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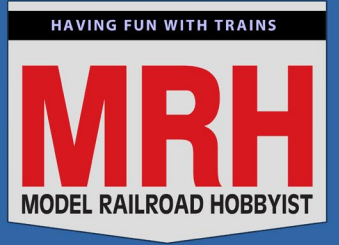


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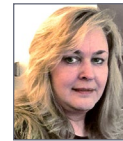


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Editorial Staff



Joe D. Fugate, Publisher and Editor



Patty Fugate, Pasteup and Layout



Richard Bale, News and events



Jeff Shultz, News and events, Tech Assistant



Joe Brugger, Copy Editing



Mike Dodd, Copy Editing

Advertising

Les Halmos, Account Manager
Daniel Nava, Advertising Assistant
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Columnists

Larry Smith, Narrow Gauge/Shortlines
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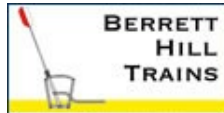
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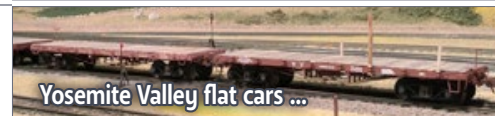
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Yes, it's a model

Compiled by JOE FUGATE



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Compiled by the MRH Staff



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NEWS and EDITORIAL

Publisher's Musings

JOE FUGATE

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Scene and photography by
Ken J Johnson
First test model shown



PUBLISHER'S MUSINGS



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JOE FUGATE: ADAPTING MRH TO THE TIMES ... BIG CHANGES COMING IN NOVEMBER TO MRH

IN MY JUNE EDITORIAL, I TALKED ABOUT what's happening with MRH and ad placements. We inaugurated donations in that issue and those have been helpful – thank you to the many of you who have donated! We greatly appreciate it.

However, as I suspected, the donations have dropped to a trickle and I'm not interested in hounding anyone for more donations. Actually, I never expected donations to be a long-term solution to eroding ad placements.

So as of November, we're making a big change – we're splitting MRH into two versions:

1. **MRH Free edition**, downsized to fit the ad revenue funding. The new smaller MRH will be about 150 pages with the ads, the cover story, and several of our most popular features. Although smaller, when compared to the paper magazines the smaller still free MRH will have 60-70% of the text and twice the photos of the ~80 page paper magazines. It will be no slouch by any means for a free mag.
2. **MRH Premium edition**, \$1.99 per issue or \$19.99 for an annual subscription. The first ~150 pages will be the free edition with ads, and then have *another* 150 pages of all meat articles without ads.

PUBLISHER'S MUSINGS | 2

Compared to the paper magazines, the MRH Premium edition will have 60-70% more text and *four-to-five* times more photos.

The Premium edition will be most like the current magazine, although have just a bit more content. Namely we are adding a new column by Jim Six called *The Limited Modeler - how to do more with less*.

What happened to "Forever Free" ... ?

If you look closely, we removed the *Forever Free* slogan from the magazine cover in January of 2015, opting instead to just say FREE and be done with it. No promise of free beyond just that given month.

We still have a free version with this change, we're simply downsizing to what the ad revenue pays for, not unlike how the paper magazines have downsized over the years, also due to declining ad revenue.

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PUBLISHER'S MUSINGS | 3

We dropped the "Forever Free" slogan from the magazine three years ago because we realized we can't control the future, as much as we might like to. So we figured we would just promise that issue is free since that is a promise we can stand behind.

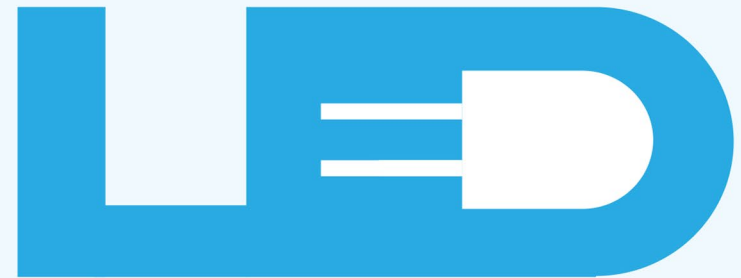
Now we're declaring exactly what we're doing up front with this new free/premium edition split. We prefer to openly explain to you what we're doing and why.

Some background: Advertising trends year-over-year

Let's look at exhibit A - MRH ad placement trends for the last two years. Let's compare the number of sponsors two years ago (July 2016) with the number of sponsors this last July ...

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1. MRH Sponsoring advertisers from the July 2016 issue.

2. MRH Sponsoring advertisers from the July 2018 issue.

PUBLISHER'S MUSINGS | 6

We went from 55 sponsors in July of 2016 to 36 sponsors in July of 2018, more than a 35% drop. The number is stabilizing for now, but with some web savvy work its possible for manufacturers and resellers to leverage Google, Facebook, and YouTube ads instead of relying only on static ads in *Model Railroad Hobbyist* magazine. This trend is affecting all ad-supported websites.

The new all-access option

In addition to the new premium subscription, we're offering a 1 year full-access membership that gives you full access to all premium back issues plus all of TrainMaster TV for a special discounted price.

These will be available soon for "early bird" ordering if you want to do that. Watch for an email announcing their availability later in September.

Q&A on this change

Q. How does this compare to the paper magazine value since your pages are somewhat different from the paper magazines?

A. Here's an apples-to-apples comparison of value:

Model Railroader - August 2018 issue

84 pages, ad ratio: 45%

Total non-ad content: ~21,000 words, 88 photos

Cost per 1000 words: 15 cents (assuming \$6 newsstand price)

Cost per dozen photos: 41 cents (assuming \$6 newsstand price)

Model Railroad Hobbyist - August 2018 issue

290 pages, ad ratio: 11%

Total non-ad content: ~33,000 words, 323 photos

Cost per 1000 words: 3 cents (assuming \$1.99 per issue pricing)

Cost per dozen photos: 4 cents (assuming \$1.99 per issue pricing)

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PUBLISHER'S MUSINGS | 7

Q. Will single issues be available, or do I have to buy an annual subscription?

A. Yes, you can always buy singles issues of the premium edition for \$1.99 each.

Q. Why not just admit the ad-supported model has failed and move to all paid magazines?

A. Because the ad supported model still works, only it doesn't support as many pages now.

Notice the paper magazines didn't fold when ad placements declined, they just downsized. That's because their business model had not failed outright, it just had to be realigned to reality.

Same with MRH, ad-supported still works, just not for such a large magazine any longer.

Q. What about those who donated, can they get a free premium subscription?

A. If donors wish, we're happy to apply their donation toward a premium subscription.

PUBLISHER'S MUSINGS | 8

Q. With a paper magazine, when I pay for a subscription, I get access to those issues forever. Will that be true with a premium MRH subscription?

A. Yes, when you get a premium MRH subscription, you get forever access to the next 12 premium issues. If you ever lose a copy (hard disk failure or whatever), then you will be able to get new download links for the issues you paid for and lost.

Q. Will readers of the free edition be able to see what else is available in the premium edition?

A. Yes, the table of contents in the free edition will have a page listing the premium edition articles but grayed out. There will be an "access these articles for \$1.99" button there, allowing you to purchase the premium edition at any time if you so decide.

Q. Can we get a subscription for more than a year?

A. For accounting reasons, we prefer to keep the subscription term to no more than one year. The annual subscription will include an auto-renew feature so you won't lapse on any issues and it will be hassle-free. You can always cancel the auto-renew at any time.

Signaling article has been delayed a month

Jason Miller's signaling article, announced in the coming next issue section last month, has been delayed a month. This is a rather technical subject and we want to make sure we do it right, so it is as easy to follow as possible.

This is a multi-part series, so the first part will be next month, and the other parts will be in the new premium edition in the following months.

MRH CONTEST: "California Basement" Challenge

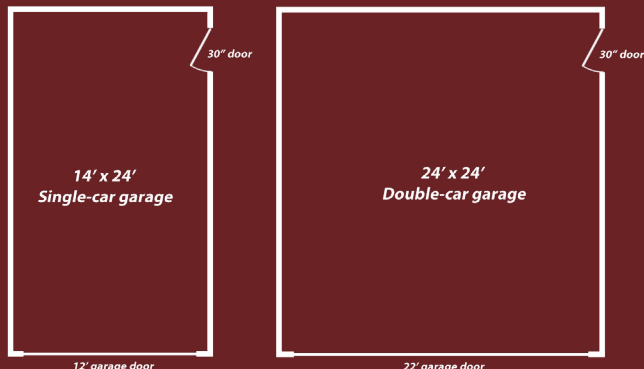
**\$1000 GRAND PRIZE • \$500 FIRST PRIZE
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**Goal: Design a layout for a one- or two-car garage
(your choice). ENTRY DEADLINE: FEB 28, 2019**

**Two room-size
choices:**

**Single car garage
(14'x24')**

**Double car garage
(24'x24')**



Note: This is a wide open home layout design contest using any design approach. This is not a modular-only contest like with past contests.

CONTEST RULES

- Scale: Z-G, standard or narrow gauge.
- Draw up a final track plan and write up the design to be published. Extra points awarded for a high quality track plan, text, illustrations, photos, and captions.
- Describe the layout theme, rationale, and era (if any).
- Outline the basic construction methods you would take if you were to build this design. Extra points awarded for innovative thinking.
- The car does not need to go into the garage, you can use the entire space. However, the garage door does need to remain functional, it cannot be sealed shut, so describe what you will do to deal with that need.
- Beyond that, pretty much anything goes. Have fun and let's come up with some interesting track plans for a garage.
- All submissions must be publishable. If the submission is not formatted to be ready for publication, it will be disqualified. Take the time to be complete, provide captions, and to describe things completely in your text. See the [MRH submission guidelines for more information](#).
- The best submissions will be published.

SUBMIT ENTRY (Choose "Contest entry")

New MRH "California Basement" Challenge layout contest

The staff continued to discuss the next layout design contest and we decided to change it around some from what I outlined last month.

We've seen more than a few spare room design contests, but don't recall any layouts-in-a-garage design contests. So here you go! Design a layout for a garage, either a single-car garage or a double-car garage.

As I mentioned in the last issue, this contest is a general layout design contest, it's not a TOMA-specific contest like we've done in previous years. High time for something different!

The deadline is February 28, 2019, so sharpen your pencils (or warm up your mouse finger) and start designing some interesting garage layout designs.

Grand prize is \$1000, and first prize is \$500. We'll also do two honorable mentions with a \$250 prize each.

Size won't matter. We will be focusing more on how interesting, well-thought out, and how innovative the design is, regardless of size.

Plus, we will be publishing the winning designs so we all can benefit from them.

**VIEW READER
COMMENTS**

click here

★ LAST ISSUE'S RATINGS

The five top-rated articles in the [August 2018 issue](#) of *Model Railroad Hobbyist* are:

- 4.8 DCC Impulses: Speakers for DCC sound
- 4.8 Modeling pulpwood loads
- 4.7 Getting Real: The team track
- 4.7 How to operate like a pro
- 4.7 Ken McCorry's Conrail

Issue overall: **4.9**

Please rate the articles! Click the reader comments button on each article and select the star rating you think each article deserves. Thanks! ■

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2018 National
Train Show, p1



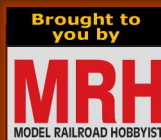
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MRH ... QUESTIONS, ANSWERS, TIPS



Model Railroad Hobbyist | September 2018 | #103

compiled by JOE BRUGGER



Peco Insulfrog shorts

Q. I'm new to model railroading and here is my first issue. I just constructed a 9' x 12' DCC HO layout using Atlas flex track. My turnouts are all Peco Insulfrog turnouts. Most of my engines run fine on the layout but a few short out on certain turnouts. I have 2 NRE Gensets by Atlas – one runs just fine and the other shorts on most of the turnouts. Any suggestions will be greatly appreciated. I also have two or three engines that derail on certain turnouts as well, when going in reverse.

—Richie 1925

A. Prof Klyzlr: Sounds like some of your locos may have wheelsets which are out of gauge. I suggest getting hands on an NMRA standards gauge and making sure all wheels are the correct distance apart.

▶ MRH QUESTIONS, ANSWERS, AND TIPS

Such a problem can create both electrical (shorting on turnouts) and mechanical (derailing on turnouts) symptoms and would explain why some locos appear OK while others do not.

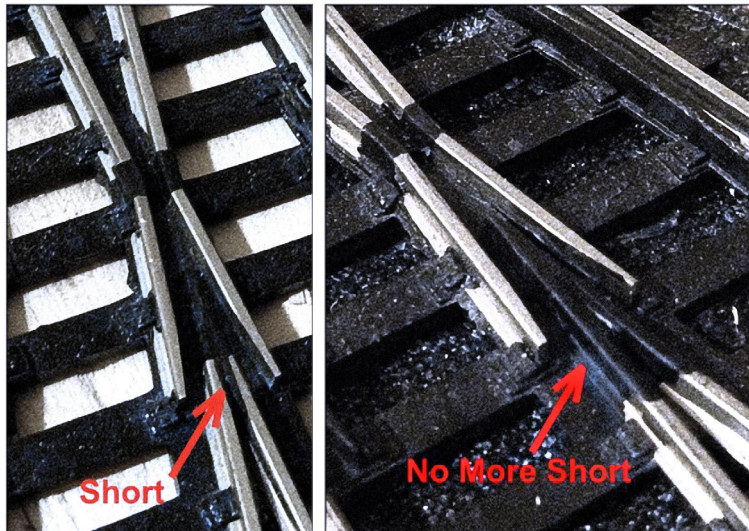


EDITOR'S NOTE

If all wheels on a truck are not sitting flat and square on the track, the same problems can appear.

reach the point of the frog. I think the only remedy is to dab some clear nail varnish on the rails at the 'V' where they nearly touch.

Tony: Peco Insulfrog points are, counter-intuitively, more likely to produce shorts than Electrofrog points. The usual reason is that wider wheel treads touch the tip of the other frog rail as they



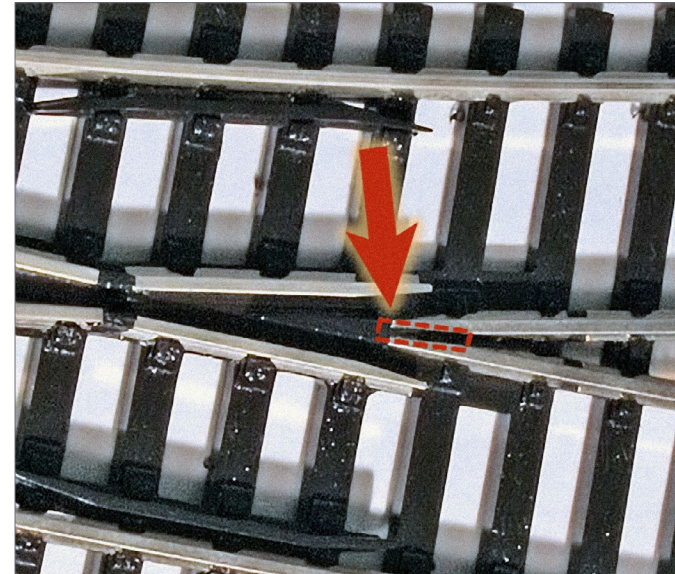
1. Wheels that have a flat tread and aren't properly tapered can bridge the gap where the arrow points to 'Short.' Insulating the area with paint can solve the problem, if the paint holds up. *Bill Brillinger photos*

Worked well for me but will have to be renewed periodically. Also see Allan Gartner's www.wiringfordcc.com/switches_peco.htm for tips on improving electrical continuity.

Bill Brillinger: My solution to the same issue was first to paint the frogs [1], which worked fine until the paint wore off. Then I cleaned off the paint and applied very thin super-sticky 0.03 mm sign vinyl to the frogs and there has been no issue ever since.

Joe Fugate: Here's an easy permanent fix -- even if the turnout is already in place on your layout.

Look at the photo [2] of a Peco Insulfrog turnout frog and notice where the arrow is pointing. The insulation where the two converging rails almost come together on the plastic frog is thin enough that a wheel tread can sometimes bridge the two rails and cause a short.



2. Use a cutoff disk to grind away some of the rail inside the 'V' of the frog, to widen the gap between the rails and prevent short circuits. *Joe Fugate photo*

MRH Q-A-T | 4

The fix is simple: Using a motor tool with a cutoff disk, grind down the spot inside the red dotted line shown in [2] to make a groove, widening the gap between the two rails. It doesn't take much – even grinding a groove 1/32" deep will be enough. Then, super-glue some black styrene (a sliver from an extra turnout tie will work fine) in the groove, trim it flat with a fresh single-edged razor blade, and you're done! The turnout has been fixed, *permanently*.

Brian: Doesn't increasing the length of that 'insulated' section of track at the frog increase the stalling potential of locos?

Scott Chatfield: You're keeping the outer part of the wheel tread, not the flange and fillet, from touching the opposite rail. I've done what Joe described, except I just used a little cheap CA instead of a bit of plastic. Pour a bead, hit it with accelerator, and file it down. Problem fixed.

[A dab of well-mixed JB Weld epoxy can also fill the groove and will not conduct electricity. It is black after it is mixed and can be shaped with a file or sandpaper after it hardens.]

Read and comment on the thread at mrhmag.com/node/19373.

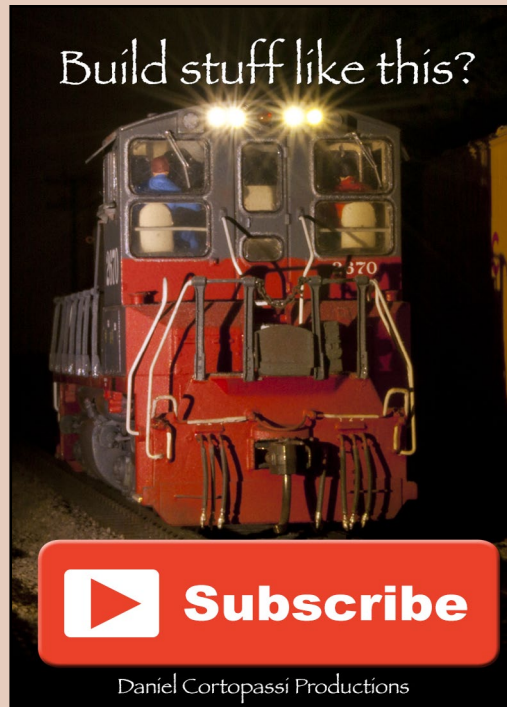
The Peco instructions for Insulfrog installation are at brunelhobbies.com.au/PECO/Insulfrog_Instructions.htm.

NCE cab savers

Q. I just saw in the May *MRH News* there is an NCE Cab Saver. It is supposed to protect the potentiometer from being mashed into the frame by operators. I have three Cab04s I would like to try this on. Has anybody has tried them. Pros? Cons? Feedback?

—Matt (ATSF104)

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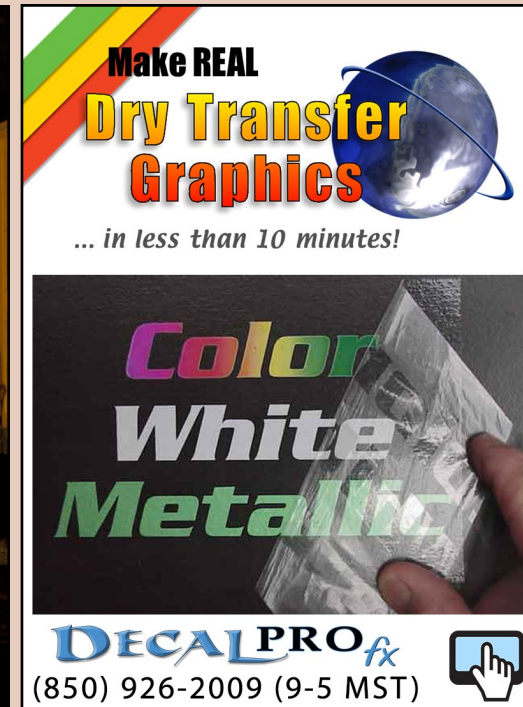


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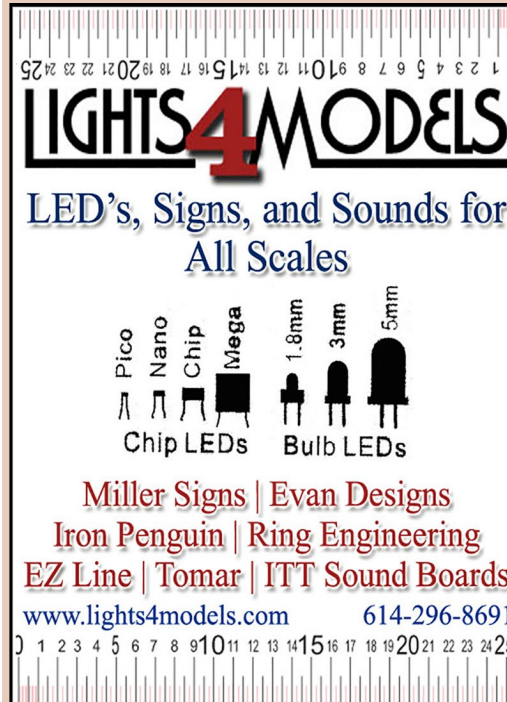


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A. AzBaja: I have used NCE cabs with the Cab Saver on them in multiple operation sessions at the maker's railroad. The Cab Saver keeps people from pushing the knob in the X/Y plane, breaking the pot away from the board inside the NCE cab, or damaging the pot itself. One ops night, a brand-new NCE cab, right out of the box, was broken within the first 30 minutes of that operation session, putting us down one cab.

You do not notice the Cab Saver in normal operations. He has color-coded his, red for Southern Pacific and blue for Santa Fe.

Rick Watson: I am the creator of the Cab Saver. It was designed after I had a brand new Cab06PR fail during its first operating

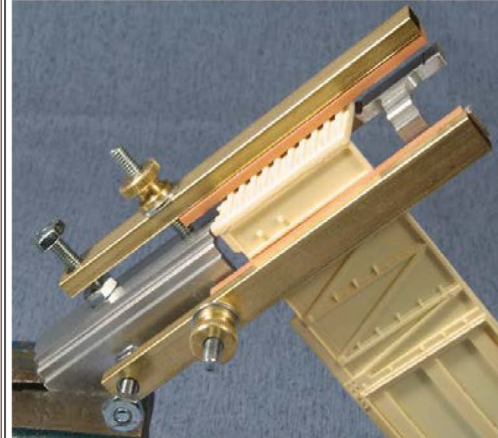


3. Cab Savers are laser-cut acrylic spacers to install between the case and the knob on NCE system Cab04 and Cab06 throttles to limit rocking of the control knob and prevent potentiometer failures. The 'square hole' keeps them from rotating. They are made in multiple colors.

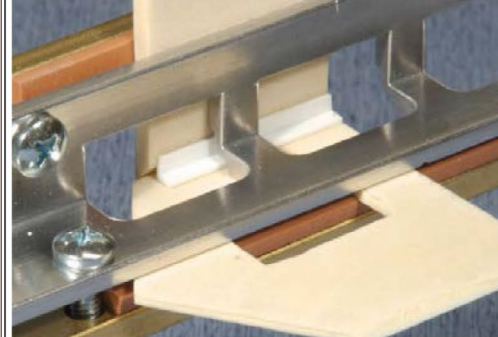
Cab Savers photo

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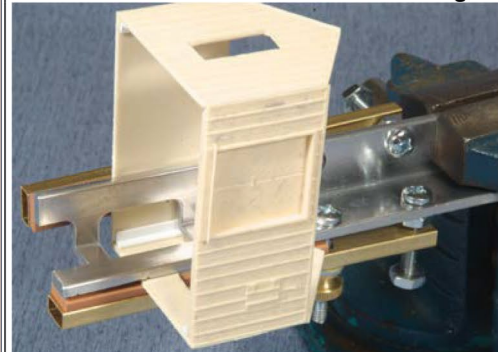
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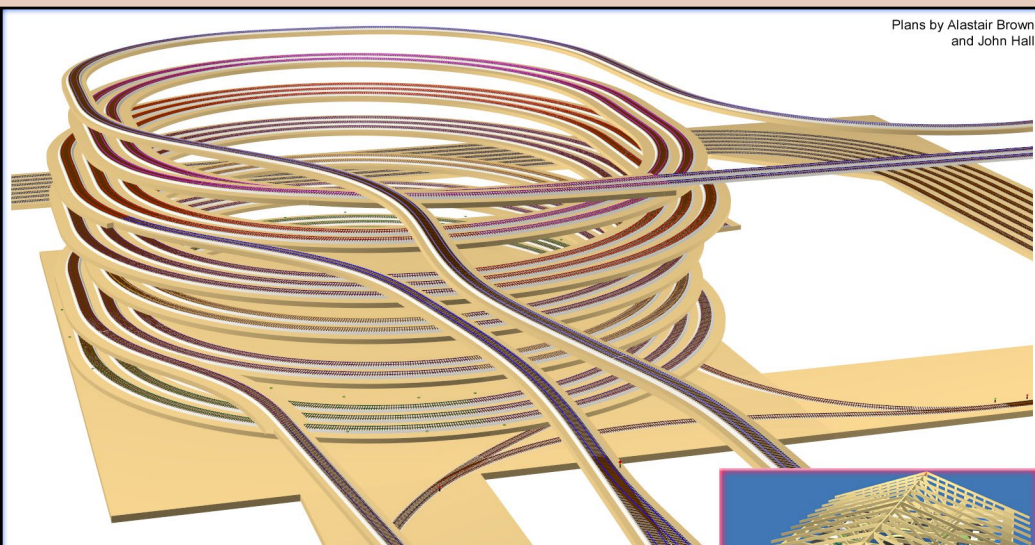
When talking to hobby vendors, please remember to mention MRH.

session, as AzBaja noted. It was not due to heavy-handed operators, but due to excessive lateral rocking of the knob. Many operators use their thumb on the side of the knob to move the throttle. Due to how it was manufactured, the knob was able to rock and that caused the potentiometer to fail. Three other throttles on my railroad, from the same order, have excessive play as well. I had to replace the pot of the first one, and wanted to avoid future failures, so I created the Cab Saver. If you have questions, my email is TheCabSaver@gmail.com.

The opening in the center is designed to fit snugly around the potentiometer housing. It has an adhesive backing that can be used to affix the Cab Saver to the throttle. I leave the protective backing on and don't affix the adhesive. But it's there for folks who want it.

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Now that's a helix! How can I make one?

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Gsinos: It's a simple product. Just a piece of plastic that is thick enough to eliminate any slop on the throttle knob. If the knob can't move or rock against its mounting points, it's less likely to break.

You could easily make one yourself, but it's the old question: How much is your time worth? The price doesn't seem out of line. Not much to risk. If nothing else, putting a different color on each throttle makes them easy to tell apart.

Phil Hartung: I purchased three for my Cab04Ps. EASY install. I picked colors that go with my railroad (Missouri Pacific - dark blue, light blue, and red). It's easier to give a cab to an operator for the day based on color. Then they know which cab is theirs when they set it down next to another cab.

Ken Ford: These would be very useful for the Digitrax UT-4 series of throttles, too. I purchased these more for color coding than for limiting motion of the potentiometer. I ordered it and did direct payment with PayPal. Had them in 3-4 days.



4, 5. Felt furniture pads are a homemade solution to protecting NCE DCC cab controls. The pads are available in 1" (left) and 1.5" (right) sizes and allow tuning the amount of drag on the control knob. *Jim Moomaw photos*

Jim Moomaw: This answer allows adding friction to the control knob, so a throttle will spin less freely. Our home-brewed solution uses self-adhesive felt pads (www.homedepot.com/p/Shepherd-1-in-Heavy-Duty-Self-Adhesive-Felt-Pads-48-per-Pack-9972/100392358?MERCH=REC--PIPHorizontal2_rr--100389357--100392358--N). Some local club guys prefer the cleaner look of keeping the pads hidden under the knobs. I included a pic of the larger (knob on) and smaller (knob off) pads on a throttle. Our club has 1” pads installed as in the knob-off picture [4]. I used an X-Acto blade to cut out the square to fit around the pot. Tighten the knob against the pad with the amount of friction you like.

Bill Decker uses the 1.5” pads on his well-known Southern Pacific layout. “This is a cheap and effective solution that allows me to adjust the amount of friction,” Bill said. “Cab Savers are 3D-printed ‘washers’ to put between the case and the knob. One can get a bit of friction with these, but there is a lot less adjustment range available. Still, it is a clean, commercially produced solution.”

“By the way, Rick has a good switching layout – SP Exeter Branch – operating, and a new larger layout representing SP in the LA Basin – also switching.”

Here is a link: www.facebook.com/cabsaver1.

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TIPS

Make your own photo booth

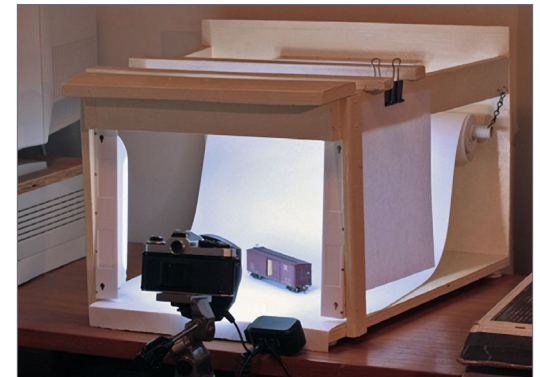
For model photography, build a wooden stand that supports a roll of paper and uses under-cabinet LED lighting strips for illumination. The paper is an 18”-wide roll of white drawing paper used on children’s art easels and sold in craft stores. The lights are 10-LED units with an ultra-wide beam that can be mounted flat or snapped into a 45-degree bracket.

A lighted photo background is convenient if you find yourself cobbling stuff together and taking it outside to shoot. This one has worked well for about five years. It originally had clamp-on lights, but they got in the way and it was hard to get soft lighting and minimize shadows. Adding LED strip lights and a ring light on the camera improved things greatly.

The stand is narrower at the front than at the back to make it easier to reach through the sides to position the item to be photographed. A piece of white paper attached with a binder clip reflects light into shadows.

I used leftover wood and plywood to make a framework that supports the background paper and lights. The dimensions are not critical – mine is 22” at its widest, 22” deep, and 15” high. It works fine for HO scale.

6. Scrap lumber, drawing paper, and LEDs make up a versatile fixture for photographing small objects in perfectly controlled lighting. Battery-powered LEDs don’t need a tangle of cords and emit little heat. *Charles Hepperle photo*



MRH Q-A-T | 10

Felt-padded furniture “feet” protect the table top the stand is used on. A piece of 3/4” O.D. PVC pipe with lightweight chain and a cup hook on each end supports the paper roll. When the paper gets dirty, trim the part nearest the camera to about 15” wide and pull out some fresh paper.

A wide variety of under-cabinet LED strips are available. This one is powered by three AA batteries and has a choice of a manual on-off button or a motion detector. It comes with a 45-degree snap-in mount. Normally, only one vertical LED strip would be used at a time. Having two mounts makes it easy to snap the light into one or the other without tools.

Overhead, an LED strip in a 45-degree mount provides general illumination. A pair of 1” x 2” boards each have an LED strip mounted flat using the included screws. The boards are 20” long, and rest on the top of the photo stand framework so the lights will shine straight down. They can easily be moved around or taken away if access from the top is needed.

It can be difficult to judge the color of a single item by itself, so test it by adding other objects in various colors. If your camera has a white-balance control, try different color temperatures to see which you prefer. This one looks good at 6000 degrees K. If your camera does not have manual controls, its automatic white-balance feature should work OK.

Be sure to support the camera to avoid blurring because the shutter will be open longer than normal.

—Charles Hepperle



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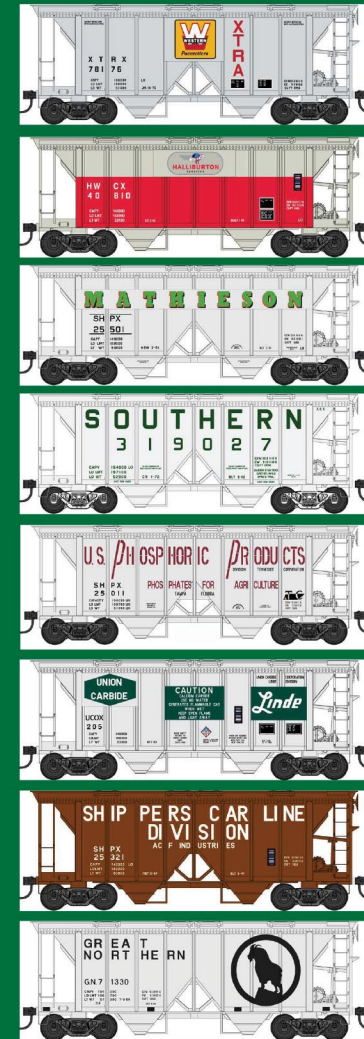
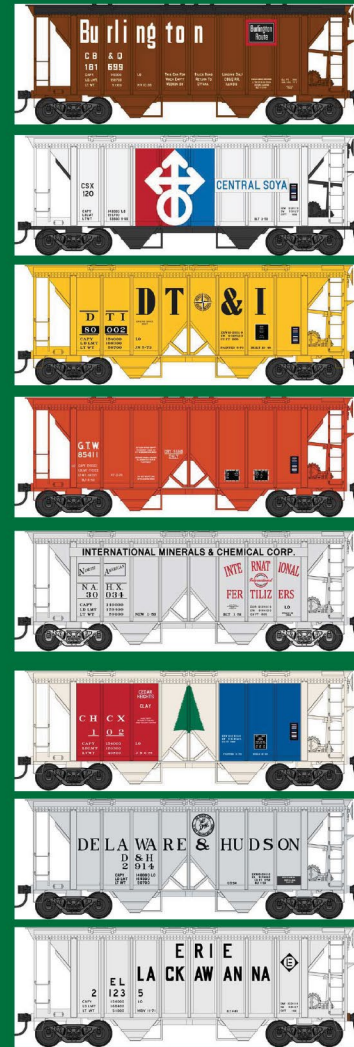
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ELECTRICAL IMPULSES

column



Model Railroad Hobbyist | September 2018 | #103

MICHAEL WOLF SHOWS
HOW TO AVOID THE DREADED
DIGITRAX SLOT=MAX
MESSAGE USING JMRI ...



**FOR OWNERS OF THE
ORIGINAL DIGITRAX**
Zephyr command station (DCS50),
the management of available slots
became an important task – espe-
cially when using the system to
control a small- to medium-sized
layout with plenty of motive power
and throttles.

Without good available slot
management, the dreaded
SLOT=MAX message would
appear or visitors to the layout
would start complaining that they
couldn't acquire a new locomotive
with their throttle.



OUR NEW COLUMN

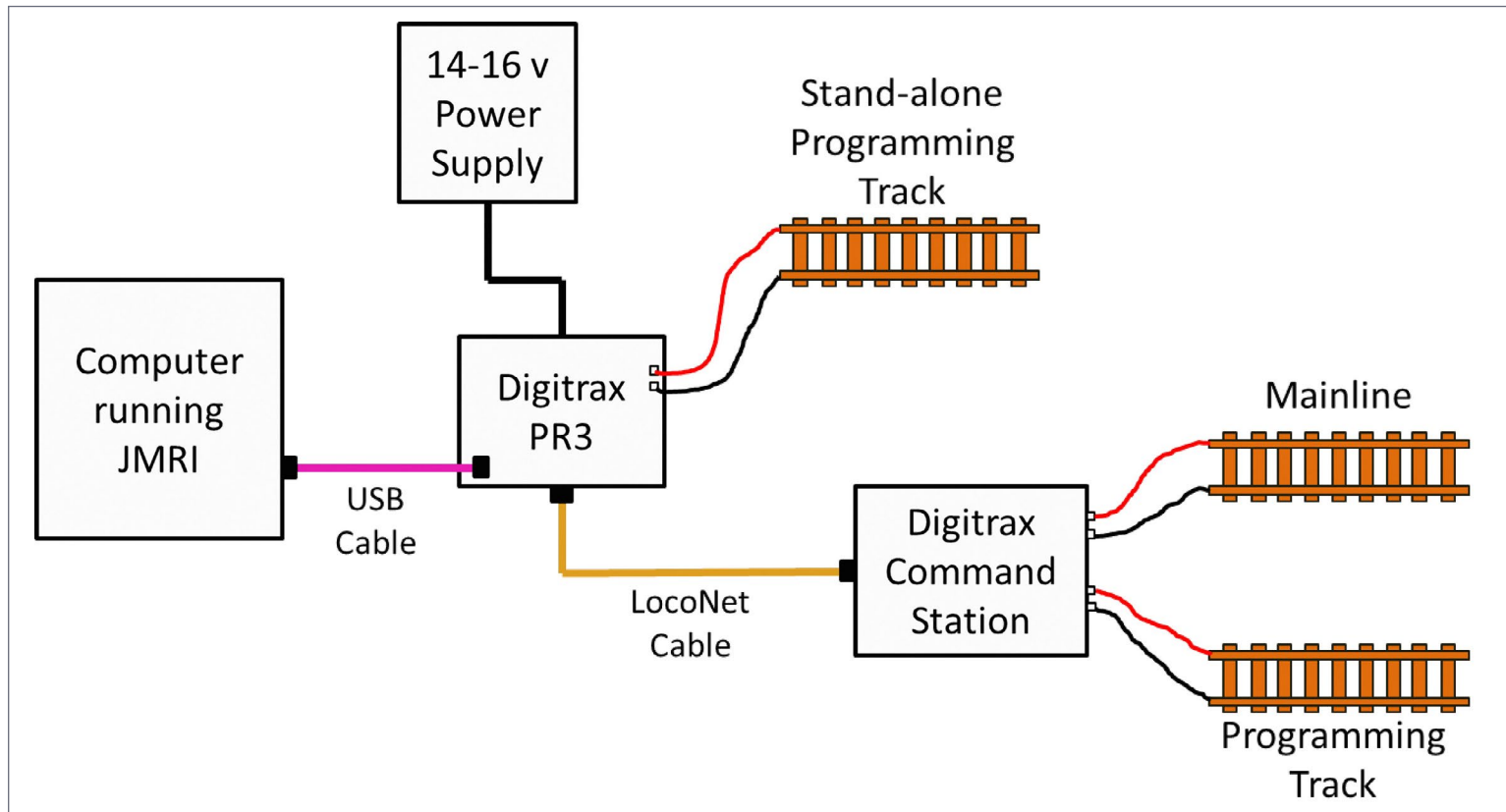
With the
retirement of Bruce Petrarca
as our DCC columnist,
we're inaugurating a new
column this month in its
place. This new column is
broader in scope than just
DCC and it will have many
authors. We'll still cover
DCC, but if it involves
electricity, then it's a
potential topic here.

▶ ALL-THINGS-ELECTRICAL FOR MODEL RAILROADING

Fortunately, there is a good solution!

In addition to making decoder programming easier, the Java Model Railroad Interface (JMRI) contains a tool to monitor and manage Digitrax slots.

In a sidebar, I also look at another LocoNet tool built into JMRI to simplify adjusting the settings of the Digitrax PM42 Quad Power Manager.



1. Schematic of the PR3 configuration used to interface my laptop to my Digitrax DCC command station. The PR3 can operate as both an interface and a stand-alone decoder programmer.

Digitrax Slot Management

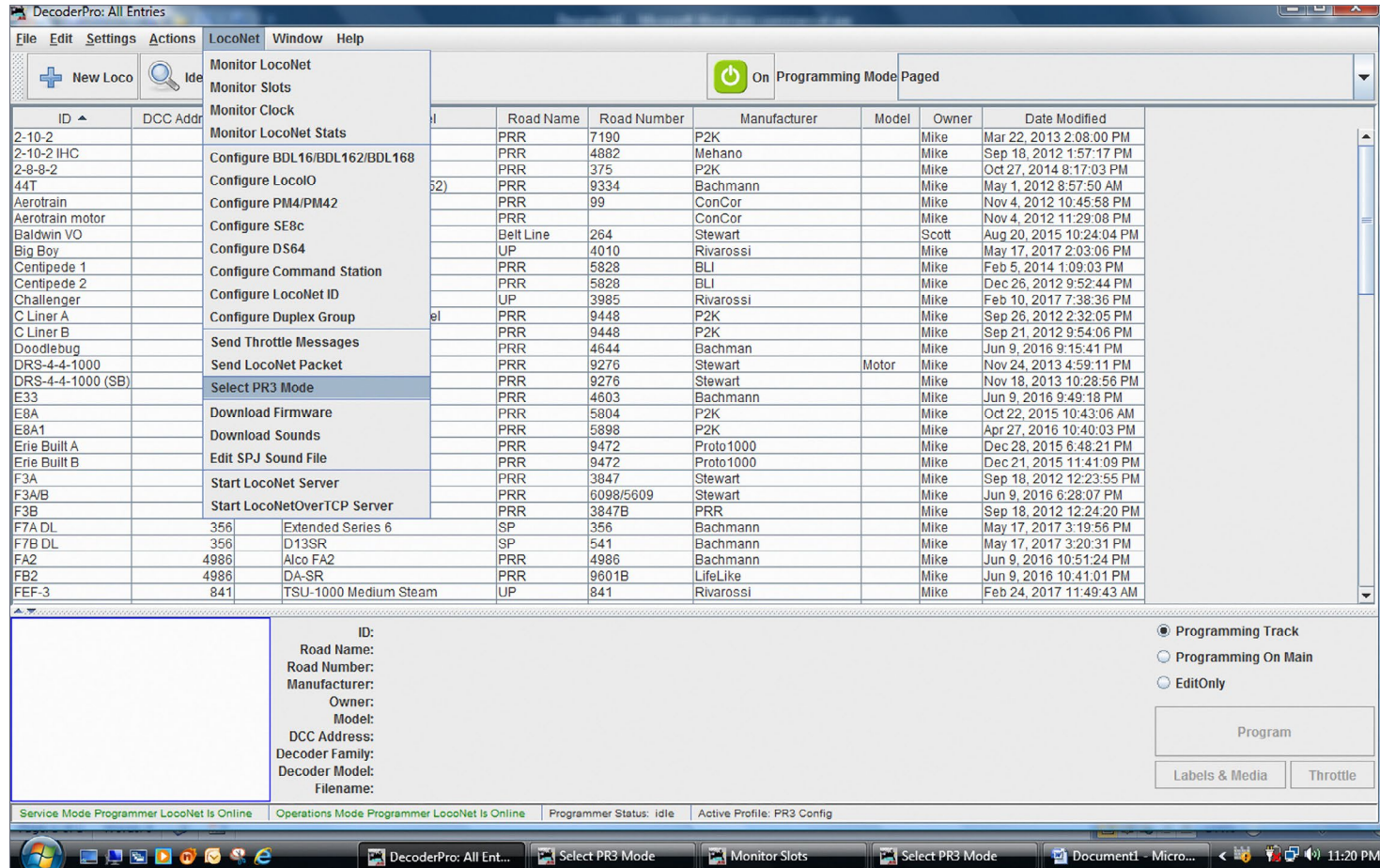
A “slot” is Digitrax speak for a memory location within the command station that holds an active decoder address. The number of slots is the number of locomotive addresses that the command station can communicate with at one time.

Operators *Acquire* (obtain a slot) to pair their throttle to a specific decoder address, and *Dispatch* to release that slot. The original Zephyr contained 10 slots. While the Zephyr Xtra (DCS51) increased the number of slots to 20, during an active operating session with numerous rotating operators, locomotives, and throttles, those slots can fill up quickly.

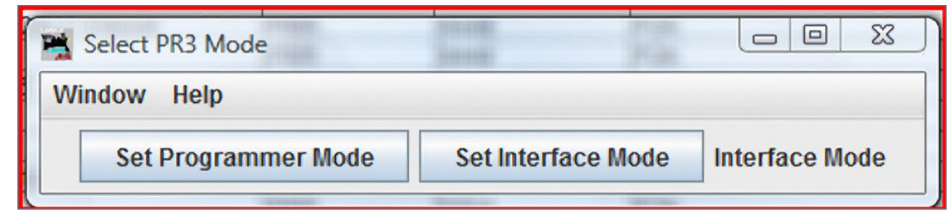
Prior to using the Slot Monitor tool, I would typically set Option Switch (OpSw) 38 to closed to clear all locos from the roster. Unfortunately, that brute-force slot-clearing method also clears out any Universally consisted locomotives (i.e. the command station has paired up two or more locomotives) information also. (Note: the Option Switch used to clear all slots varies by command station. Check your owner’s manual for your specific model).

The JMRI Slot Monitor tool is much more precise and can also be used during an operating session without making everyone stop what they are doing so you can reset the system (and then requiring everyone to reacquire their locomotives).

In his “DCC Impulses” column, Bruce Petrarca discussed installing JMRI and connecting a computer to the Digitrax



2. Before using the Monitor Slots tool, the PR3 must be in Interface Mode. It's easy to check and change from the main tool menu in Decoder Pro.



3. Two buttons are available to quickly change the PR3 from Programmer to Interface Mode.

LocoNet, so I won't rehash that topic (see MRH July 2012 - mrh-mag.com/magazine/mrh-2012-07-jul/dcc_impulses). On my layout, I use a Digitrax PR3 as the interface between my laptop and the command station [1].

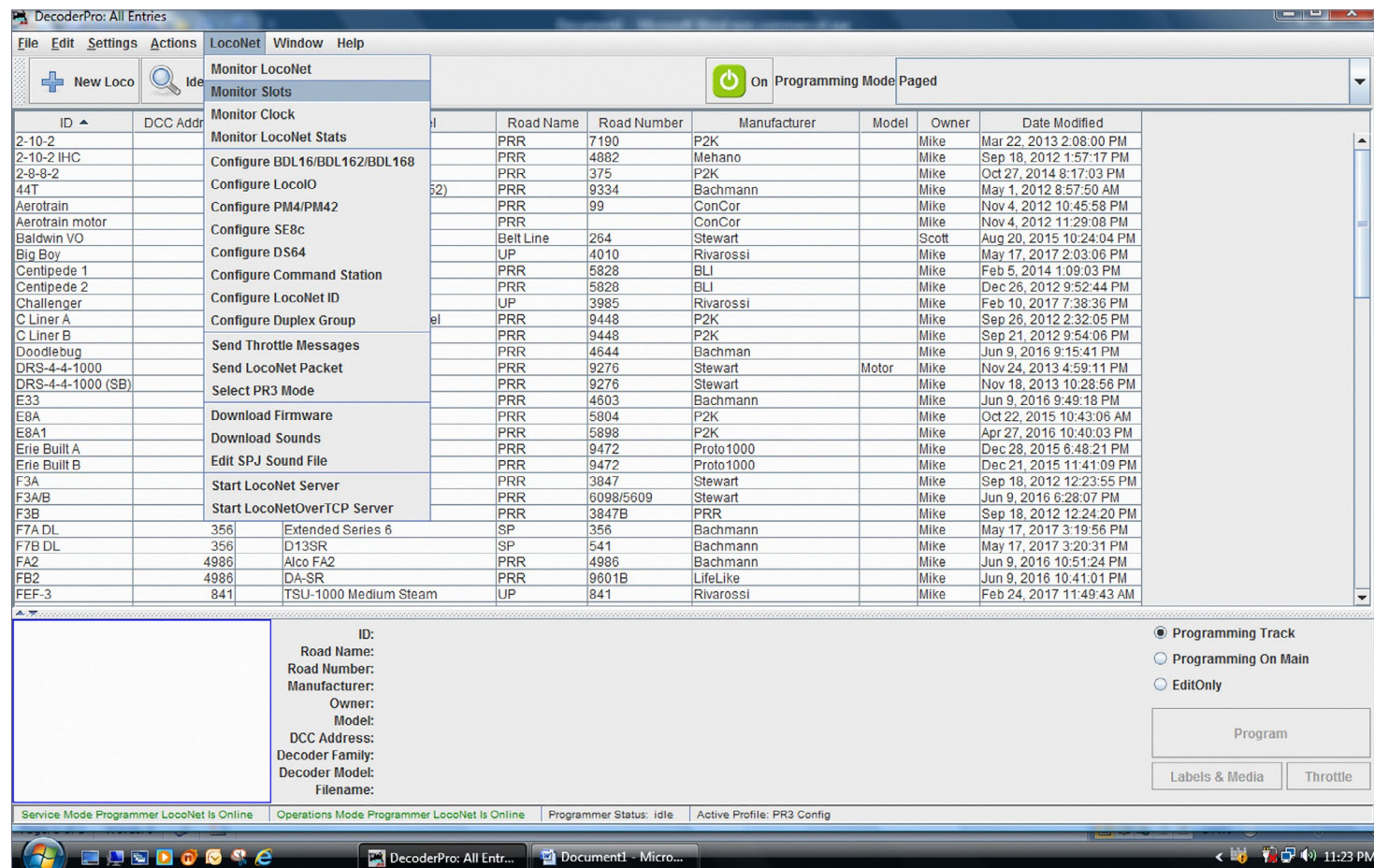
Other interface units like the LocoBufferUSB should function similarly to the PR3. Since the PR3 can interface with the LocoNet (Interface Mode) or communicate with a decoder on its own programming track (Programmer Mode), the first step in using the Slot Monitor tool is to ensure the PR3 is in the Programmer Mode.

From the main JMRI toolbar, **Select LOCONET** and then **Select PR3 MODE** [2].

You then get a series of buttons to allow quickly changing what mode the PR3 is operating in [3].

Once the PR3 is set to Interface Mode, return to the main toolbar, select **LOCONET** and then select **MONITOR SLOTS** [4].

That opens up the Monitor Slots tool [5]. The tool displays a table of the command station slots and includes the decoder's speed



5. The Monitor Slots tool allows easy access to the slots (memory locations) in the command station linking throttles to decoder addresses.

step format, current speed and function settings, consist information and status.

Additionally, there are several useful checkbox and pushbutton options along the top of the screen. Normally, I leave both checkboxes unchecked; however, you can choose to show the unused slots.

Although “system” slots don’t contain locomotive information, you can display all command station memory locations by checking the Show System Slots box.

4. Access to the Monitor Slots tool is obtained via the LocoNet pulldown menu from the DecoderPro main screen.

There are two pushbuttons along the top of the tool. The **E Stop All** button can be used to emergency stop all

ELECTRICAL IMPULSES | 8

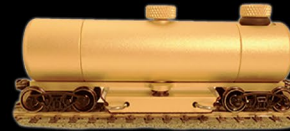
Table 1 explains the columns available in the tool

Slot	The number of the slot
E Stop	Click this button to set the speed of the decoder to emergency stop.
Address	The address of the decoder the slot controls.
Speed	For unconsisted decoders and decoder addresses that are the top of a consist, this is the current speed setting. It's an internal value for consisted slots.
Status	The format of the commands being sent to the decoder, typically either 128 step, 28 step, or 14 step, though other values are possible.
Use	One of the four possible states (see more in the text): Free – Not reserved for any particular use, no contents Idle – Not reserved for any particular use, no contents Common – Not in use at the moment, but still contains valid data for the last decoder to use it In Use – Currently controlling a decoder.
Free	Click this button to free the slot, so it can be reused for another locomotive.
Consisted	Displays the consist status of the slot, whether it's not consisted, the top of a consist, included in a consist, etc.
Throttle ID	The ID of the throttle using this slot. It's displayed as two hexadecimal bytes. The second pair can be configured within the throttle. See the Digitrax instructions.
Direction	Indicated whether the decoder is currently being commanded to go Forward or Reverse.
F0-F8	The current function settings. Check mark indicates the function is On.

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locomotives (i.e. sets the speed to zero and bypasses any deceleration variables used by the decoder). The **Clear All Non-InUse Slots** button does exactly that and is a quick way to clean up slots not being actively linked to a throttle. Table 1 provides more information on the other columns in the tool.

Here's a little more information on the decoder's status (USE row in Table 1). The command station manages the addresses that occupy slots by assigning different statuses to each decoder depending on how it is being used in the system.

This allows the command station to automatically remove, or purge, addresses to make room for other locos to be selected and run. There are two factors that determine the status of each decoder: whether or not it is selectable and whether or not the command station is refreshing it.

Decoder addresses are selectable if they are not being used by a throttle connected to the system. When your command station is running a loco with a specific decoder address, it sends new commands (when something changes) and then periodically refreshes those commands. When the command station refreshes data sent to decoders, it is repeating the previously issued commands.

This ensures that the decoders don't "forget" what they are supposed to be doing. In particular, it "reminds" your decoder if it encounters a power interruption caused by dirty track, or is otherwise momentarily out of contact with the command station, or has lost the DCC signal.

By refreshing the decoder's command data, the command station makes sure everything keeps running smoothly. A summary of how the command station handles decoders various statuses is shown in Table 2.



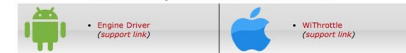
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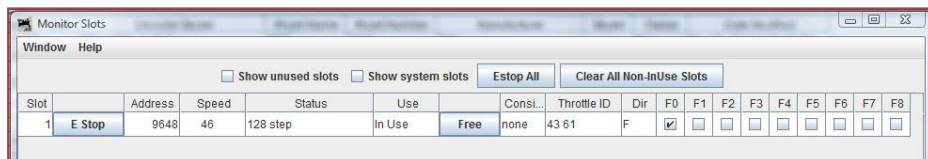
Table 2. Summary of how the command station treats decoders based on their status

Decoder Status	Selectable	Refreshed
FREE or IDLE	Y	N
IN USE	N	Y
COMMON	Y	Y

For example, a decoder in IDLE status can be selected and is not being refreshed by the command station while a throttle in COMMON status is being refreshed.

“Purging” is Digitrax speak for the process by which the command station automatically releases a decoder from IN USE to COMMON when they are not under the control of a throttle connected to the LocoNet.

The purge is temporary – it lasts for 200 seconds to make room for other addresses which can be selected and refreshed by the command station (this number can be changed with some



6. The start of a new session. Throttle 4361 has acquired decoder address 9648, and the command station has assigned this decoder to slot 1. The locomotive is running in the forward direction at speed step 46 (of 128). The headlight (F0) is on.

command stations by changing an Option Switch – see the owner’s manual for specifics for your command station model).

For both tethered and tetherless IR/radio throttles, the throttles periodically send a message to the system to keep them logged into the system so that their locos are not purged. If a throttle paired to an IN USE decoder is not communicating in LocoNet for more than about 200 seconds, the command station will change the status of this IN USE decoder to COMMON so that it becomes available for selection by other throttles in the system.

When this happens, you will hear three beeps from the command station. If the throttle that has been purged is plugged in again, it will attempt to log on to the system where it left off. If the addresses that were previously IN USE on the throttle have

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not been selected by another throttle, the throttle will automatically re-log on to the purged locomotives and their status will be changed back to IN USE.

Screen captures [6] through [12] show the Monitor Slots tool and provide examples of this information during a recent operating session.

Although I've upgraded to a Super Chief Xtra (with 120 available slots), I still keep the Monitor Slot tool open during an operating

Slot	Address	Speed	Status	Use	Consi.	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop 9648	46	128 step	In Use	Free	none	43 61	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop 7925	0	128 step	In Use	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E Stop 4010	12	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Two more throttles have acquired locomotives 7925 and 4010 (slots 2 and 3). Locomotive 7925 is sitting still with its headlight on while 4010 is moving in reverse at speed step 12.

Slot	Address	Speed	Status	Use	Consisted	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop 9648	(consist)	128 step	In Use	Free	sub(4)	43 61	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop 7925	0	128 step	In Use	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E Stop 4010	12	128 step	Common	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E Stop 4603	23	128 step	In Use	Free	none	43 61	F	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E Stop 6493	0	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. The command station has consisted decoder 4603 (slot 4) and 9648 (slot 1) on throttle 4361. 4603 is the "lead" locomotive and its bell is ringing (F1 activated).

In addition, the operator using throttle 7723 forgot to dispatch (release) decoder 4010 (slot 3) before acquiring decoder 6493 (slot 5). Unfortunately, until someone acquires it, the command station will continue to refresh it with a speed of 12 since its status has changed to COMMON.

session to solve problems caused by stray electrons that have crept into the system from time to time.

One of those strange electron moments came up when a friend was visiting my layout for the first time. Within minutes, the locomotive I was running would periodically stop. He was instantly impressed by this fancy digital command system I had installed.

Although the throttle I used with that locomotive was no longer connected to the LocoNet, the command station had assigned the locomotive to two throttles and periodically would choose the ghost throttle (COMMON status – set to speed step 0) instead of the speed I had set on the throttle I was using at the time (IN USE status).

Change the speed and the locomotive would return to normal. In hindsight, it was a simple explanation, but at the time, it was a Ghost in the Machine.

Slot	Address	Speed	Status	Use	Consisted	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop 9648	26	128 step	In Use	Free	none	43 61	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop 7925	0	128 step	Idle	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E Stop 4010	12	128 step	Common	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E Stop 4603	0	128 step	In Use	Free	none	43 61	R	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E Stop 6493	0	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. The command station has de-consisted slots 1 and 4. Throttle 43 61 is controlling each of these locomotives independently. Additionally, throttle 77 16 (slot 2) has dispatched (released) decoder 7925 and its status has changed to IDLE. The command station will no longer send refreshed command information.

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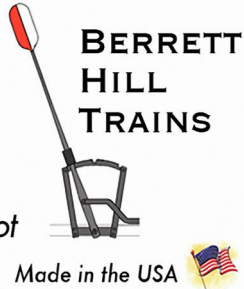


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Slot	Address	Speed	Status	Use	Consisted	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop	9648	33	128 step	In Use	Free	none	43 61	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop	7925	0	128 step	Idle	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E Stop	4010	12	128 step	Common	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E Stop	4603	0	128 step	Common	Free	none	43 61	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E Stop	6493	0	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. The owner of throttle 43 61 (slot 4) left without dispatching decoder 4603. Fortunately, after not "seeing" the throttle for over 200 seconds, the command station changed the status of that decoder to COMMON. Since the command station is still refreshing the decoder, this could lead to the "ghost in the machine" situation discussed in the text above.

Slot	Address	Speed	Status	Use	Consist.	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop	6798	0	128 step	Idle	Free	none	43 61	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop	5804	0	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	E Stop	3985	0	128 step	Common	Free	none	74 6D	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E Stop	5633	15	128 step	In Use	Free	none	75 66	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E Stop	7925	0	128 step	In Use	Free	none	75 66	R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	E Stop	74	0	128 step	Common	Free	none	74 27	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	E Stop	9276	14	128 step	In Use	Free	none	75 0C	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	E Stop	929	0	128 step	Common	Free	none	75 46	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	E Stop	8856	27	128 step	In Use	Free	none	75 2B	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	E Stop	5955	0	128 step	In Use	Free	none	75 32	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	E Stop	4644	0	128 step	Idle	Free	none	77 16	R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	E Stop	4913	0	128 step	In Use	Free	none	75 66	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	E Stop	4828	0	128 step	Idle	Free	none	75 46	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	E Stop	841	0	128 step	In Use	Free	none	74 6B	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	E Stop	5511	0	128 step	In Use	Free	none	74 6D	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	E Stop	8304	9	128 step	In Use	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. During a recent operating session, this screen shot shows a number of IDLE and COMMON slots in use (probably due to operators not dispatching a throttle). Individual slots can be cleared by clicking the FREE button in the corresponding row to release that slot for use by the command station.

Slot	Address	Speed	Status	Use	Consist.	Throttle ID	Dir	F0	F1	F2	F3	F4	F5	F6	F7	F8
1	E Stop	6798	0	128 step	Idle	Free	none	43 61	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	E Stop	5804	0	128 step	In Use	Free	none	77 23	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	E Stop	5633	18	128 step	In Use	Free	none	75 66	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	E Stop	7925	30	128 step	In Use	Free	none	75 66	F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	E Stop	9276	16	128 step	In Use	Free	none	75 0C	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	E Stop	8856	26	128 step	In Use	Free	none	75 2B	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	E Stop	5955	0	128 step	In Use	Free	none	75 32	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	E Stop	4913	0	128 step	In Use	Free	none	75 66	R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	E Stop	841	0	128 step	In Use	Free	none	74 6B	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	E Stop	5511	0	128 step	In Use	Free	none	74 6D	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	E Stop	8304	0	128 step	In Use	Free	none	77 16	F	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. After hitting the Clear All Non-InUse Slots button, all the IDLE and COMMON slots (except one) were cleared. Throttle 43 61 (slot 1) is a tethered throttle and physically plugged in to the LocoNet (but without a battery installed) and therefore didn't clear. Those operating on the layout were unaffected by this action.

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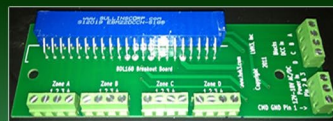
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ELECTRICAL IMPULSES | 17

I opened the Monitor Slot tool, unchecked the F1 block for the loco address, and the ringing stopped. Why? Only the system engineers know (maybe).

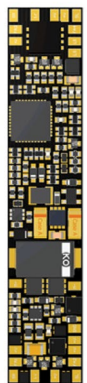
JMRI is much more than just DecoderPro – not only does it provide the slot management tool, it also includes a tool for PM42 programming (see sidebar).

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ELECTRICAL IMPULSES | 18

If you are a Digitrax user, hopefully these two tools can save you time and reduce your frustration in managing these aspects of your Digitrax DCC system.

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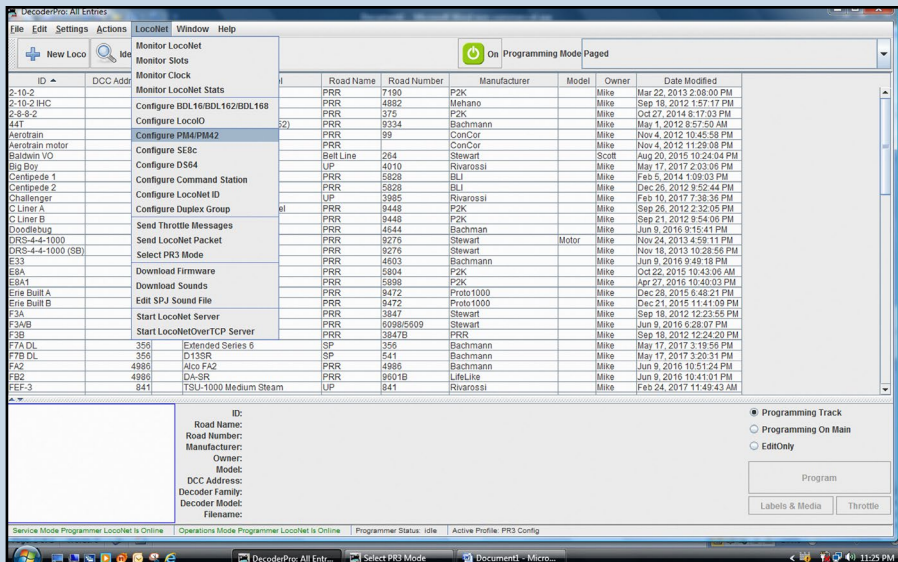
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PM42 PROGRAMMING



13. The Configure PM4/PM42 tool is accessed via the DecoderPro main toolbar under the LocoNet pulldown menu.

JMRI also has a great tool to assist in programming a Digitrax PM42 power manager.

The Digitrax PM42 provides short protection to four layout sub-districts. Each of the four zones can be used as an auto-reverser or just as straight short-circuit protection.

Option Switches (OpSw) are used to adjust the trip point (1.5, 3, 4.5, 6, 7.5, 9, 10.5 or 12 Amps) and trip response speed (slow, standard, faster, fastest) within each zone.

The Configure PM4/PM42 JMRI tool turns several pages and tables in the owner's manual explaining the various OpSw combos into very easy-to-use pull down menus and check boxes.

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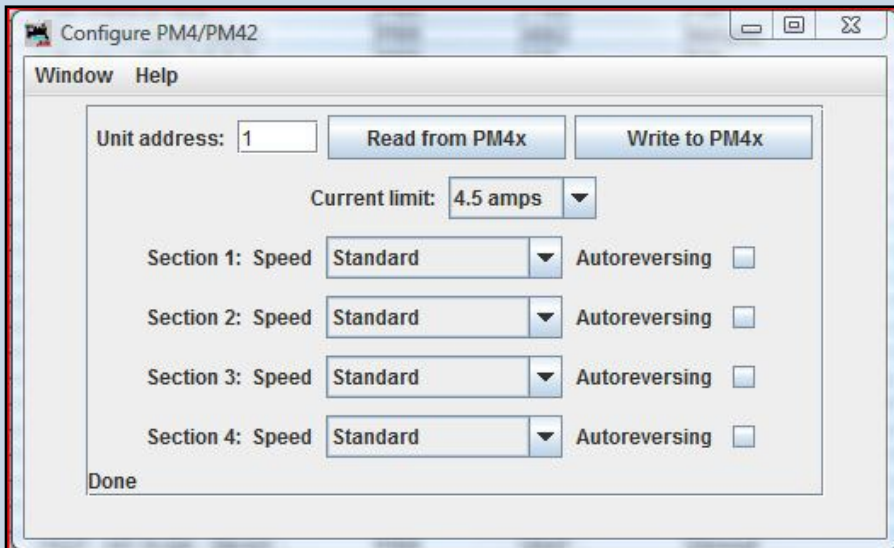
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PM42 PROGRAMMING *CONTINUED...*

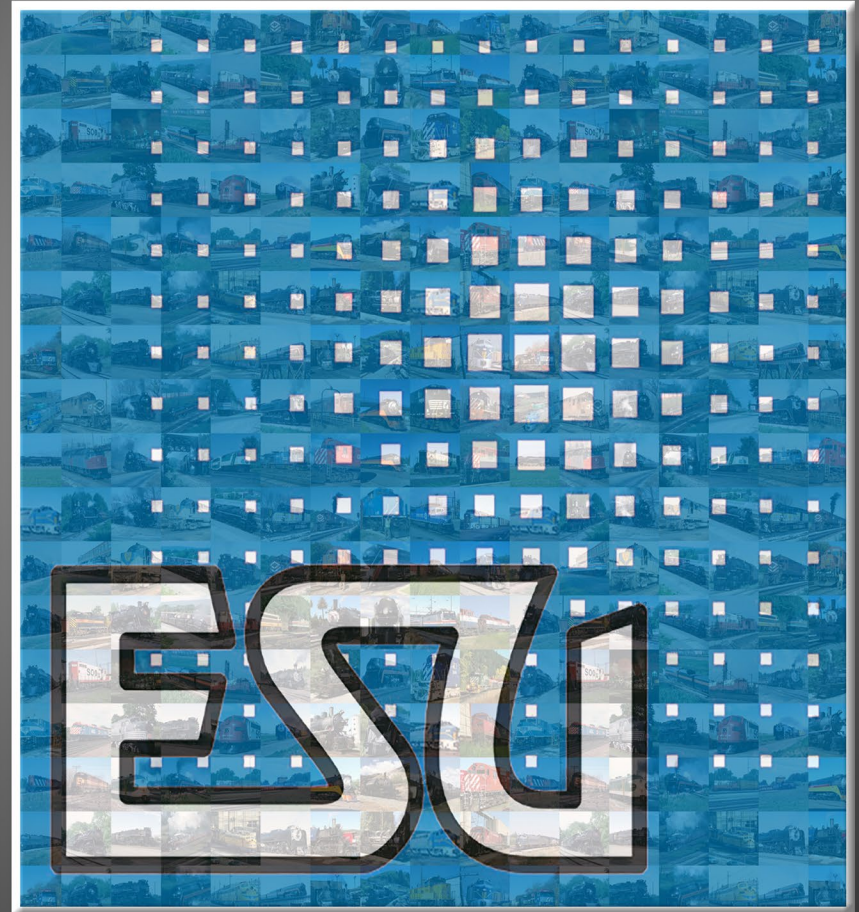
14. Similar to DecoderPro for decoder programming, the Configure PM4/PM42 tool greatly simplifies setting the 30 option switches (OpSw) available on the PM42.

You access the configure PM4/PM42 tool from the main DecoderPro LocoNet tool bar (Figure 13).

Once the app is open, you can select the PM42 unit you would like to change (the factory default unit number is 1), read the current settings via a **READ FROM PM4x** pushbutton on the top of the screen, make any changes, and write those changes to the PM42 using the **WRITE TO PM4x** pushbutton (Figure 14).

Due to design limitations, you can not change the unit number of the PM42 board using this tool. Refer to the instructions provided by Digitrax for changing this number if you have more than one PM42 in your system. ■

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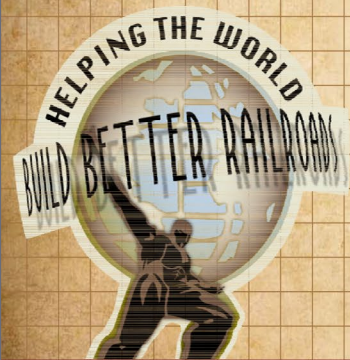
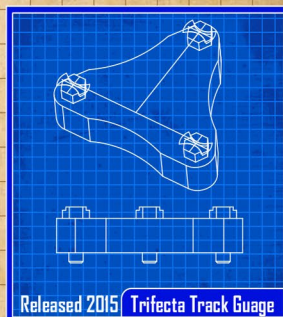
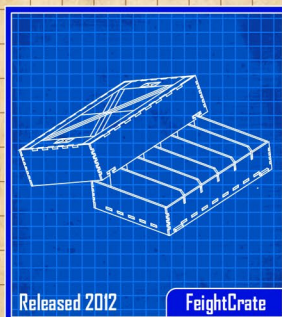
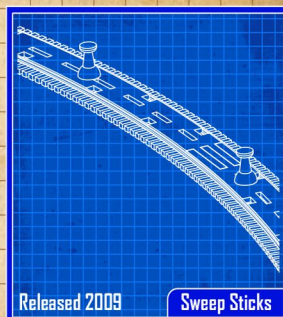
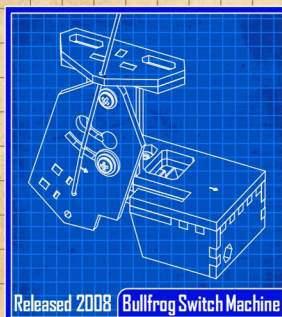
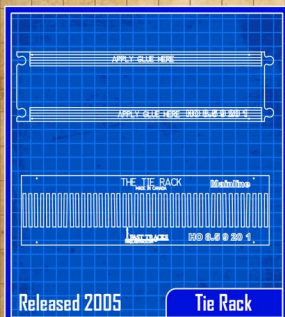
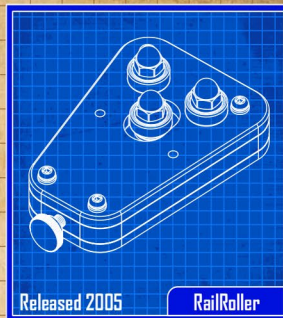
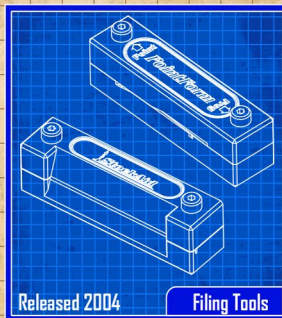
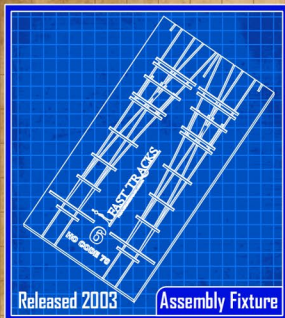
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Model Railroad Hobbyist | September 2018 | #103



JACK BURGESS builds nine
Yosemite Valley Railroad
flat cars ...

BACK IN MID-1967, I DECIDED TO MODEL THE Yosemite Valley Railroad as a lifetime project. As part of that decision I set a goal of building models of all the equipment operated by the YV in August 1939, the month I decided to model.

One of the incentives for that goal was a pair of articles in *Model Railroader* magazine by J.W. Barnard Jr. in 1962 and 1964. (Using just the initials of a person's first and middle names was typical of how railroad employees were addressed in that period – he was a steam locomotive engineer.)

The article in the 1962 issue, “One Man’s Roster,” described the 156 Baltimore and Ohio Railroad freight cars, maintenance-of-way cars, and cabooses he built, most of which were scratchbuilt as a representative of the B&O fleet.

The 1964 follow-up article, “One Man’s Roster—The locos and cars,” expanded on that goal with photos of his locomotives,

► **MODELING REAL RAILROADS AND WHAT THEY DO**

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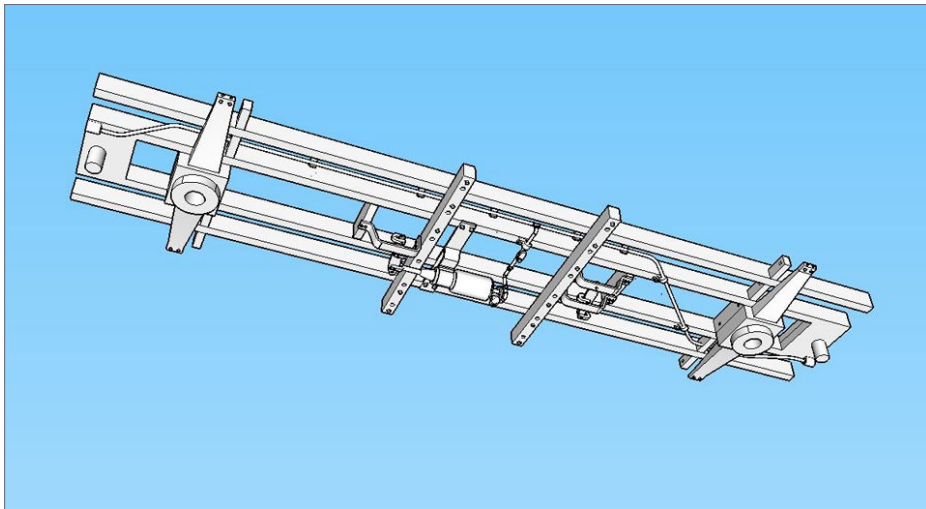
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GETTING REAL | 4

I made a brass master for the 16 bolsters that I needed and asked Eric Bracher of Rio Grande Models to cast them in white metal for my project.

A few years earlier, Charles Williams (one of the eventual founders of Detail Associates) invited me and several other modelers to participate in an order for dry transfer lettering sets for our individual railroads. Using my limited number of historic photos of YV equipment, I prepared ink drawings of the lettering that I needed for my entire fleet. Once printed, the resulting flat car dry transfer lettering was later used on this project.

But even with the frames, bolsters, and queen posts installed, painted, and lettered, the project stalled when it came time to build the brake gear for all eight flat cars. Several years earlier, I



3. This is a screen shot of the flat car frame complete with bolsters, needle beams, intermediate sills, and center sills, but not the side sills or end sills. All the brake components, including pipe elbows and tees, are included except for the brake rods.

GETTING REAL | 5

had decided that all the freight and passenger cars that I would build would include full underbody details. That meant not only the brake cylinder, main brake pipe and the brake line to the brake cylinder, but also brake rods and levers.

I was willing, except for contest models, to skip the brake pipe elbows, tees, and unions. With more years of experience, I might have devised a jig to bend the main brake pipes and even constructed a jig to build the whole brake system and paint it before adding them to the flat cars. But lacking that experience at the time, I set the project aside.

At the time, I thought I would resurrect it a few years later, but it took nearly 40 years before I once again took on that project.

Enter 3D printing

I've been using 3D printing since 2013 to produce model parts ranging from flywheels and detail parts to doors and windows. As my knowledge increased, I enjoyed taking on more challenging and difficult projects.

That evolved into trying to include full brake gear details on a side dump model that I was working on at the time. The main brake pipe had an outside diameter of 1.660", which is larger than the minimum size that can be 3D printed in HO scale. So, I added not only the brake cylinder and brake piping (including elbows, tees, and unions) but also the brake levers and hangers to that 3D model.

That project had the brake gear tucked tight to the frame where it could not be damaged by handling or shipping after being printed. I was encouraged to include that level of detail in a follow-up project to build a model of one of the box cars used by the YV in M-of-W service.

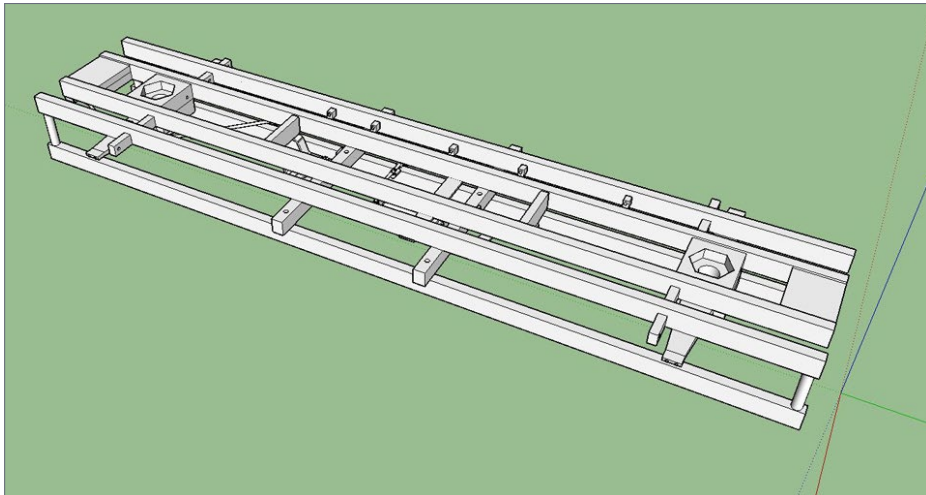
On this model, all the main brake components, including the brake cylinder, brake levers, and brake lever hangers hung

below the sills. I received the 3D print with a couple of these details broken. I replaced them with aftermarket parts and gave up on the idea of building more conventional models for the time being.

Back to the flat cars

Even with one failure, I tried again with my first effort at printing the frame of one the YV flat cars. I had realized by this time that 3D printing, while very accurate, can result in models with an unacceptable surface texture.

This problem is generally related to the orientation of the model when being printed which cannot be controlled by the designer



4. After ordering a print of a pair of flat car frames connected by sprues, I realized that the air brake pipe on the upper frame wasn't completely printed. So, I added sprues and rails to a single flat car frame to protect the more fragile parts during handling. The bolsters include recesses for the 3-48 nuts for the screws to attach the trucks. The nuts will be trapped between the bolster and the deck boards.

except when dealing with very expensive 3D print firms. For the flat cars that I wanted to 3D print, there were two problems.

The first was finding a way to prevent underbody details from being broken during handling and packaging. The second was to design a flat car frame which wasn't compromised by the surface texture limitations of 3D printing. The solutions were eventually quite simple.

Regarding the latter 3D printing limitations, I drew up the flat car frame, brake components, and piping minus the side sills and end sills. [3] Those could be easily added to the 3D print with styrene 6x10s. There were several advantages to this approach.

First, using strip styrene for the prototype side and end sills would result in them being completely smooth. It would also be easier to drill holes in the side sills to add Grandt Line styrene stake pockets, grab irons, and sill steps before gluing the sills to the 3D-printed frame. The same approach was used for the end sills which also had grab irons and NBW castings.

Solving the brake gear breakage problem was, in hindsight, quite simple. Instead of uploading a single flat car frame to Shapeways, the firm that I use for my 3D printing, I drew a single frame and then placed a duplicate frame above it, connected by sprues.

Both flat cars were positioned with the brake gear facing each other, thus protecting them from damage from handling and packaging. So, I ordered a print.

However, print orientation became a problem. The 1-1/4" diameter brake lines on one of the two flat car frames were missing segments. I assumed that the print failure was with the top frame which didn't have the same support during printing as the lower frame.

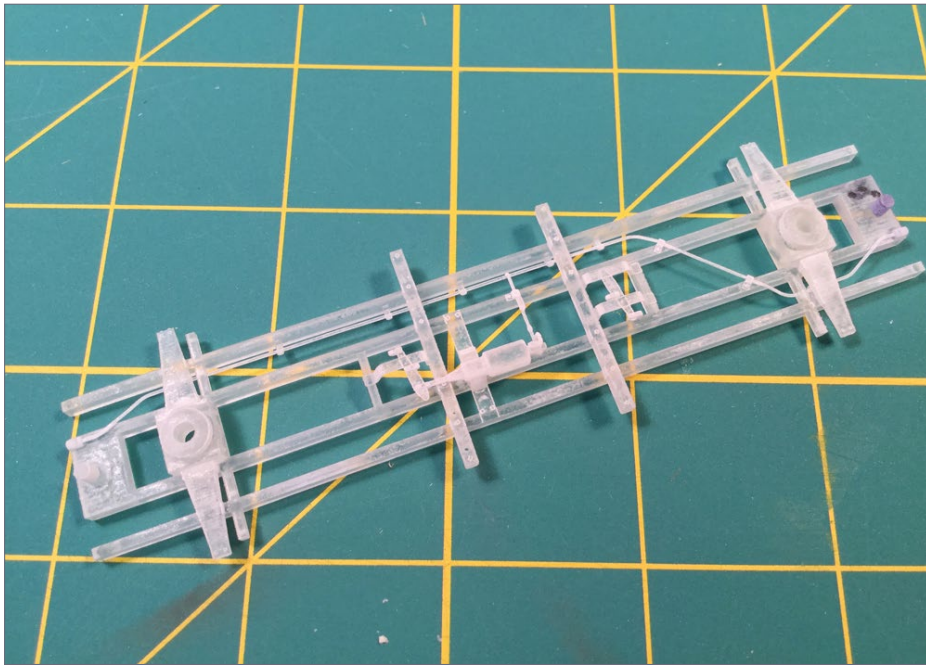
My solution was to delete the upper frame but keep the spurs and add a pair of length-wise rails to protect the frame from handling issues. [4]

GETTING REAL | 8

My 3D prints included not only the intermediate and center sills but also the needle beams with holes for the queen posts as well as bolsters, brake gear and piping [5]. While the prototype cars had saddles for the truss rods to pass over the tops of the bolsters, I included cross-members just inboard of the bolsters, with holes for the truss rods so that the truss rods would not conflict with the swing of the trucks.

Plans

By this time, I had prepared plans for the cars based on dimensions in the *Official Railway Equipment Register*, together with photos of seven of the cars. I had also prepared a table listing differences in the cars including lengths, widths, end sill



5. Here is one of the 3D printed frames after removal of the sprues and rails.

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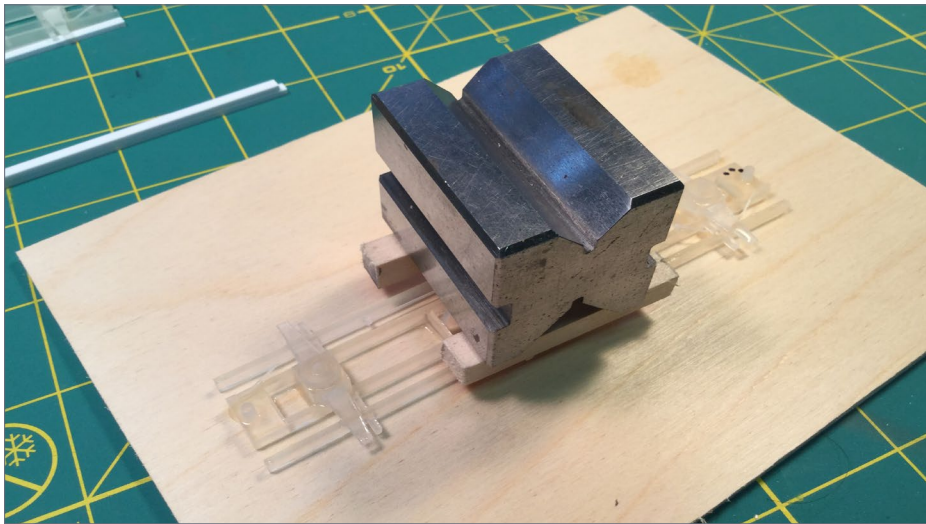


heights, needle beam heights, number of stake pockets, and truck wheelbases.

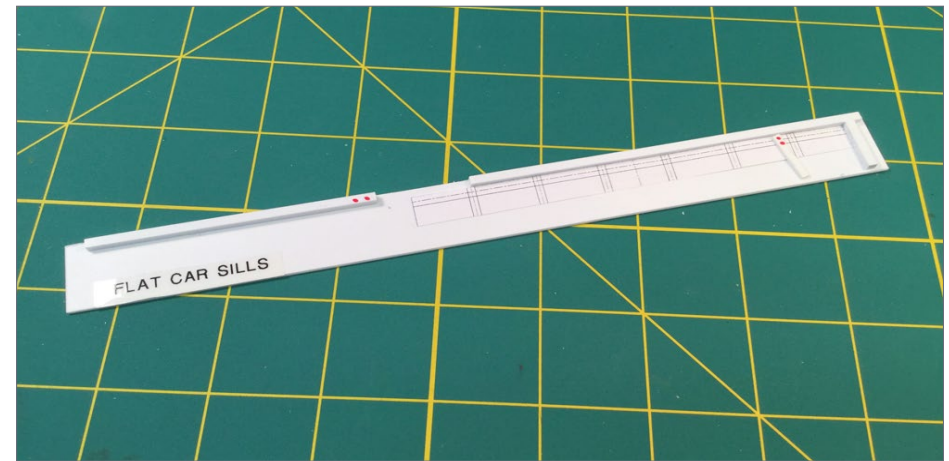
That resulted in the need for two slightly different 3D print drawings to match those differences. Rather than build all nine flatcars at the same time, I built 2-3 at a time.

Working with 3D prints

One of the 3D prints for these last two cars arrived slightly warped. The recommended solution is to heat water in a pan on the stove to 150 degrees. Then hold the part under the hot water for 12 seconds, lift it out, and manually flatten it with your fingers. You can then clamp it to a piece of plywood while it cools or use weights for this step. I used weights and it worked as expected. [6]



6. One of the 3D-printed frames was slightly warped. After heating it in hot water and manually flattening it with my fingers, I moved it to a piece of flat 1/8" -thick plywood and placed a weight on it while it returned to room temperature.



7. The number of stake pockets on the eight flat cars varied from 8 to 10 per side. Building the last two flat cars meant that I would need to accurately drill over 80 No. 78 holes for just the stake pockets plus holes for the grab irons and sill steps. Fortunately, I used my drill press as shown in Photo 8. To make this task quicker and more accurate, I cut prints of my CAD drawings to make templates for the holes needed for the stake pockets, grab irons, and sill steps in the side sills. This is one for the stake pockets.

Another problem is parts which feel “sticky” when delivered. Consensus among other modelers involved in 3D printing is that the part was not sufficiently cured by UV light at the factory during printing. This has only happened a couple of times in the five years I have been having parts made by 3D printing.

Exposure to the sun for a few hours will solve the problem. Some advocate giving all Shapeways parts some additional UV exposure to ensure they are fully cured before using them.

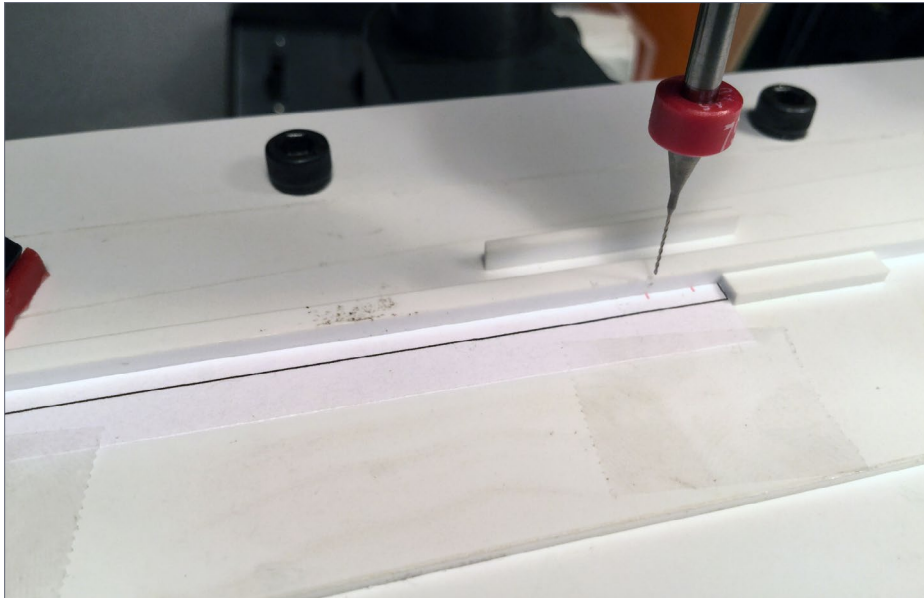
Cleaning the 3D printed parts is important. For years I cleaned 3D printed parts by running them through two 3-minute cycles in an ultrasonic cleaner with a couple of drops of Dawn

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dishwashing soap. But I have since learned that this approach isn't that effective.

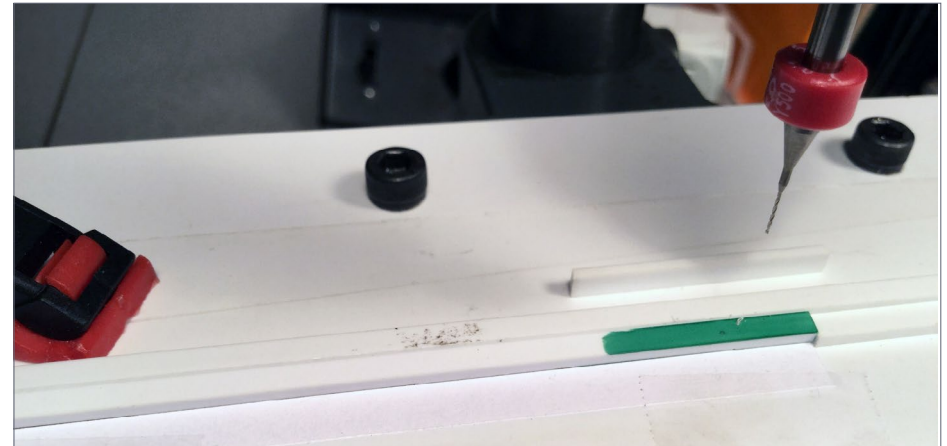
I now clean the 3D printed parts with Simple Green Cleaner, followed by a quick rinse in warm, clean water. I then dip the parts in 95% isopropyl alcohol and then let them air dry.

The photo captions provide some ideas about how this project to build the last two flat cars came together.



8. This and the next two photos show drilling holes for the side sill grab irons using the same concept used for the stake pockets. The paper spacing jig is taped to a piece of .040" styrene with a fence at the back and another fence on the right end of the spacing jig. This jig can slide left and right against a fence glued to another piece of .040" styrene clamped to the table on my drill press. This let me slide the spacing jig so each line for a grab iron holes would be aligned with the drill bit. I first aligned the centerline of the holes with the drill bit.

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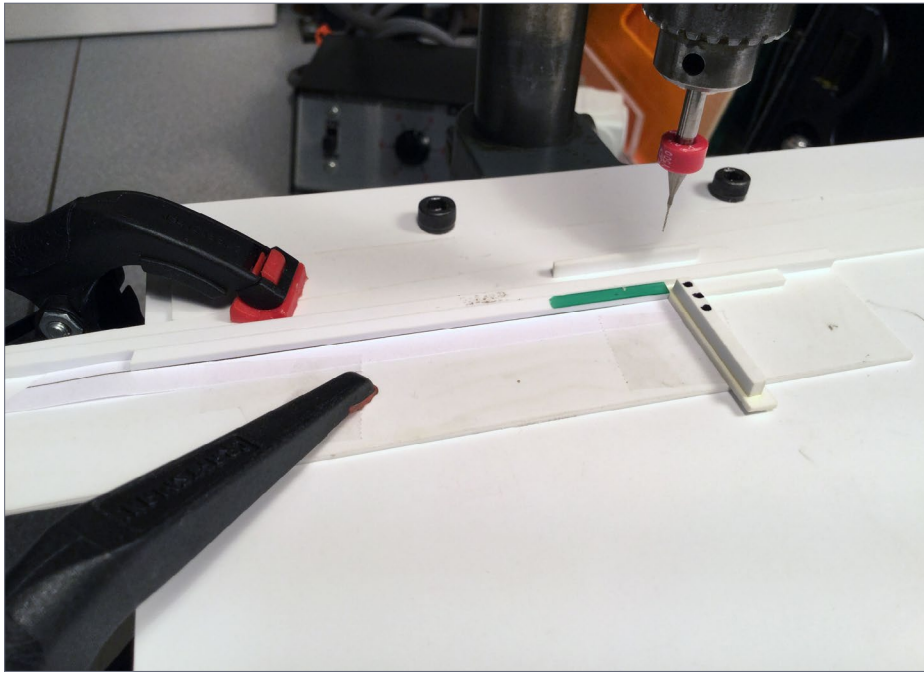
9. I then slid the jig so the left grab iron mark was aligned with the drill bit and clamped the jig to the table. A side sill was placed in the jig with the right end butted up to the stop on the right end of the jig and the first hole drilled. The end of the practice side sill is colored green to make it more visible.

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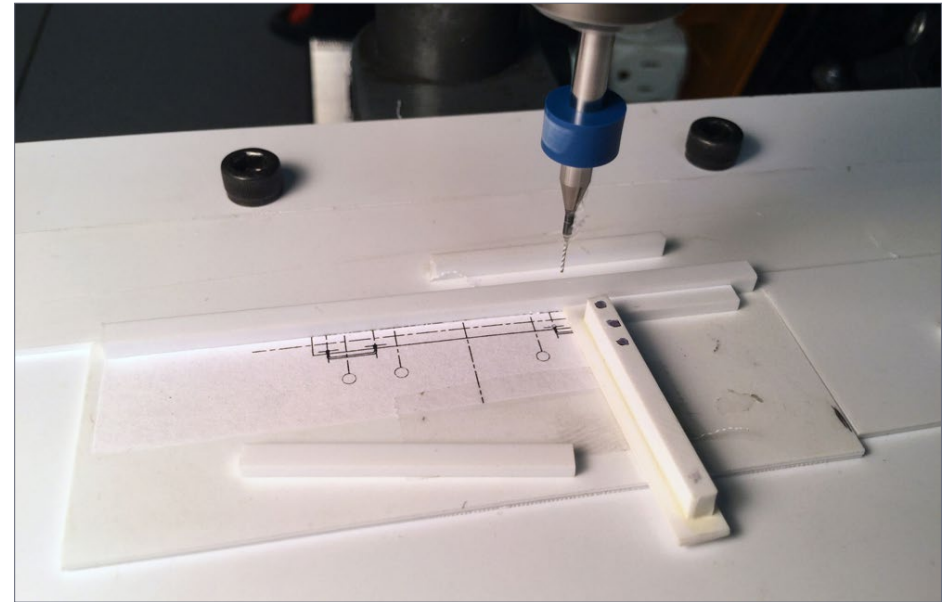
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10. Through trial and error, I found that the two holes for an 18" wide grab iron need to be 0.205" apart. I made a spacer from styrene exactly 0.205" wide. After the first hole is drilled, I inserted the spacer between the end sill and the fence as shown. This moves the side sill to the left exactly 0.205" which lines the side sill up to drill the second hole. Once those two holes are drilled, turn the side sill end-for-end, keeping it top side of the sill toward the back fence, and drill the two holes for the grab iron on the other end. The black holes on the spacer indicate that this spacer is for 18" grab irons. I made other spacers for 23" grab irons, sill steps, and stake pockets. Each is marked with a difference number of spots/colors.

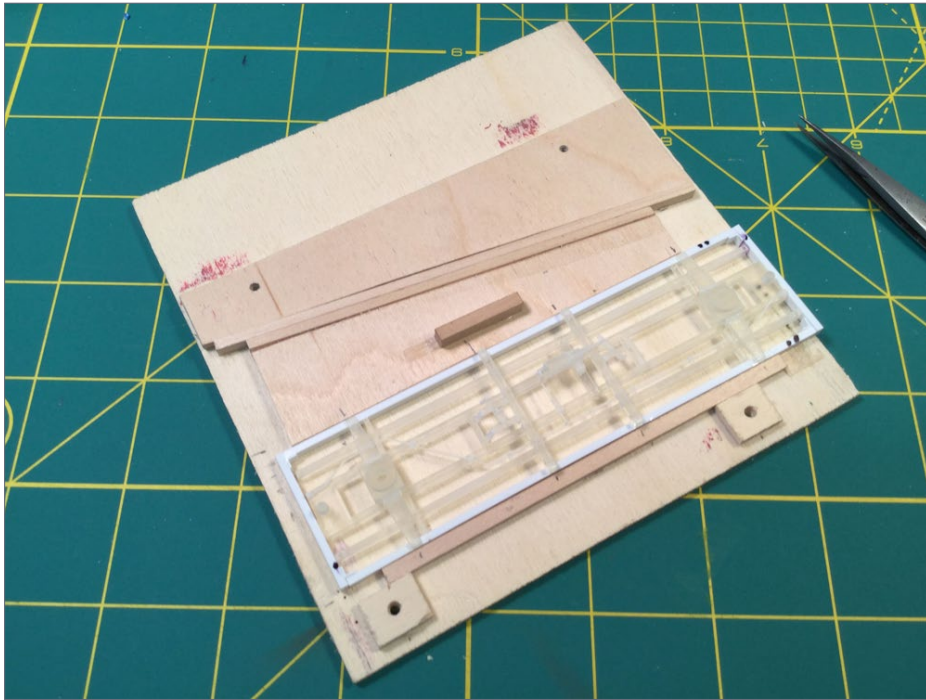
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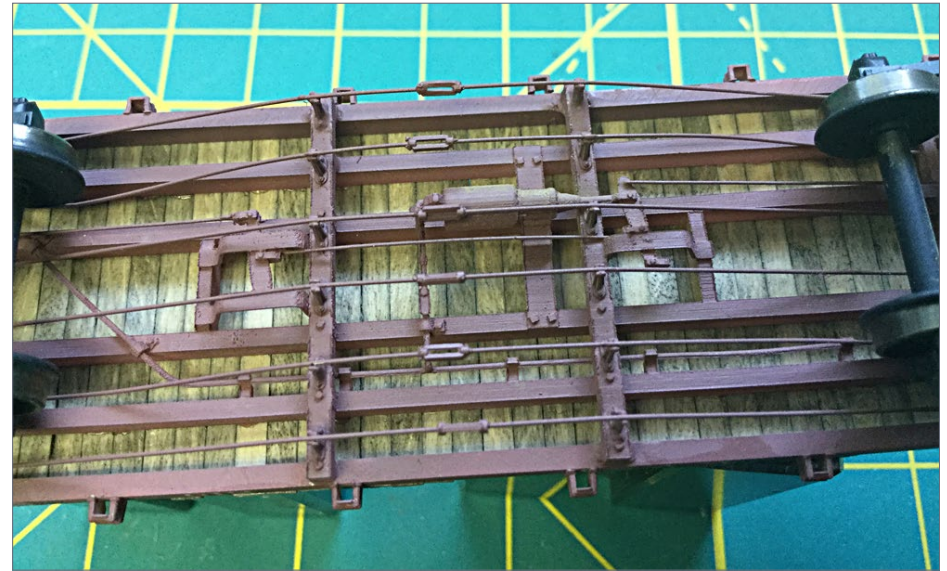
11. The same approach was used to drill holes for the grab irons and truss rod NBW castings on the end sills.

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12. This jig for gluing the assembly together was built from 1/8" plywood to hold the side and end sills tight to the 3D printed frame. The fence near the bottom of the jig is glued to the base, as is the one near the top of the jig with the angled side. The piece of plywood between the flat car frame and the angled fixed piece can slide to the right (note the "handle") to force the side sills tight to the 3D printed frame. Keep in mind that the holes for the grab irons are toward the top of the side sills. Before drilling any holes, I mark the bottoms of the side sills and end sills with dots. This ensures that the sills are positioned in the jig correctly to receive the 3D printed part.



13. This photo of a finished flat car shows the brake lines and other details. In practice, once the frames were glued together, the queen posts, truss rods, turnbuckles, and the brake rods were added as well as the stake pockets, grab irons, and sill steps. NBW castings, cut levers, and air hoses finished the end sills. After gluing the couplers, brake ratchet and pawl, and handbrake shaft in place, the frame was painted.

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14. Deck boards were cut from scale 2x8s and stained with two coats of Hunterline Driftwood Weathering Mix. I really like this stain. I laid out all the boards for one flat car on two layers of paper towels and lightly brushed the first coat on one side of each piece. I then flipped them over and applied the first coat to the reverse side. I let the boards dry for 30-45 minutes, then brushed on a second coat. Brushing (rather than dunking) the pieces results in some very subtle variations in the final stain. Once the decking was dry, I made sure that I trapped a pair of 3-48 nuts in the two cavities in the top of the bolsters to later attach the trucks, and then glued the deck boards to the intermediate sills using Formula 560 canopy glue. Adding glue to just the intermediate sills (rather than the side sills) eliminates the possibility of glue oozing out the joint between the deck board and the side sills.



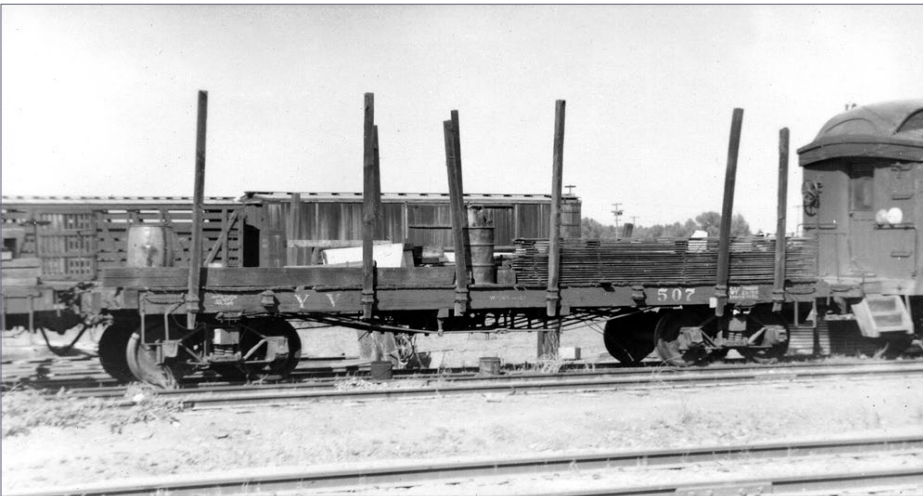
15. Here are all nine YV flat cars. The construction equipment loads are from Rio Grande Models. The two flat cars in the back row of the photo are loaded with a Fordson grader (left) and an Austin road grader (right) while the flat car on the middle track is loaded with a 1935 vintage diesel-powered road roller. The YV occasionally moved construction equipment to and from El Portal for the California Division of Highways so I felt justified in adding these loads. The Division of Highways painted its equipment gray in those days.

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16. A couple of the flat cars in the El Portal yards.



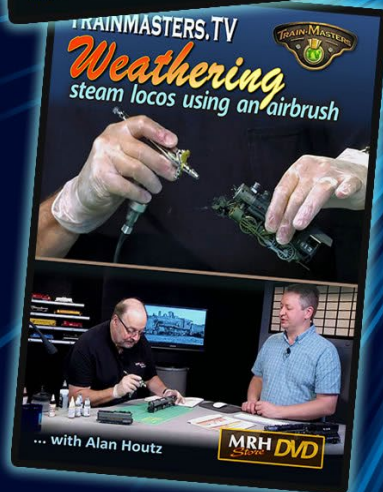
17. This load of wood, drums, and other items with the tall stakes on YV 507 just had to be modeled.



18. The finished model of YV 507.

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KEN PATTERSON TALKS TO
 THE MANUFACTURERS AND BUILDERS AT THIS YEAR'S
 RAILROAD PROTOTYPE MODELERS MEET IN ST. LOUIS ...

THIS MONTH IS YOUR TICKET TO SEE SOME OF the modeling projects and new products at the St. Louis-area RPM Meet this past July. The actual meet is in Collinsville, IL, just east across the Mississippi. This is the biggest prototype model railroad show in the Midwest, growing for over nine years now. In this month's video, we interview some of the manufacturers, asking not what's new so much as asking about their personal passion for trains. Every story is different.

We also talk with some of the model builders displaying their models; folks like Bob Rivard and Steve Hurt. In the video, you get moving views of all the models in all scales displayed on the tables. The 20-car scratchbuilt and kitbashed UP business train was amazing in HO scale. I videoed over 1 hour and 15 minutes of interviews -- which was way too long for "What's Neat" -- so they will be edited into various future videos for the "What's Neat This Week" podcast, along with segments in our MRH Media videos.

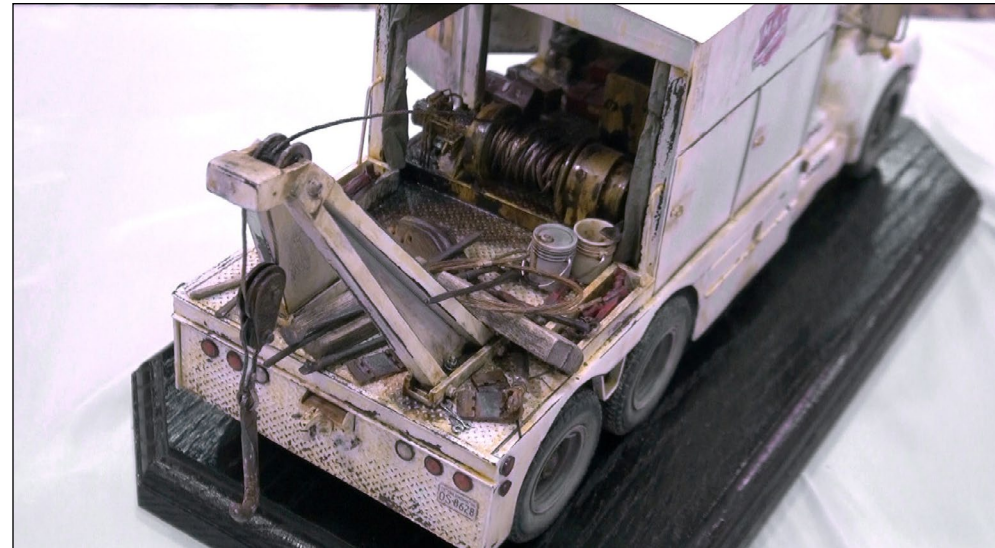
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WHAT'S NEAT | 2

For this month's text, I do a brief overview of some of the interviews, with photos to match each segment. George Bogatiuk from Soundtraxx tells us about the latest offerings from Durango, CO. Dave Hussey from Cannon & Co. introduced eight new boxcar kits in the past few months and these can be seen in this month's video. ✓



WHAT'S NEAT | 3



1-4. (Left top and bottom, right top and bottom) Steve Hurt shows off his Kline wrecker used by the Katy railroad. Built over the past 11 months from photographs, the 1:24 model is completely scratchbuilt with resin, styrene, and brass parts. Steve loves to build in large scale and is seriously motivated by the feedback he receives at the RPM meet

WHAT'S NEAT | 4



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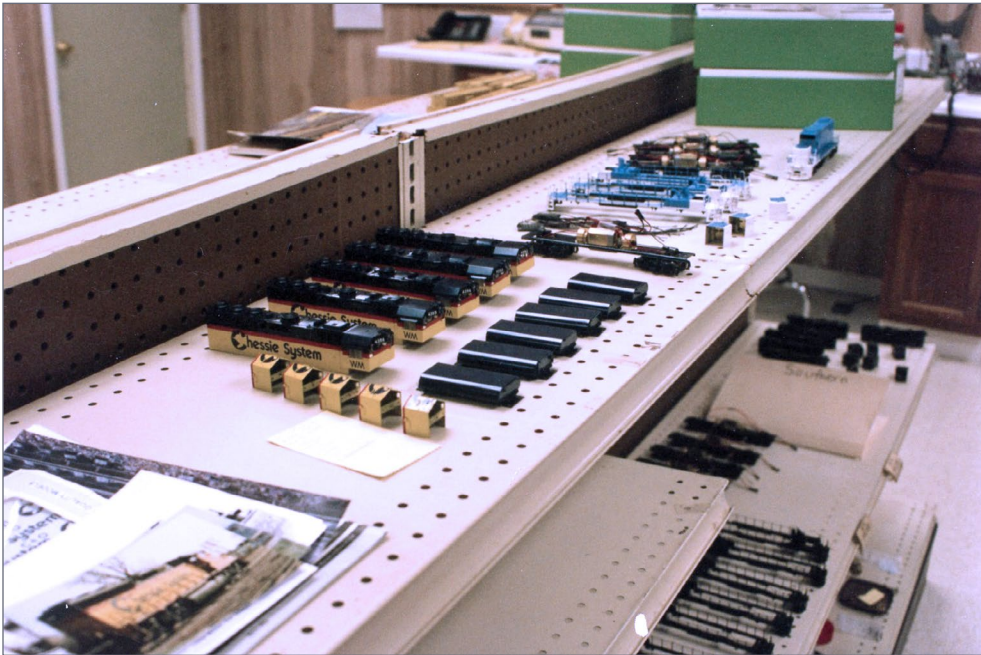
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5-7. John O'Donnell from Moon Dog Railcars at www.moon-dograilcars.com shows off a new line of scale trees and weathering decals along with his freight car loads. Always creating new products to add to his brand, John is also a professional brass custom painter. He worked for many years with Overland Models making painted and finished models. His shop was the definition of organization with a pleasant work space that increased efficiency for his extensive brass painting and finishing process.

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WHAT'S NEAT | 6



8, 9. Jason Quinn and Brian Sellers talk about the Ohio Valley Sipping and Switching Society modular layout. It is a switching and long mainline layout with a Midwest scenery theme in HO scale. Started in 2008, the club is in Cincinnati, Ohio. The flowing scenery includes a very realistic intermodal facility which is modeled from the prototype in Willow Springs, IL, just outside of Chicago. They are always adding new modules to the layout, using the latest in lightweight foams to make transporting them easy. The club uses the Digitrax DCC system to power trains along more than 200 feet of main line.

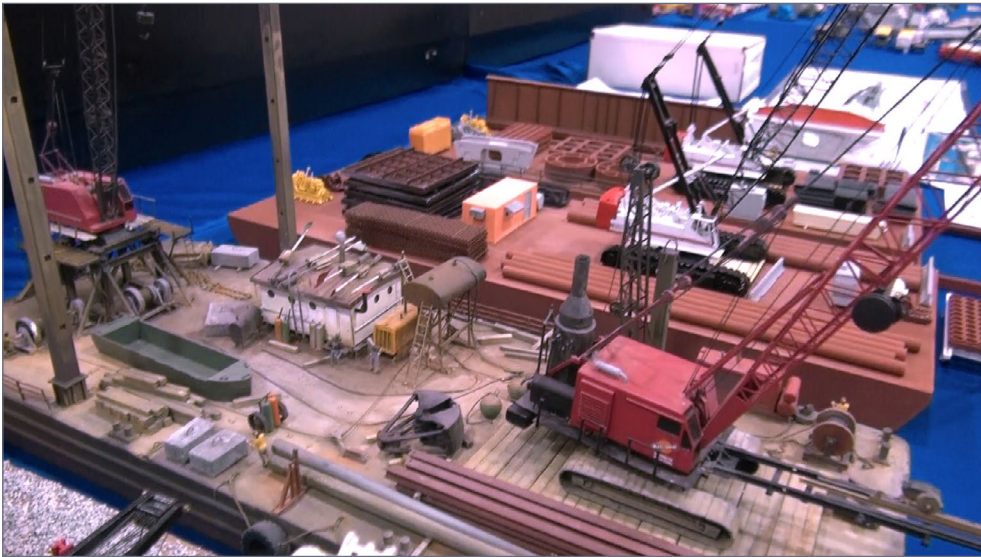
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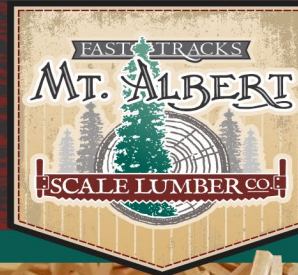
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10-12. Dan Goins from Texas organized the 1/87 Vehicle Club's appearance at this year's show. Cranes, construction equipment, cars, trucks, and emergency vehicles, all in HO scale, really bring home the fact that manufacturers are paying close attention to this segment of the modeling market. With great models appearing on the scene in the past 15 years or so, it is no longer difficult to fill an autorack with commercially produced models in, say, the 1970s era. Dan says the club's auto modelers are "hands on" when modifying, kitbashing, and scratchbuilding to create a fleet of cars from any given era. Super-detailing with castings, brass parts and electronics really makes these models stand out with the ultimate realism in HO.



13. Bob Rivard from Minneapolis, Minn. brought some new HO scale modules to display. He came to the show with his Rock Island modeling friend, Frank Jordan. This is his second year attending the RPM meet in St. Louis. His modules depict the Soo Line "Spine Line" in Minnesota. It is his first attempt at all foam construction with no wood for the base. This area represents the Soo's Rose Point refinery transfer. He used code 70 track and painted every tie individually for the ultimate in mainline realism.

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14, 15. Samuel Denehy from the 1/87th Scale Vehicle Club started modeling in 1/25th scale autos. In that scale there are plenty of custom "chop shop" modelers building hot rods with fascinating paint work. Sam says this is missing in HO scale and he decided to fill that void by modeling 1/87th scale hot rods. His HO scale "Ghostbusters" ambulance is lit with LEDs that operate just like the Hollywood movie prop. His dioramas include gas stations and repair garages along with trendy restaurants with parking lot tailgate parties. When asked if he would consider modeling an HO scale railroad scene, he replied yes! -- like the "Dukes of Hazzard" Dodge Charger jumping over an HO scale box car.

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16, 17. ScaleTrains.com's Paul Ellis talks about the new HO scale SD40-3 for CSX with a very square cab. These models represent the railroad's attempt at keeping older locomotives running longer. In the video he also shows the Milwaukee Road SD40-2 with remote control antennas and icebreaker bars atop the long hood at the rear of the locomotive.

Paul discusses his passion for trains, starting when he was very young as his bigger brother and his dad built a 4x8 size layout. He grew up in the "Blue Box" era as he modeled through college, making modeling money by working at a local hobby shop. He went on to work for Microscale and then Athearn in R & D before becoming a principal for ScaleTrains.com. That's over 15 years working in the industry he loves.

WHAT'S NEAT | 13



18, 19. Matt Gentry from Athearn showed off the new Amtrak SDP40F phase 2 paint for the first time, along with the new Norfolk Southern SD60E in HO Scale, in the "Honoring our Veterans" #6920 paint scheme. I asked Matt about his passion for trains. He said it started when he was five years old with a 3-rail O scale layout his father was building that filled a 70 x 30-foot basement. After college he still had the modeling bug but discovered just how expensive O scale was -- this is when he switched to HO scale. About this time, he discovered Athearn was hiring graphic artists. He applied, got the job, and moved to California. He said he loves working in the hobby every day and when he leaves work he models at home as well. That is a real passion for model trains.



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WHAT'S NEAT | 14



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WHAT'S NEAT | 15



20-22. This is the first time that Rapido trains set up at the RPM meet. Product development wizards Gareth Bayer and Dan Darnell discuss the company and some of the new products in development. At the show they announced a new freight car, the NYC Flexi-Flow 3500 cu. ft. covered hopper. This NYC signature car ran from the '60s through the 2000s. It comes in NYC, PC, and Conrail lettering. The new Missouri Pacific dome car, painted in blue and white, comes with full interior, sun shades, and lighting. They also showed off the new RS11 and RS18 models with lots of photo-etched parts, 17 stepwell variations, filter packs, and dynamic brakes. The locomotive is modular in design, making all the variations easy to produce with a limited amount of tooling. The B36-7 locomotive was Gareth's project, leading the way for Rapido to manufacture more US railroad equipment and break into that market like a lion. These models feature various hood ends, lights, cabs, fuel tanks, and traction motors with electric cabling. They said they are opening a new office and distribution center in England with plans to announce a diesel new to that market sometime next year.

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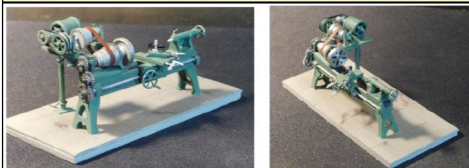
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Detailing and Weathering

a CSX Dash 8-40CW



NICK CAMPBELL walks you through his process of detailing and weathering an Atlas model ...



A RECENT PROJECT OF MINE WAS DETAILING AND weathering an HO scale Atlas CSX Dash 8-40CW. As I walk through what I did on this project, keep in mind I'm aiming to replicate a specific prototype loco with a degree of realism on a low budget with minimal tools..

I enjoy the learning process on my projects. These days I rarely measure things, I don't make jigs, and I work with a limited set of tools. I also don't have a booth to airbrush/spray paint, and hardly ever use magnification.

That said, I am starting to use magnification more lately. I haven't been doing this modeling thing very long and am the first to admit I have a lot to learn. By sharing my journey on this locomotive, I can pass on things to do – and things *not* to do.

I hope the final model shows how to hide any mistakes and still capture the overall vibe of the real engine.

Yes, you *can* create good-looking models on a tight budget with limited skills and tools, and this story will show you how to do just that.

Getting prepared

Here is the model just as it arrived. It is an Atlas Silver Series Dash 8-40CW (Note: The Atlas packaging calls it a CW40-8). [1]

I had searched for prototype photos of this actual unit, 7799. However, one day I was at a favorite railfanning spot and caught this engine, 7826 [2].

I didn't realize when taking the photo that I had a model of this exact type of locomotive. When going through the day's photos on the computer, I realized my lucky find.



1. The Atlas Silver Series CSX Dash 8-40CW as it came out of the box.



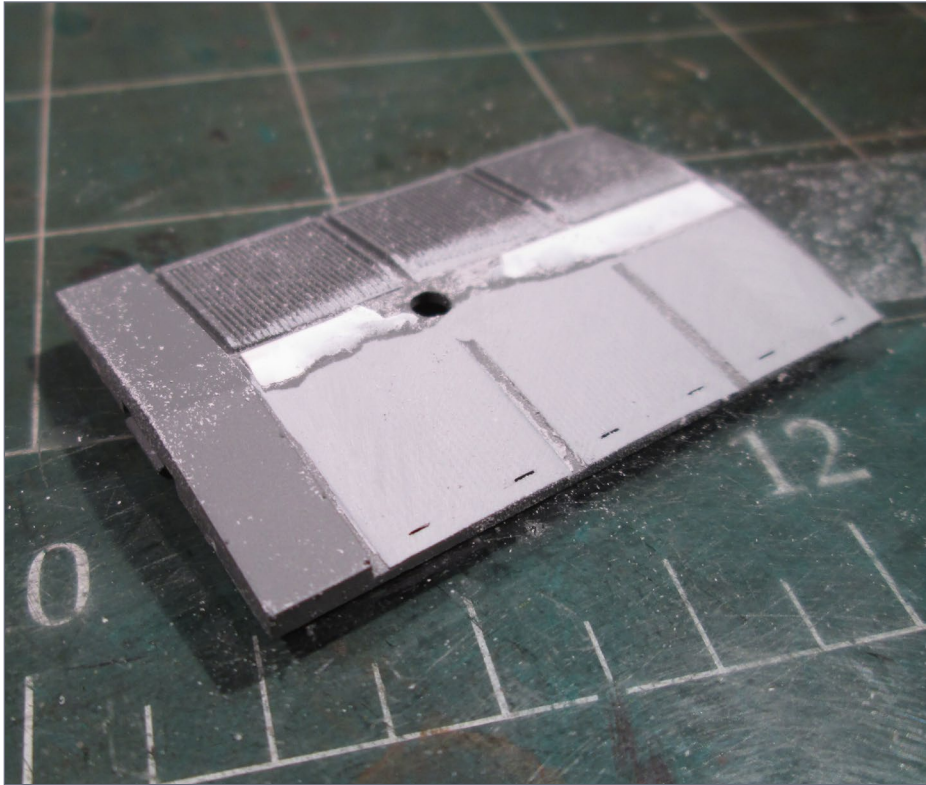
2. The prototype CSX 7826, photographed by Nick on a railfanning excursion.

DETAILING & WEATHERING A CSX DASH 8-40CW | 5

The detail on the prototype that was not on the model, and that enthralled me the most, were the radiators. Notice how the radiators stand out with a real 3D depth. I wanted to try to model that feature. I started searching online for other photos of this unit to augment the several I took that day, and was able to find many views of this locomotive as a modeling reference.

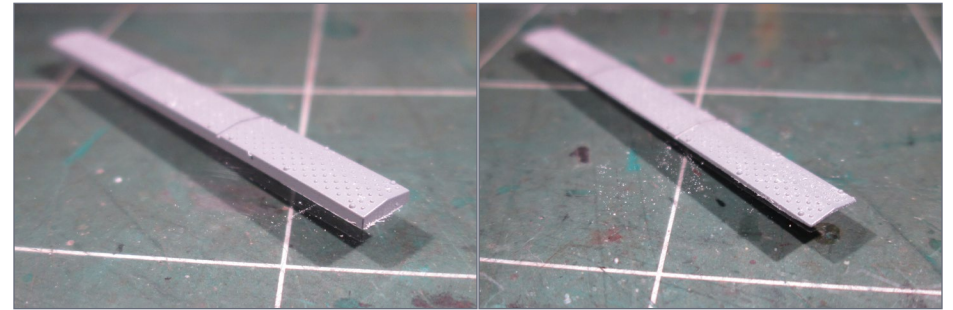
Modeling the radiator area

I attacked the radiator area first and carefully removed the etched grilles and top detail.

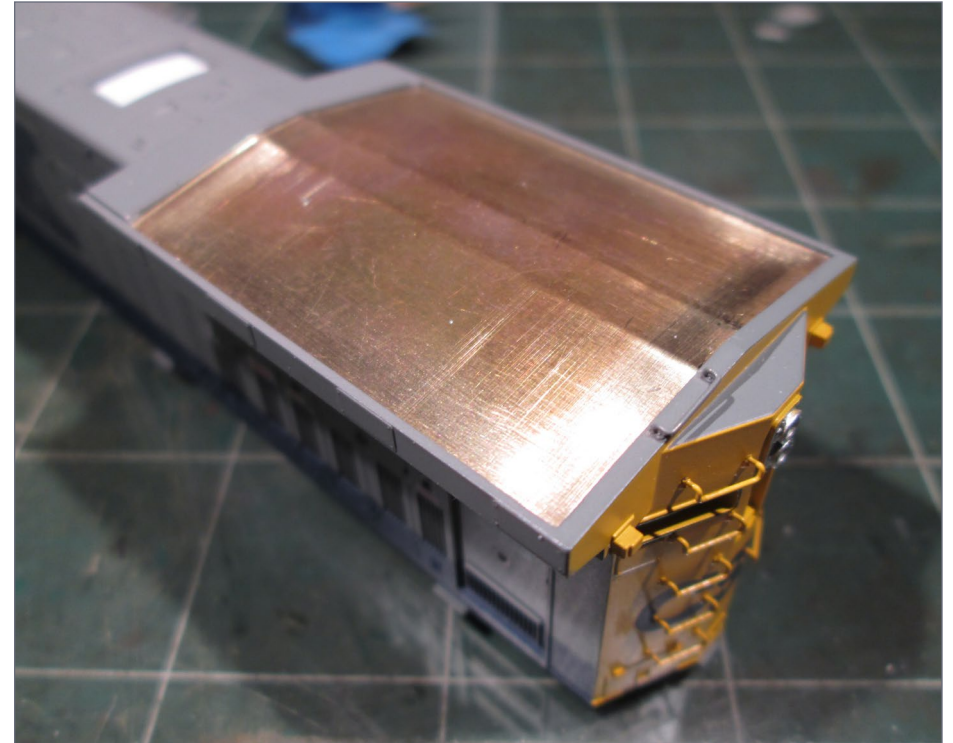


3. File off the molded radiator detail.

DETAILING & WEATHERING A CSX DASH 8-40CW | 6

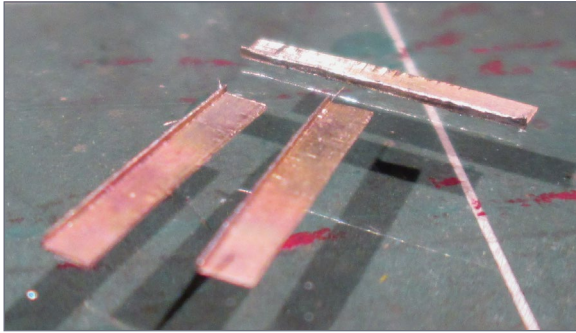


4a,b. Sand and file the walkway between the grilles to reduce it to a much more prototypical thickness.

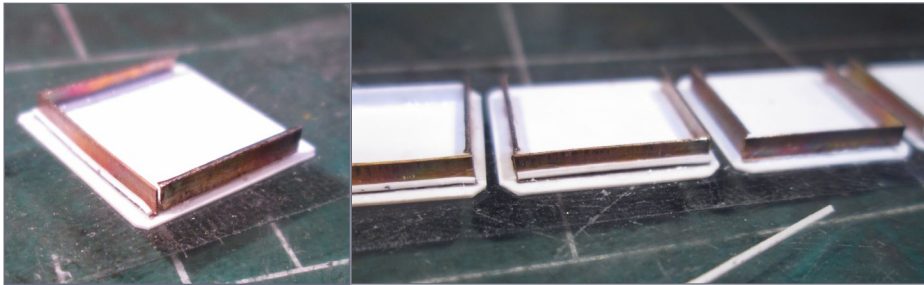


5. With the modifications complete, I used .010" brass sheet to create a base for the new parts.

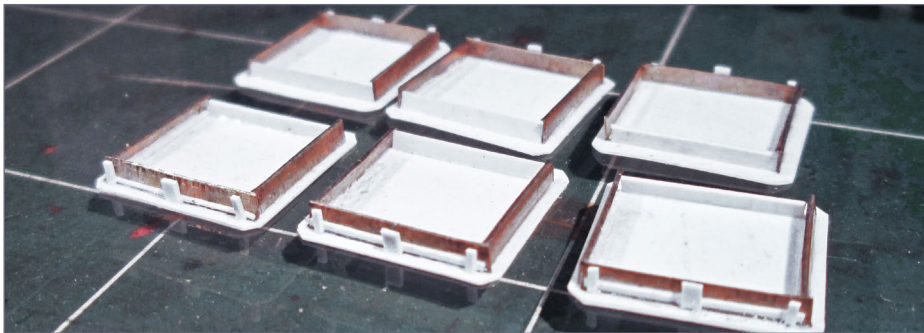
The next group of photos shows how I built the new radiator vane boxes using .005" brass and .010" styrene. I applied Plastruct Plastic Weld to affix all of the styrene elements, and used Model Master Liquid Cement to glue the brass [6-9].



6. Bend the vane box side panels from .005" brass.



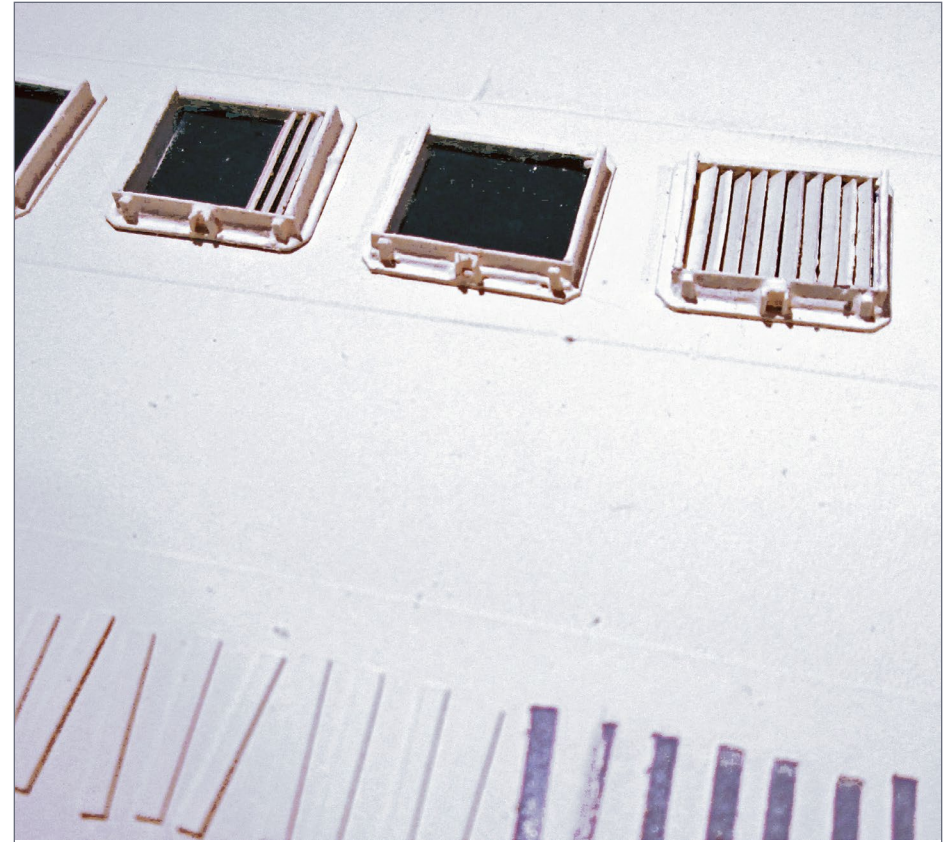
7a,b. Glue the brass side panels to .010" styrene pads.



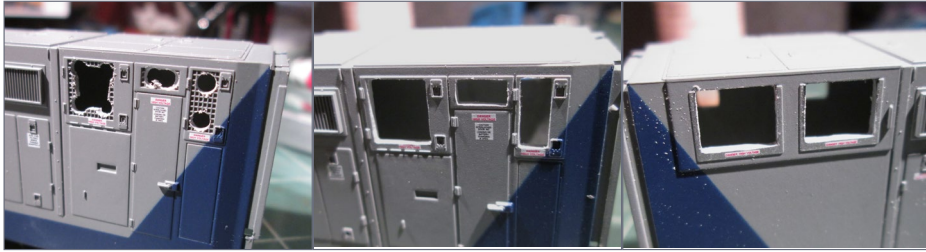
8. I added styrene details to the brass side panels to finish off the new radiator vane boxes.

Long hood details

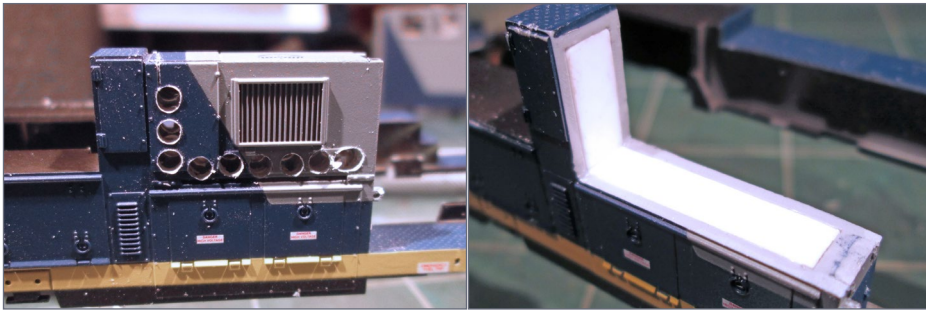
After this, I addressed the molded-on intakes behind the cab. I drilled out some of the intakes to start the process [10] and followed with a sharp X-Acto blade to get the middle scrap out. I finished by filing with a small, fine file.



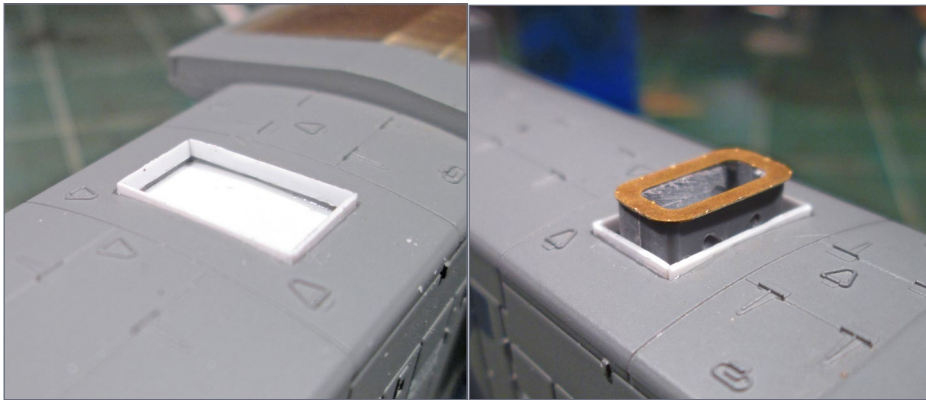
9. I primed the assemblies using Rustoleum white primer in a spray can, then painted them with a color blend I created from acrylic craft paints. I'm talking the super-cheap paint sold at Walmart or Michaels. Finally, I paint the inside black and glue in the styrene vanes.



10a, b, c. Removing the molded-on intakes behind the cab.



11a, b. Removing the A/C unit and making a platform from styrene for the new, correct AC unit.



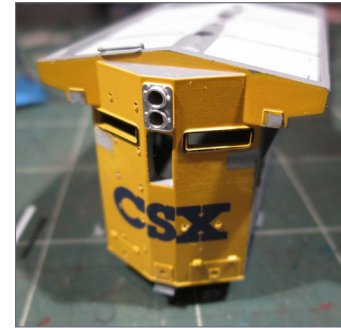
12a, b. Redoing the exhaust stack and surround.

The air conditioning unit on the Atlas shell is not correct for this prototype, so I removed it. I filled the area with styrene and filed it to create a new platform for the more correct A/C unit. The new A/C unit is a Tony Sissons etched kit (tonyisssons.zenfolio.com/p206794508) [11].

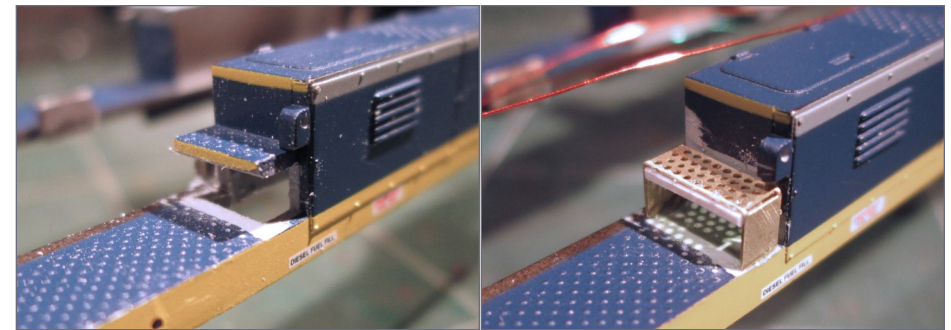
The exhaust stack and surround had to be modified as well. I used an exhaust stack from Hi-Tech (hitechdetails.com) that I filed down and capped it with another Tony Sissons etched part – the stack flange – and a new surround created from .010” styrene [12].

I also filed off the molded lift lugs (odd little square raised areas) and the incorrect sand filler [13].

Next, I removed the solid block for a step behind the cab and replaced it with a photo-etched one. I tried to save part of the molded step [14a] but that didn't work, so I finally went all the way with the etched step [14b].



13. The rear of the shell, with lift lugs, odd square raised areas, and incorrect sand filler removed.



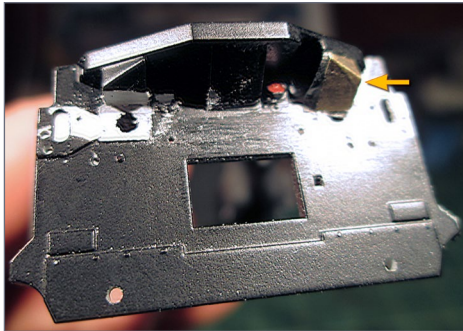
14a, b. Replacing the step behind the cab with an etched part.

Pilot modifications

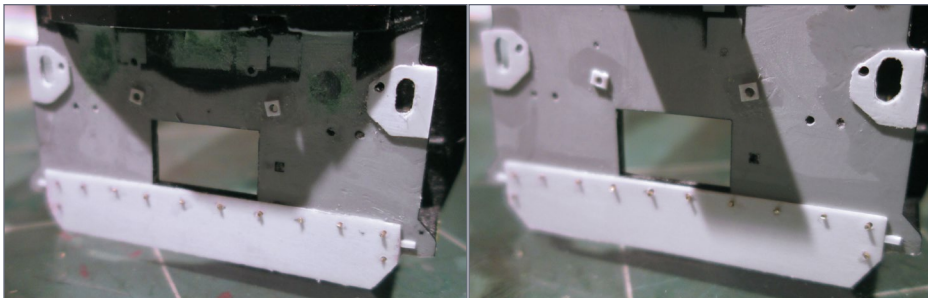
The front pilot had many details wrong for CSX 7826. I had good up-close photos of the pilot from another locomotive that was designed the same as my chosen prototype.

I had to do *a lot* of tedious work here. In the end, I probably could have left the original ditch lights and cut levers on and they wouldn't have been that noticeable. Anyway, here is the torture I put myself through!

I bent a piece of .010" brass over the molded detail under the anticlimber [15]. Once I formed these two pieces, I filed off the molded ones. I followed up by filing off the remainder of the original ditch lights.



15. Bending a piece of .010" brass over the molded-on anticlimber detail.



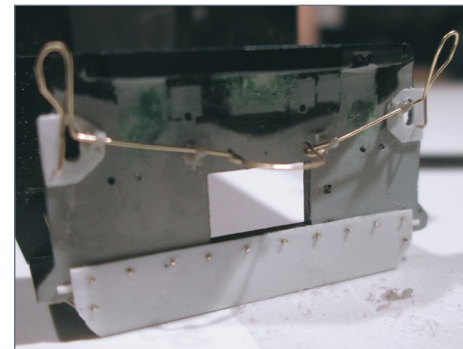
16a, b. Further modifications to the pilots, both front and rear.

Unfortunately for me, I had to file off the reinforced lifting plates on the sides in this process..

Then, I realized the profiles on the bottom of the pilots were wrong. I filed the bottom smooth, created new plates from 0.010" styrene and plastic-welded them on. You can also see where I filled the original ditch light holes on the front pilot using leftover gray sprue [16].

I drilled and filed the oblong holes to recreate the lift plates. I even drilled holes in the bottom reinforcement plate and inserted .010" brass wire to represent bolts. I did the front pilot first, followed by the same modifications to the rear pilot [16].

I formed my own cut levers from .010" brass wire and Detail Associates brackets [17].



17. I made my own cut levers.



18a, b, c. Modifying the Details West ditch light castings to square them up and add styrene mounting brackets.

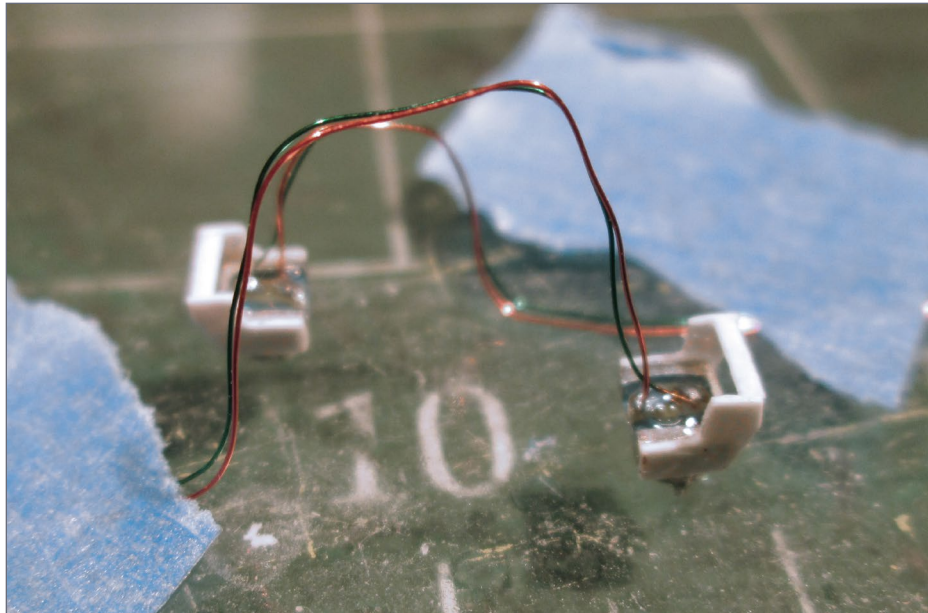
Next, modifying the ditch lights was in order. I took Details West ditch lights and filed the bases to make them square [18]. Then I made brackets out of .010" styrene to hold them in place over the cut levers.

I used Microscale Micro Mask to "glue" the tiny 402 LEDs into the ditch light castings and then painted the backside black to prevent light leakage [19].

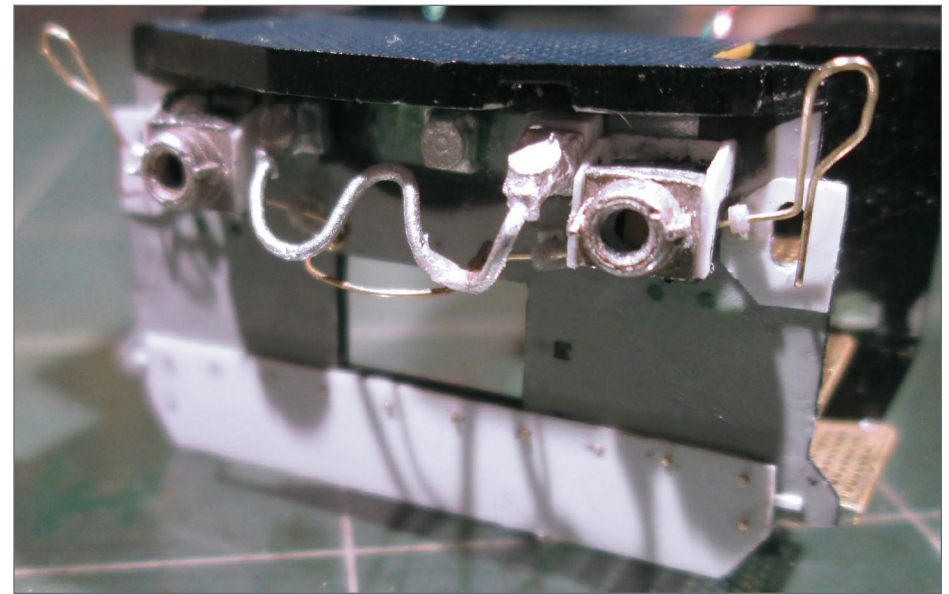
You can see how the ditch lights overhang the cut lever now [20]. The factory cut lever actually bent down around the solid-backed factory ditch lights, which was totally wrong.

I also installed Details West MU hose/connectors.

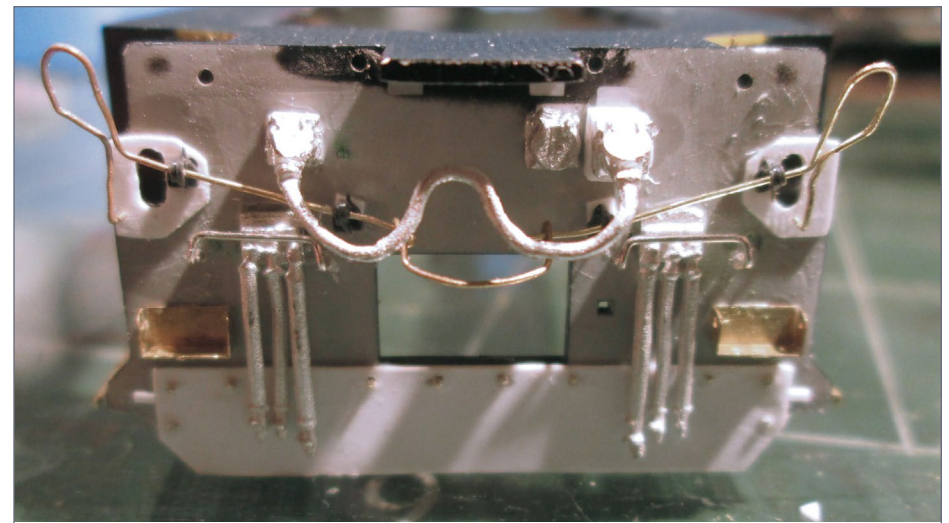
On the rear pilot I added Details West air hoses and MU hose/connectors, and Detail Associates cut lever brackets. I also



19. Gluing the SMD LEDs into the ditch light castings.



20. Front pilot with ditch lights and MU hose connectors installed.



21. Rebuilt rear pilot with air hoses, MU hoses, and spare knuckle holders installed.

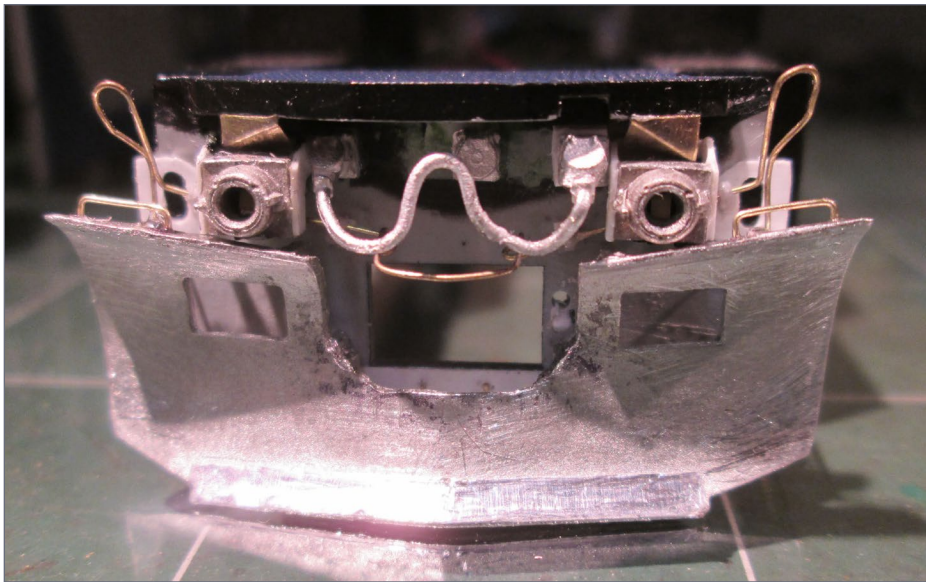
installed Tony Sissons photo-etched spare knuckle holders and scratched cut levers out of 0.010" brass wire [21].

I used Sergent Engineering knuckles in the holders, although they're not shown.

For the front pilot plow, I modified a Details West casting by filing the edges to a more prototypical thickness. Then I added a small piece of metal tape across the bottom to represent a reinforcement added to the prototype. After that, I added handles to the top edges, making them from .010" brass wire and filed the sides/bottom edge and edge under the coupler to closer represent the shape of the prototype [22].

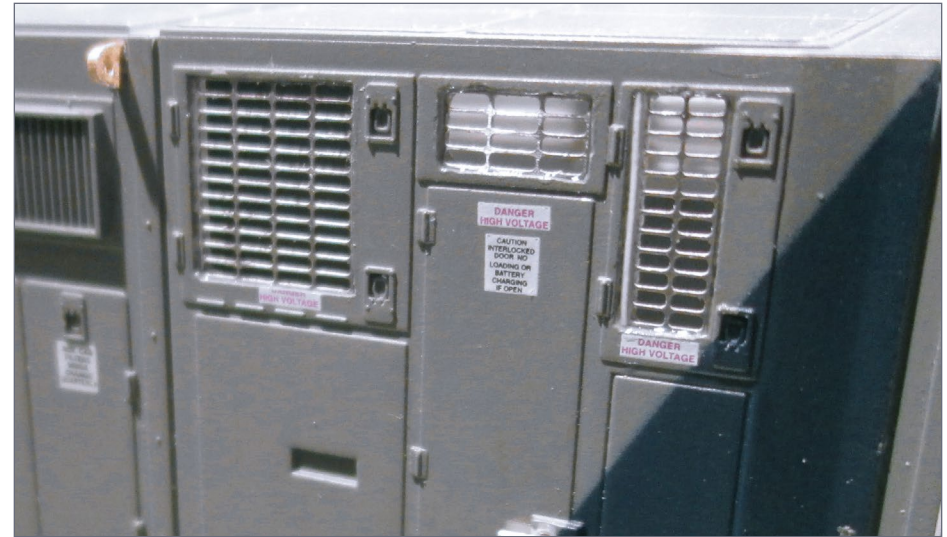
Vents, steps, cab, and fuel tank

For the molded-on intakes behind the cab [10] that I cut out, I installed modified Details West grilles [23].

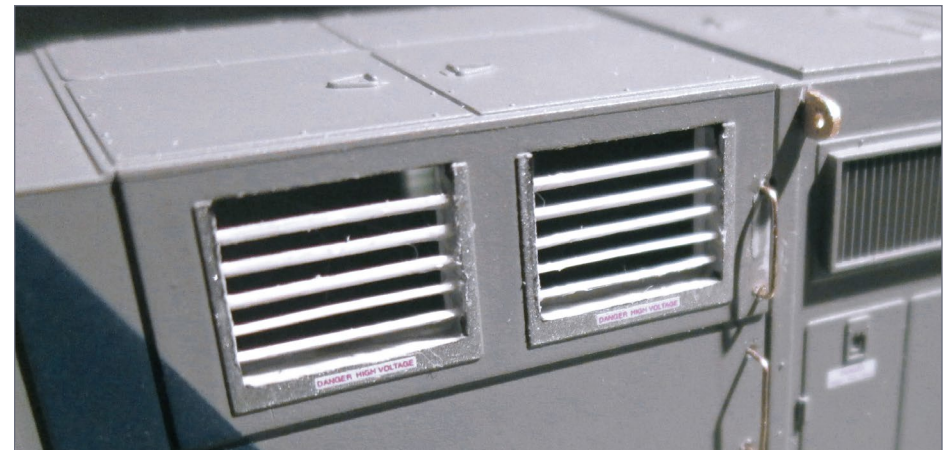


22. Front pilot with snowplow added.

To model the intakes on the other side of the hood behind the cab, I cut vanes out of 0.010" styrene and glued them in place [24]. I also glued small, square pieces of styrene on the inside



23. Details West grilles installed in the behind-the-cab intake, and lifting lugs.

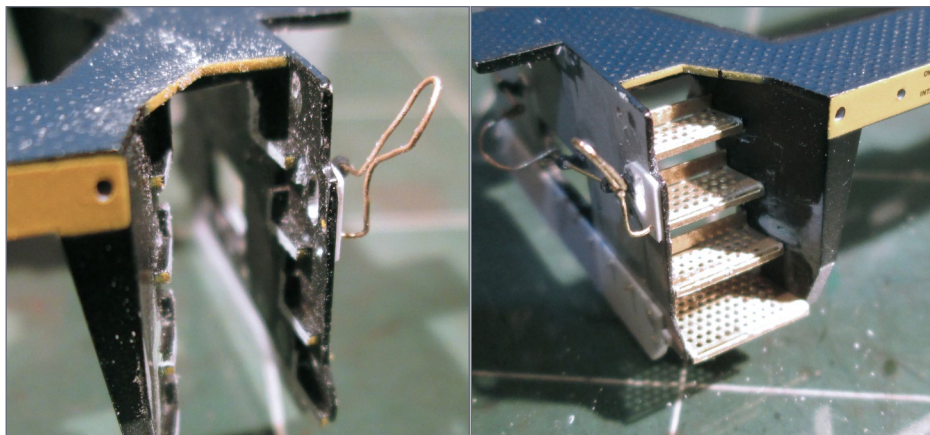


24. Finishing the hood openings on the other side of the shell behind the cab.

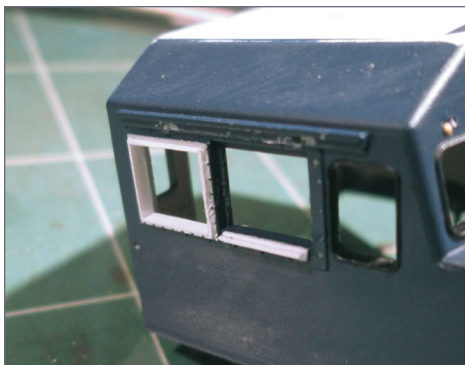
of the shell around the edges of these openings to give the detail more depth. I added lift lugs at the hood seam these areas as well.

On to the steps! I cut the factory steps out using a very fine Tamiya saw blade. I left just enough of the steps to create platforms to hold the photo-etched ones. No detail parts manufacturer makes the exact steps for this model, so I used steps made for a similar model and filed them slightly to fit [25].

Time to work on the cab. The prototype had extended rear windows, so I fabricated an extended surround of .005" styrene



25a, b. Replacing the molded plastic steps with etched ones.



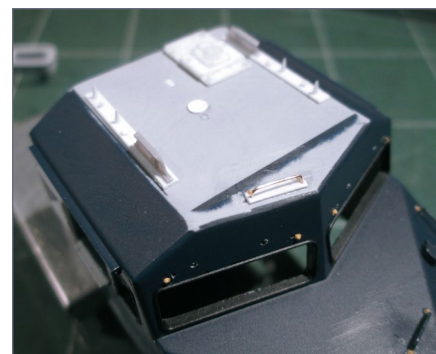
26. Working on the cab windows.

and plastic-welded it into place. I also made arm rests out of the same styrene [26].

There were a couple of roof-top details and a non-skid texture that were incorrect from the factory, so I sanded all of that off, and then made the antenna arrays from scrap styrene sprue, and applied Sinclair antennas from Detail Associates [27].

The small reinforcement plates on the roof and under the wire grab I made from .010" styrene. The yellow bolt heads are rivets I carved off an old Athearn BB boxcar. The GPS antenna (blurry square white thing at the back of the cab roof) is a Tony Sissons cast resin part and it looks fantastic in person. The grab is 0.010" brass wire [27].

In the next photo [28] you can see all the yellow bolt heads I scraped off an old Athearn Blue Box model and applied. I



27. Test fitting new details to the cab roof.



28. More cab details being applied.

scratchbuilt a nose door locking mechanism from scrap styrene and made a door handle from .010" brass wire.

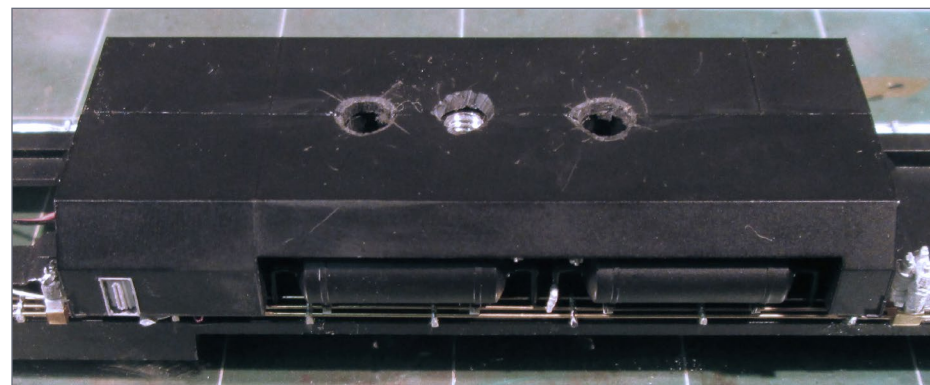
On the rear of the long hood I added new lift lugs I scratched from .010" brass and added a more accurate sand filler hatch from Details West [29]. The odd little box on one side of the radiator extension I scratchbuilt from scrap styrene, and I added a Details West horn in front of the new exhaust stack...which is out-of-focus in the photo. Finally, I test-fit the radiator mods on the back of the hood.

Fuel tank

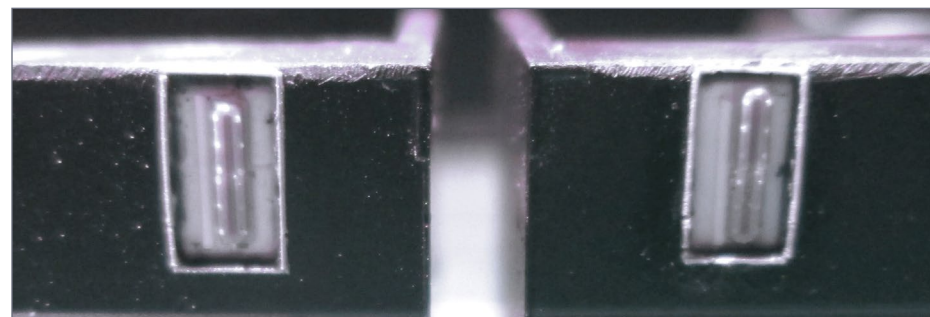
Detailing the fuel tank required it to be permanently affixed. This meant drilling holes to allow future access to the motor screws [30]. I also decided to drill and tap a third hole into the frame through the fuel tank. This extra threaded hole allows me to run



29. With the cab progressing nicely, here is how the back end of the long hood is coming along.



30. Two holes in the fuel tank bottom allow access to the motor mounts. The threaded hole in the center allows fixing the model in place for transport.



31. Correcting the fuel tank sights.

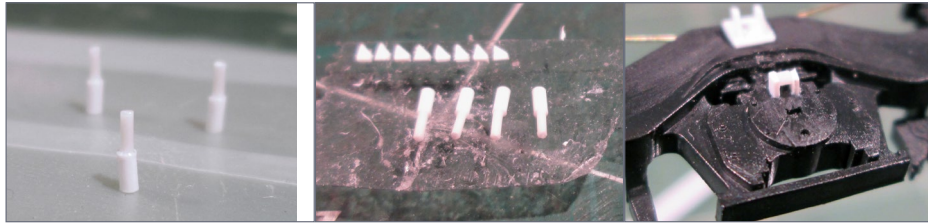
a bolt up into the hole and secure the locomotive to a flat surface (like a piece of wood) for transporting the engine to a show, or taking it outdoors to be photographed. That way the model is protected when I transport it and I can avoid any damage from taking the model in and out of modified factory packaging.

The fuel tank sights were horrendously wrong, so I modified them to be more correct. I made a rectangular opening and backed it with styrene. I used two fuel sight "glasses" from a Details West fuel tank detail kit to make each final one. You can

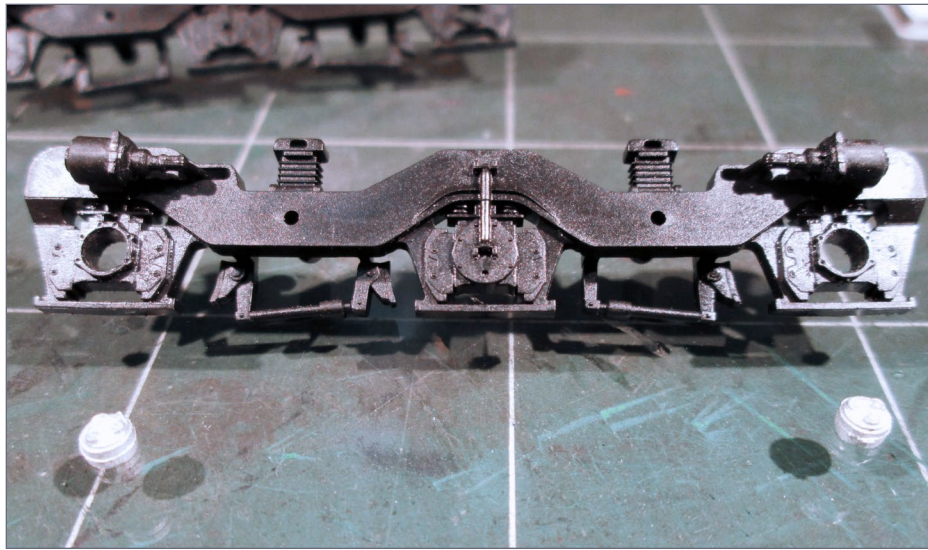
see the cut in the middle of them, an unfortunate mistake on my part. I made the raised surround from heating and stretching sprue into a fine rod and gluing it into place.

Reworking the trucks

The trucks came next and needed a lot of attention. I decided to remove the molded-on shocks on the middle journals and



32a, b, c. Fabricating new stand-off shocks for the middle truck journals.



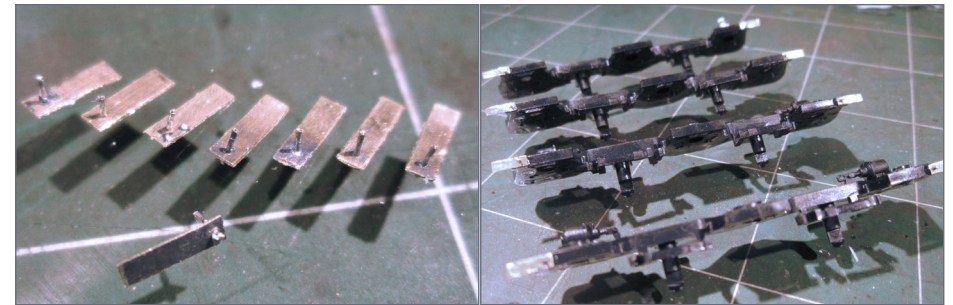
33. Installing new journal bearing caps.

scratchbuilt new ones for a better stand-off appearance. The following photos show the making of the shocks and installing them [32]. You can see the result in [37].

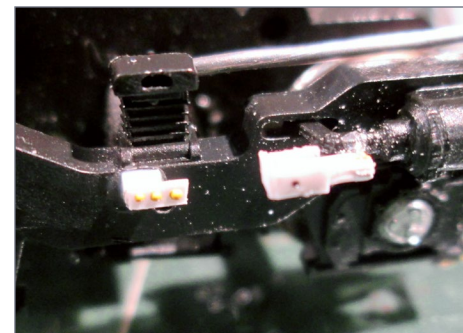
I drilled out the molded-in bearing caps and replaced them with Details West parts [33].

I made sanding hose brackets out of styrene and brass and used solder for the sanding lines [34]. For the mechanism to hold the handbrake chain, I used scrap styrene, brass, and rivets carved off a donor boxcar.

Of course, a proper looking speed recorder has to be installed. I used a Details West part with some .010" brass wire. You can also see the new air lines [36] along the top of the truck side frame.



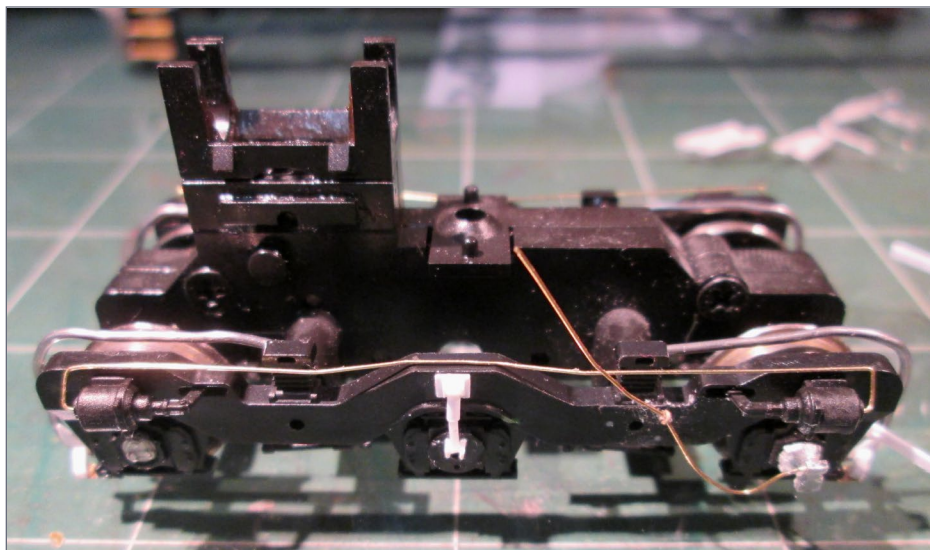
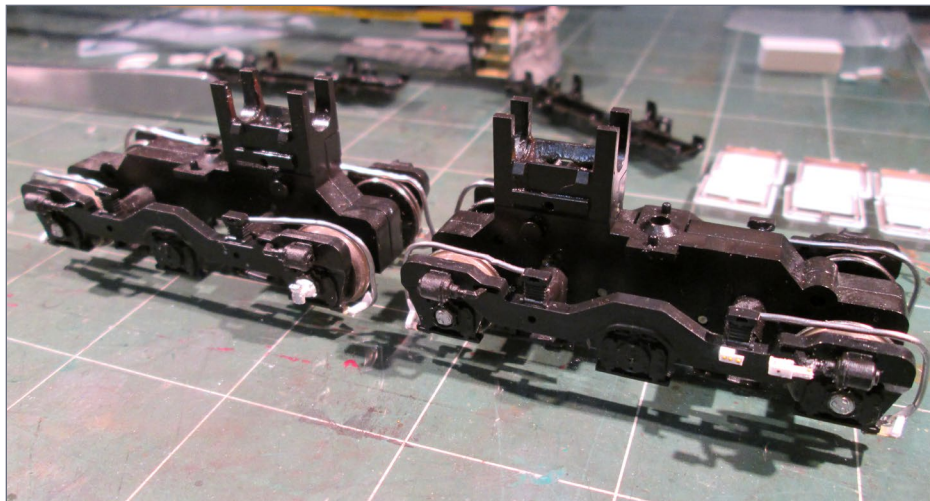
34a, b. Building sanding hose brackets for the trucks.



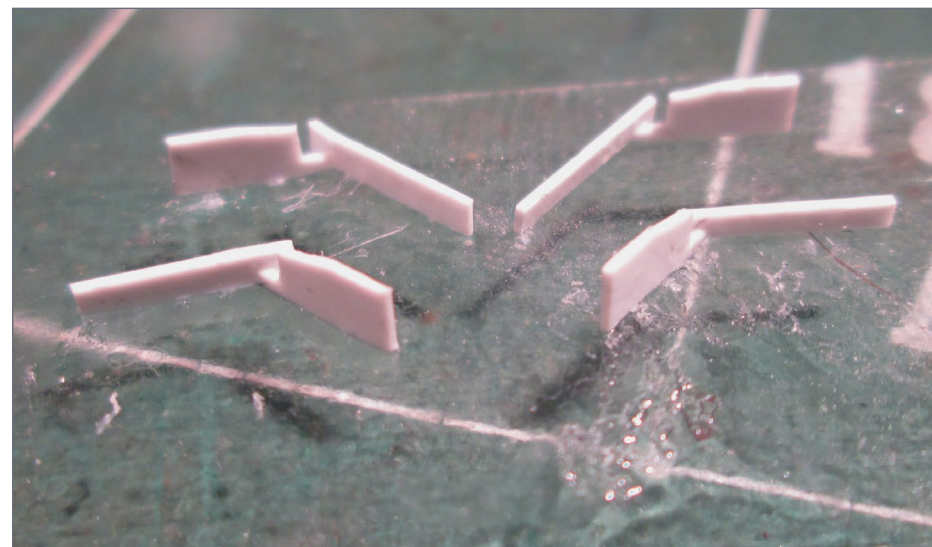
35. Making the hand-brake chain holder.

These had to be made because the factory ones didn't have the correct bends over the middle wheels. I used .010" brass wire.

Finally, you can see the flange lubricators I scratched from .010" styrene [37].



36a, b. More detail modifications to the trucks.

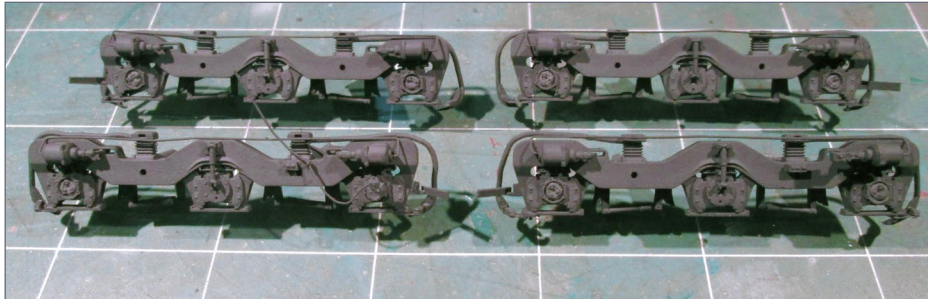
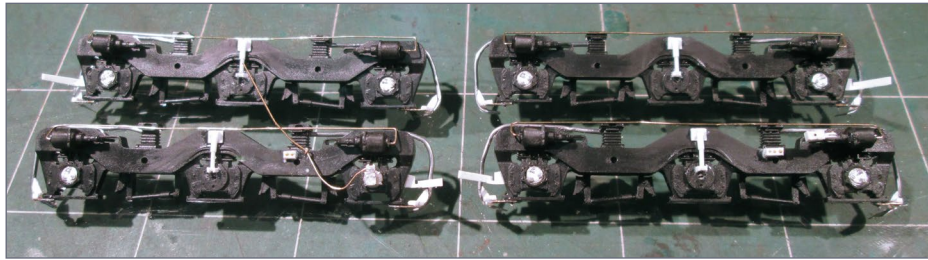


37. Scratchbuilt styrene flange lubricators.



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MRH website to find
topics of interest

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38a, b. The finished truck side frames before and after applying gray primer from a rattle can.

That completes all the mods to the trucks! I applied Rustoleum gray primer from a rattle can to the truck side frames [38] to finish them off.



TRUCK FLANGE LUBRICATORS

For more information on modern diesel truck flange lubricators, check out the Snyder Equipment, Inc. website.

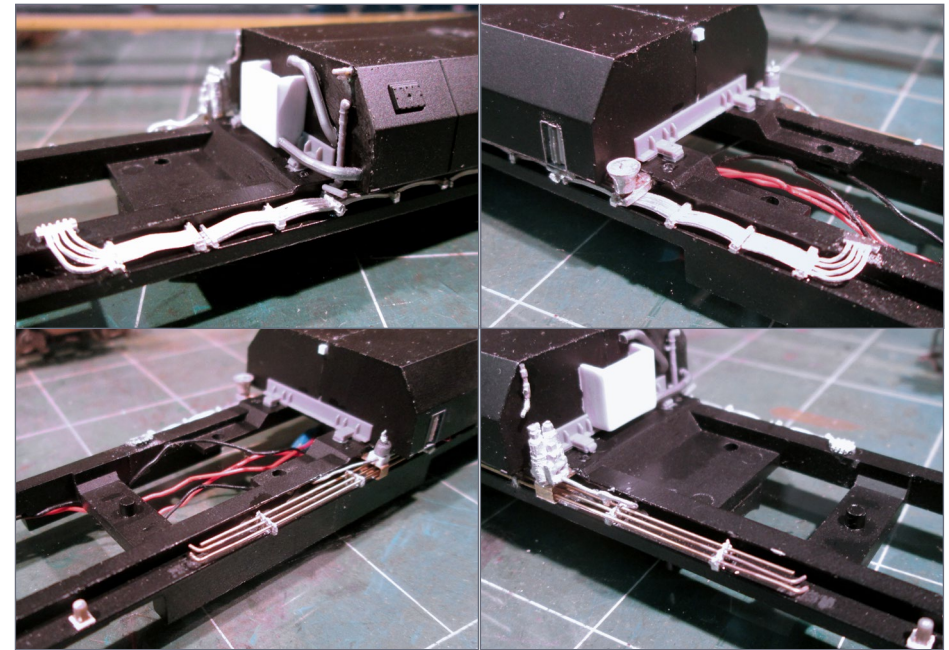
WEB: snyderequip.com/slb-solid-stick-wheel-flange-lubrication-system.html.

Underbody hardware

Here's where my modeling shows its greatest weakness. I have limited knowledge of chassis and underbody parts and equipment. I do most of my modeling from what I can see in a photograph, and lack of data on the underside makes it a difficult area for me to model accurately.

I do my best to model what I can see as accurately as I can, unless it interferes with operation. Model plumbing often gets routed in unrealistic ways in order for the trucks to move enough to round the curves on my layout. Because I run my trains often and don't have the space for prototypical curves, this is a necessary evil.

Another issue is that purchased detail parts often do not come with installation instructions that are easy to understand or truly complete, so there is some guesswork involved!



39a, b, c, d. Underframe detail added to the model.

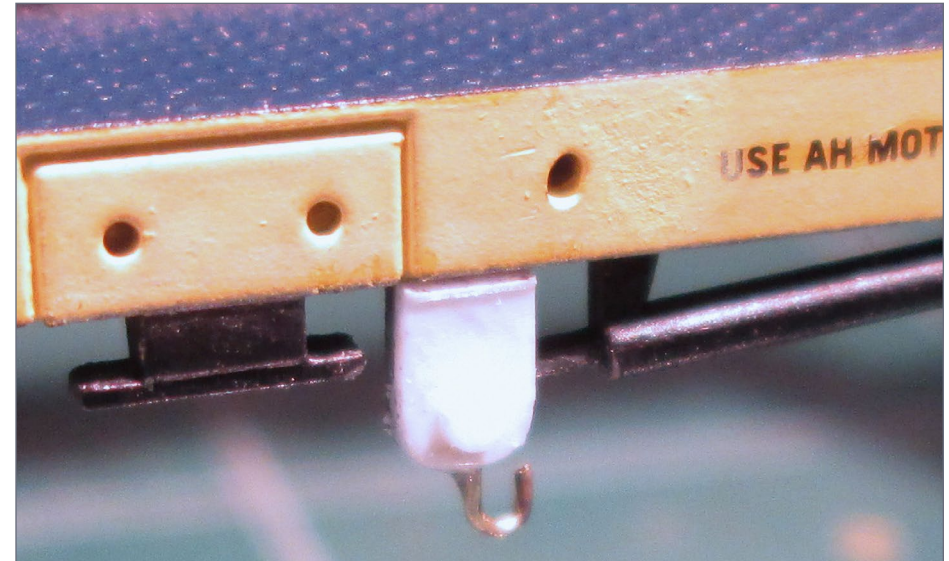
Here is how my underframe work progressed. I use Details West parts, Cannon & Co. parts, and I scratchbuild other parts. I use 2-part epoxy to attach the parts to give them as much strength as possible [39].

One detail on this model that I *know* is larger than scale are the chains I use everywhere. I use chain that is too large because it is the smallest chain I can find – A-Line 40 links per inch – and because it is *real* chain and I like the movement of it.

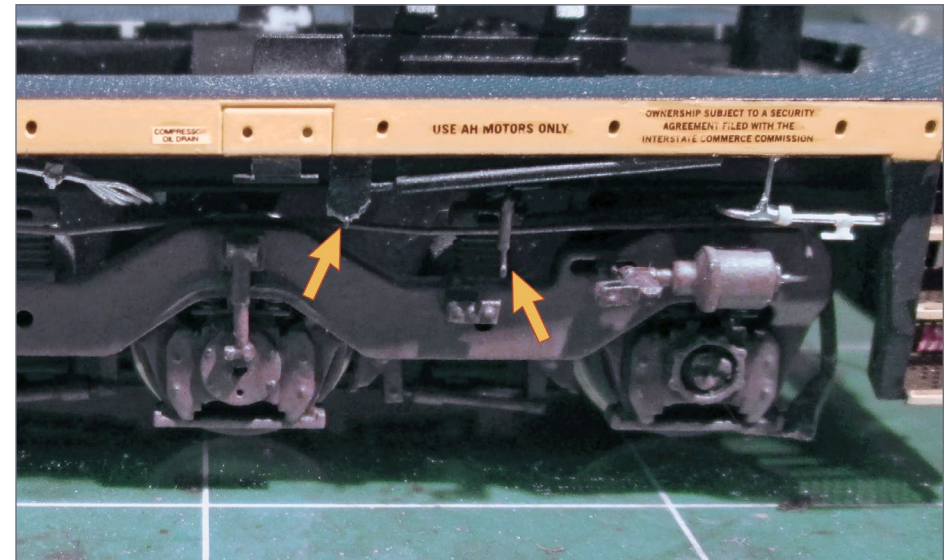
I found it quite a challenge to duplicate the handbrake chain on this locomotive. It threaded through the sill and through assemblies on the truck. It should make it look like one piece, yet the shell must be removable when needed – and of course be able to watch the chain move with the truck.



40a. Scratchbuilt hanger for hanging chain from truck side frame.



40b. Hanger on the side sill for the other end of the chain.



40c. Finished hanger installation with the hangers marked with arrows.



41a. Chain hangers under the sill.



41b. More hangers for chain on the side sill, indicated with arrows.

The brake chain dictates that I use the same chain everywhere else because my OCD would be displeased with scale-accurate chain elsewhere and then an out-of-scale piece here!

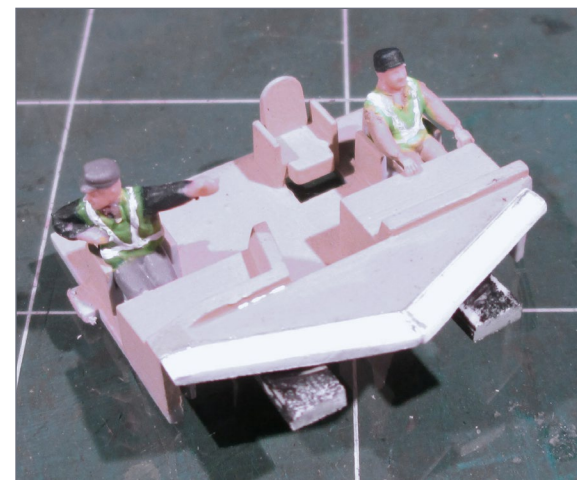
Here is a photo of the piece I made to represent the “spring hanger thingy” which I mounted to the truck side frame from the back [40a].

In this photo [40b] you can see the piece I made to attach the chain to the sill. The small brass hook lets the chain look attached, but remain easily removable for servicing. The finished install shows both hooks ready for chain [40c].

I decided to do still more out-of-scale chain work on the chain that hangs along and under the sill. I made the end oval from magnet wire and the hook from a piece of .010” brass wire that was flattened in a vise and drilled. You can see the other chain hangers on the side sill [41b] ready for the chain.

Cab details

Okay, on to the cab mods. For some reason, the model cab dash didn't extend all the way to the windshield.

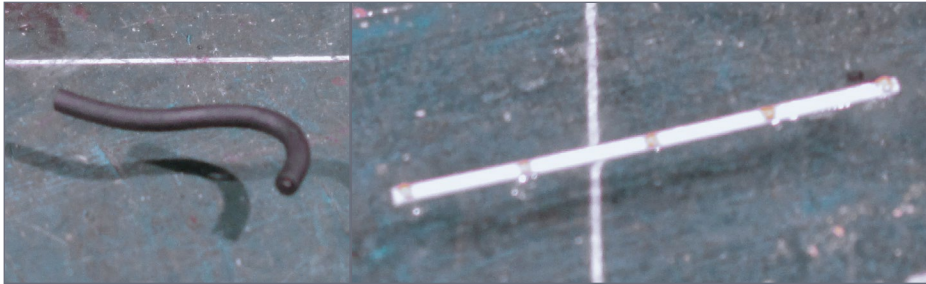


In my prototype photos it looked like the dash did extend all the way, so I added a couple pieces of styrene to the dash [42].

42. Making some cab detail upgrades.

I painted the dash additions to match and then painted modern era safety vests on the cab crew [42]. I also made a couple of “manuals” and glued them to the dash as if the engineer had set his reading material down – you can see this in the finished model overhead photos.

I needed to make a couple more minor detail parts, but they would have to wait until I reached a point in the weathering to properly



43a, b. Some additional details to be added once weathering is complete: GPS cable and A/C unit reinforcement strip.



SOFTENING BRASS

As a tip, I often anneal the brass I’m working with by heating it hot with a lighter. I let it cool naturally or douse it in water. This softens up the metal and makes it much easier to bend.

mount them. These parts are the cable from the GPS to the interior (made from a leftover piece of electrical wire) and a piece of reinforcement with bolt heads to go over the A/C unit [43].

This completes the detailing of the locomotive – on to the weathering phase!

Weathering CSX 7826

Now that the build is finished, it’s on to weathering!

This is my favorite part because I am much more of an artist than a mathematician/engineer. This is where I can try to make the model look real. I do my best to match the look of the actual prototype with this process and to hide my detailing boo-boos!

A major part of weathering any piece of train equipment is getting the underlying color of the faded paint correct – or as close as possible. I learned how to do this at “The Weathering Shop” on its forum “The Rustbucket” (theweatheringshop.com/home.html).

Gary Christensen has posted a tutorial on this subject, as did Jeff

Meyer. I am using a tweak of Gary’s technique on this locomotive. If you’re interested in getting great fades (among other things), I strongly suggest checking out these tutorials!



44. Altering the loco cab number from 7799 to 7826.

I removed three of the numbers and replaced them with the correct numbers [44]. I removed the numbers using a fresh X-Acto blade, holding it vertically and *very lightly* scraping back and forth over the numbers until they were gone but the background paint remained.

Then I used 800 grit sandpaper and wet-sanded where the numbers had been, to finish and smooth the After that I added new decal numbers and set them with Solvaset. You can see the process of fading the numbers: the 2 and 6 are lighter than the original yellow 7 and 8.

To fade the long hood, I brushed on damp acrylic paint thinned with tap water to the consistency of skim milk.

Because I was attempting to use the original paint as a guide and didn't want to build up the fade coat too thickly, I applied the initial gray and yellow fades without a basecoat of Dullcote first. This made it a little more difficult, but was worth it. Here are the first couple of washes [45].



45a, b. Applying a fade coat to the gray on the long hood and subsequent cleanup.

When the paint goes where I don't want it to – you can count on that happening now and then – I remove it by lightly scrubbing the spot with a damp toothpick [45 a, b].

After I completed the gray and yellow fades, I sealed my work so far with Dullcote and started on the blue [46].

I sealed the gray/yellow fade with Dullcote so if the blue went out of bounds, I could “erase” it with a damp toothpick and not damage the gray and yellow paint.

The following photos [47] show the fine brush I used to fill in the CSX lettering, and a damp toothpick used for “erasing” errant paint.

Once I was satisfied with the fades, I gave the body a coat of gloss clear. I did this for two reasons:



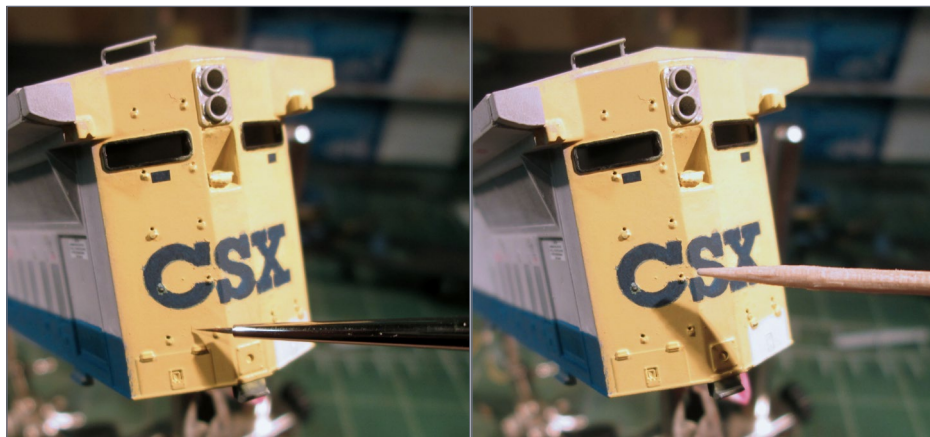
USE PROTOTYPE PHOTO REFERENCE

Nick is using prototype reference photos to do all the weathering on this loco. He's not making up this weathering by the seat of his pants – he's copying what he's seeing in the photos, which makes for much more realistic weathering.

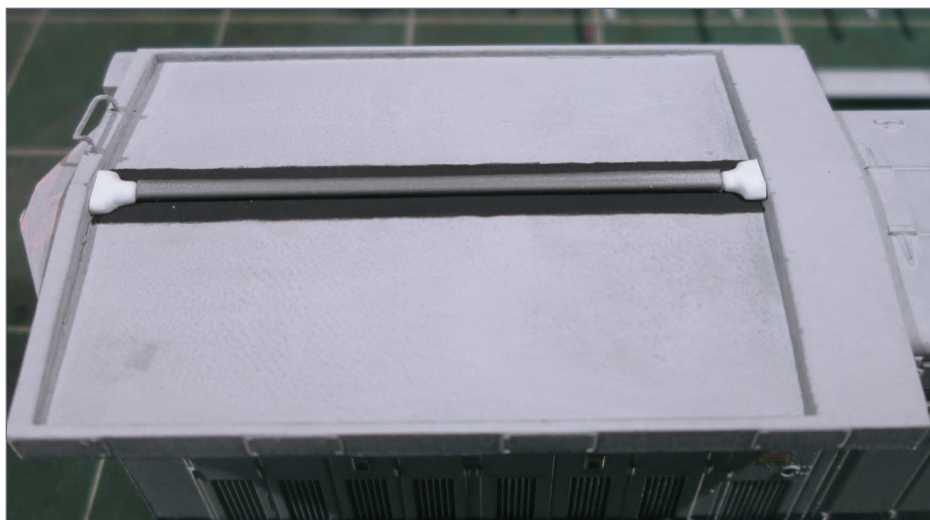


46. Applying a fade coat to the blue on the long hood.

First, I wanted to seal the fades in order to start the finish weathering. Second, after studying the prototype for a while – many, many hours of study, actually – I thought the best way to



47a, b. Brushing the fade onto the CSX end lettering and then cleaning it up with a damp toothpick.



48. Adding some extra pipe detail to the radiator area at the last minute.



49. Seam and intake pin wash is done on this side.

approach the final weathering would be to apply it on top of a gloss coat.

I used Testors Gloss in the spray can for this. I reasoned a slick coating should better enable manipulation and removal of mediums. It has less tooth than a matte finish.

In a surprise twist, a bit of detail-making came up. At first I wasn't going to do this and that is why it didn't get done until now – but my OCD wouldn't shut up!

Between the radiator vane boxes, down the center is a bit of piping. I couldn't see the configuration on any of my prototype photos well enough to truly make a copy of the prototype. Therefore, I guessed at something to look like what I could barely see was there. I made it from styrene and covered the joints (which you will see in a later photo) with tape [48].

Okay, back to weathering. Here you can see the start of the pin washes to enhance door seams, panel lines, and so forth. I used black with a little raw umber, and heavily thinned the acrylic paint for this.

As each pass of pin wash dried, I would again use a damp toothpick to clean up around the edges where needed. The gloss coat made this process very easy.



50. Creating apparent hood slits using decals plus some weathering.

The pin washes and intake screen washes are complete on the engineer's side in this photo [49]. You can see an area of blue down above the running board that I didn't fade because it will be hidden after assembly – what a difference!



WORKING WITH OILS

Squeeze the dab of oil paint you want to use onto a piece of card-stock and let the carrier oil leach out for 15-30 minutes before using the paint. This makes the paint easier to apply in any desired strength from intense to light.

A feature I didn't know how to approach on the model were two "slits" under the intakes and above the A/C unit. I could not figure out how to make cuts this small and precise. After much thought, I used black decal film to give *the appearance* of slits [50]. I then outlined them with acrylics and weathered them with

oils to enhance the appearance.

My attention now moved to the radiator area. Here, I used burnt umber and burnt sienna oils to represent rusting and put raw sienna gouache in the seams of the vane box frames.

I rusted the grilles, then overcoated them with a Van Dyke brown and black mix using oils [51].

I then applied some first layers of rust on the roof [52]. You can see where I used blue painters tape to mask areas that for some reason did not rust on the prototype – very odd!

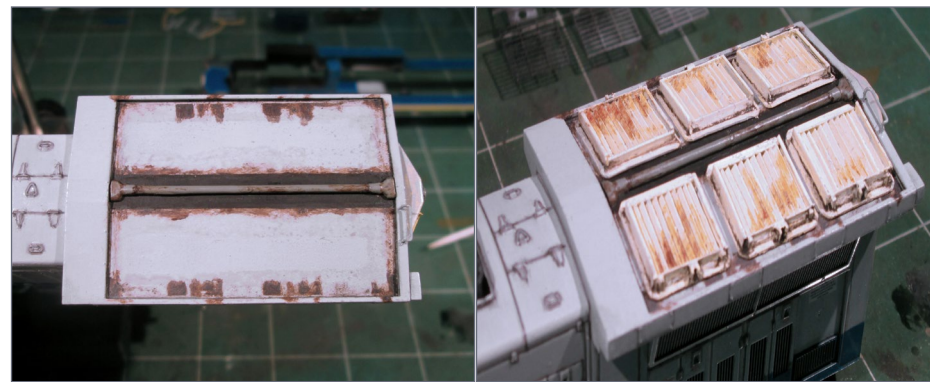
I also used blue painters tape to create a straight edge in order to paint a line to represent a weld bead [53].



GOUACHE PAINT

Gouache is an extra opaque watercolor paint. Just Google Gouache to find it. The link below goes to a Gouache paint set on Amazon.

WEB: a.co/d/4dpvhry



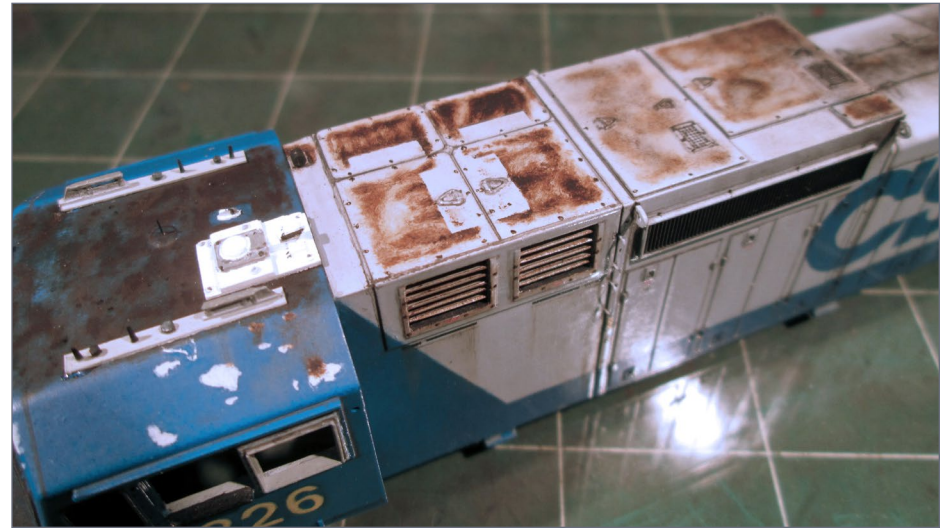
51a, b. Rusting the radiators area.



52a, b. Adding weathering to the roof.



53. Using blue painters tape to mask a straight line for a weld seam.



54. Another view of the weathering layers being applied to the roof.



55. Adding rust specs to the cab nose.

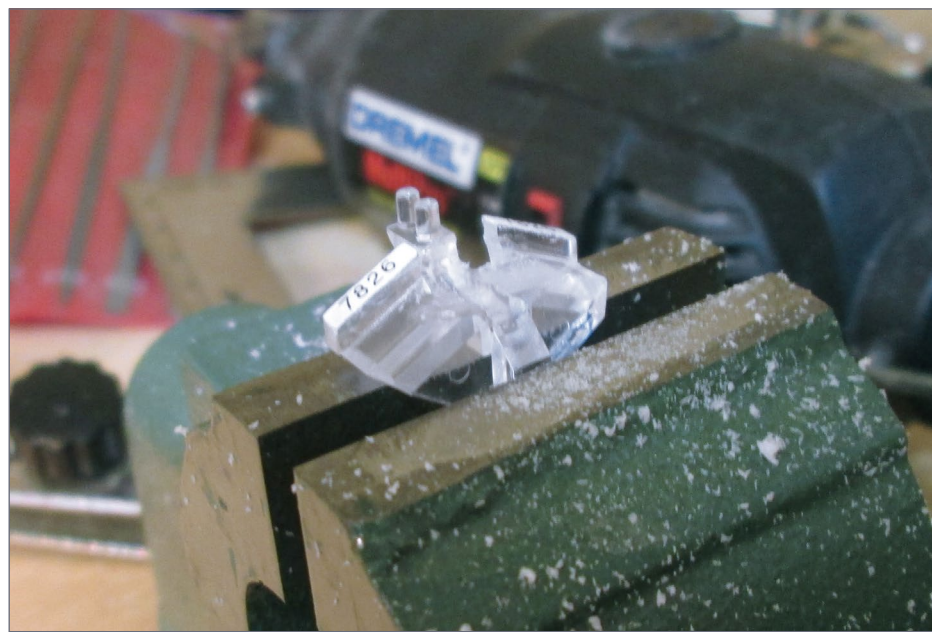


WEATHER IN MULTIPLE LAYERS

One of the secrets to more realistic weathering is to use multiple light layers and slowly build it up instead of slathering it all on in one layer. Nick does this – if you pay close attention to his text, he talks about using multiple layers when he’s weathering.

In the following view [54] you can really see the layers of color in the rust now. You can also see where I used a very light gray acrylic on the cab to re-create areas where the blue paint flaked off, revealing the primer.

I added tiny rust specks all over the nose [55] using a toothpick sharpened



56. Filing the light casting to get it to fit.

on fine sandpaper and full-strength acrylic paint. I used this same method to make the rusted areas on the handrails.

When re-installing the rear light and number board part, I had to file away part of the light casting for it to fit around the new sand filler hatch casting [56].

Here is where I installed that strip of batten and bolts just above the A/C unit [57].

Next, I added rust along the bottoms of the hood doors, and streaked soot and grime from the roof using oils [58].

For the final phase of weathering on the shell and sills, I applied the dust and dirt kick-up all over the engine [59]. I used a couple different brown acrylics to mix up a color that looked correct. I thinned it very heavily and applied it drybrush-style using a brush just damp with paint.

With paint work on the body shell complete, it is time install the

“glass” and interior. For the windows I used a laser-cut windows kit from www.laserkit.com. The glass comes with a paper coating that peels off. I left the paper in place until I had installed all the glass [60] and completed weathering.

When I got to work on weathering the frame,



57. Location of the batten-and-bolts strip above the A/C unit (A/C unit temporarily removed).

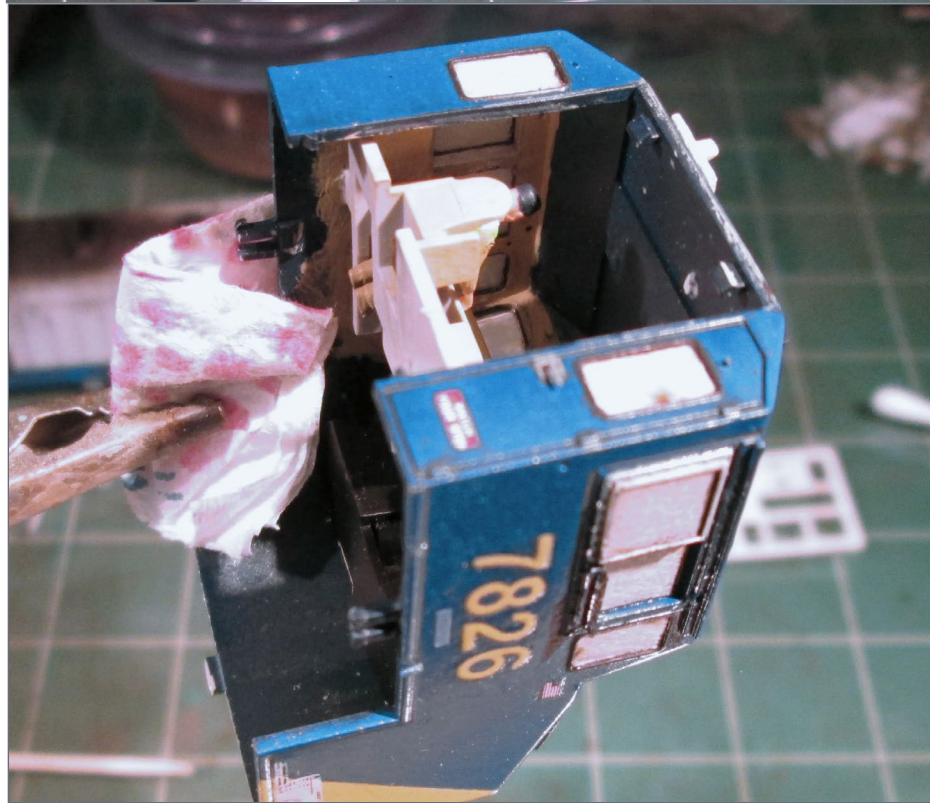


58a, b, c. Rust along the bottom of the doors, with streaked soot and grime from the roof. Note the wear patterns on the steps and deck plating.

I first masked it and sprayed it with a spray can of Rustoleum black auto primer. After that, I had to do a bit of pre-weathering before layering on the dirt and grime.



59a, b. Kicked-up dust and dirt application is the finishing touch.

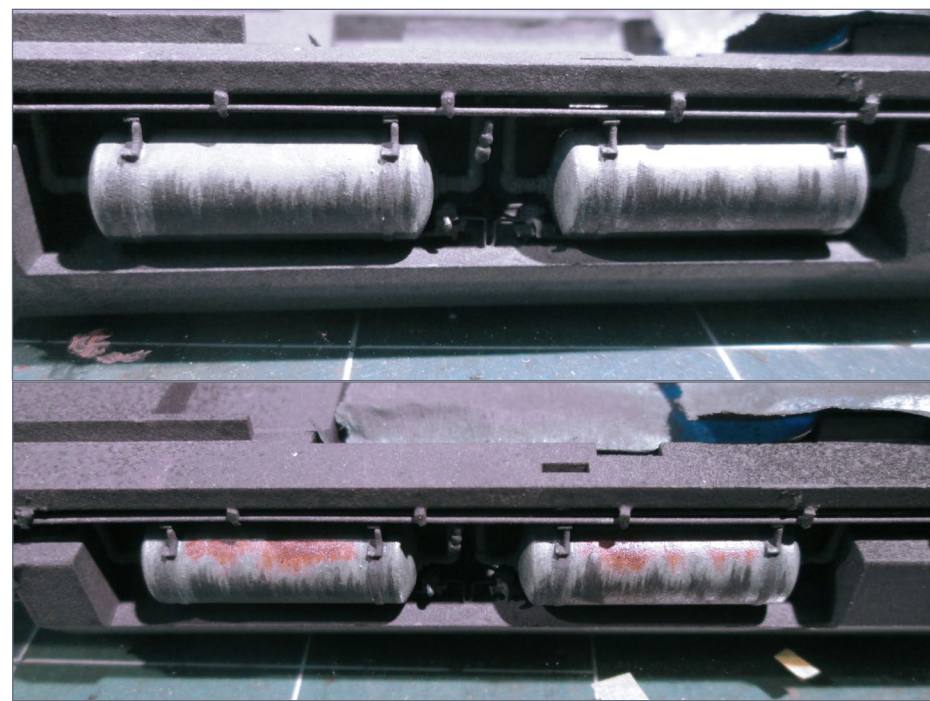


60a, b. Installing window glass in the cab.

The air tanks had a unique weathering pattern. It looked like the black paint came off revealing the primer underneath, in a pattern like it was running off due to condensation. In addition, there is some heavier rust on top of the tanks. For this gray streaking I used acrylics. For the rust, I used oils [61].

To give the frame, fuel tank and truck side frames a good, even coat of dirt, I used the same batch of paint I used to represent dirt on the sides of the long hood and cab sides. This was also the only time I used my airbrush.

After I had covered them well, I used raw umber gouache to cover the base color, and then removed most of it leaving another subtle hue layer.

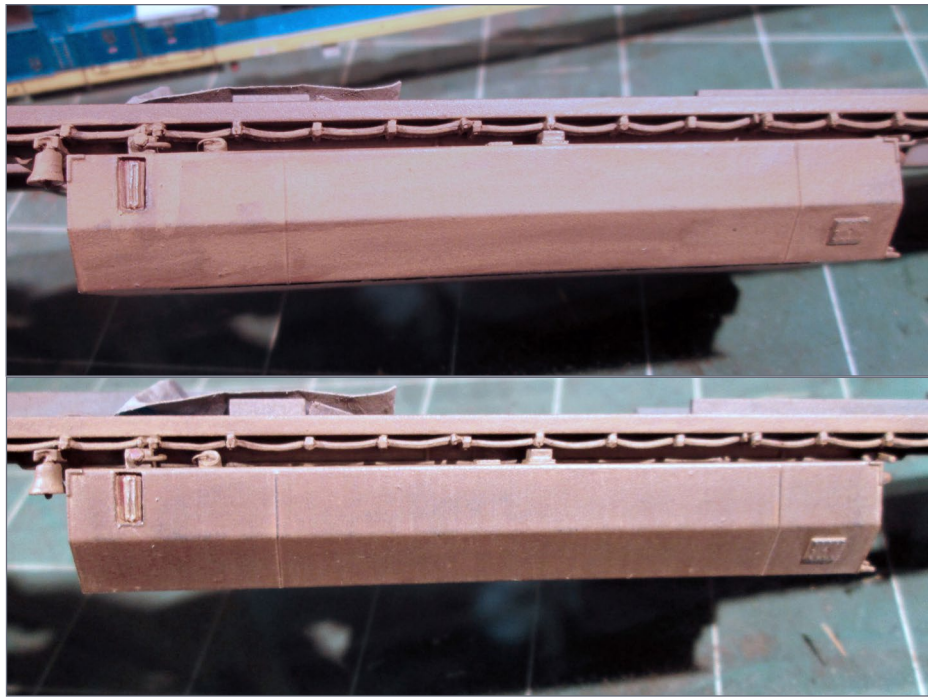


61a, b. Weathering the air tanks.

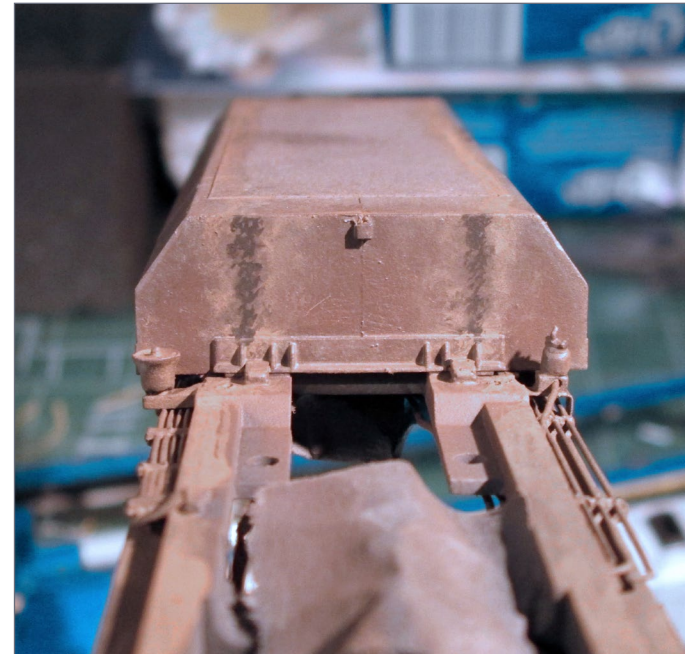
You can see the application of the gouache in the top fuel tank photo, and its appearance after it was mostly removed in the next fuel tank photo [62]. I also used raw umber and burnt umber gouache for the wheel splatter [63], and used burnt umber oils for the spillage under the air tanks. I overcoated the spillage with Pledge Floor Care finish (previously known as Future) for a wet look. This step was done after the final application of Dullcote to seal the model.

For the final step I applied Testors Dullcote from a spray can to give the model a nice matte finish, and to seal the paint and decals.

One of the things I learned during the building of this model: even though my natural eyesight is still very good, it cannot match magnification. The model has many finish flaws that likely



62a, b. Weathering the fuel tank with Gouache.



63. Wheel splatter on the fuel tank.

When talking to hobby vendors, please remember to mention MRH.



FINDING FUTURE FLOOR FINISH

Future floor finish has been known by many names over the years, and it's also called different things in different countries. For the complete guide to finding Future floor finish, see the link below.

WEB: swannysmodels.com/TheCompleteFuture.html

would not exist if I had used magnification. Lesson learned. On to the next model!

Here are a few finished photos on a diorama under natural sunlight [64-70].

**VIEW READER
COMMENTS**
click here

64-70. Photos of the finished model ...





**VIEW READER
COMMENTS**

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NICK CAMPBELL



As a young boy, there were many times that Nick would accompany his grandfather on various errands. On occasion, he would see a train coming and his Grandpa would pull his truck over to the side of the road. When the train roared by, shaking the truck, it always left an impression on Nick... as did the tuxedo scheme of the Southern Railroad.

Other seeds that were planted were the train sets he received as Christmas gifts from his father. From around 5 until 11 years old this was the gift of all gifts!

After an absence from the hobby during his early adult life, he happened to randomly stop in a hobby shop near where he was living, and the train bug bit again! He was hooked and a trickle of new models (rolling stock/engines) began to find their way to his home, and a layout was started.

During the layout building phase, and a very regular internet search on model railroading questions, he stumbled upon the "Model Trains Weathered" website. Being a visual artist (oils) already, seeing these models being transformed into miniature replicas of reality was fascinating to him.

Shortly after "Model Trains Weathered" went away, he found "The Weathering Shop" and its forum "The Rustbucket." Just about every technique he has employed was found on "The Rustbucket." The tutorials and answers to questions about how to accomplish weathering goals have been invaluable. ■

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USPS: NNGC Registration
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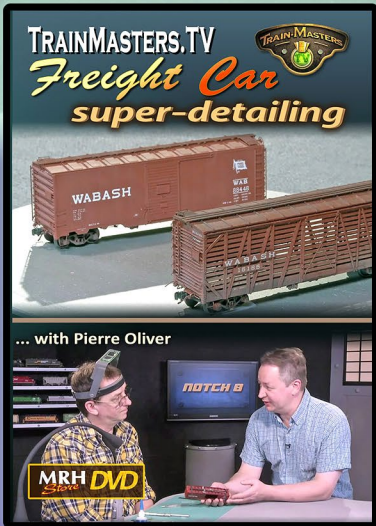
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compiled by **JOE FUGATE**

★★★★★
RATE THIS ARTICLE



1. A Baldwin VO-1000, typical Reading branchline power, works the branch at Moyers, PA in July 1955. Robert Moutenay took the picture on his HO scale Reading Merkiomen Valley Branch layout. The railroad is a 4'x8' with a shelf extension and three-track staging yard, representing a Reading Company branch line in the 1950s. The 4'x8' part of the layout is divided into two towns with a backdrop down the middle and can be operated as a stub-ended branchline. The loco is a Bowser model, and Robert detailed, painted, and decaled the Bachmann caboose. The station is a limited-edition Branchline model of Reading's Rushland, PA depot, and Robert scratchbuilt the feed mill in the background. Robert took the photo with his iPhone 6s.

▶ **MRH'S MONTHLY PHOTO ALBUM**



2. In the late Summer of 1948, a Southern Pacific reefer train with the famous AC12 Cab Forward 4294 on the point accelerates past a service station along the old highway west of Roseville on its way east. The locomotive is a Key Model Imports brass import, vehicles are Conquest and Durham Classics. Erik Lindgren toned-down the factory paint slightly and changed it some to better represent an authentic appearance. Erik built the structure from a kit once offered by Berkshire Valley – their 1930s-era service station. The module is part of the O scale Longmont Terminal and Northern Model Railroad Erik and his friend have built. Erik took the photo outside in soft overcast conditions in the early evening. Erik combined the locomotive exhaust from a prototype photo and simulated an aged color negative tone using the same photo editing program.

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LOVE THIS PHOTO

As an SP modeler, what's not to like about this photo by Erik Lindgren? Just look through old model railroading magazines from the 1960s and imagine what those modelers would have thought if they saw this photo and be told it was an O scale model photo and only the smoke is fake? We are truly blessed with some awesome modeling now!



GET PAID FOR YOUR PHOTO

We pay \$40 per photo we publish. If you'd like to get your modeling in our photo feature, just start posting your photos on the MRH website, especially in the Weekly Photo Fun thread created each week.

See mrhmag.com/help for more on how to post an image. You need to be an MRH subscriber to post photos to our website, and becoming a subscriber is free, [just fill out this form here](#). ■





One Module Challenge

Second place winner

Model Railroad Hobbyist | September 2018 | #103

FERNANDO BELLINI'S entry models the Albany and Eastern Railroad using a TOMA design ...

WHEN I DECIDED TO MAKE A SUBMISSION FOR the *TOMA with a Twist* contest, the first thing I wondered was -- what would I want to do? I have made two layouts to date, and in both cases I really enjoyed the planning process.

ONE MODULE CHALLENGE | 2

★★★★★
RATE THIS ARTICLE

1. Prototype photo of the Albany and Eastern railroad by Marty Bernard.

So I took this as a chance to plan a hypothetical third layout. None of my layouts was based on a specific location or a real line, being simply a general representation of the western railroads in the '70s. After these years in the hobby, I'm pretty sure my next layout will be based on a prototype. So I wanted to try something different in layout design and decided to model a short line in the present day.

In the search, I found a YouTube video of a rebuilt SP SD9 in the classic Black Widow scheme (one of my favorites) serving a short line in Oregon, which inspired me to model the Albany and Eastern Railroad (AERC).

Class III railroads are not as well documented as bigger ones, and I had to dig deeper to find information. I didn't find much about model railroads of this line, so it seems to be something fairly unexplored.

After the research process, I decided to focus in the main line that goes from Albany to Lebanon. The TOMA with a twist has an alternative from continuous run, and the AERC runs an excursion train, the Santiam Excursion Train, which departs from the former SP depot in Lebanon.

The oval could be ideal for a passenger train, and a nice addition to a modern-day layout. I used Google Earth a lot and the existing YouTube videos to figure to determine the traffic and the industries in the line.

This layout would use DCC, and I choose Atlas code 83 track flex track and number 6 turnouts. The curve radius is 22-24 inches.

ONE MODULE CHALLENGE | 3

The modules' configuration allows easy access to both the layout and the furnace and water heater area.

I made the track plan with Anyrail software.

Modules 1-2

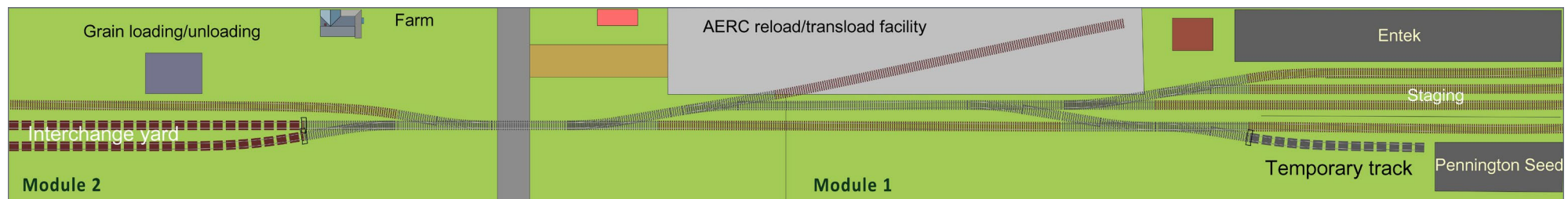
The base and trackwork can be done together, and then scened from right to left. Both modules are 8x2 feet, and comprise the Lebanon industrial area (right) along the small town of Tallman (left).

On module 1 (on the right), the industries represented are Entek International, a producer of polyethylene (PE) battery separators for starting, lighting, and ignition batteries, and Pennington Seed, specializing in grass seed.

The industries are located face to face on both sides of the line, and each has a single spur. Between them I placed two tracks as a sort of visible staging.

Pennington seed could receive covered hoppers and boxcars, while Entek receives covered hoppers, boxcars, and tank cars.

Next is an AERC-owned paved area with a spur for non-rail served customers loading and unloading which can receive any type of car.



2. The first two modules, with module 1 (Lebanon) on the right and module 2 (Tallman) on the left.

ONE MODULE CHALLENGE | 4

On module 2, the town of Tallman (on the left), there is a spur with a warehouse where bagged grain is loaded via boxcars and bulk grain is loaded or unloaded with a conveyor.

As for modeling the Tallman area, there are a lot of golden wheat fields that could be fun to model scenically.

There is a runaround on the prototype in the Lebanon area so I added that to the design. I arranged the tracks that will connect these modules with the others to work as a temporary staging, representing the interchange yard with UP and PNWR, another local shortline.

These two modules could work alone as a nice switching layout. Depending the budget, structures can be made with commercial kits that fit the space, scratchbuilt to match the prototype, or made with cardboard printable structures.

The terrain is basically flat, and to achieve a bit of variation the pink foam can be carved a little. The walls of the room could be painted sky blue. If desired, paint a backdrop or put up a printed photo backdrop.

List of materials, Modules 1 -2

Item	Qty	Cost each	Total
505 - H0 Atlas Code 83 #6 Turnout left	3	\$14.99	\$44.97
506 - H0 Atlas Code 83 #6 Turnout right	6	\$14.99	\$89.94
500 - 506, H0 Atlas Code 83 Flextrack (5 pack)	3	\$21.99	\$63.97
Atlas Track joiners	2	\$5.00	\$10.00
Atlas Track nails	1	\$6.00	\$6.00
14 wire (25 feet) Bus	2	\$8.00	\$16.00
22 wire (25 feet) Feeders	4	\$6.00	\$24.00
4x8 1/2" thick plywood (sub roadbed)	1	\$18.00	\$18.00
1x4 pine board 8 feet (frame)	4	\$10.00	\$40.00
1x4 pine board 2 feet aprox. (frame)	10	\$3.00	\$30.00
Pink insulation foam 4x8 2 inches thick	1	\$42.00	\$42.00
Glue, screws, nails, etc		<i>Estimate</i>	\$25.00
Anderson 30A Red/Black Powerpole connector	1	\$13.00	\$13.00
Shelf support braces (4 pcs)	2	\$25.00	\$50.00
Scenic material (paint, grass, trees, etc)		<i>Estimate</i>	\$70.00
Total*			\$542.88

*DCC system, rolling stock and structures not included.

Did you see this MRH video?



The ultimate "Yes, it's a model" video as James McNab switches NW 86th

Watch the video now

INTRODUCTION TO THE ALBANY & EASTERN RAILROAD



The Albany & Eastern Railroad Company (AERC) is a short line railroad serving the mid-Willamette Valley of Oregon, interconnecting with the BNSF and Union Pacific Railroads.

In addition, they offer reload/transload facilities on both the east (Lebanon, OR) and west (South Corvallis, OR) sides of the Willamette Valley to meet

13. Albany & Eastern's yellow and green paint scheme.

the needs of non-rail served customers throughout the area.

The AERC's long history began in 1880 as the Albany-Lebanon Railroad, connecting the communities of Albany and Lebanon, OR with approximately 11 miles of track. Within just a few months of its completion, ownership was transferred to the Oregon and California Railroad.

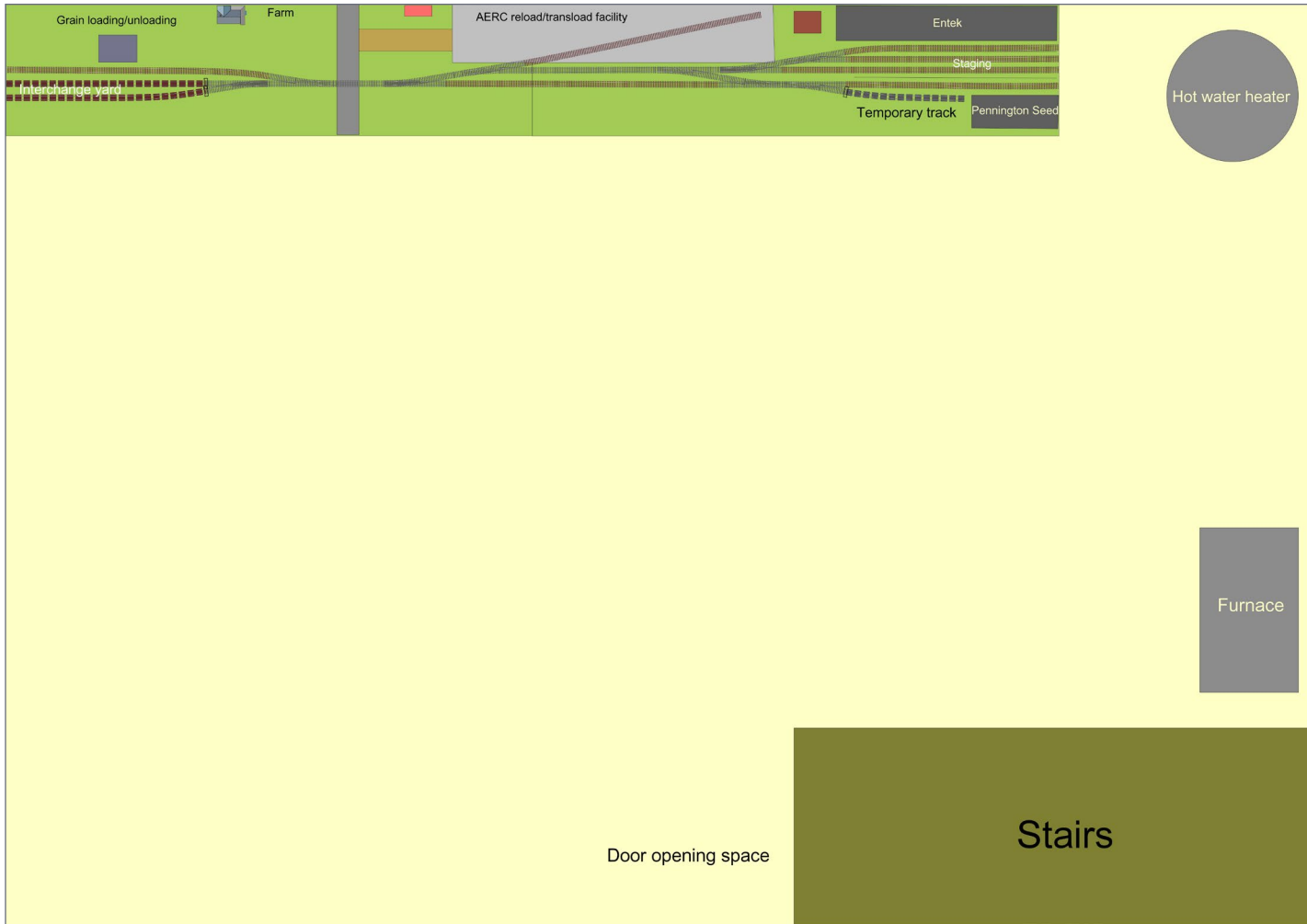
Much as it is today, the line served the timber and agriculture industries, moving logs, lumber, and agriculture goods to communities throughout the Willamette Valley and beyond.

The railroad again changed hands in 1887 when the Southern Pacific Railroad took over the O&C. The SP would later expand the reach of the line by constructing a series of branch lines.

Control of the lines shifted briefly to UP in the mid-'90s before it was sold off to become the AERC. The railroad still operates on the original Albany-Lebanon line to its interchange point with the UP at the Albany, OR rail yard. ■

Operation on modules 1-2

All work can be done with a single locomotive, but of course there can be more than one loco, too. The locomotive rests in the AERC facility and when is time to work, heads to the interchange tracks in Tallman to pick up cars. There are five destinations where the cars can be dropped or pulled:



3. Modules 1 and 2 shown in the contest room space.

1. The grain warehouse in Tallman
2. The AERC reload/transload
3. Entek in Lebanon
4. Pennington Seed in Lebanon
5. The two staging tracks in Lebanon

In the Lebanon staging, you might also spot a centerbeam flat and

log cars for the lumber and wood industries that will be present in future modules.

Once the job is done, the train returns with the cars to the interchange yard. Here is where cars can appear and disappear from the layout between sessions. Then the locomotive returns alone to the AERC facility.

**VIEW READER
COMMENTS**

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Modules 3-5

Modules 3, 4, and 5 are 6x2, 4x2, and 8x2 and should be done as a group.

This portion represents the road to Albany: a long runaround before entering the city, and the Albany yard where the AERC connects to the Union Pacific and Portland & Western



4. Modules 3-5 added into the contest room space.

railroads. In most cases, the cars go out empty from here and return loaded. One exception will be the log cars for the future Weyerhaeuser industry. They go out loaded and return empty.

I added a spur in the lower corner at the Sno Temp cold storage facility, which holds a couple of reefer cars. This spur is also used for the AERC as locomotive staging at night.



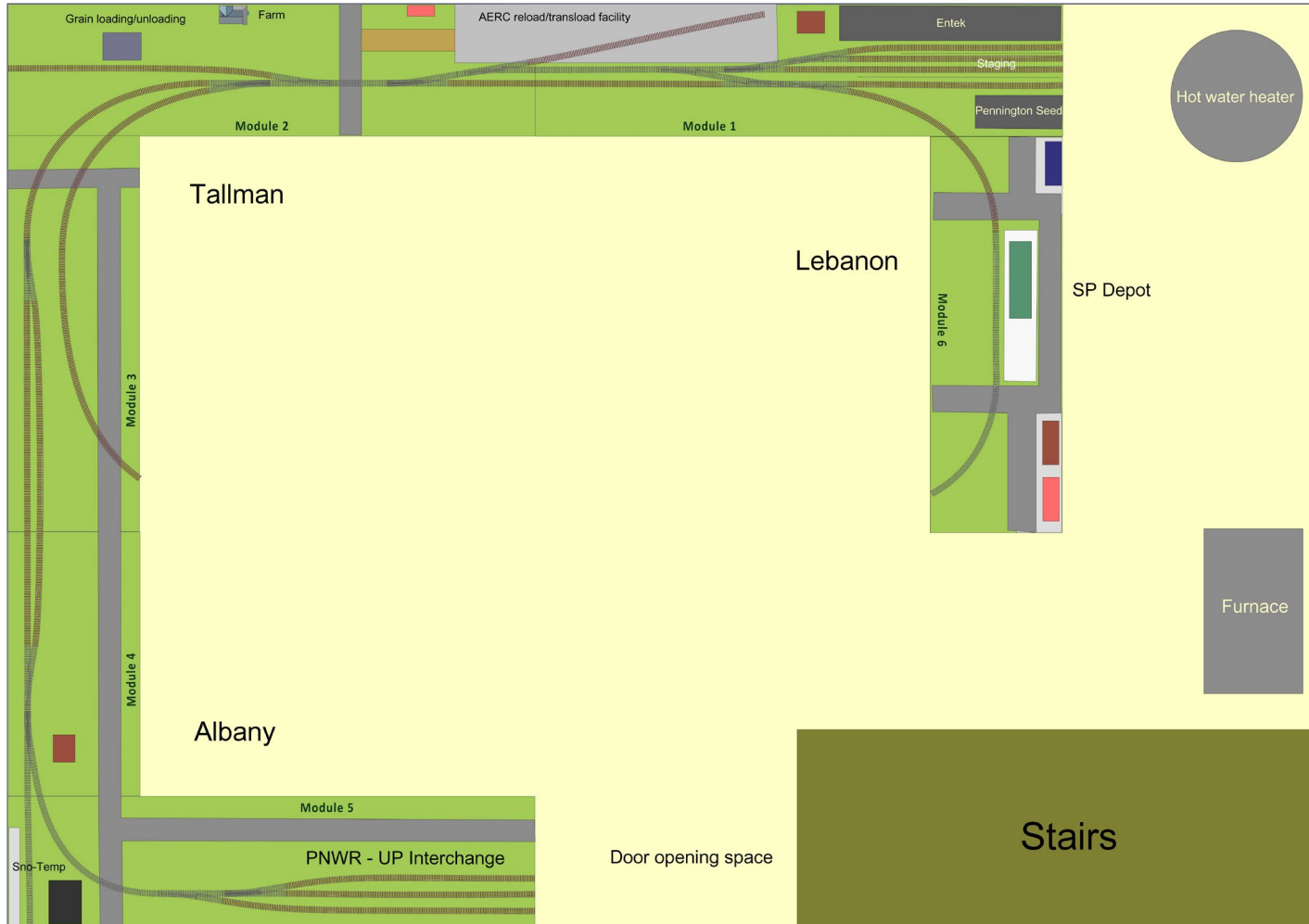
WHAT TOMA CAN DO FOR YOU ...

This layout plan and the phases of development shows what the TOMA approach can do for your layout aspirations. You can build the layout as you go and have an operational, finished-looking layout in months rather than years.

Please tell your buddies about MRH!

Module 6

Module 6 is a 6x2 module, and includes the former Southern Pacific depot in Lebanon. It's also where the Santiam Excursion Train departs, and is a nice opportunity to make a small city scene with streets, houses, and cars.



5. Module 6 added into the contest room space.

There are no turnouts in this module, so the trackwork is fairly easy.



RESEARCHING A MODERN RAILROAD ...

One especially fascinating aspect to this contest submission is the fact Fernando has never seen this prototype in person. This prototype short line is only about an hour from the MRH headquarters, but it's an entire continent away for Fernando who is from South America.

This prototype is a great example of how you can use the internet to research a modern shortline railroad you've never seen. Many shortlines can make a fascinating model railroad - and they're just waiting for you to do a little digging and research online!

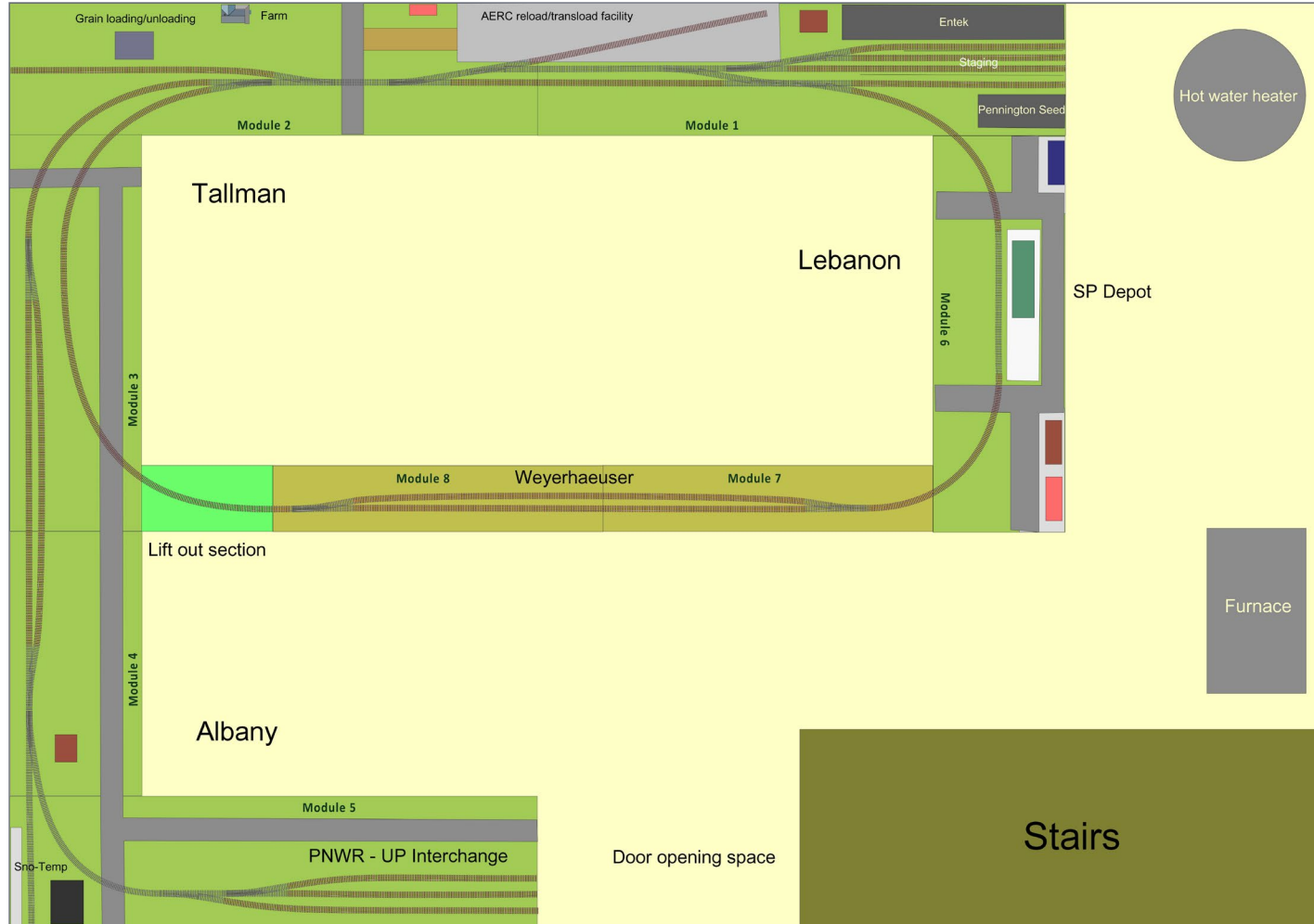
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Modules 7-8

These new modules can be accessed from both sides, and each measures 6x1 feet. Here is the Weyerhaeuser industry, but the buildings need not be represented.

Stacks of plywood, logs, and some equipment such as forklifts



6. Modules 7-8 added into the contest room space.

and trucks are enough. Again, I decided to make a single run-around track where up to seven centerbeam cars can be spotted.

The lift-out section is 2x1, and connects module 8 and 3, closing the oval. There are various ways to make a lift-out access panel, and I really like the way Ken Patterson did it in his June 2016 “What’s Neat” article. Find it here:

mhmag.com/magazine/mrh2016-06-jun/whats-neat .

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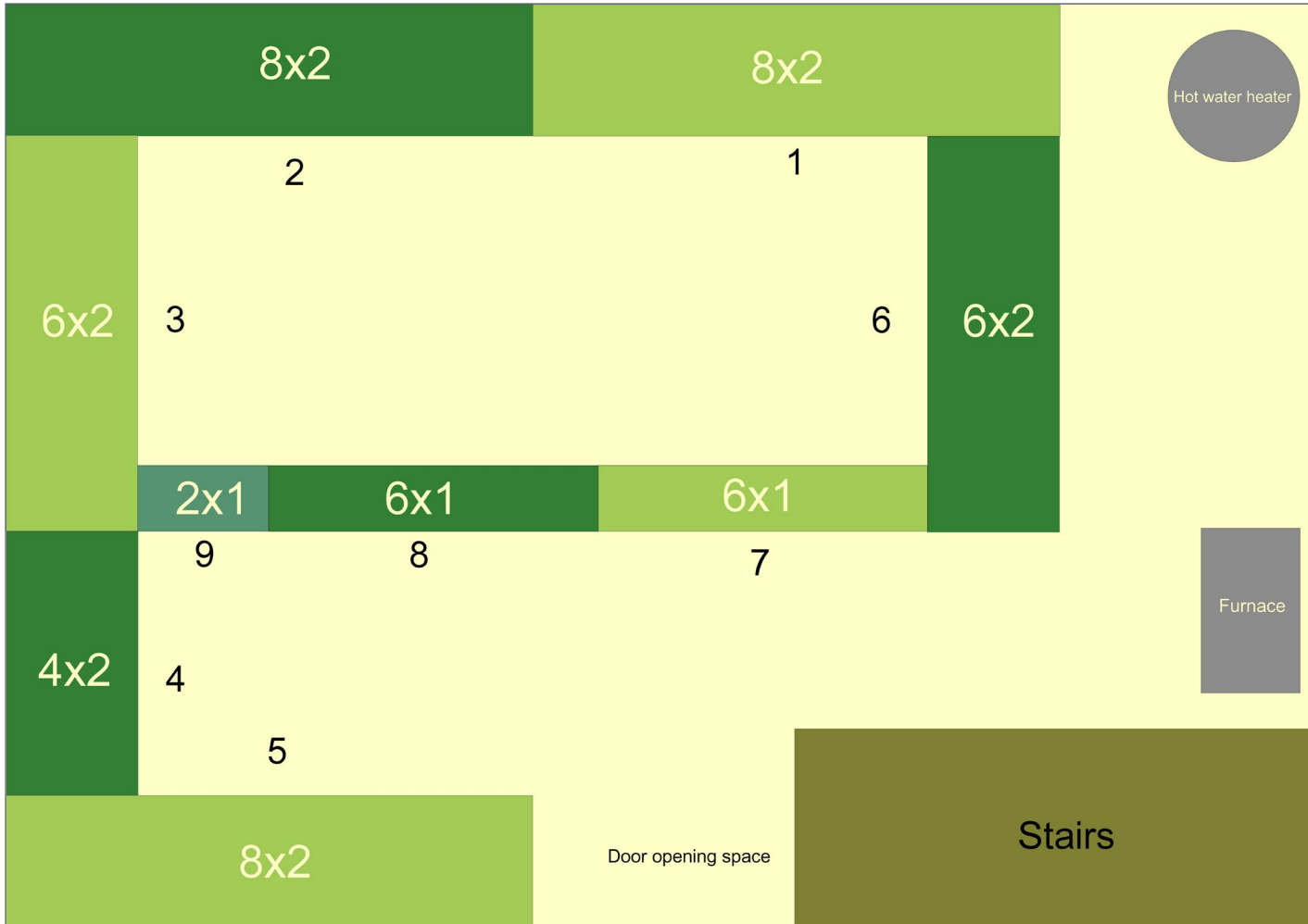
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Thoughts on tools

Here are some of the tools I use when building a layout.

- A Dremel or similar rotary tool is a must. It can be useful both for cutting the flex track and drilling the pilot holes that ensure correct alignment of the modules. I have one and I use it a lot.



7. Key to how all the modules fit into the contest room space.

- A good soldering iron can really make a difference.
- A professional cable stripper is another good investment.
- An inexpensive laser leveler helps make sure the modules are level.

As a rule, good tools allow you to invest less time in the building process and get to running the trains sooner. And with good tools, the trains should run better too.

Please include a phone number when contacting MRH
 (in case your spam filters eat our email response)

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Thoughts on building the modules

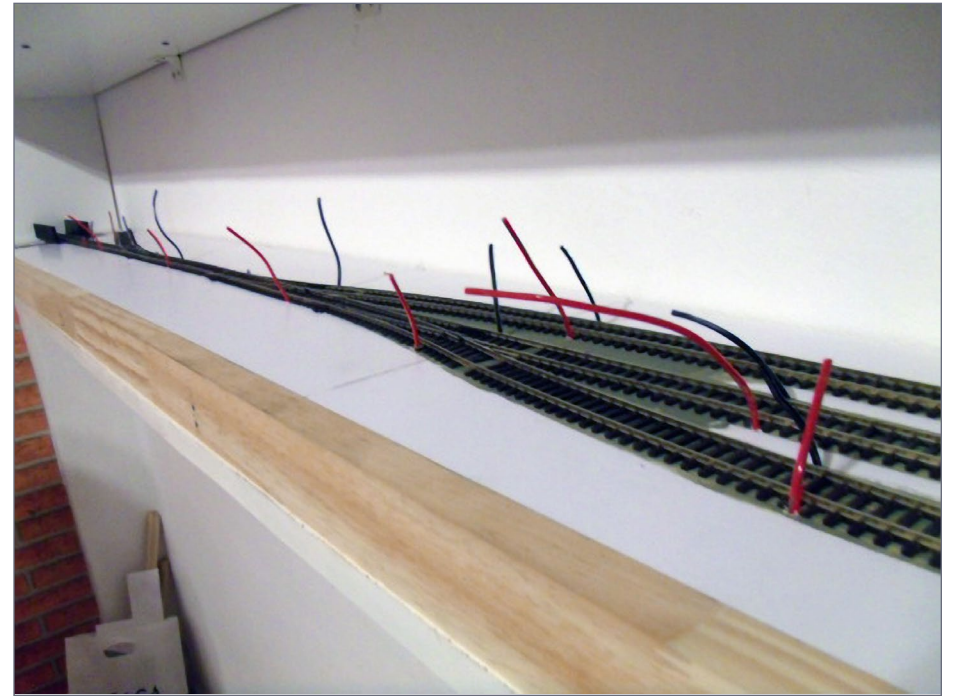
I would use 1x3 and/or 1x4 lumber to make the skeleton and carve the joists with indents for the wiring runs. Then put a half-inch plywood sheet on top, and over it add two-inch-thick pink foam.

The modules that rest against a wall can be mounted on supporting braces but do make sure you use a good level to achieve good level alignment and don't accidentally get a grade that causes the cars to not stay in place.

The other modules must have legs and you will need a way to adjust the legs' height. The modules join with a nut and bolt system, and the holes must be in exact alignment.



8. Building module benchwork using 1x3s and 1x4s, with some indents in the joists to allow running the wiring.



9. Add feeders to every piece of track – you will be glad you did!

I suggest making pilot holes with a precision rotary tool such as a Dremel and using a classic drill to finish up.

To make the power connections, as I do in my small switching layout, I suggest putting a feeder to each piece of track. It may seem like a lot of work, but once you get used to it, it's pretty easy and well worth the time invested.

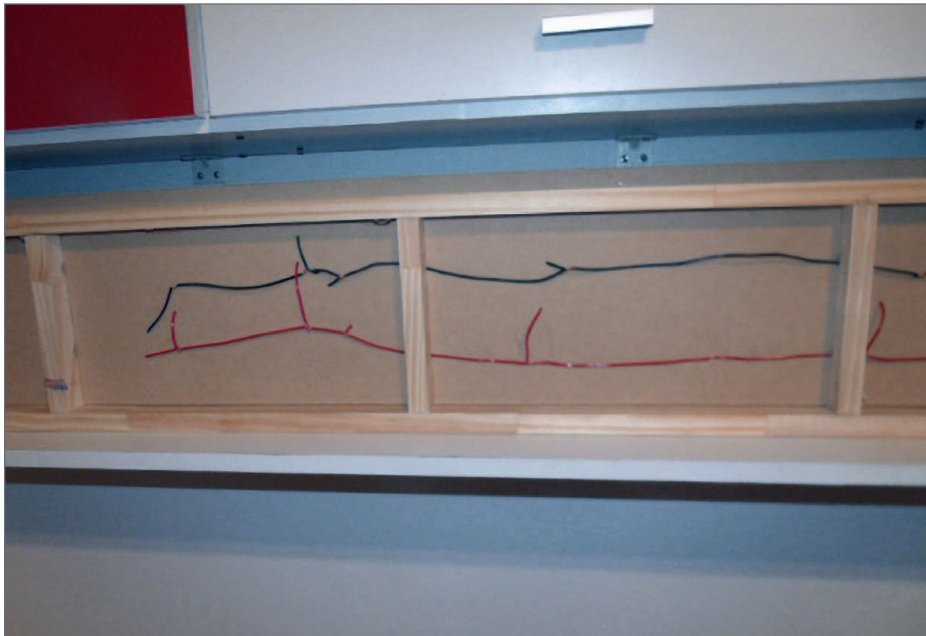
To interconnect module wiring, a good option is the 30 Amp Red/Black Anderson Powerpole Connector. A set includes (1) red/black bonded housing and (2) contacts. You can also buy a 10-pack, thinking long term for the rest of the modules.

Operation on the final layout

Operation of the final layout is pretty similar to the first stage of the project. Typically AERC locomotives go to the Albany yard to pick up and/or drop off cars. Trains are usually short (between 3 and 7 cars) and once the train is ready, it visits the industries dropping and pulling cars along the line as described earlier.

Once done, the loco runs around the train and makes the return trip to the yard. It may be necessary to do another runaround previous to returning to the Albany yard with the cars. The yard is where the cars can appear and disappear from the layout.

Freight trains operate point to point, not using the loop. The loop is only for the Santiam Excursion Train.



10. By adding the indents in the joists' top edge before adding the plywood top, you have places to run the wiring.



11. Albany & Eastern's excursion train with their "black widow" painted SD9. *Santiam Excursions website*

Things you can do:

- I have not found HO locomotives available in the AERC scheme so far. Painting a loco in this scheme could be a nice project. Black Widow engines will be easier to find and there are prototypical details that could be added to any commercial locos you might use.
- Model the Santiam Excursion Train consist. For example, the open excursion car of the Santiam Express is an 84-foot gondola painted black to match the Black Widow scheme. You can find more on the Santiam excursion website, including the full roster description.
- There is an opportunity to have both rural and city scenery on different portions of the layout.

ONE MODULE CHALLENGE | 21

- Doing the wood piles or plywood removable loads for Weyerhaeuser traffic is another good one-evening project modeling opportunity.
- Finding prototype photos of the real industries and structures on the web will allow you to try your hand at accurately modeling a representation of the real structures.

Conclusion

Despite being a fairly simple design, this layout has a lot of fun possibilities. By using the TOMA philosophy, the layout is operative with the first stage and ideally can be worked by one or two operators.

The Santiam Express adds an extra fun element and could be great for kids or occasional visitors who aren't into operations but want to run a train. Also, it could be fun to run it on special



12. Restored Southern Pacific train station in Lebanon.
Source: Wikipedia

ONE MODULE CHALLENGE | 22

occasions like Christmas or Halloween, adding some holiday-specific details.

My starting point can be adapted in many different ways. I chose single spurs in all the industries to keep the flavor of a short line with light traffic.

I think the key to achieving realism on this layout is to keep the spaces open instead of filling them with a lot of buildings and sidings. ✓

Did you see this MRH video?



A full-sized F7
cab in the
layout room?

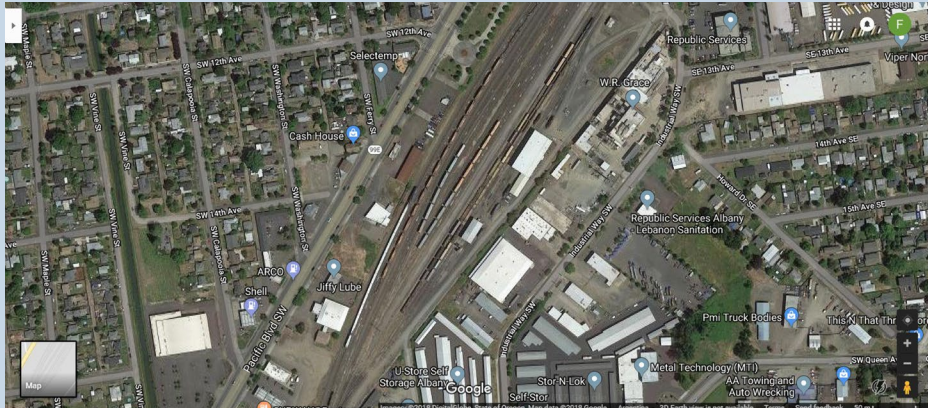
Watch the video now 

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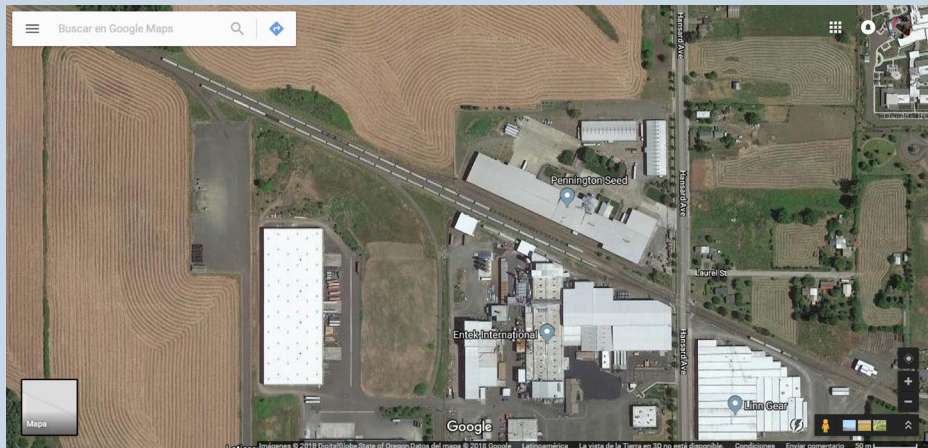
click here

GOOGLE MAPS: VIEWS ALONG THE LINE

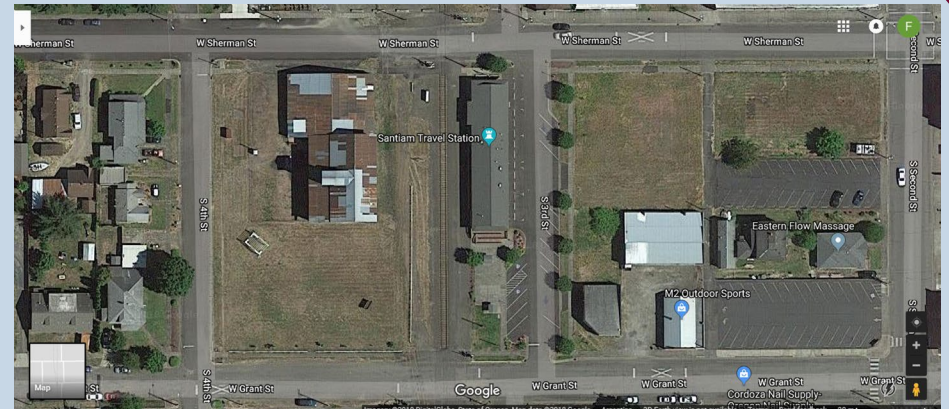
You can learn a lot by using Google Maps to look at a modern rail-road you might be interested in, like the Albany & Eastern. Here are samples of what can be found on Google Maps for the AERC.



14. View of the yard in Albany, OR.



15. Lebanon industrial area (AERC team track at left).



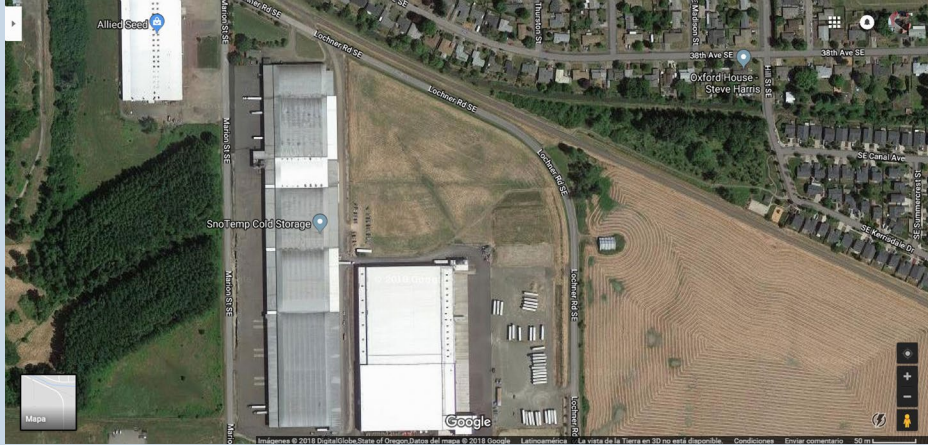
16. Santiam train station aerial view.



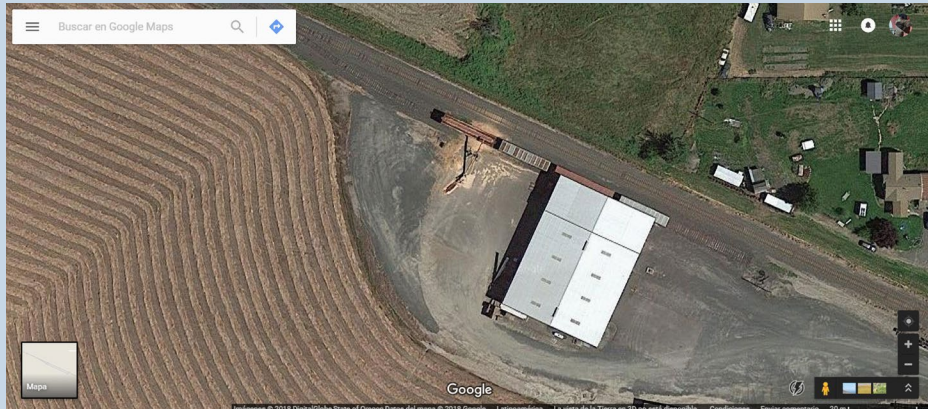
17. Santiam train station street view.

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click here

GOOGLE MAPS: VIEWS ALONG THE LINE *CONTINUED...*



18. Sno Temp in Albany, OR.



19. Tallman Grain warehouse and conveyor spur.



20. Weyerhaeuser in Lebanon, OR. ■

**Did you know
there's an
MRH index
available?**

CLICK TO FIND OUT MORE

**VIEW READER
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click here

MEDIA AND OTHER RESOURCES

Video: Traveling between Albany and Lebanon

www.youtube.com/watch?v=NL9-v6z4cPM

Pay special attention to the conveyor unloading a grain hopper in the back.

Video: The Black widow at work

www.youtube.com/watch?v=8f5fGaOSIvE

Videos: The Santiam Express

www.youtube.com/watch?v=HmawDIQkK0U

www.youtube.com/watch?v=9Cpka8SaYTE

www.youtube.com/watch?v=Mugo_n8_Hm0

Resources:

albanyeastern.com

www.anyrail.com/en

en.wikipedia.org/wiki/Albany_and_Eastern_Railroad

santiamexcursiontrains.com

www.pennington.com

snotemp.com

entek.com ■

FERNANDO BELLINI



Fernando Bellini started in the hobby at age four when he received an AC Märklin train set. Later in his childhood he switched to DC with an eclectic mix of European and American trains.

Fernando left the hobby at age 14 but resumed 10 years ago, aiming to play with his kids. Soon he got hooked again and decided to take it seriously, modeling only American trains.

Fernando lives in Buenos Aires, Argentina with his wife, two kids and Beth, a rescued greyhound. He teaches mathematics and physics and plays the bass with his country music band *No Bull*. ■

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COMMENTS**

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Homage to Grand Central Terminal

Model Railroad Hobbyist | September 2018 | #103

JIM PIERCE models this ornate train station using Photoshop Elements and an inkjet printer ...

MY MAIN REASON FOR HAVING A TRAIN LAYOUT is to have trains roll past scenes that bring back fond memories. I tend not to capture actual buildings; instead I prefer to call each

HOMAGE TO GRAND CENTRAL TERMINAL | 2

1. My model of New York's Grand Central Terminal looks right at home on my N scale shelf layout. In this article, I describe how I created this ornate structure.



one a “homage” – something made to honor the edifice or evoke a memory.

This is the story of how I used Photoshop Elements and an inkjet printer to built a homage to Grand Central Terminal. [2]

To complete my illusion of New York City on my N scale layout, I made a background from a series of photos I'd taken from the roof of the Metropolitan Art Museum. It runs from nearby 5th Avenue, across Central Park South, and up Central Park West.

I stitched the photos together, printed them, and carefully cut around the building outlines. I'd already painted the walls of the room a pale blue, so all I had to do was glue the buildings (and the treetops of Central Park) to the wall [3].

But that left a spot [4] for Grand Central Terminal (GCT). To make something close to prototypically correct would result in a huge structure, even in N scale.

I was hesitant to reproduce this ornate structure, as I have neither the modeling skill nor the desire to build such exacting prototypical buildings or rolling stock.

The city end of my layout has a large mirror on that wall. As I thought about it, I realized I didn't have to build the entire structure. So I decided to try for a homage – my tribute – to GCT!

HOMAGE TO GRAND CENTRAL TERMINAL | 3



HOMAGE TO GRAND CENTRAL TERMINAL | 4

The internet is your friend when you're looking for photos of landmarks. And of course I had a few photos of my own, too.

Online, I even found front elevations from which to produce plans. Well, they weren't so helpful as-is. Using Photoshop Elements, I was able to manipulate the street level store fronts and entrances. Once I squared-up the lines and scaled the doors to fit my figures, then it was just a matter of printing them on my inkjet. [5]



2. (Left, top) Grand Central Terminal in New York City as it looked from 42nd street in 1999.

3. (Left, bottom) A panorama of the NYC skyline from the top of the Met Museum in Central Park provides the background for the city portion of my layout.

4. (Above) Empty space where something resembling Grand Central Terminal ought to go.

HOMAGE TO GRAND CENTRAL TERMINAL | 5

My model of GCT is truly a homage because I had to omit the iconic Park Avenue Viaduct. That would have come out several stories tall, and dwarfed the rest of my layout.

Even the two lanes around the building made it too wide – a one-lane loop would have to do. And then there was the imposing structure that covers the main GCT waiting hall.

Fortunately it's hard to grasp its true dimensions when you're on 42nd Street, so I scaled down the edited photos to fit the location I had available for it.

I built the upper portion with balsa wood, making openings for the large windows. I printed the windows on glossy photo paper, which is thin enough to let interior bulbs' light shine through a bit.



5. The upper facade, after editing and straightening, built from various views available on the internet.

HOMAGE TO GRAND CENTRAL TERMINAL | 6



6, 7. The upper part from below (upper photo) and from behind (lower photo).

The wall behind the street level shops also is open so the shops can be illuminated.

In front of the upper window sheet, I put more balsa wood, leaving room for the columns that frame the windows. Then I printed the exposed stonework on plain cardstock [6, 7].

Google Earth came to the rescue with views of the roof, which is hardly visible from street level. Again, I used Photoshop Elements on the pictures, then printed the results on various cardstock thicknesses to produce the topmost part of the model. I think it effectively brings to mind the majestic terminal.

Web: taskboard.com

Using thick taskboard, which becomes pliable when wet, I was able to shape the huge statuary [8] around the clock. Unfortunately, there's no N scale casting available – but then the building isn't in the foreground, so it works.

When I started photo-editing the store fronts, my goal was to get the doors to look good with N scale people. Once I'd adjusted them to the right size in Photoshop Elements, I glued them to 1/16" taskboard and cut out the window areas.



WHAT IS TASKBOARD?

Taskboard is a thick cardstock-like material made from wood. Its attributes include:

- Stays flat and does not warp
- Can be formed into 3D shapes with just water
- Cuts easy with craft knife or laser cutter
- Can use scissors to cut 1/32" boards



8. Cutting out the clock and statuary. 1/8-inch thick taskboard can be cut back and, when wet, shaped a bit.

I placed leftover clear plastic glazing to the back of the taskboard. None of the photos I could find showed the actual store interiors, so I googled store interior shots (mostly drawings), stitched them together, and printed them on glossy photo paper.

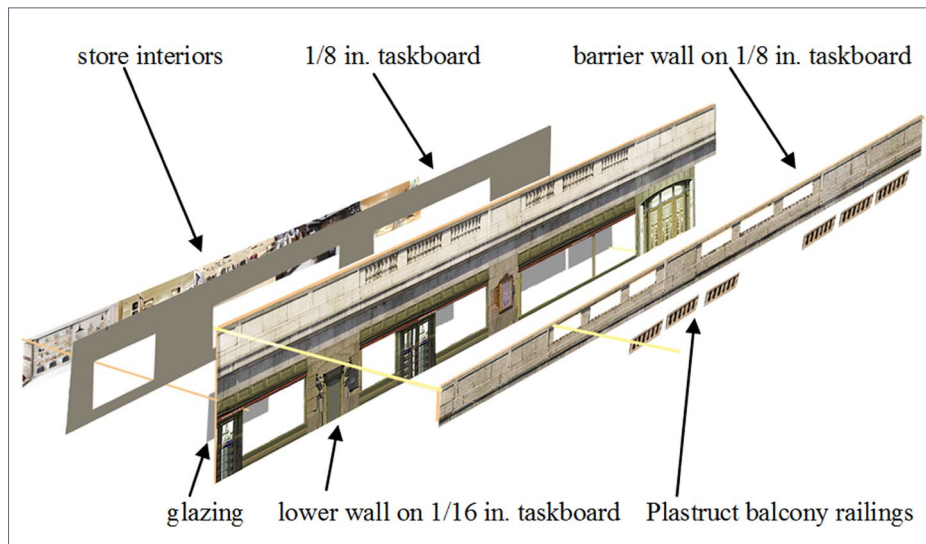
I glued that behind an 1/8" layer of taskboard so there's some depth between the windows and the interiors [9].

The top of the wall was more challenging. It consists of stone blocks alternating with sculpted stone railings. An early try with the usual pictures glued to board simply didn't look right.

Fortunately, Plastruct has plastic N scale balcony railings. I printed the stone work on eighth-inch task board and cut out where the railings should be. With a thinner board above, they fill the spaces nicely.

Then I painted the plastic and wood parts to match the color of the photos. Interestingly, streetlights and traffic (not to mention time of day) produce a different color than what you see on the superstructure.

Monet painted numerous versions of the Rouen Cathedral front as it changed color, but I had to settle on one. The top is gray with a slight green cast, and the street level part has a tan tint.



9. Diagram showing the various layers of the lower level. I used the same technique to construct the upper part of the building in layers.

When the front met my approval, I followed the same steps for the side wall. Actually, the building has only two walls. The back faces the mirror, and the other side the back wall of the layout.

The final steps were to add the green overhang above the corner entrances, and the red awnings over the stores.

It's not completely prototypical, but when visitors see the building, they recognize it as my tribute, my homage, to Grand Central Terminal [10], which was my goal from the outset!

[See photo #10 on the next page ...](#)

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COMMENTS**
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**Please tell your
buddies about MRH!**



10. The finished Grand Central Terminal as seen in the NYC corner of my layout.

MY APPROACH TO MODELING NEW YORK

When I was growing up we lived within walking distance of the Harlem Division New York Central station (now Metro North) in Tuckahoe NY. Half an hour after boarding a train, we were at Grand Central, ready to take on the Big Apple.

Grand Central Terminal (GCT) hadn't been refurbished back then, and 42nd Street wasn't as safe, either. But it was hard to walk through that building without realizing that it was monumental and, well, grand.

Years later, when I retired to North Charleston SC, I wanted to resume model railroading again after a long hiatus. Since my wife and I didn't need a separate dining room in our "forever" home, that room became the space for an N scale shelf layout. I didn't have a finished plan in mind, but I knew I wanted parts of it to recall Tuckahoe and New York City.

The Tuckahoe part of the layout was easy; Woodland Scenics' town and factory set and Walther's Clarksville Depot station kit worked fine for the downtown area. New York City has been harder!

I set the downtown area one level above the tracks; of course, most tracks are underground in NYC. When I started on structures, at first I put together various storage buildings, mostly as facades to be placed in front of the elevated section.

The downtown needed tall buildings that looked like offices and retail. The best I found were high-rise kits from Custom Model Railroads, and I built two of them.

Then I dabbled in scratchbuilding – I used photos I'd taken (while at a Macy's parade), task board from N Scale Architect, and textured plastic sheets for the brickwork to produce a reasonable facsimile of the Ethical Culture School on Central Park West [11].

That whet my appetite for using photos, Photoshop Elements, and

a printer to produce other buildings.

When I realized that the N Scale Architect was offering laser-cut kits of elevated structures in NYC and Chicago, I bought one of each and kitbashed them.

The El (elevated rail line) runs over one street and turns a corner into the mirror at that end of the layout. I couldn't find any NYC subway car kits available, so I ordered shorter cars from Japan and kitbashed them together to get the right number of doors and windows.

Though they are static, the three cars look like six careening around the corner [12]. Since then I've added a working subway system underneath the rest of the layout using NYC car bodies available from Island Modelworks.



11. Two high-rise kits and a scratchbuilt school provide a city block next to Grand Central Terminal.

MY APPROACH TO MODELING NEW YORK *CONTINUED...*

12. The mirror at the city end of the layout makes the three-car train seem longer and appear to be coming from behind the buildings. ■



WHAT'S THE EL?

New York's Interborough Rapid Transit Company (IRT) Third Avenue Line, commonly known as the Third Avenue El and the Bronx El, was an elevated railway in Manhattan and the Bronx, in New York City.

JAMES PIERCE



James built a layout with his father while growing up in Tuckahoe, NY, in sight of the New York Central commuter trains as they rolled by.

During his career as a Lutheran pastor he had little time for trains, so when he retired he knew he wanted to get back into the hobby.

After several years of putting kits together, James moved into scratch-building, using some of the skills he had learned to use on the computer. This article grew out of this recent hobby learning experience.

In addition to the layout in this article, he's now working on a diorama of Alaska, which he and his wife visited last year. It's an exercise in scenery, rather than structures this time.

James is a retired Lutheran pastor and organist, living just outside Charleston SC with his wife, Linda. ■





RATE THIS ARTICLE

I created my initial module using scrap lumber and a piece of pink foam insulation I had lying around. The dimensions are 5 feet x 1 foot x 1 foot. I find this size fits perfectly into the storage area under our bedroom in the RV.

I added four small plastic leveling feet, an inexpensive handle, and three stick-on LED lights so I could operate on a picnic table during nights in the campground.

The materials for all this cost me about \$30.

I photocopied templates of N scale track and arranged them into the track plan you see in the photos [1, 2]. The layout includes a lumber mill and a paper mill as complimentary industries.

I placed the industries at each of the two spurs on opposite ends of the layout for operational purposes.

I'm assuming the scene fictitiously takes place along the SP Shasta Division in northern California, an area my late friend Mike loved to model and visit.

The guys at Roundhouse Electric trains in Louisville, KY gave me a sweet deal on the used track, a diesel loco, and some rolling stock. I recommend shopping with them for your model railroad supplies if you're in the Kentucky area.

Personal note: My longtime friend Mike Pfulb recently passed away, and I would like to dedicate this layout to him. He always supported and inspired me in the hobby. His wife Ginni donated an N scale locomotive and some freight cars for the layout.



THE SOUTHERN PACIFIC

In Northern California

Model Railroad Hobbyist | September 2018 | #103

TIMOTHY DUDLEY builds a layout inexpensively, and you can too! ...

I THOUGHT I DIDN'T HAVE ENOUGH MONEY OR SPACE FOR a layout, but I was wrong! I live in a fifth-wheel RV trailer but I realized with a little creativity I could have a layout even with these living conditions. I chose N scale for its small size and it worked out perfectly – follow along and see for yourself.

THE SP IN NORTHERN CA | 3



1. The initial 5'x1'x1' module design being laid out. I painted the backdrop with some blue, white, and gray spray paint.



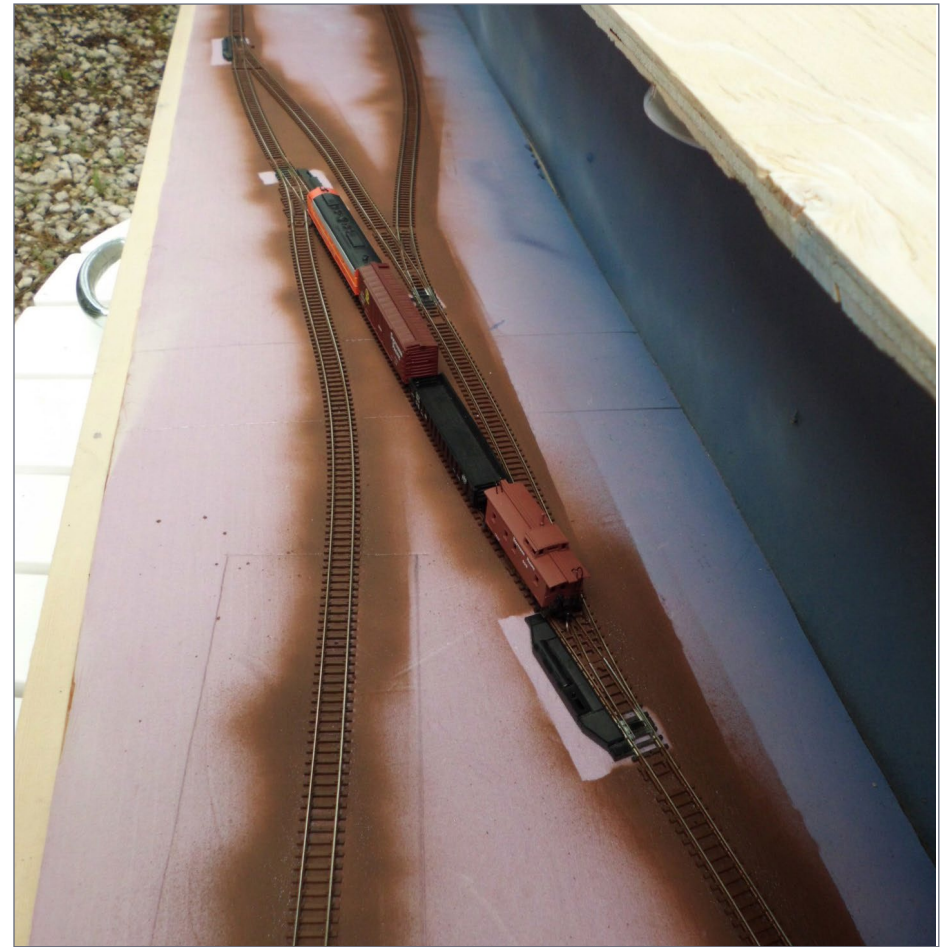
2. Planning the track arrangement using photocopied track templates. Notice the LED lighting is quite adequate.

THE SP IN NORTHERN CA | 4

I went with code 80 track just to keep the cost down. I used manual switches to minimize the wiring. My total track cost was \$50.

I glued the track down with Elmer's Glue directly to the foam and painted it with a can of Krylon brown primer spray paint [3].

I wired the layout for common-rail DC for its simplicity and lower cost since I only want to run a single locomotive at a time.



3. Track glued in place and painted with brown primer from a rattle can.

THE SP IN NORTHERN CA | 5

The backdrop needed a forest line to represent the area, so I cut up a cereal box and made two tree-line stencils [4]. I sprayed the backdrop with two different shades of green, first the foreground with the darker color. I interchanged the two stencils to get a layered effect for depth.

The result is a backdrop that looks fairly realistic [5] and true to the northern California area.

For my initial scenery, I used dirt that came from the region to represent a base for the later scenery [6]. I painted the foam with latex paint and sprinkled it on while the paint was still wet. Then I applied diluted white glue to further affix the dirt in place.

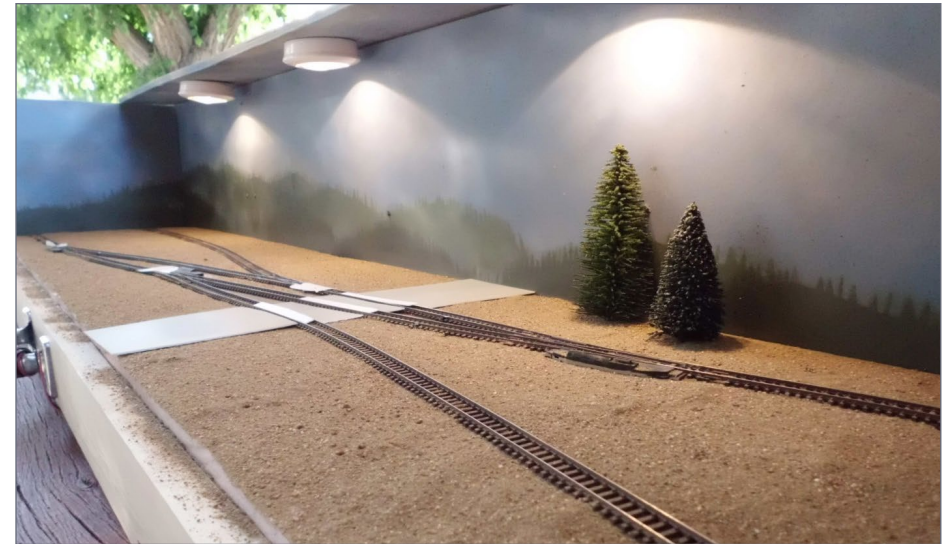


4. I made tree-line stencils out of a cut-up cereal box, and used two shades of green spray paint for the trees.

THE SP IN NORTHERN CA | 6



5. Here is the final result using the tree stencils to make background hills.



6. Adding the first layer of scenery – some basic dirt – and test planting a couple trees.

THE SP IN NORTHERN CA | 7

I gathered a number of materials for building the paper mill [7]. I started building the structure with a foam-core shell that I cut out and hot-glued together [8].



7. I gathered styrene, brick sheet, foam-core, a drinking straw, and cardboard tubing as raw materials for modeling a paper mill.

THE SP IN NORTHERN CA | 8

I wrapped the loading area with the brick material and used a small piece of scrap sandpaper for the roof. I applied some black spray paint unevenly to the roof to give it a more weathered appearance.

The paper mill began coming together and looks pretty good [9] – considering I used mostly scraps I had on hand.

I added a road using Woodland Scenics Smooth-it, which I then colored with their asphalt top coat [10]. I poured the Smooth-it right over the track, let it dry, then carved out the rail portions. I framed the road with light gray dirt to add a gravel shoulder, and cemented it with diluted Elmer's Glue.

I added some pine trees and basic scenery-like bushes, which began to bring the layout to life. The trees were donated by the guys at Reed's Hobbies in La Mesa, CA [11].



8. Building the foam-core base for the main paper mill structure.



9. The paper mill is starting to take shape.



10. I added a road to the layout using Woodland Scenics Smooth-it.

I scratchbuilt the lumber mill using the remaining styrene scraps from my bin.

I based the mill and the sawdust collector on a photo I found online of the Elgin lumber mill in Oregon [12]. I made the walls and roof of the mill from a license plate insert, since it's a free source of 0.010" styrene.

I covered the basic structure with the scraps of Evergreen corrugated metal siding I had on hand. I used a finer grade of this siding for the six loading doors.

After a quick coat of paint on both the mill and the sawdust collector, things started to come together. The piping for the sawdust will have to be redone because melting it over a stove proved to be too much heat at one time, distorting it. [12] shows the two angles of the structure.



11. The layout is starting to take shape.

THE SP IN NORTHERN CA | 11



12a, b. Two views of my scratchbuilt lumber mill.

THE SP IN NORTHERN CA | 12

I like to apply ballast after the basic landscaping is in. I used Woodland Scenics fine gray ballast for this project, and applied it with wet water from a spray bottle, and fixed it in place with diluted white glue [13].



13. The layout with the track ballasted. It's coming along!

THE SP IN NORTHERN CA | 13

Here are a couple more final photos of the layout taken by my friend Matthew Cornell [14]. The layout just needs a few details plus some some vehicles – but I'm satisfied with how it turned out.

Overall, the layout cost me about \$250.00 to make, and took about 4 months working on it by myself perhaps three hours per week.

I hope my example shows you almost anyone can have a layout. You really can do a lot with a minimal amount of time, materials, and money. ✓

TIMOTHY F. DUDLEY



When Timothy was a little boy, his dad hid an AHM train set so Timothy wouldn't find it until Christmas morning. That started his love affair with the hobby. He and his brother built a four-by-four-foot oval layout on a piece of plywood that barely fit under their bunk beds.

Since then, Timothy has built a dozen or so layouts in N and HO scales, and currently has built an N scale switching layout.

Timothy served in the U.S. Navy from 1984-1990 and is now a laboratory equipment engineer. He is also a licensed minister of the Gospel and serves part-time in his local church. He enjoys playing bass on the worship team, train watching, and writing.



THE SP IN NORTHERN CA | 14



14a, b. Two views of the layout as the project came to completion.

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SEPTEMBER NEWS

column

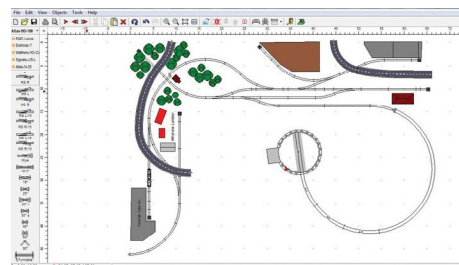


Model Railroad Hobbyist | September 2018 | #103

★★★★★
RATE THIS ARTICLE

RICHARD BALE and
JEFF SHULTZ report the latest hobby industry news

NEW PRODUCTS FOR ALL SCALES

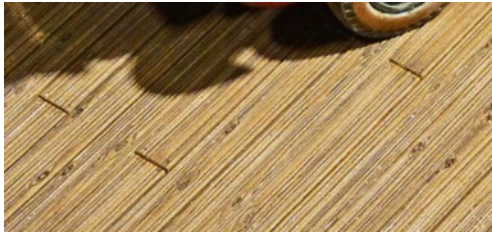


Atlas has announced that its Track Planning Software will now be available in two versions: as a free demo and in an upgraded paid licensed version. Although both editions are useful in designing layouts,

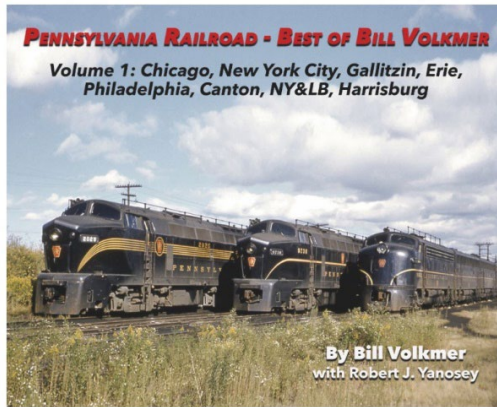
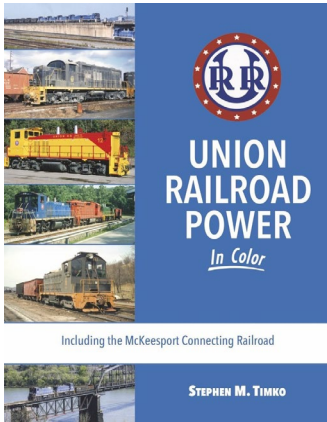
the licensed edition offers greater flexibility in layout design as well as advanced 3D viewing settings, parts list counting and grouping, and unlimited design layers and tracks in a design project. To download the software or purchase a license go to: shop.atlasrr.com/p-53321-atlas-track-planning-software.aspx.

Chooch Enterprises has added Timber Deck Planking to its assortment of flexible vinyl sheets. The peel-and-stick adhesive

▶ THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

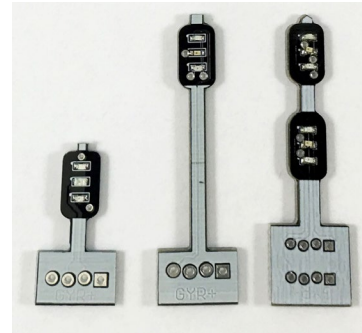


material comes factory-weathered in a wood tone. Sheets are available suitable for use in N, HO, and O applications. Contact a dealer or visit choochenterprises.com.



New hardcover publications available from **Morning Sun Books** include *Union Railroad Power in Color*, by Stephen Timko; and *Frisco Power in Color, Diesels 1940-1980*, by Greg Stout. New softcover publications coming this fall include *Pennsylvania Railroad – Best of Bill Volkmer, Volume 1; Open Top Loads, Flatcar and Gondola Color Portfolio, Volumes 1, 2, and 3*, by Robert Yanosey; *Lehigh Valley – Best of Bob Wilt, Volume IV*; and *Erie Lackawanna in Pursuit of the Cab Unit*, by Robert Yanosey. For additional information contact a dealer or visit morningsunbooks.com.

Model Railroad Control Systems sells a selection of simple, low-cost signals suitable for use with most scales. The signals are



produced on a snap-apart PC board and are available for under \$2.00 per signal head. The signals are composed of surface mounted red, yellow and green LEDs installed in a common anode (+) configuration. MRSC recommends 5 volts, however the user may choose any voltage with suitable limiting resistors. Economical commodity LEDs are used for these signals, so colors and brightness may not be uniform. Solder pads are provided for hook up wiring and limiting resistors. Three signal types are currently available: single head, twin head, and single head dwarf height. The signals are 1.80-inches high, except the dwarf unit which is slightly over one inch in height. Although not intended to be prototypical in appearance these signals are an effective and economical approach where functioning signals are needed. For additional information visit modelrailroadcontrolsystems.com.

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Revelstoke Heritage Railway Society has published a new book titled *Canadian Pacific Railway on the Revelstoke Division, Volume 1*. Authored by Douglas R. Mayer, the 8.5 x 11-inch softcover book features 28 pages of photos, maps, and text. The book is available from the Revelstoke

Railway Museum, P.O. Box 3018, Revelstoke, BC, Canada, V0E 2S0. Send inquiries to railway@telus.net.

O SCALE PRODUCT NEWS



Narrow Gauge Modeling Company has added a kit for a 12-foot laser-cut wood truck bed to its section of O scale detail items. Laser-cut truck

beds are also available in 10- and 15-foot lengths. The wood kits can be stained, weathered or painted. For additional information visit narrowgaugemodeling.com.



MODELS CONSTRUCTED BY DAVID V. ROSS

ITLA Scale Models has introduced an O scale laser-cut kit named Olympia Tool & Die Co. Among the features that make this kit unique is the option of assembling it as flat or shallow relief (above middle and rear) or building it as a stand-alone structure (above front). When built as a single structure, the mod-

ular walls can be positioned in a dozen different configurations. The instructions outline the assembly options.

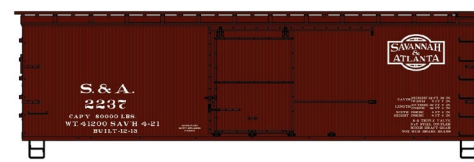
The kit is composed of laser-cut wood components that accept a variety of finishing paints and weathering techniques. The



authentic looking masonry surfaces are achieved through a laser-etching process. Details such as electrical conduits, meters, separate doors and windows with headers and sills, steps, handrails, pilasters, cornice trim and capping are all

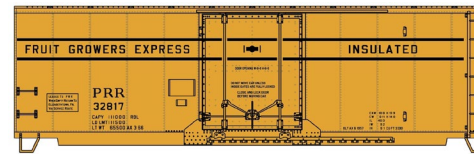
included. Roof details include vents, stacks, access stairwell, and a roof-top billboard. Three brass operating LED gooseneck lights with limiting resistors and a selection of cast ground level details are included in this ITLA kit. The tab and slot design simplifies construction. A sheet of full color signage including faded advertisements and posters completes the kit. For more information visit itlascalemodels.com.

HO SCALE PRODUCT NEWS



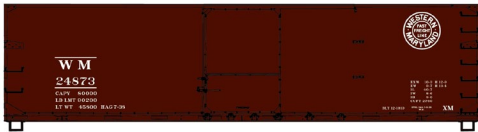
Accurail has released several new HO scale kits including this Savannah & Atlanta 36-foot double-sheathed wood boxcar.

The model is based on a prototype built in 1913 with steel ends and roof and a steel fishbelly underframe.

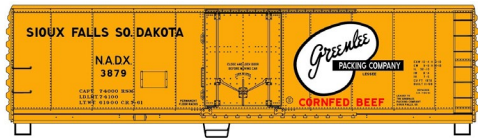


Accurail's version of this 40-foot insulated steel boxcar with plug doors represents a car built in 1957 for Pennsylvania

Fruit Growers Express.

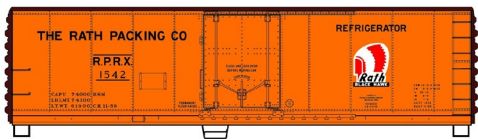


This 40-foot Western Maryland USRA double-sheathed wood boxcar was built in 1919.



Accurail's HO scale kit for this 40-foot steel reefer is based on a NADX prototype leased to Greenlee

Packing in the late 1950s.



Also representing a prototype from the late 1950s is this 40-foot plug-door steel reefer decorated for

Rath Packing Co.



Completing the list of new HO scale kits from Accurail is this 36-foot Fowler wood boxcar decorated for the Bangor &

Aroostook Railroad. All Accurail kits include appropriate trucks and Accumate knuckle couplers. For additional information contact a dealer or visit accurail.com.



Alexander Scale Models sells a craftsman-type kit for an HO scale Country Schoolhouse. The kit consists of laser-cut wood components, brass wire, and white metal. The assembled model is 4.25 inches tall and has a footprint of 7 x 4.1875 inches. For additional information contact a dealer or visit alexanderscalemodels.com.



Arrowhead Models has entered the upper end of the HO scale market with the introduction of three well-detailed open hopper cars.

The ready-to-run model accurately replicates a 70-ton, 13-post triple-bay hopper car designed in the late 1950s by an engineering committee established by Norfolk & Western, Chesapeake & Ohio, and Pennsylvania Railroads. Known as a committee design, Arrowhead has combined two separately tooled bodies with a variety of appliances to represent three distinct prototypes. The Pennsylvania Railroad version of the committee designed car, as built by Pullman-Standard in 1960, has a three-piece Miner brake housing including the rod, chain, release lever and brake wheel; and Keystone hopper frames with Monoloc gates and locking hardware. Pennsy owned over 16,000 of this car which it assigned to its class H39 fleet. Arrowhead is offering the model in 48 road numbers.



Between 1960 and 1966 Rio Grande purchased three lots of the committee design car from Bethlehem Car Co.

Arrowhead's model reflects the prototype version with an Ajax brake wheel and gear housing, and Wine gate hardware. The ready-to-run D&RGW model is available in 24 road numbers.

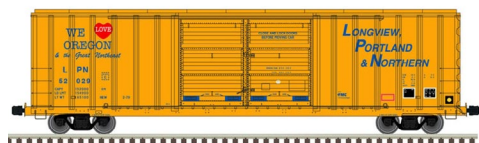


Arrowhead's Southern version of the committee design replicates a group of 70 prototypes built in 1966 by Bethlehem Car Co. Like the prototype, the

Southern models are equipped with Miner brand brake fixtures including the wheel, gear housing, and release lever; and Wine

hopper frame, gate, and double door locks. This scheme is available in 12 road numbers.

All versions feature coal loads, etched metal brake steps, separate air hoses, machined metal wheelsets, and Kadee #58 couplers. The committee design hopper cars are also available as undecorated kits. Arrowhead Models is headed by Blaine Hadfield, a former senior executive with ExactRail. For additional information visit arrowheadmodels.com.



Atlas has released an HO scale ready-to-run model of a FMC 5503 cu. ft. Plate C boxcar. Features of the

Master Line model include double sliding Youngstown doors, wire grab irons, an X-panel roof, and etched metal detail parts. Road names are Longview, Portland & Northern; Amador Central, and Southern Pacific.



Also new in Atlas's Master Line is an HO scale 73-foot center partition car. Details

include detailed stirrups, simulated tie-loops, partition cable hooks, wire grab irons, etched cross-over walks, and see-through top chord holes. Road names in this production run are Utah Central Railway and Union Pacific. A minimum operating radius of 22 inches is recommended.



Road names on Atlas's latest HO scale version of the EMD GP40-2 locomotive are Alaska Railroad, Canadian Pacific,

CSX, Guilford Rail System (with Boston & Maine reporting marks), Seaboard System, and Union Pacific. DCC models will

have an ESU LokSound Select dual-mode sound decoder. A DC model will come with an 8-pin plug for an aftermarket decoder.



Atlas has released details on a new production run of its Master Line MP15DC diesel locomotive. Road names on the HO scale ready-to-run

model will be Conrail, CITX, GMTX GATX, Kansas City Southern, Morristown & Erie, Reading & Northern, and Union Pacific. An undecorated model will also be available. The GP40-2 and MP15DC will both be available as standard DC models with an 8-pin plug for an aftermarket decoder. DCC versions will have an ESU LokSound Select dual-mode sound decoder.



At the National Train Show, Atlas announced that it would be producing a 3230 cu. ft. covered hopper in HO scale. While few details were provided, the ones given indicate that this will be a Master Line level product. For additional information

contact a dealer or visit atlasrr.com.



Bachmann showed several new products at the National Train show including this HO scale

Pennsylvania Railroad class K4 streamlined 4-6-2 Pacific steam locomotive. The HO scale ready-to-run Spectrum series model will be equipped with a TCS WOWSound dual-mode sound decoder with audio assist and a Keep-Alive capacitor circuit. The

locomotive is scheduled for release to dealers in November in four road numbers.



Bachmann is giving a December release date for this four-

bay cylindrical covered hopper that is equipped with a flashing end-of-train device (FRED). Decorating schemes will be Government of Canada, Canadian National, Canadian Pacific, and Saskatchewan. For additional information on Bachmann products contact a dealer or visit bachmanntrains.com.



Bowser has confirmed a spring 2019 release date for another production run of its 70-ton twin-bay covered hopper car. The HO scale model will be available

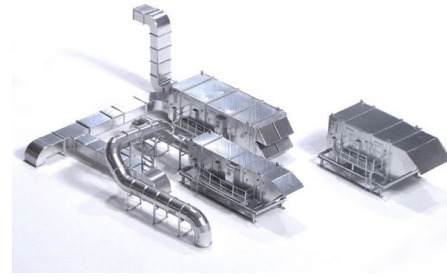
with closed sides and decorated for Burlington, Central Soya, Erie Lackawanna, Haliburton, and Union Carbide Linde.



Road names for cars with open sides will be Detroit, Toledo & Ironton; Cedar Heights Clay, Delaware & Hudson, Grand Trunk Western, Great

Northern, International Minerals, Mathieson, Shippers Car Line, Southern, US Phosphoric Products, and XTRA Western Pacesetter. Both body types will feature separately applied underframe details, air tank, brake cylinder, brake wheel, and triple valve. The ready-to-run models will have knuckle couplers and appropriate trucks with metal wheelsets. For additional information contact a dealer or visit bowser-trains.com.

Dimensional Modeling Concepts (DMC) is selling industrial roof-top HVAC components that add detail to commercial



buildings. The models are 3D printed in gray ABS plastic.



Also available from DMC are kits for two versions of Drott-Case intermodal cranes. Each kit contains more than 320 3-D printed parts in gray plastic. A 28-page instruction manual is provided with this challenging kit. A custom

assembled and decorated version is also available.



Completing DMC's list of innovative details is a Barbed Wire fencing kit for modeling about 125 yards of

four-strand fencing. The kit includes two four-strand spacers, approximately 300 weathered wooden posts, approximately 1,500 green metal posts (made of ABS plastic), and a dispenser kit. Additional posts are sold separately. For more information visit www.dmcrrproducts.com.

ExactRail has introduced a new HO scale 53-foot 6-inch bulkhead flat car. The ready-to-run model is based on a prototype



built by GSI. Although similar to a GSC flat car already in ExactRail's lineup, the GSI model has newly tooled

sides, ends, deck, and bulkheads. GSI cars with 42-foot truck centers are available decorated for Chicago, Burlington & Quincy; Burlington Northern, and Rock Island.



A car with 43-foot 3-inch truck centers is available decorated for Chicago Great Western. In addition

to variations in truck centers, the models have brake wheels mounted either high or low, and different grab iron configurations depending on the practice of the road name being modeled. All road names feature laser-cut wood deck and bulkhead face, Kadee #158 couplers, and 70-ton ASF Ride Control trucks with 33-inch machined metal wheelsets.



Also available from ExactRail is another run of Southern Pacific wood chip gondolas. The HO scale model represents a composite prototype with wood sides and steel frame as

built by Gunderson in 1965. Features include narrow-style draft gear box, Kadee #58 couplers, and ASF 100-ton Ride Control trucks with machined metal wheelsets. The ready-to-run model is available in 12 road numbers. For additional information visit exactrail.com.

Kadee plans to make the initial release of its new PS-1 body style in November. This new HO scale model is a welcome addition to Kadee's well-regarded assortment of prototypically



authentic models. The newly tooled model replicates PS-1 cars built by Pullman-Standard in the 1940s. There are several subtle yet significant differences from

post-1950 PS-1 cars including flat panels on the end of the roof, different bolster tab shape, additional end grab irons, and a different rivet pattern on the 4/5 end. Missing are the six small rectangular indentations in the hat section of the end that help identify post-1950 PS-1 cars. The first release will be for an Atchison, Topeka & Santa Fe 40-foot PS-1 boxcar built in 1947. It will be fitted with 6-foot seven-panel Superior sliding doors.

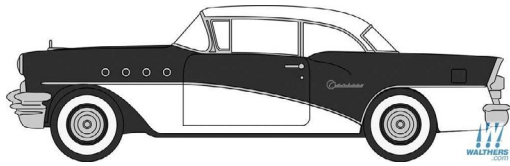


Also scheduled for release from Kadee in November is a Great Northern 50-foot PS-1 boxcar with a cushion

underframe and 10-foot Youngstown sliding doors. The HO scale ready-to-run model represents a car built in 1966 that subsequently had its running board removed and ladders shortened. Both models in Kadee's November release will have #2100 couplers and two-piece self-centering trucks. For additional information contact a dealer or visit kadee.com.

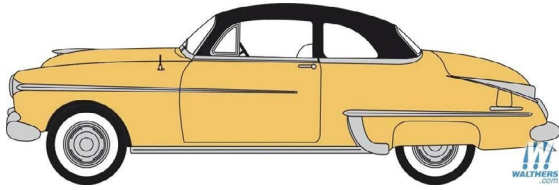


Monroe Models showed a pilot model of this caboose/yard office at the National Train Show. The HO scale kit will feature laser-cut wood components with peel-and-stick doors, windows, and trim, plus cast white-metal details. For more information visit www.monroemodels.us.



Oxford Diecast has released two new cast metal HO scale vehicle models including this 1955 black and white Buick

Century hardtop.



Also new is a 1950 Oldsmobile Rocket 88 coupe. Both models feature window glazing and realistic interior seats. For additional

information contact an Oxford dealer.



Rapido Trains has added a C&NW RDC-2 to the Rail Diesel Cars scheduled for release late this year. The prototype RDC-2 combined a 17-foot baggage section and a passenger compartment with 70 seats. The C&NW RDC-2 will be available singly as well as in the special C&NW 3-car set. For additional information contact a dealer or visit rapidotrains.com.

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At the National Train Show **ScaleTrains.com** announced plans to produce an HO scale EMD SD40T-2 Tunnel Motor diesel

locomotive. A major feature of the Rivet Counter series model is the low-profile drivetrain that provides visual clearance for a realistic see-through radiator compartment with a detailed fan motor.



Road names will be Rio Grande and Southern Pacific with unique era-specific details for each road number. DC/DCC-ready versions of the model will have a 21-pin connector for an aftermarket decoder. DCC versions will be equipped with ESU-LokSound decoder, two sugar-cube speakers, and two PowerPak capacitors. Delivery is planned for spring 2019.



ScaleTrains.com's next production run of its Rivet Counter GE Tier 4 GEVo locomotives will include a Navajo Mining unit that pays homage to Santa Fe's iconic Warbonnet scheme. The HO scale model is based on an early GE demo unit that had square exhausts in the roofline. The Rivet Counter model features deck-mounted operating ditch lights, a cab roof antenna dome, and GE Hi-Ad trucks with separately applied brake cylinders, air plumbing, and rotating axle bearing caps. Additional details unique to the Navajo model include lost wax brass cast dual-chime horns recessed on right rear of flared radiator, and a Nathan AirChime K5HLR2 horn on cab roof. A unit decorated for CSX Spirit of Ravenna is included in the production run which is scheduled for release next spring. For additional information visit scaletrains.com.

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Sylvan Scale Models sells cast resin kits for HO scale 32-foot Fruehauf furniture vans with rear and curb-side doors. 1940s era



vans are available with decals and painting instructions for Allied Van Lines, Bekins Van Lines, and Mayflower Transit Co. For more information visit sylvascalemodels.com.



Tangent Scale Models has released five new paint schemes for its HO scale General American 4180 Airslide covered

hopper. The new schemes include BNSF buffer car No. 808051 that displays patches designating it to present-day oil train buffer service. Decorating details include special data printed on the side, roof anti-skid patches, a faded BNSF logo, and conspicuity stripes. BNSF buffer car No. 808176 retains its 1974 as-built BN green scheme.



BNSF No. 400679 continues in modern-era Airslide service.



BKTY Airslide as delivered to the Missouri Kansas & Texas in 1966.



Tangent's NAHX Staley Airslide is decorated as delivered in 1967. The HO scale ready-to-run models feature etched metal see-through running

boards, wire grab irons and uncoupling bars, separate air hoses, Kadee couplers, and appropriate trucks with 36-inch metal wheelsets. Road-specific details include different roofs, running boards, body rib profiles, brake arrangements, and ladder and grab iron arrangements. For additional information visit tangentscalemodels.com.



Walthers announced several new HO scale products at the National Train Show including a

Proto series 70-foot heavyweight combination baggage and Railway Post Office car. The models are expected to be released to dealers in November. Interior details include a 30-foot postal compartment, mailbag stanchions, sorting cases, and a mail bag catcher arm. The HO scale ready-to-run model will have either a clerestory or round roof depending on the practice of the prototype road being modeled. Road names in this release will be Santa Fe, Illinois Central, Denver & Rio Grande Western, Milwaukee Road, New York Central, Soo Line, Southern Pacific and Union Pacific. An unlettered car in Pullman green is also in this release.



Walthers has scheduled another release of its Mainline series EMD SD70ACe diesel locomotive. Road names will be

BNSF, KCS de Mexico, Union Pacific, New York Central, Penn Central, WAB, and NS Heritage. The CSX model shown here is from a previous run. The molded plastic body will have drill starter points for modelers wishing to install grab irons which are available in a separately sold diesel detail kit. Delivery is

planned for February 2019. Both DC and DCC engines will be in the release.



Walthers has set a March 2019 release date for an HO scale model of this 60-foot high-cube Plate F boxcar. Road names will be Canadian National, Canadian Pacific, CRLE, CSX,

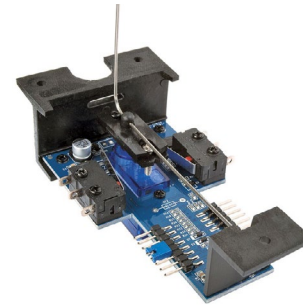
Kansas City Southern, Norfolk Southern, TTX, and two schemes for TBOX. The Mainline series model will have 100-ton roller bearing trucks with 36-inch machined metal wheelsets.



Walthers is planning a November 2019 release for Thrall rebuilt 40-foot well cars. The Mainline series model is based on a group of 48-foot cars that were shortened to 40-foot in 2003. Like the prototype, the model will hold

20 and 40-foot containers in the well and one 40- to 53-foot container on the top. Details on the Walthers model include brake piping and rods with chains, weld lines on the car body, IBC storage boxes, detailed walkways, and 70-ton roller bearing trucks with 33-inch machined metal wheelsets. Walthers will offer single cars as well as a new 5-unit group. Road names include American President Lines, BNSF Railway, and three different TTX schemes.

A new horizontal-mount switch machine was shown by Walthers at the recent National Train Show. The servo-driven unit has a throw time of approximately one second. The throw may be adjusted from 1/32" to 1/2". The device incorporates an integrated DCC decoder, two built-in 5A switches to power



frogs, signals, etc; a self-locking mechanism for reliable positioning (servo turns off when motion is complete), and outputs for single and bi-color LEDs.



New Cornerstone kits from the Walthers family of scenic structures include this HO scale Cross-Dock truck facility. The assembled model is 3 inches high and has a footprint of 15.19 x 19.19-inches. Vehicles shown are not included.



Also new from Walthers Cornerstone is this Traveling Crane. The non-working crane has a positionable cab, boom, and hook. The kit includes parts to build three complete straight brick sections with craneways. Each brick street section measures 12.6 x 5.5 inches. The center

paving section accepts code 83 rail (sold separately). The crane measures 4 x 4 x 9.125 inches.

Completing Walthers' list of new Cornerstone kits is this HO scale Coal Trestle. The injection-molded plastic kit includes supports, abutment, railing, walkway, and bulkheads to build



optional below-track storage bins. The assembled model has a footprint of 24.5 x 4.4 inches. For additional information contact a dealer or visit walthers.com.



Westerfield Models has released a series of HO scale craftsman-style resin kits that cover the life of Southern Pacific class B-50-15 single-sheathed wood boxcars. The

cars were built with and retained their Murphy radial roof. Variations include the original wood sheathed car (above) and cars subsequently rebuilt with steel sheathing (below).



Decorating schemes include Southern Pacific freight service, Pacific Motor Trucking service (left), and Southern Pacific Overnight service (below).



Additional options on the Westerfield kits include AB or K brake systems, and Kadee or Tahoe trucks as appropriate to the era and service being modeled. The kits

feature cast urethane detail parts, one-piece cast urethane body,

Hi-Tech rubber air hoses, Yarmouth etched bronze corner steps and Carmer uncoupling levers, accurately scaled decals, step-by-step assembly instructions, and a detailed history sheet. For additional information visit westerfieldmodels.com.

N SCALE PRODUCT NEWS



Atlas has released details on a new N scale Electro-Motive Division GP39-2 diesel locomotive. Road names on the ready-to-run Master Line model will

be Atchison, Topeka & Santa Fe (two schemes); CSX, Delaware & Hudson (two schemes), and Reading. An undecorated GP39-2 will also be available. Features include golden-white LED headlights, blackened metal wheels, and Accumate couplers. DC models will have a factory-installed speaker. DCC versions will be equipped with ESU LokSound sound decoder. For more information contact a dealer or visit atlasrr.com.



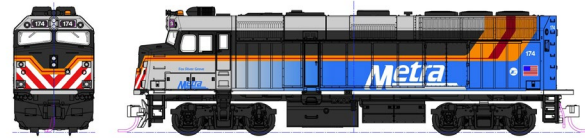
Bachmann's new N Scale EMD SD9 is scheduled to be released in early fall. Road names will be Southern Pacific, Pennsylvania, Norfolk &

Western, Rio Grande, and Duluth, Missabe & Iron Range. The ready-to-run model will come with an Econami SoundTraxx DCC sound decoder. The sound package offers a choice of five prime movers, 16 airhorns, multiple variations of seven bell types, two air

compressors, and three couplers plus a function-activated grade-crossing signal. The model will have directional headlights with Rule 17 dimming.



Bachmann's fall release includes an N scale 4-8-2 Mountain steam locomotive decorated for Southern Railway, Louisville & Nashville, Missouri Pacific, and Nashville, Chattanooga & St. Louis. The ready-to-run model will come with a dual-mode SoundTraxx Econami sound decoder. For additional information on Bachmann products contact a dealer or visit www.bachmanntrains.com.



KatoUSA plans to make another release of its N scale EMD F40PH in February

2019. Although the F40PH has been retired from Amtrak it continues in service in a variety of commuter assignments. Kato's February release will be available decorated in Chicago's Metra scheme with three cab signatures: Ravina, Fox River Grove, and Village of Schaumburg. The new commuter-version F40PH locomotives feature a retooled body with over-cab A/C unit, illuminated ditch lights, directional golden white LED headlights, and illuminated preprinted number boards. The models will be available for DC, with preinstalled DCC, and with ESU LokSound DCC. For additional information contact a dealer or visit katousa.com.

Micro-Trains Line showed this 68-foot DODX Department of Defense flatcar at the National Train Show. The prototype was



developed by the US Navy to carry submarine ballistic missile bodies. The model comes with a cast resin load. The N scale ready-to-run model rides on Buckeye six-wheel roller bearing trucks.



Also new from Micro-Trains is a 70-foot Union Pacific heavy-weight horse car that was used principally to transport valuable race horses. The N scale ready-to-run model is based on a prototype built in 1924 and repainted after WWII in UP's distinctive two-tone grey scheme.

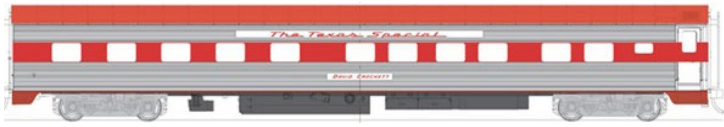


Micro-Trains has released this 40-foot Northern Refrigerator Car with a steel fishbelly underframe. The N scale model is available in two road numbers.



This Conrail 33-foot twin-bay open hopper features offset sides. The N scale model is based on a CR class HR5A hopper built in 1950 for the Reading Railroad. For additional information contact a dealer or visit micro-trains.com.

Rail Smith Models has released three new N scale lightweight passenger cars. They include a Pullman-Standard 14-room-ette, 4-bedroom sleeper decorated for Missouri-Kansas-Texas; a



Pullman-Standard 10-roomette, 6-double-

bedroom sleeper decorated for Atlantic Coast Line, Northern Pacific, and Union Pacific; and a Pullman-Standard 64-seat coach decorated for Great Northern. For additional information visit www.railsmith.net.



Tangent Scale Models is selling an N scale model of a Bethlehem 3600 cu. ft. quadruple-bay coal hopper.

The ready-to-run model is available in six different Union Pacific schemes. Production of the prototype class H-100-1 quad hopper began in 1974 with UP eventually having more than 6,400 on its roster.



Notable features on Tangent's N scale model include painted wire uncoupling bars, rubber air hoses, see-through

etched metal brake platform, accurate interior bracing detail, body-mounted draft gear with MT-compatible couplers, and 100-ton trucks with 36-inch metal wheels. Each car comes with a non-symmetrical coal load. For additional information visit tangentscale-models.com.



The Trainmaster Inc. has entered the N scale structure market with a

1:160 kit for a freight handling complex called F. Wyneken Drayage. The kit features laser-cut walls, stripwood, peel-and-stick roofing, signage, and numerous detail parts.



The instructions include construction templates and reference to an abundance of step-by-step photos on Trainmaster's web site. For additional information visit

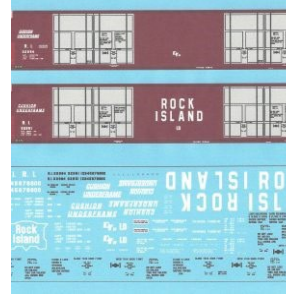
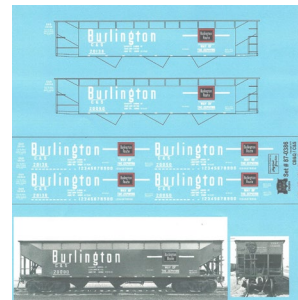
thetrainmaster.com.

NEW DECALS, SIGNS AND FINISHING PRODUCTS



Three new sets of HO scale screen-printed decals for Illinois Central have been released by Dan Kohlberg. The water-slide decals include 50-foot single-door boxcars, single-door boxcars with cushioned underframe, and double-door boxcars. Main Line of Mid-America slogans are included. Each set contains sufficient

material to decorate two cars. For additional information visit home.mindspring.com/~paducah.



New HO scale water slide decals from **Mask Island** include lettering sets for CB&Q and BN offset hopper cars. Also new are

decals for a Rock Island 86-foot auto parts car. An SCL beige clay car has been added to Mask Island's selection of specialized lettering sets for Cannon kits. Completing Mask Island's latest release is a decal of LOFX reporting marks for the Libbey Owens Ford Glass Company hoppers. For additional details contact a Mask Island dealer or visit maskislanddecals.com.

San Juan Decals has released several new narrow gauge decals including On3 lettering sets for post-1895 locomotives for Denver, South Park & Pacific Railroad; and Denver, Leadville & Gunnison Railway. Large numerals plus small numerals for domes and headlights are available in a choice of Dulux gold and imitation gold leaf. Also new are decals for D&RGW 1912-1951 era passenger cars. An HOn3 set is available in white and an On3 set in imitation gold leaf. For additional information visit san-juandecals.com.

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 BRIEFLY NOTED AT PRESS TIME ...

There has been considerable speculation about the sudden closing of Affa Technology, a Chinese factory that has been the manufacturing source for several American model railroad brands. Many comments have painted a bleak picture about the future of the affected brands and, by extension, the future of the hobby itself. Rather than repeating negative speculation about something over which we have no control, perhaps we should see if there is a bright side to this situation ...

We can begin by asking the question: How much impact will the closing of one factory in China have on me as a model railroad hobbyist? The short answer is: probably very little. The long answer is that some hobbyists may have to wait an extra six months or more to get their hands on a specific model they want. But the delay does not mean the sky is falling. On the contrary, the delay offers an opportunity to explore new avenues of model railroading ...

The hobby dealer(s) where you shop, whether a store front or an on-line service, undoubtedly has a healthy supply of models on hand that you may have passed over. Many may be worthy of a second look. Perhaps the model was decorated for a railroad you don't follow, or the type of car was of little interest to you. Take another look at those models with an open mind and you may find something new to your liking ...

Rather than wait and fret, use the time to assemble a couple of kits that have been gathering dust on your shelf, or

rebuild a model that you were never quite satisfied with. Strip, repaint, and decal a model. For a challenging experience, hone your modeling skills by assembling and decorating one or two resin kits ...

Without question, the closure of Affa Technology will delay the release of some new products from American Z, Atlas, Bluford, Bowser, Eastern Seaboard Models, ExactRail, Fox Valley, InterMountain, Lionel, Wheels of Time, and possibly others to a lesser degree. However, it is important to keep in mind that most of these same manufacturers and their dealers have an ample selection of products already on hand ...

The closure does not spell doom for the hobby. Far from it. It will be business as usual with plenty of new products coming from Accurail, Athearn, Bachmann, Broadway Limited, Con-Cor, Kadee, Kato, Micro-Trains, Rapido, ScaleTrains.com, Walthers, and others ...

Business in China operates under an entirely different set of government regulations than we are accustomed to in the U.S. While it may be difficult for an American firm to physically retrieve its molds and other tooling from a Chinese subcontractor, moving tooling from one factory to another within China is far less problematic. There are several qualified manufacturers in China which can and will pick up the slack, but it will take time to sort out and reestablish production schedules. Meanwhile, model railroaders will have plenty of products to sustain their hobby ...

– *Richard H. Bale*

SELECTED EVENTS



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SEPTEMBER 2018

(Many events charge a fee. Check individual info website for details.)

AUSTRALIA, TOOWOOMBA, September 22-30, Carnival of Trains, sponsored by Toowoomba Model Railway Club, Toowoomba Showgrounds, Glenvale Road. Send inquiries to admin@toowoombamodelrailwayclub.com.au.

CANADA, ONTARIO, TORONTO, September 29-30, The Greater Toronto Train Show, Brampton Fairgrounds. Info at torontotrainshow.com.

CALIFORNIA, SAN DIEGO, September 12-16, NMRA/PSR Convention, sponsored by San Diego Division, Pacific Southwest Region, Marriott Courtyard Hotel Mission Valley, 8757 Rio San Diego Drive. Info at psrconvention.org/home/index.php.

FLORIDA, MELBOURNE, September 1, Train Show, Azan Shrine Center, 1591 W. Eau Gallie Blvd. Request info at 321-805-1963.

INDIANA, SOUTH BEND, September 21-22, NMRA Michiana Division Education and Training Conference 2018 "Modeling like a PROTOTYPE," Aloft Hotel. Info at michiana-nmra.org.

MARYLAND, BALTIMORE, September 21-22, Mid-Atlantic RPM, DoubleTree Hilton Hotel at BWI Airport. Info at www.marpm.org.

SELECTED EVENTS | 2

MASSACHUSETTS, PEPPERELL, September 29-30, Model Railroad Show, sponsored by Pepperell Siding Model Railroad Club, Varnum Brook Elementary School, 10 Hollis Street. Request info from show@psmrc.org.

MINNESOTA, BLOOMINGTON, September 5-8, 38th Annual National Narrow Gauge Convention, Double Tree by Hilton, 7800 Normandale Blvd. Info at www.nngc-2018.com.

NEW JERSEY, MAHWAH, September 13-16, NMRA Northeast Region Convention, Double Tree by Hilton, 180 Route 17 South. Info at rielimited.org.

OHIO, MEDINA, September 7-9, Northeastern Ohio Live Steamers Fall Meet, 3654 Lester Rd, Info at neols.net/open-meets.php.

OHIO, WEST CHESTER, September 23, Annual Train Show, sponsored by Monon Railroad Historical Society, Entertainment Junction, 7379 Squire Court.

OREGON, EUGENE, September 28-30, Atlantic & Pacific N-gineers Model Train Show, Valley River Center Mall.

PENNSYLVANIA, HAMBURG, September 21-23, Reading RR Modelers Meet VI, hosted by Reading Company Technical & Historical Society and the Reading RR Heritage Museum. Info at www.readingrrmm.com.

WEST VIRGINIA, RANSON, September 29, Train Show sponsored by Bunker Hill Train Club, Ranson Civic Center, 431 West 2nd Avenue. Info at bunkerhilltrainclub.org.

WYOMING, EVANSTON, September 8, Mountain States RPM, at Evanston Roundhouse and Car Shops, 1500 Main Street. Info at www.facebook.com/MountainStatesRPM.

October 2018, by location

CALIFORNIA, OCEANSIDE, October 13, Swap Meet, sponsored by North County Model Railroad Society, Heritage Village Park, 230 Peyri Drive. Info at ncmrs.org.

CALIFORNIA, BELLFLOWER, October 6, Los Angeles Area Prototype Modelers Meet, Encounter Christian Church, 10012 Ramona Street. Info at laapm.org.

CALIFORNIA, SAN LUIS OBISPO, October 5-7, Central Coast Railroad Festival, Sands Inn & Suites, 1930 Monterey Street. Info at ccrrf.com.

CALIFORNIA, SAN PEDRO, October 20-21, Open House & Swap Meet, Belmont Shore Railroad Club, 3601 South Gaffey Street. Info at belmontshorerr.com.

COLORADO, COLORADO SPRINGS, October 13-14, TECO-Train Expo Colorado, Chapel Hills Mall Event Center, 1710 Briargate Blvd. Info at tecoshow.org.

FLORIDA, PLANT CITY, October 11-13, NMRA Sunshine Region 2018 Convention at Trinkle Center. HQ at Holiday Inn Express, 2102 North Park Road. Info at sunshineregion.org.

ILLINOIS, LISLE, October 18-20, Chicagoland Railroad Prototype Modelers Conference, Sheraton Hotel and Conference Center, 3000 Warrenville Road. Info at rpmconference.com.

ILLINOIS, MORTON, October 6, Central Illinois Train Exchange Swap Meet, Blessed Sacrament Church, 1020 South First Avenue. Request info from Roger Kujawa at citrainx@gmail.com.

MARYLAND, ROCKVILLE, October 4-7, NMRA Mid-Eastern Region Convention, Hilton Hotel, 1750 Rockville Pike. Info at Potomac-nmra.org/MER2018/Main/index.html.

MICHIGAN, WYOMING (Grand Rapids), October 13, Fall Train Show, sponsored by Grand River Valley Railroad Club, Home School Building, 5625 Burlingame Avenue SW. Info at grvrrc.org.

NORTH CAROLINA, WINSTON-SALEM, October 10-20, Carolinas School of Railway Prototype Modeling, 1450 Fairchild Road. Info at sissonstony.wixsite.com/rpm-carolina.

PENNSYLVANIA, EASTON, October 7, 42nd Annual Lehigh Valley Regional Train Show & Expo, co-sponsored by Railroad Historians of the Lehigh Valley and Lehigh Valley Chapter of the National Railroad Historical Society, Charles Chrin Community Center, 4100 Green Pond Road. Info at www.lehighlines.org/uploads/9/1/4/5/91456028/2018_regional_train_show_and_expo_flyer.pdf.

VIRGINIA, VIRGINIA BEACH, October 13-14, Train Show & Sale, sponsored by NMRA Mid-East Region, Tidewater Division, Virginia Beach Convention Center, 1000 19th Street. Info at nmra-mer-tidewater.org.

WASHINGTON, PORT ANGELES, October 13-14, 19th Annual Train Show & Swap Meet, sponsored by North Olympic Peninsula Railroaders, Clallam County Fair Grounds, 1608 West 16th Street. Request info from Steve Stripp at 360-582-1316.

Future 2018, by location

CANADA, ONTARIO, FENWICK, November 17-25, Open House at Greater Niagara Model Railroad Engineers, 1141 Maple Street (rear). Info at www.gnmre.ca/contact.asp.

MASSACHUSETTS, MARLBOROUGH, December 1-2, New England Model Train Expo, hosted by NMRA HUB Division, Best Western Royal Plaza Trade Center, 181 Boston Post Road. Info at hubdiv.org.



SELECTED EVENTS | 5

MICHIGAN, ANN ARBOR, November 25, Model Train Show sponsored by Rails On Wheels, at Washtenaw Farm Council Grounds, 5055 Ann Arbor Saline Road. Request info from Walt Trancygiere at trancywj@gmail.com.

MICHIGAN, EAST LANSING, November 11. Model Railroad Show & Sale, sponsored by Lansing Model Railroad Club, Michigan State University Pavilion, 4301 Farm Lane. Info at lmrc.org/trainshow/index.shtml.

NEW YORK, ALBANY, November 1-3, Fine Scale Model Expo 2018, Hilton Hotel, 40 Lodge Street. Info at info@ModelRailroadEXPO.com.

NEW YORK, ALBANY, December 2, Annual Great Train Extravaganza hosted by NMRA Hudson-Berkshire Division, Empire State Convention Center. Info at gtealbany.com.

PENNSYLVANIA, ALLENTOWN, November 10-11, First Frost Train Meet, Allentown Fairgrounds, 1920 W. Chew Street. Info at allentowntrainmeet.com.

SOUTH CAROLINA, NORTH CHARLESTON, November 17-18, Fall Train Show, Danny Jones Armory Complex, 5000 Lackawanna Blvd. Info at camrc.club.

UTAH, ST. GEORGE, November 9-12, Annual Layout Tour sponsored by Color Country Model Railroad Club. Info at See www.colorcountrytrains.org.

Beyond 2018, by date

FLORIDA, COCOA BEACH, January 10-12, 2019 Prototype Rails. Info at www.prototypetrains.com.

OREGON, PORTLAND, February 9, 2019, 2nd Annual Portland RPM Meet, Shilo Inn & Suites, 11707 NE Airport Way.

SELECTED EVENTS | 6

PENNSYLVANIA, GREENSBURG, March 22-23, 2019, RPM East. Details TBA.

UTAH, SALT LAKE CITY, July 7-13, 2019, NMRA National Convention and National Train Show. HQ at Little America Hotel. Info at nmra2019slc.org.

MISSOURI, ST. LOUIS, July 12-18, 2020, NMRA National Convention and National Train Show. HQ at Hilton St. Louis at the Ballpark. Info at gateway2020.org.

CALIFORNIA, SANTA CLARA, 2021, NMRA National Convention. ■

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commentary



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JOE FUGATE: WHEN TOMA MODULES
JUST DON'T COME OUT RIGHT ...



FOR ALL THE HOOP-TA-LA ABOUT TOMA* FOR HOME layouts in MRH over the last few years, sometimes TOMA just doesn't go well.

Recently, I built the first two TOMA sections of my new Siskiyou Line 2 layout. The intent was to build them and take them to the NMRA National in Kansas City to show what TOMA could do for you.

I deliberately tried some very experimental approaches to benchwork and module design, and I suspected some of the things I was trying

* TOMA = The **O**ne **M**odule **A**pproach. [Read this for more.](#)

► **STEPPING OUTSIDE THE BOX WITH A CONTRARY VIEW**

might not work too well – and boy was I right! These first two modules are totally chainsaw modules and they will be dismantled now that they've served their purpose at the KC National Train Show.

While I did expect some things to not work out, I was surprised at the epic fails I experienced. Ultimately, I did learn a lot and now know precisely how my TOMA version 2.0 module sections will be done for my new home layout. Also some things I tried worked extremely well, so there are a few great wins too.

Let's look at my epic fails.

My attempt at 1/4" plywood for super lightweight benchwork didn't work well. I am using a shadowbox construction, so the benchwork for a module includes both the track base, the backdrop, and the valance on top for lighting. The joists form a "C shape" to provide this.

The biggest problem is the 1/4" plywood warps easily and the module ends are not square vertically – which means my modules join as a sort of shallow "V" rather than flat. This made it impossible to get the top of both modules flat. If one module is flat, the other one slopes. There's enough grade that cars won't stay put, they roll. Fix one module so it's flat, then the other one slopes and away the cars roll. Big oops!

My alignment system for the modules also failed big time. After discussing the issue with some savvy modular modelers, I now have a new method I will try that has passed the test of time with them.

I also learned six foot long corner modules are a total pain because the curve makes the modules extremely awkward to maneuver around. Going forward, straight modules can be six feet long, however I'm limiting curved modules to four feet max.

But there were also some great successes, so all was not lost.

My shadowbox form factor looks fabulous and the LED strip lighting worked superbly! My use of 1/4" plywood as a backing for the backdrop, valance, and fascia – with styrene laminated on top and then painted is a real winner. My wiring and my skirting methods also worked great.

TOMA can be finicky, so you might want to plan on the first module or two being a chainsaw while you learn the ropes.

DERAILMENTS



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BNSF will never be the same ...

With the latest modifications shown here, BNSF executives have elected to upgrade their locomotives and enhance public appeal at grade crossings while the family waits for the train to pass. Is this the beginning of a new trend to bring modern railroading back as a toy every kid will want?

Move over, Thomas! ■

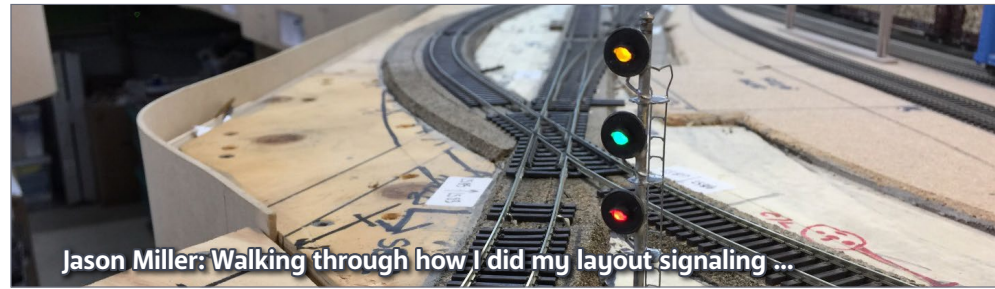
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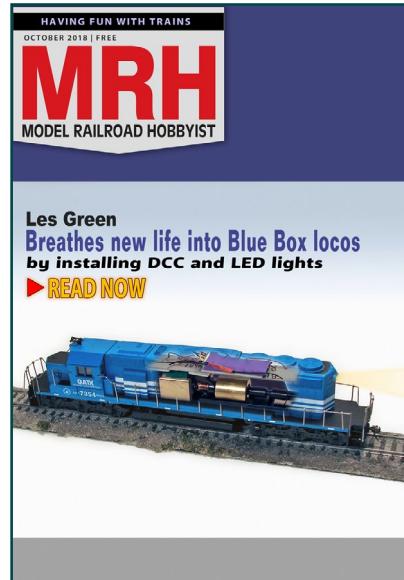
COMING NEXT MONTH ...



Les Green on updating Blue Box-Athearn locos with DCC and LED lights ...



Jason Miller: Walking through how I did my layout signaling ...



Getting started with resin casting ...

... and lots more coming in the October MRH!