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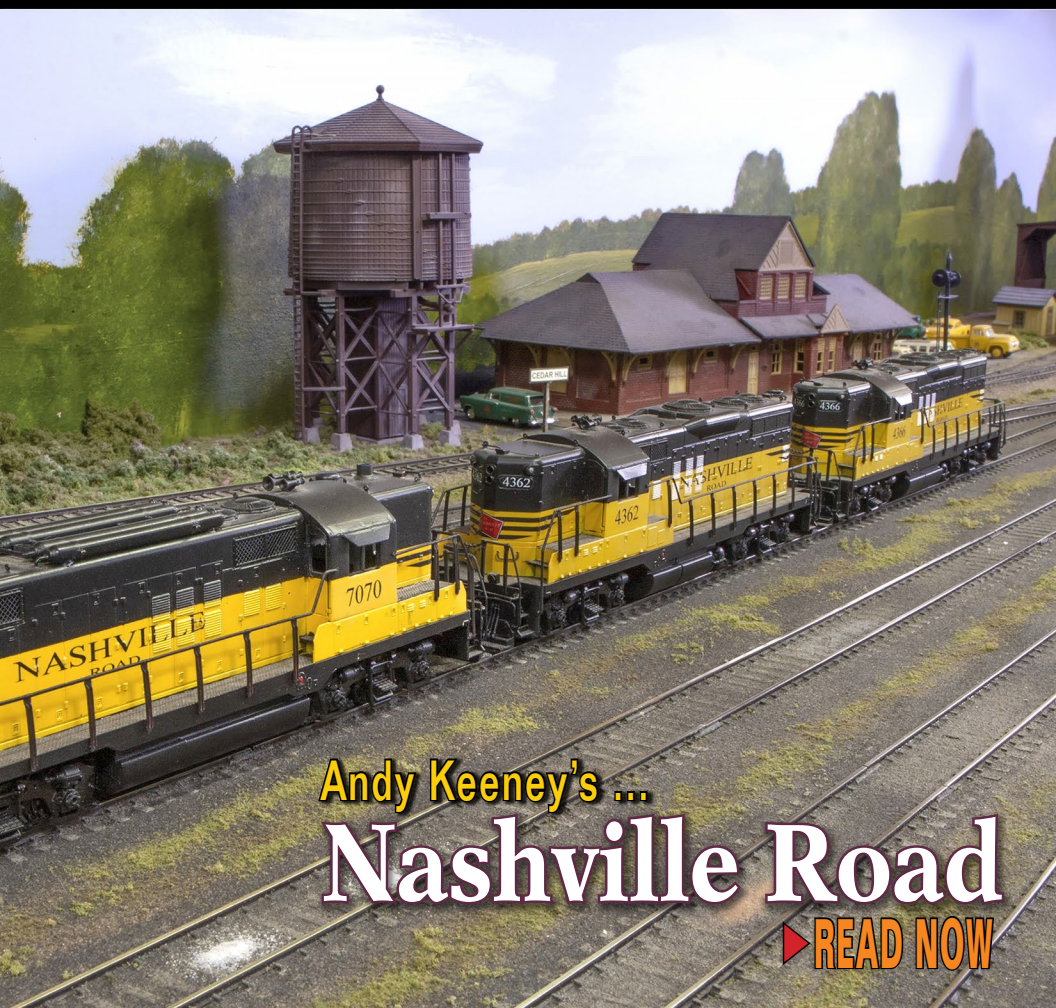
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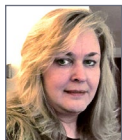
Model Railroad Hobbyist December 2019 | #118

(Updated 12/11/19)

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JOE FUGATE



MRH Website this month: Awesome layout photos, ...

Compiled by JOE FUGATE



What's Neat: Model a Christmas train, and more ...

KEN PATTERSON



"Bash" a fast clock with hands

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Andy Keeney's Nashville Road

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Scratchbuild a '70s gas station

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GEOF SMITH



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December 2019 news and events

RICHARD BALE and JEFF SHULTZ

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JIM SIX



Getting Real: Lehigh Line bridge scene
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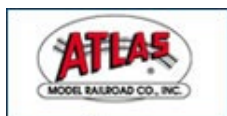
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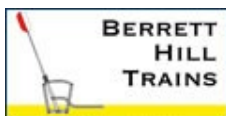
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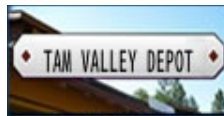
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PUBLISHER'S MUSINGS



Model Railroad Hobbyist | December 2019

JOE FUGATE: INTRODUCING DELUXE MATERIALS ...



RATE THIS ARTICLE

ONCE IN A WHILE, YOU RUN ACROSS A VENDOR WHO HAS some amazing products. Deluxe Materials is such a vendor.

If you're from across the pond in Europe, then you're probably quite familiar with Deluxe Materials, a UK-based company. A third of our readers are foreign, and besides Australia, New Zealand, South Africa, and a smattering of Asia, many of those foreign modelers hail from Europe.

But if you're part of the other two-thirds, then you're a North American modeler and we know you've probably never heard of *Deluxe Materials*. We suspected that was the case, but to be sure we ran a survey this last summer to find out – and sure enough, some 70% of you said you had never heard of Deluxe Materials.

Well, it's time to change that.

First, full disclosure. Deluxe Materials approached us to be an advertiser and for us to help them get better known in North America, so there *is* a business relationship here. That primarily puts me on the fast track to learning who Deluxe Materials is and to get samples of their products to try.

But for the next part of this editorial, I'm taking off my MRH hat and putting on my regular-old-fellow modeler hat. I am trying to keep the hype level to a minimum, but my enthusiasm for some of these products may bleed through, so do keep that in mind!

Looking at Deluxe Materials as just a modeler

Okay, I've taken my MRH Publisher hat off. This is just modeler Joe talking now.

If you follow my discussions here in *MRH* and *Running Extra*, as well as my posts on the MRH forum, then you know I've developed a passion for more environmentally safe materials to use with our modeling. As I've gotten older, I've had some personal bouts with strong chemicals affecting my health, so I've become a believer!

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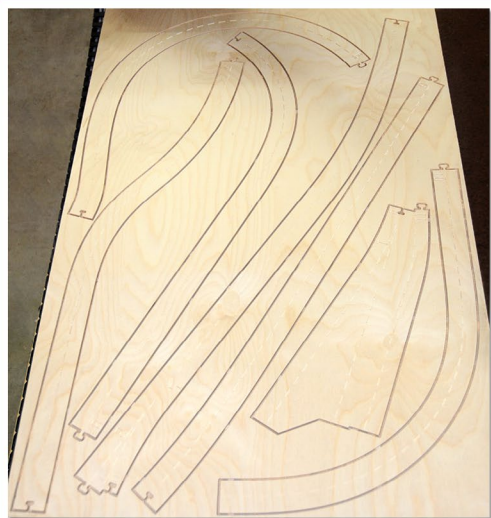
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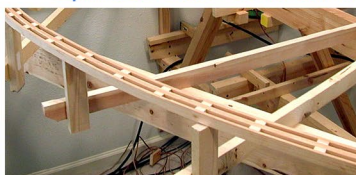
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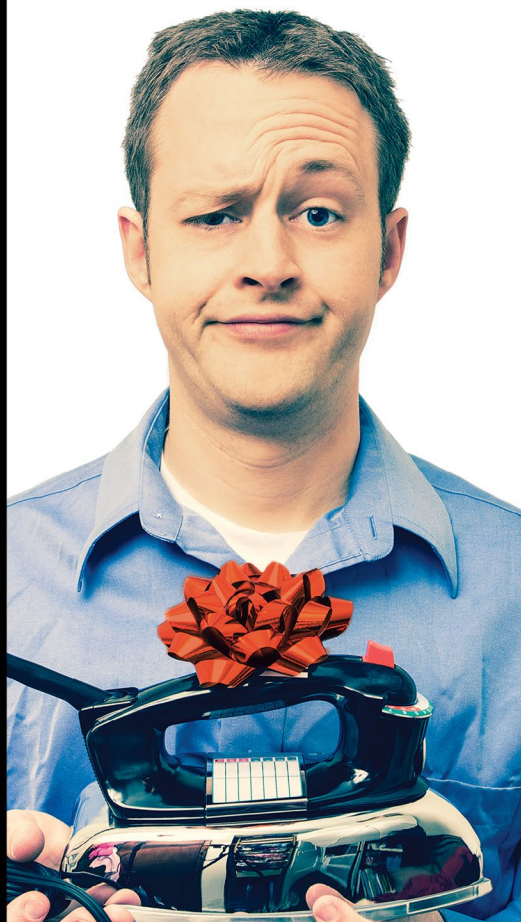
PUBLISHER'S MUSINGS | 3

As I've started to learn the product line from Deluxe Materials, I've been getting pretty excited about some of their items. Here's my top list of exciting products from Deluxe Materials:

1. Fumeless CA, ROKET ODOURLESS
2. Non-flammable fumeless plastic glue, PLASTIC MAGIC 10s
3. Track cleaner with a low dielectric constant, TRACK MAGIC
4. Rapid alternative to white glue, ROKET CARD GLUE
5. Keep brass / nylon screws on my screwdriver, TACKY WAX
6. Pour weight into my rolling stock, LIQUID GRAVITY

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Let me take these one at a time and talk more about them.

Fumeless CA, ROKET ODOURLESS: Last summer I was working on my TOMA modules indoors and using a lot of CA glue. My sinuses were aching from the fumes, and then I developed a bad case of vertigo that didn't go away for weeks!



You can bet I am very interested in CA glue without nasty fumes! I didn't know such a thing existed, so I am delighted to learn of this offering from Deluxe Materials.

Non-flammable fumeless plastic glue, PLASTIC MAGIC 10s:

Not only is this plastic glue non-flammable and fumeless, it's fast. It sets up in 10-15 seconds, so you can keep moving as you build. It's the trifecta wonder glue for styrene, plastic card, ABS and most kit plastics.



As an added bonus, they give you a second extra-long brush so you can get every last drop in the corners of the bottle – a nice touch.

Deluxe Materials tells me this stuff is popular in prisons for model building projects because prisoners can't sniff it and get high, nor can they make a "firebomb" with it.

Track cleaner with a low dielectric constant, TRACK MAGIC:

Back in May, I discussed low dielectric constant track cleaners. Deluxe Materials' Track Magic has a dielectric constant of 1.9, perfect for a track cleaner. It comes with a wiper, micro-brush, pipette, and cup.



The stuff creates a kind of barrier on the track to keep it from getting dirty quickly from micro-arcng.

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Rapid alternative to white glue, ROKET CARD

GLUE: I've always been pretty happy with white glue (called PVA glue outside of North America), so I wasn't really in the market for an alternative.



But once I saw Roket Card Glue demonstrated, it surprised me. As its name implies, the stuff works *fast*. I had never imagined this kind of cardstock glue existed – something that you put on sparingly like superglue and it holds cardstock almost immediately.

This is that product you never knew you needed!

Keep brass / nylon screws on my screwdriver, TACKY WAX:

Magnetic screw drivers work good for holding steel screws to my screwdriver, but I've never found a good way to get brass or nylon screws to stay on the end of my screwdriver, until now.



Side note: For rolling stock trucks and coupler boxes, I prefer to attach them with non-magnetic brass screws.

Tacky Wax from Deluxe Materials fills the bill! Put a dab on the end of your screwdriver and voila! The non-magnetic screw stays put and doesn't fall off easily. Tacky Wax is your workbench hero for this application.

Tacky Wax also works good for keeping scale figures in place when you put them on your layout. Just a little dab'll do ya!

Pour weight into my rolling stock, LIQUID GRAVITY: If you have been following my tungsten powder rolling stock weighing discussions, then you know I'm a fan of alternative ways to add weight to your rolling stock easily using something you can pour into nooks and crannies instead of trying to cut and fit lead weight into your car.



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Liquid gravity is extremely tiny micro metal ball bearings that are quite heavy like tungsten powder, but it's notably less costly.



An 8 oz. jar of Tungsten Powder costs about \$27 on Amazon Prime, but you can get 8 oz. of Liquid Gravity powder for just \$20 on Amazon Prime. That's 26% cheaper!

Deluxe Materials recommends that once you pour Liquid Gravity micro ball bearings in place, you fix it with CA glue – in my case, Roket Odourless, of course!

Deluxe Materials video:

Recently I called Deluxe Materials and spoke with founder John Bristow about their products on a video call.

I've put gist of the call into a 15 minute video on the next page if you'd like to watch it. Remember this is an overseas video call on the internet, so the audio and video quality varies a bit as the call progresses.

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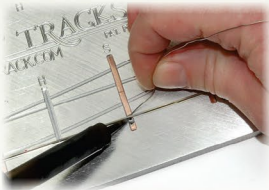
★★★★★
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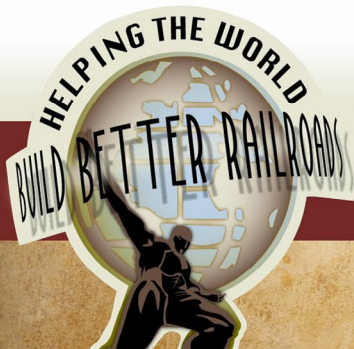


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Deluxe Materials interview

The video call above gives you some idea what their product line is like and has some product demos in it. I for one am delighted to see Deluxe Materials entering the North American market! ☒



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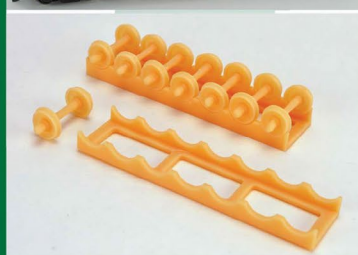
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LAST ISSUE'S RATINGS

The three top-rated articles in the [November 2019 issue](#) of *Model Railroad Hobbyist* are:

4.8 November 2019 news

4.7 Operations in Allagash country

4.3 Stall-motor turnout control

Issue overall: **4.3**

Please rate the articles! Click the reader comments button on each article and select the star rating you think each article deserves. We depend on these ratings to help us determine which articles to publish, so your rating matters! ■

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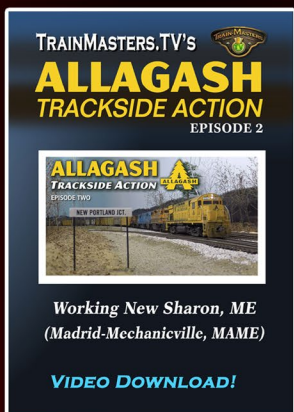
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Model Railroad Hobbyist | December 2019

compiled by **JOE FUGATE**



RATE THIS ARTICLE

Chippewa, Marquette, St. Charles and Pacific Layout Pics

Wed, 2019-11-13 12:41 — johnsong53 [Layout tour](#)

Since Joe asked for some layout pics in a previous post I thought I would make a new entry. As with most layouts the Chippewa is under construction.

The picture below is based on the old Kate Shelly bridge here in Iowa. It was constructed from Evergreen Models structural shapes (ordered in bulk). It is 14.5 ft long and stands 60 inches off the floor so the center can be used as a duck under. This took about a year to build.



This is the Wyocena yard engine house. The hot air balloon on the backdrop covers a Dremel tool hit.

1. If you're in the mood for some inspiring eye candy, MRH forum member **johnsong53** has a thread that fills the bill. Enjoy viewing some *great* modeling and an awesome layout building project!

► **MRH'S MONTHLY GREAT MODELER POSTS**

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Modelling the POTB – Making of GP9 3771 & 101

Thu, 2019-11-28 07:48 — Janelectro [Diesel locos](#)

So finally after some weeks I find the time to tell about the hassles I went through modelling the two GP9s of the POTB.



3771 started out as a Pennsy GP9 II, 101 was in the colors of Western Pacific. Both are P2k models. After stripping the shells I added the Farr airfilters and filled in the class lights on 101. I also drilled the holes for 101's snow plow.

After that both shells were painted with Alclad white primer.



2. MRH forum member **Janelectro** is modeling some Port of Tilamook Bay (POTB) Geeps! Check out this thread for the step-by-step process in detail. Very cool.

LET'S GET LIT!

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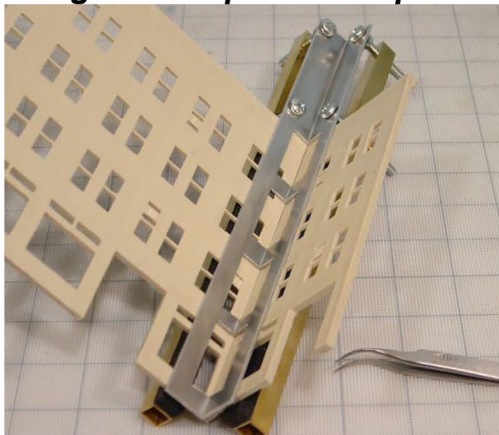
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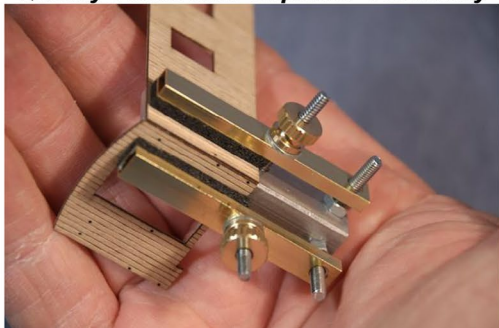
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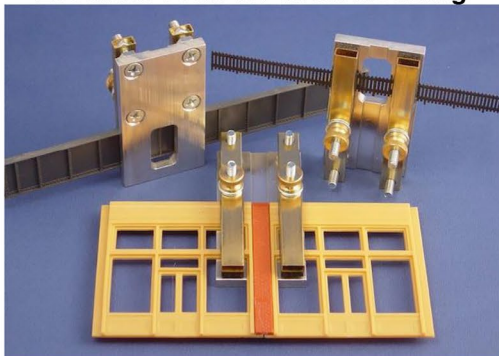
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Converted LPG tank car build

Sat, 2019-11-16 15:28 — mesimpson Locos - Rolling stock (general)



My friend Mark P. took a lot of photos of his model building. I was looking for some inspiration, and a couple of shots caught my eye. They were older style cars that were quite interesting in appearance. A bit of sleuthing with the scans and Google told me that they were former LPG tank cars that had been rebuilt in the early 1980s and used to carry oil. The cars had been rebuilt in the early 1980s and used to carry oil. The cars had been rebuilt in the early 1980s and used to carry oil.

A few spare Walther's parts from my collection were needed to do the model. Off we go!

Marc Simpson

[mesimpson's blog](#) [Login or register to post comments](#)



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Starting point

Sat, 2019-11-16 15:46 — mesimpson



3. Forum member **mesimpson** does a nice step-by-step LPG tank car build on this thread. Marc regularly posts threads of this caliber and they're a real joy to read. Check it out!



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First cardstock model

Tue, 2019-11-12 10:38 — Stevenput [Scenery and structures](#) [Scenery - Structures](#)

This was my first cardstock model and I think I'm hooked. It looks convincing And it was quick and easy to build. I wish I took more pictures of the process.

Here's the story:

I was looking for a loading dock for my team track. A google search turned up an ironic result. Team Track Models has a free sample of a loading dock available to download. I figured, "hey, if it's free let's try it out!" After printing it I realized the support base uses poster board, which I didn't have. I ended up building the base from styrene and only used the printed deck texture. Had the whole thing done in a couple hours. No paint. No mess.

The start:



Styrene base:



4. If you've ever wanted to see a live example of how impressive an inkjet-printed cardstock model can look, this thread by **Stevenput** should make you a believer. The finished model is awesome!

Thanks SJVRR, transfer and

Wed, 2015-01-07 22:51 — MikeC in Qld

Thanks SJVRR, transfer and Terence.

There's a new loco here: a Proto 2000 GP18. It's nowhere near being DCC ready, and it looks like a hardwire job, so someone else can do that for me sometime. It's a very sweet runner on DC.



The snow is an experiment with baby powder that contains corn starch. Elsewhere around the house we have an invasion of ants, and in desperation my wife sprinkled some of the powder which they really dislike, so I'm trying it on the semi-outdoors deck where the layout is situated.

The loco needs some weathering, if only to kill the translucent look of the plastic in particular the grabs and around the fans.



5. In the mood for some great New England winter modeling layout photos? Then check out this thread by MikeC in the Qld ... no, it's not Mike Confalone ... ☒



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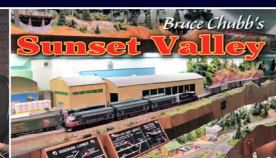
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WHAT'S NEAT

column



Model Railroad Hobbyist | December 2019

KEN PATTERSON TALKS TO DANIEL COOMBS ABOUT HIS LAYOUT-IN-PROGRESS; HE GOES NIGHT-SHOOTING WITH JAMES REGIER, AND JAMES SHARES THE CIRCUITRY AND MODELING TECHNIQUES TO LIGHT UP AN HO HOLIDAY SPECIAL ...



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WHAT'S NEAT!
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► **PHOTOS AND VIDEO OF SUPERB MODELING**

Daniel Coombs

“What’s Neat” regular Daniel Coombs has graduated from his old layout built on several 4x8 plywood sheets, and he is making good progress on his “transition layout.”



1. Daniel Coombs: “My old layout was just a typical middle of the room layout that you had to walk around to get anywhere. I was tired of it, it was old, and it was time for it to go. Modular design is what we have here. The layout is about 48 inches high, on ‘L’ legs. My max radius is about 28 inches and the minimum is 22. It fits into an 11x7 foot corner.

“I’m building it in modules, so I can take it with me when I finally move out of the house. The scenery I’m planning is just a little bit of hills with countryside in the corner. When I put the track down, I realized I don’t really have enough room for a suburban setting, so I might make it kind of rural-ish. It’s still in the works.



2, 3. "The legs design came from an old layout that I had, and it's two pieces of wood at a 90-degree angle with three 45-degree braces top, center, and bottom to the leg extra durability and stability. On the bottom I have furniture glides on leg levelers to adjust up and down.

"I'm using Digitrax DCC, however I have the NCE PowerCab on my test track. I've got the Digitrax wireless Wi-Fi system and a few wired throttles here and there.

For signals, the company has been around a while. It's called Azatrax (Azatrax.com). They're basically a simplified signal system, not a tiny plug-and-play but you don't have to get a gigantic signaling board like we're all used to.

You take your signal wire and wire it into the board. Then you take your track feeders or detection blocks, and you individually insulate the blocks that you want the signals to occupy. It shows the status, and where the train is.



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4. "The track is Code 100 Atlas flex track. I know Code 83 is more popular but Code 100 is less expensive. This one I'm using Woodland Scenics foam roadbed because I really didn't want to fuss with cork. It tends to dry out after a period of years. This black foam roadbed from Woodland Scenics does work.

"This layout, the main thing is to plan and do one step at a time. The other layout, it was built, the track was laid, and I just went right to scenery. After that, I just quit. For two years it was deteriorating. It was getting in a crappy, crusty state. I just didn't like it.

"I'm in an ops session group on several Tuesday nights ... we go to several gentlemen's layout. I don't have the attention span to operate; people know that. I thought, you know what? I'm going to give it a shot. I'm going to think about getting the Micro-Mark card routing system.



RATE THIS ARTICLE

Shooting at night

Ken Patterson and James Regier are out in the back yard in the middle of the night with a beautiful moon to do a segment on night photography. James has a Canon EOS 5D Mark III with a telephoto lens and is lining up a shot of a locomotive coming down the track.



5. James and Ken use the B (or “bulb”) setting on the cameras to make a manual exposure and manually set the lens at the smallest aperture available. The manual B setting allows them to make a long exposure to highlight the LEDs installed on the engines. They set the ISO on the digital cameras at 100 for maximum resolution. Exposures can be six minutes or longer and the cameras’ reviewing screens let them check to see if the exposures are too dark or too light. Filters are removed from the front of the lenses to eliminate nasty reflections.



6. A couple of Santa Fe passenger cars produce a nice study of reflections on water. Not everything works, but experiments can produce some great images. In addition to moonlight, Ken and James are using a flashlight for highlights and bright exterior lights on the house for fill. The spotlights might be used for 10 seconds of a long, long exposure. Watch them at work in the video.



Also see the new "What's neat this week" weekly video podcast!





7. Modular scenes are great for night photography. They can be easily repositioned to take advantage of the light and it is easy to position the camera for maximum impact.



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Joe Fugate: The wonders of double-sided masking tape.

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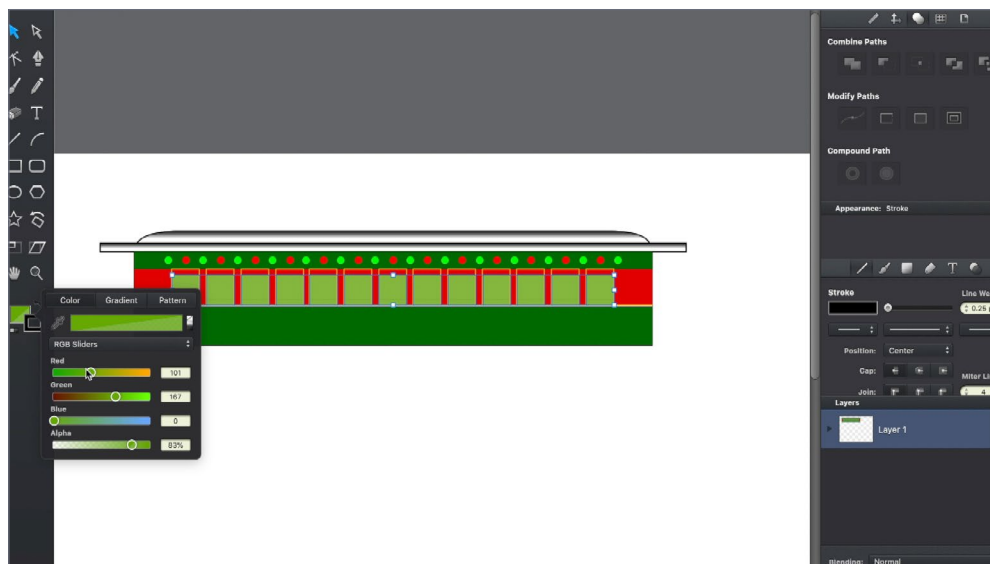
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BEN KAUR shares a very clever method for conveniently storing micro-drills with spill-proof access.

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Christmas cars

James Regier is using Bachmann old-time passenger cars to create a holiday excursion train – that means lots of bright lights. He has LEDs, rectifiers and resistors ready to convert the cars. The techniques will work with any sort of car or locomotive. For the Christmas theme, he uses red, green, gold, and white lights.



8. Before he starts on the model he mocks up the car side designs with a graphics program on his computer that lets him experiment with color combinations, timing, cues, and lighting arrangement without actually putting anything on the car.



Also see the new “What’s neat this week” weekly video podcast!





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9. For a step by step illustrated explanation of all the artistic and technical steps of his project, watch this month's "What's Neat" video on [Page 1](#).



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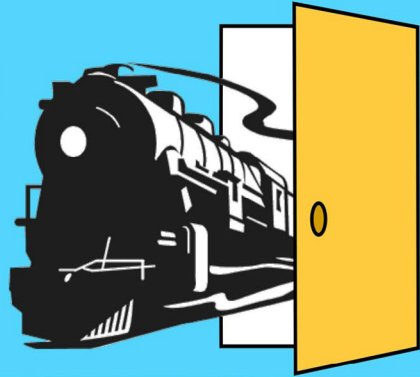
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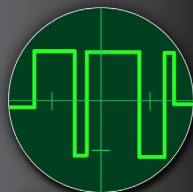
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“Bash” this fast clock with hands



**Electrical
Impulses**

Finished fast clock in
operation.

Model Railroad Hobbyist | December 2019

BOB MORNINGSTAR USES AN ARDUINO TO DRIVE A FAST CLOCK ...

MODELERS USE THE TERM “FAST CLOCK” DESCRIBE analog and digital clocks altered to display time at a faster rate than “real world” clocks.

Fast clocks have become ubiquitous in model railroad operations, helping expand our limited layout space by making time pass more quickly. For us old timers, Frank Ellison’s popular series “The Art of Model Railroading”¹ (see footnote Pg 2) introduced the concept of the time-adjusted scale mile or *smile*, combining scale distance and scale speed into a single concept.



RATE THIS ARTICLE

Ellison's ideas triggered one of the first fast clock articles ever in the August 1944 issue authored by Harry Bondurant.

All modes of model railroad operations ranging from Timetable and Train Order (TTTO) to modern Track Warrant Control (TWC) and Centralized Traffic Control (CTC) can make use of a fast clock.

Originally, fast clocks used fairly high ratios such as 8:1, 10:1 and 12:1. In recent years, slower ratios such as 4:1, 3:1, or even 2:1 have become more popular. On a 4:1 fast clock, one hour takes only 15 minutes in "real world" time, for instance.

If you don't want to mess with modifying hardware, you can get software-only fast clocks from a number of sources, including free ones. Multiple manufacturers also produce and sell fast clock solutions from plug-n-play to kits you build. These solutions can even include multiple master-slave clocks. See the links at the end of the article for more.

Most fast clock programs use a digital fast clock, which works fine for layouts set in the 1970s or later. For an earlier layout, a fast clock with hands feels more era appropriate. This project shows how to get just such a fast clock with hands fairly inexpensively.

Past solutions for a model railroad fast clock often involve the use of the 555 timer integrated circuit plus a host of supporting electronics. This project takes a different approach using an inexpensive single-board programmable microprocessor, the Arduino.

¹ *Model Railroader*, Mar-Aug 1944, reprinted again in Aug 1964.

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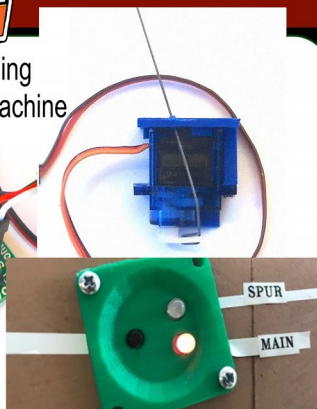
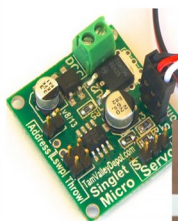
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The project

Doing this fast clock project involves:

1. Modifying the clock to use our new driver circuit
2. Assembling the new driver circuit
3. Programming the Arduino with the desired new clock speed

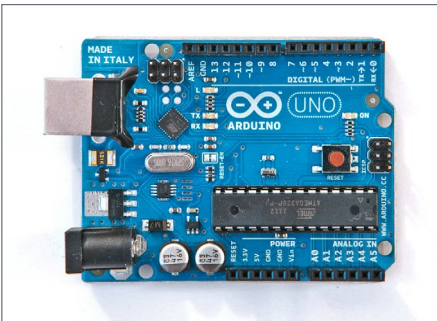
I'm assuming no prior knowledge of electrical circuit design or of programming. Experience working with Arduinos can be helpful but it's not required. I use a modest bill of materials for a total outlay of about \$30.



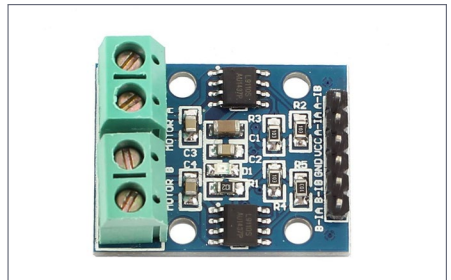
2. La Crosse 8" black clock.

For my solution, I use an inexpensive quartz crystal wall clock [2] available at WalMart, Amazon, and other retailers for less than \$5. See the shopping list at the end of this article for details.

I also use two other components:



3. Arduino UNO R3 board.



4. H-Bridge stepper motor board.

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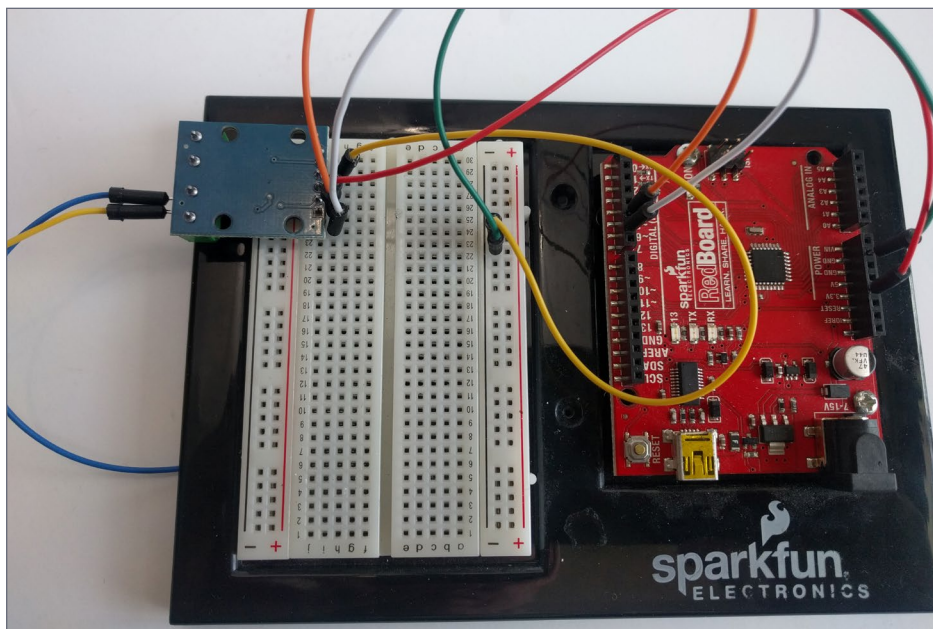
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- Arduino UNO R3 [3] single board computer (\$17)
- L9110S DC Stepper Motor H-Bridge [4] driver board (\$7)

How this fast clock works

The quartz crystal in the clock creates magnetic impulses in the coil, which drives the clock's geared movement. By substituting pulses from an Arduino + H-Bridge, we can readily control the clock speed via a simple program (called a "sketch" in Arduino-speak) that we install on the Arduino.

In the build photos, I used a "breadboard" to do a proof-of-concept test of the circuit [5]. After validating the solution worked, I transferred the solution to a perforated circuit board for final permanent assembly.



5. Interim breadboard proof-of-concept construction.

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Modifying the clock

Disassemble the clock by removing the clock outer decorative housing and gain access to the hands. The clear bezel on my clock was a snap-in affair that is easily removed by locating the tabs and disengaging them from their respective slots [6].

My clock was put together with three metals screws holding the clock mechanism to the front bezel and faceplate.

Carefully remove the hands. Typically, on a fast clock the second hand is useless, so dispense with it completely. You only need to save the hour hand and the minute hand.



6. Removing the front bezel.

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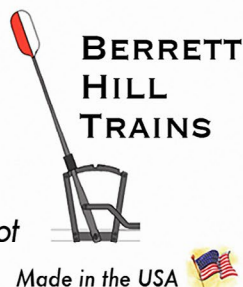


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Remove the quartz drive mechanism from the clock back plate. Most of the cheap clocks have a snap-fit for the mechanism. Your disassembled clock should look like [7] when you are done.

Important note! For the remainder of the steps have your camera or smart phone ready. Photograph as you disassemble the mechanism so you can put the clock gears back in correctly later.

I find the quartz drive mechanism to also be a snap-fit affair – at least for all the mechanisms I have tinkered with. Release the two tabs on side and carefully remove the front portion, that is, the portion that has the shaft protruding.



7. Disassembled clock components.

Take your first photo of the completely assembled mechanism [8]. Remove the outermost gears [9]. Continue to disassemble the clock taking a photo after the removal of each component [10]. Taking a photo each time you remove a layer makes reassembly easy!



8. Quartz mechanism before disassembly.

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9. Removing the topmost gearing.



10. Further quartz mechanism disassembly.



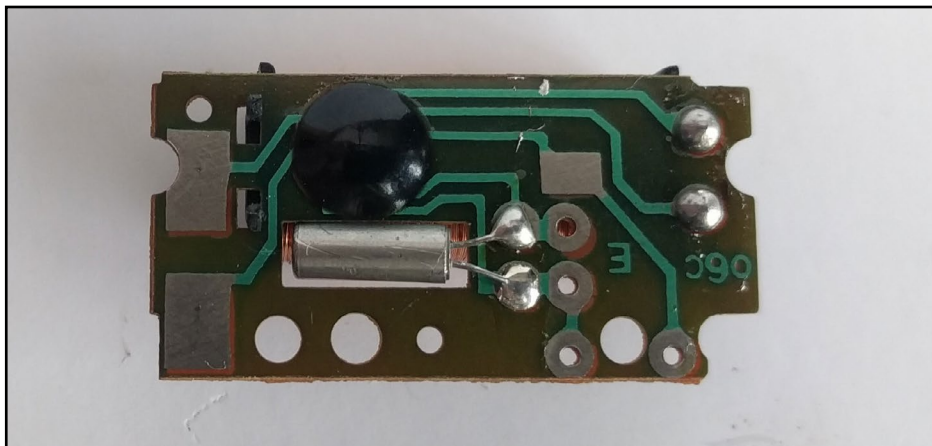
11. Quartz mechanism removed.

Remove the coil/circuit assembly [11]. *Be careful* as there is a small magnetized gear on the back side of the circuit board – don't lose it!

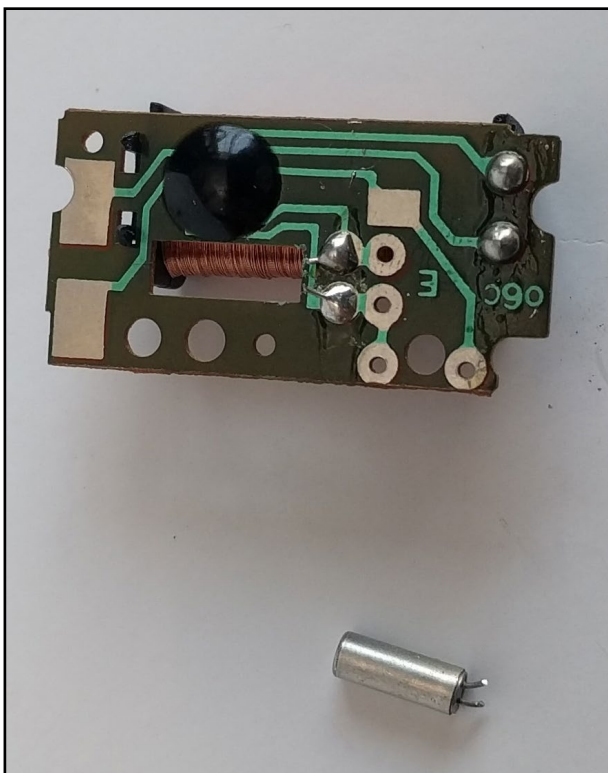
Modifying the coil/circuit board

Carefully snip off the crystal which is the silver cylinder [12]. Be careful not to cut into any of the fine wires on the coil underneath. There is no need to unsolder the crystal from the board - just snip it off as close to the canister as possible [13].

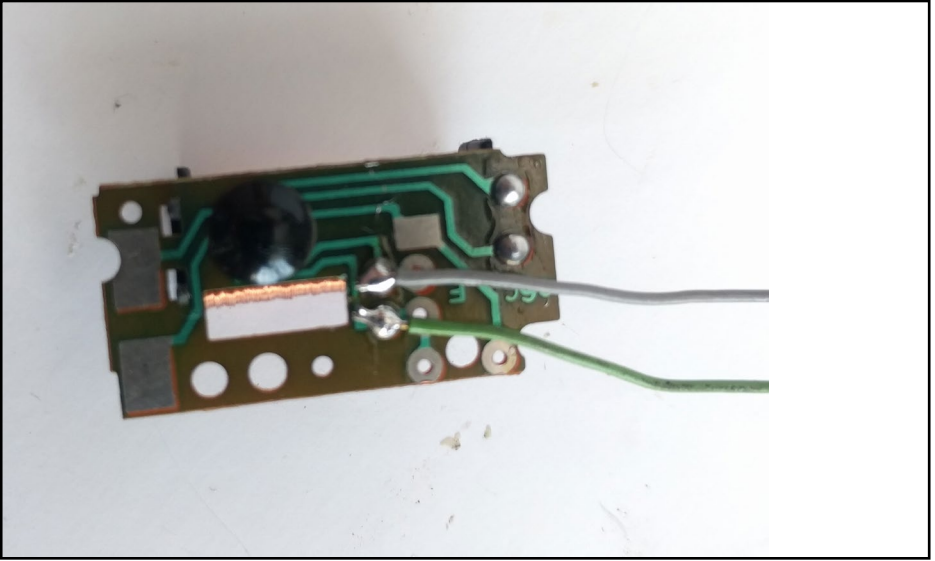
Next, solder two #22 wires onto the solder pads [14]. These wires conduct the pulse needed to drive the coil – make them at least a foot long. No need to observe any polarity on which wire goes where.



12. Before removal of the silver cylinder (the crystal).



13. After removing the silver cylinder.



14. Quartz mechanism removed.

Reassembly

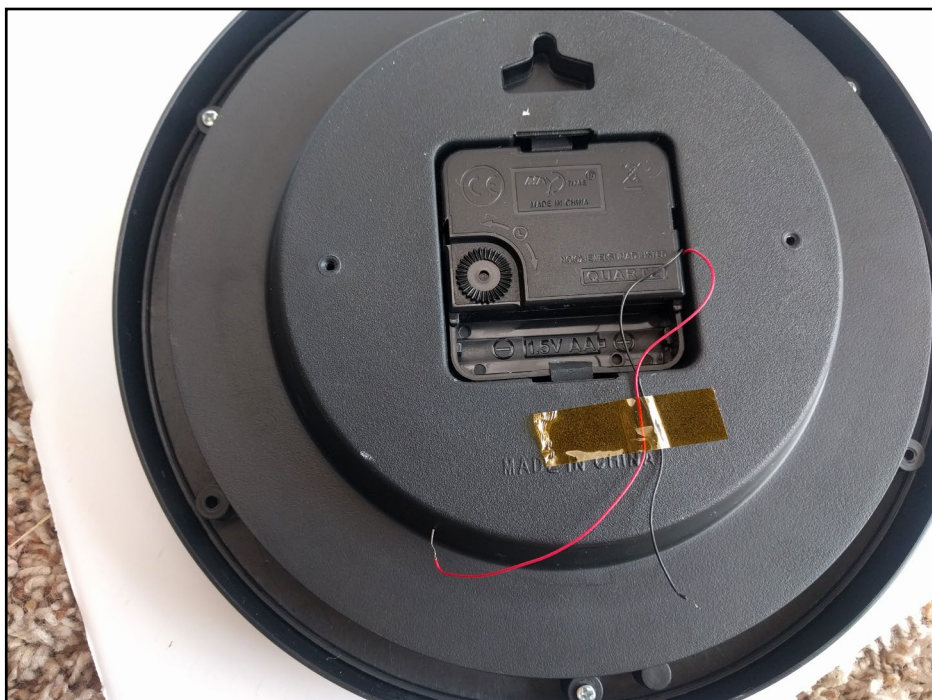
Either cut a small notch into the side of the plastic housing to route the wires out of the assembly or route the wires out through the now-unused battery compartment. The battery housing cover can be discarded [15].

Using your photos, reassemble the drive mechanism. Reattach the hour and minute hands, then discard the second hand.

Spin the time adjustment wheel on the back of the clock to verify the clock's gearing works properly by observing the hand movement. If everything is working properly, snap the drive mechanism into the back of the clock and reattach the clock bezel.



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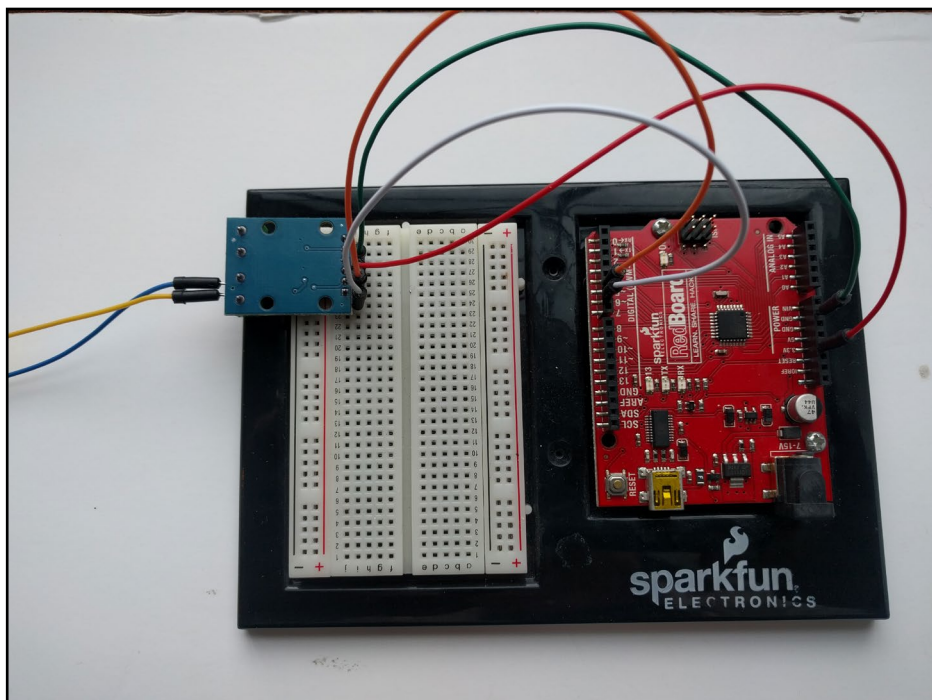


15. Wire routed through the now unused battery compartment (cover discarded). The Kapton tape acts as a strain relief on the wires.

Secure the two wires with a piece of Kapton or other tape to the back of the clock; this will act as a strain relief to prevent pulling the wires off the circuit board.

Assemble the new driver circuit

The new driver circuit consists of an Arduino board and an H-Bridge circuit board. Using a breadboard to test the circuit facilitates circuit diagnosis and troubleshooting. Note that I attached the H-Bridge board upside-down to allow its input pins to engage the breadboard [16].



16. Breadboarded circuit with the H-Bridge board on the upper left.

There are six interconnections between the clock, H-Bridge Driver, and the Arduino [table 1]. Also see [17] and [18].



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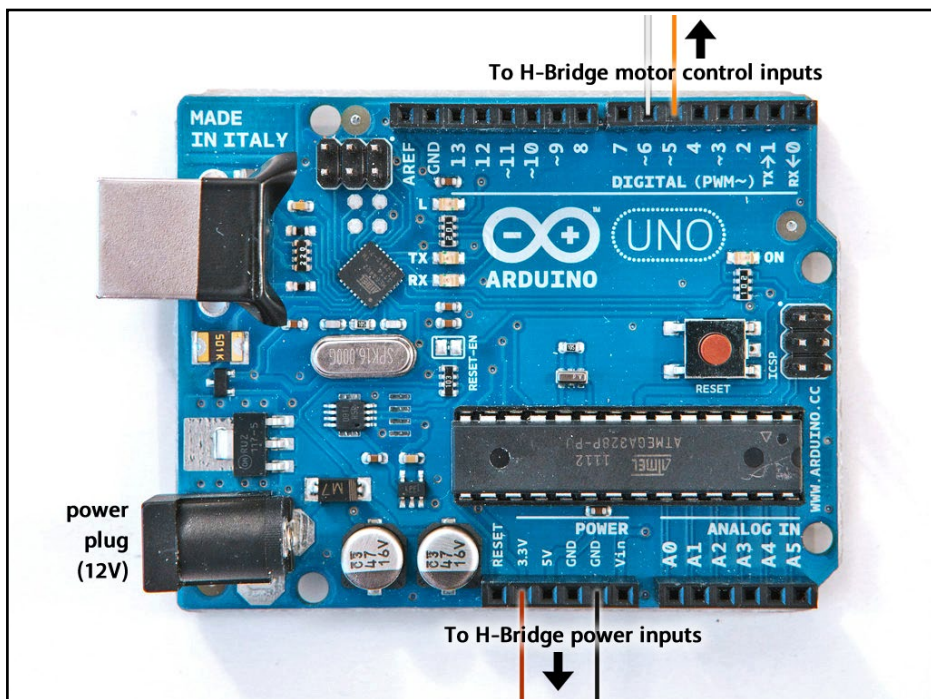
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"BASH" THIS FAST CLOCK | 14

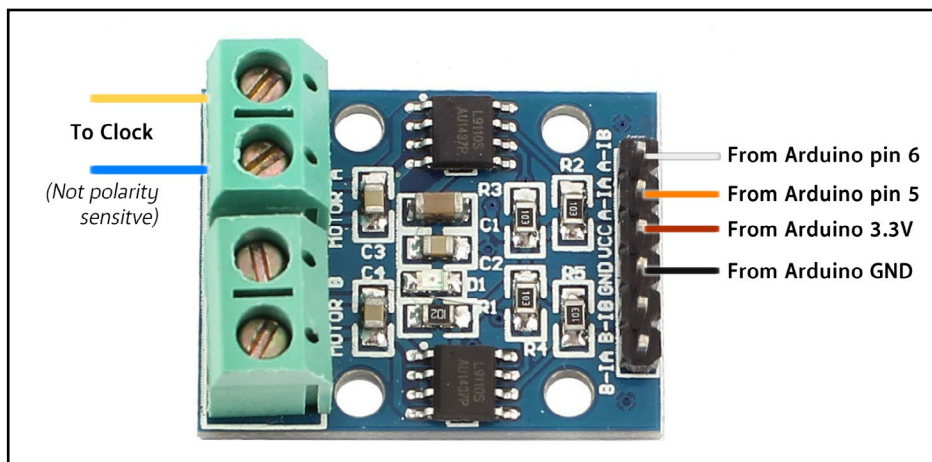
Color	Connects From	Connects To
Red	Arduino 3.3v	H-Bridge VCC input
Black	Arduino Ground	H-Bridge Ground
Orange	Arduino Digital Output Pin 5	H-Bridge A-1A motor input
White	Arduino Digital Output Pin 6	H-Bridge A-1B motor input
Yellow	H-Bridge Motor output	Clock
Blue	H-Bridge Motor output	Clock

Table 1: Arduino, H-Bridge, and clock interconnections.



17. Arduino wire connections.





18. H-Bridge Driver Board wire connections.

Programming the Arduino

The last step is to load the Arduino with the programming sketch required to drive the H- bridge. If you are unsure of how to program an Arduino, see the December 2016 *MRH*, “Modelers’ Introduction to the Arduino”

[\[mrhmag.com/magazine/mrh2016-12-dec/arduino\]](http://mrhmag.com/magazine/mrh2016-12-dec/arduino).

You can adjust the clock ratio by modifying the variable **delay_time**. The code as written will run the clock at around 4:1. The clock cannot run faster than 6:1 due to the weight of the hands and the ability of the coil to reliably react to the clock pulses from the Arduino.

The smaller the variable value, the higher the clock speed. Adjust as needed to accommodate for any slight variances in your clock mechanism. On rare occasions, you may have to try more than one clock to find a mechanism that works smoothly. Luckily these clocks are inexpensive.

Cut and paste this code into the Arduino sketch program:

```
/* Fast Clock Driver
*
* Used to drive a quartz clock for model railroad fast clock usage.
* Utilizes the L9110S DC Stepper Motor H-Bridge Driver Board
*
* Adjust the variable delay_time to suit your needs,
* the small the variable value the faster the ratio *
* Licensed under GPLv3
* Copyright 2018, Robert Morningstar
*
* Derived from code found at
* https://bitbucket.org/robertmassaioli/quartz-clock-control
*/

const int AIA = 5; //used for clock 1
const int AIB = 6; //used for clock 1

const int BIA = 3; //unused could be for 2nd clock
const int BIB = 4; //unused could be for 2nd clock
byte speed = 1; // any value other than 0

int delay_time = 250; //4:1 fast clock
/* Delay time in milliseconds ...
* 500 = 1/2 sec (2:1 fast clock)
* 333 = 1/3 sec (3:1 fast clock)
* 250 = 1/4 sec (4:1 fast clock)
* 200 = 1/5 sec (5:1 fast clock)
* 167 = 1/6 sec (6:1 fast clock)
*/
```



```
void setup() {  
    pinMode(AIA, OUTPUT);  
    pinMode(AIB, OUTPUT);  
    pinMode(BIA, OUTPUT); pinMode(BIB, OUTPUT);  
}  
  
void loop() {  
    forward();  
    delay(delay_time);  
    backward();  
    delay(delay_time);  
}  
  
void backward()  
{  
    digitalWrite(AIA, 0);  
    digitalWrite(AIB, speed);  
    digitalWrite(BIA, 0);  
    digitalWrite(BIB, speed);  
}  
  
void forward()  
{  
    digitalWrite(AIA, speed);  
    digitalWrite(AIB, 0);  
    digitalWrite(BIA, speed);  
    digitalWrite(BIB, 0);  
}
```



Finishing up

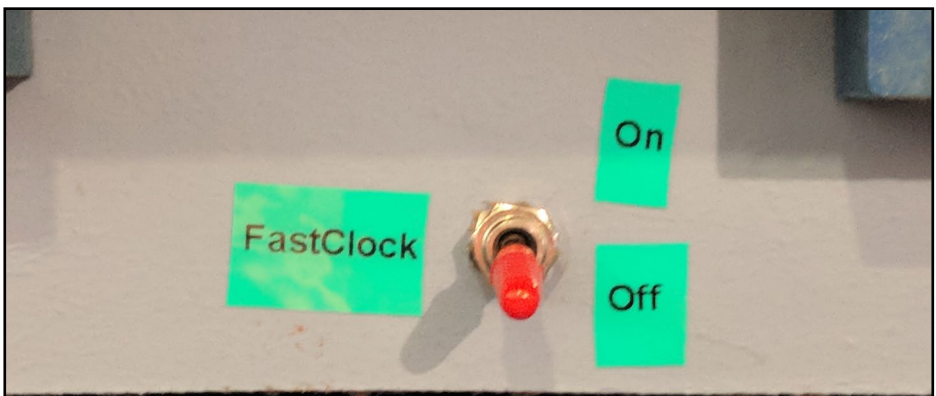
You can set the start time on the clock by using the thumb-wheel on the back of the clock. Stop the clock by removing power to the Arduino.

I do not worry about what time is displayed when an ops session begins as the next ops session starts where the last session ended. The Arduino stores your program in non-volatile memory, so you don't have to worry about it losing the programming if you turn off the power to the Arduino.

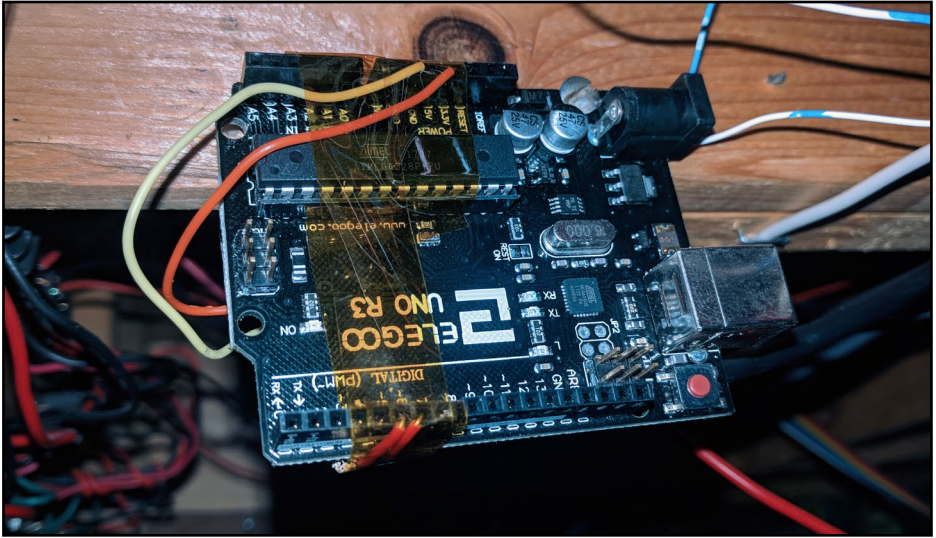
Remember that if you want to change the ratios, you will have to reconnect your computer to the Arduino, modify the sketch, and re-upload it.

I added a power on-off switch using a single-pole-double-throw toggle switch in line with the 12V supply to the Arduino [19].

I mounted the Arduino and H-Bridge under the layout and ran the power to it via my 12V layout bus. I used a single wood screw



19. Fast clock power on-off toggle.



20. Arduino mounted to benchwork.

through one of the mounting holes on each board to mount the Arduino and the H-Bridge.

The Arduino is primarily a teaching computer, so you may want to think about more permanent wiring connections. There are three ways I have permanently attached the wiring to an Arduino:

1. Purchase an Arduino wiring shield with a solder-ready interface for each pin.
2. Place a spot of epoxy on each wire occupying a pin.
3. Use Kapton tape to hold the wires into place.

I used option 3 in the clock installation, as I expect to eventually move the clock to a different location.

Enhancements could include adding a second clock or adding a reset switch and changes to the Arduino sketch to allow the clock to be reset to a predetermined time.

One way to do the reset could be by counting the number of cycles elapsed since the clock was started and determining how many cycles are necessary to bring the hour and minute hand to a known location on the clock face.

I hope you find this article informative and useful. This is an inexpensive way to get a fast clock with hands on your model railroad and also gain experience using Arduinos on your model railroad. 

You can find an up-to-date shopping list for this project on the MRH website here:

mrhmag.com/magazine/mrh2019-12/fast-clock.

Useful links:

MRH free digital clock program - Dec 2019 bonus extra (Windows) mrhmag.com/magazine/mrh2019-12/bonus-extras (must be registered to access, registering is free)

MRH's Mike Dodd's fast clock kits fastclock.mdodd.com/index.html

FAST CLOCKS FOR OPERATIONS, the DCC Guy, Larry Puckett
www.dccguy.com/?p=4100

Iowa Scale Engineering Digital fast clock
www.iascaled.com/store/MRB-FCM

JMRI simple fast clock www.jmri.org/help/en/package/jmri/jmrit/simpleclock/SimpleClockFrame.shtml

Windows digital fast clock (32-bit)
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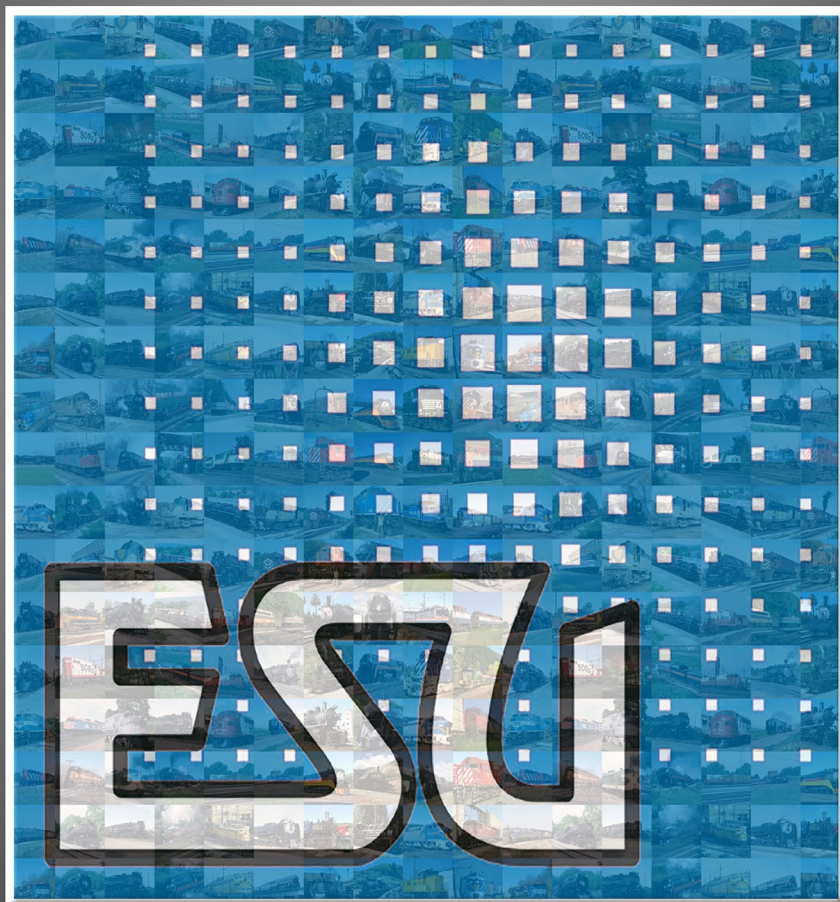
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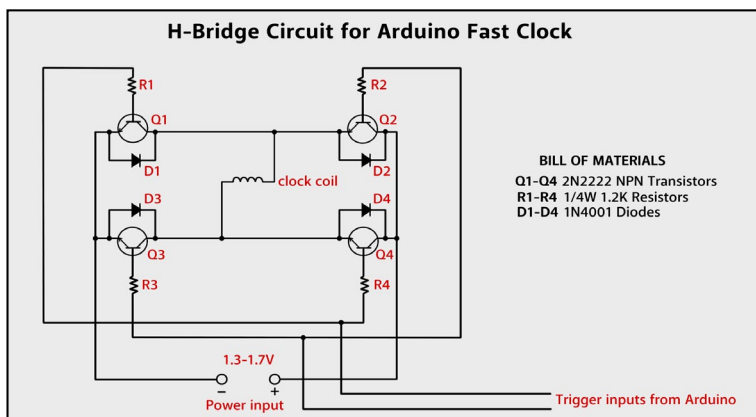
LokSound.com

H-BRIDGE BACKGROUND

More about an H-Bridge

An H-Bridge can also be built using discrete electronic components (4 NPN 2N2222 transistors, 4 diodes, and 4 resistors) and achieve the same results as the H-Bridge Driver board I used.

Here is a sample schematic [21] if you're more adventurous and want to build the H-bridge yourself.



21. H-Bridge circuit diagram.

Using a prefabricated driver board reduces assembly errors, bypasses soldering errors, and decreases build time.

Another advantage of using the H-bridge driver board is you can drive two clocks with one board if you have that requirement.

The spec data sheet for the board can be found at me.web2.ncut.edu.tw/ezfiles/39/1039/img/617/L9110_2_CHANNEL_MOTOR_DRIVER.pdf. ■



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BOB MORNINGSTAR



Bob Morningstar has been a model railroader since his parents gave him a Marx HO scale train set in 1968. His current layout is based on the Western Maryland Railway as it existed in the late 1970s.

Model railroading combines his hobbies of electronics, programming, and model railroading nicely. He is also very interested in the operations part of the hobby and

participates in a round robin ops group in his local area. The layout is on the web and can be viewed at wmrwy.com.

Bob manages the cybersecurity engineering division for his employer and he is a retired Air Force Lt. Colonel. His other passion is sailing on the Chesapeake Bay during the summer.

Bob lives in South Central Pennsylvania with his hobby-supportive wife, Jane. ■



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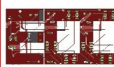


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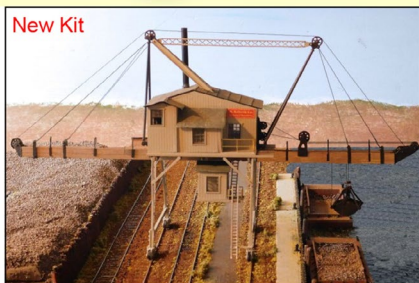
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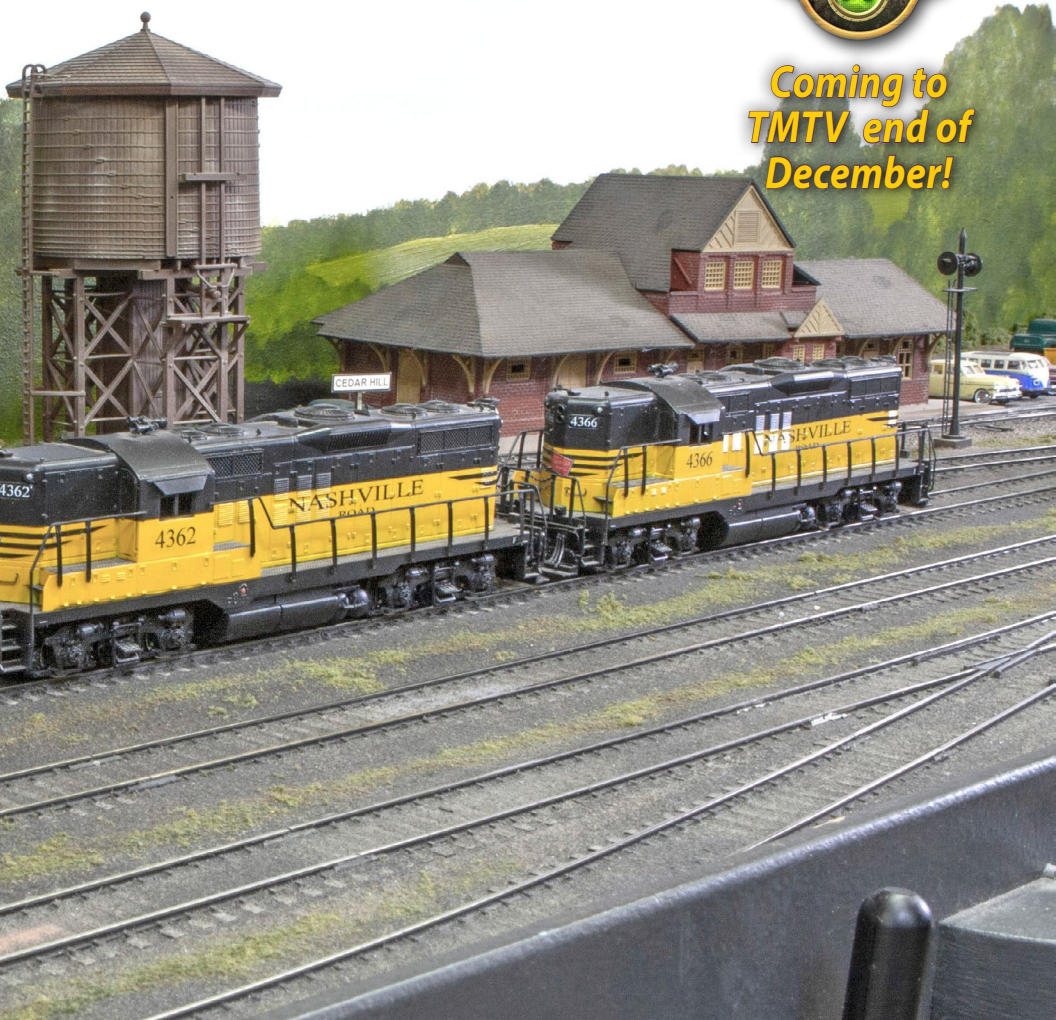
Andy Keeney's Nashville Road



*JOE FUGATE visits with Andy Keeney
and learns how a house fire led to a more
focused layout ...*



**Coming to
TMTV end of
December!**



1. Andy Keeney's Nashville Road is a freelanced line set in the late 1950s that's now owned jointly by the Milwaukee Road and the Louisville & Nashville. Andy models the portion of the line from Bowling Green, Kentucky to Columbia, Tennessee on a sizeable triple-decked layout.

**RATE THIS ARTICLE**

MRH: ANDY, HOW DID YOU GET STARTED IN the hobby?

Andy Keeney: I got started in this hobby back in Ottawa, Canada. I must have been five- or six-years old, riding steam trains out of Ottawa.

Every year as a kid I got a model train for Christmas. Even when I went to Vietnam, I built an N scale layout and put it in a container that could fold open. The layout was on one side, the locomotives and the cars on the other. I took the container with me.

Luckily, I was stationed somewhere with electricity – I used to get it out and run trains around. There's never really been a time when I've not been in the hobby – I've always been active in it somehow.

I got even more into the hobby once I knew we were staying in one place. But then our house burned down in 1995 and we lost everything.

MRH: Wow, that sounds awful. What happened?

Andy: I was a state police officer, a Lieutenant. One night at operations headquarters it was four in the morning and I got a frantic call from my neighbor saying my house was on fire!

I immediately was concerned for my wife and daughter, so I raced home. When I exited the freeway, my house was still several miles away out in the country, but I could see the glow in the sky. Talk about a sickening feeling ...



2. The B&O and the Rock Island have running rights on Andy's Nashville Road. They connect at Ribo Yard in Nashville.

This was four days before Christmas, so there was snow on the ground. I arrived to see the house blazing and fire trucks all over. My wife was just walking circles in front of the neighbor's house, looking very lost. Our daughter was safe at the neighbors. So I took my wife into the neighbor's house and we started to come to grips with the loss.

It turned out to be an electrical problem in the garage – something of my making really. We had baby goats and I used a heater out there and the cord overheated. That caught the straw in the pen on fire and then up went the house.

We had a rough time because we lost several animals, the goats, as well as dogs and cats. So we had to deal with that, too. My wife

felt very guilty because we didn't get all the animals out, but she got herself and my daughter out, which was the most important.

We lived in a trailer in the driveway next to the burned out house while they built a new house in a new location. We're sitting in the basement of that new house – we moved to this new house in '96.

I recommend everyone walk around your house and take videos of everything, make lists of all your stuff including your train stuff, and store it someplace other than your house.

Just picture one day you come home and your house is just a smoking hole in the ground – do you know what you had in there? They gave us sheets to list all our stuff, from the clothes to everything else.



3. Andy models 1956, which allows him to still have steam in active service as well as first generation diesels. Here, an older articulated, still in N&W livery, takes on coal in Cedar Hills yard, the next big yard south of Bowling Green, Ky.



4. Speaking of steam and diesel, here a northbound Nashville Road 2-10-4 Texas meets a southbound trio of diesel F units just on the edge of North Gresham yard. North Gresham is an industrial area on the outskirts of Gresham yard, the largest yard on the layout.

Think how much easier it would be if you walked in each room, just circled around with your video, pulled drawers open and so on, just to get an idea of what you had. And it's a lot easier to prove you had this stuff also with a video.

MRH: Interesting. Do you have any pictures of the house on fire?

Andy: No pictures, and my wife doesn't want any memories of it either. Of course, I lost all my railroad stuff.

I had about 15 brass locomotives and I had some layout modules in the basement of the old house. I had a 20-foot module of a yard that our local club had used. And of course I lost all that.

MRH: How did you get going again in the hobby after such a tragic loss?

Andy: I had bought a bit of everything. The house fire gave me a chance to start anew, and by then I had become more interested in operations. This time I wanted to build a layout with a specific era. So I went with 1956 since that allowed me to have first-generation diesels and steam engines.

I took quite a bit of time developing what I wanted. I used a lot of modelers license in building this layout, but it's what I wanted for operational purposes.

I still didn't know a whole lot about operations at that time.



5. A line of cabooses awaits assignment in Cedar Hill. Andy still has a long list of painting and decalling projects. Meanwhile, he presses not-quite-complete equipment into service anyway so he can hold regular op sessions.

MRH: How did you develop this interest in operations?

Andy: I wanted to learn more about operation, but I was afraid I would get myself in trouble because of my ignorance. That fear caused me to avoid going to operating sessions.

But I longed to be involved and I wanted to learn more, I just didn't know where to start. Jack Ozanich, a prototype railroader



J. Fugate

THE UNVARNISHED TRUTH ABOUT LAYOUTS

It has become a tradition among hobby publications to feature finished layout scenes as part of a layout tour, and to avoid showing unfinished areas.

That wasn't always so. If you look at the model railroading magazines from the 1950s and 60s, you will see plenty of unfinished scene photos as part of the layout tours published in those days.

As someone who has visited a lot of layouts over the years, I can tell you that most layouts have more unfinished areas than they have finished areas. The mostly finished layout is sensory shock because they're rather rare, frankly.

I feel this evolution to super-slick finished-scene-only layout presentation is doing the hobby a disservice.

First, new modelers might assume most layouts are finished. When they look at their own unfinished efforts, they start thinking they're something of a hobby freak with so much unfinished layout. Talk about a downer.

Second, under-construction layout photos can be quite instructive when studied. By not showing these photos, we're robbing readers of the chance to learn by seeing how others build their layout.

So we're breaking that trend big time with this layout story. Andy has a fascinating huge layout project, but much of it is unfinished. Rather than hide all that from readers, we're showing you the unvarnished truth. Andy still has a lot of work ahead of him.

A huge layout takes a lot of work to complete, but you don't have to wait for completion to start having fun with operating sessions.

from this area with a well-known operational layout ran a clinic titled “Slow the hell down!” and it was an eye-opener for me!

Jack approached the topic as an employee on the railroad and told what you do when you go to work. I finally understood that I don't have to be in a hurry with ops, just take my time.

When you're operating like a real railroad, don't take shortcuts. Take your time, try and do it right, and learn from it. I started operating with Jack and I learned a lot from him.

Jack loves to teach, and he also loves to give you a good-natured chewing out if you screw up! But with new guys, he works hard to teach you the ropes. With Jack, I learned to relax and love the challenge of operation.

The more I can make my railroad operate like a real railroad, the more I enjoy it. And I've tried to pass that mindset on to the people who operate with me – to keep it fun.



6. Andy's triple deck layout runs about 30 trains in a typical operating session and the layout hosts several yards to manage all that traffic. While an op session takes 6 actual hours, using a 1.5:1 fast clock makes the session cover just over 8 hours on the schedule.



7. Andy's main Gresham yard has this 12-stall roundhouse at one end, along with other extensive locomotive maintenance and repair facilities.



8. Andy has yet to repaint a number of his locos in their final Nashville Road scheme. So he runs them with whatever paint scheme they currently have for now. Let the ops continue!

You want everybody going home wanting to come back because they had such a good time. They might have been “stressed” but stressed in a good way, you know?

My approach to operation just developed over time and it evolved as I understood what I wanted on my railroad.

MRH: How do you explain this layout to a first time visitor?

Andy: When they come in here, they're probably going to be overwhelmed! It's three decks and everywhere you look is railroad. Lots of aisles and peninsulas. It can be disorienting!

So let's take it slow.

They come into the layout through a duck-under, and they see a whole lot of railroad in front of them. I show them lower staging is the lowest level directly in front of them, representing Bowling Green, Kentucky. I explain the railroad starts at this point and it goes around the room three times, then ends up around the corner to the left in an alcove as upper staging at Columbia, Tennessee.



9. For turnout control in the yards, Andy is slowly relocating all his Caboose Industries ground throws to these fascia shelves.

Then I explain when you're looking at the railroad, left is always south and right is always north. It's a north-south railroad.

It's really just a linear route with a whole lot of curves but no turnbacks in the middle anywhere, so that makes it a lot easier.

MRH: Why are you modeling this particular region?

Andy: My very first HO train was a Revell Rock Island F7 that I got in the late 1950s. As I started collecting equipment after the fire, I bought several Rock Island RS-3s and fell in love with that railroad again.

But my all time favorite railroad was the B&O. I had many B&O brass engines, which I lost in the fire. I decided I wasn't going to go back to brass, because brass is too hard to keep running well.

But I really did like the B&O paint scheme. So those were the two railroads I wanted – and I always wanted my own freelanced railroad, too. Now we're talking three railroads.

The B&O went as far southwest as Louisville and the Rock Island as far southeast as Memphis. Extending the Rock Island to Columbia, TN and giving both railroads running rights into Nashville allowed them to connect at Ribo Yard.

So I brought them both into Nashville. And I gave them trackage rights on my freelanced Nashville Road. The Nashville Road is my own railroad, which runs from the Great Lakes to the Gulf of Mexico. That gives me north-south traffic, east-west traffic, and a lot of interchange ... nothing like modelers license!

It's more what could have been, rather than what was. I tried to do it in a realistic way, but I avoided actually duplicating the city of Nashville or the cities around it. I just wanted this to be a fun proto-freelanced railroad with a lot of traffic.

I created a history of the railroad and decided it went through a bankruptcy and receivership, with the L&N and Milwaukee Road

taking it over later. That means you may see Milwaukee Road and L&N equipment running with the Nashville Road equipment.

MRH: What was it like developing the track plan for this layout?

Andy: Developing the track plan was a lot of fun. But I also realized I wasn't a great track designer. I had a good feel for the main line, but when it came to yards, sidings, and industries, I wasn't so good at towns.

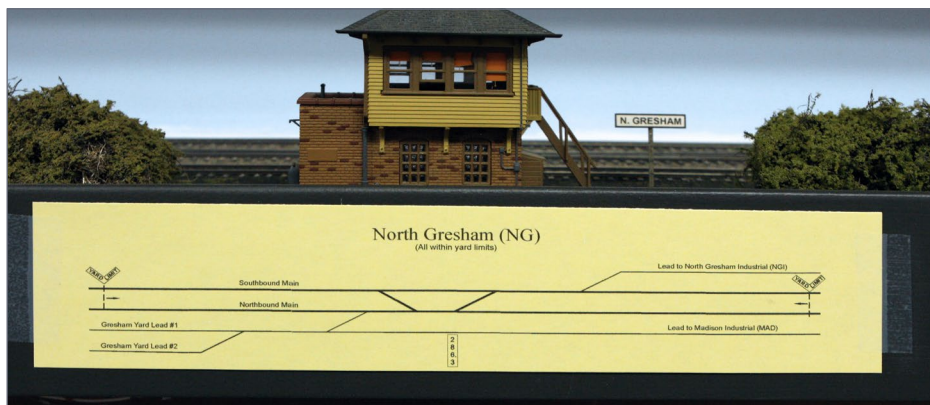
I had developed a favorite way of laying out a town, but it became a rut. Every town had my favorite arrangement and that didn't look right, of course.

One thing I did to break out of the rut is I visited other layouts and studied them. One such layout was John DePauw's EJ&E located north of Detroit. He has a very large layout that's multideck.

I had started with a single deck that was all city. It had a big yard surrounded by city and both ends disappeared into staging.



10. Here's another example of Andy's turnout control using ground throws mounted on a shelf along the fascia. That avoids the need to keep reaching into the scene to throw a turnout.



11, 12, 13. Andy has put a lot of thought into operator-friendly layout ergonomics. His good friend Craig Rosenberger made about 50 sets of card boxes for the layout [top]. Andy has mounted plastic panel moulding in towns to ease car sorting [middle]. Each town also has a track schematic with things labeled for easy reference [bottom].

Although there's nothing wrong with that, you don't get to run your train very far, just into and out of the yard for a little ways. That's not really what I wanted.

At John DePauw's, I saw *two* decks. So I said, "I can do two decks!"

I came back and redesigned the layout and added a second deck. That gave me rural running, and then I come into the city, and finally at the other end, I go into staging.

Then I went to Bruce Chubb's. He's got *three decks* in places!

So I thought, "I can do three decks!" I redesigned it a third time.

Now I've got the middle deck as city with the main yards. The upper deck is south towards Columbia, Tennessee and the lower deck is north towards Bowling, Green, Kentucky. I'm now very happy with this design.

But it does take finesse designing multideck. You don't want people all standing in same spot working different decks, and I've tried to account for that. I think it's worked out fairly well.

MRH: When did you start construction?

Andy: I started construction on this railroad around 2001.

MRH: What's the minimum radius on this layout?

Andy: The two-track helix is 36" and 33-½", but the visible main-line minimum is 36. There's one turnback in a hidden area that is 35. The majority of the curvature on the open portion of the mainline is up in the forties or above.

MRH: You mentioned to me earlier that you now upgrade your Atlas switches?

Andy: When I started building the railroad, I went with Atlas flex code 83, and I used code 100 in staging because it was cheaper.



J. Fugate

THE HOBBYIST'S OWN PLANNING PAPERWORK

True to our name, *Model Railroad Hobbyist* likes to give you a better sense of how you as a hobbyist can do the hobby. Like getting inside your fellow hobbyists' head.

With layout stories, if we can give you a better sense of the planning journey by sharing some of the modeler's own planning paperwork with you, that's some valuable insight at your fingertips.

For Andy Keeney's layout, we have his original layout track plans that we're presenting here. Andy made changes to this plan as he built the layout. To help you see those changes, we're also providing a significant album of layout room photos so you can compare the actual location to the original plans and can see what changed.

One significant change came about when Andy added on to his house. He gained a new 13x19 foot alcove in the lower right corner of his track plan space. An orange line on Andy's original plans marks the wall he removed.

Andy used that extra space to add more length of run. He didn't add any new towns, although he did add more yard trackage and some new industry spurs in this new space. You can see specifically what Andy added in the layout room photos.

At first, Atlas didn't have number eights, so I went with Shinohara/Walther's 83s, using number eights for the main. Over time, I've not been real happy with the quality of the Atlas switches – they produced a lot of stalls.

I even soldered little wires across the pivot from the point rail to the closure rail. That helped, but I still wasn't happy.

So I looked into Fast Tracks jig-built turnouts.

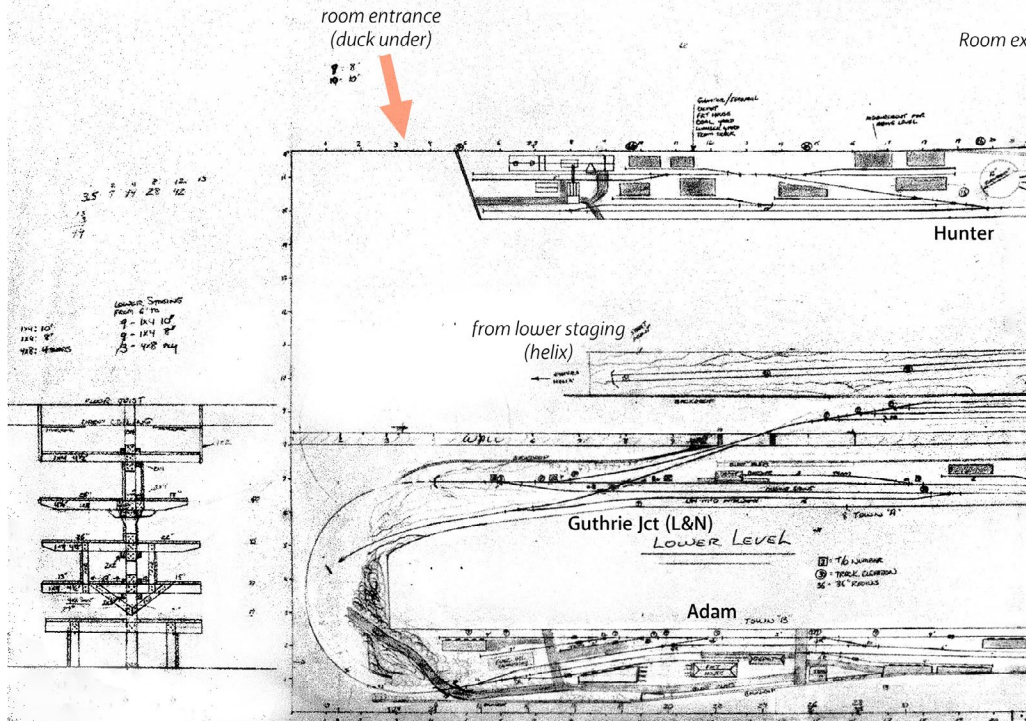
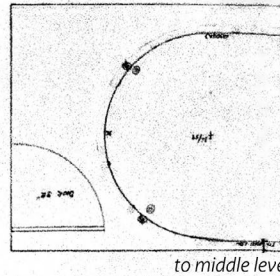
We had our division meeting for the NMRA and my friend Jerry Brown did a clinic on Fast Tracks. We built one right there and I

was hooked. I ordered the supplies for 40 Fast Tracks number sixes plus the soldering jig templates.

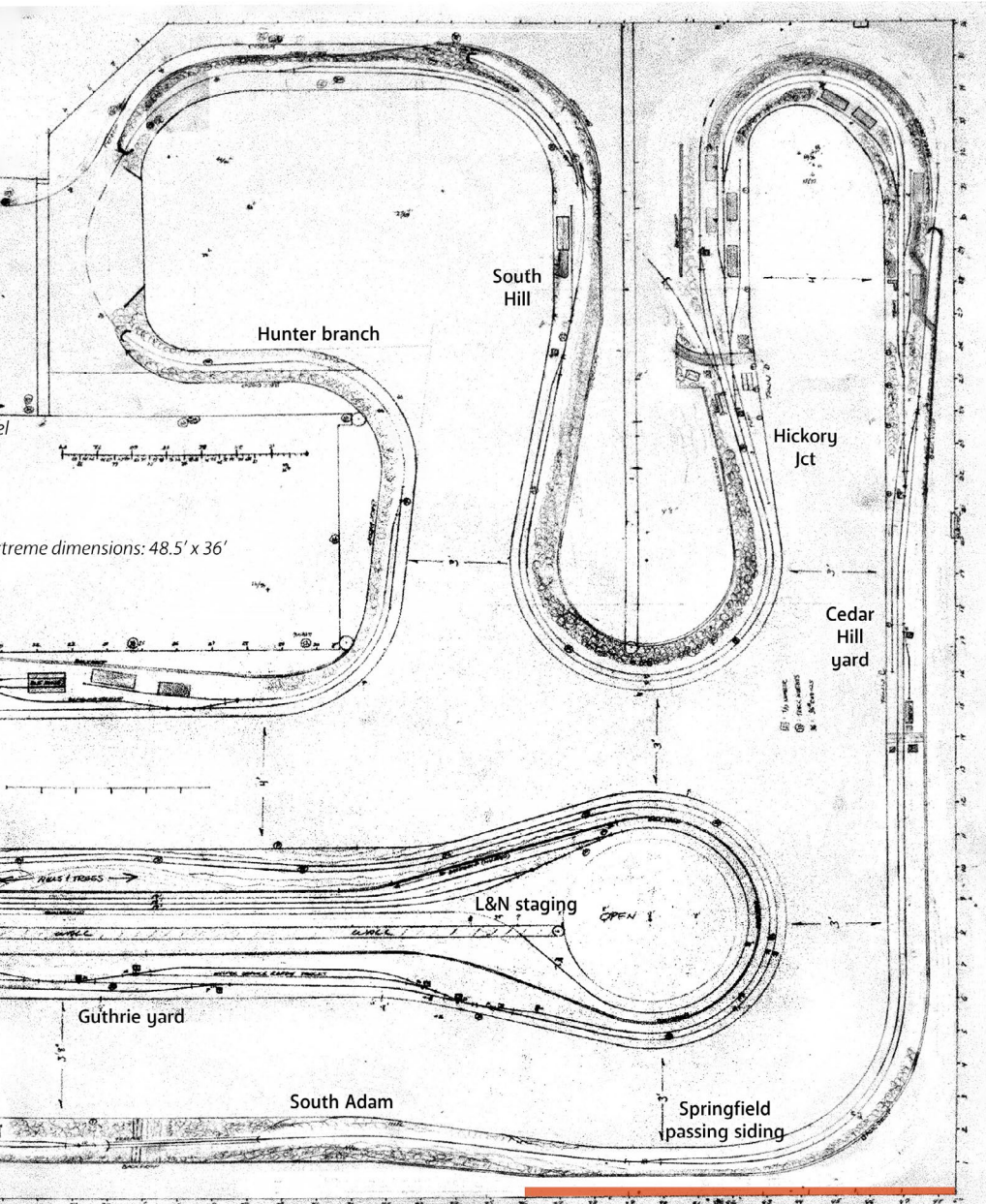
I built all 40, and I took out the Atlas' on one end of Gresham yard and put the Fast Tracks in. I started looking at the Atlas and determined how I could upgrade them to work like Fast Tracks turnouts.

I took out the frog, closure rails, and points and just got rid of them. I kept the stock rails. In the process, I would remove about 13 plastic ties, too.

Then I would replace the missing ties with copper



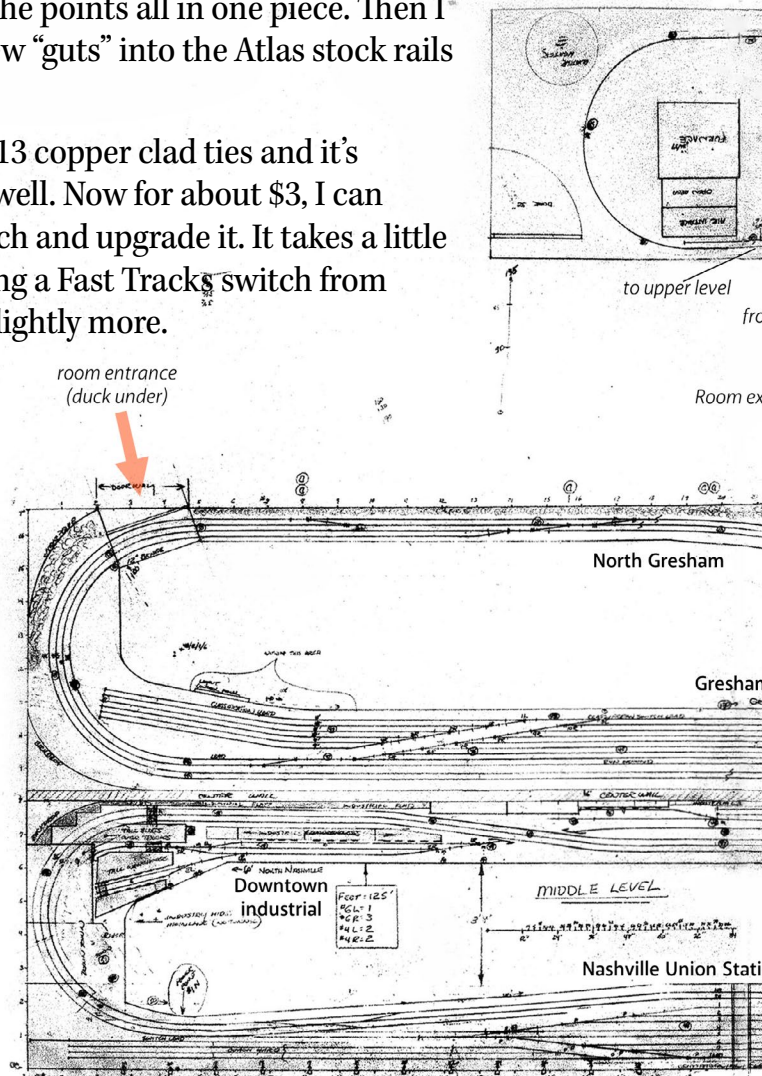
14. Andy's original track plan for his lower level. Compare to the layout room photos to determine what he changed later.



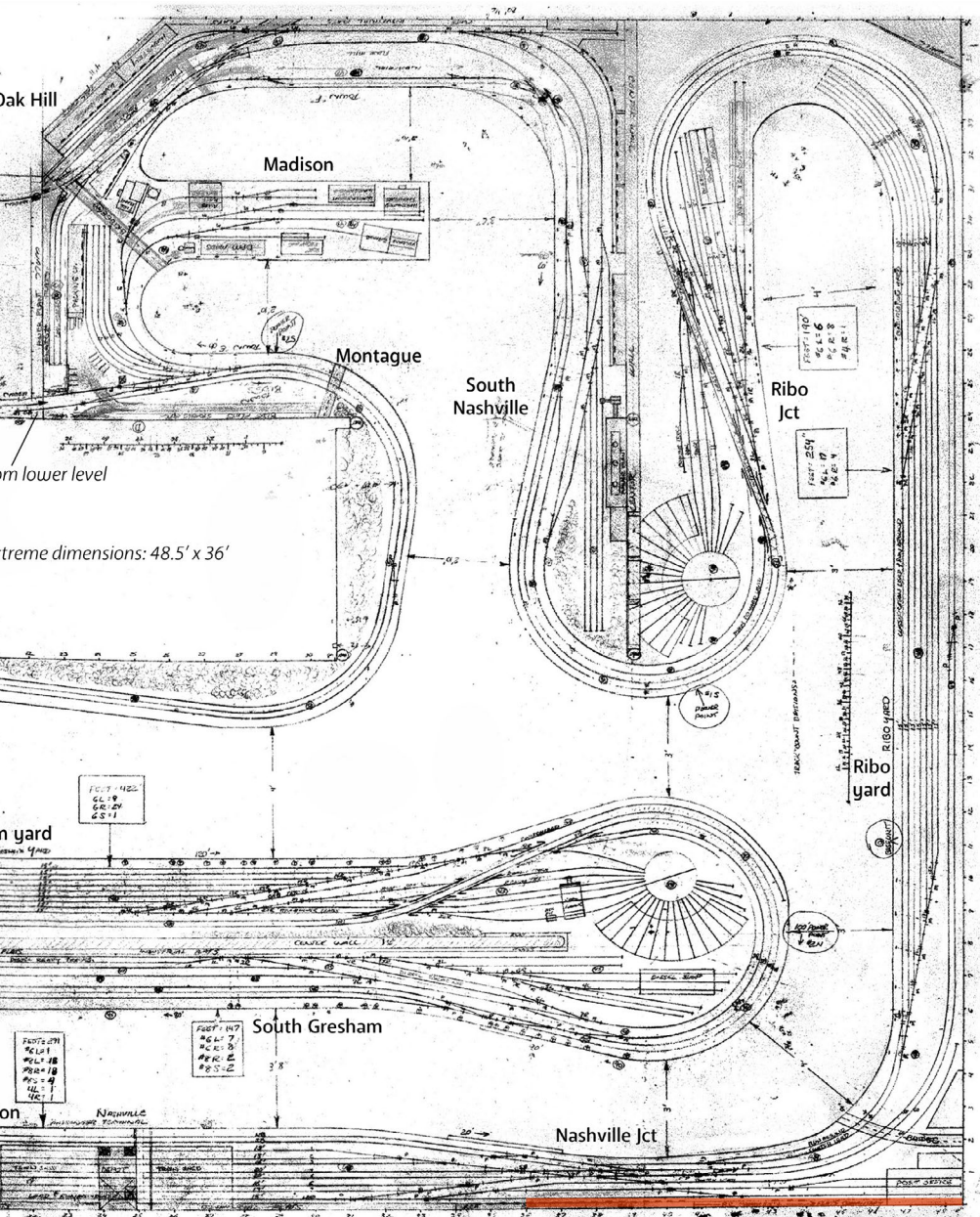
clad ties from Fast Tracks and I soldered them to the stock rails.

Next, I'd use the Fast Track jig to build the frog and closure rails with the points all in one piece. Then I would set these new "guts" into the Atlas stock rails I kept.

I'd solder to those 13 copper clad ties and it's worked out really well. Now for about \$3, I can take my Atlas switch and upgrade it. It takes a little longer than building a Fast Tracks switch from scratch, but only slightly more.



15. Andy's original track plan for his middle level. Compare to the layout room photos to determine what he changed later.



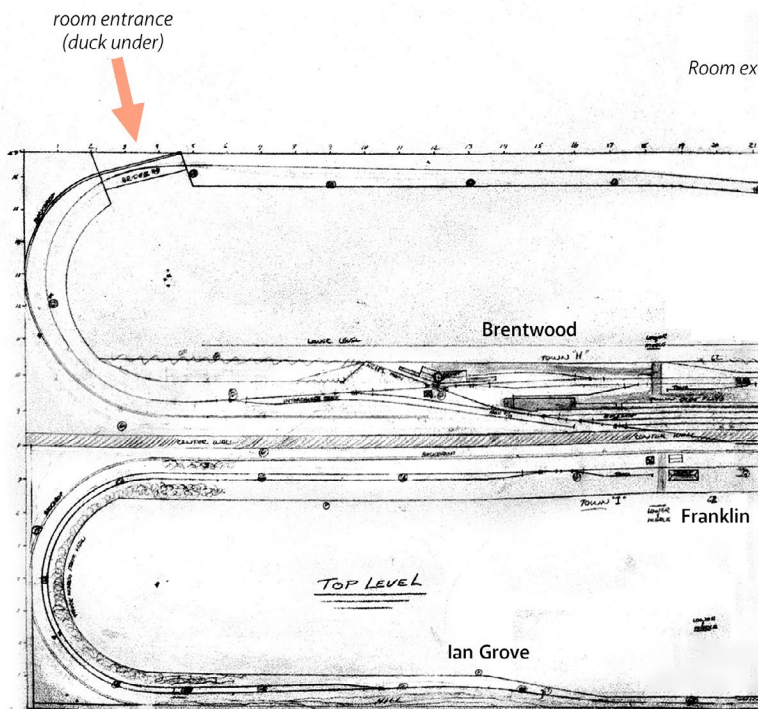
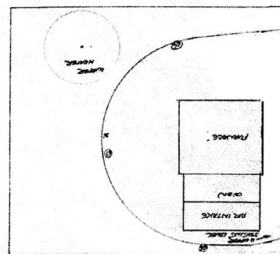
Then I can just put that upgraded Atlas switch right back where it was!

I'm converting all my switches in the passenger terminal. I've got half of them converted. Now I've got the other end to do, and then that'll be done.

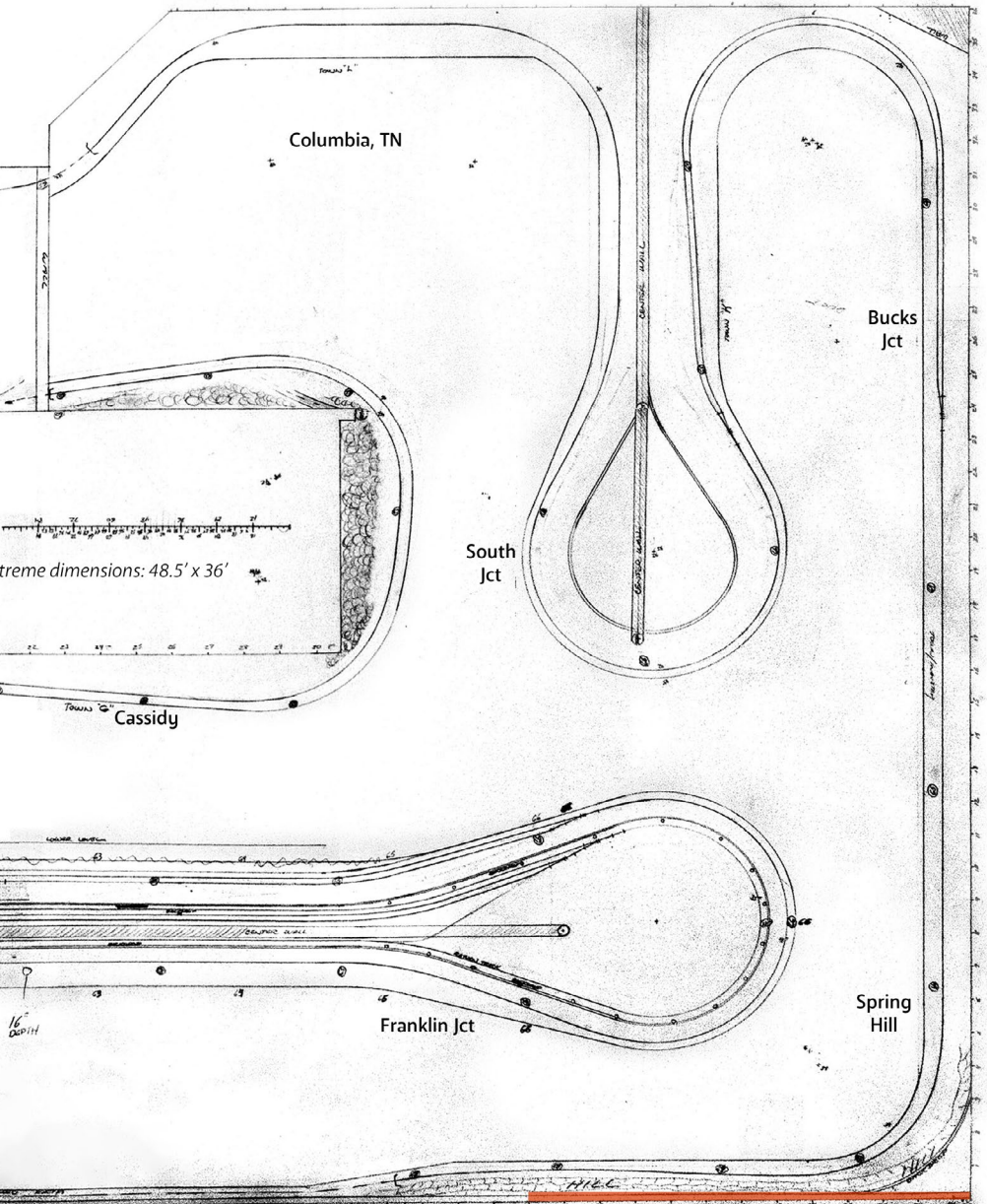
MRH: What's your ruling grade?

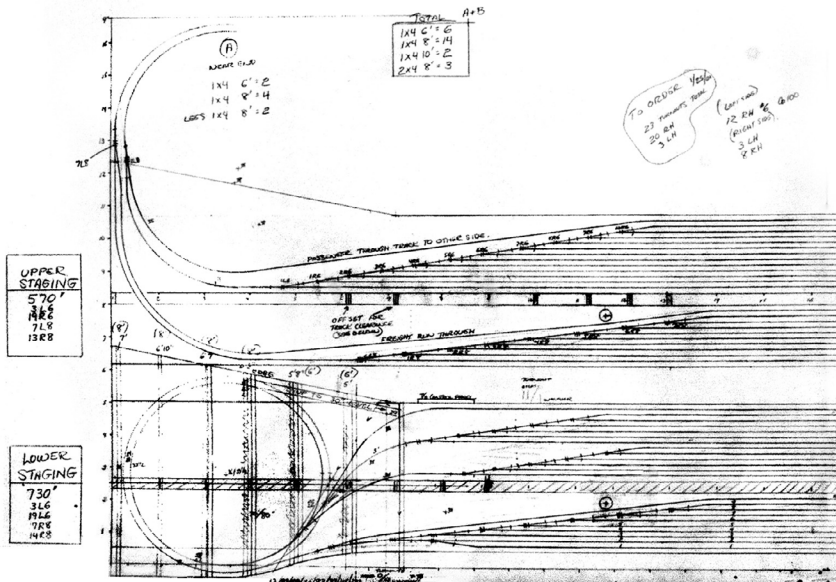
Andy: First of all, there's the helix that comes out of lower staging (Bowling Green, Kentucky).

Once you get to the first deck from there the room itself becomes a sort of big helix – a nolix as they



16. Andy's original track plan for his upper level. Compare to the layout room photos to determine what he changed later.



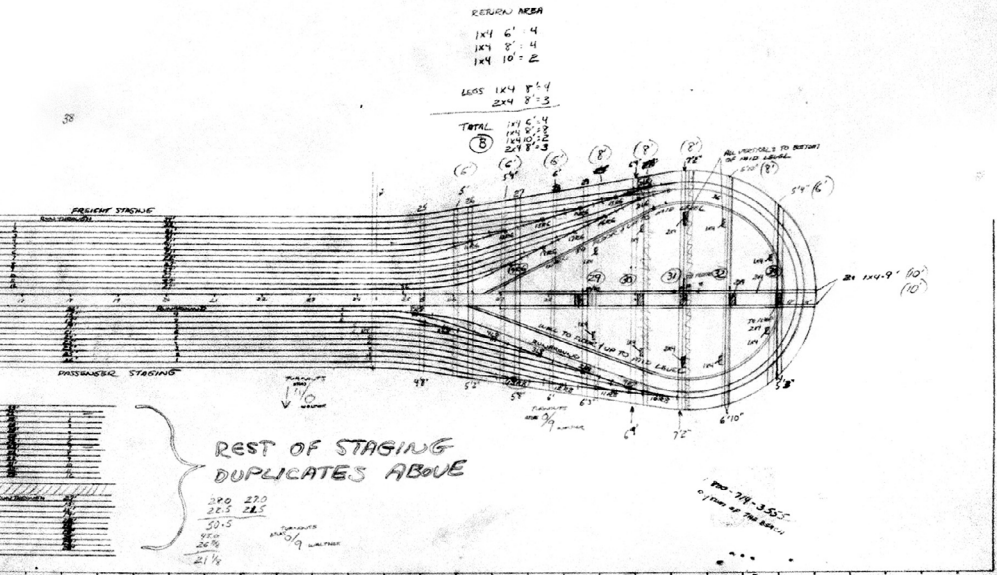


17. Here is Andy's original staging track plan. Andy kept the lower staging pretty much as shown with a helix up to the lower level. However, he moved upper staging to the town area labeled Columbia, TN on his upper deck plan, and added a reverse loop in the upper left furnace room.

like to call it. It circles the room, climbing as it goes around the furnace. The grade is a little over two to two-and-a-half percent.

In one area, we have a "high line" metal trestle that goes through the city. We wanted to keep that level, so track climbs a little faster getting to that trestle. Then again it climbs little faster after it leaves a trestle. It's a long steel viaduct, actually.

But for all three decks it's about two and a half percent, except for the areas on each end of the viaduct.



MRH: What have been your greatest challenges in building this layout?

Andy: Some of the most challenging parts of this layout have been not completely liking what I've got. If I don't like what I have, I should tear it out and do it right or I'm not going to be happy with it. Then if I'm not happy with it today, I'm likely to be even more unhappy with it tomorrow!

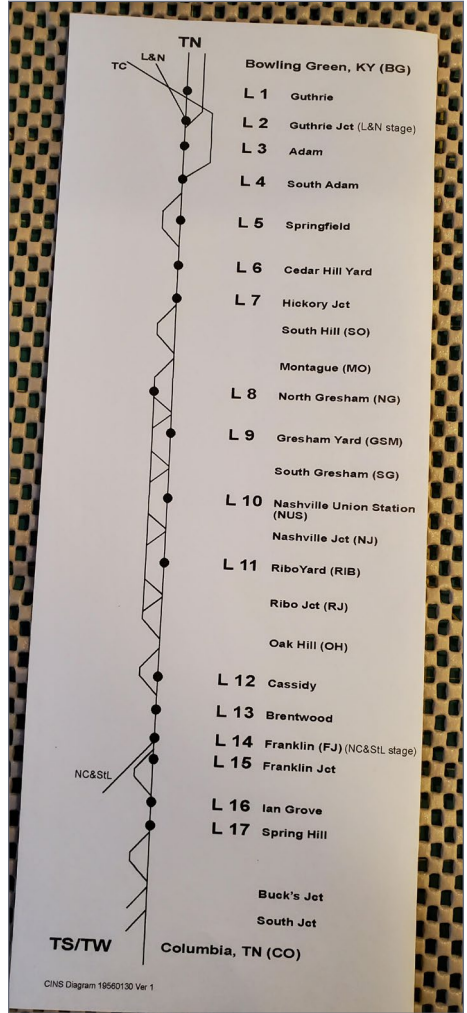
The guys laugh at me because I take half of it down and redo it. But it's worked out well for me.

There are a few things I wish I had changed when I had the chance, but it's too late now. For example, I could have adjusted the height a little bit on certain decks, but overall it's been okay.

I'm not really a great electrician, but I've done all the electrical myself on this railroad.

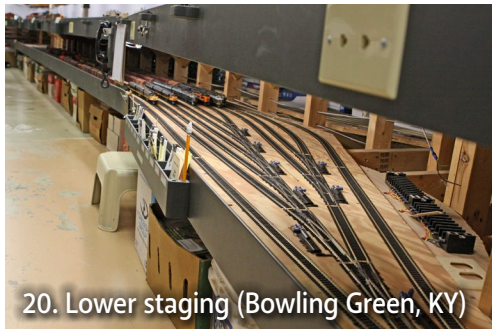


18. More interesting operator ergonomics: Andy's fascia sticks up above the layout ground level a half inch or so, allowing operators to hang a clipboard on the fascia with just a simple wooden knob as a "hook."



19. Andy provides operators with this "route card" giving a simple layout schematic. The L code is for routing the carcard/waybills. Every location has an L # code. TN means "Thru North," TS "Thru South," and TW "Thru West."

ANDY KEENEY'S NASHVILLE ROAD | 26



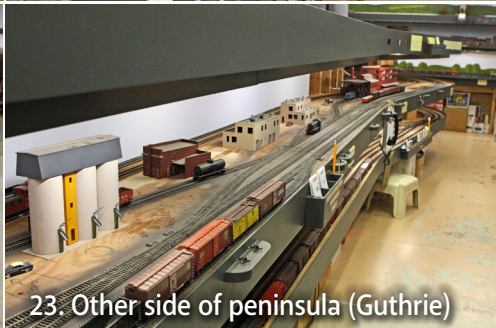
20. Lower staging (Bowling Green, KY)



21. Helix climb to first level



22. First level further along peninsula



23. Other side of peninsula (Guthrie)



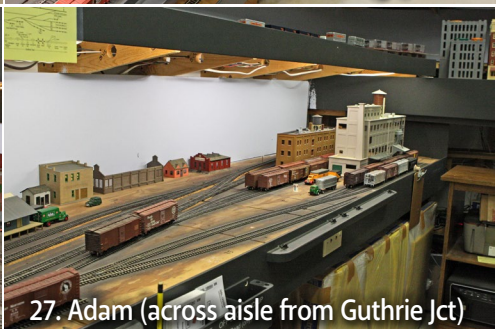
24. Guthrie further along peninsula



25. Guthrie Jct (L&N interchange)



26. Guthrie Jct (end of aisle)



27. Adam (across aisle from Guthrie Jct)

Zoom up to 300% to study photos more closely.



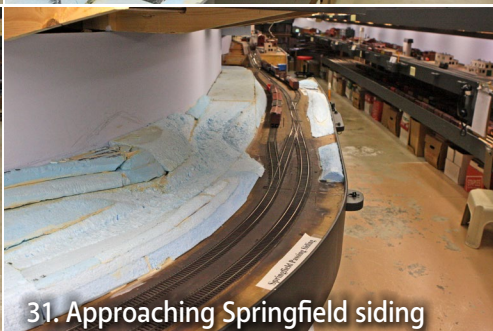
28. Further along town of Adam



29. Viaduct to South Adam



30. South Adam area



31. Approaching Springfield siding



32. More Springfield Siding (new alcove)



33. Other end of Springfield Siding



34. Entering Cedar Hill yard (across aisle from [33])



35. Further along Cedar Hill yard

Zoom up to 300% to study photos more closely.

The challenges have ultimately been enjoyable because I've learned something from each one. For every problem there's a fix. And I like nothing better than to find the fix for problems!

I redesigned a big section of the main Gresham yard. I went through and ripped it all out and redesigned what I think is a lot better now.

So just remember, don't give up. If you've got a problem, stick with it. The answer will usually come to you about two o'clock in the morning!

MRH: Did you encounter any nasty surprises?

Andy: Not exactly a nasty surprise, but a surprise – I ended up with a bigger room. My wife decided she wanted an addition on the house, a 14 by 20 space. Originally there was just supposed to be a crawl space under there because I already had layout built all the way down that basement wall.

So we asked the contractor about the crawl space and he said, "Well, we'll put a hole right here" and he pointed right at the wall with my layout's lower, middle, and upper deck in the basement. And I said, "No way!"

So I asked, "What would it cost to put a basement in here? He said, "Since you live in the country, it won't cost much extra to just take more dirt and move it somewhere else on your property. That's the big cost." It was less than a thousand dollars difference!

We had them drop the wall further down and pour me a basement. And so I got this nice 13x19 addition, but it was a hell of a mess during construction. They hung plastic while they were cutting the basement wall with a cement saw.



36. And further along Cedar Hill yard



37. And still further along Cedar Hill yard



38. End, Cedar Hill yard (end of aisle)



39. Hickory (across aisle from [38])



40. Hickory Jct (start of Hunter branch)



41. Around corner from [40], Hunter branch goes under main



42. Hunter branch (foreground), main (background)



43. Left of [42], Hunter branch (foreground), main enters furnace room (background)

Zoom up to 300% to study photos more closely.

Partway through, the plastic fell down – with cement powder and chips shooting all over my locomotives in the diesel house.

The guy felt terrible. He wanted to pay for it. I said, “No, I’ll just wash it off, no problem.”

Once I had this new 13 x 19 foot alcove, then the fun part started: designing my new area. You know, I added almost 20 feet. So the Ribo yard from end to end now is 56 feet long, which makes for quite a yard.

That’s about as nasty as it got, which wasn’t that bad!

MRH: At least there was a happy ending. What do you like most about this layout?

Andy: My friends coming over and bringing it to life. I don’t run trains much. But I make a good cup of coffee and I’m really good at changing the toilet paper roll!

The phone system is up now, but we were using radios. It was great hearing the radios, the calls to the dispatcher, and all the OSing. You hear all the trains running and the guys having a great time.

I’ll walk around and take pictures and post them on my Facebook page.

I really enjoy that. After everybody’s gone, I almost never run trains by myself. I’d much rather put the time into the railroad by working on it.

MRH: What do you like least about this layout?

Andy: The upkeep. The upkeep is a bear because it’s dusty in the basement here and I’ve got so much track. I have 1,150 feet of



44. Hunter branch, across on far wall



45. Hunter branch, around corner from [44]



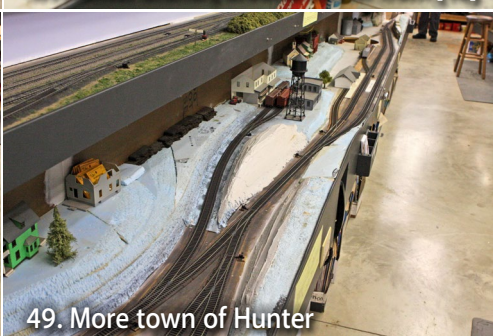
46. Hunter branch, further along from [45]



47. Hunter branch, around corner from [46]



48. Town of Hunter



49. More town of Hunter



50. End of Hunter branch



51. Main [43] emerges onto middle deck

Zoom up to 300% to study photos more closely.

main line, with a lot of it double track. And several big yards. But here again, I have good friends.

My friends come over and they help me with the maintenance, checking the track, or cleaning the track. They also help me get it ready for the session. So that helps ease the problem. But the upkeep is something to think about.

MRH: What DCC system are you using?

Andy: We use NCE. Lansing is a hotbed for NCE. Bruce Chubb got NCE going in Grand Rapids, and as a group we got it going in Lansing. We made one big buy, so we got a nice discount. And that was the early 2000s, maybe 2005 or so.

The majority of people here that didn't already have DCC have gone with NCE, which makes it really nice because you can help each other, and share throttles. If you have problems, you understand each other's system a lot better.

MRH: What decoders are you using?

Andy: We use a mishmash of decoders. It's been anything I could throw in to get the engines running. I want to move to better decoders and get more locos with sound.

At this time, I'm still working to get all the trains on the tracks. That means getting some kind of decoder in the loco is the most essential thing.

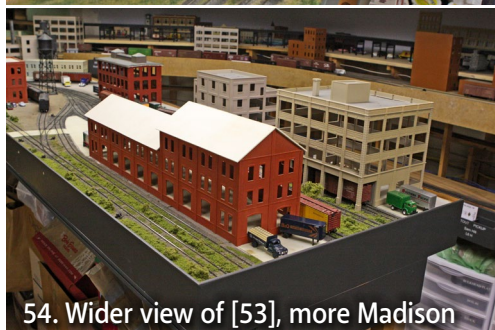
One of the things I'm looking at is putting keep alives in the locos. I'm looking at building my own. There's a couple good build-it-yourself examples on YouTube. I've also got some friends working with keep alives. So we're looking at mass producing keep alives for our equipment.



52. Wider view of [51], main in back



53. Right of [52], Madison



54. Wider view of [53], more Madison



55. Around corner from [52]



56. Entering North Gresham



57. More North Gresham



58. Still more North Gresham (Hunter branch below)



59. North Gresham, end of aisle

Zoom up to 300% to study photos more closely.

MRH: What's your least favorite part of doing the layout and how do you motivate yourself to do it anyway?

Andy: My least favorite part of building a layout would be the electrical. I'm not good at electrical and I don't enjoy soldering.

But if we want to run trains, I have to get it done. I ask the guys to come run trains. And the only way I can do that is to *get the electrical done*. You know, so I just bite off chunks and do it.

Most of the layout wiring is behind me now, unless I'm making changes. The only electrical I'm doing now is when I'm working with the turnouts – you know, upgrading the track. I've got to get the soldering iron out to do that.

One thing about soldering: get a good soldering station. I have a Weller soldering station and it has made all the difference in the world. It works great for soldering feeder drops and to solder rail joiners. It has a very fine tip and that makes the job easier.

I do pretty good at soldering in decoders too. Good equipment is really important, as anybody that's done soldering knows.

MRH: If you had it all to do over again, what would you do different?

Andy: I've thought about what I would do different if I was going to do it over again. My sister lives in New England and I have fallen in love with New England. I would seriously think about doing maybe S scale. O scale is a little on the large side even for this basement, for the curves and all.

It would be either HO or S, and I would go more branchline. Small yards and just have crews go out to a couple different areas and switch. If I kept the three decks, it would make a great run for them.



60. Gresham main yard



61. More Gresham main yard



62. Gresham main yard, other direction



63. Gresham, end of peninsula,
steam loco roundhouse



64. Left of [63], diesel shop facilities



65. Around corner from [64], South Gresham



66. More South Gresham



67. Still more South Gresham

Zoom up to 300% to study photos more closely.

Now we've got over 70 trains on the schedule every 24 hours. And that doesn't include passenger trains, except for two we put on here. We did two passenger trains for the guys to get familiar with a timetable having class one trains and learning to stay out of their way.

This layout and all those trains makes a lot of upkeep for me. I would really consider small time railroading with a nice long branchline, and a main line connection for cars coming in and out. Simplify it. That's probably what I do.

MRH: This is a large layout – can a layout be too big?

Andy: Layout size is an interesting discussion point. I love my big layout, but I think a layout can be too big for one person. You really have to make that decision for yourself.

I've seen some massive layouts that work really great and I've seen some small ones that don't work worth a darn. So it depends on the individual and how much he thinks he can bite off.

I was surprised to see certain people tearing their big layouts down and going to smaller layouts. The only way this layout's going to be torn down is when I'm gone.

My wife swears that if I go first, she's going to rent the layout out – she's going to charge for the guys to come and play [laughs].

But I think the bigger layout you build, the more you're biting off and so expect a lot more upkeep.

But if you've got friends, it almost becomes a club layout of sorts. I do very little of this layout by myself any more.



68. Downtown Industrial



69. Across aisle from [68]



70. Approaching Nashville Union Station



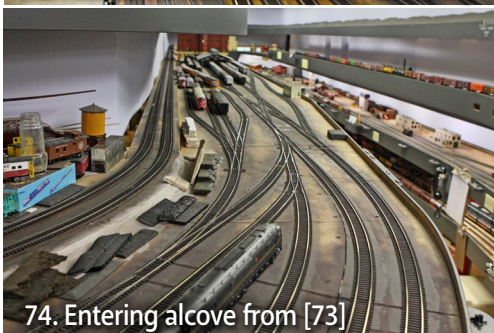
71. Nashville Union Station



72. Nashville Union Station (other direction)



73. Further along Nashville Union St.



74. Entering alcove from [73]



75. Around corner from [74], coach yard

Zoom up to 300% to study photos more closely.

If you have trouble getting friends, maybe you need a smaller layout with fewer crews needed for an op session. You could enjoy that more.

But that's a decision you make based on your own situation.

MRH: What are your thoughts on doing scenery and backdrops?

Andy: You can see the backdrop behind me here. Chris Lyon up in Ottawa, Canada did some YouTube videos and has been on TrainMasters TV. He's been very helpful in teaching us how to paint this layout's backdrops.

Every time he sees pictures of my layout, he shoots me an email or a text saying: "Get working on that backdrop!"

Once I get going painting backdrop, it goes pretty quick. The backdrop is not a piece of artwork. It's in the background to extend your layout. You're watching a train go down the tracks, so the backdrop just complements the view.

Chris Lyon's backdrop videos can be seen on both Trainmaster TV and on YouTube (as CNLVN).

I did use some Kings Mill backdrops buildings, they're flats. They're not available now, but luckily I got quite a few of them and I've been using them along the main Gresham yard.

Those buildings are all Kings Mill and that's Chris Wiley who did them. Chris has become a friend, so that's been nice.

MRH: How often do you have op sessions?

Andy: Normally we do an op session the last Saturday of each month. Start at 10 and go to four. The doors open at nine, so the guys can come and chit chat and we can have our coffee and donuts.



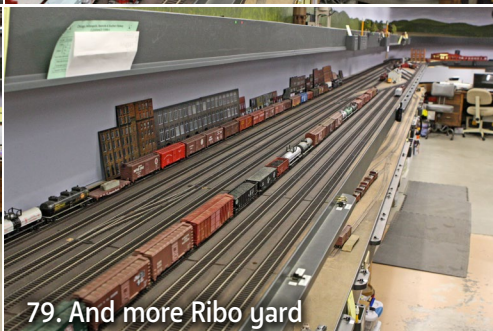
76. End of Nashville yard (other direction)



77. Ribo yard (across aisle from [76])



78. More Ribo yard



79. And more Ribo yard



80. And still more Ribo yard



81. Yes, even more Ribo yard



82. End of Ribo yard (end of aisle)



83. Closeup of aisle end [82]

Zoom up to 300% to study photos more closely.

And then we get the clocks running at 10 o'clock. Then we run until about four. We can get almost 30 trains run in that time. Fast clock is 1.5 to one which makes the session eight hours or close to eight hours. So that works out well.

We've recently gained too many people that wanted to operate and a lot of us are retirees. I talked to the guys and now we have a Monday morning op session too.

For that op session the doors open at 10. It starts at 11 and goes to four. So it's five hours and they call it the old guys session!

It's a nice situation to have a railroad that you want to operate.

MRH: What's fully staffed at an op session?

Andy: I try to have 18 people. I can get by with less, but we start running into problems not having enough crews for the trains. Once I get passenger operations going, I'd say we will take 20 to 24 people with no problem.

The passenger terminal will be two additional people right there, and then we will need crews for the passenger trains.

There might be a bit of sitting in waiting, but they enjoy that too. They get a break and they can sign up for the train they want. It's up to them how much they want to operate.

MRH: What advice would you give to someone starting out new in the hobby?

Andy: Oh boy. For somebody starting out new in the hobby, I would say the best thing you can do is to associate with other model railroaders.



84. Across aisle from [83], Ribo Jct



85. Around corner from [84]



86. South Nashville (foreground),
main (background)



87. More South Nashville, main (background)



88. More South Nashville, main on steel
viaduct (background)



89. Wider view of [88], main on viaduct
enters furnace room



90. Main enters furnace room,
closeup of [89]



91. Main enters upper deck (far wall from [90])

Zoom up to 300% to study photos more closely.

Find a local club or just find some nearby model railroaders and get invited to their layouts. Operate with them and get a feel for what you're really going to really want.

Pick their brain, visit their layouts, get invited to operate.

Tell them you're new. Most of us love new people. We're always looking for new modelers, especially younger guys. I tell you, some of the young guys that come in now are really sharp. They learn quick!

And read the publications. Used to be when I was a kid, all we had was *Model Railroader* and *Railroad Model Craftsman*.

There's so much stuff available to people now. Get online, watch *Trainmasters TV*, and read *Model Railroad Hobbyist*.

MRH: We can't argue with that. ☒



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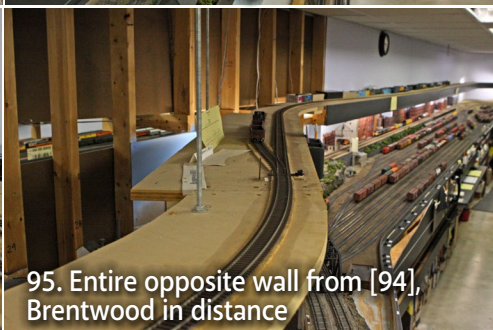
92. Around corner from [91]



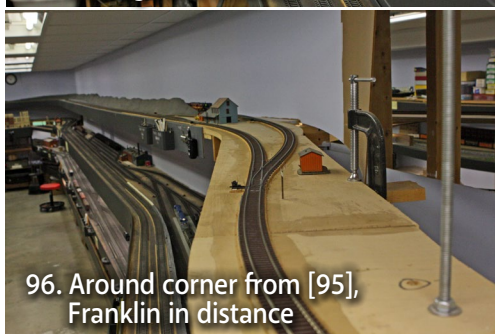
93. Town of Cassidy



94. Cassidy (end of aisle)



95. Entire opposite wall from [94],
Brentwood in distance



96. Around corner from [95],
Franklin in distance



97. Rest of Franklin siding



98. Ian Grove (across aisle from [97])



99. Other direction from [98]

Zoom up to 300% to study photos more closely.

ANDY KEENEY'S NASHVILLE ROAD | 44



100. Approaching Spring Hill



101. Spring Hill (across aisle from [100])



102. Bucks Jct (Spring Hill in distance)



103. South Jct (beginning of staging)



104. Columbia, TN (left of [103])



105. Wide view of [104] upper staging



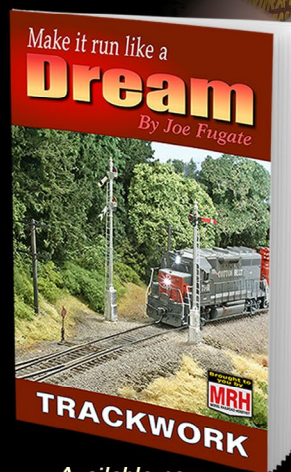
106. Left of [105], more upper staging



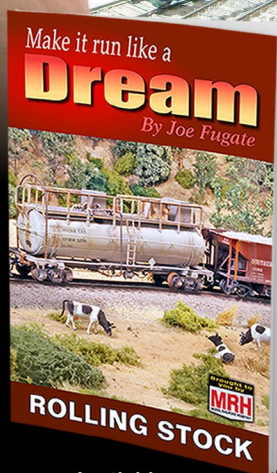
107. Return loop (end of upper staging)

Zoom up to 300% to study photos more closely.

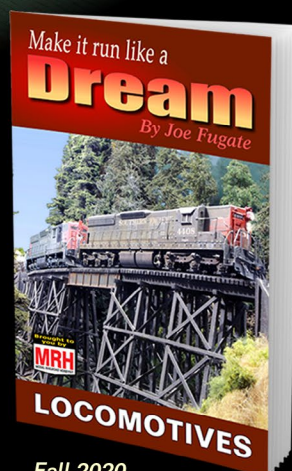
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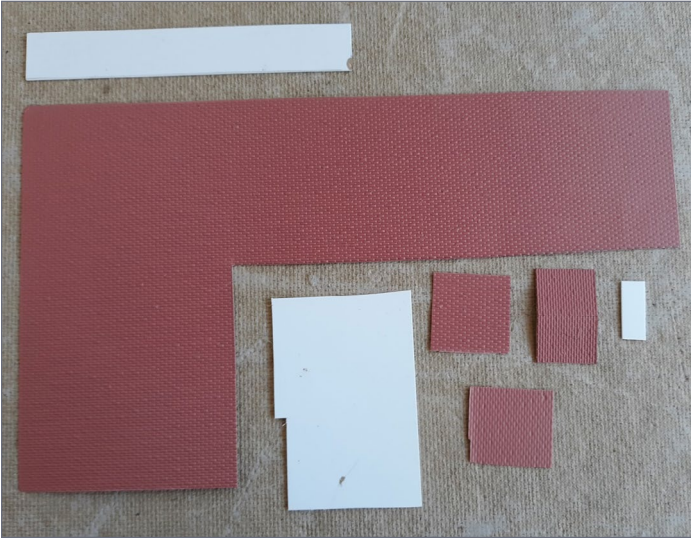


RATE THIS ARTICLE

TIMOTHY F. DUDLEY scratchbuilds with styrene scraps and leftover kit parts ...

AS A PASTOR IN THE EARLY YEARS OF OUR MINISTRY, my wife Cindy and I tend to be on a very tight budget –money for trains can be limited. With some styrene scraps lying around my layout shed, I decided to build a simple gas station for the vacant spot I had on my latest New England-based switching layout.

I used simple tools [2] to lay out and cut the walls of the basic structure.



1. Samples of the scraps of styrene and brick sheet material I gathered for this structure project.



2. I estimated dimensions from a photo I found on the internet of a gas station from the early 1970s, the era I currently model. I then used my HO scale rule to lay out the walls on my styrene.



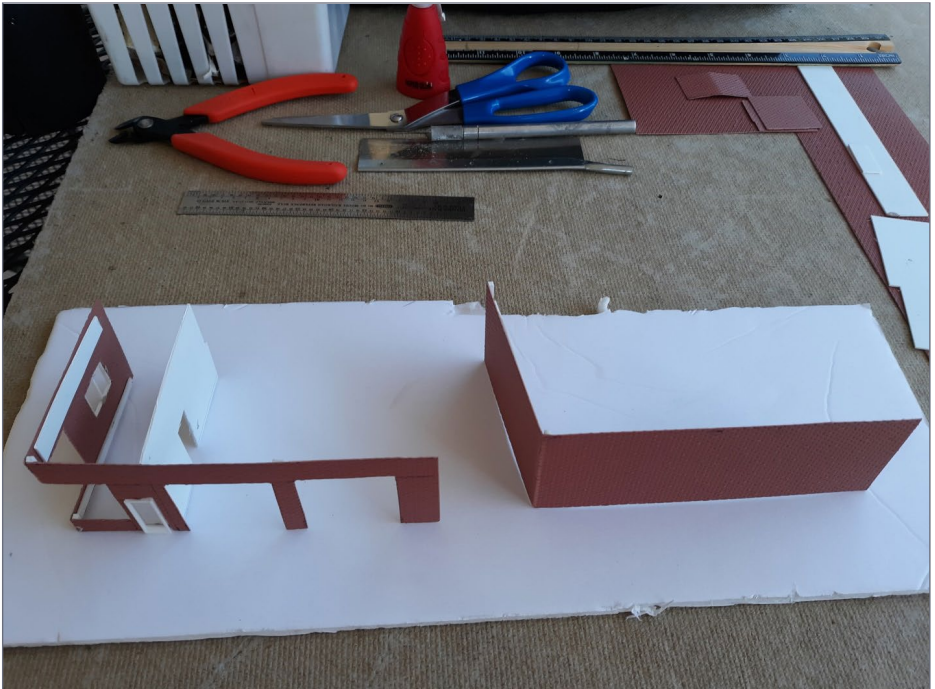
HO AND S SCALE MODELERS,
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INFORMATION

I used a pen and HO scale rule to draw cut lines on to the brick material. Then I cut out the walls with a pair of scissors. Using leftover parts from a Pikestuff kit, I added a door for the front entryway and a side window [3] for the parts area of the gas station. I added an interior wall to separate the garage area from the service counter.

I reinforced the corner connection of each wall set with scrap square styrene. I also reinforced the walls with scrap styrene [4]. It's not pretty inside, but the walls needed strengthening because the brick sheet from my scrap collection turned out to be thin and flimsy.



3. Here are the two L-shaped wall sections, not yet joined together.

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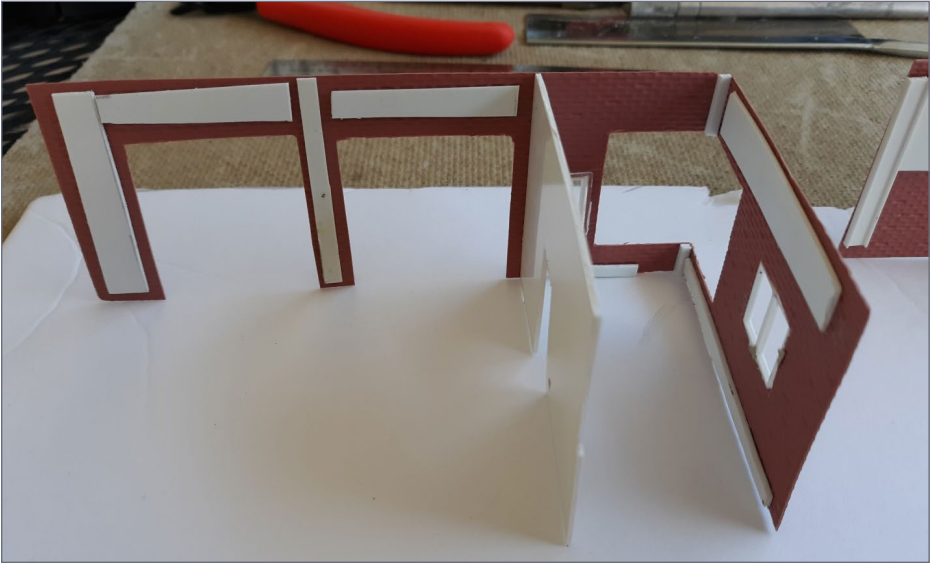
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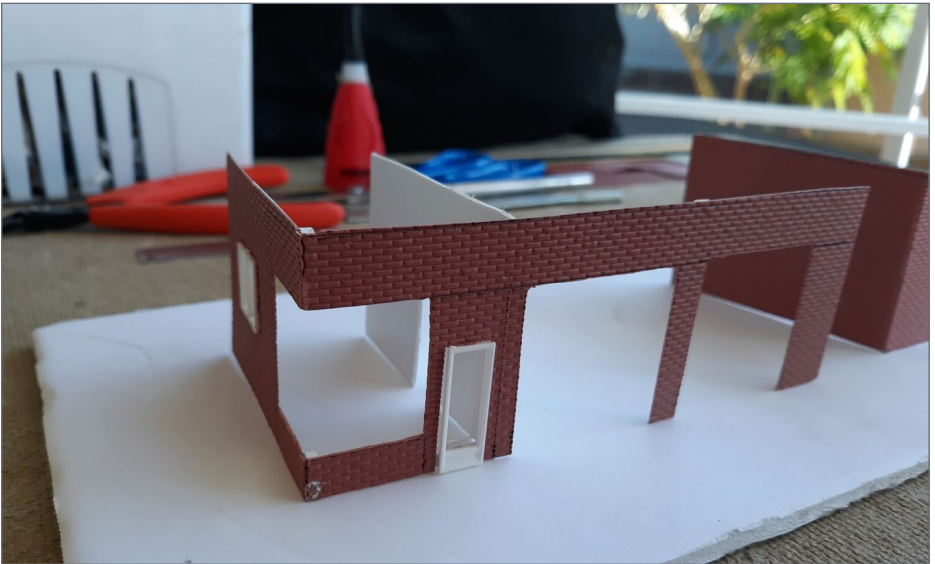


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4. I reinforced the walls with styrene scraps.



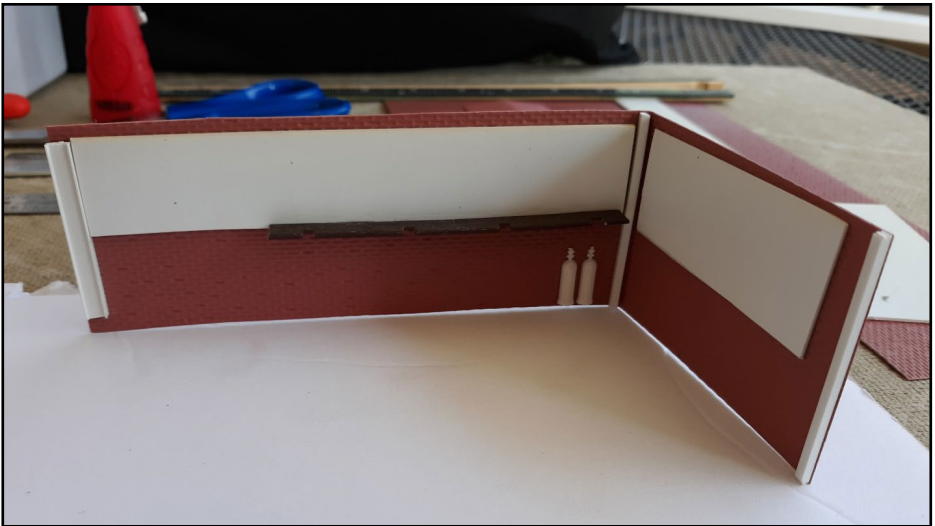
5. This shows the front and left side walls of the station from a front view. The front door and side window have been installed.

I cut the right side and rear walls from one piece of brick and bent it at a 90 degree angle to form the remaining two exterior walls. Inside I added styrene reinforcement before adding a parts shelf and two acetylene tanks as simple interior details [6].

I painted all the exterior walls with white acrylic paint before assembling them. I left the two wall sub-assemblies separate until the end of construction so I could add details and paint to the interior.

On the interior wall [7] of the customer area I used a gel ink pen to draw a shelf and wall clock to give the space a little detail. I painted the door and window frame flat black.

I noticed, in this early photo [7], that my window and door openings were not clean and square – so I cleaned and sharpened them up with a needle file.



6. Simple details make a difference in a model and sometimes less is better.

I noticed my ink pen lines still showed as well. I added more coats of white paint to cover up those lines.

It's amazing what a photo can reveal that the eye may not see. I mounted the gas station on a piece of scrap 0.060" styrene painted very dark gray.

I collected from my scrap box [9] details for the car bays like a lift, oil pump, tires, barrels, and an oil can rack.

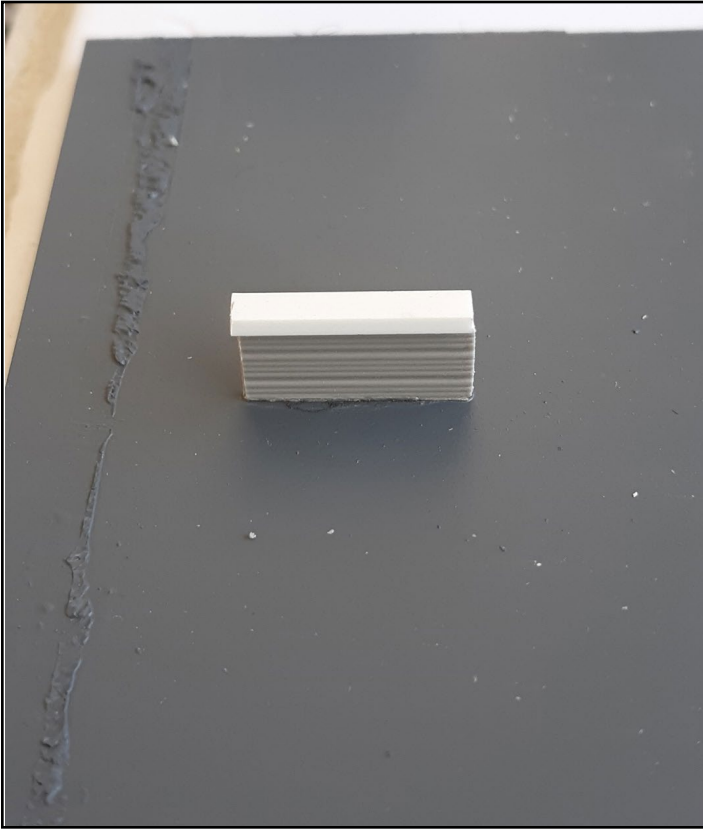
I installed the interior details [10] and added a Ford decal to the interior service wall [11].

Finally, I added a clear styrene main glass window and glued the two exterior wall sub-assemblies together. I placed some figures inside [12] to show life and added a Mobil gas sign to the.

For the sign, I downloaded the logo off the internet, printed it on an inkjet printer, then glued it to a scrap of styrene shaped to match.

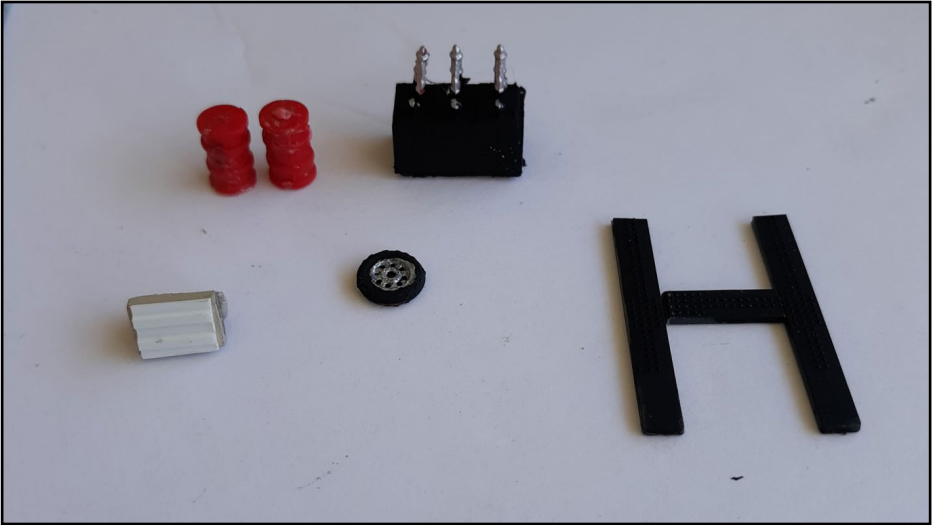


7. The station slowly comes together.



8. I cut a customer counter from scrap and glued it to the structure base. I positioned it to fit into the customer service area. That excess glue on the base has to go!

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9. Details I had left over from past kits.



10. I painted detail lines in red and navy blue acrylic paint in colors close to Mobil Oil colors. I cleaned the rough paint lines up later by using some white paint.



11. A top view shows the interior. I added a Ford decal to one shop wall to add realism.

I built a roof with some styrene and painted it medium gray. I added a couple skylights I had in my scrap box as details.

I still need to glue the roof on and add vehicles to the station to show the time period [13, 14], plus I need to add an island out front with a couple 1970s-era gas pumps.

All in all, I believe I accomplished what I saw in the internet photo, with some artistic license, of course. And it didn't cost me much other than a little time. ☒



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J. Fugate

GOING THE NEXT STEP

We occasionally publish simpler construction articles like this to show what “mere mortals in the hobby” can accomplish. This gas station may not win a contest, but it’s a good basic gas station structure that can easily be enhanced to become a great foreground structure.

One simple improvement would be to laminate the thin Plas-struct brick sheet exterior bay walls with 0.040” styrene and then scribe matching mortar lines on the sides around the doorways to better simulate the thicker walls typical of such a structure.



12. The station with figures added.

You can also laminate more Plastruct brick sheet on the interior walls if you want brick texture inside the bays – or you can just leave the smooth styrene as the interior finished walls.

Adding a closed bay door to one of the service bays would also be a nice touch.

And that's just the beginning. With a little ingenuity and some web searches, you should find lots of other things you can do with details and techniques to enhance this build even further.



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MIKE ROSE builds a bridge scene on his Lehigh Line layout

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13. Here is a photo in direct sunlight.



14. The finished station has the roof and skylights added but not glued in place yet. Next step will be to add a gas pump island and some vehicles.



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 set 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.

Timothy served in the US Navy from 1984-1990 and is now a licensed Assemblies of God pastor (www.newlife-cc.com), co-pastoring a church with his wife Cindy in Hurricane, Utah. He also enjoys playing bass on the worship team, train watching, and writing. ■

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Rails to Richford



Model Railroad Hobbyist | December 2019

1. The classic St. Johnsbury station, built by the Canadian Pacific, is now home to the St Johnsbury Visitors Center. *Steve Alpert photo, www.alpsroads.net. Used with permission*

GEOF SMITH: AN N SCALE LAYOUT FOR THOSE UNDECIDED ON WHAT TO MODEL ...

JIM SIX RECENTLY WROTE ABOUT HIS JOURNEY into downsizing his layout (*MRH Running Extra*, November 2018). Other layout designers have been singing the virtues of similar concepts:

- Lance Mindheim blogs about reality-based layout design
- Kalmbach publishes several books on small and mid-sized railroads



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- Marty McGuirk's blog asks important questions around how much time, energy, and money we want to devote to a project.

Marty asks questions like:

- How long will this layout be around?
- Formal operating sessions with multiple operators, or mostly running trains solo?
- These are all great questions.

Making a smaller layout forces the reality that we must be willing to narrow the focus of our layouts. Everyone has to make the same decisions to some degree. Jim Six set aside dreams of a four-track main line in favor of a one-town layout concept.

For me it's been an ongoing battle of the layout versus the moving van. A look at my resume reveals the layout loses that fight every six years.

Winning the fight with TOMA

So, as I begin my next layout, in what I hope will be my home for many years to come, I'm committed this time to employing the TOMA approach. I will be using six 18 x 48-inch modules to create a layout that can go with me if there is another relocation.

The benchwork is already up for this layout, and the footprint is a simple 12 x 3 ½ foot rectangle with the potential to add a drop leaf staging yard to one end.

That's nearly half the size of my previous layout, but it fits the room and I'll be able to get beyond the plywood central in a reasonable time.

I've always been attracted to modeling the Northeast Kingdom of Vermont and northern New Hampshire post-1980. While the railroads found in that region may be a shadow of their former Class I selves, the smaller and sometimes short-lived regional carriers have a richness all their own in their stories and in the kaleidoscope of locomotive paint schemes [Table 1].

Plus, the area has a Currier & Ives beauty to it that's hard to beat. In many places, lightly built bridges mean the railroads must employ four-axle power: ideal for a small layout.

But what aspect of this northern New England landscape to model? What would fit into the space I have while still maintaining some sense of plausibility in a story, be fun to build, and provide some level of operating interest? Modeling in N scale, I knew I had room for at most two scenes, but which two?



2. The E.T. & H.K. IDE building. A signature building in downtown St. Johnsbury, Vermont. *Michael Yeager photo*

Table 1: The Cast of Players Keeps Changing

In the 1980s	In the 1990s
In Richford Canadian Pacific Central Vermont Lamoille County In St. Johnsbury Canadian Pacific Boston & Maine Maine Central Lamoille County In Groveton Grand Trunk St. Lawrence & Atlantic Boston & Maine Lamoille Valley / Twin State	In Richford Northern Vermont Canadian American Quebec Southern Bangor & Aroostook In St. Johnsbury Northern Vermont Canadian American Quebec Southern Bangor & Aroostook In Groveton St. Lawrence & Atlantic New Hampshire & Vermont Railroad / Twin State
Into the 2000s	Today
In Richford Montreal, Maine & Atlantic In St. Johnsbury Montreal, Maine & Atlantic In Groveton St. Lawrence & Atlantic New Hampshire & Vermont Railroad / Twin State	In Richford Central Maine & Quebec Vermont Rail System In St. Johnsbury Vermont Rail Green Mountain Clarendon & Pittsford Washington County (all VTR subs) In Groveton St. Lawrence & Atlantic New Hampshire Central

The “A” Side: St. Johnsbury, Vermont

Well, one choice was easy: a given for this layout is to include the shire town of St. Johnsbury, Vermont. St. Johnsbury, locally known as St. Jay, is the commercial center of the Northeast Kingdom. It is 10 miles northwest of the Connecticut River and 48 miles south of

the Canada-U.S. border. Railroading was a major industry in St. Johnsbury, starting in 1850.

Presently, St. Jay is served by the Vermont Rail System's subsidiary, the Washington County Railroad Connecticut River Division. Not long ago, as many as four railroads met in front of the town's railroad station:

- Canadian Pacific and Boston & Maine shared the mainline
- Maine Central's Mountain Division entered town from the northeast
- St. Johnsbury and Lake Champlain Railroad - known as the "St. Jesus and Long Coming" – came into the yard from the west

The days of prototypical interchange activity in St. Jay have faded into the past. But I'm not above re-introducing it with a freelanced railroad, the Pattapaug Transfer Company (a nod to the native name of my hometown) to bring back some interchange switching for operational interest.

The Pattapaug is inspired by the Quaboag Transfer, a contractor that provided intermodal services on a portion of the Central Vermont Railway in the mid-1980's. Quaboag bought two engines from the CV and CV provided the track and operating crews.

According to Robert Jones, a biographer of the CV, this "rent-a-train" concept earned the CV a marketing award from *Modern Railroads* magazine in 1986.

St. Jay has two defining signature structures that identify the town: a gloriously massive, Queen Anne-style train station [1] built by the Canadian Pacific, and the iconic E.T. & H.K. Ide feed mill [2] sitting on the other side of the yard.

A few years ago, when I was building a layout in another home, I commissioned Jim Rindt of Rindt's Relics to custom build a model of the train station – it will proudly crown the new layout.

The other signature building is the E.T. & H.K. Ide feed mill, which should be a fun scratchbuilding project. If the rumors I hear are true, Creative Laser Designs, located in nearby Lyndonville, Vermont may be producing a kit of this mill in N scale. I'll keep my fingers crossed!

There isn't much in the way of industrial switching in St. Jay today, so I'll leave that activity to the other side of the layout.

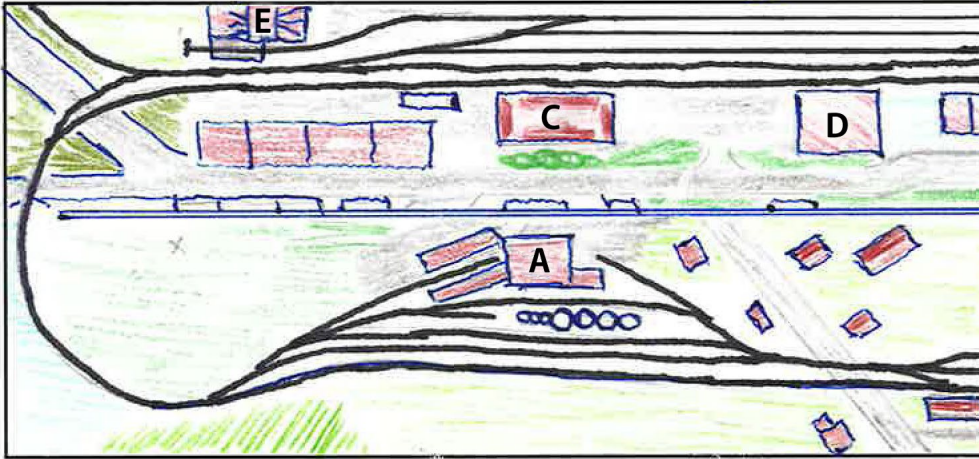
I'm considering three options, so let's discuss those now.

"B" Side #1: Richford, Vermont

The last stop on this rail line before it enters Canada is Richford, Vermont. North of Newport the trackage is now operated by the



4. A Central Maine & Quebec predecessor, the ill-fated Montreal, Maine & Atlantic with borrowed VTR 307 switches the Blue Seal mill at Richford. *Richard Deuso photo, used with permission*



Richford

RICHFORD & ST. JOHNSBURY

Size: 12 x 3 ft.

Prototype: Canadian Pacific | BAR | MMA | CMQ
Central Vermont

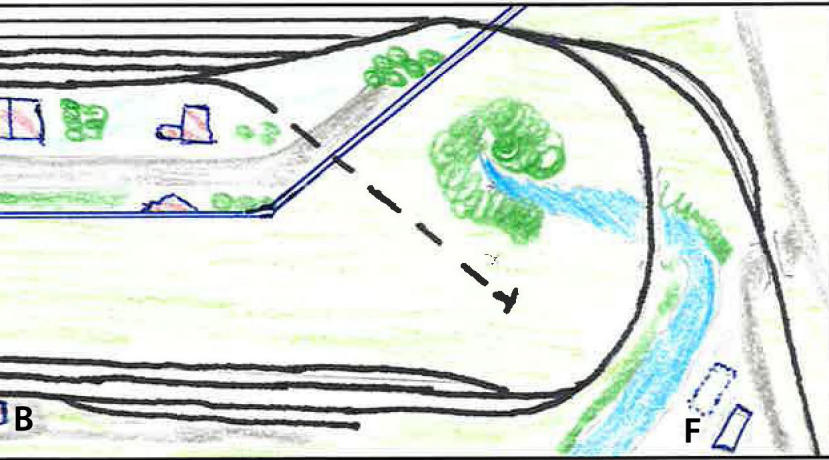
Era: 1980 - present

Backdrop: Laminated 0.060" styrene

Min. Radius 13 inches

Scenery: Extruded foam

3. Option 1 drawing.



A = H.K. Webster feed

B = CP station (Richford)

C = St. Johnsbury station

D = Shopping center

E = ET & HK IDE

F = CV station (closed)

Atlas Plywood foundation



RATE THIS ARTICLE

Central Maine & Quebec Railroad but the CMQ often borrows motive power from Vermont Rail for its local to Richford [4].

Richford is a very model-friendly town, with a small three-track yard and a stub-end siding next to a now-closed station. The siding handles an occasional covered hopper of vinyl resin for KayCan, a manufacturer of vinyl siding. Just north of the yard is the primary industry in town: the large Blue Seal Feeds mill [5].

This mill handles 1,000-plus covered hoppers of grain a year, and is a major supplier to dairy, pet, and other livestock growers throughout New England. The Blue Seal feed mill will be a fun kitbash project, using the kraft mill building from the Walthers paper mill, various silos and conveyors from Rix Products kits, and warehouses from Pikestuff pieces.

If I ever want to backdate the layout a few years, it will be a simple project to build two train stations from the same kit— one with the station open for business and the other closed and boarded up as it sits today.

About a half mile south of the station is the interchange with the former Central Vermont Railway. Followers of Marty McGuirk's

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blog on MRH know he is building a layout featuring Richford set in the 1950s and focusing primarily on the Central Vermont Railway's activities.

The CV came into Richford to interchange traffic with the CP, and to serve a large plywood plant in Richford that's now long gone. The CV abandoned the line in 1984, when a derailment severely damaged a bridge spanning the Missisquoi River near Sheldon, Vermont.

With a bit of modeler's license, I could adopt a "what if" scenario and reopen the line for either the CV or its successor, the New England Central, to continue to bring interchange traffic to town.



5. CMQ switches the Blue Seal feed mill at Richford.
Richard Deuso photo, used with permission

"B" Side #2: Lyndon Junction, Vermont

As I've thought about what it might be like to operate a model railroad featuring Richford, I began wondering if a steady diet of covered hoppers might grow stale. That led me to a second concept: creating a fictional small town I'm calling Lyndon Junction. Lyndon is the name of a town just north of St. Johnsbury.

Lyndon Junction would be a small, unincorporated village that features a smaller feed mill or transload facility; a small store with a siding in the weeds, an old freight house now housing a business loading logs onto flatcars, and a fuel oil dealer.

To add an operational wrinkle, I'd run one of the junction tracks out of St. Johnsbury through the backdrop and across a diamond with the WACR trackage that loops the layout.

This gives the Pattapaug Transfer a second opportunity to interchange with the Washington County plus sharing some local switching with the WACR.

The town itself would be classic small-town Vermont. Creative Laser Design patterns many of their kits after actual buildings in Lyndonville. Operationally, in addition to covered hoppers, I could now justify switching bulkhead flats for the logs, a boxcar once a week into the store, and a tank car or two to the fuel dealer, but what if I go still further?

Side "A" #3: Groveton, New Hampshire (#3 Layout drawing)

From St. Johnsbury, the Maine Central ran trains until 1982 on its Mountain Division to Portland, Maine and through a connection with the Boston & Maine, to Groveton, NH.

Since then, several attempts by short-line railroads have kept some traffic flowing. What if I found a new operator, the Pattapaug Transfer Company, to again reopen the line?

If you sneak a peek at the satellite image of Groveton on Google Maps or Google Earth [8], you'll see the footprint of the former Wausau Paper mill in varying stages of de-construction.

You can also see the rebirth of one of its former warehouses into a new site for NSA Industries, the largest machining, metal fabrication, powder coating, and assembly operation in New England.

NSA's primary plant location is in – wait for it – St. Johnsbury. So: instead of modeling the paper industry in Northern New England which has all but been shut down – what if the modeled scene becomes a paper mill in the process of being torn down, with a metal fabricator taking its place?

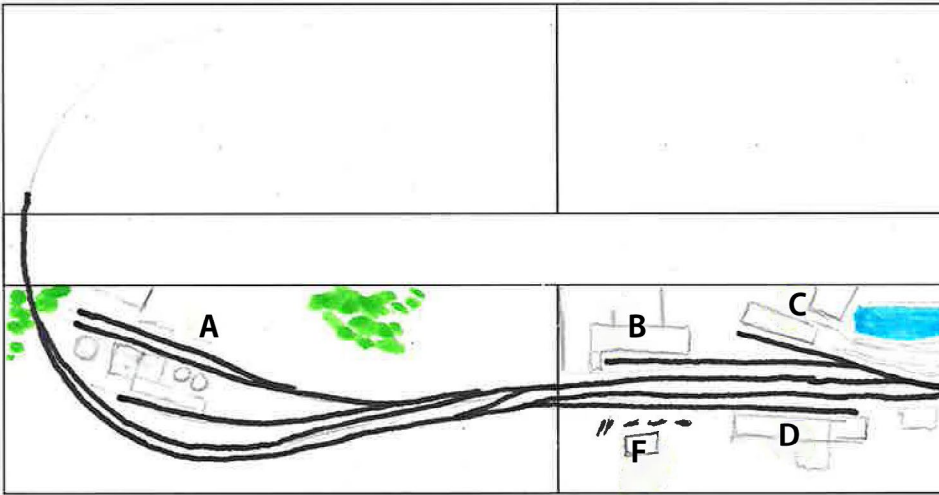
I know paper mills are naturals for model railroads, handling boxcars of paper to and from, and a host of other types of cars for various products.

You can also justify sending boxcars to the metal fabricator for finished products, covered hoppers of coating materials, bulk-head flats of metal plate instead of pulpwood, and open or closed gondolas of rolled metals.

Likewise, the clean-up of the mill site might require gons and former woodchip cars to haul away the demolition debris.

Operationally, this concept makes the Pattapaug Transfer the focus of Side "B," with the re-opened line going directly to St. Jay to move NSA's work in process or inventory to its other plant sites, and finished product being interchanged with the now-Vermont Rail main line.

It's a scenario that might be plausible to those who follow what's



A = Blue Seal feed mill (cov. hop)

B = Vermont Wood Products (bo)

C = Lyndon Mills (tank cars)

D = Purina (boxcars)

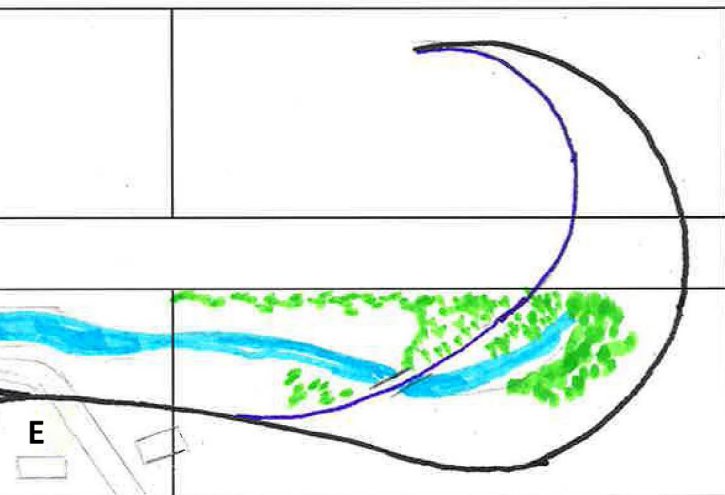
E = Village Stores, homes, busin

F = Selberg Forest Products

(timber transload - p

—— Vermont Railway

—— Passumpsic Terminal R



6. CMQ switches Blue Seal feed mill at Richford. Richard Deuso photo, used with permission Option 2 drawing, Lyndon Junction

pers)
boxcar & flats)

ess (no rail)

ulpwood flats)

R



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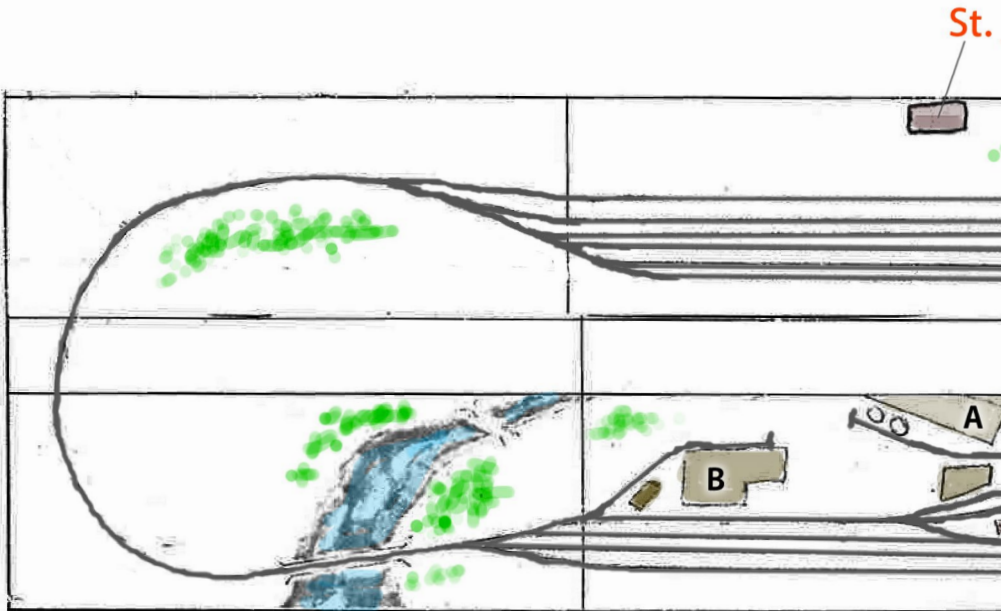
BEN KAUR shares a very clever method for conveniently storing micro-drills with spill-proof access.

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happened to the paper industry in New England, and it would certainly be something different.

Decision time

And there you have it: a layout whose Side “A” structures have remained relatively unchanged over the last fifty years and has



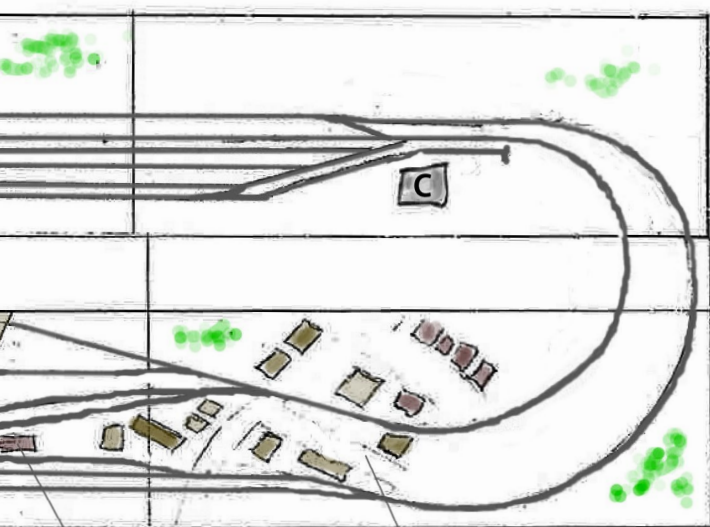
A = Former Wausau mill area
B = NSA (metal fabricator)
C = HK & EK IDE

7. Option 3 drawing.

the potential for big city (OK, by Vermont standards) yard activity, plus, at last count, three layout design elements to provide a variety of switching scenarios.

Which would you choose? Or given that the construction is TOMA-style, would you build all three options over time? I'd love to know. As I start laying track, I'll let you know which one I'm going with! ☒

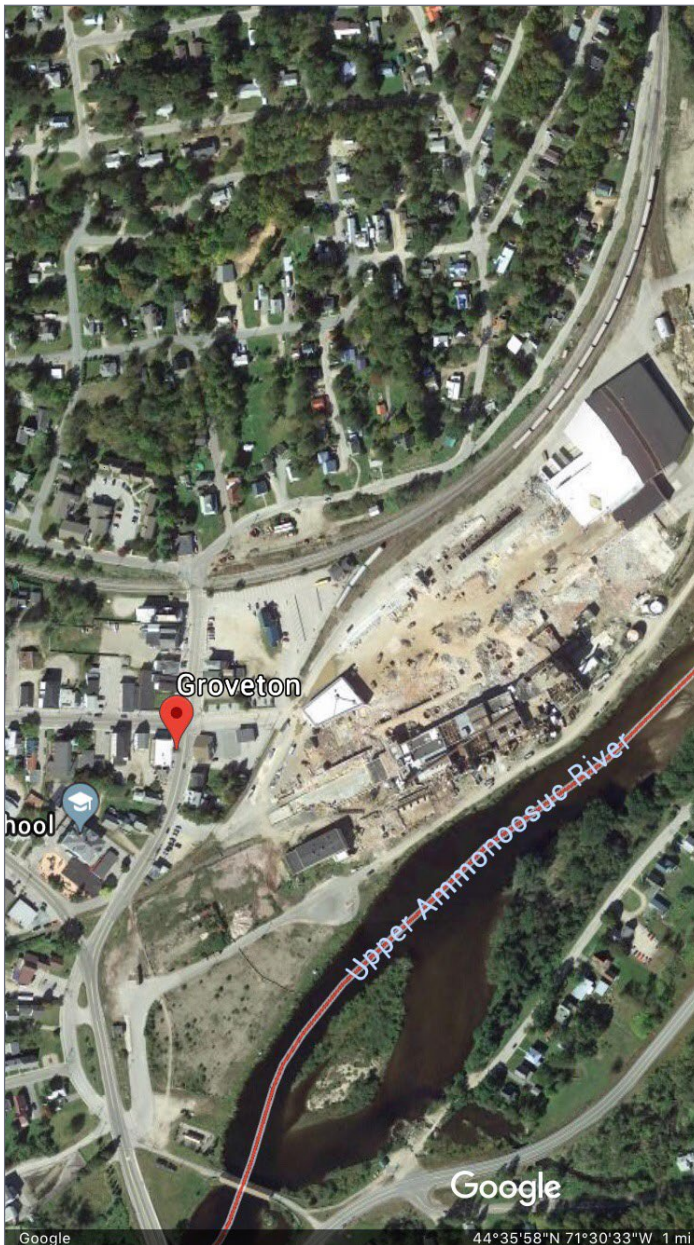
J. Station



Station

"Groveton"





8. Google Maps can be a useful site to gather information on buildings and track arrangements. Here is a satellite view of the former paper mill being demolished, with the warehouse that is now NSA Industries in the top right.

GEOF SMITH



Geof's been hooked on N scale rail-roading since he was given a Revell train set one Christmas long ago. This layout, which he's dubbed the Lyndonville Sub 2.0, is his fifth layout and hopefully one that will last longer than the others.

All of them have been inspired by some portion of the Central Vermont or the Vermont Railway System.

Geof is a deacon and works for the Episcopal Church. In his spare time, he and his wife enjoy their two children and three grandchildren and singing in local choirs. ■



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SAVVY MODELER *Online*



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Model Railroad Hobbyist | December 2019



Painting small scale figures

YouTube modeler *marklinofsweden* (also known as Martin T on the MRH forum) made this video showing how he paints smaller scale model figures (S scale and smaller). Martin has a great process he uses that almost anyone can benefit from learning in this five minute video. Martin covers a ton of info in that short time – it's definitely worth a watch! ■



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DECEMBER NEWS

column



Model Railroad Hobbyist | December 2019

RICHARD BALE and
JEFF SHULTZ report the
latest hobby industry news



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NEW PRODUCTS FOR MULTIPLE SCALES



ITLA Scale Models has introduced a system of laser-cut wood wall panels that can be combined to create industrial structures of any size and complexity. The walls or panels, identi-

fied as the Modular Industrial Wall System, are available in both HO and N scales.



The ITLA wall panel system includes laser-cut window frames with positionable sash, pre-cut glazing, and broken windowpane filler plates. Separate

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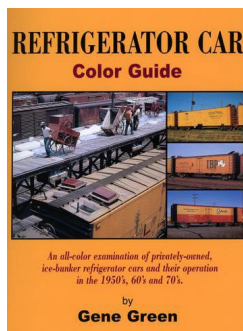
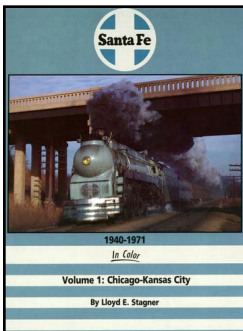
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interchangeable components within each wall panel allow for no-mask painting and the ability to customize window or etched brick insert placement. The walls can be cut and reduced in height or stacked to create a taller structure. Detailed accessories include covered loading docks for rail and truck access, personnel entryways, roof-top HVAC systems, and fire escapes. For additional information visit itlascagemodels.com.



A new illuminated sign from **Miller Engineering** is for Nathan's Hot Dogs. When powered, the rooftop sign drips mustard down the side of the supporting frame. The sign is available in two sizes; 3.9 x 4.4- inches, and 1.95 x 2.2 inches. For additional information visit microstru.com.



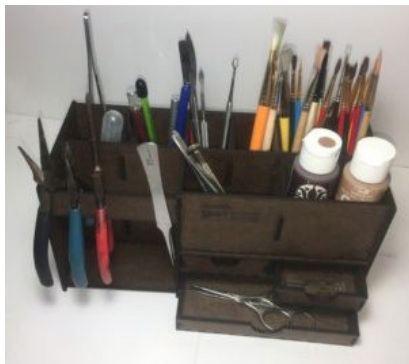
Among the newest digital titles from **Morning Sun Books** is *Santa Fe in Color; Chicago-Kansas City*, by Lloyd Stagner. This is the first in a four-volume series that covers all Santa Fe motive power from 1940 to 1971 including the Blue

Goose, E3s, Baldwin centercabs, and FTs in passenger service.

Gene Green's exhaustive coverage of *Refrigerator Car Color Guide* is now available as a digital reprint. Green shows the operation and rosters of privately-owned ice-bunker reefer cars, including

a fascinating sequence of the icing process atop an icing dock in 1962. For additional information contact a dealer or visit morning-sunbooks.com.

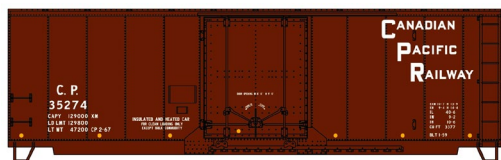
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Motrak Models is selling a laser-cut kit for a compact workbench organizer. The easily-assembled organizer has several compartments to hold a variety of tools. For additional information visit motrakmodelsusa.com.

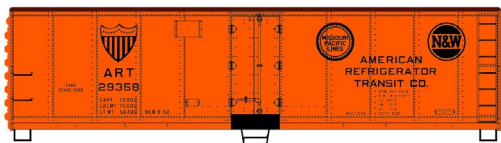
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HO SCALE PRODUCT NEWS



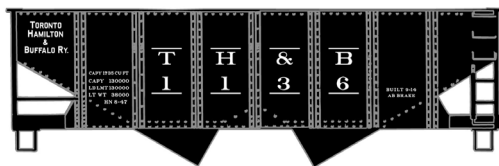
New HO scale freight car kits available from **Accurail** include this Canadian Pacific 40-foot insulated steel boxcar with

9-foot Youngstown plug doors. The model is based on a prototype that entered service in 1959.



This American Refrigerator Transit carries three her-alds: Missouri Pacific, Norfolk & Western, and

the ART shield. Accurail's HO scale kit for the 40-foot steel car with mechanical refrigeration is based on a prototype built in September 1952 with 4-foot wide hinged doors.



Accurail's kit for a USRA twin-bay coal hopper is available decorated for the Toronto, Hamilton & Buffalo Railroad. All

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



R. Bale

ICC CABOOSE

Perhaps one of the strongest images of American railroads is the caboose at the end of the train. Caboose provided an office for the conductor and sheltered the rear end crew. From the cupola or bay windows, the crew could look out for shifting loads, damaged equipment, and overheating axles. As freight cars became larger in the late 1950s and early 1960s, caboose crews needed to have greater visibility. In the extended-vision or wide-vision caboose, the sides of the cupola project beyond the side of the car body. This allowed the crew to see around the taller cars that began to appear after World War II. The Athearn Genesis model is based on a standard prototype introduced by the International Car Company of Kenton, Ohio, that saw service on most U.S. railroads.



Athearn has announced an all-new Genesis series of steel cabooses based on prototypes built by the International Car Company. The HO scale models will be available with a DCC decoder for lighting and sound features.



Decorating schemes include CB&Q Burlington Route class NE-13

and NE-13a with a wide vision cupola, firecracker antenna, and plain-bearing caboose trucks. The CB&Q version does not have screened windows.



Athearn's Seaboard Air Lines ICC caboose features riveted construction,

a traditional cupola, rain gutters over the side windows, and plain-bearing caboose trucks. The SAL model will be available with two different safety slogans, and as-delivered without a slogan.



Athearn has included a Pittsburgh & West Virginia

ICC caboose in this first release. P&WV used a SAL-style body, a cupola-mounted air horn, and roller-bearing caboose trucks.



Completing the initial production run of Athearn's new ICC caboose

will be Union Pacific class CA-8 welded cabooses in both 1960 and 1970 decorating schemes. Four road numbers with unique safety slogans will be available for each era.

A Soundtraxx Tsunami SoundCar decoder will be available for each road name. Sounds include air horn or conductor's whistle, rail joint clickety-clack, brake set and release sounds, emergency brake application sound, hand brake tie-down/release, and adjustable flange squeal. Depending on the prototype road and the

era being modeled, lighting features may include roof- or end-mounted marker lights and interior lights.

All versions of the Genesis caboose will have detailed interior seating, flush window glazing, wire grab irons, axle generator details, etched metal coupler platforms, coupler lift bars, train-line and brake hoses; underframe detail, and machined metal wheelsets. Availability of the Genesis caboose is expected in October 2020.



Athearn plans to deliver another production run of its Genesis series ES44AC diesel locomotive in October 2020. The release will include a Black Widow Southern Pacific model with a large front snowplow, three side window cab, no window in the nose door, and high-adhesion trucks. .



A CB&Q Burlington version of the Genesis ES44AC and a Santa Fe unit in SuperFleet Warbonnet scheme will be available in this production run.

An Amtrak locomotive in “Pepsi Can” scheme will also be available. Details that will be included on all the Burlington, Santa Fe, and Amtrak locomotives include an antenna dome, narrow front snowplow, nose door with window, four side windows in the cab, sunshades, Salem air filter, rear brake wheel, high-adhesion trucks, and a low vertical headlight at the back of the locomotive.

A patched Chessie System ES44AC operated by B&O will feature an antenna dome, large front snowplow, a nose door without a



window, three side window cab, sunshades, rear brake wheel, high

rear vertical headlight, and steerable trucks. This run will also include a Western Maryland and a Burlington Northern unit in Cascade Green.

Features on all versions of the Genesis ES44AC include illuminated ditch lights, low or high front headlight per the prototype, tinted cab windows, small GPS domes, see-through dynamic brake intakes, two dynamic brake exhaust vents with wide spacing and a flush housing, short auxiliary cab rear left-side doors, right side forward electrical cabinet with an X-Panel, and a 5000-gallon fuel tank. Additional features include LED lighting, coupler cut levers, MU hoses, trainline hose, cab interior, walkway tread, Celcon handrails, windshield wipers, lift rings, wire grab irons, sander lines, and fuel tank details including fuel fillers, fuel gauges, breather pipes, and retention tanks.

Sound equipped models have a DCC decoder with SoundTraxx Tsunami2 sound that functions in both DC and DCC mode. DC models are DCC-ready with Quick Plug plug-and-play technology with a 21-pin NEM connector.



Athearn has included Genesis series F89 bi-level and tri-level

autoracks in its October 2020 production schedule. Bi-level versions will be available for Western Pacific (above), B&O, and two schemes for GMO-BTTX.



Road names for tri-Level F89 autoracks will be Wabash (above), Denver &

Rio Grande Western, and SSW-Cotton Belt.

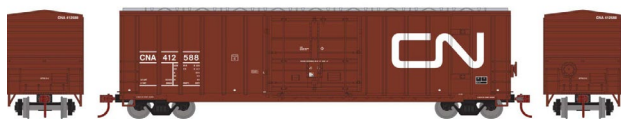
Notable features on the Genesis series autoracks include realistic undulating safety railings, early or late train lines and cut levers per era and prototype practice, wire-formed brake plumbing, wire grab irons, and 70-ton roller-bearing trucks with machined metal wheelsets and rotating bearing caps. Individual bridge plates are included which the customer may install if desired. The model will negotiate a 22-inch radius curve, but a radius of 24 inches is recommended for reliable operation.



Athearn Ready-to-Roll models in the October 2020

production sched-

ule include a 50-foot FMC boxcar fitted with Superior plug-doors. Road names will be Kansas City Southern, Canadian National, Chattahoochee Industrial Railroad, Santa Fe, Stone Container Corp, and Wisconsin Central.



FMC boxcars decorated in Athearn's faded Primed-for-Grime paint will

be available for Laurinburg & Southern Railroad and Atlantic & Western. Details include individual grab irons, photo-etched cross-over platforms, and 70-ton roller-bearing trucks with 33-inch machined metal wheelsets.



R. Bale

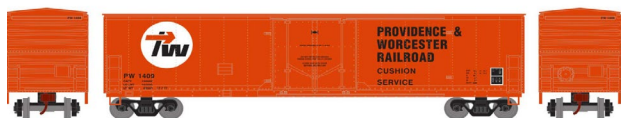
FRUIT GROWERS EXPRESS

FGE was a builder as well as an owner/operator of a large fleet of insulated boxcars. Their specialty was 50-foot smooth-side insulated boxcars built at their shops in Jacksonville, Florida. FGE was owned by a consortium of ten railroads with Atlantic Coast Line and the Southern Railway being two of the largest original owners.



An HO scale version of an FGE 50-foot smooth-side boxcar is listed on

Athearn's October 2020 production schedule. Features of the Ready-to-Roll model include Youngstown plug-doors, and 70-ton roller-bearing trucks with 33-inch machined metal wheelsets.



Road names will be Western Pacific, Chicago & North Western,

Manufacturers Railway, Evans Railcar Leasing, Penn Central, Fruit Growers Express, Northern Pacific, and Providence & Worcester. For additional information contact a dealer or visit athearn.com.



Atlas is promoting Trainkids, a new line of basic products that are specifically designed to introduce youngsters to the fun of model railroading. A Passenger Train Set includes an Amtrak Acela locomotive and battery car, café car, business

class car, an unpowered locomotive, and a remote control for operating the headlight, horn and bell. Sectional track that makes into a 38- x 56-inch oval completes the entry-level Trainkids set.



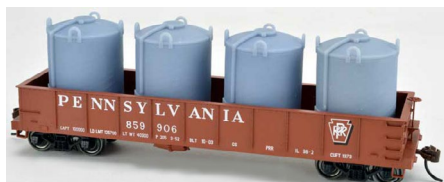
Additional track, battery powered Acela locomotives, and business class cars are available. Information about Atlas' new Trainkids products can be viewed at [atlastrainkids.com/?utm_source=Atlas+Insiders+E-](https://atlastrainkids.com/?utm_source=Atlas+Insiders+E-News+Flash&utm_campaign=b8a038d425-EMAIL_CAMPAIGN_2019_10_31_07_12&utm_medium=email&utm_term=0_9f9fd5b26c-b8a038d425-80763677&mc_cid=b8a038d425&mc_eid=6bff0ec9ce)

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Atlas also “pre-announced” at Trainfest HO scale models of the GE U28C and U28CG. With an anticipated official announcement date of January 2020, the poster included artwork for Conrail, L&N, Penn Central, PRR, Southern Pacific, and two Santa Fe U28CG paint schemes. The model will feature all new tooling including etched metal grilles, steam generator details on the U28CG, DC and sound versions, and cab and low nose headlight mounts as appropriate. For more information on announced Atlas products, see a dealer or visit atlasrr.com.

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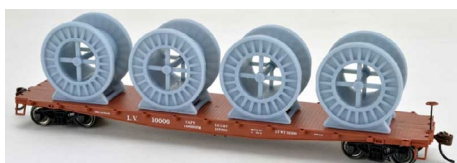
English's Model Railroad Supply, a division of Bowser Trains, has introduced a new line of 3D printed freight car loads. The loads are shown on freight cars for illustration only.



The new 3D loads include a Sherman tank and LCL dry cement containers.



Also new are welded rail racks, and racks of railroad wheels suitable for flat cars as well as highway trailers.



Coiled cable spools are available both empty and with wood covers indicating they are loaded with cable. Additional items not illus-

trated include an ice breaker for an open hopper car, hopper style containers, and PRR HB LCL containers. These 3D items are sold through English's Model Railroad supply. Bulk purchases are available with a minimum of 100 pieces per item. For additional information visit bowserorders.com or email to sales@bowser-trains.com.

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Broadway Limited Imports plans to release a group of HO scale EMD F3 and F7 diesel units next month.

A and B F3s will be available decorated for Santa Fe (Warbonnet), Chicago, Burlington & Quincy (Grayback freight



Pacific (Black Widow), Union Pacific (Streamliner, Armour yellow), and undecorated.



feature of the F3 is the chicken wire screening over the air intakes along the top of the side. The F7s were built with full-length Farr stainless steel grilles and louvers rather than wire screens on the four square vents between the portholes.



Road names on Broadway Limited's F7 units will be Santa Fe (Warbonnet), Baltimore & Ohio (blue and gray), Denver & Rio Grande Western (five-stripe scheme), Milwaukee Road (maroon band on orange body), New York Central (short lighting strip), Northern Pacific (Loewy North Coast Limited scheme), Pennsylvania Railroad (Brunswick green with single gold stripe), Southern Pacific (bloody nose), and undecorated. All units will feature Paragon3 sound and operation, including Rolling Thunder for operation in DC and DCC. For additional information contact a dealer or visit broadway-limited.com.

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scheme); Great Northern (Empire Builder), Pennsylvania Railroad (Brunswick green, single gold stripe), Southern

The major difference between EMD's F3 and F7 involved internal electrical equipment. For modelers, the spotting

Road names on Broadway Limited's F7 units will be Santa Fe (Warbonnet), Baltimore & Ohio (blue and gray), Denver



New 1:87 scale vehicles coming from **Classic Metal Works** this month include a 1955 Chevrolet stake bed truck decorated for Conoco, Union 76, and Standard Oil.



The '55 Chevy is also available as a tow truck packaged with an island of gas pumps and station signs for Union 76, Conoco, and Standard Oil.



A 1957 Chevrolet step-side pickup is available with a wood boat or a fishing boat on a trailer.



Also coming from Classic Metal Works this month is a 1:87 heavy duty dumper

and a hydraulic excavator. For additional information contact a dealer or visit walthers.com.



Con-Cor has released information on its Annual Christmas Car. Con-Cor's Reindeer series concluded

last year and the 2019 car begins a new series with a Winter Wonderland theme. The colorful HO scale ready-to-run boxcar portrays kids with a snowman and building a snow fort. For additional details visit con-cor.com.



five decorating schemes. The HO scale ready-to-run models were produced by ExactRail exclusively for TrainLife.com.



three variations of TTX Rail Gon.



The TTX RailGons with GNTX reporting marks represents a Trinity-built gondola that stands about 8-inches shorter than the Thrall 3564. TrainLife's Union Pacific model is a stand-in for a slightly larger UP class G-110-006 prototype built by Greenbrier in 2012. The Norfolk Southern model represents similar 52- and 66-foot gondolas delivered with the Horsehead scheme. For additional information visit trainlife.com.

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InterMountain has added ONE-Ocean Network Express to its advance reservation list of A-Line 20- and 40-foot corrugated containers. The ONE

containers will be available decorated in magenta with white lettering, and with a white body with magenta lettering. In announcing the ONE containers InterMountain included the following comment: "Currently the Magenta on White paint scheme is being used only on high-cube 45G1 and refrigerated containers. However, we expect it may be used on standard

height corrugated (42G1) and 20' (22G1) corrugated containers in the future. In the meantime, this can be considered a fantasy paint scheme.”



The 20-foot ONE containers are added to the previously announced production list that

includes China Shipping, Evergreen, K-Line, ZIM, Mediterranean Shipping, Hanjin Shipping, Cosco, Tropical, Textainer Equipment Management, CMA GGM, Cronos Group, Triton, Pacific International Lines, Maersk, American Presidents Line, Mitsui OSK Lines, Transamerica Leasing, and Safmarine.



Both versions of the ONE 40-foot container have been added to the production schedule that

includes China Shipping, K-Line, P&O Nedlloyd, CMA, Evergreen, Hamburg SUD, Uniglorry, Triton, Lloyd Triestino, Orient Overseas, TEX, APL, Matson, CAI, Safmarine, Mitsui OSK Lines, Hyundai, NYK Logistics, Beacon/Horizon, and Container Assoc. Rotterdam. Reservations close December 31. The release date is pending. The containers will be sold in 2-packs.



InterMountain Railway reports that production is under way on several HO scale freight cars including the popular PS2-CD

4785 covered hopper. The majority of road names in this run will have a continuous roof trough fitted with corrugated or replacement flat panel hatches.



Models that depict the early version of the prototype will have either standard or braced

end cages. Late versions will have the characteristic inverted-J end sill plate and side ladder arrangement. Two different gate designs will be applied depending on the practice of the road name being modeled. All cars will feature etched metal roof walks, wire grab irons, Kadee couplers, and appropriate trucks with machined metal wheelsets.



Road names on InterMountain's new PS2-CD 4785 will be New York Central, Penn Central, Conrail, Monfort,

Staley, ADM, Transport Leasing, Norfolk Southern, CSX, Milwaukee Road, Central Soya, MKT, Lauhoff Grain, SSW-Cotton Belt, and Golden West.



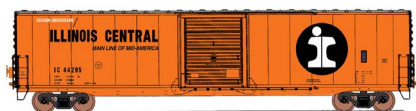
Also, currently in production at InterMountain is an HO scale 60-foot PS-1 boxcar. Introduced by Pullman-Standard in the

mid-1960s, the 60-foot car was designed to haul auto parts such as engines, transmissions, and other heavy auto components.



Pullman-Standard built the cars with cushion underframes and extended draft gear, which InterMountain has duplicated

in its HO scale version. Additional features include 10-foot wide Youngstown sliding doors, metal knuckle couplers, and appropriate 70-ton trucks with 33-inch machined metal wheelsets. Road names will be Grand Trunk Western, Union Pacific, Santa Fe, Rock Island, and Illinois Central.



Additional HO scale models currently in production at InterMountain include a

Gunderson 50-foot hi-cube boxcar with double plug doors, 1937 AAR 10-foot IH boxcars with Deco ends, and PFE class R-30-18, R-30-12-18, R-40-19, and R-30-21 wood refrigerator cars. For additional information contact a dealer or visit intermountain-railway.com.

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The **Kadее** 2019 Christmas Car is a 50-foot PS-1 boxcar with Pullman-Standard ends and Pullman-Standard six-panel sliding doors. The HO scale

model represents a prototype that has had the running board removed and the ladders shortened. Features include detailed grab irons, ladders, and corner steps; a detailed brake wheel with proper curved contour and ribbing, Kadее metal couplers, and appropriate self-centering trucks. For additional information contact a dealer or visit kadee.com.

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R. Bale

THE BEAUTIFUL PA

The Alco PA series locomotives are considered by many to be the most attractive diesel locomotives ever produced. The PA locomotives were built by a partnership of American Locomotive Co. and General Electric between 1946 and 1953. They offered two models, the PA-1 initially, followed by the PA-2. Both were powered by Alco's 16-cylinder 244 diesel engine generating 2,000 hp in the PA-1 and 2,250 in the PA-2.

The PA locomotives competed with General Motors' EMD E-units in the passenger locomotive market. Although they looked great, their 244 prime mover proved unreliable, which relegated the PAs to secondary service on many lines. Most were retired as passenger service declined in the 1960s, and nearly all were scrapped.

Happily for railfans, in 1974 four retired Santa Fe units were bought by the Delaware and Hudson and upgraded with Alco 251 V-12 engines. These four units were used on Amtrak's Adirondack for several years and also saw service on Boston area commuter trains under an MBTA lease. All four units eventually ended up in Mexico.

Two of the ex-D&H units have since been brought back to the US. One is at the Museum of the American Railroad in Frisco, Texas. Doyle McCormack owns the other unit and it is currently at the Oregon Rail Heritage Center in Portland, Oregon, where it is being restored to operating condition.

Rapido Trains is developing what promises to be the most accurate and fully detailed HO scale plastic model of the Alco PA series diesel locomotive ever produced. Rapido plans to offer both PA-1/PB-1 and PA-2/PB-2 versions. The project was



announced at a unique press party held in Portland, Oregon, where the contours of a full-size PA-1 were accurately recorded in a 3D scanning process.

In addition to the fundamental details of the prototype, Rapido plans to offer numerous road-specific variants in its all-new HO scale model. They include full underbody piping and conduit, separate grab irons and handrails, etched-metal grilles, multi-color cab interior, operating Gyalite or red Mars light, dynamic or non-dynamic brakes, illuminated headlights, number boards, and green and white classification lights. DC non-sound units with a 21-pin NEM connector for an aftermarket decoder will be available. DC/DCC/Sound versions will feature sound recorded from a real Alco 244 prime mover.



Rapido's PA/PB sets will be available decorated for Atchison, Topeka & Santa Fe; Denver & Rio Grande Western, New York Central, Southern Pacific (bloody nose scheme), and Pennsylvania Railroad.



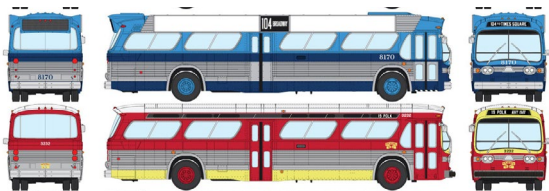
PA units will be available for Nickel Plate, Southern Pacific (Daylight and bloody nose schemes), Lehigh Valley, New Haven, and Delaware & Hudson.

Production of an American Freedom Train version is conditional upon level of pre-orders.



In other product news, Rapido Trains has announced plans to produce a second release of the New Look bus. The HO scale model in this release, which

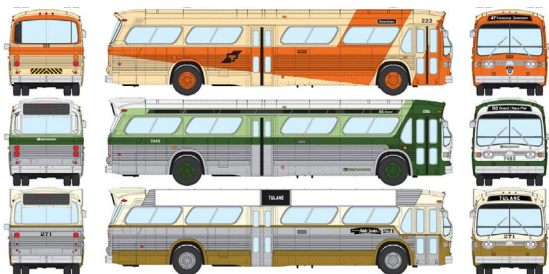
represents the second through fourth generations of the New Look “Fishbowl” bus as produced by GM from the mid-1960s through 1986, will have a single-width rear door in both 2- and 4-window arrangements.



Notable features include the correct tubular profile based on a 3D scan of a full-size prototype, correct rear engine door available in

either early 5303 or late 5307 styles, optional left-side emergency exit door, full interior including separate seats with painted seatback handrails and grooved flooring, etched-metal interior stanchions, stamped-metal handrails and separate fare box and steering wheel parts installed, rubber tires with steerable front wheels, printed “metal” window frames and windshield gaskets, and three types of bumpers; steel, water, and rubber. Lighting requires a 12 VDC power supply (not supplied) and includes interior lights, head and taillights, and an illuminated front destination sign.

Additional details, as appropriate to the transit company practice, will include large rear air conditioning housing, Bus-o-Rama advertising panels, route destination signs, rear window Environment Improvement Program (EIP) exhaust and air filters,



and various rooftop vents, hatches, communication equipment, and radio antenna.

Paint schemes planned for this release, subject to licensing agreement, will be Rapido Trains #3380, Calgary Transit, Toronto GO Transit, Ottawa OC Transportation, Winnipeg Transit, Chicago CTA, Dallas DTS, Denver Tramways, Kansas City Metro, Milwaukee County, New Orleans Public Service, New York MTA (two schemes), Philadelphia SEPTA, SF MUNI (two schemes), Santa Monica SMMBL, and several painted and unlettered versions. Reservations are being booked now with delivery planned for late 2020. For additional information contact a dealer or visit rapidotrains.com.



Europe-based **Roco** is selling an HO scale Beilhack Rotary Snow Blower based on a modern self-propelled prototype. The HO scale ready-to-

run model is fitted with a DCC sound decoder that controls several functions including operating various LED lights, lifting and lowering of the snow cutter, rotating blower wheels, and rotating the blower and body 180 degrees on the propulsion chassis.



In addition to several European railroads, the model is available decorated for three American railroad companies; BNSF, Burlington Northern, and CSX. For additional information, including a list of North American dealers, visit roco.cc.



New models announced at Trainfest by **ScaleTrains.com** include a Greenbrier/Gunderson Multi-Max auto carrier. Both Operator and Rivet Counter versions of the HO scale model are

scheduled for release next summer. Advance reservations are due by December 9, 2019.

The 14 side panels on the Operator series model will be molded plastic. Details include late end doors with “zig-zag” angle panels, individual brake components including cylinder, slack adjuster assembly, air reservoir, and control valve; and ASF low-deck swing-motion trucks. For modelers wanting to add details to the Operator series model, a kit (#SXT81270) that includes door rods, metal grab irons, coupler uncoupling levers, and train line hoses will be available as a separate purchase.

The fully assembled Rivet Counter version of the auto carrier comes in four road-name appropriate body types. Features include numerous separately applied details including photo-etched metal side panels, individual rods for the end doors, two different types of upper and lower side panel mountings, side ladders, brake cylinder, brake beam mounting brackets, and brake rod supports. The ASF low-deck swing-motion trucks on the Rivet Counter version have rotating bearing caps.

The Operator model will be available in seven road names. Modelers choosing the Rivet Counter model will have a choice of 13 decorating schemes.



RATE THIS ARTICLE

Decorating Scheme	Rivet Ctr	Operator
BNSF - white	x	
BNSF CTIX - orange	x	
BNSF TTGX - orange	x	x
Canadian National CTTX - white	x	x
Canadian National TTGX - red	x	
CSX (Boxcar logo) CTTX	x	
CSX (Boxcar logo) TTGX	x	x
Kansas City Southern CTTX - white	x	
Kansas City Southern CTTX - yellow	x	
Kansas City Southern TTGX - yellow	x	x
Norfolk Southern (Horsehead) TTGX	x	x
Canadian Pacific Soo	x	x
Union Pacific (Building America) TTGX	x	x



Also coming from ScaleTrains.com next summer is an SD45 diesel in both Rivet Counter and Operator versions. A DC version with a 21-pin NEM connector for an aftermarket DCC decoder will have an MSRP of just under

\$100. A step-up model with ESU-LokSound Essential Sound Unit and DCC decoder will also be available.

Features of the Operator series model include operating LED number boards and headlight, short stepwells with see-through steps, X-patterned tread plate on the walkways, coupler lift bars, detailed dynamic brake and radiator intake grilles, cab interior, Flexicoil-C trucks with low-mounted brake cylinders and Hyatt rotating bearing caps. A detail kit with trainline hoses, MU hose

clusters, uncoupling levers, windshield wipers, and wire grab irons the modeler can install in pre-drilled holes, will be available as a separate purchase. The Rivet Counter series models feature all the details of the Operator series models and road name and number specific details. Additional details include tri-color LED class lights, ground lights, lost wax brass horns appropriate to the model, antennas, Flexicoil trucks with high or low mounted brake cylinders, prototype-specific MU receptacles and hoses, prototype-specific photo-etched ring grilles and radiator intake grilles and many others. The SP model will come with a full SP headlight package and the Chicago & North Western model comes without dynamic brakes. DCC and sound equipped locomotives will include a ESU LokSound 5 decoder with “Full Throttle,” dual sugar-cube speakers, and an ESU designed PowerPack with two super-capacitors.



Operator brand road names will be Conrail, Pennsylvania Railroad, Southern Pacific, and Santa Fe in blue and

yellow warbonnet. The Rivet Counter model will be released in Chicago & Northwestern, Pennsylvania, Seaboard Coast Line, Southern Pacific and undecorated.



New HO scale rolling stock coming from ScaleTrains.com includes an Operator series GATC 4180 Airslide Covered

Hopper. Multiple road numbers will be available for BNSF (buffer car service), Corn Products/CCLX, Grand Trunk, MKT, Denver & Rio Grande Western, Rock Island, and Union Pacific.

Special features include detailed gravity outlet gates, separately-applied Airslide plumbing, and detailed one-piece Barber S-2 100-ton trucks with metal wheelsets. A detail kit available separately will have metal grab irons, coupler cut levers, and train line hoses for installation by the modeler.



ScaleTrains.com will also offer a Rivet Counter version of the HO scale 4180 Airslide covered hopper in four body styles with two

different walkways and two types of outlet gates. Depending on the practice of the prototype being modeled, the Rivet Counter cars will have either an Apex (slotted) or Morton (round-hole) walkway and end crossover platforms, and gravity or pneumatic outlet gates. All road names will have Barber S-2 100-ton trucks with rotating bearing caps and machined metal wheelsets.

Road names on the Rivet Counter version will be BNSF, Burlington Northern, and Chicago & North Western (Phase HC body with 4-inch square column side posts and square tube-style horizontal end braces); and Great Northern, Illinois Central, Milwaukee Road, and Southern (Phase TZL body with hat-section side posts and Z-section horizontal end braces). For additional information visit scaletrains.com.

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Sylvan Scale Models is taking reservations for a limited rerun of resin kits for a Canadian National 40-foot boxcar with double sliding doors covering a 15-foot opening. The HO scale model replicates

prototypes built during 1947-49 for automobile service. They were subsequently used as general purpose boxcars after being replaced in auto service by higher capacity cars.



Prototype features include Improved Dreadnaught ends, end door, and raised panel roof. Although not shown on this rebuilt model, the kit includes a custom etched-metal running board. Trucks and

couplers are not included in this kit. When ordering, buyers may request Sylvan Decals with the original maple leaf scheme or Black Cat decals with the CN noodle lettering (above). For additional information visit groups.io/g/canmodeltrains/message/75478?p=,,,20,0,0,0::Created,,sylvan,20,2,0,39090432.



R. Bale

GATX 8000-GALLON WELDED GENERAL SERVICE TANK CAR

In the late 1950s, General American Transportation Company began adding extra sheet metal to the top portion of the tank near the dome. This gave the non-insulated all-welded tank cars a unique bulb or raised appearance.

Other refinements introduced in the late 1950s included modernized handrails around the tank, larger tank manway handrail uprights, and welded side tank fixtures to secure the tank to the frame. These tank cars remained in service into the 1990s and were utilized for a variety of services including corn syrup, caustic soda (sodium hydroxide), fatty acid, molasses, sodium chlorate, vinegar, fuel oil and other petroleum products. The smooth appearance of these common tanks with the safety platform gives them a modern look that is similar to tank cars produced today.



Tangent Scale Models has released a new General American 8000-gallon general service welded tank car. The HO scale model, which was unveiled at Trainfest, accurately replicates a car built in the late 1950s, including the thickness of extra sheet metal around the dome.



Tangent's new tank car model is available in two decorating schemes including a GATX silver-bodied Clinton Corn Processing car from 1958. The second new

scheme is for a 1974-era GATX in black lease paint. For modelers wishing to select and decorate their own schemes, Tangent is offering a fully-assembled car that is painted black but lacks any lettering. An undecorated kit is also available with all of the features of the ready-to-run versions including trucks.



Notable features on Tangent's new model include added sheet metal near the dome, see-through running boards that wrap around the under-frame, see-through dome

platform, variations in the multiple appliance dome cap and bottom outlet, correct hazardous material placards, tank strap details, separately applied tank handrail, wire grab irons and coupler lift bars, individual air hoses, Kadее couplers, and ASF spring-plank trucks with 33-inch machined metal wheelsets and separate brake beams. For additional information visit tangentscalemodels.com.

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Walthers announced several new products at Trainfest including a high hood version of an EMD GP9. The HO scale model will be produced from

new tooling with correct width hood and contours. Walthers version is based on as-built units produced by EMD from 1955 to 1957 (Phase II). The model will come with or without dynamic brakes as appropriate to the prototype road name which will include Santa Fe, B&M, Illinois Central, New Haven, Precision National, and Rock Island (blue and white scheme).



Features include a heavy diecast metal chassis with a Walthers Proto drive mechanism. The body has drill starter points to assist modelers wanting to add

grab irons using the GP9 Phase II Diesel Detail Kit (#910-258 sold separately). A Walthers Mainline GP9 will be available for DC operation with a 21-pin DCC adaptor plug, and with ESU Sound and DCC. Availability of the GP9 is scheduled for January 2020.



During Trainfest Walthers also revealed that a Mainline series GE Evolution ES44AC diesel

will be released next June. As with the new GP9, this model will have grab iron starter points molded into the body (GE ES44 Evolution Series Diesel Detail Kit #910-250, sold separately).



Details include LED lighting, correct profile radiator grilles, and the same drive mechanism as Walthers Proto locomotives.



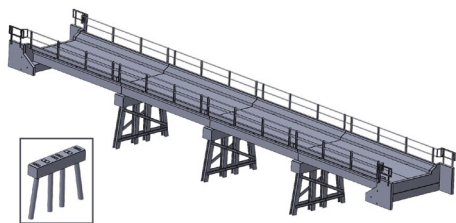
Road names will be BNSF, Canadian National, Canadian Pacific, CSX (#911 First Responders scheme),

Ferromex, and UP (#7400 Breast Cancer Awareness scheme).



Also scheduled for release in June is an HO scale 60-foot Hi-Cube Plate F boxcar. The Walthers Mainline model

features both X and diagonal roof panels, separately applied door latch bars, a detailed underbody with cushioned under-frame and correct brake gear, and 100-ton roller-bearing trucks with 36-inch machined metal wheelsets.



New Walthers Cornerstone items scheduled for release in January include a kit for a Modern Short-Span Concrete Railroad Bridge. The model is based on post-1960s precast concrete designs frequently

used to replace older structures crossing low-lying creeks, shallow water, and swampy areas. The kit includes parts for four spans that can be extended by combining multiple kits. Both concrete and steel H piles are included. The assembled bridge is 17.875 long x 2.813 wide x 2.875-inches tall.



Although listed as a Modern Police Station, with creative signage this Walthers new Cornerstone kit is well-suited to represent a wide selection of contemporary structures. The assembled kit has a foot-

print of 8 x 7.625-inches.



Walther's is selling a 20-piece kit of Trackside Details that includes battery vaults, telephone boxes, and a variety of signal cabinets. The items are molded in gray plastic.



Walther's has set a February delivery date for two HO scale police vehicles. The SceneMaster Ford Crown Victoria Interceptor Sedan and the

Ford Expedition Special Service Vehicle are suitable for scenes from 1997 forward.



Both vehicles will be available in a variety of decorating schemes including black, silver, white with police decals, white with a blue stripe and police, sheriff, and highway patrol decals; black with white doors and

police, sheriff and highway patrol decals; and red with fire command decals. For additional information contact a dealer or visit walthers.com.

N SCALE PRODUCT NEWS



Athearn has included F89 autoracks in its October 2020 production schedule.

Features of the N scale model include a heavy diecast underframe, realistic undulating safety railing, accurate end bridge plates per era and prototype practice, body mounted operating knuckle couplers, and 70-ton roller-bearing trucks with 33-inch machined metal wheelsets.



Road names will be Western Pacific (primed for grime), Gulf Mobile & Ohio, Baltimore & Ohio, Denver & Rio Grande Western, Wabash, Union Pacific, and SSW-Cotton Belt.



An N scale version of an FGE 50-foot smooth-side boxcar is listed on Athearn's

October 2020 production schedule. Features of the model include Youngstown plug doors, and 70-ton roller-bearing trucks with 33-inch machined metal wheelsets.



Road names include Wisconsin Central, and two Primed for Grime schemes:

Atlantic & Western and Laurinburg & Southern Railroad. For additional information contact a dealer or visit athearn.com.



New 1:160 scale items set for release this month from **Classic Metal Works** include a 1953 Ford Station Wagon decorated in green, ivory, and red.



Also new is a 1954 Ford F-350 Semi Tractor decorated for Santa Fe, Overland, and Old German Beer. The 1:160 scale vehicles are sold in two-packs. For additional information

contact a dealer or visit walthers.com.



Con-Cor has released information on its Annual Christmas Car. Con-Cor's Reindeer series concluded

last year and the 2019 car begins a new series with a Winter Wonderland theme. The ready-to-run N scale boxcar portrays kids with a snowman and building a snow fort. For additional details visit con-cor.com.

.....



The Great Northern Railway Historical Society has released an N scale kit of a Great Northern Standard 30 x 60-foot Combination Depot. The structure measures 4.625

x 2.875-inches and is 5.5 x 3.625-inches when mounted on the trackside platform. Based on a plan used for depot construction between 1909 and 1949, the kit contains walls, soffit, roof, and platform laser-cut from 3-ply birch plywood, laser-scribed siding, wainscoting, and platform deck, and laser-cut peel and stick doors. Windows include glazing and trim, and include the design's angled bay window. Also included is a resin cast chimney. For more information visit gnrhs.org.

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TrainLife.com has released ExactRail 66-foot Thrall 3564 steel gondolas in five decorat-

ing schemes. The N scale ready-to-run models were produced by ExactRail exclusively for TrainLife.com.

In announcing this release, TrainLife.com noted that ExactRail's focus on specific prototypes results in similar cars being unavailable

to modelers. To fill these gaps, TrainLife.com will offer stand-in models as long as they represent something close to the real thing. Although these five models and decorating schemes appear to be authentic, they are not exact replicas of known prototypes.



variations of TTX Rail Gon.

Road names include Union Pacific, Norfolk Southern (Horsehead scheme), and three



The TTX RailGons with GNTX reporting marks represents a Trinity-built gondola that stands about 8 inches shorter than the Thrall 3564. TrainLife.com's Union Pacific model is a stand-in for a slightly larger UP class G-110-006 prototype built by Greenbrier in 2012. The Norfolk Southern model represents similar 52- and 66-foot gondolas delivered with the horsehead logo. For additional information visit trainlife.com.



InterMountain Railway reports that production is under way on an N scale version of the distinctive 59-foot 4550 cu.ft. cylindrical grain

car. Between 1972 and 1985 the Canadian government built nearly 20,000 of the distinctive prototypes to assist Canadian-based railways transport large quantities of grain.



Over the years many American grain carriers acquired and operated similar cars in the USA. Road names will be

Canada (red), Canadian Wheat Board, Alberta Heritage, Alberta

(Take a Break), Saskatchewan, Canadian Pacific, Canadian National, Scoular, Potash, Chicago & North Western, and Santa Fe.



Features on InterMountain's N scale version include etched-metal roof walks, appropriate trucks with metal wheelsets,

and body-mounted knuckle couplers. The trough hatches will be smooth, parallel ribbed, or round depending on the practice of the prototype being modeled.

Also, currently in production at InterMountain is an N scale Gunderson 50-foot hi-cube boxcar with double plug-doors. For additional information contact a dealer or visit intermountain-railway.com.

.....



Jacksonville Terminal Company showed a pre-production sample of their first rolling stock car, an NSC

NWF13A 53-foot well car in N scale, at Trainfest. The 9-post version will include a diecast body, etched stainless steel end walkways, separately applied brake system details, and Micro-Trains brand wheels and body-mounted couplers. Five road numbers will be available for the model that is due the 2nd quarter of 2020.

Also announced were 40-foot smooth side containers, modeling a container in common service since the 1960s. Paint schemes in the announcement included OOCL, K Line, Mitsui O.S.K. Lines, NOL, Japan Line, SeaTrain, U.S. Lines, and NYK. The models are expected to be available in the 1st quarter of 2020. For more information contact a dealer or visit jtcmodeltrains.com.

.....



represents a car built by ACF in the 1920s. A car decorated for the Pennsylvania Railroad has buff colored body stripes and lettering on a Tuscan red body.



The New York Central coach is painted classic Pullman green with gold lettering. Both versions of the Micro-Trains model ride on six-wheel plain-bearing passenger trucks.



Micro-Trains recently released this 89-foot enclosed tri-level autorack decorated for Canadian National Railway.



This N scale triple-bay covered hopper represents a prototype built by Pullman-Standard in the mid-1960s. Micro-Scale is offering the 4427 cu. ft. car in two road numbers.



This N scale model of a Chesapeake & Ohio 50-foot boxcar represents a car built by Pullman-Standard in the late 1950s with double Youngstown sliding doors.

Micro-Trains Line Company has announced that they will produce a 2003 cu.ft. PS-2 twin-bay covered hopper in N scale which is expected to be available in 2021. Contact an authorized dealer for more information on Micro-Trains Line products.

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ScaleTrains.com is accepting pre-orders thru December 9, 2019, for a new PS2-CD 4785 covered hopper. Delivery is

planned for summer 2020. The Rivet Counter series model is based on builder drawings from Pullman-Standard. Road names on the N scale model will be Conrail, Golden West Service, Milwaukee Road, Norfolk Southern, New York Central, and Penn Central.

Details including different roof hatches, outlet gates, end cage supports, and end shear plates will vary depending on the practice of the road name being modeled. Additional features include photo-etched stainless-steel see-through Apex (slotted) end cross-over platforms and walkway, ladders with metal rungs, metal grab irons, uncoupling levers, trainline hoses, air reservoir, and control valve. The model will have body-mounted Type E knuckle couplers, and Barber S-2 100-ton trucks.



ScaleTrains.com has also announced that they will release the Tier 4 GEVo as part of their N scale Operator line.

Previously only available in the highly detailed Rivet Counter line, the Operator line GEVo's will share a common cab and long hood configuration, while sharing the same motor and drivetrain as the Rivet Counter version. The models will also feature operating LED ditch lights, printed and lit number boards, walkway treadplate, and factory-applied snowplow, air tanks, fuel tank-mounted electronic bell, brake wheel and exhaust stack. Modeler applied details included are 3-hose MU clusters, trainline hoses, and uncoupling levers. DCC will be available pre-installed. Roadnames available for preorder are CN, CSX, KCS, NS, UP, and BNSF. For additional information visit [scaletrains.com](https://www.scaletrains.com).

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NEW DECALS, SIGNS AND FINISHING PRODUCTS



Microscale has water-slide decals for Graffiti (item # -1535) and Union Pacific steam locomotives for the post-1939 to Present era (item # -1563). Both decal sets are available in HO and N scale. For additional information contact a dealer or visit microscale.com.

DISCLAIMER

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BRIEFLY NOTED AT PRESS TIME ...

New HO scale kits coming from **Accurail** include a Denver & Rio Grande 36-foot Fowler boxcar decorated with a circa 1916 Royal Gorge Herald...

At Trainfest **Accurail** offered a limited run of HO scale kits for three 40-foot double-sheathed wood refrigerator cars decorated for regional private owners including Okray Produce, Packerland Packing Co., and Brewing Corp. of America with a Carling's Canadian Ale herald. Unsold Trainfest-specials are now listed at accurail.com ...

Atlas will announce a release date, road names, and pricing on an all new series of HO scale GE U28 locomotives next month. Both DC and DCC versions of the Atlas Master Line diesel will be produced...

Atlas showed pilot models of an HO scale Trinity 3,230 cu.ft. pressure differential covered hopper at Trainfest. Road names will be Chicago Freight Car, CIT Group, General Electric Rail Services, Roanoke Cement, TXI, and Trinity Industries Leasing. A delivery date for the Atlas Master model is pending...

Kato is planning a new run of HO scale Genesis P42 locomotives in two new road numbers for release next April. Off-the-shelf P42 models will be available in DC only. Locomotives with ESU LokSound DCC and Sound must be pre-ordered through an authorized Kato dealer...

Rapido's HO scale Canadian Pacific D-10 4-6-0 project is a go. Sufficient pre-orders have been received to justify investing in production tooling.

Rapido's Canadian Pacific Hudson, including No. 2816, has also been approved for production. Preorders for the

Canadian National H-6 4-6-0 have not been forthcoming and that project remains on hold...

SoundTraxx has introduced the MC1H104P21, a new mobile decoder that plugs into locomotives equipped with a 21-pin motherboard. The new decoder has a maximum stall current of 1-amp, four function outputs, 15 Hyperlight effects, and a 28 point speed table. The MC1H104P21 operates in NMRA DCC only ...

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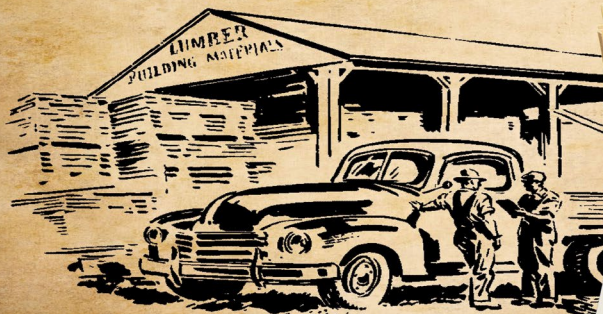
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SELECTED EVENTS



Model Railroad Hobbyist | December 2019

DECEMBER 2019

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

CANADA, ONTARIO, MARKHAM, December 8, Model Railroad Show hosted by Railview Historical Society at 550 Alden Road, Suite 201. Request info from Mike Clare at mike@theclares.ca.

CALIFORNIA, CROCKET, December 7-8, Carquinez Model Railroad Society Open House, at 645 Loring Ave. Info at www.cmrrstrainclub.org.

CALIFORNIA, SAN LEANDRO, December 8, NMRA Coast Division Meet at 1001 Davis Street (Bay Area Boy Scouts of America Council Office). Info at pcrnmra.org/coast.

FLORIDA, PENSACOLA, December 7-8, Railfest Model Train Show & Sale, sponsored by Pensacola Model Railroad Club at Pensacola Interstate Fairgrounds, 6655 Mobile Highway. Info at pmrc.us.

INDIANA, INDIANAPOLIS, December 7, Train Show & Open House at Naptown & White River Model Railroad Club, 1115 McDougal Street. Request info from Steve Handly at naptownmrr@gmail.com.

KENTUCKY, LOUISVILLE, December 23 to January 5 (except 12/24/19, 12/25/19 and 1/1/20) Model Train Show, sponsored by K&I Model Railroad Club, at Southwest Regional Library, 9725 Dixie Highway. Info at kandimrr.com.

LONGMONT, COLORADO, December 13-15, Model Railroad Exposition, sponsored by Boulder Model Railroad Club at Boulder County Fairgrounds. Info at www.bouldermodelrailroad-club.org.

MASSACHUSETTS, MARLBOROUGH, December 7-8, New England Model Train Expo, hosted by NMRA Hub Division at Best Western Royal Plaza Trade Center, 181 Boston Post Road West (US 20). Info at hubdiv.org.

MICHIGAN, BLISSFIELD, December 21-22, Open House sponsored by Blissfield Model Railroad Club, at 109 E. Adrian Street (US 223). Info at bmrr.org.

MICHIGAN, SALINE, December 1, Southeast Michigan Model Train Show & Sale, sponsored by Rails on Wheels, at Washtenaw Farm Council Grounds, 5055 Ann Arbor-Saline Road. Info at www.railsonwheels.com/index.shtml#trainshow.

NEW YORK, ALBANY, December 1, Great Train Extravaganza Show & Sale, sponsored by NMRA Hudson Berkshire Division at Empire State Convention Center. Info at gtealbany.com.

OKLAHOMA, OKLAHOMA CITY, December 6-8, Southern Plains N Scale Regional Convention and Oklahoma City Train Show & Swap-a-Rama, hosted by Oklahoma N-Rail at The Pavilion at Oklahoma State Fairgrounds. Info at www.oklahoma-railwaymuseum.org/events/okc-train-show.

January 2020, by location

FLORIDA, COCOA BEACH, January 9, 2020, Prototype Rails, at Cocoa Beach Hilton Oceanfront, 1550 North Atlantic Avenue. Info at www.prototype Rails.com.

INDIANA, NOBLESVILLE, January 26, Train Show, hosted by NMRA Central Indiana Division, at Avon Town Hall, 750 E. US Highway 36. Info at www.cidnmra.org/services.

Future 2020, by location

CANADA, BRITISH COLUMBIA, BURNABY, May 1-3, 2020, 5th Annual Railway Modellers Meet of BC, sponsored by the Burnaby Railway Modellers at Simon Fraser University's Burnaby campus. Info at www.railwaymodellersmeetofbc.ca.

NEW ZEALAND, CHRISTCHURCH, April 10-13, National Model Railroad Convention. Info at www.modelrailcon.co.nz.

FLORIDA, TALLAHASSEE, June 27, 26th Annual Model Railroad Show & Sale at Forth Florida Fairgrounds. Info at www.facebook.com/events/564525630749478.

ILLINOIS, EAST PEORIA, May 14-17, NMRA Midwest Region Convention, at Holiday Inn, 101 Holiday Street. Info at www.peoriarocket2020.org.

KANSAS, WICHITA, February 1-2, Train Show & Swap Meet at Cessna Activity Center, 2744 George Washington Blvd. Request info from Phil at aylward1@cox.net.

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.

NEW YORK, ROCHESTER, March 7-8, Open House sponsored by Rochester Model Railroad Club at 120 South Clinton Avenue. Info at RocMRRC.com.

PENNSYLVANIA, MALVERN (Valley Forge), March 27-29 2020, Railroad Prototype Modelers Meet, at Desmond Hotel. Info at rpmvalleyforge.com.

SOUTH CAROLINA, EASLEY, February 7-8, Great CRMHA Model Train Expo hosted by Central Railway Museum at Rock Springs Church Impact Center. Request info from John Johnston at jwjohnston@crmha.org.

TENNESSEE, NASHVILLE, May 31-June 6, National Garden Railway Convention, at Gaylord Opryland Resort. Info at ngrc2020.com.

WEST VIRGINIA, St. ALBANS, February 22-23, Model Train & Craft Show sponsored by Kanawha Valley Railroad Association, at The Event Center, 6400 MacCorkle Avenue S.W. Info at kvrail-road.org.

WISCONSIN, MADISON, February 15-16, Mad City Model Railroad Show & Sale, hosted by NMRA South Central Wisconsin Division at Exhibition Hall, Alliant Energy Center. Info at nmra-scwd.org.

WISCONSIN, STEPHENS POINT, February 1-2, 23rd Annual Model Railroad Show, sponsored by Central Wisconsin Model Railroaders at Holiday Inn Convention Center Hotel, 1001 Amber Avenue. Request info from Jim Miller at jimbrow67@gmail.com.

Beyond 2020 by date

CALIFORNIA, SANTA CLARA, July 4-10, 2021, NMRA National Convention and National Train Show.

ENGLAND, BIRMINGHAM, August 14- August 21, 2022, NMRA National Convention and National Train Show. www.nmra2022uk.org. ■



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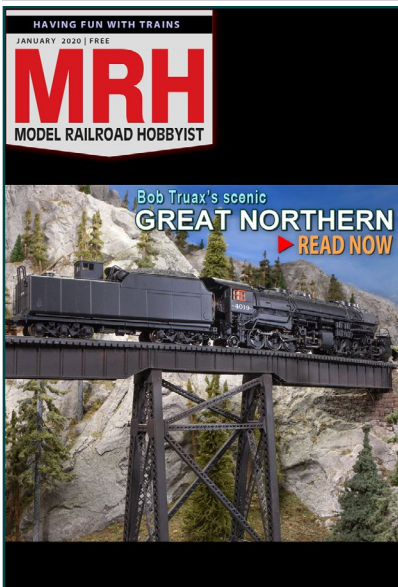
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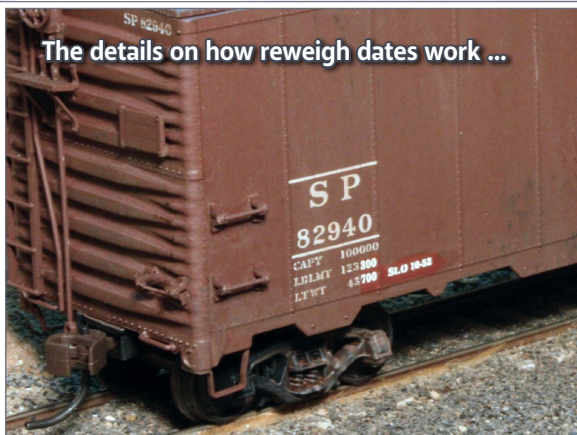
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