

SPA COSMETIC REPAIR WITH THE QUICK-GLAZE SYSTEM (GRANITE, PEARL, METAL, or MARBLE COLORS)

DESCRIPTION

The **QUICK-GLAZE** repair system has been formulated for repairing marble and solid color spas. It is commonly used by professional repair people, since it can provide a high performance repair, and can be completed quickly. However, a clean environment is required to avoid airborne contaminants from affecting the appearance of the repair. If necessary, the finished repair can be buffed and polished if it is allowed to fully cure, which takes a few hours.

Multi-Tech Products also provides a "MMA" system for repair. It can be buffed sooner to provide maximum surface gloss and smoothness. Even though it is designed primarily for factory use, it must be fully cured before it is buffed. However, it is only recommended for repairs that do not extend into the wet areas of the spa. Please visit us at www.multitechproducts.com for more information as well as procedures for repairing other types of spa defects, such as blisters and delamination.

Multi-Tech Products offers repair materials that match all popular colors and textures that are commonly sold in the industry. Refer to our website for more specific information on colors that are available. Repairs to spa surfaces start with a special filler, designed to avoid failure problems seen with polyester body fillers and putties due to the effects of water, spa chemicals, and sunlight. A high performance acrylic resin is the recommended filler for spas. It should always be used when there is long exposure to water and spa chemicals. We also offer a improved polyester filler, primarily for bathtubs, but it can be used for spa repair areas that are not exposed to these conditions. See the Bath Repair procedure to learn how to use it. The filled repair is then spray-coated (using an air brush) with a color matched basecoat. Toners allow adjustment of the basecoat color to be lighter or darker. The repair is finished by applying a protective, polyurethane, clear topcoat. These repair coatings allow the damaged surface to be repaired to an appearance almost like new.

While there is no implied warranty, the materials and techniques described in these procedures have been designed to withstand the normal operating conditions of spas. However, success of the final repair also is dependent on the experience and skill of the individual repair technician.

NOTE: The use of conventional automotive repair products such as polyester type fillers (Bondo, Evercoat, Akemi and Duraglass), lacquer spot putties and primers (although labels may read "acrylic" or "water-proof") absorb water and are not recommended with this system, especially in spa applications. Substitution of alternate products can have a severe detrimental effect on the performance and durability of the repair.

MATERIALS

- A special high performance, white acrylic filler
- A special granite filler for granite spas
- Primer coat(used only with pearl/metal colors)
- Hardener for Primer coat and Base coat
- Base coat(s) matched to the spa color
- Top coat, thinner/reducer and hardener
- Toners for adjusting color for a better match or used as an accent color for marble
- Quick Glaze Finishing Solvent for Primer coat and Base coat
- Hand glaze, a non-silicone/non-wax surface cleaner
- Isopropyl alcohol





EQUIPMENT

The equipment listed below is needed to use the **QUICK-GLAZE** repair system. Similar equipment made by other manufacturers may be substituted. This equipment is available from Multi-Tech Products. A working knowledge of the equipment and application techniques is assumed for these repair procedures.

- A 1/4" Die Grinder(electrical or pneumatic) with cylinder grinding points (Dremel-type tools typically are not robust enough for this job)
- Industrial Heat Gun (Again, a hair blow dryer is not sufficient)
- A ³/₈" Variable Speed Drill (electrical or pneumatic)
- A rubber 3-inch diameter disc assembly for the drill (similar to the Roloc Disc pad)
- 3" Sanding Discs 50, 36, 24 grit. (50 grit is optimum.)
- Wet/dry sandpaper in 80, 100, 220, 320, & 400 grit
- A single action airbrush with a "3" or "5" tip (kits include a 2½ oz. and a ½oz. spray cup, a cloth braided hose). Extra spray cups for mixing and utilizing different colors may be necessary.
- For large (> 1 sqft.) repair areas, a Touch Up Spray Gun with siphon cup is useful. The spray gun can also be gravity fed.
- High pressure (45 to 55 psi) and airflow (1 CFM) air source A compressor needs to be a tank-type, to
 provide adequate CFM
- Variable Speed, Heavy Duty Polisher/Buffer at least 2500 3500 rpm capability is recommended
- Buffer Pad (industrial quality) purchase the pad first and then match it up to the appropriate buffer.
- Rubbing Compound or Buffing Bar.
- Clean wiping cloths or white paper towels
- Vapor/Particulate Respirator NIOSH/MSHA TC-23C.



Airbrush Set

Industrial Heat Gun

Grinder & Drill

Heavy Duty Buffer



SAFETY PRECAUTIONS

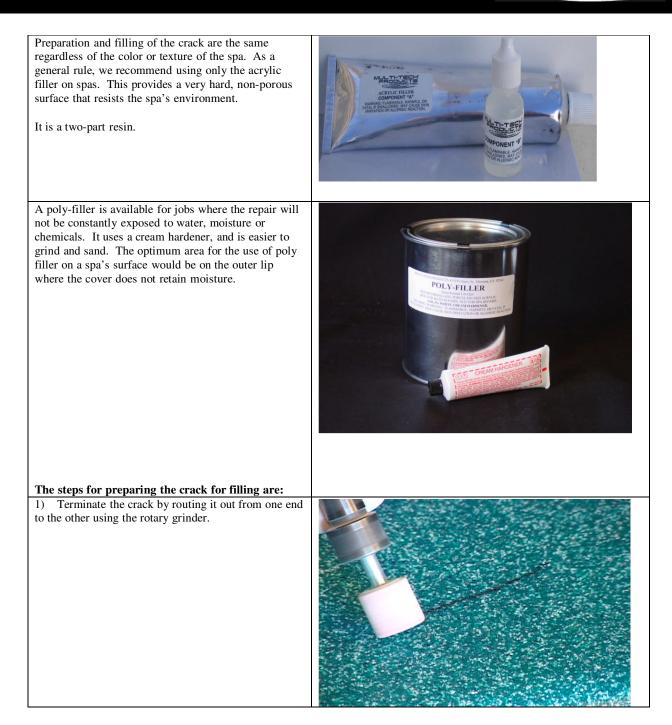
Spa repairs require personal contact with a variety of components, each having its own unique characteristics. When handling these materials, read and follow the safe handling procedures on the labels and the applicable MSDS. During grinding, drilling, sanding, etc., eye and hand protection is required. Do not breathe vapors or mists. Individuals with a history of lung or breathing problems should not use or be exposed to this product. Keep away from heat, sparks and flame. Vapors may cause a flash fire. Close containers after each use. Dispose of properly.

Wear a vapor/particulate respirator (NIOSH/MSHA TC-23C) while mixing hardener with coatings, during application (especially when overall refinishing) and until all vapors and mists are exhausted. Individuals with a history of lung or breathing problems or prior reaction to isocyanate should not use or be exposed to this product. Do not permit anyone without protection in the painting area. Follow the respirator manufacturer's directions for respirator use.

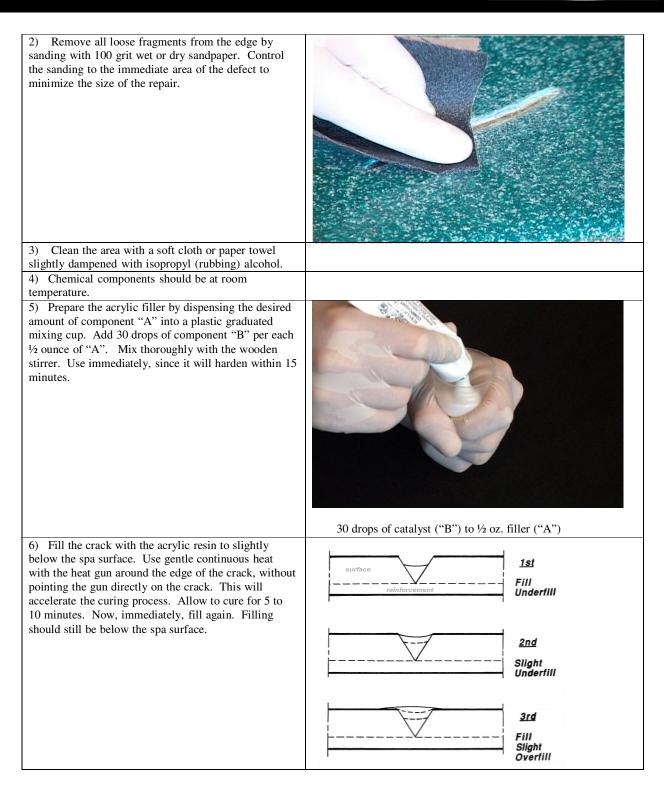
PROCEDURE

Before a repair can be started, the spa must be drained of water, and be dry and clean. The steps used to repair a surface crack are: 1) Crack preparation (grinding and sanding)	Spa surfaces clean and dry
 2) Filling the crack 3) Applying the spa color coating 4) Applying a protective clear topcoat It is recommended that the surface be allowed to fully cure for at least 7 days before water is re-introduced to the spa. Place the spa cover in a position to allow air ventilation during the drying process. Cool temperatures will lengthen the cure time. If condensation occurs on the repair coatings during curing, it will affect the quality and time to cure. Down load "Curing Guide" from our website under our procedure section. 	ELEVATED SPA COVER BLOCK CIRULATING AIR LET CURE FOR 7 DAYS BEFORE FILLING WITH WATER
Before starting a spa repair, the jets and other areas that should be protected from overspray should be masked.	
Preparing the crack and filling	
Spas are produced using a plastic (normally an acrylic) sheet that is reinforced from the back using a fiberglass composite or other strong plastic.	









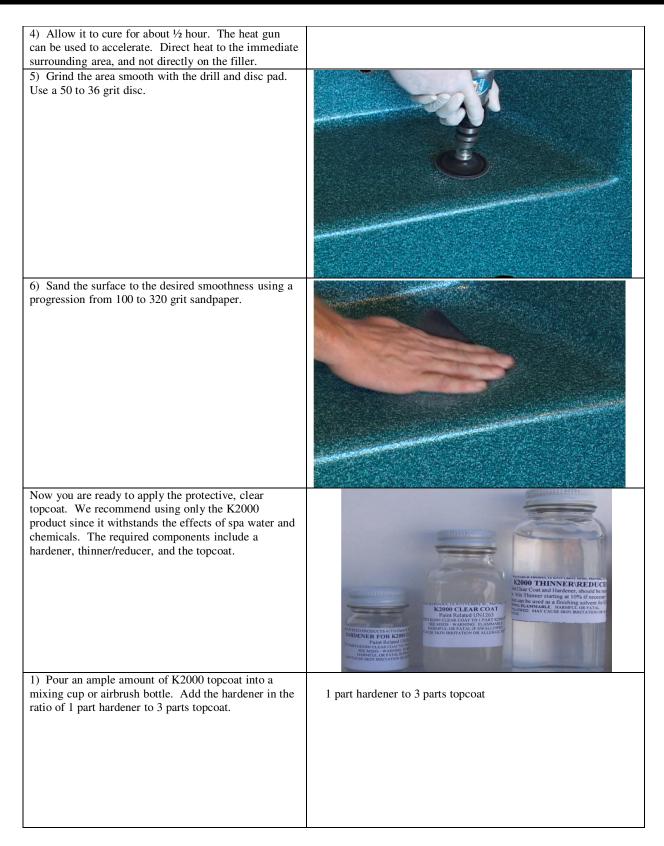


7) Grind any excess white acrylic filler from around the crack to avoid bleed- through in the final repair. Repeat the curing process.Use 36 to 50 grit sanding discs.	
8) Immediately, fill again (3 rd time) so that the fill is slightly above the spa surface. Sand with 100 grit wet or dry sandpaper if more than 15 minutes expire between applications. The filler should be mostly cured but still soft to the fingernail at the tack coat. This promotes adhesion of the separate applications. Using too much filler in a single coat can result in excessive heat, which may result in air bubble formation.	
9) This stage filling process is the same for the acrylic filler and granite paste repair systems to avoid air pockets. The green granite surface is used for demonstration purposes although it does not represent the marble effect. After final filling and curing, grind the filled area with the grinder. Use a slow speed to prevent excessive heat buildup and melting. Continue until the surface is flat and even with the spa surface.	
 10) Dry sand lightly with 100 grit sandpaper. 11) Now you may wipe the surface with a very thin coat of a new batch of the acrylic filler to fill in imperfections such as pin holes or grinder marks. Do not use anything other than the acrylic filler for this purpose. 	
12) Allow a few minutes for curing, and then begin wet sanding with a progression from 220 to 320 to 400 grit wet/dry sandpaper. Now the surface is ready for application of the spa color matching system for marble, solid and pearl colored acrylic effects.	



<u>Repairing Granite Surfaces</u> Granite surfaces are generally the easiest to repair. An acrylic resin, with colored particles like the sheet, is used to match the appearance and texture of the surface. Multiple particle ingredients can be ordered from Multi-Tech to better match the particle size in the spa, which have been deformed in the manufacturing process.	
	Aristech Teal
1) Starting from a crack filled with the white acrylic resin filled in stages like the above filling procedure, grind a depression that is about 1/16" below the spa surface.	Je -
This void will be filled with the colored filler. In fact, the colored filler can be used for the entire filling process for small cracks, or when acrylic filler is not available.	
2) Using the mixing cups, combine component "A" with component "B" in the ratio of 30 drops of "B" to each ½ oz. of "A". Mix well.	
3) Apply this material in the depression and fill so that it is above the spa surface.	







If desired, a texture enhancer can be added. It is added in the ratio of 1 part enhancer to 32 parts topcoat.

2) Apply this mixture to the repaired area by dabbing with a small paintbrush.

Allow up to 7 days before filling spa with water, keep the surface dry to prevent damage to the repaired surface until it is ready to be filled. (See beginning of procedures.)

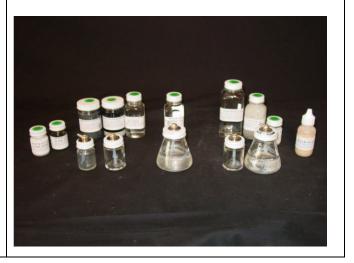


EXTURING ADD

Finishing a smooth, solid color, pearlescent or metal spa surface defect

The materials needed to complete this repair include a primer coat, a base coat, and the K2000 top coat. The Quick Glaze hardener is substituted with the K2000 hardener for the primer coat and base coats. The Quick Glaze Retarder is used to thin these color base coats in all temperature environments in replace of the Quick Glaze Reducers. The Quick Glaze Finishing Solvent is required to allow "feathering" to minimize the paint "halo" effect on the color base coats as well. The K2000 top coat, hardener and thinner/reducer are required for protection and finishing. A hand glaze cleaner minimizes static and film from the surface. The primer color coat is only used for pearlescent colors. We will explain this process.

alba LS8001 Lucite® pearlescent color





PEARL COLORS

1) Starting from a smooth, filled crack, the first step is to apply the primer coat.

It is recommended to mix all product required at the start of the spraying process in order to speed up the procedure. When application begins, the procedure requires each coating layer to be sprayed in rapid succession. There are some time constraints to yield the best results.



PRIMER COAT

2) A) Pour an ample amount of the Primer Coat into a mixing cup. ¹/₂ ounce is a good starting point.
B) Add the K2000 hardener to the Primer Coat in the ratio of one part hardener to eight parts Primer Coat. Mix well.

C) Thin the mixture by adding the Quick Glaze retarder in the same ratio of 1 part retarder to 8 parts Primer Coat/hardener mix. Mix again.

When using the K2000 topcoat, its hardener is substituted into the Quick Glaze products for the primer coats and base coats.

BASE COAT

A) Pour an ample amount of the base coat into a mixing cup. ½ ounce is a good starting point.
B) Add the K2000 hardener to the cup in the ratio of one part hardener to eight parts base coat. Mix well.
C) Thin the mixture with the Quick Glaze retarder in the same ratio of 1 part retarder to 8 parts base coat/hardener mix. Mix again.

Note: The primer coat and base coat have the same mixing ratios.

Hint: In mixing step, we have found the Dram Scale on the plastic graduated mixing cup to be easy-to-read

3) Perform a test spray on paper or other substitute. Additional thinning with the Quick Glaze retarder may be required. If so, add an additional 25% of Quick Glaze retarder to achieve smoother spray out with the airbrush. Note: This should be done in the primer and base coat spraying steps.







4) Finishing solvents are used with each coating to promote good wet out and gloss in the spray process.

The Quick Glaze finishing solvent is used for the primer coat and base coat. An ample amount should be poured into a separate larger airbrush bottle.



TOP COAT

5) A) The top coat should be prepared prior to starting the process to avoid excessive time between coats. Pour the desired amount of the K2000 top coat into a mixing cup or airbrush bottle (3 parts top coat).
B) Add the K2000 hardener in the ratio of 1 part hardener to 3 parts top coat. Mix thoroughly.
C) Add some of the K2000 thinner/reducer in an amount equal to about 10% of the top coat mixture volume. Mix again.

D) Test spray. Additional thinner/reducer can be added to increase thinning, if required. Add more in 10% increments to avoid over dilution.

Note: For a better blend effect of the pearl color, add a few drops of (PB) base coat to the K2000 top coat for a better match to the coated surface.

Hint: In mixing step, we have found the Dram Scale on the plastic graduated mixing cup to be easy-to-read and understand.



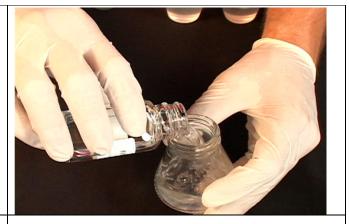




6) The K2000 thinner/reducer is used as the finishing solvent for the protective, clear top coat. Pour an ample amount in a separate larger airbrush bottle.

Note: The K2000 thinner/reducer is only used with the top coat and not the basecoat or primer coat.

Note: The K2000 top coat must be applied no later than 30 minutes after completing the spraying of the base coat followed immediately by the finishing solvent.



7) Prepare an area around the repair that is significantly larger than the repair by cleaning with a clean soft cloth moistened with isopropyl alcohol. This removes oils or silicone that may be on the surface.

8) With a clean cloth, apply a generous amount of Hand Glaze to the cleaned surface. Apply the Hand Glaze only on the area surrounding the acrylic filled area. Avoid putting the Hand Glaze right on top of the acrylic filled zone. Feather it into the sanded area.

With another clean cloth, work the hand glaze into the surface achieving a nice clean and glossy surface. This may require several clean clothes to achieve a film free finish.

Be sure to extend the cleaned area much larger than is expected to spray. For example; if the repair is in the center of the lip, clean the whole length of the lip in both directions. For seat areas, clean the whole seat stopping at the next appropriate radius further than the anticipated spray area.

Important Step: Use a tack cloth to remove any dust or foreign particles for this debris will show up in your repair area.

Note: When using a compressor; Prior to the coating application, clear the compressor tank of water and moisture. Use an inline desiccant filter at the hose to filter out any residual moisture, this will yield dry air to the coated surface through the hose.

9) Begin spraying the primer coat by holding the air brush 2 to 3 inches from the surface. With the air pressure set at 45 to 55psi, feather the coating from the center to the outer edge. When canned air propellant is used, psi rating is 7 to 9 PSI.





The goal is to achieve a shine in the center of the sprayed area covering the acrylic filler. The outer edge will feather with a diminishing affect. Note: Typically, two passes are required for complete coverage. A dry film thickness of 0.002" is generally adequate. Thinner coats will greatly increase drying time. Remember as you start this coating process, there is a time constraint. 10) Immediately upon completion, to wet out the dry over spray. Apply a moderate to heavy amount of Quick Glaze finishing solvent on the outer edge of the sprayed area. The finishing solvent can be used at any convenient time to promote a good final gloss appearance and to wet out the coating. Note; Too much finishing solvent applied, as to flood the coating, will distort the spray job. For best results, hold the air brush 12-16 inches away from the surface with the air brush fluid adjustment about 3/4 open. 11) Begin spraying the pearl base coat by holding the air brush 2 to 3 inches from the surface. Feather the pearl base coat from the center, covering the primer coat to the outer edge again. Two passes are generally required. Use Quick Glaze finishing solvent again, particularly on the outside edges for wet smooth out. 12) With the base coat(s) applied uniformly and smooth, you are ready to apply the clear top coat, supplied as a matte finish for metals or a gloss finish for pearl-like colors. It should be applied no later than 30 minutes after completing the base coat. The spray application should be the same techniques as the color coats. Use the K2000 thinner/reducer for the Finishing Solvent. Be sure to cover the entire coated area to achieve a good even gloss with the clear coat.



Feather the clear top coat to create a smooth transition around the outer edge into the final gloss finish. Immediately spray the thinner/reducer for the Finishing Solvent generously to achieve a smooth gloss, and eliminating over spray. Be sure to wet out dry areas to match the original finish gloss. TIP - Adding a little pearl (PB) base coat to the clear topcoat can help achieve a better pearl effect. The top coat should be tack-free In ½ hour.	
The polyurethane clear top coat can be buffed and polished provided at least 3 hours are allowed for curing, and the buffing process stays within the sprayed areas to avoid line formation. See Multi-Tech Products Buffing and Polishing Video on our website.	
 Allow up to 7 days before filling spa with water, keep the surface dry during the curing period. (See beginning of procedures.) Down load "Curing Guide" from our website under our procedure section. Note: When elevating the spa cover for the best cure. Make sure to use foam blocks to prevent damage to spa surface. 	ELEVATED SPA COVER BLOCK CIRULATING AIR LET CURE FOR 7 DAYS BEFORE FILLING WITH WATER
The airbrush should be disassembled and cleaned after each use.	



<u>Finishing a multi- colored, random- patterned</u> marble or swirl spa surface defect

Marble colored sheet (spas) are manufactured by using a combination of two or three colors of liquid resins that are poorly mixed, creating a random pattern at the sheet surface. Forming the flat sheet into the spa shape will cause additional variations in the appearance as it is stretched into a mold. Repair of these surfaces are the most challenging of any spa repair, but these multiple color, random patterns can be closely duplicated by well-trained repair professionals using two or three basic colors and special air brush techniques. Visit our website for additional techniques and training assistance.

The following airbrush techniques have been developed to recreate these effects. We recommend practicing the defined airbrush strokes on a separate piece of paper to perfect the technique.

The process for repairing a marble pattern has been simplified by defining several different airbrush strokes used to duplicate the appearance.

These special strokes are called the rat tail, long stroke, and circular stroke.

The basic stroke is produced by adjusting the airbrush tip to yield a fine line when held very close (1/8") to the surface. The rat tail stroke starts with a splash and ends as a point. The long stroke starts and ends as a point.

Increasing the distance between the tip and surface, and opening the tip to produce a wider pattern, creates a fading spray pattern. You use a slight fade adjustment to create the circular stroke.

Note: The coating liquid or color being sprayed may require more reduction to create finer lines and smooth fade strokes. A 25-50% product reduction may be required.



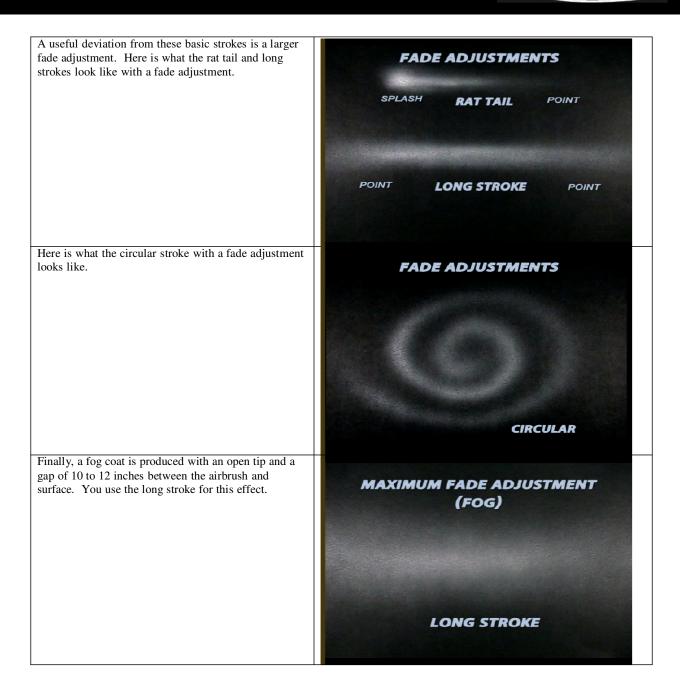
Aristech Navy

FINE LINE STROKES

SPLASH RAT TAIL POINT POINT LONG STROKE POINT

CIRCULAR







The kit materials required for this procedure are:

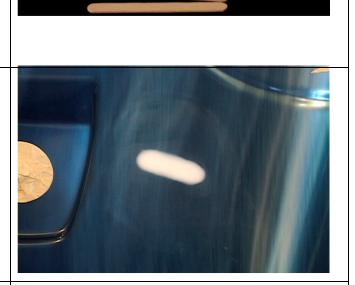
- Quick Glaze basecoats in each of the primary spa colors
- Quick Glaze finishing solvent
- K2000 Topcoat
- Hand Glaze
- Light & Dark Toners
- Quick Glaze Retarder
- K2000 Hardener
- K2000 Thinner/Reducer

Materials not in kit:

- Lacquer Thinner for clean up
- Isopropyl Alcohol 50 to 90%
- Tack Cloth
- Five separate airbrush bottles are needed.

Jets and other areas that need protection from over spray should be shielded with a high quality tape.

Starting from a finished acrylic filled repaired area, you are now ready to start the procedure.



1) Prepare the basecoat(s) in each color and the K2000 clear topcoat as described in the pearl procedure. Intermediate colors and tones can be created by combinations of the base coats with the light and dark toners. The toners can also be used as base coats alone to achieve the color effects and mixtures.

2) Check the color match of these basecoats by dabbing some on the spa surface near its color. Let it dry. Adjust colors as needed. Refer to our website for more information on this subject. The dried coating dabs can be removed using lacquer thinner.

See our Spa repair video for a closer demonstration of this.

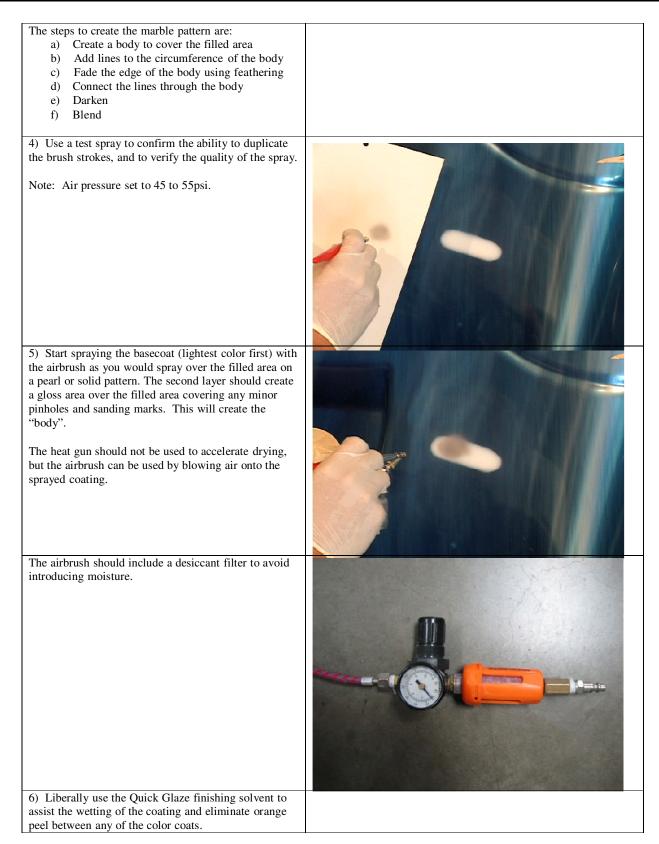
3) Clean an area around the repair with isopropyl alcohol, apply and wipe the Hand Glaze as instructed in the pearl section.

Note: It is recommended to mix all paints now as you will need them in quick succession as you move through the repair procedure.



with isopropylNote: Before application, make sure to use a tack cloth to remove
any dust.







7) Now use the rat tail stroke to create lines from the body center to the right edge, and then from the center to the left edge. Be sure to use the flow of the lines and follow the direction of the pattern with the creation of the lines. 8) Now, using a fade adjustment with the rat tail stroke, feather the coating from the center to the outside region of the repair. Spray enough so the outline of the body disappears. 9) The darker color is now applied. Look for a dominating linear line (streak) running through the repair area. This becomes the reference line. Often, it is the center of the body. Now, using the dark color, and the long stroke, spray a similar line connecting the end points through the repair. Following the reference line pattern, continue to create lines from the reference line, which are consistent with the overall orientation of the pattern. Work from the reference line out to the right edge. Repeat this process on the left side. This should be continued until a satisfactory duplication of the marble pattern is achieved. The finishing solvent should be used to improve lay down and control orange peel and to generate a glossy surface. 10) Sometimes the light and dark toners are needed to recreate all of the existing tones and cross patterns. This is accomplished while maintaining consistency in the overall look of the spa surface pattern. 11) A final layer of the initial light color is now sprayed using a light to heavy fog spray to soften the lines, and blend the various color tones. At any step of the color application, colors and effects can be repeated and or sprayed over.



12) Finally, apply the K2000 protective topcoat as described in the pearl section, utilizing the K2000 thinner/reducer finishing solvent to wet out the edges of the complete spray area. Try to complete this entire process within 30 to 45 minutes. The repair is finished. ELEVATED SPA COVER Allow up to 7 days before filling spa with water, keep the surface dry during the curing period. (See BLOCK BLOCK beginning of procedures.) CIRULATING AIR Down load "Curing Guide" from our website under our procedure section. Note: Make sure to use foam blocks to prevent damage to the spa surface. LET CURE FOR 7 DAYS **BEFORE FILLING WITH WATER**

DISCLAIMER

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While there is no implied warranty the materials and techniques described in these procedures have been designed to withstand the normal operating conditions of spas, bath ware, boats and utility applications. However, success of the final repair also is dependent on the experience and skill of the individual repair technician.

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