

Unique Decals



for your Railroad

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February, 2014

Personal computers and related hard and soft ware have simplified making our own decals. They make some projects easier and permit some that could not have been done before.

We are going to take a quick look at:

Classic decal usage and procedures

Materials, tools, and suggestions for making them yourself

We will finish with a detailed look at two projects that illustrates some of the techniques readily available today.

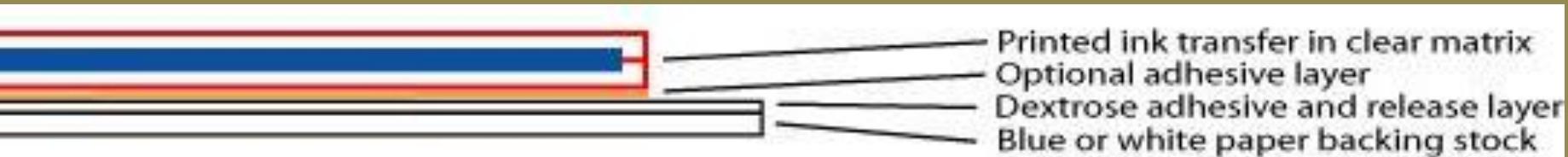
What are decals?

A decal can be considered a sandwich, with:

- ✓ A thin, flexible plastic layer to carry an image.
(This layer is usually clear or white.)
- ✓ A carrier layer of paper.
- ✓ A water soluble adhesive between the layers to permit separating them for application.

The total package is 0.006" to 0.009" thick, most of it the paper carrier.

The top, image layer, is 0.0003" to 0.001" thick.
i.e., very delicate.



- Water slide decals (or slip decals) are water-mounted [decals](#) generally printed face up and rely on the [dextrose](#) corn sugar residue from the decal paper to bond the decal transfer to a surface. A water-based adhesive layer can be added to the decal to create a stronger bond or may be placed between layers of [lacquer](#) to create a durable decal transfer. The paper also has a layer of glucose film added prior to the dextrose layer which give it the adhesion propertys, the Dextrose layer give the decal (lubrosity) the ability to slide off the paper and onto the substrate. Please see design guide
http://www.giraphixsp.com/page_1.htm#2A
- Water slide decals are thinner than many other decorative techniques (such as [vinyl](#) stickers) and as they are printed, they can be produced to a very high [level of detail](#). As such, they are popular in craft areas such as [scale modeling](#), as well as for labeling [DIY](#) electronics devices, such as [guitar pedals](#).
- Until recently, water slide decals were professionally printed and only available in supplied designs, but with the advent of printable decal paper for colour [inkjet](#) and [laser printers](#), custom decals can now be produced by the hobbyist or small business. Even without this, decals have been made at home by modellers. Gummed paper tape was used as a base and adhesive, with layers of [hair spray](#) (a [shellac](#) varnish) built-up to form the transparent layer. The difficulty with this in the 1970s was in printing the coloured image neatly by hand, as this pre-dated accessible computer printing.

What are they used for?

- ✓ Lettering locomotives, cars for railroad names
that are not commercially available
- ✓ Lettering, logos, for your free lance railroad
- ✓ Building, highway, railroad signs, etc.
- ✓ Anywhere that you want lettering, a logo, or any
other image.
- ✓ You can put your dogs picture on the side of your
locomotive if you want to.

Prototype Railroad Lettering with commercial decals





Your Own Railroad with
Commercial Decals
(Individual Words)

(Champion
Decals)
(Unfortunately No
Longer Available)

Private Road Name Decals made with a Personal computer, etc.



Building Lettering



Where can we get them?

Commercial, Preprinted:

Herald King

Highball Graphics

Micscale

Walthers

These are the best known, many suppliers can be found with a Google search

Champion (out of business since 2010)

Decal Paper

Micromark

Walthers

Note: Many office supply stores list “decal paper”. Read the fine print! Many are adhesive coated vinyl, we want “water slide”. Some, like Testors at Walthers, are water slide but a different paper size that may be inconvenient with a computer printer.

Applying Decals

Best applied over smooth (gloss or semigloss) surface.

(A paint surface is made flat by adding a fine matte material, ie, by making it rough).

It is hard to get good, continuous contact with a rough surface.

White or “silver” areas on decal are air between the decal film and the paint on the car side.

Contact should be more uniform, thus “silvering” is less likely over a smooth (glossy) surface

Liberal application of Decal Setting solution also helps.



Applying Decals

- ✓ Best applied over smooth, level surface.
- ✓ Trim edges to as close to printing as practical.
- ✓ Soak decal in water until printed layer slides easily.
(Microscale says 10 – 15 sec. in water, then on paper towel).
(Champion said soak until top layer floated off).
- ✓ Brush a thin layer of Microset on surface.
- ✓ Lay decal and backing on surface and slide decal off into approximate position.
- ✓ Position exactly with brush, knife point, or whatever tool works.
- ✓ Wick off any excess Microset or water with paper towel
- ✓ Leave it alone until it dries!
- ✓ Apply Microsol as needed until all bubbles, poor contact, etc. are corrected.
- ✓ Overcoat with Dullcote or similar.

Lets Make Our Own

Materials:

Decal Paper – Micromark:

#82272 – Clear, for Ink Jet Printer

#82277 – White, for Ink Jet or Laser Printer

#82370 – Clear, for Laser Printer or Copier

(About \$8 for five 8 ½ x 11” sheets, 25 and 100 sheet packs also available)

#82858 Fixative spray (gloss) (can also use Dullcote)

#84302 Decal Setting Solution

#84303 Decal Softening Solution

**Other suppliers, see Walthers or Internet
(but watch fine print)**

**Microset and Microsol available from Microscale
(Do not appear to be stocked by Walthers)**

Tools

Personal Computer *

Software:

Word Processor * e.g. MS Word

Presentation Graphics, e.g. MS Power Point

CAD – many available, some free, few are user friendly

Photo cataloging e.g. Photoshop Elements

Printer * – Inkjet or Laser (toner type)

Scanner

Digital Camera

Home Office Copier

Drafting tools

* essential



A Parallel Straightedge Board
Useful if you plan to draw your own masters, or for
any mechanical drawing
Better than a T square and board, far cheaper than a
drafting machine.

Limitations

Can't Print White

- ✓ (Use clear letters with white paper & other fill color, or clear paper & appropriate paint color underneath).
- ✓ With white paper, must trim edge very carefully.
(makes narrow edge stripes difficult).

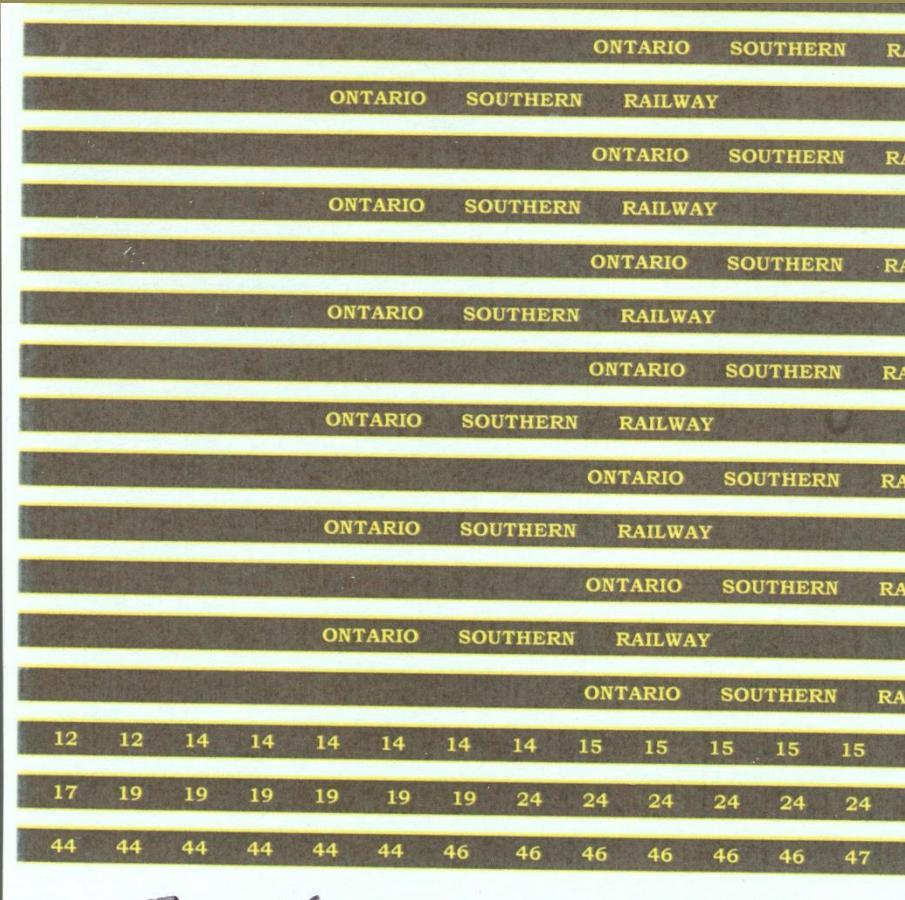
Ink Jet:

- ✓ Must use fixative or will smear or wash off.
- ✓ Black OK, but nearly all other colors on clear paper will not cover background well.

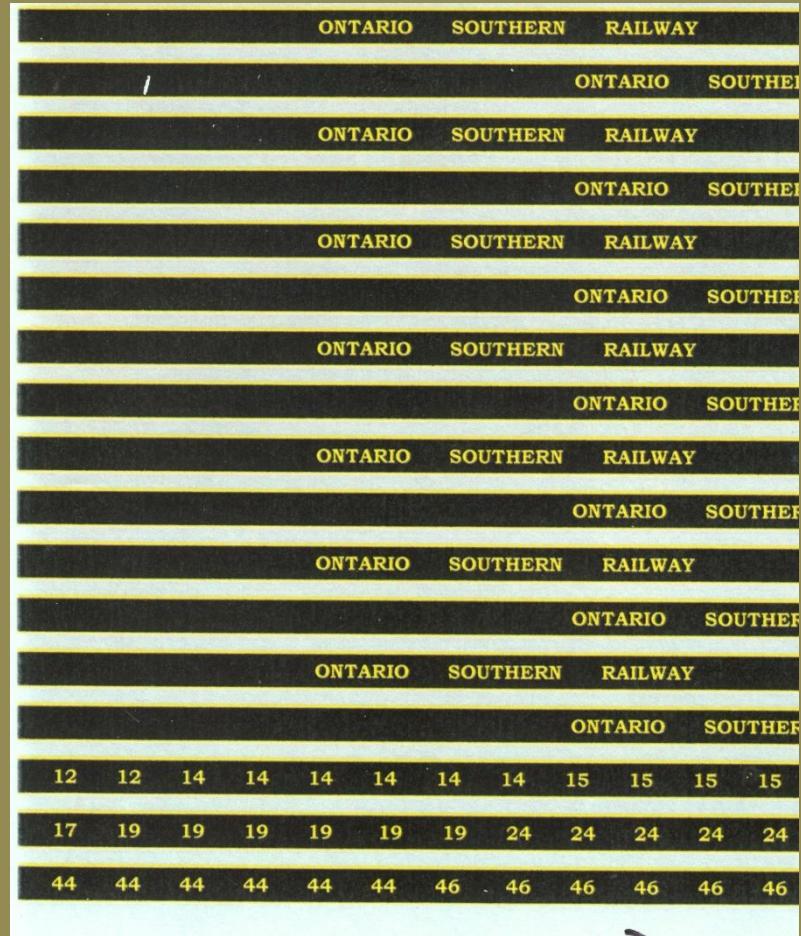
Laser Printer or Toner type copier:

- ✓ Possible flaking if trimmed closely. Fixative said to help, can touch up black edges with marking pen.
- ✓ Commercial color copy, “washed out” compared to Ink Jet.

My Bottom Line: Black only on clear, or ink jet on white for colors. YMMV



**Commercial Color Copy
on Walthers paper
“Faded” Black**



**HP Inkjet Printer
Micromark Paper
Not obvious here, but also
brighter yellow**

Creating a Master Copy

- ✓ Use CAD, Sketching, Word Processor, Power Point, etc.
Any PC software that lets you make and print the image you want.
- ✓ Can scan photos or other images, including commercial decals, import to Power Point, and resize as desired.
- ✓ Drawings: draw full 8 ½" x 11", scan and reduce as needed.

Using Microsoft Office Word:

- ✓ Can select font, type size, type color, and background fill color.
- ✓ Can change spacing of letters.
- ✓ For each of these, each line can be different.
- ✓ For a stripe, select small type size, no type, background fill color is stripe color.
- ✓ THERE WILL BE A LEARNING PROCESS!

ONTARIO DRILL WORKS AS

ONTARIO DRILL WORKS AS

**ONTARIO DRILL WORKS AS
ONTARIO DRILL WORKS AS**

**MFGRS. OF FERTILIZER AND GRAIN DRILLS
WEST PENFIELD PLANT**

**MFGRS. OF FERTILIZER AND GRAIN DRILLS
WEST PENFIELD PLANT**

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SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA

LYONS FALLS LYONS FALLS LYONS FALLS LYONS FALLS LYONS FALLS LYONS FALLS LYONS FALLS

KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT

WP WP WP WP WP LF LF LF LF LF HR HR HR HR HR AF AF AF AF AF AF AF

**WEST PENFIELD WEST PENFIELD WEST PENFIELD WEST PENFIELD WEST PENFIELD
SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA SUSQUEHANNA
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KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT KEATING SUMMIT
WP WP WP WP WP WP WP LF LF LF LF LF HR HR HR HR HR AF AF AF AF AF AF AF
HR AF AF AF AF AF AF AF AF**

**PASSENGERS PASSENGERS
FREIGHT
KEEP OUT
KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT KEEP OUT
EMPLOYEES ONLY
NO TRESPASSING
OS RY.
NO TRESPASSING
OS RY. OS RY.**

Sample Decal Master Page

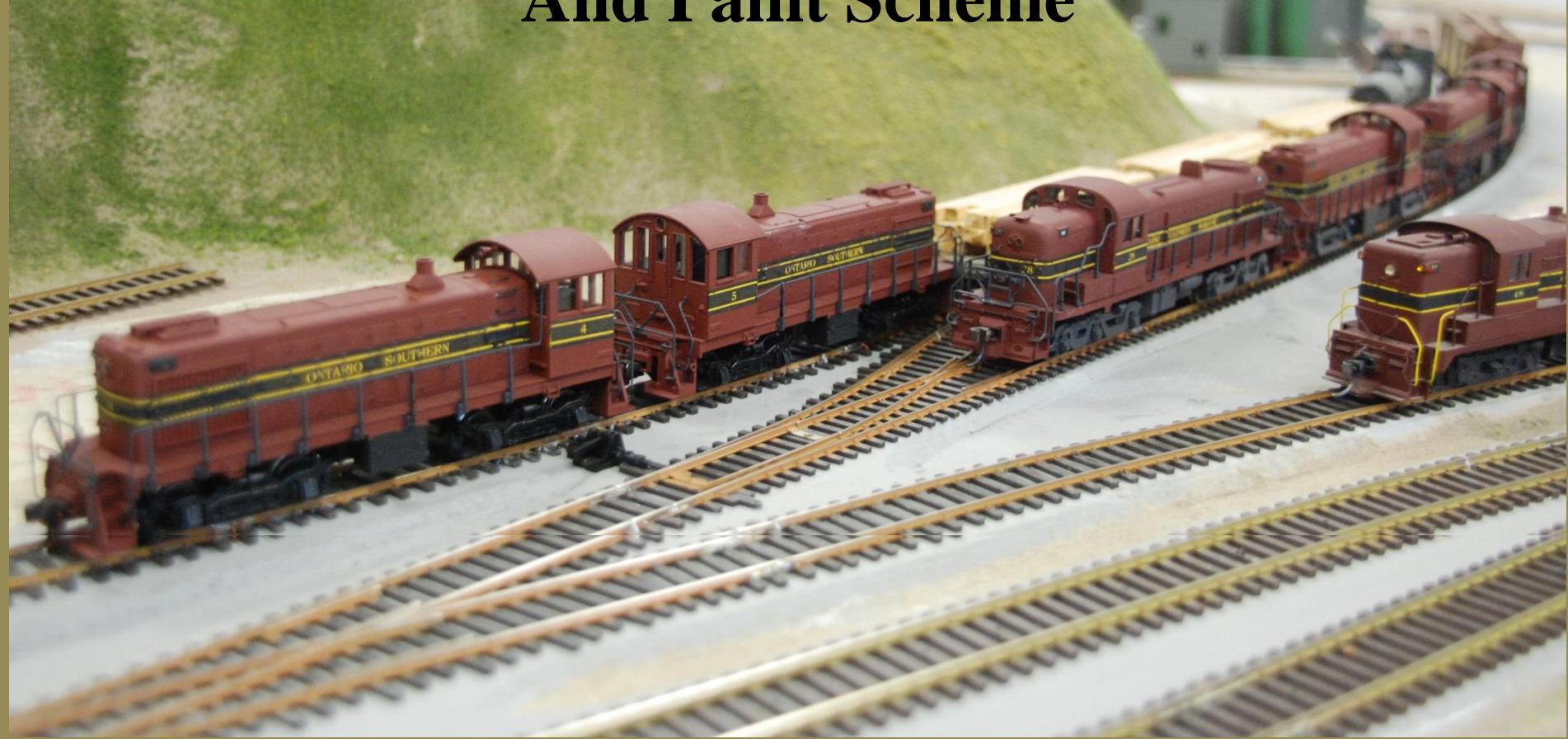
**Page layout changed to
reduce margins to get most
from decal sheet**

Extras made of each sign

**Generic building signs added
to fill sheet (Fill the sheet
with anything that might be
useful later.)**

The Ontario Southern Railway

Creating the History And Paint Scheme



Name and History

- ✓ My home town was Ontario, NY, a small town on the shore of Lake Ontario.
- ✓ In the 19th century, iron ore was mined there, with some barged out of Bear Creek Harbor in Ontario.
- ✓ An uncle worked on the PA coal lines of the NYC.
- ✓ This lead to the Ontario Southern Railway, running from the PA coal fields to the shore of Lake Ontario.
- ✓ At that time, Champion Decals produced decals with many common words. The OSR name used words available from Champion.

(One word at a time was acceptable, one letter at a time was not!)

- ✓ I later learned that the Fall Brook Ry, absorbed by the NYC in 1899, covered all but the northern 30 miles of this route.



The original paint scheme was Pullman Green, with Dulux Gold lettering, and yellow handrails, etc.

The 2nd Generation

- ✓ The original scheme seemed too bland, as 1st generation diesels usually had fancier paint schemes, often designed by the locomotive manufacturer.
- ✓ I decided that Tuscan Red was a attractive & typical RR color, and to add some combination of a yellow or black band for the lettering with striping.
- ✓ Several replacement Athearn GP-7 bodies were painted with various stripping combinations

(Note each side of the three bodies in the picture was different, so I was comparing six schemes)





**The resulting Ontario Southern Railway paint
scheme**

To Paint Locomotives with this scheme:

Spray pin stripe area with Floquil Reefer Yellow.

Mask Stripes with 1/64" chart tape.

Spray center stripe with Floquil Engine Black.

Cut masking tape to width and mask center stripe.

Spray entire body with Floquil Tuscan Red.

Remove masking and touch up as needed.

Apply lettering (one word at a time).

Did not apply gloss coat under decals.

Did use Decal softener liberally.

Spray Testors Dullcote.

With PC to produce decals, there should be an easier way.

- ✓ After some trial and error:
- ✓ A black stripe was added outside the yellow pinstripe on the decal.
- ✓ A clear decal paper was used, with the stripe and letters clear.
- ✓ A yellow strip was painted on the model so its edges were centered on the outer black stripe.

This seemed to give a more pleasing yellow than the ink jet yellow, and the painted strip helped align the decal application.

ERN	RAILWAY		83
	ONTARIO	SOUTHERN	RAILWAY
ERN	RAILWAY		83
	ONTARIO	SOUTHERN	RAILWAY
	ONTARIO	SOUTHERN	RAILWAY
9	9	9	16
9	9	9	16
9	9	9	16
9	9	9	16
9	9	9	16
9	9	9	18

1st line – Font Size: 3, Home>Shading>color: black
(on Microsoft Word, others may be different)

2nd line – Font Size: 1, Shading: yellow (if white decal, mine used clear)

3rd line – Bookman Old Style Font, Font Size 9, Font color yellow (or white)

4th & 5th lines, same as 1st & 2nd

Making a Decal Master Sheet

ONTARIO	SOUTHERN	RAILWAY		7
			ONTARIO SOUTHERN RAILWAY	7
7	7	7	7	9
ONTARIO	SOUTHERN	RAILWAY		9
			ONTARIO SOUTHERN RAILWAY	9
9	9	16	16	16
ONTARIO	SOUTHERN	RAILWAY		16
			ONTARIO SOUTHERN RAILWAY	16
18	18	18	18	25
ONTARIO	SOUTHERN	RAILWAY		25
			ONTARIO SOUTHERN RAILWAY	25
25	25	46	46	46
ONTARIO	SOUTHERN	RAILWAY		46
			ONTARIO SOUTHERN RAILWAY	46
49	49	49	49	83
ONTARIO	SOUTHERN	RAILWAY		83
			ONTARIO SOUTHERN RAILWAY	83
83	83	87	87	87
ONTARIO	SOUTHERN	RAILWAY		87
			ONTARIO SOUTHERN RAILWAY	87
ONTARIO	SOUTHERN	RAILWAY		83
			ONTARIO SOUTHERN RAILWAY	83
ONTARIO	SOUTHERN	RAILWAY		87
			ONTARIO SOUTHERN RAILWAY	87
7777	7	7	7	18
18	18	18	18	18
49	49	49	49	49
ONTARIO	SOUTHERN	RAILWAY		49
			ONTARIO SOUTHERN RAILWAY	49
ONTARIO	SOUTHERN	RAILWAY		49
			ONTARIO SOUTHERN RAILWAY	49

Then “copy” and “paste” to fill the page (control “C” and control “V”).

Before printing, check the font size (line width) of the stripes.

The computer sometimes changes them when copying.

When correct, print will be OK, but it might not look even on monitor.

Once the Master Sheet is made:

- ✓ Print the master on “HP Bright White” Inkjet Paper.
- ✓ The printer is set to “best” or “presentation” grade.
- ✓ The lettering and stripes were printed clear.
- ✓ After checking, the master was copied onto Micromark clear “laser copier” decal paper.
- ✓ The area on the model to be covered with the decal was painted White, and then Reefer Yellow.
(White covers well, yellow does not.)
- ✓ Cut and apply masking tape so the edges of the yellow will be centered under the outer black stripes.
(That’s why the outer stripes are there.)
- ✓ Paint body Tuscan Red.
- ✓ Apply decals, Microsol or Decal Set, and Dullcote.
- ✓ Admire results (or strip and start over!)



- ✓ Very similar result, less work.
- ✓ Striping might be more uniform.
- ✓ A trial with the everything on a white decal sheet would have been worthwhile, but did not want to risk poor color match.



- ✓ For passenger cars, printing the decal sheet in “landscape” mode produced a decal the full length of the car.
- ✓ With the roof removed, the top edge of the car provided a guide for the decal, making it easier to apply straight.
- ✓ Applying the car numbers with a black background over yellow paint was felt to give an acceptable appearance.
- ✓ An alternative would be a number decal with the background matching the car color. A poor match was expected to look worse than black, so was not tried.

Creating a Fall Brook Logo

The Fall Brook Railway was built (by the Fall Brook Coal Co.) in the last half of the 19th century to serve coal fields in central Pennsylvania. It eventually became a 250 miles system from a Reading connection in Williamsport, PA to the NYC mail line at Lyons, NY. In 1899 it was leased to the NYC, and was eventually incorporated into the NYC.

As this prototype railroad is similar to my fictional OSR, I wanted to add Fall Brook equipment to my layout. (This assumes that the Fall Brook lasted until 1950.)



FALL BROOK RAILWAY COMPANY

"The Fall Brook had the distinction of doing the largest freight business of any single track road in the country, and its magnitude amazed practical railroad men everywhere."
(Wellsboro Agitator - 1900)

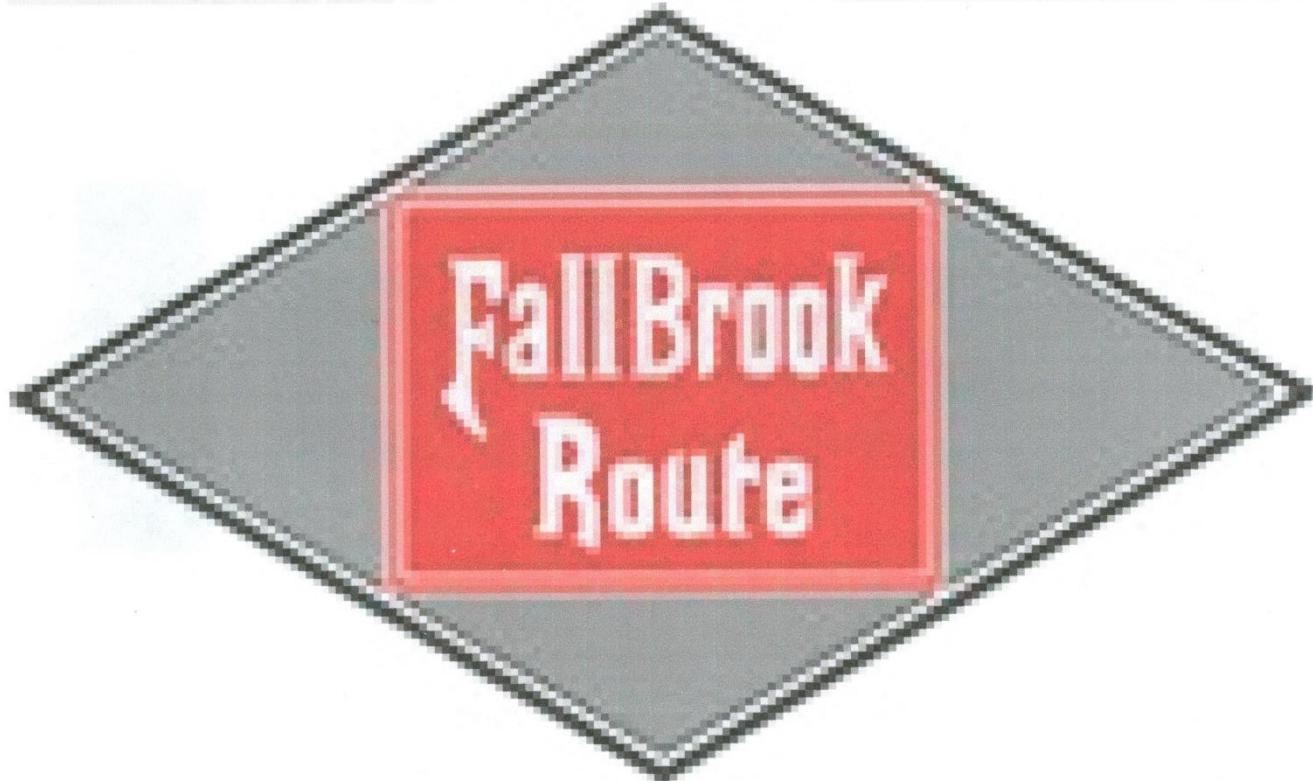
Introduction



Fall Brook Coal Company Locomotive #71 "Tiadaghton"
Taken in 1892, just before all the company's rail interests were consolidated as the Fall Brook Railroad

After a foreclosure sale in 1854, Hon. John Magee purchased a controlling interest in the Corning & Blossburg Railroad in New York State, beginning a series of acquisitions and leases which led to the formation in 1892, of the Fall Brook Railway and its ultimate merger into the New York Central system. Mr. Magee, my great-great-

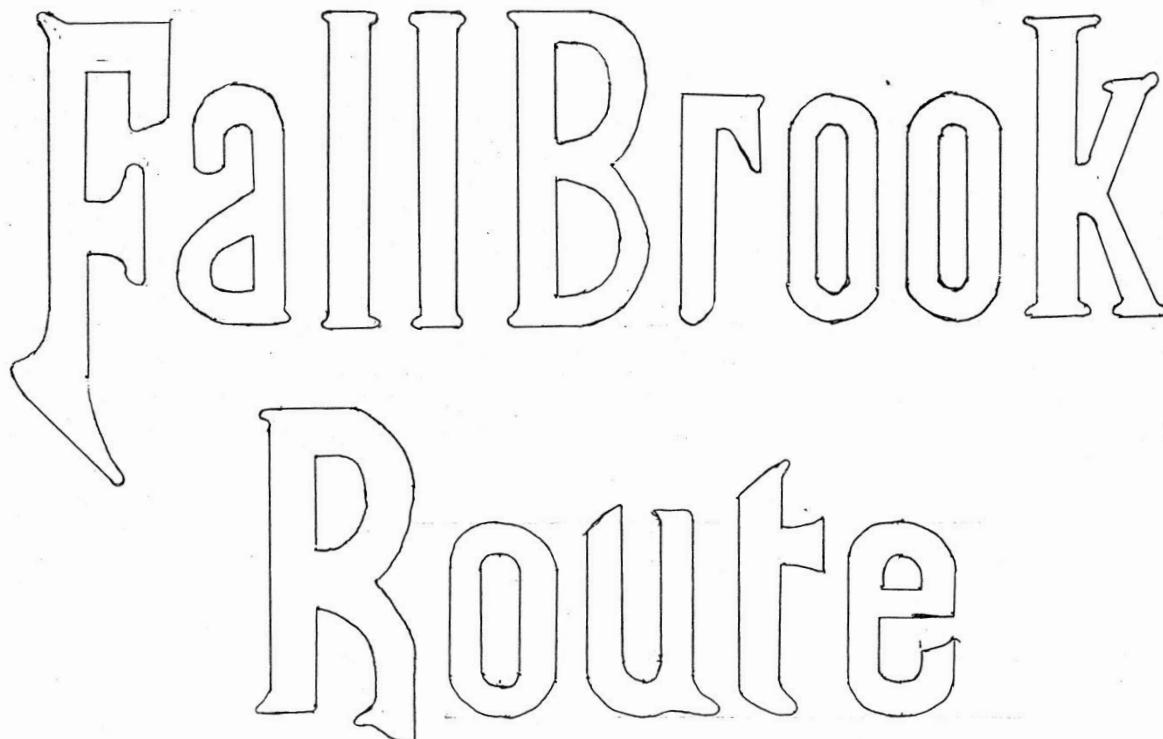
This is the best Fall Brook Logo I could find on the internet. I was not able to draw one that I liked better.



- ✓ The page with the Fall Brook logo was copied onto a Power Point page with the “Print Screen” Feature.
- ✓ That page was cropped to just the Fall Brook logo.
- ✓ The logo was enlarged to nearly the full page. The resulting image is fuzzy.

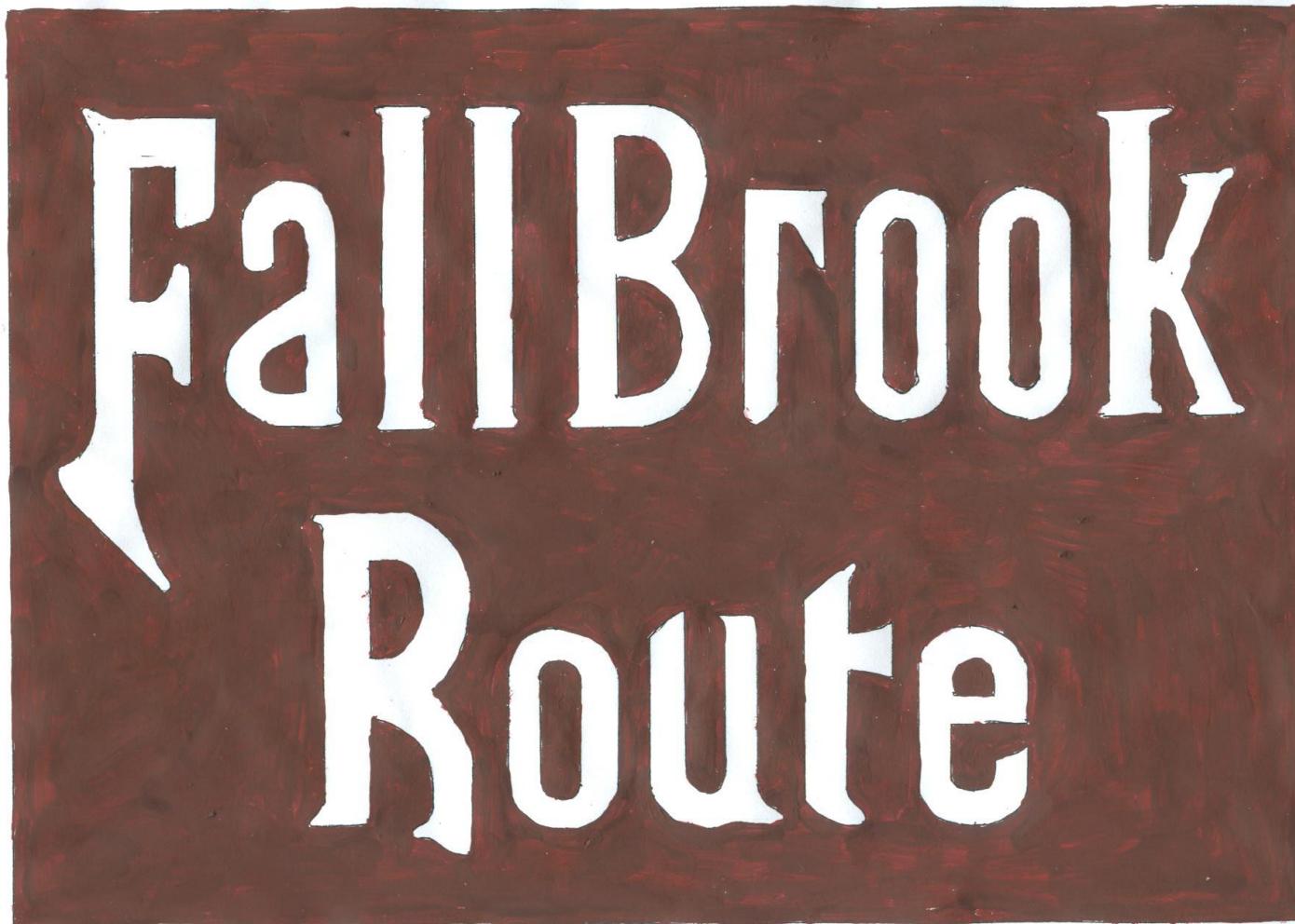
HallBook
Rouge

Enlarge center, “sharpen”, change to black



FairBrook
Route

- ✓ The enlarged image was printed, and the outlines traced onto a full 8.5" x 11" sheet of paper.

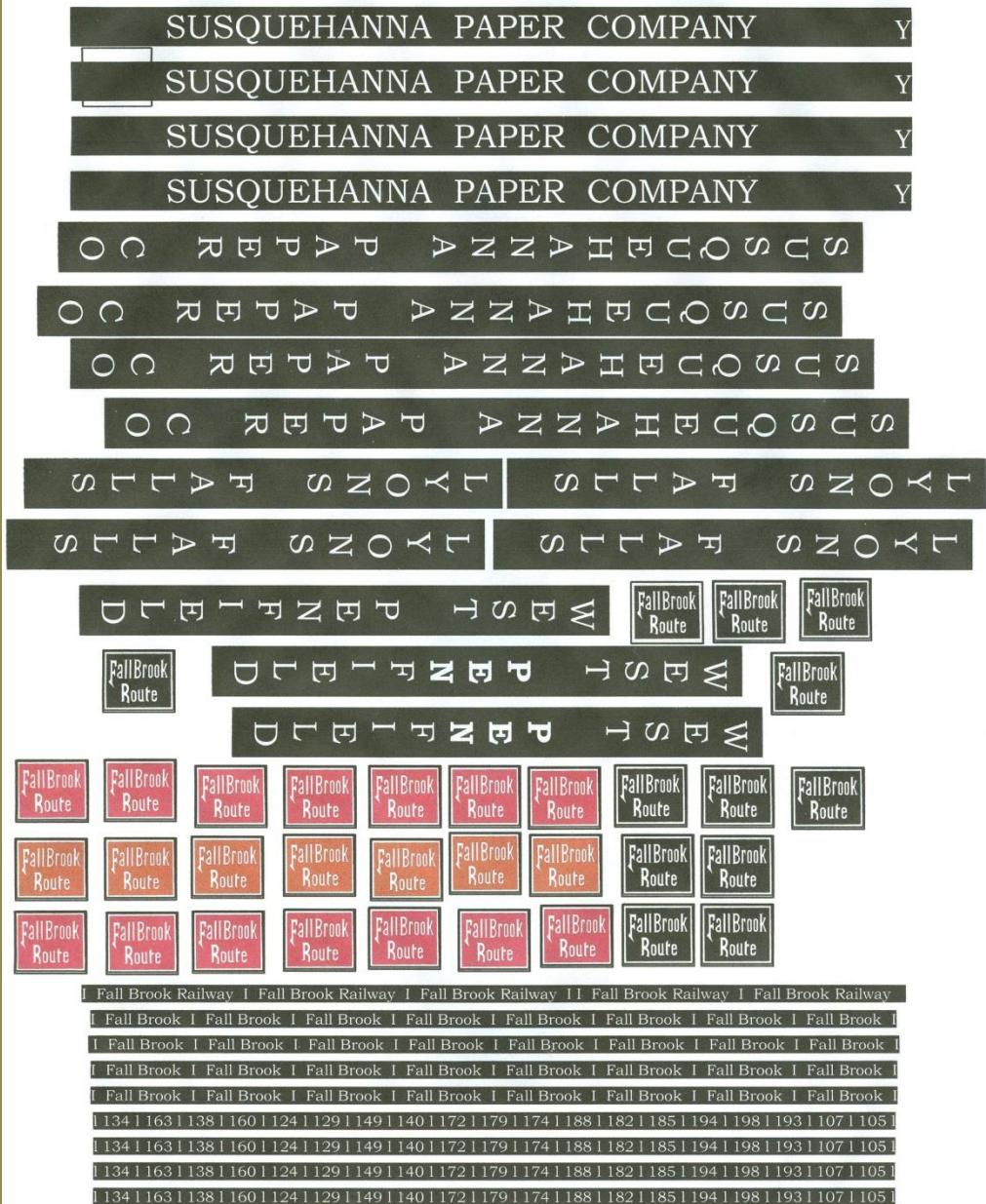


- ✓ The red area of the logo was painted.



- ✓ This was scanned, copied to a Power Point page, and reduced to an size appropriate to HO scale.

- ✓ A second logo had the color changed to black for red cars.



- ✓ The copy feature was used to repeat the logo as many times as needed to a master sheet.
- ✓ Other lettering was added to fill the master sheet, and it was printed onto a sheet of white decal paper.

- ✓ The page with the Fall Brook logo was copied onto a Power Point page with the “Print Screen” Feature.
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- ✓ Other lettering was added to fill the master sheet, and it was printed onto a sheet of white decal paper.



Paper copies to check size, location, etc.



Fall Brook 134

CAPY.
LAD LMT
LT WT

100000
100000
89200

Fall Brook
Route

Fall Brook

205

CAPY.
LAD LMT
LT WT

100000
131800
87700

Fall Brook
Route

Fall Brook

398

CAPY.
LAD LMT
LT WT

Good Luck and
Don't be afraid to try.

Nothing is perfect the first time!