

POLYCARBONATE RECTIFICATION PROCEDURES

A. TOOLS REQUIRED:

1. *Random Orbital Sander or Power Drill (for use with Micro-Mesh)*
2. *Right Angle Polisher (rated at approx. 2500 RPM) or Power Drill (for use with TufBuf polishing pad and White Sponge pad)*
3. *Spray bottle – approximately 10 ounce capacity (for clean water)*

B. LIST OF CONTENTS:

1. *(1) 5" 2400 Micro-Mesh Loop Disc*
2. *(1) 5" 3600 Micro-Mesh Loop Disc*
3. *(1) 5" Soft random orbital or drill back-up pad*
4. *(1) 5" x ¾" TufBuf Polishing Pad*
5. *(1) 5" White Sponge Pad*
6. *(1) 8 ounce bottle Micro-Gloss*
7. *(1) 8 ounce bottle Micro-Gloss #5*
8. *(1) 8 ounce bottle Final-Finish*
9. *(2) 100 % Flannel cloths*
10. *(1) Kit Parts Reorder Form*
11. *(1) Instructions*

C. PREPARING FOR THE BEST RESULTS:

1. *To avoid scratching plastic surfaces, do not wear watches, rings or bracelets. Long fingernails should be covered with gloves.*
2. *Always keep the work surface and restoral materials clean. Contamination can cause scratches.*
3. *Work with adequate light. Set a bright light on the side opposite your restoral side. For better viewing on non-transparent surfaces, place the light at an angle.*
4. *Read the following instructions carefully and review the kit contents before starting.*

D. DETERMINE TYPE AND EXTENT OF DAMAGE AND STARTING POINT:

- 1. Scratches- Easily felt with fingertips. Procedures will need to begin with the Micro-Mesh 2400, followed by Micro-Mesh 3600, followed by the Micro-Gloss #5***
- 2. Very fine scratches, scuffs, and haziness (usually caused by improper cleaning methods)- Procedures can begin with the Micro-Gloss #5, followed by the Micro-gloss, and completed with the Final-Finish.***

E. BEGINNING THE PROCESS:

- 1. Spray plain water onto the polycarbonate.***
- 2. With a right angle rotary buffer or power drill, attach the soft back-up pad and the TufBuf lambs wool polishing pad.***
- 3. Apply approximately 1 tablespoon of Micro-Gloss #5 to the polycarbonate and buff the entire area. Start the buffer or drill after making contact with the surface. Adjust the speed until you can control the tool with one hand. Use long sweeping motions in a North- South, then East-West direction. At regular intervals, change the direction of the sweep to perpendicular that of the previous motion. Avoid circular motions. Keep the tool moving across the surface while using light even pressure. Buff approximately 3-5 minutes per square feet.***
- 4. Clean and re-wet the entire surface and repeat steps 1 thru 3 using Micro-Gloss #5 again.***
- 5. Clean and re-wet the entire surface and repeat steps 1 thru 3 using Micro-Gloss.***
- 6. Attach the white foam pad to your power tool and using Final-Finish buff. The Final-Finish will remove haze and brighten the polycarbonate.***

If more scratch removal is required, sand the polycarbonate with Micro-Mesh 2400, followed by Micro-Mesh 3600. Use the same technique as described above. Make sure to use water as a lubricant and a soft back-up pad on your power tool. After sanding with Micro-Mesh 3600, finish by following steps 1 thru 6 above.

Rinse out the TufBuf polishing pad and Micro-Mesh abrasive discs in mild detergent, dry and store for future use.

For further technical assistance contact our Sales Department at 800-225-3006.

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HOW TO DETERMINE IF YOU ARE WORKING ON ACRYLIC OR POLYCARBONATE

REQUIREMENTS:

1. 3-WAY MICRO-MESH BUFFER; GRADES 2400 (PINK); 4000 (WHITE); 12000 (GRAY)
2. SPRAY BOTTLE OF WATER
3. LIGHT SOURCE

PROCEDURE:

Work on an approx. 2" x 2" inconspicuous area of the window

Set a light behind the window so inspection can be easily done

Spray the area with a mist of water

Using the buffing stick - pink 2400, make 6 back and forth, using **light** strokes. Sand in a horizontal motion.

Now, sanding in a vertical motion, use the 4000 white side of the buffer to cross over and remove the 2400 scratch pattern you put in the window.

Stop and assess your progress. You should notice a white, milky slurry forming from the sanding action. This is a combination of the water and small abraded particles of acrylic. Did you remove the 2400 sanding pattern? If so and you have a slurry forming - the window is acrylic.

If not, the window is most likely polycarbonate. Making sure the repair area is wet, continue sanding, but this time use the 12000 MICRO-MESH side of the buffer and sand in a horizontal pattern to try the 4000 sanding pattern.

Using a soft flannel or cotton cloth only, put a dime's worth of MICRO-GLOSS on the repair area and polish and wipe clean.

If your window is polycarbonate ask about our restoral products for POLYCARBONATE.

There are many different grades of both acrylic and polycarbonate, so testing is imperative. In some cases, with polycarbonate, less is best and optical clarity may not be possible. Polycarbonate is much softer than acrylic and is more difficult to repair. It's like sanding on rubber.

TECHNICAL BULLETIN

RANDOM ORBITAL SANDING WITH MICRO-MESH!

Random orbital sanders (ROS) move in repetitive forward-left-back-right strokes. The forward left motions often are the most aggressive strokes and may leave semi-circular "fish hook" scratch patterns. The completed motion leaves an elliptical scratch pattern often visible as swirl marks or uneven finishes.

MICRO-MESH™, a cushioned abrasive, is designed to allow the abrasive crystals to float on soft "cushioned" backing. The micron-graded crystals recede to a common level and tend to rotate slightly when pushed against the surface. This action causes a uniform level planing action on the surface and contributes to long, even abrasive life.

Sanding in a straight-line pattern with MICRO-MESH and a belt sander or sanding block keeps the abrasive crystals set with a positive rake. When used with a ROS, the abrasive crystals plane on the forward stroke, are skewed slightly on the right stroke, plane backward on the back stroke and are skewed slightly again on the left stroke.

Since the abrasive crystals give a more uniform scratch pattern in the forward and backward stroke, it is better to use a small orbit. The smooth forward and back strokes are short, the skewed side to side motion is minimized. The speed of the orbital can be increased to compensate for the small orbit.

Random Orbital Sanders

Rotation speeds vary from 3,000 to 15,000 rpm depending on manufacturer. The orbit size front and back, left to right also varies with manufacturer and use. Typical orbits are 3/32", 1/16" and 1/4".

An 8,000 to 12,000 rpm ROS machine with a 3/32" orbit generally works well with MICRO-MESH for most soft surfaces. Using a larger orbit (1/8" to 3/16") with a much slower orbit speed (3000 to 5000 rpm) has been used successfully for sanding paint finishes and gel coats. Call 1-800-225-3006 for recommendations regarding your specific finishing operation.

Common finishing problems

Ripples and swirls are typically caused by sanding with an uneven motion, tilting the sander, or working in one spot too long. For best results, sand smoothly with even sweeping motions. On curved surfaces it may be possible to purchase pads that match the curves to be done.

Micro-Mesh

MICRO-MESH discs and sheets are available in Regular and MX grades (see conversion chart) with loop or pressure sensitive adhesive (PSA) backing. We strongly recommend the use of hook & loop systems due to the long useful life of the unique cushioned abrasive material. MICRO-MESH can be reused; rinse with water between jobs.

In general, the Regular grades produce matte through gloss finishes on plastics, coatings, woods, solid surface countertops and other soft surfaces. MX grades are constructed with a slightly stiffer backing, and include several grades coarser than the Regular series. MX is generally used on harder surfaces such as metals and coatings.

Random orbital sanding wet

Keep the surface misted with water. Occasionally wipe the work surface with a cotton flannel or terry towel in order to keep the Micro-Mesh from loading up with sanding particles (swarf).

Random orbital sanding dry

To prevent loading, wipe or blow off swarf from the work piece and MICRO-MESH frequently. When loop back material is used, MICRO-MESH can be pulled off the R.O. Sander pad and slapped a few times against a flat surface to clear it. Dry use increases the chances of trapping hard abraded particles between the sander and the work causing hard-to-remove deep random fishhook scratches.

Tools to Use With Our Mechanical Kits

WE DO NOT INCLUDE POWER TOOLS WITH OUR KITS

For our "mechanical" kits: Heavy Damage Removal Kit, Light Damage Removal Kit, Maintenance Kit, Polycarbonate Kit, Leading Edge Kit, Clearseas Acrylic Kit and Clearseas Vinyl Kit, you will need power tools that are not sold with our kits. Not including tools allows us to keep the price of the kits to a minimum.

TOOLS FOR SANDING

For best results, we suggest using a RANDOM ORBITAL sander for the sanding portion of the process. The exception to this rule is when using our Leading Edge Kit - for this kit, you will only use a rotary polishing buffer.

RANDOM ORBITAL sanders are also known as DUAL ACTION sanders. The sanding head spins in a random pattern making blending easier. These are also referred to as "finishing" sanders.

The random orbital that you choose to use needs to be rated at approximately 10000 RPMs and needs to have variable speed options. You will actually adjust the sander down in speed, approximately half way or until you can easily control it with one hand. You will need the 10000 RPMs for power, but the lower variable speed for control as you work.



TOOLS FOR BUFFING

The buffing portion of the restoral process is performed using a right angle polisher. This is also known as a rotary buffer. This is the same type of buffer you would use on your automobile to buff the clear coat paint. The pad spins in a stationary orbit.

The buffer that you choose to use should be rated at approximately 2500 RPMs. It is important to keep in this range so that you have enough power to do the job, but not so high of RPMs that you would generate a great deal of heat. It is easier to generate heat with a polisher than with a sander. Heat generation can cause distortion, orange peel, and burning. This is why it is important to always use lubrication, preferably water, when possible.

Unlike with the sanding portion of the process, for most jobs, the standard back-up pad that comes with your buffer will be sufficient to do the job. If you're working on a particularly soft material or are having problems reaching a high gloss finish, then attach an interface pad onto your standard backup pad to give yourself the necessary added cushioning. Most industrial supply stores will carry inexpensive, 5" interface pads. Remember to purchase one that is "Loop to Hook" meaning, the loop on one side of the interface pad connects to the hook facing of your standard buffer and the hook side of the interface will be what you attach your loop backed polishing pads to.



All of our kits are supplied with accessories to fit 5" tools. All the Micro- Mesh discs and polishing pads are supplied with LOOP backing so you can get the most value from each kit. All discs and pads can be washed and used over and over.

Sanders and buffers are available as both pneumatic (air) and electric. ****We always caution people when using electric tools on wet surfaces.**

BACKUP PADS

Your sander and/or buffer come with a standard "backup pad" when you purchase it. This back-up pad is what you attach the Micro-Mesh sanding disc or polishing pad to. The back-up pad is sometimes referred to as a "backing plate" or "sanding pad", depending on who you speak with. We refer to it as a "backup pad." This pad is made of foam and has either a "hook" surface or "smooth" surface on which to apply the sanding discs or polishing pads. If you have a back-up pad with "hook" you will need to attach LOOP backed sanding discs. If you have a back-up pad with a "smooth" face, you would attach PSA (pressure sensitive adhesive) backed discs.

The foam in the backup pad on most sanders and buffers that come standard on your tool are usually medium to hard in density. Our mechanical kits all feature our specially made extra soft back-up pad. This back-up pad will easily conform to curvatures and allow you to

polish your part to a high gloss finish. The harder the backup pad the more in contact you will be with the part you are finishing and provide a coarser cutting action. This is not what you need when polishing softer material to a high gloss finish. The softer the back-up pad, the easier it will polish.

The back-up pad included with our kit has a male shank with a 5/16" x 24 thread count. There are many good sanders on the market today that will fit this back-up pad. We do not recommend one sander over another.

When and IF to Use a Cordless Drill

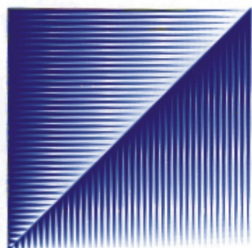
If you're uncomfortable using power tools or do not have access to air or electricity hook-up, you can use a cordless drill for both the sanding and buffing portions of our restoral process, with satisfactory results.

The exception to this rule would be when using our HEAVY DAMAGE REMOVAL KIT. Any sanding done coarser than with our MICRO-MESH 1500 requires that you use a random orbital sander. A cordless drill simply does not have the power you need for coarse sanding.

We recommend that you have a cordless drill that is completely charged and an extra battery set to go prior to beginning your work. We also caution that when in use, keep the drill parallel to the workpiece at all times and adjust the speed so that the drill provides a smooth action. Any "skipping" or "jumping" on the work piece will cause "chatter" marks.

The Light Damage Removal, Maintenance and Clearseas Vinyl and Acrylic kits are available with a special, extra soft back-up pad that is on a mandrell that will fit into your cordless drill. This is provided in the kit. You will have to choose the Light Damage Removal DRILL Kit in order to get this back-up pad. If you order the Light Damage Removal Kit - you will receive a back-up pad for a random orbital sander. The same is true for the Maintenance Kit. Make sure and look at the back-up pad in the picture of the kit you are purchasing to make sure you're getting the correct one.





MICRO-SURFACE
FINISHING PRODUCTS INC.

LIQUIDS



MICRO-GLOSS™

A general purpose water-based liquid abrasive which uses a 1-micron aluminum oxide abrasive crystal to achieve a fine finish on acrylics, plastics, polycarbonate, fiberglass, wood, silver, gold, copper, brass paint urethanes, laquers, and polyesters to name a few. This unique liquid removes hairline scratches, haziness, and halos untouched by other products. Contains no fillers or wax that could cause yellowing. Remove scratches and imperfections with Micro-Gloss and buff back to optical clarity. Micro-Gloss will remove a 4000 Micro-Mesh or 1500 CAMI scratch pattern. Approved as safe for use on inside and outside surfaces of f-16 aircraft. Approved for use by Boeing, Spec D6-52021. Use by hand or machine with a TufBuf lambswool polishing pad or foam sponge pad. Available in 1 oz, 2 oz, 4 oz, 8oz, or gallon containers. NSN# 5350-01-334-8997.

MICRO-GLOSS#5

The same as above, but with a 5 micron aluminum oxide crystal. Use when a more aggressive cutting action is required. Follow up with regular Micro-Gloss. Available in 1 oz, 2 oz, 4oz, 8oz, and gallon containers.

MICRO-FINISH

The final step to remove any residual haze. Use this special polish to brighten and give a pristine finish. Available in 2oz, 4 oz, 8oz, and gallon containers.

FINAL FINISH

A soft vinyl conditioner which combines a high-quality carnuba wax with a soft cutting liquid abrasive. Use as the final step on vinyl convertible windows and boat side curtains. Available in 2oz, 4oz, 8oz, and gallon containers.

ANTI-STATIC CREME (Not Pictured)

This liquid contains a protectant and is designed to remove static electricity that could cause dirt and dust to be drawn back to your newly polished surface.