them aside in a mixing cup. Also cut a piece of 6 oz. fiberglass mat to fit the tapered area. Set it aside.

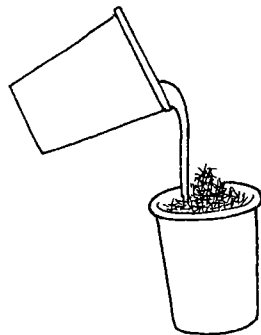
6.



Fill a mixing cup with enough polyester resin to saturate the cut mat, plus 1/3 more for the mat in the mixing cup. (6 oz. of resin by volume will saturate one sq. ft. of 6 oz. mat.)

Add catalyst for 20 to 25 minutes working time. Refer to the resin manufacturer's recommendation for the correct amount.

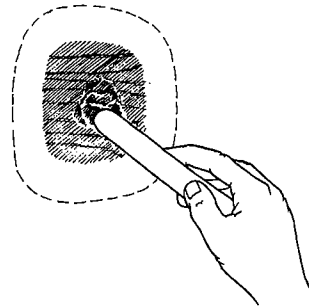
7.



Pour a small amount of catalyzed resin into the mixing cup containing the chopped fibers.

Mix thoroughly. Add more resin if needed, but keep this mix as thick as possible, so it doesn't run.

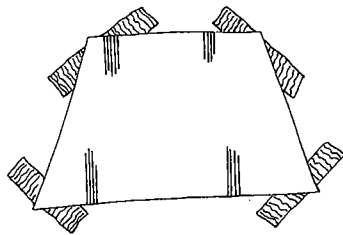
8.



Working quickly, use your 2" paint brush to give the repair area a generous coating of the catalyzed resin. Then with the spatula, press the filler mix into the cavity until it is flush with the surface.

SEVERE DAMAGE

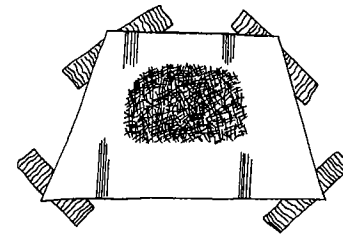
9.



Spread a sheet of cellophane film on the work surface that is at least 8" larger than the repair area.

Attach masking tape strips to the underside, adhesive side up.

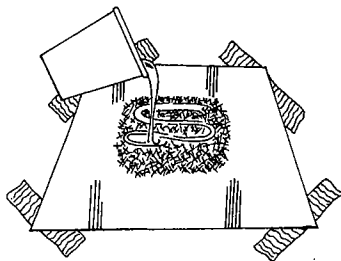
10.



Center the cut piece of mat on the film on the work surface.

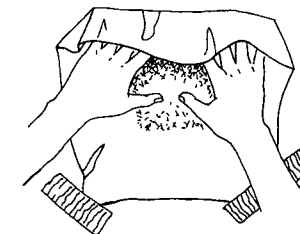
Tip: Additional layers of mat may be needed, depending on the depth of the repair area. Be sure each subsequent layer of mat is 2" smaller than the previous layer.

11.



Working quickly, pour a generous amount of catalyzed resin onto the mat on the work surface in a fairly even pattern, saturating the entire surface of the mat.

12.



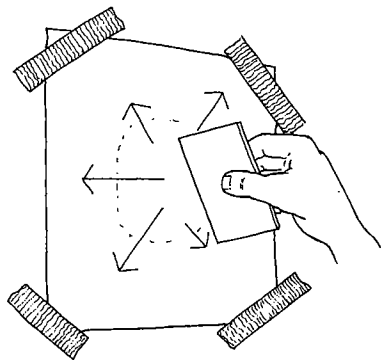
Lift this mat/film sandwich up to the repair area, supporting it from underneath so the mat won't pull away from the film and fall apart.

Press the saturated mat/film sandwich, holding it there with the masking tape.

Tip: Save mixing cup of leftover resin to check cure later.

SEVERE DAMAGE

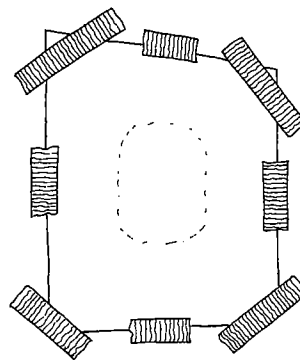
13.



Using the spreader as a squeegee, stroke outward from the center toward the edges with slight pressure to work the resin through the mat until it is completely saturated.

Work any excess resin to one corner, lift the film, and pick up the surplus.

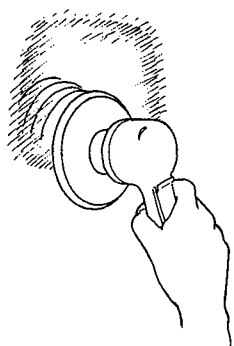
14.



Work the area with the squeegee until it is flat and flush with the adjacent surface.

Tape the film securely and let the repair cure. (Cure time will vary, refer to the resin manufacturer's recommendation.)

15.



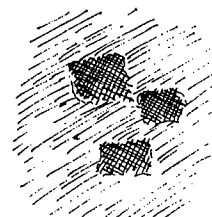
When resin is cured, remove the film.

Using 80 grit sandpaper, sand off ridges and high spots and make the area flat and flush with the surrounding surface.

If necessary, check for flatness with a straight edge.

Fill any deep, low spots with polyester filler. Let cure.

16.



Pin holes, shallow depressions and scratches should be filled with the two-part spot filler.

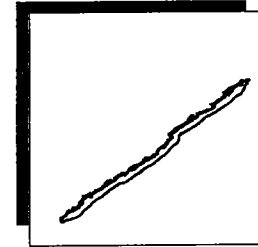
Fill and sand the repair until the area is smooth and even with the existing wall.

Use successively finer sandpaper grits to prepare the surface for painting. Proceed to texturing/finishing steps page 10.

Tip: Always clean the surface before using the next finer grit sandpaper.

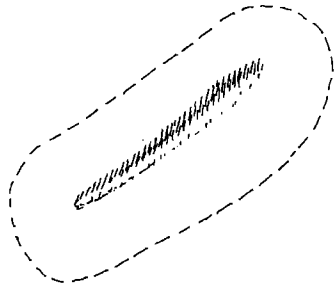
Section 2

SHALLOW SCRATCH



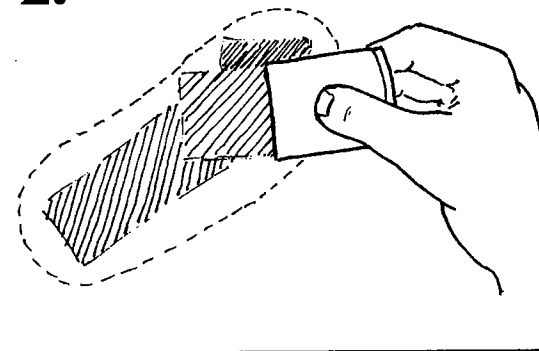
Shallow
Scratch

1.



Sand out the scratch or crack by hand with 120 grit sand-paper. Sand 2" to 3" beyond the scratch to eliminate gloss. Wipe off dust with a clean rag and solvent.

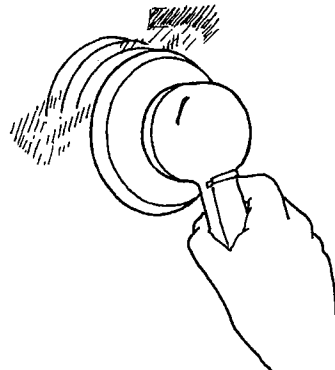
2.



Filon Sidewalls - Fill the depression with two-part spot filler. Let cure.

Medallion - When repairing Medallion®, fill the depression with a glass-filled, low-shrink polyester filler.

3.



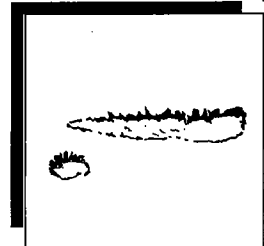
Sand the filler with 120 grit sandpaper. Blow off dust and sand with 120 or finer grit paper, making area smooth and flat.

Clean off the dust and proceed to the texturing/finishing steps, page 10.

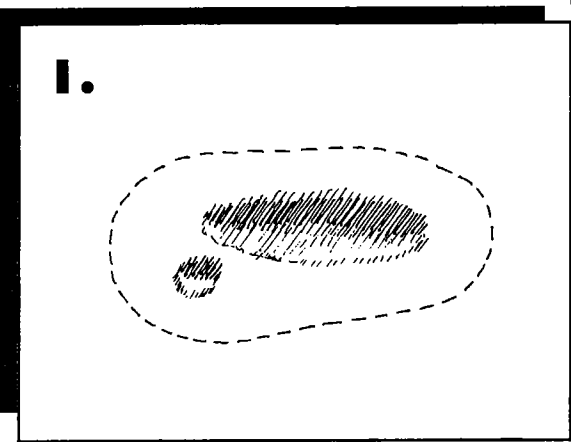
***Note:** If a heat gun is to be used in removing graphics, Kemplite recommends operating the gun at low temperatures in order to avoid further cracking the gelcoat finish.

Tip: Always clean the surface before using the next finer grit sandpaper.

DEEP SCRATCH OR PUNCTURE



Deep Scratch or Puncture

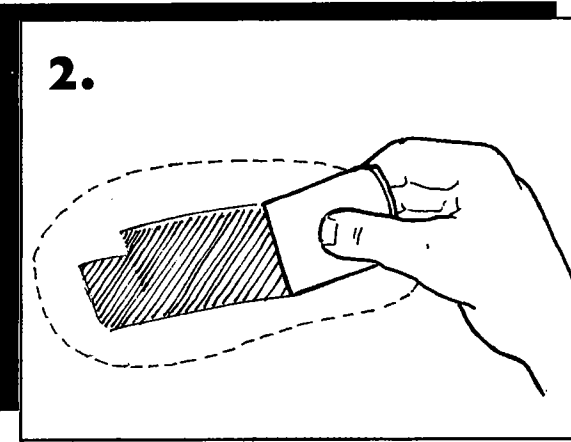


1.

With 80 grit sandpaper clean out debris and fibers, and make a slight vee, tapered outward.

Widen the sanded area 2" to 3" beyond the damaged area.

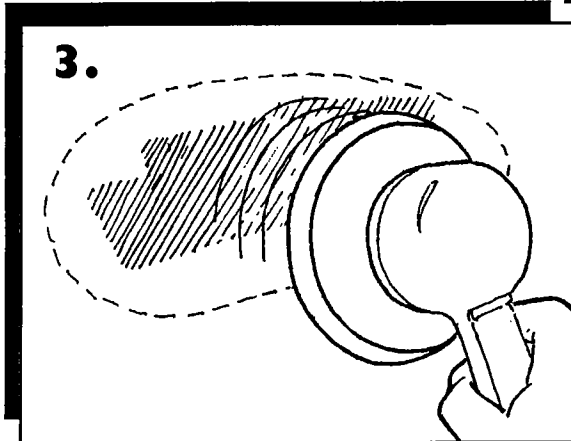
Blow off all dust and wipe the area clean with cleaning solvent.



2.

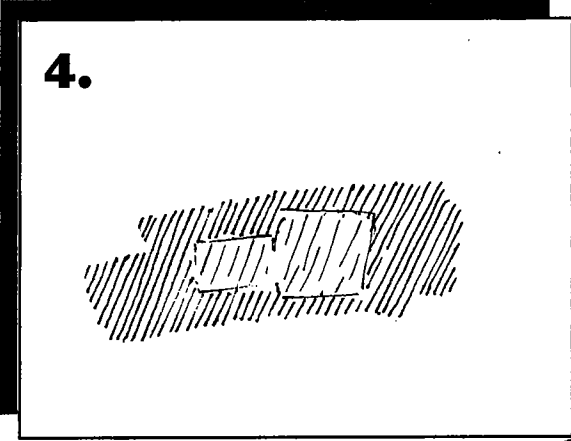
Catalyze a quantity of the glass-filled low shrink polyester filler and press the mix into the depression, filling it completely.

Work the mix to eliminate all air bubbles and level it out, leaving it slightly higher than the surrounding area.



3.

When cured, sand the filled area with 120 grit sandpaper until flush. Blow off dust and wipe area clean with cleaning solvent.



4.

Fill any remaining depressions and pinholes with two-part spot filler.

Sand again with 120 grit sandpaper until flat and smooth.

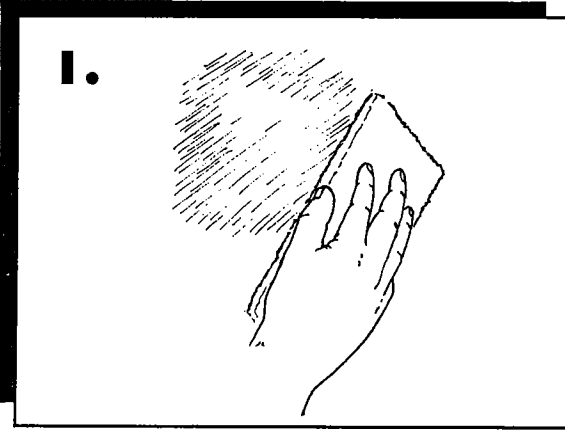
Blow off dust and wipe clean. Sand with successively finer grits to prepare for finishing on page 10.

Tip: Always clean the surface before using the next finer grit sandpaper.

FINISHING

“SPIDERWEB” TEXTURING METHOD

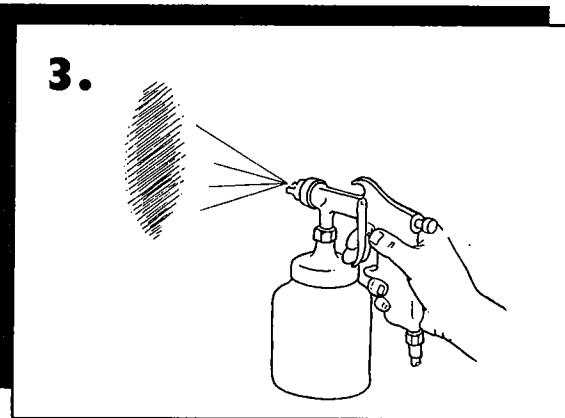
The subtle, random fiber texture visible on the Filon surface is inherent in the manufacturing process. The finishing techniques shown here were developed to match that texture as closely as possible. The success of any of these techniques is highly dependent on the technician's ability to duplicate the Filon random fiber texture. It is strongly recommended that the technician practice on several scrap panels first, before choosing one of the following methods.



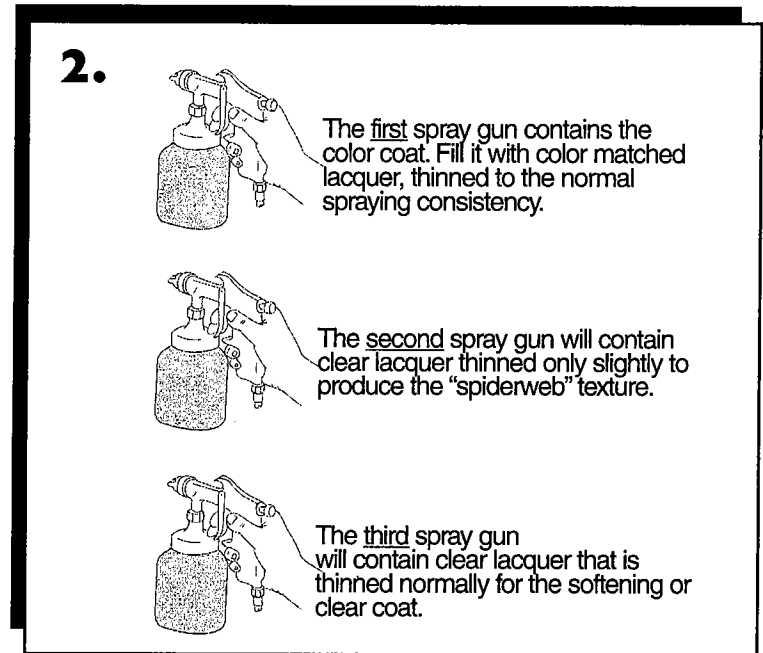
1. Do a final sanding with the 220 grit sandpaper and then 320 grit to eliminate all sanding marks. Then use the 400 grit pad and extend this sanding over the entire area that will be painted to abrade the surface for good paint adhesion.

Blow off all the dust. Use a clean rag to wipe the area with cleaning solvent. The wall is now ready for the color coat.

Note: To avoid a color mismatch or at least make it less noticeable, plan the painted area to fall between natural breaks in the wall, (i.e., between windows or between the top molding and a trim stripe.) The age of the unit will also effect the color match and may show the need to paint the entire sidewall. For color matches see Kernlite tech data # 65003.



3. Spray the area with several coats of color matched lacquer from spray gun #1. Immediately follow with the “spiderweb” texturing coat, as described in step 4.

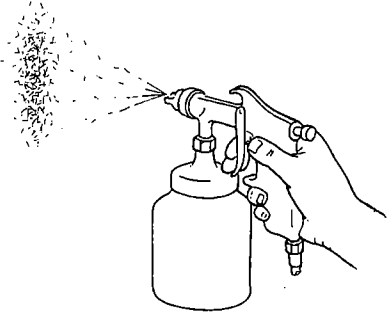


Note: Three different finishes will be sprayed, one after the other. Have three guns set up ahead of time.

Section 3

"SPIDERWEB" TEXTURING METHOD

4.



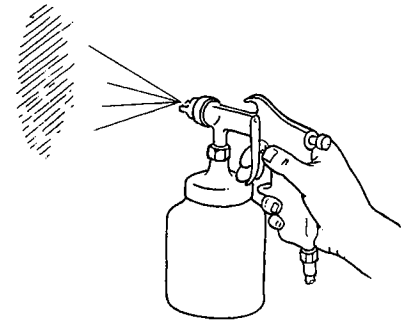
From spray gun #2, apply the "spiderweb" texturing coat by spraying the slightly thinned lacquer with reduced spray gun air pressure (approximately 15 to 20 PSI).

Spraying should produce a thread-like finish on the panel surface.

Follow immediately with clear lacquer.

Tip: Test spray on a scrap panel before applying it to the repair area.

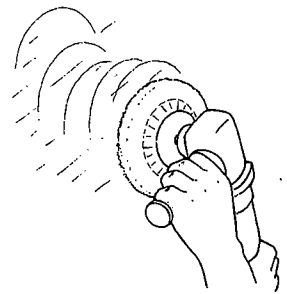
5.



Spray on one or two coats of clear lacquer from spray gun #3, thinned normally. This coat melts the "spiderweb" slightly, softening and reducing the sharpness of the texture to better match the surrounding surface.

Tip: Overspraying could cause the surface to flatten out.

6.



When the lacquer is completely dry, power buff the area with buffing compound. This action further blends and softens the texture to match the luster of the factory finish. Check the buffing progress often to avoid losing the texture.

7.



When the buffing is completed, wash and clean the area thoroughly.

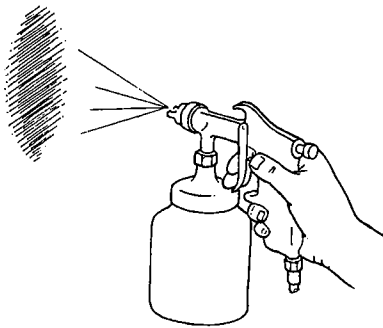
The repair is finished.

Section 3

PAINT PEN TEXTURING METHOD

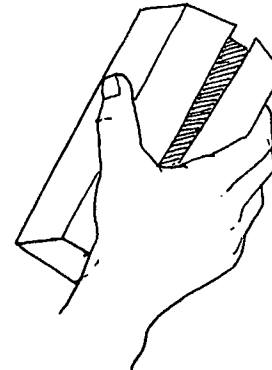
This method utilizes a sandable primer which is an aid for getting the repair area perfectly flat and for producing an orange peel finish. The fiber texturing is added with a special fine tipped paint pen (do not use a marking pen.) The finishing coat is a two-part polyurethane enamel paint.

1.



Spray the area with sandable primer. Let dry.

2.

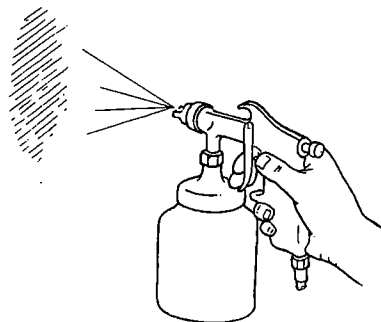


Hand sand the entire area using a sanding block and 320 grit sandpaper. Feather the edges. Wipe the area with cleaning solvent.

Tip: Before final painting the area must be perfectly flat with no pinholes or sanding marks.

Note: To avoid a color mismatch or at least make it less noticeable, plan the painted area to fall between natural breaks in the wall, (i.e., between windows or between the top molding and a trim stripe.) The age of the unit will also effect the color match and may show the need to paint the entire sidewall. For color matches see Kemlite tech data # 65003.

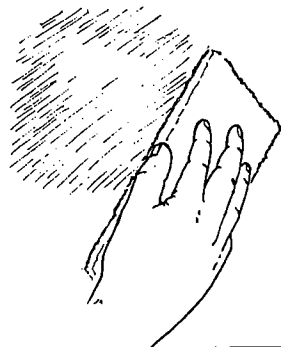
3.



Prime the area again, this time holding the spray gun 12" to 18" away to create an orange peel finish. Let dry.

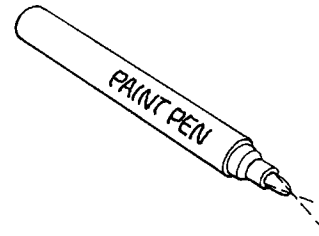
PAINT PEN TEXTURING METHOD

4.



Sand the area lightly with the 400 grit pad to abrade the surface for good adhesion. Clean with cleaning solvent.

5.



To simulate the fiber texture, first sharpen the felt tip on the paint pen with a sharp knife or razor blade so it will make the finest line possible.

6.



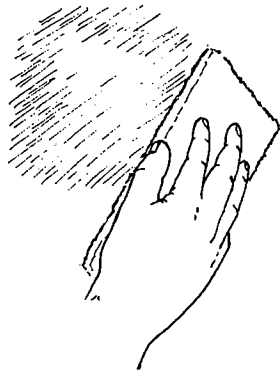
Next, make short, random directional marks on the repair surface with the paint pen.

Closely space these marks in a vertical, horizontal, and diagonal direction over the entire area.

Compare the marks with the surrounding area to make sure they match the Filon fiber texture. Let dry.

PAINT PEN TEXTURING METHOD

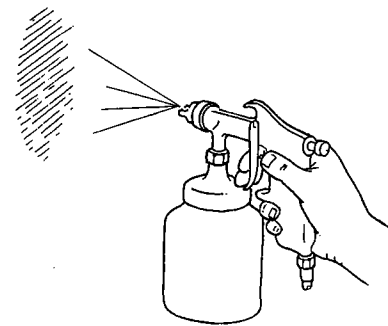
7.



Use the 400 grit pad to lightly sand the area just textured and a 10" to 12" perimeter beyond for blending the new paint to the Filon.

Blow off all dust, wipe the area with a clean rag and solvent.

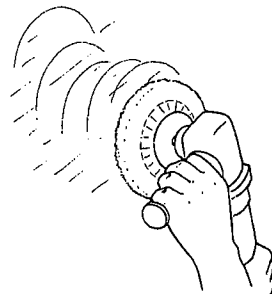
8.



Mix paint to match, spray just the textured area with several coats to cover the repair.

For blending, reduce the paint to a thinner consistency and spray again covering the 10" - 12" perimeter. Let dry.

9.



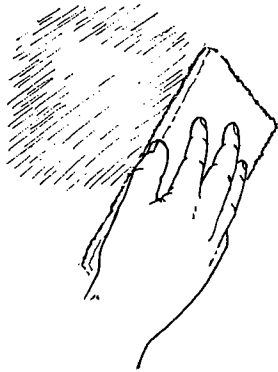
Buff the area with buffing compound. Follow up with hand glaze to eliminate swirls.

The repair is now finished.

PLASTIC WRAP TEXTURING METHOD

This texturing method uses crumpled plastic wrap dabbed over the freshly painted area.

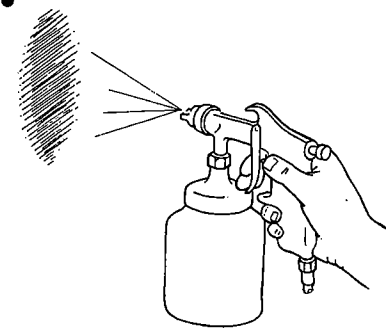
1.



Do a final sanding with the 400 grit pad and extend this sanding over the entire area that will be painted to abrade the surface for good paint adhesion.

Blow off all the dust and wipe the area with a clean rag and solvent. The wall is now ready for the color coat.

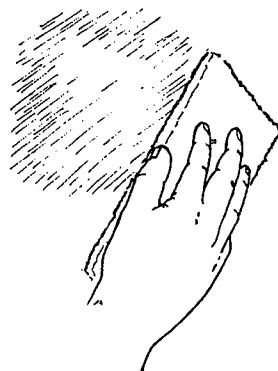
2.



Spray the area with a coat of sandable primer.

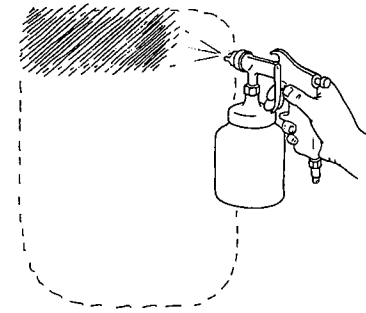
Note: To avoid a color mismatch or at least make it less noticeable, plan the painted area to fall between natural breaks in the wall, (i.e., between windows or between the top molding and a trim stripe.) The age of the unit will also effect the color match and may show the need to paint the entire sidewall. For color matches see Kemiite tech data # 65003.

3.



When dry, wet sand with 600 grit sandpaper to eliminate all previous sanding marks. Wipe the area clean with a clean rag and solvent.

4.

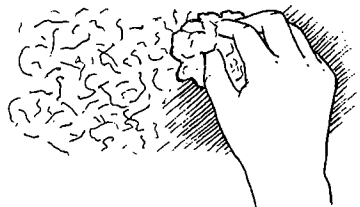


Spray acrylic sealer on a small section and while it is still wet, dab the area with a crumpled piece of plastic wrap.

Section 3

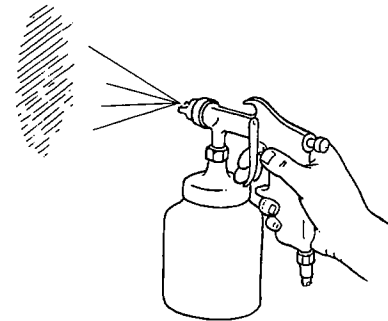
PLASTIC WRAP TEXTURING METHOD

5.



The pattern left by the crumpled wrap will simulate the Filon fiber surface texture. Repeat the procedure by spraying small sections at a time. Use fresh plastic wrap as needed to achieve the Filon texture look. Let dry.

6.



When the area has been completely textured, spray on three light coats of color matched paint. To blend the perimeter, spray thinner lightly over the area working from the outside toward the center.

Once the repair is dry, buff the repair area with buffing compound to blend it into the surrounding area.

The repair is now finished.

Tip: Hand-applying a glazing compound may assist in removing any swirl marks caused from buffing.