



Designing and manufacturing pressure sensitive graphics since 1967

## **SURFACE PREPARATION, APPLICATION INSTRUCTIONS, STORAGE and CLEANING OF VINYL GRAPHICS**

### **A. SUBJECT: APPLICATION SURFACE PREPARATION**

All Application surfaces must be prepared by cleaning to remove any residue from prior cleaning or manufacturing processes.

### **CLEANING**

Valley Screen films must be applied to application surfaces which are completely clean, smooth, and dry. Grease, Oil, wax, or dirt must be removed from the application surface before applying the film. Heavy dirt may be removed using a solution of TSP (trisodium phosphate) and water. Remaining residue may be removed by using a solvent wipe with Xylol, lacquer thinner, VM & P Naphtha, or a commercial cleaning solvent such as DuPont's Prep-Sol 3919S (see separate list of approved cleaners). After cleaning with a detergent and/or solvent, thoroughly dry the surface with a clean towel. Particular attention must be given to areas such as seams and the base of rivets where detergent and/or solvents may be retained by capillary action. These areas can be dried with the use of a heat gun.

Previously applied markings and adhesive residue must be completely removed. Use a commercially available methylene chloride-based paint or marking removal to remove previously applied markings. Adhesive residue may be removed using Xylol, a mixture of 75% MEK (methyl ethyl ketone) and 25% Toluol, or DuPont's T-3819 thinner (recommended for lacquer surfaces).

**NOTE:** Always pre-test detergents, cleaning solvents, and marking removers on an inconspicuous area of the application surface to check for potential damage. Some surfaces may be damaged by a particular detergent, solvent, thinner, or paint or marking remover.

**SAFETY NOTE:** Always refer to manufacturers' Material Safety Data Sheet instructions for proper handling of solvents.

### **CLEANING INSTRUCTIONS FOR SPECIFIC SURFACES**

- 1. ALUMINUM:** Surface oxidation must be removed using an aluminum surface preparation commercially available from paint refinish suppliers. All surface contaminants must be removed by the use of solvent wipe.
- 2. STEEL:** Remove all rust. All surface contaminants must be removed by use of a solvent wipe. Do not use water and detergent for cleaning. Hot and cold rolled steel must be primed with paint prior to application of markings.



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**A. SUBJECT: APPLICATION SURFACE PREPARATION (continued)**

**3. OTHER METALS:** Solvent wipe prior to application. Apply only to smooth surfaces.

**4. WOOD:** Do not apply Valley Screen materials to unpainted wood. Painted wood surfaces must be clean, dry, and smooth prior to application. Check adhesion of paint to the wood. This may be done by applying a piece of premask tape to the paint, rubbing it down firmly, and snapping it away from the surface. If the paint removes, do not proceed with application.

**5. FRP:** Tedlar and gel-coated FRP surfaces must be cleaned with detergent and water, followed by solvent cleaning to remove any remaining residue. **NOTE:** Sufficient squeegee pressure must be used to apply film without trapping air in the weave pattern of the FRP surface.

**6. ROLL-UP DOORS:** Painted metal exterior roll-up doors must be cleaned with detergent and water and then solvent wiped to remove any remaining residue. Fiberboard exterior roll-up doors must have a thick, smooth coating of paint prior to application. A detergent wash and solvent are recommended.

**7. PAINTED SURFACES:** All painted surfaces must be clean, smooth, and rust free. Rusted areas must be resurfaced before application begins. All previously painted surfaces must be cleaned with detergent and water, followed by solvent cleaning to remove any remaining residue. If the paint removes, do not proceed with application. For surfaces to be newly painted prior to marking application, follow paint manufacturers' surface preparation, painting, and drying instructions. Paints which tend to chalk or flake must not be used on the application surface. All air dry paints should be allowed to dry for one week prior to application of markings unless otherwise specified.

Some paints contain migratory components which may cause adhesion failure. In addition, some paints contain materials such as silicones, waxes, or chlorinated rubber which may cause adhesion failure. If a questionable paint is to be used, it must be tested by Valley Screen's vendors Technical Service Department to determine its suitability for use prior to application.

Check all painted surfaces for paint adhesion to the surface. This may be done by applying a piece of masking tape to the paint, rubbing it down firmly, and snapping it away from the surface. If the paint removes, do not proceed with application.



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**8. PLASTICS:** Some plastics contain migratory components which may cause adhesion failure. Always test adhesion to all plastic substrates prior to application.

**B. SUBJECT: SURFACE PREPARATION AND WET APPLICATION INSTRUCTIONS**

**SURFACE PREPARATION AND CLEANING:**

These instructions are the same as **A. SUBJECT: APPLICATION SURFACE PREPARATION.**

**WET APPLICATION (NOT RECOMMENDED!)**

1. Prepare a wetting solution by mixing one (1) teaspoon (6cc) of mild liquid detergent into approximately one (en) quart (liter) of cold water. **DO NOT USE SOAP OR ENZYME DETERGENTS.**
2. Remove the liner paper from the marking with the marking face down on a flat surface. Flood the adhesive side of the marking with wetting solution.

**NOTE:** For pre-spaced markings, be careful not to wet the non-adhesive side of the pre-spacing tape. This could cause the open areas of the pre-spaced marking to wrinkle and make application difficult. Also, a spray bottle may be used to facilitate the flooding process.

3. Flood the application surface with wetting solution.
4. Position the wet marking on the wet application surface.
5. Squeegee the marking lightly using firm overlapping strokes, starting at the center of the marking to the edges.
6. Squeegee the marking using firm overlapping strokes to adhere the marking to the application surface. Squeegee from the center of the marking to the edges.
7. After the marking has been squeegee for adhesion, allow approximately 15 minutes before removing the premask or pre-spacing tape. Remove premask or pre-spacing tape by pulling it back on itself at a 180 degree angle from the marking.
8. **24 hours** after the premask or pre-spacing tape has been removed, the marking must be re-squeegeed to ensure good bond with surface. Puncture air bubbles with a pin and re-squeegee from the edge of the bubble toward the puncture. Do not use a knife or razor blade to puncture air bubbles as the slit may eventually widen and tear.



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### **C. SUBJECT: APPLICATION INSTRUCTIONS FOR FLAT AND CURVED SURFACES**

Before application can be started, application surface must be properly cleaned. Once the surface has been cleaned, application of the marking can begin. The surface must be completely dry. Check all seams for any remaining solvent. If the solvent is present, a heat gun may be used to dry it out.

#### **GENERAL REQUIREMENTS**

#### **RECOMMENDED TOOLS AND SUPPLIES**

Squeegee	Straight Edge
Rivet Brush	Thermometer
Marking Pen or Pencil	Edge Sealer
Razor Knife and Scissors	Rivet Cutter
Propane Torch Kit and/or Heat Gun	Ladders or Scaffolding
Tape Measure	Lint Free Cloth
Pin	Masking Tape

#### **TEMPERATURE**

Application surface and air temperature must be above 50 degree F and below 100 degree F (60-85 degree F is optimal) for all Valley Screen films. Portable heaters or heat lamps may be used to raise the temperature of the application surface. If a chalk line is used, marks must be replaced with pencil, marking pen, or tape before application. All chalk dust must be removed.

#### **OVERLAPS**

Overlapped pieces must be applied so that front pieces overlap back pieces and top pieces overlap bottom pieces on the vehicle. Overlaps should be ¼" to ½".

#### **SPECIAL NOTES**

1. Squeegee strokes must be firm, short, and overlapping.
2. All seams must be free of bleeding chalk and sealants.
3. Welds must be filed or ground flush with the application surface and sanded smooth.



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4. Oil residue from rivet guns must be thoroughly cleaned from around the base of the rivet heads.
5. When removing liner from the marking, always pull the liner away from the marking. Pulling the marking away from the liner may crease, stretch, or tear the film.

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#### **SUBJECT: APPLICATION INSTRUCTIONS FOR FLAT AND CURVED SURFACES (continued)**

6. Do not apply decals over the fill holes in foam-insulated refrigerator trailers. Do not use excessive heat when applying marking as the foam can be easily melted.
7. All markings over body seams must be cut and the marking squeegeed along both sides of the seam.
8. All markings around body edges must be cut and squeegeed along the cut edge. Cut the film short of the edge. Do not wrap the films around the edge.
9. After the premask is removed, all edges of the marking must be re-squeegeed.
10. Puncture any air bubbles with a pin and re-squeegee from the edge of the bubble toward the puncture. Do not use a knife or razor blade to puncture air bubbles as the slit may eventually widen and tear.

#### **APPLICATION PROCEDURE**

##### **PREMASKED STRIPING LESS THAN 10" IN LENGTH**

1. Mark position of stripe on application surface.
2. Cut stripe to proper length
3. Tape stripe into position with small pieces of masking tape.
4. Apply a masking tape hinge through the center of the stripe perpendicular to the long dimension of the stripe.
5. Fold half the stripe over the hinge and peel liner off stripe to tape hinge. Cut liner along hinge and discard. Avoid cutting application surface.
6. Fold back and squeegee stripe to the surface, beginning at center of tape hinge using firm, short, overlapping strokes. Hold stripe away from surface with one hand, allowing adhesive to touch only as pressure is applied.
7. Remove tape hinge.
8. Fold over the other half of stripe, remove liner and apply as described in Step 6.
9. Trim striping ¼" away from edges and body seams.
10. Remove premask by peeling back one corner of the premask and pulling back at 180 degree angle and re-squeegee.

##### **PREMASKED STRIPING OVER 10" IN LENGTH**



1. Mark position on application surface.
2. Tape striping into position, overlapping each end 3-6".
3. Pull back one foot of liner from one end of the stripe.
4. Squeegee 6" into position following the registration marks.

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#### **SUBJECT: APPLICATION INSTRUCTIONS FOR FLAT AND CURVED SURFACES (continued)**

5. Continue to peel liner under the stripe, in comfortable lengths. Squeegee film to surface using firm, short, overlapping strokes.
6. When striping is completely applied, trim ends and re-squeegee.
7. Remove premask by lifting one corner of the premask and pulling it back at 180 degree angle. Re-squeegee the entire stripe.

NOTE: Some applications may be done more easily in sections. If using this method, be certain to follow the proper overlap instructions.

#### **SMALL PREMASKED MARKING—TOP HINGED METHOD (ONE TO FOUR SQUARE FEET)**

1. Tape marking into position with small pieces of masking tape.
2. Apply a masking tape hinge along the top edge of the decal.
3. Cut through the masking tape along the sides of the decal.
4. Flip the marking up over the hinge and remove liner.
5. Hold the decal away from the application surface with one hand and squeegee from the top to center downward and outward, using firm, short, overlapping strokes. Do not allow the decal to pre-adhere in front of the squeegee, as excessive bubbling will result.

#### **LARGE PREMASKED MARKING—CENTER HINGED METHOD (OVER FOUR SQUARE FEET)**

1. Position marking on application surface using small pieces of tape to hold in place.
2. When decal is properly registered, apply masking tape hinge in the center of the decal, perpendicular to the long edge. Remove positioning tape. For round, oval, or irregular shaped markings, consult the table below for hinge location.

##### **Marking Shape**

##### **From top of marking**

Square  
Rectangle

1/8 to 1/4 of the vertical dimension or 12" to 18",  
whichever is smaller.

Oval  
Circular

1/3 to 1/2 of the vertical dimension or 12" to 18",  
whichever is smaller.



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Die-Cut Shapes

Pre-spaced Lengths

Top of Legend

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### **SUBJECT: APPLICATION INSTRUCTIONS FOR FLAT AND CURVED SURFACES (continued)**

3. Fold half the marking back over the hinge and remove liner. Cut the liner along the hinge without cutting into the vehicle surface of marking. Discard the liner.
4. Beginning at the center of the tape hinge and working outward and away from the hinge, use firm, short, overlapping squeegee strokes to apply the material to the surface. Hold the decal away from the surface with one hand, allowing adhesive to touch only as pressure is applied. Pre-adhesion of the decal will result in excessive bubbling.
5. Remove hinge. Repeat steps 3 and 4 for remaining side of marking. Note: The entire surface of the premask must be squeegeed to prevent wrinkling and mis-registration of the marking.

### **APPLICATION TO SPECIAL SURFACES**

#### **Roll-up Doors**

1. Valley Screen cast vinyls are not removable from painted roll-up doors.
2. Follow the appropriate instructions above for applying the marking to the closed door.
3. Cut markings at all seams. Using a razor blade held at a 45 degree angle, cut approximately 1/8" to 1/4" away from the edge of each door panel.
4. Re-Squeegee all edges.
5. Edge seal as note in "Finishing".

#### **Exterior Posts**

1. Cut film or sheeting at all interior angles. Valley Screen films may be applied over the rivet line found on either side of post.
2. After marking has been cut, re-squeegee edges.

#### **Rivet Heads**

1. Proceed with normal application using a premask.



2. With a squeegee, press the tent over the rivet head into a circle the size of a half dollar.
3. Using a pin or other sharp tool, pierce the marking in a 2-3 places around the rivet head. Do not use a bladed pounce wheel, knife, or razor blade, as tearing may result.
4. Press trapped air toward the pierced holes with a squeegee or rivet brush using a circular motion.

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**SUBJECT: APPLICATION INSTRUCTIONS FOR FLAT AND CURVED SURFACES (continued)**

5. Remove the premask by peeling at a 180 degree angle from the surface or proceed to step 6 if using propane torch for application of premask film.

**Note:** If a propane torch is to be used on rivet heads, the premask must be left on to avoid burning or melting the film.

6. Use a heat gun or propane torch to gently warm the film over the rivet head: then place the rivet brush on top of the rivet and with short strokes, move the rivet brush back and forth over the rivet head, and holding the rivet brush at a 45 degree angle, apply the pre-masked film to the sides of the rivet head using a circular motion.

**Note:** All film must be cut over bolts and other large protrusions. Cut an "X" over the bolt head, carefully cut the flaps around the base of the bolt. Re-squeegee all edges.

**FINISHING**

Inspect the application. All marking over body seams must be cut and squeegeed along both sides of the seam before removing pre-mask. All markings around body edges must be cut and squeegeed along the cut edge. Cut the film short of the edge. Do not wrap the films around the edge. After the premask is removed, all edges of the marking must be re-squeegeed.

Puncture any air bubbles in the film with a pin and re-squeegee from the edge of the bubble toward the puncture. Do not use a knife or razor blade to puncture air bubbles as the slit may eventually widen and tear.

Inspect rivet heads to be sure the film is firmly bonded to the rivet head and the flat surface around the base of the rivet head. If additional conforming is necessary, repeat step 5 of rivet head instructions above using a heat gun.

**EDGE SEALING**

Edge sealing is recommended for truck roll-up doors, marine applications and markings which are subjected to high abrasion or unusual environmental conditions.





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### **Edge Sealing Procedure**

1. The edge sealer should be applied with a natural bristle brush. A short bristle,  $\frac{3}{4}$ " to 1-1/4" is recommended. Cut if necessary. Remove pre-mask before applying edge sealer.
2. Wipe excess sealer from brush or can lip. This prevents dripping during sealing operation.
3. Place brush so that it rides partly on the application surface. Pull along edge of film or sheeting in a smooth continuous motion. Refill brush as needed. The edge must be completely covered. Do not brush back and forth.

### **D. SUBJECT: STORAGE AND MAINTENANCE**

Unapplied markings need to be stored in a controlled environment  $72^{\circ}\pm^{\circ}\text{F}$  ( $22^{\circ}\pm^{\circ}\text{C}$ ) and  $50\pm 5\%$  R.H. free from excessive airborne dust and direct sunlight. The PSA material and/or decal needs to be applied within the shelf life specified for the particular product being used. Rolls in the shipping carton should be stored horizontally; rolls which have been removed from the shipping carton should be suspended horizontally via a rod or pipe through the roll core.

### **E. SUBJECT: CLEANING OF APPLIED VINYL GRAPHICS**

See separate bulletin: Approved Cleaners for Printed Graphics