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Make signs for your railroad

Sign language

Signs and artwork convey a sense of life to an otherwise quiet scene, letting the viewer know that people do inhabit the area, even though they might not be seen. All the signs and artwork in this photo were custom made using a variety of techniques. The station signs are printed on a desktop printer, the word "Panic" on the caboose is hand-painted, while the "2" below it is a dry transfer. The artwork on the delivery truck is a custom decal. The storefront sign was painted using a vinyl mask.

Signs. They're everywhere you look, even in some of the most remote areas of civilization, and they date from the earliest times. Yet, as common as signs are in the real world, they're typically absent from many backyard scenes. Part of the reason for this lies in the fact that commercially produced signs are very rare in this—or any—scale. This is the realm of custom graphics. If one wants a particular sign, then one has to make it himself or have it made commercially.

Fortunately, in this day of desktop printing and digital technology, the palette we have available is constantly broadening. Even old standbys, like decals, can be produced at home. And the new technology of laser cutting is making old techniques far more viable than they have ever been. Whether it's something as simple as lettering for a boxcar or a color poster for a storefront window, there's a good chance it's within easy reach of even the beginning modeler. In this column and the next, I'll highlight some of the more common methods for creating signage for the railroad, their strengths and weaknesses, and how to apply them.

I'll start with a basic method, one we've used countless times in our lives from the earliest days of childhood: stickers. Anyone who's built a Pola kit has seen the sheet of stickers that comes with it. Application consists of simply cutting them out and applying them. The natural extension of this simple technology is to print one's own stickers using commercially available adhesive sticker paper. Simple graphics, such as station signs, can be produced in a word-processing program, while posters and advertising signs can be downloaded from the internet and printed out.

One drawback of stickers—especially labels—is that the adhesive isn't very durable and the paper it's printed on is not weatherproof. To remedy that situation, I've found that I can print on regular paper, then glue the paper to any surface using polyurethane resin (photos 1 and 2). This does two things; it firmly attaches the paper to the substrate and it seals the paper, rendering it weatherproof. I've had signs made by this technique last outdoors upwards of 15 years so far. (These signs were made on inkjet printers. New inks should have even better performance outdoors.)

The other drawback is that you have to apply the printed artwork to a background. There's no ability to print transparent images, where the background color of the model would show through. For most applications such as posters or signs, this

1 A coat of polyurethane resin is brushed onto a wood or styrene substrate and the is artwork pressed onto the wet resin. This attaches the paper to the substrate.

2 A second coat of resin is then brushed over the artwork, sealing everything from the elements, leaving a weatherproof sign.

3 Once the dry transfer is cut from the sheet, it can be taped into position on the model so it doesn't move during burnishing.

A burnisher presses the adhesive onto the model and releases the transfer from the carrier sheet.

A dry transfer can be lightly distressed with sandpaper after it is applied to give it a weathered look.

With vinyl lettering, the artwork and carrier sheet are carefully peeled off of the protective backing.

The artwork is then positioned on the sign front.

Rubbing the artwork with your fingers attaches the lettering to the surface.

The carrier sheet is peeled away, leaving just the artwork.

isn't an issue. For railroad heralds or freight-car lettering, it's not so effective.

In a category similar to stickers are dry transfers, commonly referred to as "rub-on" lettering. These are sold in art-supply stores for use on signs and posters. Alas, desktop-printing technology has rendered this obsolete technology, so they're getting harder to come by. Their primary advantage over stickers is that only the lettering itself is applied. Companies offering dry-transfer railroad lettering are disappearing quickly, but they do still exist. Woodland Scenics offers lettering in sizes from $^1/_{16}$" to $^1/_2$", and DJB Engineering in England offers Rio Grande lettering as well as custom-lettering services. There are also some print shops in the US that will still do custom work. It's not cheap, though: typically around $80 per 8$^1/_2$" x 11" sheet. But, if you can afford it, dry transfers are—in my opinion—the easiest and most user-friendly method of applying lettering to model-railroad equipment. I've found that transfers have a fairly decent shelf life, so you can create a sheet for multiple cars, then letter them over a period of a few years.

A dry-transfer sheet consists of a carrier sheet (usually plastic), the transfer material (the actual lettering), and an adhesive layer on the bottom of the material. To apply the transfer to a model, the specific lettering is cut from the sheet and taped into position on the model (photo 3). It's then burnished onto the surface with a dull burnishing tool, such as the non-brush end of a paintbrush (photo 4). This releases the lettering from the carrier sheet and presses the adhesive onto the model. The carrier sheet is then removed, leaving the lettering or logo behind. The transfer can then be distressed with sandpaper to look worn or otherwise weathered, if desired (photo 5). Most modelers seal their dry transfers with a clear sealant once they're applied. This isn't necessary but, as grandpa used to say, "it can't hurt."

A close cousin to the dry-transfer process is vinyl lettering. The basic premise is the same, except the lettering is produced on a computer-controlled cutter, as opposed to an ink-based printing process. The advantage of vinyl is that it's very durable and easy to apply. (Many modern railroads use vinyl lettering for their

Lettering can then be caressed around details. Shine can be dulled with a light once-over of sandpaper.
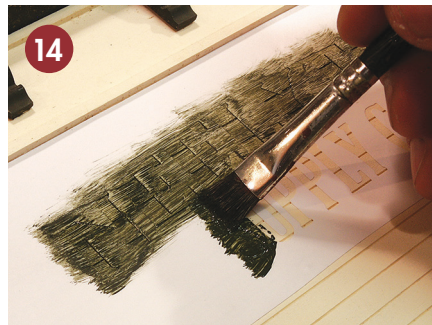

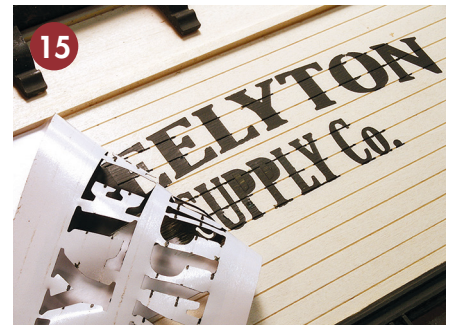
The protective backing is peeled away from the vinyl mask.

The mask is positioned in place on the model.

The front carrier film is removed, revealing the surface to be painted below.

Paint is applied through the mask, either with a brush or an airbrush.

The mask is removed, revealing the painted sign.

Touch-up can be done with a fine-tipped brush where the mask didn't seat over molded-in details.

equipment.) It will stand up to weather and won't fade. It's also comparatively inexpensive. The application of the vinyl transfers is similar to that of dry transfers, except that the modeler must remove a protective backing to expose the adhesive (photos 6-10). The only real disadvantage to the vinyl process is that very fine lettering is difficult to produce. The cutter may be capable of cutting it, but lifting it off and applying it is nearly impossible. Also, vinyl letters are thicker than dry transfers and cannot easily be distressed into the woodwork. This isn't an issue for most applications, though. From more than a few inches away, you would be hard pressed to notice the difference between the two mediums.

Vinyl tape is commonly used for striping. Art stores used to carry a wide selection of vinyl tapes in varying widths, but they've succumbed to the same technological pressures as dry transfers and are increasingly difficult to find. However, a walk down the R/C-car aisle at the local hobby shop will still turn up striping in most common railroad colors.

Curiously, the recent emergence of vinyl lettering has fostered a renewed interest in the "original" form of lettering—paint. The vinyl cutter cuts the lines for each letter, but the modeler has to remove the unwanted material. If you remove everything but the lettering, you are left with letters to apply. If you remove the letters instead, you have a mask that can be applied to a surface and used to paint through (photos 11-16). The result is a painted sign. Essentially, the cutter is doing the hard work of cutting a stencil from frisket paper. Unfortunately, the mask isn't reusable and, again, there are the same limitations to the size of the type you can use. The advantage is that multiple colors can be more easily accommodated. If you're handy with an airbrush, you could even do graduated colors on something like a billboard. Personally, that's as far as I'd want to go with hand painting signs or letters. One's hand must otherwise be very steady to produce results equal to that which can be achieved with other methods. There is one exception, though. Paint pens—particularly fine-tipped ones—are great for lining, especially on difficult surfaces like the rims of locomotive drivers or spokes.

So far, the methods I've mentioned don't require any special preparation of the surface to which they're applied. They can be applied to unpainted or painted surfaces with equal ease. To that end, they're simple to use and apply. The downside is that they can be expensive, or have physical limitations that keep them from being as flexible as we would like.

Next time I'll talk about decals. They're the granddaddy of custom lettering and offer modelers a great deal of creative freedom. They can now be printed on the home computer, which makes them very affordable. However, applying them can be somewhat daunting, even to the experienced modeler. ‡‡

Sign language: Part 2

Paint is the oldest medium used to decorate our models. While materials have improved since the early cave drawings, the techniques are much the same: dip the brush in the paint and apply it to the surface. Hand painting is most commonly used in large scale for painting entire models, but lettering can also be hand painted.

The biggest problem with hand-painted lettering in this scale is that it lacks the crispness and evenness of decals or dry transfers. But there are instances where that's the effect the modeler wants, and there's no other way to accomplish it (photo 1). There have been articles written on hand-lettering techniques, so I won't go into too much detail, but my favorite technique is to use a very fine brush and somewhat thin paint. This gives me the most control. The technique requires a few coats to get good coverage, however.

Paint pens can help achieve better results with hand lettering. These act like felt-tip markers, but lay down opaque paint instead of transparent ink. I like to use them for lining things like driver spokes, wheel rims, and other applications where my preferred method of vinyl tape won't work (photo 2). Paint pens come in a variety of colors and widths and can be found at most art-supply or craft stores.

Decals

The granddaddy of model lettering has to be the waterslide decal. Unfortunately, the large-scale market has been under-served by traditional train-decal printers,

The Tuscarora Valley's market car № 207 takes the lead on the Tuscarora Railroad's daily milk train. East Broad Top combine № 18 brings up the rear. The author created the custom decals for each of these models on his computer.

so we're often left to fend for ourselves. We do have technology on our side, however, and have means to produce our own decals.

Commercial decals are usually screen printed. Most of us don't have that capability in our basements. However, the advent of desktop publishing makes printing your own decals relatively simple. The most common desktop printer is the inkjet. Decal paper, designed specifically for inkjet printers, is available. You can design artwork using any desktop-publishing software, print it on decal

1 The word "Panic" was hand lettered onto the side of this work caboose. In cases where you want to create a hand-painted look, there's no better way.

2 Paint pens are useful for striping models. Here, the author uses a fine tipped, gold paint pen to touch up the paint on the drivers of a locomotive.

3 White decal paper is quite useful for creating artwork for our models. Because it's an opaque paper, the inks don't vanish when applied to the models.

4 Everything you need to apply decals: Future floor wax for a glossy surface; water to separate decals; a brush to apply a decal-setting solution.

5 When trimming decals, cut as close to the lettering as possible to keep the surplus decal film to a minimum, thus hiding the edges.

6 Small, trimmed decals need only be in the water for 10 to 15 seconds.

paper, spray on a clear fixative to seal the ink, and you're ready to go. You can do the same with color laser printers, though they require a different decal paper. (Micro-Mark offers a good range of decal papers.)

The inkjet/laser printer option has a few drawbacks. First, the inks are somewhat translucent, so they need to be applied to a light background in order to show up on the model. Second, you can't print white lettering. There are workarounds for this, though. The first is to print onto white decal paper. This works well for signs and logos, but for lettering on a tender or boxcar, it has limitations. The reason is that the lettering itself is not actually printed. What you're printing is the area around the lettering—a negative image (photo 3). The trick here is in matching the background color of the decal to the paint on the model. It will take some trial and error to get the shade close, so do your experimenting on scrap paper.

There are printers that can print white, as well as metallic gold and silver, lettering. These are dry-wax-transfer printers made by Alps, Kodak, and Okidata. Alps printers have been out of production for a few years, though they do show up on eBay fairly regularly. The Kodak and Okidata printers are professional proofing printers, and generally out of our price range. Many cottage decal manufacturers use this type of printer. There are a few Yahoo discussion groups for Alps-printer users, including one specifically for producing decals.

Applying decals

Whichever method you use to produce your decals, the steps to apply them are identical (photo 4). The key to successful decal application is to have a glossy, more-or-less smooth surface to apply them to. Some surface irregularities are acceptable, such as grooved siding or rivets—the decal film will settle around these details.

Getting a gloss finish on your model may take some planning. If possible, it's best to use a gloss paint initially. The next best thing is a clear gloss overcoat. Krylon makes a good spray gloss coat. Alternatively, you can use Future floor wax. This is really not a wax at all, but a glossy acrylic finish that can easily be brushed onto a model.

The "waterslide" in waterslide decals comes from how they are prepared for application. The decals are first trimmed from the sheet (photo 5). The trimmed piece is then soaked in water for around
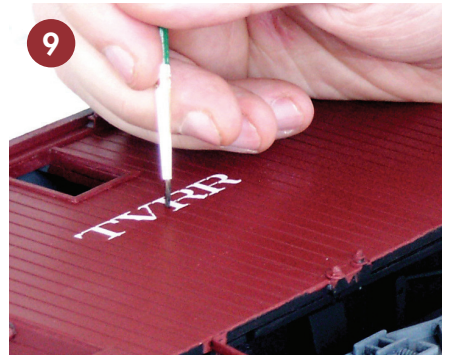
To position the decal, set it on the model close to where it's supposed to go, then carefully slide the paper backing from behind it.

The author uses an X-acto blade to help work the decal into the grooves of the car siding.

Once properly positioned, decal-setting solution is brushed onto the surface to soften the decal film and help it firmly attach to the model.

The decal is now on the model, ready to be sealed with a protective clear coat.

Coated, then weathered, the decal easily blends into the car.

10 to 15 seconds (longer for larger decals), which loosens the decal film from the paper backing (photo 6). Once loosened from the backing (but not removed), the decal is placed on the model in its approximate location (photo 7). Then the decal is slid off the backing into position. This is where the decal has advantages over vinyl or dry-transfer lettering. Once the decal is on the model, it can be adjusted one way or another to exactly position it (photo 8). When the decal is in place, a decal-setting solution is brushed over the decal film (photo 9). This softens the film, allowing it to conform to the surface of the model, and also helps blend the edges of the film into the model.

This all sounds simple, but there are pitfalls to the process. Most have to do with getting complete adherance between the decal and the surface of the model. Air bubbles are the biggest obstacle to this. Larger ones can be taken care of by poking the bubble with the tip of a sharp X-acto blade. Sometimes, however, the decal just won't seat properly, and you get an effect called "silvering." In major instances of this, the decal will literally peel right off the model. One rather unorthodox method I have for dealing with this is to "glue" the decal in place with the gloss acrylic. I'll poke holes in the decal with the X-acto blade in the area where the silvering is occurring, then paint it with some diluted acrylic medium. This gets pulled into the holes and the surface between the decal film and the model by capillary action, and usually eliminates the problem. I've also peeled off a decal, painted the back of it with the acrylic, then placed it back down. It's definitely a delicate process, but it can work.

Once the decals have dried for at least a day, the model can be sprayed with a clear finish to seal them (photo 10). Most often, I'll use a matte finish, as I want a duller, more weathered look to the model but gloss or satin finishes work just as well, depending on the finish desired. A well-maintained locomotive or passenger car would be more likely to have a glossy sheen (photo 11).

Over time, you'll undoubtedly discover that some of these techniques work better for you than others. The fun of lettering and sign making is that you're only limited by your imagination. You can combine techniques, or perhaps find new ways of doing things. It's these signs and personal touches that bring life to our models, separating them from the ordinary. ⅡⅠ