



REAL WORLD VINYL

By Rob Ivers

Rob Ivers owns Rob Ivers Inc. (Raymore, MO), a vehicle-graphics and installation company. He's taught vinyl-graphics installation since 1993. For more information, visit www.robivers.com

The Master's Corner, Part 2

Examining complex-curve, graphic-application strategies, techniques and post heating.

Last month, Rob addressed vinyl's evolution and techniques for conforming vinyl to challenging surfaces.

Installing vinyl over convex, complex curves causes excess media. I counter by following the concept of divide and conquer. First, I mentally divide the graphic into sections based on the vehicle's shape. Then, I squeegee the larger, flat areas and simple curves first. I leave the outer, complex curves for last.

For example, consider the hood of a Ford van. I apply the top portion of the hood, closest to the windshield, first, with vertical strokes, working from the center out to the hood's left and right edges. My strokes go all the way to the top edge. The bottom of my stroke stops where the complex curve begins. When the first section is completed, the top portion is done, and the bottom remains.

The dividing line between squee-

geed and unsqueegeed areas isn't a straight line. Rather, it's curved, parallel to and matching the curve of the front of the hood. You should work *with* the shape, not against it. Squeegee parallel to the curve rather than trying to force the vinyl into a straight line.

When installing vinyl back into the shape it likes, squeegee parallel to that shape, and the vinyl will lay flat on difficult shapes. Try giving it a quick, light snap. The vinyl will install more easily. On the Ford hood, after you finish the main section, you'll have a lot of extra vinyl in the center. All of this excess could make one big wrinkle, which we don't want.

My strategy is to work the vinyl by gradually spreading the excess evenly across the hood's entire width from the center out to each edge, parallel to the front edge of the hood. In essence, we're turning one big pocket of excess that would definitely make a wrinkle into hundreds of smaller, manageable puckers.

Heating without stretching

Occasionally, you'll need to use heat from a propane torch or heat gun to relax the vinyl. I take this step when I can't spread the vinyl excess without wrinkling. I want to remove any excess film that gathered while I handled the graphic. The heat causes the vinyl to return to its original, unstretched shape. Any excess that still remains results from the vehicle's complex shape, and no amount of heat will make it disappear.

If you pull on vinyl while it's hot, even a little, you'll stretch it. Instead, lift up the unsqueegeed area to make sure it doesn't stick to the surface. Let it lightly fall back on the surface. If the vinyl doesn't stick, it will shrink back to its original shape. If you don't touch it at all, you can't possibly cause it to stretch.

Then, warm the vinyl up enough to relax it. You'll see it smooth out, or at least see the puckers soften up and become milder. After the vinyl cools, start squeegeeing again. Work the excess evenly in both directions across the graphic's full width. Repeat as many times as necessary. Lift the vinyl up; let it fall loose; warm it up; let it cool, and then squeegee some more.

Concave, compound curves result in insufficient vinyl, rather than excess. Vehicles with severe fenders, such as the Chrysler PT Cruiser and Chevrolet HHR, provide prime examples. When you don't have enough vinyl, you obviously have to stretch it.

Consider ways to minimize stretching. For instance, if you squeegee all around a concave shape, you leave only the vinyl over the shape to stretch in. The vinyl is being stretched a certain percentage – in this case, let's say 75%. If you left as much loose vinyl as far away from the concave area as possible, and stretched it first – the vinyl from



A close-up look of a Ford van's complex curves. To this point, no heating or stretching has occurred. I'll add some heat while the vinyl is loose to relax the film.



The same piece moments later; note how the heat relaxed the puckers. After it cooled, I began spreading the excess evenly – in this case, up and then down. This technique reduces stretching to a bare minimum.

REAL WORLD VINYL

the surrounding area will flex and move as you push the vinyl in – you may only stretch the vinyl 10%. Both options may take a similar amount of installation time and look virtually identical when complete. However, the vinyl that stretched 75% longer than its original shape is practically guaranteed to fail. The other application has a high probability of staying well adhered, especially if you post heat.

Perfecting post heating

Post heating is an installer's last line of defense – and well worth the effort. As the name implies, this heating takes place *after* having completed installation. This means the vinyl must be completely adhered to the surface with no air left behind in bubbles or wrinkles. Professional installers have been using heat and pressure to help vinyl adhere better, especially



Post heating serves as a critical finishing step for complex curves. The right tools and technique easily and accurately achieve the proper temperature.

around edges, for decades.

How does post heating differ, and why is this new technique necessary? The difference lies in the amount of heat employed and the tools and techniques used. Application to complex curves and solvent-retention issues create the

need for post heating.

This technique requires using an industrial heat gun on the highest setting to raise the temperature of the vinyl to approximately 200° to 225° F, which can be measured with an infrared, surface-temperature thermometer. This requires a far greater

REAL WORLD VINYL

dose of heat than waving a torch quickly over vinyl for a few seconds.

Hold the heat gun roughly an inch away from the surface, and angle it slightly in the direction you're headed. Keep the thermometer's laser guide focused on the vinyl that you're currently heating. Keep heating the film until it reaches 200° to 225° F, then slowly move the heat gun and thermometer at a pace that keeps the vinyl within that temperature range. You'll be moving approximately one inch every two to three seconds.

Post heat all complex curves and indentations. Also, heat all overlapping seams and edges, but they don't require quite as much heat; 150 to 180° F should suffice.

While I can't guarantee it will prevent all lifting, post heating will help achieve the ultimate bond of the adhesive immediately – not in 24 to 72 hours. Without post heating, the adhesive is gradually building to its



Professional Decal Application Alliance (PDAA) master certification requires a high degree of proficiency and use of PDAA-approved techniques, which include post heating and minimal stretching, among others.

ultimate bond. Although the bond will hopefully be strong enough to overcome vinyl's "memory," the film may already be pulling away from the surface.

If your thorough cleaning procedures and strong application skills (read: minimal stretching), combined

with the strength of a vinyl adhesive's ultimate bond, suffice to make your vinyl applications effective and lifting-free, then post heating can only ensure your success. ■

For related articles about this topic, visit www.signweb.com/vinyl.