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- Modeling a highway with paper
- Lightweight operation
- Virtual RPM meet online

... and more inside!

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MODEL RAILROAD HOBBYIST

(Updated 05/04/20)

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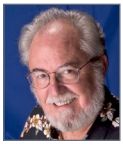
Richard Bale, News and events


Jeff Shultz, News and events, Tech Assistant


Joe Brugger, Copy Editing


Mike Dodd, Copy Editing

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Regular contributors

Eric Hansmann, Editor-at-Large
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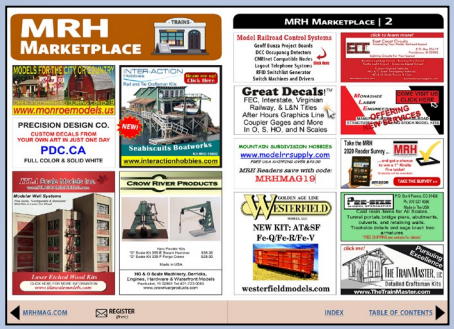

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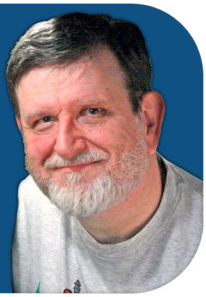

Joe Fugate: The rise of the virtual meet

Now that many of us have been told to "shelter in place" or quarantine to keep grandma safe, most model railroading events into the summer have now been cancelled.

In fact, you will notice we have completely done away with the events section this issue. The uncertainty about just when things will open up again makes it difficult to announce model railroading events. So for now, we're pulling the events section until things open back up again. Check with local organizers for information in your area.

But having to stay home a lot doesn't help the desire many of us have to still meet, share, and learn more about this hobby we love.

As a result, virtual events are now on the rise. Thanks to the Internet and the ability to stream video over broadband, it's possible to actually host clinics, demos, and even layout tours online.

The NMRA virtual events

The NMRA-X held its very first Virtual Convention from 7pm EDT on April 24th to 7pm EDT on April 25th. It had 25 straight hours of clinics and tours from around the globe, featuring a new presentation every hour.

They broadcast these presentations through both the NMRA Facebook page and group. This new NMRA-X got a thumbs up from both members and non-members alike. It's a great new technological advance for the NMRA and the model railroading community.

If you missed out on any of the action, all the videos are saved in the NMRA Facebook group (you do need be a Facebook member to access): facebook.com/pg/NMRA.org/videos/

Don't worry if you're not a Facebook member, the NMRA will be splitting these videos out, re-editing them, and posting them on the NMRA YouTube channel as well.

The next event was "Ask the Master Model Railroader" which they ran on Saturday, May 2nd at 5pm EDT. Additionally, they're

planning four, 12-hour NMRA-X Virtual Conventions for May 16th, May 30th, June 13th and June 27th. I am giving a clinic during the May 16th event, so watch for it!

These can all be accessed from the NMRA Facebook group and the NMRA Facebook page.

For those who just don't do Facebook, the NMRA understands your hesitation. For now, this venue provides the level of streami-ung service needed that's both affordable to the NMRA and allows free attendees.

The NMRA is also looking for some other venue outside of Facebook to do these online virtual events that is affordable and provides for free access to modelers. If you know of any such online streaming service that meets this criteria, please pass that along to us.

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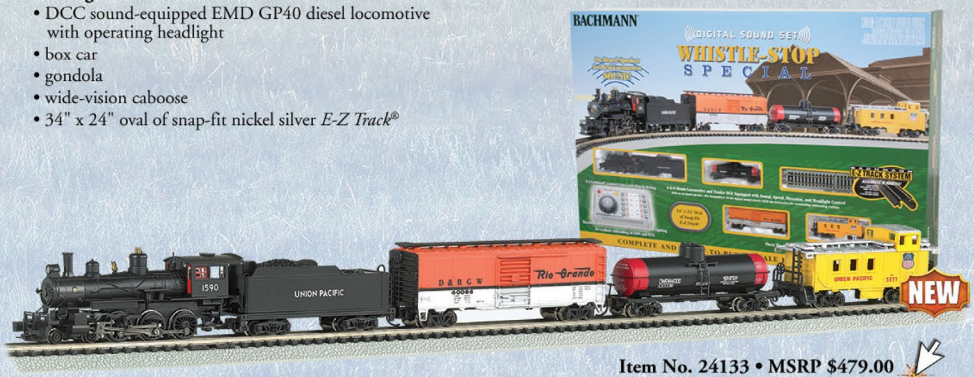

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Is this the future of hobby presentations?

Now that the NMRA has begun exploring virtual convention technology, I think this has some exciting implications for the future.

First, a virtual convention can be attended by anyone on the planet with a broadband internet connection. How cool is that? I can even see a small attendence fee to help defray the costs if needed.

Next, this also opens up the question: what about web streaming the clinics at in-face conventions as a live stream? That would allow the Internet attendees to ask questions of the presenter. How cool would that be?

Some sad news

Sadly, my friend and fellow modeler Greg Martin lost his battle with Covid on May 1st at 10:15 am. Greg had gone on a ventilator March 18 and put up a valiant fight. But ultimately it seems the damage to his lungs just overwhelmed him.

Greg had a real passion for Railroad Prototype Modeler meets and one of his favorite meets to attend was the Cocoa Beach meet each January in Florida.

You will be missed, Greg.

Greg Martin with his wife Sandra.

A new series coming to TrainMasters TV

We started TrainMasters TV in the fall of 2013, which was almost seven years ago now. It's time for TMTV to get a major refresh as to its look and feel.

Along with this new updated look, we've been planning a number of new segments. Currently we've done a lot of live studio segments

BY POPULAR REQUEST

photo by: Gordon Lloyd Jr., Paul Wester Collection

Tri-clops Railfan ▶ Athearn

Thanks Athearn for yet ANOTHER run of the 2-window SD60Ms. What would be REALLY cool would be the 3-window Tri-clops versions. They're good for more than 3 railroads now. If we could get these in Genesis that would be grreaaat 👌👍🤞👏👏👏👍😛😆😍

❤️👍101 53 comments

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with a guest and a host. With the new look, we've been planning to replace some of the studio segments with some new solo-presenter/scripted segments as well.

If you want to see good example of what a solo-presenter segment looks like, look at the Mike Confalone weathering series. As that popular series illustrates, solo-presenter/scripted segments can be as content-rich as the live studio segments, if not more so.

We were planning to launch some new solo presenter segments in January 2021 to go with the major refresh of TMTV's look.

But with the global pandemic and the travel restrictions, it's become difficult for guests to come in-studio. It's also become almost impossible to visit layouts and shoot layout tour videos.

We're going to run out of layout tours and studio segments before January 2021 if we don't

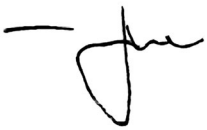
do something to stretch things. So we've decided to launch one of our planned new solo-presenter video series titles early: *Joe Fugate's Run like a Dream* video series.

The idea with this series is to take my book trilogy (yes, the Locomotive book is still being written) and bring it to life on video. I want to demostrate and expand on the topics covered in the Run like a Dream books. I think being able to talk through what's in the books on video can help drive the concepts home, plus I can address the questions I've been getting on these topics.

Not only that, I continue to discover more insights on how to make things run better and technology keeps giving us new tech improvements, too.

I can easily see this series running for dozens and dozens of content-rich episodes. This new series launches on TrainMasters TV later this month [see trainmasters.tv for more].

If you've wondered about becoming a TMTV member, this is a good time. We're offering a 30% off "stay home, stay safe" special right now, so go check it out! ☑



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Last issue's ratings

The three top-rated articles in the April 2020 issue of *Model Railroad Hobbyist* are:

4.9 April 2020 news
4.5 DCC decoder plugs and sockets
4.4 Digital calipers for modeling

Issue overall: **4.4**

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! ■

Best of the MRH WEBSITE THIS MONTH

Model Railroad Hobbyist | May 2020

compiled by JOE FUGATE

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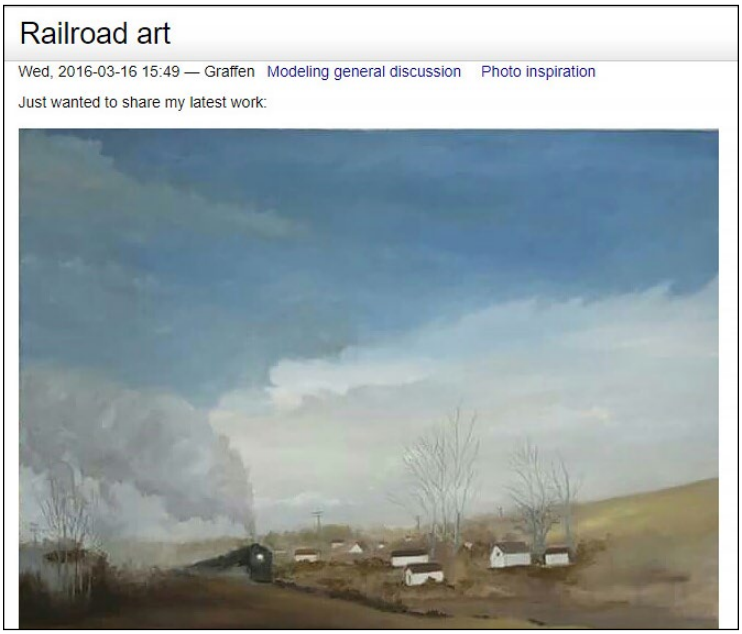
Railroad artist on our forum!

MRH forum member **Graffen** (*Michael Graff*) also does railroad paintings and he shares some of his artwork on this thread. Very nice!



View the full thread on the MRH website

MRH'S MONTHLY GREAT MODELER POSTS

1. Randy Decker is building a "faithful museum replica" of John Allen's famous layout that was destroyed by fire in 1972.

Randy Lee Decker's John Allen layout build

MRH forum member **Great Divide** (*Randy Lee Decker*) is a retired musuem display builder. One of his dreams has been to faithfully rebuild John Allen's famous third Gorre & Daphetid layout in his retirement.

Randy is modeling a 95% accurate replica of John's layout and he's approaching this project like another of his museum projects. That means this layout is a serious "replica" of John Allen's famous layout, almost board for board, with some minor adaptations.

Randy is using more modern technology in his replica – like high fidelity flex track, Kadee couplers, and DCC. Plus he's making a few "improvements" or "corrections" to John's design – but only a few.

Follow the progress on the MRH website thread link below.

Read the full thread on the MRH website

Modeling SP Cascade Line scenery

2. John Caffarelli added grasses and tufts to his Westfir scene. The grass is a series of connected clumps rather than a continuous blanket.

Forum member **johncaff22** (*John Caffarelli*) is modeling the SP in Oregon's Cascade Line. John has been posting his latest scenery work in the Westfir area on his Cascade Sub layout.

"With the terrain in Westfir completed, I began to explore options for adding spring scenery. Most of us model the heat and bright sunny days of summer, however, the Cascade Sub is firmly set in the rainy days of late April and early May. As such, there are a few more considerations when it comes to developing the scenery across the layout. For one, I have to be selective about color and texture, but also elevation. As scenery progresses up the hill I will reduce the level of lushness simulating the delayed response of vegetation at higher elevations."

To follow the developments of John's layout as he posts updates on his blog, use the button below.

Read the full thread on the MRH website

Modeling intermodal cranes

3. Roger Litwiller built this Walthers Translift model and but Canadianized it with Highball Graphics CN MOW decals and Microscale Canadian Flag decals.

MRH forum member **Roger Litwiller** has just finished modeling some intermodal cranes for his layout.

Roger shows two different models he built, one a MiJack Translift more-or-less per the kit instructions and the other he kitbashed from a poorly-built used Container Gantry Cranes model he purchased.

Roger also shares a photo of the Kato container-handler he added to the scene.

Roger has more 3D printed detail parts on order that he plans to add to this scene soon. Visit the MRH website and read the full thread!

Read the full thread on the MRH website

New "Virtual RPM" thread

With most of us still being told to "shelter in place," the Railroad Prototype Modeling meets we're used to have been cancelled. To alleviate some of the withdrawal, we've started a virtual RPM meet thread. Check it out!

Read Virtual RPM thread on the MRH website

4. MRH forum member **Modeltruckshop** (*Steve Hurt*) posted these photos of the prototype (top) and the model (bottom). Nice work replicating this prototype tank car.

VIEW READER COMMENTS

WHAT'S NEAT column

Model Railroad Hobbyist | May 2020

KEN PATTERSON TAKES A STEP INTO G SCALE, CAMPBELL RICE CREATES PAPER HIGHWAYS, AND TRAINTRAXX PLAYS TAG ...

★★★★★ RATE THIS ARTICLE

THIS MONTH WE LOOK AT SOME AMAZING G SCALE historical locomotives from LGB. Campbell Rice shares how he makes roads for his HO scale layout with paper products, and

PHOTOS AND VIDEO OF SUPERB MODELING

Carlton Brown from TrainTraxx shows how their RFID tags and computer technology aid in locating freight cars on your layout.

Paper products for realistic roads

1. I did this road using Woodland Scenics Smooth-It and Paving Tape. There are many ways to make roads on your layout. Some products are available commercially with step by step instructions. However, some of these products can be expensive, messy, and time-consuming. I've tried several methods, have had good luck with them all, and most of them give you pretty much the same effect.

I have also used AK Terrains Asphalt. This is already colored black and looks very realistic when done but can be pricey if you have a lot of roads to build. *Story and photos by Campbell Rice*

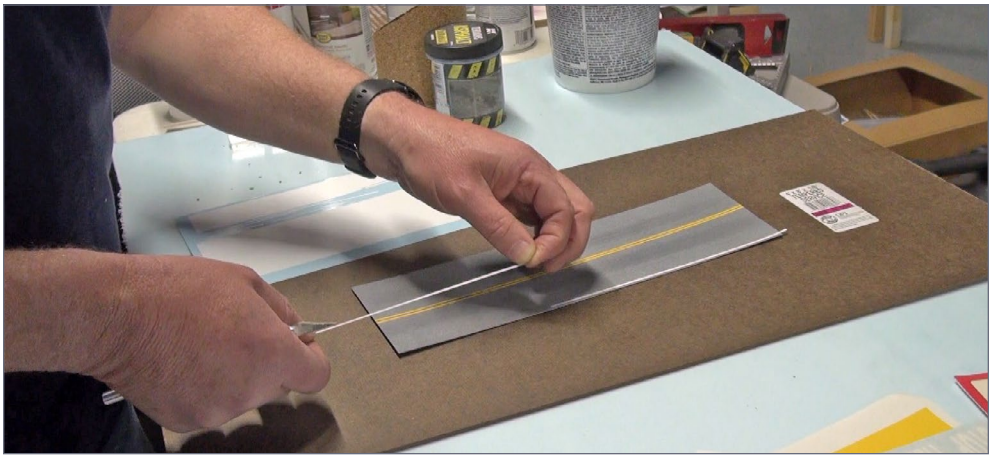
2. I like to use watercolor paper, found at many hobby stores. This is a simple, quick, and cost effective way to achieve realistic paved surfaces.

View reader comments

3. I start by deciding what size of road I will be making. Here is the road beside my house, a simple basic country road, 21 feet edge to edge.

4. I take a sheet of watercolor paper and, using my HO scale ruler, I measure out my road and cut it out. I then apply a coat of primer gray from a rattle can. Once that is dry I give it quick sprays of white, beige, and brown. I hold the can away from the road and let it dry fall onto the surface. This gives the pavement the look of aggregate mixed in with the asphalt.

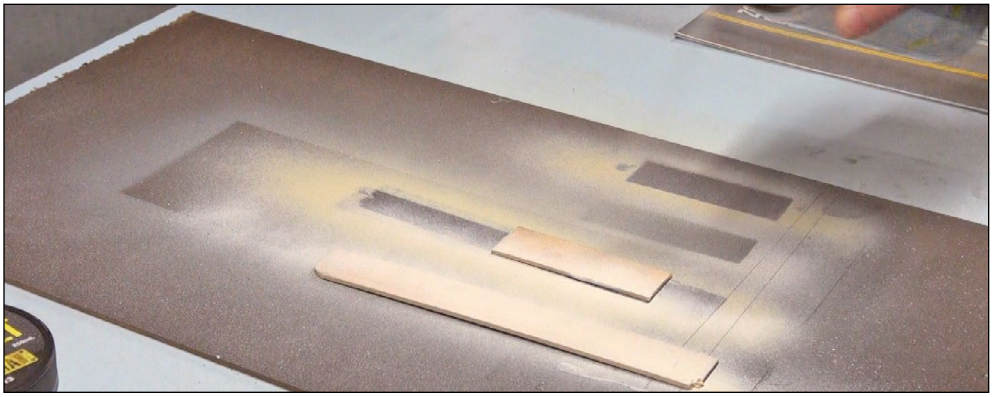
5. Once it has time to completely dry I take a rag and 91% alcohol and rub up and down the road in the direction vehicles would travel. I find this adds to the weathering effect of a high traffic road.



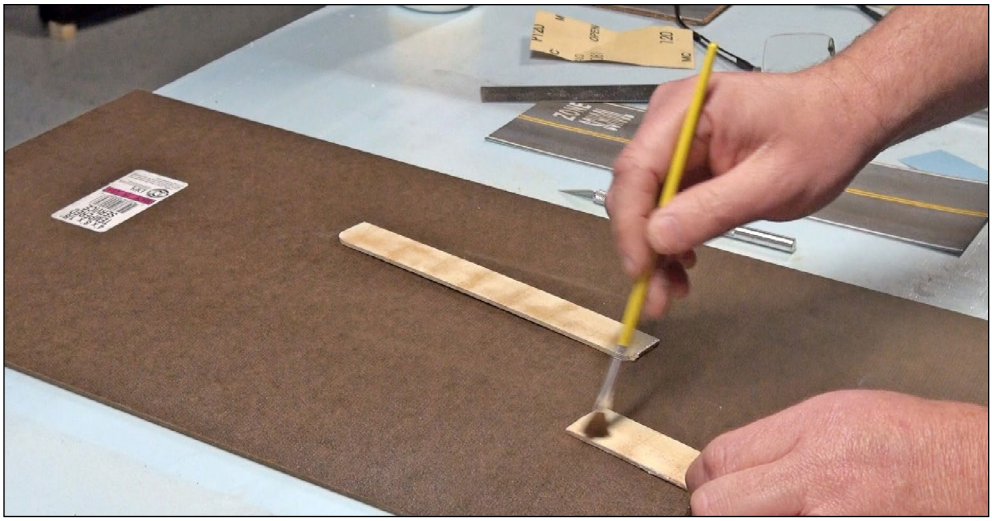
6. Now it's time to add striping to your road. You can use white and yellow paint to create your lines if you desire but I like to use a product from a company called Highways and Byways. Their dry transfer striping and lettering saves me the time of doing all the masking to paint the lines.

7. Once my lines are down, I will come in with some weathering powders and give it a little extra dirt. Be sure to apply your weathering in the same direction vehicles would be traveling down the road.

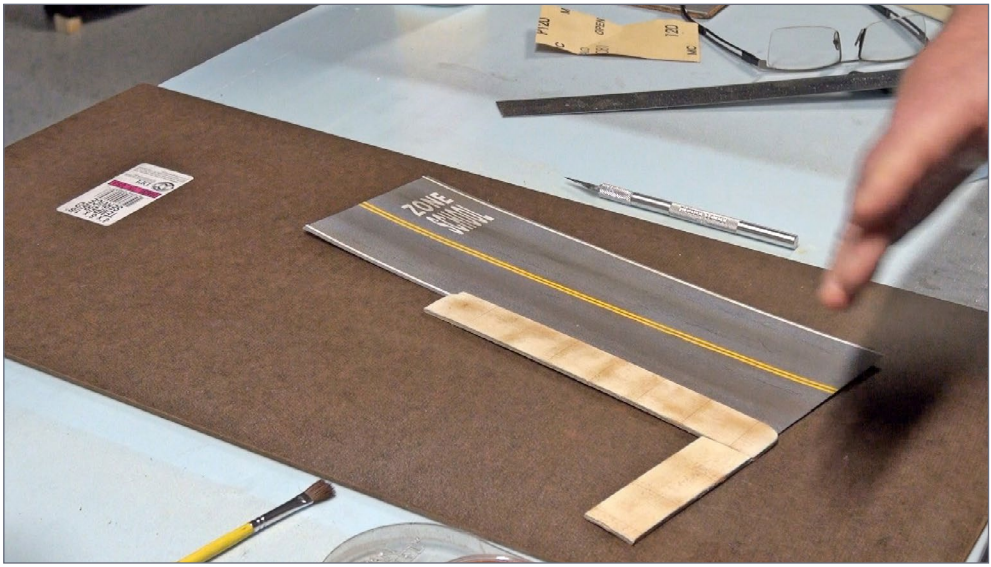
8. Now it's time to add the small details which really give your roads that lifelike look. As the asphalt cracks, workers come in and apply a tar substance to seal and help prolong the road. These show up as black lines over the road like cobwebs. I use a fine tip pen called a Gelly Roll by Sakura to make these lines. Remember you will want to keep these to scale, so an ordinary Sharpie does not work the best for these lines.



9. If you're doing a downtown area and want to have sidewalks, I like using basswood. I always coat it with Mod-Podge so that once it's painted you don't see wood grain and it gives it that rough concrete look. After my Mod-Podge has dried I use a tan color from a rattle can give it its color.



10. Cut your lines in the sidewalk with a hobby knife and give it a quick dusting with weathering powders. Be sure to seal it all in with a clear matte coat.



11. Then you can place your curbs alongside the road at the desired location. File down the corners and the sloped area for your handicap access, depending on the era you model. The great thing about this technique is it allows you to practice it before you put it on your layout.

Have some fun and get to road building.

TrainTraxx RFID tags for operation

12. This month Carlton Brown of TrainTraxx shares a freight car locating tag system to make operation interesting without shuffling and sorting car cards. These RFID tags are peel and stick, to fit under your freight car trucks. The company – TrainTraxx.com – makes roll-over readers that fit under your train track to read the cars as the train rolls over them. They identify the freight car and where it is on your layout. They work with a Wi-Fi module that is connected to the reader and communicate with a Raspberry Pi that communicates and works with the JMRI platform. JMRI is integrated into the system to display car location on the layout and can be displayed on a computer screen.

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

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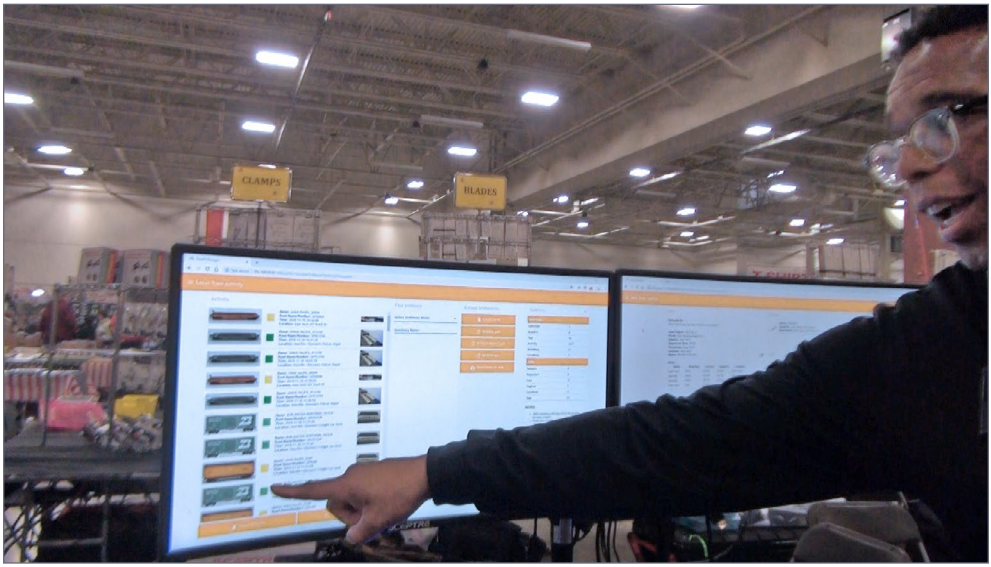


13. This allows for information by car type or car number to be read as the car passes over the chip reader and this to can be displayed on the computer screen. This information can be read real time and displayed as the cars are run on the layout over main lines and. As you place the cars in the sidings they are displayed as you move on to your next car drop location. For a more detailed explanation of this please watch this month's video or visit www.traintraxx.com.

Big scale historic steam

Central Pacific 'Jupiter'

14. In this month's video, Ken shares a photo shoot he had the privilege to do this spring. These large scale models represent the historic locomotives photographed during the Golden Spike ceremony at Promontory Summit, Utah on the 150th anniversary of the 1869 Completion of the Transcontinental Railroad.. Both models are made of metal and very run and run very smoothly. They have feature smoke coming through the smokestacks, and 'steam' when the whistles blow and the cylinder cocks vent.

They feature full sound and interior cab detail. The models come in a wooden crate with many additional detail parts, various couplers, and crew figures for inside the cabs. For more information check out LGB.com.

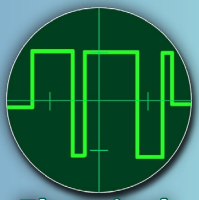
Also see the "What's neat this week" weekly video podcast!

WATCH NOW »

15. Union Pacific #119

Don't miss all the features of this months video on page 1.

Animate a Ferris wheel



Electrical Impulses

1. IHC Ferris wheel as it comes straight out of the box. Jerry animates it using an Arduino controller, adding some clever features in the process.

Model Railroad Hobbyist | May 2020

Jerry Grochow uses an Arduino and JMRI to create some fun Ferris wheel animation ...

I am looking at some basic animation of a Ferris wheel in this Electrical Impulses, but with a twist!

Turning a Ferris wheel on and off and controlling its speed can be easily accomplished with some simple electronics, but I wanted my Ferris wheel to be controllable from my PC. I am doing that on my layout with all my animations, as well as with my turnouts, sensors, signals, and lighting.

So I have *everything* connected to my PC using the Java Model Railroad Interface (JMRI).

For the Ferris wheel, I programmed an Arduino microcontroller to communicate with JMRI, and also with the Ferris wheel motor. I also added an external switch and sensors to start the Ferris wheel when a train passes by – no that's not prototypical, but it's requested by frequent small visitors to my layout!

This turned out to be a fun project with lots of possibilities for adaptation and expansion to fit the needs of any railroad, whether you are using DCC or not. And while not nearly as sophisticated as some of the projects described by Geoff Bunza in *MRH,* this illustrates several key elements of using modern "train tech" in our hobby.

Some background

Arduinos first became available 15 years ago – they're inexpensive digital microcontrollers (small computers) – designed to be used by hobbyists to control a wide variety of useful and fun devices.

Model railroaders likely began using Arduinos soon after they were introduced, although the first reference I could find to a model railroading clinic on Arduino was at the NMRA convention Extra 2011 West: "Model Railroading with Arduino: Introduction" by John Plocher and Dave Falkenburg.

MRH has had several articles on their use, and there are many posts and videos on the internet (including at the *MRH* site) that give you the basics. The web abounds with interesting project

ideas, such as an article I wrote that appeared in the January 2019 issue of *NMRA Magazine*.

JMRI, also dating to 2005, is an "open-source" (that is, maintained by volunteers and freely licensable) suite of software programs for controlling all aspects of your model railroad. Some of the things you can do with JMRI include not only setting DCC control variables (CVs) in your locomotive fleet, but also can include creating realistic signaling, throwing turnouts, and setting up automated operations.

JMRI also has capabilities for modeling layouts and CTC panels on your PC, Mac, or Linux machine. With JMRI, you can set up operating sessions, and connect to just about every brand of DCC equipment. As a side note, the animation described in this article does not require DCC.

With a community of almost 10,000 subscribed to the JMRI on-line message board, it's being actively used and developed around the world.

While a PC connected to your railroad *is not required* to take advantage of Arduino technology, adding the PC provides additional animation capabilities such as using JMRI to enable more advanced abilities.

The Arduino must be connected to your PC, Mac, or Linux machine for initial programming but can then be disconnected and run independently if that is your preference.

In the rest of this article, I describe how to develop an animation with or without a connected PC, with or without JMRI, and for a total outlay of less than $15.


J. Grochow

Coming back after 25 years

When I returned to model railroading after an absence of 25 years, I was initially overwhelmed by the changes in technology and in the range of skills now "required" for full enjoyment of the hobby.

Luckily, computer technology was already in my skill set, so some aspects of the "new" model railroading came relatively easily. Others, not so much, but I was willing to learn.

If programming is not one of your current skills, look at it as you would any other aspect of our hobby: it's something you can learn and enjoy as you grow your railroad. Either that or find a local high schooler to do it for you!

Do not be deterred by the new concepts and terminology any more than you were the first time you encountered double slip turnouts, CTC panels, and Rule 17 locomotive lighting!

The animation strategy

A Ferris wheel (IHC Carnival #5110) in my "build it someday" stash seemed like a fun addition to a park area I was designing for my HO layout.

The Ferris wheel turns by mating plastic teeth on its rim with a gear on a plastic rod connected to a user-supplied motor – see [1] and [2].

I figured I could develop a motor control system operated from my railroad's control panel, running under JMRI on my PC. I also wanted the option for a physical switch and proximity sensors to trigger the operation.

2. Detail close-up of the Ferris wheel teeth and gear rod.

Since I expected to replace the plastic control rod and the motor at some point, I wanted the ability to vary the motor speed as needed for a pleasing Ferris wheel rotation regardless of the gearing and motor currently installed.

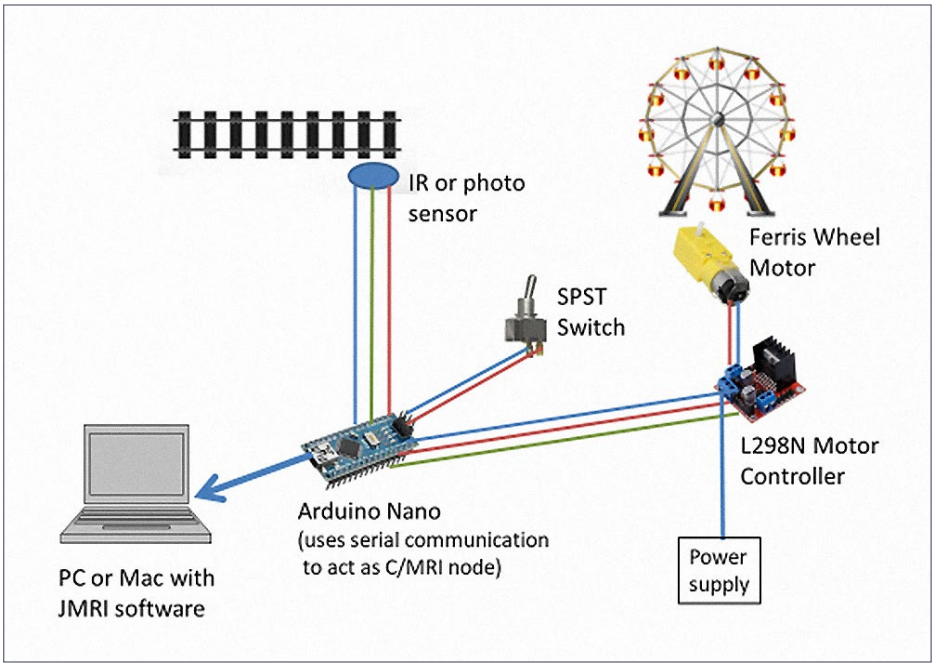
To do all this, I decided the best approach would be to program an Arduino as the interface between the motor, the physical controls, and the computer.

System diagram

My system diagram [3] shows the connections among all the components of this animation.

I prepare this kind of diagram for all my railroad electronics. I find keeping this document handy really aids in implementation and maintenance (now how does this thing work again?) – not to mention being part of the requirements for NMRA Achievement Program certificates!

The Arduino forms the heart of the system and it's connected to the Ferris wheel motor (via a separate motor controller circuit board), an on-off switch, and a train sensor. The Arduino in turn connects to the PC running the JMRI software. A power supply connected to the motor controller board powers both the motor and the Arduino.



3. Animation system diagram showing how all the components connect.

The motor

The original Ferris wheel constructed at the 1893 World Fair in Chicago took nine minutes to make a revolution while "America's largest" wheel at the Texas State Fair can go as fast as 1.5 RPM.

Based on the size of these wheels (254 feet and 216 feet high, respectively), passengers travelled anywhere from 1 to 10 MPH.

Rather than simply scaling the speed of my Ferris wheel through a rote mathematical computation, I decided to experiment and find a speed that looked natural to my eye and to my usual visitors.

Given the fixed teeth on the Ferris wheel itself, I needed to control motor speed over a reasonably wide range to achieve the desired effect. I bought a couple of "gear" motors, one rated for 20 RPM at 6VDC and the other with a range of 90–200 RPM at 3-6VDC [4].

I also purchased a motor controller circuit to allow digital control for the higher current demands of a motor (the Arduino current limits are too low for direct motor control). I used a 9VDC power supply, one of the many "wall warts" I have accumulated over the years. It provided a maximum of 7 volts when connected to the motor controller. Both motors ran fine in the range of 3-7 volts.

With the teeth and gears in the Ferris wheel kit, this translated to one revolution every 30-60 seconds for the 20 RPM motor, or about 2 SMPH. For the 90-200 RPM motor, this became 5-10 seconds per revolution, or about 12-24 SMPH.

Of course, my grandchildren thought the faster speed was just fine, but I'm sure the HO scale people on board became quite nauseous!

Connecting the motor to the Ferris wheel

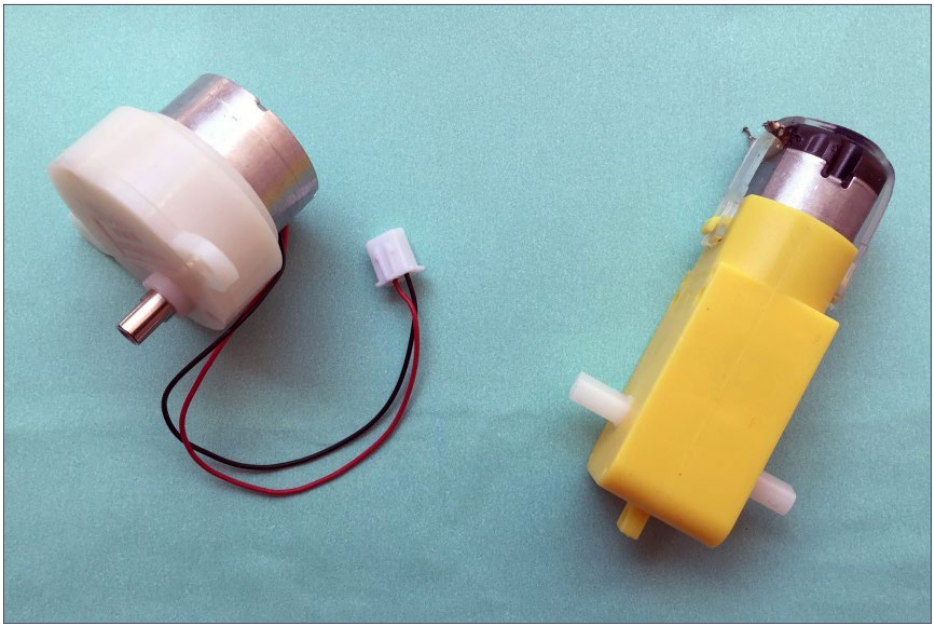
The IHC Ferris wheel sits on a plastic platform that could hide a tiny motor [1].

To allow for a larger motor, I decided to mount the motor under the layout, extending the control rod down through a hole to connect to the motor shaft. After temporarily attaching the motor to the underside of my layout with tape, I secured it with a U bracket and two screws [5].

The microcontroller

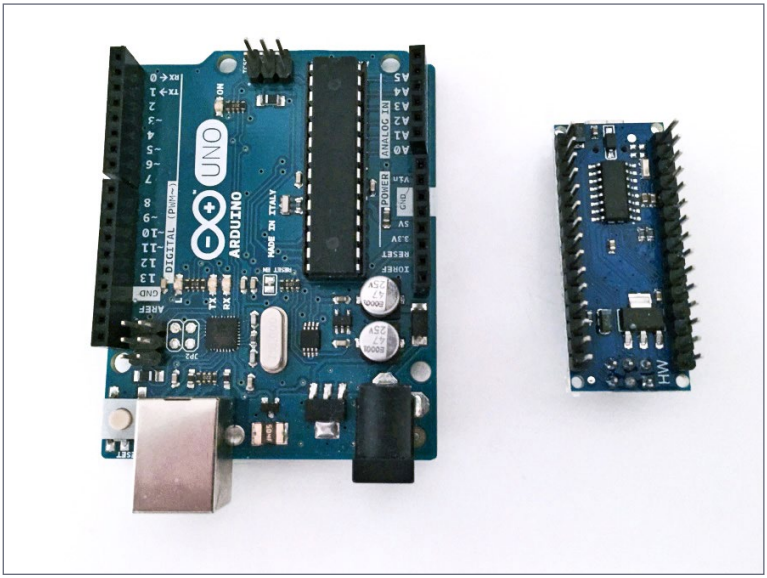
There are many models of Arduino, but for this animation, any 5V model will do. The Arduino hardware design as well as the software is freely available so there are many manufacturers of both 5V and 3.3V models.

The Uno is the original, but I prefer the Nano for its smaller size, male header pins, and its USB Mini-B port – not to mention its lower price – about half or less of the Uno [6].



4. Two different motors: a 90–200 RPM and a 20 RPM gear motor.

5. Attaching motor under the layout.

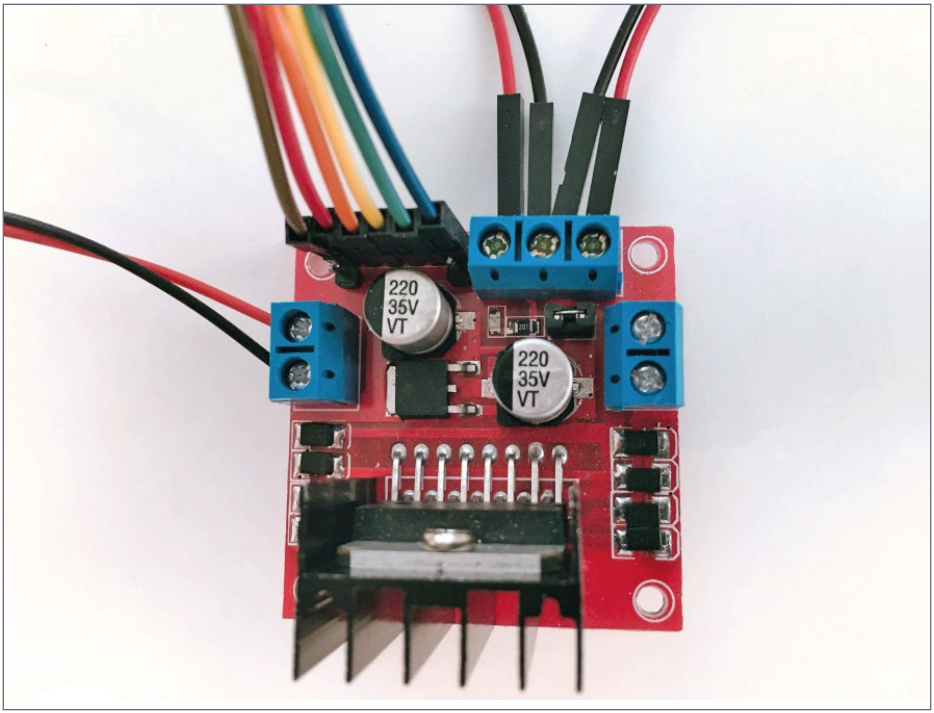


6. Arduino Uno and Nano Models.

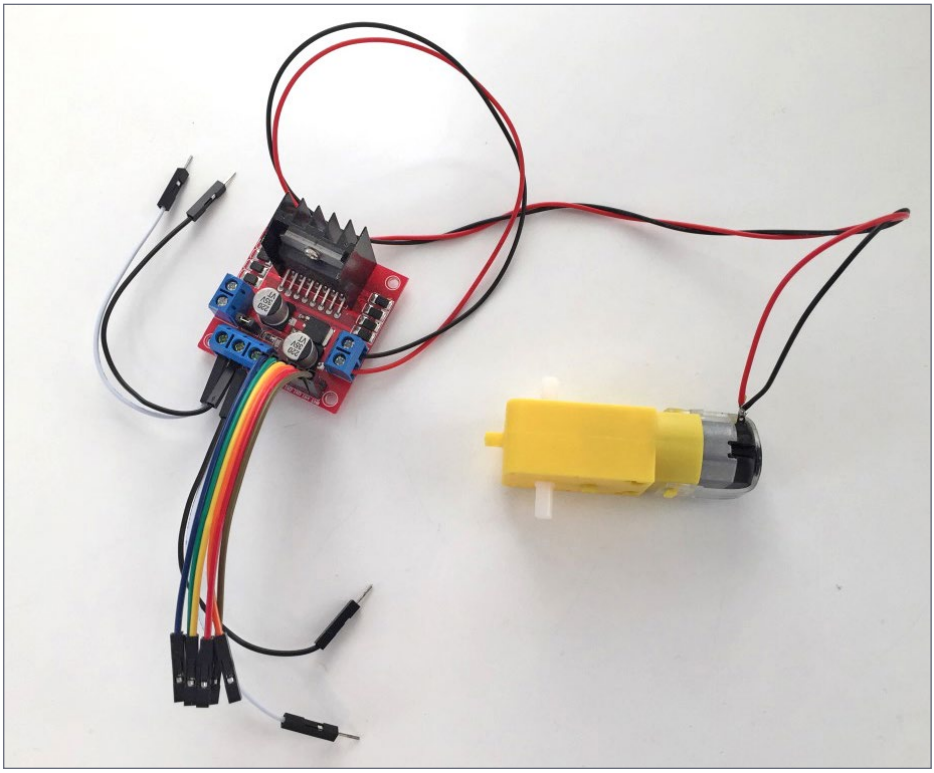
Some other models have different processor speeds, varying number of input/output pins, and various memory sizes. New models come out periodically, adding features such as Wi-Fi and Bluetooth.

The Arduino allows controlling electrical devices connected to its output pins. The pins have limits to the amount of current they can supply, typically no more than 40mA per pin and 200mA for the entire Arduino board.

Since the motors I had purchased draw as much as 200mA each, I needed an auxiliary circuit board to provide that much current. The L298N H-bridge controller board can easily be connected to the Arduino and manage one or two motors [7].



7. L298N H-bridge motor controller.



8. L298 H-bridge controller connected to motor.

Note: The term "H-bridge" comes from the way the circuitry of the board is drawn schematically.

Connecting this board to a motor (or to two motors) and then to your Arduino simply involves a few screw terminals and wire plug-ins. Nice and tidy!

Connecting everything

Many online video tutorials demonstrate how to connect a motor to an H-bridge and then to an Arduino. If you simply want to operate your animation with a physical switch, these videos show you

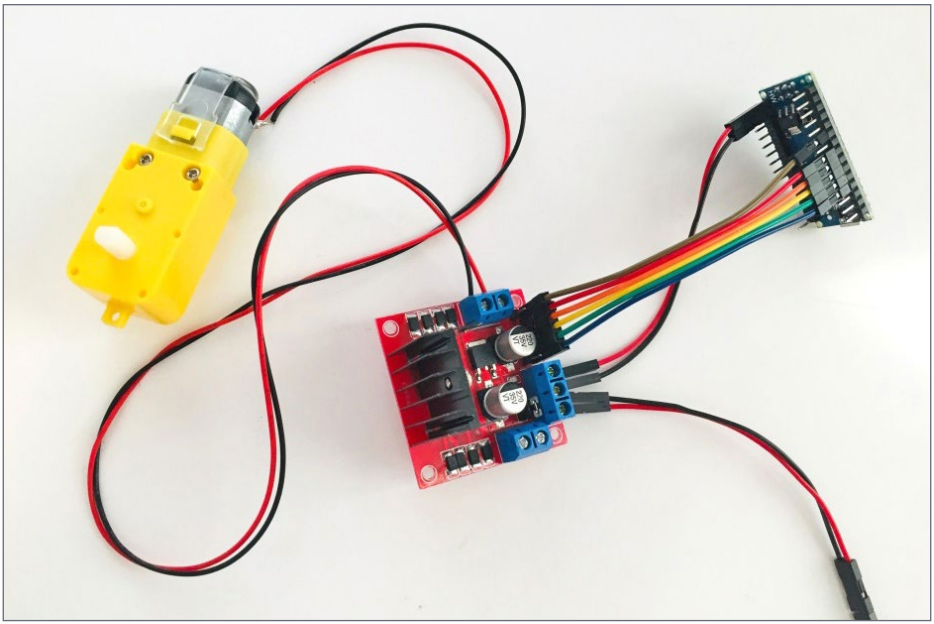
all you need to know. But then you probably don't need an Arduino at all, if that's all you're doing!

I wanted to control the Ferris wheel via my JMRI control panel – and for that, an Arduino is well suited.

The L298 H-bridge gets connected to the Arduino via three pins labeled enA (for "enable"), IN1, and IN2 (for "input" voltage). Pin enA must be attached to an Arduino pin that provides "pulse width modulation" – a variable voltage to control motor speed.

The two wires from the motor connect to the two screw terminals labeled Out1 and Out2 on the H-bridge [8]. The remaining pins and terminals can control a second motor if you wish.

If the motor runs in the wrong direction when you start up, reverse these two wires – or change the Arduino program to reverse the voltage going to IN1 and IN2.



9. H-bridge connected to Arduino Nano.

I attached a 9V one amp "wall wart" transformer to the power input terminals on the L298N and that provides more than enough power for two motors as well as the Arduino itself.

I connected the 5V power out terminals on the L298N to Vin and GND on the Arduino [9].

Connecting to the PC running JMRI

The simplest Arduino connection to your computer uses the USB connector on the Arduino board and an appropriate USB cable.

JMRI has two ways of communicating:

1. Coding and running a serial communications program under JMRI and programming the Arduino accordingly

2. Programming the Arduino to simulate one of the popular C/MRI (Bruce Chubb's Computer/Model Railroad Interface) boards and using the included JMRI ability to send C/MRI commands.

Since Arduino code for C/MRI simulation is freely available, this seemed like the simpler route – and it was (I tried both).

Include the C/MRI library in your Arduino code and remember the "node number" you assign to your Arduino, in my case, 11.

Follow these steps to connect to JMRI:

- Start the JMRI PanelPro program
- Go to "Preferences" and "Connections"
- Add "C/MRI" selecting the USB port number for your Arduino
- Select "Configure Nodes" and "Add Node" with the node number assigned.

That is it!

Note, there are ways to accommodate multiple Arduinos as well, but that is the subject for another article!

Designing the Arduino sketch

Knowing how I wanted my Ferris wheel to operate, I needed an Arduino "sketch" (the Arduino program) that would:

1. Communicate with JMRI running on my PC

2. Process commands from the JMRI control panel to turn the Ferris wheel on and off and to change its speed

3. Allow a physical switch near the Ferris wheel to turn it on and off, and to override the on/off commands from the JMRI control panel.

4. Allow a nearby sensor to turn the Ferris wheel on and off when a train activated the sensor.

I initially thought I would allow changing direction from the control panel, but decided this was an unnecessary complication.

While I wanted to be able to change speed via the JMRI control panel, I decided not to have a physical speed control – which could have been implemented as a potentiometer on the enA line – as that would no doubt prove to be an attractive nuisance to the operators [grandchildren] who frequent my railroad!

As it was, these specifications made for about 300 lines of control code – fairly involved in Arduino terms, although not very complicated at all if you are used to dealing with computer programs in large organizations!

The Arduino sketch would need to keep track of:

- Current and prior state of the Ferris wheel (running/stopped/current speed)
- Is the physical switch on or off
- What commands are coming from the JMRI control panel.

Knowing the prior state, the sketch could decide what action to take based on commands from the JMRI control panel and the current state of the physical switch.

For example, if the Ferris wheel was previously stopped, and the physical switch is now on, then the Arduino needs to set the control pins (enA, IN1, and IN2) to start the Ferris wheel at a certain speed.

On the other hand, if the Ferris wheel was previously running, and the physical switch is turned on, no further action is necessary.

Listing all the possible prior and current states and the actions to take helped me design the Arduino sketch logic.

The current version of my Arduino sketch is available on the internet at the popular GitHub site (github.com/jerryg2003/MRR-arduino-auxmotorcontrol).

You can copy and modify it in a variety of ways, the simplest being to change the C/MRI node number and which Arduino pins are used.

Most people use the Arduino development environment (IDE) available for free at arduino.cc which allows you to create, edit, save, debug, and upload to your Arduino board.

I am sure I uploaded variations of the sketch dozens of times over the course of getting it to perform the way I wanted.

Setting up JMRI and the control panel

Anyone operating a DCC railroad should become familiar with JMRI, if for no other reason than it provides easy-to-use screens for setting CVs for your locomotives.

JMRI has many other powerful capabilities whether you use DCC or not, including the ability to design custom control panels to

operate the auxiliary features on your layout, from turnouts to signals to scenery lighting to animations.

To do this, I defined JMRI controls known as "Lights" and "Sensors" and linked them to specific bits to be sent or received via C/MRI protocol with the Arduino.

"Light" is a generic name for a JMRI control that sends on-off commands to your layout; similarly, "sensor" is the generic name for a control that receives active-inactive information from your layout.

For this animation, I needed Lights to tell the Arduino to:

- Start receiving commands (a master "on-off" switch for the Arduino that I like to include in all my sketches)
- Turn the Ferris wheel motor on or off
- Increase speed
- Decrease speed
- Change direction (an additional feature I may implement in the future)

The Sensors I used:

- Tell JMRI that the Arduino is ready to receive commands (feedback for the master on-off command)
- Tell what speed the motor is running at (seven steps from minimum to maximum)
- Tell when the external sensor is activated by a train passing

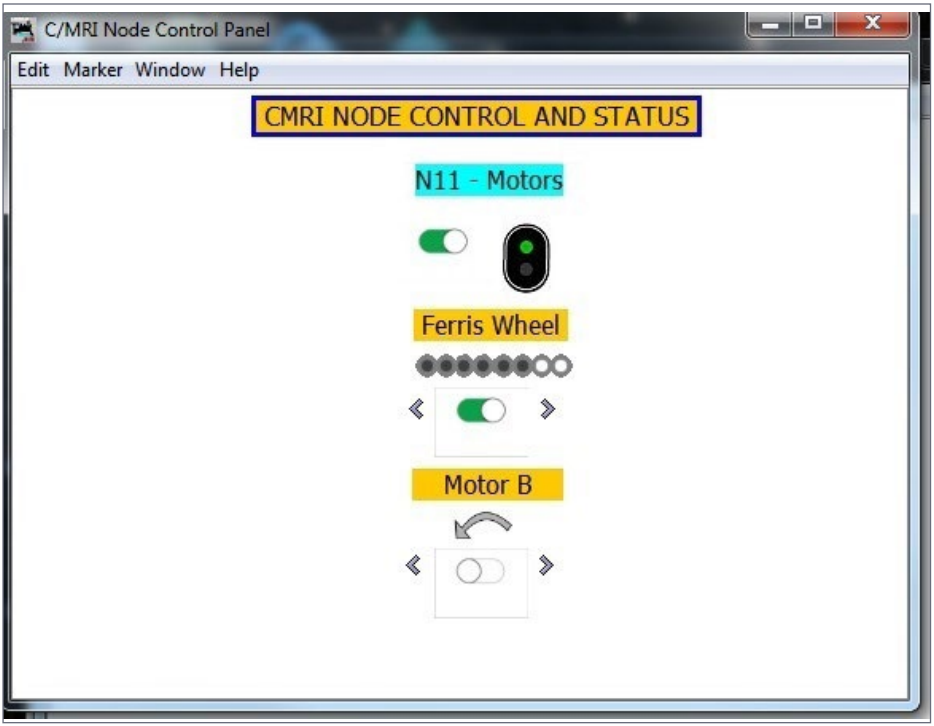
I then created a simple control panel [10] using JMRI's Control Panel Editor and linked the Lights and Sensors to various graphics.

When I click on the graphic of the slide switch under the label "N11 - Motors," it turns green and starts communication between JMRI and the Arduino (N11 refers to the C/MRI node number I assigned to this Arduino).

The signal light to its right will turn green when the Arduino responds to verify that communications has been established (you can use any graphic you want for this).

Beneath that I have controls for two motors, one labeled "Ferris wheel" and the other for future use as Motor B. The row of small circles provides a visual indicator of the relative speed setting of the Ferris wheel motor (calculated in the Arduino sketch).

Clicking on the "less than" or "greater than" symbols tells JMRI to send a command interpreted by the Arduino sketch to decrease or increase motor speed. The motor can be turned on or off by clicking the graphic of the slide switch seen between these.



10. JMRI control panel developed for Ferris wheel control.

Note that Motor B also has a curved arrow as a direction change indicator which isn't needed for the Ferris wheel.

Not shown on the control panel is the state of the physical switch. I programmed the Arduino to allow the physical switch to operate independently of JMRI, and to override it if appropriate.

You may want the physical switch to be overridden by a command from JMRI and that would be a matter of changing just a few lines of Arduino code.

Parts List

All parts are available on eBay (most from China with 20-60 day delivery) or Amazon (typically at higher price and quicker delivery from domestic suppliers). For a convenient Amazon shopping list with links, visit this shopping list link ... [mrhmag.com/magazine/mrh2020-05/electrical-impulses].

- DC 3-6V reduction gear electric motor ($2-4)
- Arduino Nano ($3-5) or Uno ($10-15) or equivalent
- L298N dual H-bridge motor controller ($2-6)
- USB connector cable (match to connector types on computer and Arduino)
- "DuPont wire" jumper wires for connecting to Arduino, 10cm (female-female connectors if Nano used; female-male connectors if Uno used)
- Single pole-single throw slide switch (or any switch you can use for "on-off")
- IR or other track occupancy sensor
- 9VDC transformer. ■

Operation

Once all the parts are connected and the sketch is uploaded to the Arduino, turning on the power supply to the L298N will also turn on power to the Arduino.

Even without a PC connected, the physical switch can now be used to turn the Ferris wheel on and off. When you load the control panel into JMRI PanelPro, you can additionally control speed.

Bibliography

Model railroad "train tech" discussed in this article:

Arduino micro-controllers: www.arduino.cc, also en.wikipedia.org/wiki/Arduino

Java Model Railroad Interface (JMRI): jmri.org, also groups.io/g/jmriusers

Chubb Model Railroad Interface (C/MRI): www.nmra.org/sites/default/files/standards/sandrp/Other_Specifications/lcs-9.10_cmri_intro_v1.0.pdf

Arduino code for simulating a C/MRI node: github.com/madleech/ArduinoCMRI

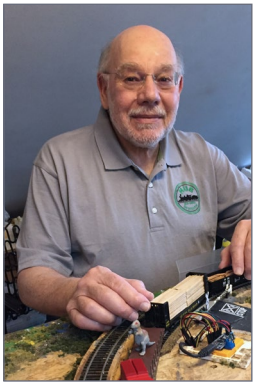
L298N H-Bridge Motor Controller: see, for example, howtomechatronics.com/tutorials/Arduino/Arduino-dc-motor-control-tutorial-l298n-pwm-h-bridge ■

I also installed an IR sensor across the track near the Ferris wheel and programmed the Arduino to turn it on whenever a train goes by.

Future plans include adding lights and a sound board with appropriate music and a carnival barker.

Using Arduinos for your animations provides endless possibilities and lots of fun! ☑

Jerry Grochow



Jerry Grochow lives in Cambridge, MA. He enjoys developing and operating a small computer-controlled HO layout with his local and distant grandchildren.

After a career in IT management for industry and higher ed, he mentors business students and entrepreneurs and writes on a variety of topics.

Jerry is an active participant in the activities of the Hub Division of the NMRA. ■

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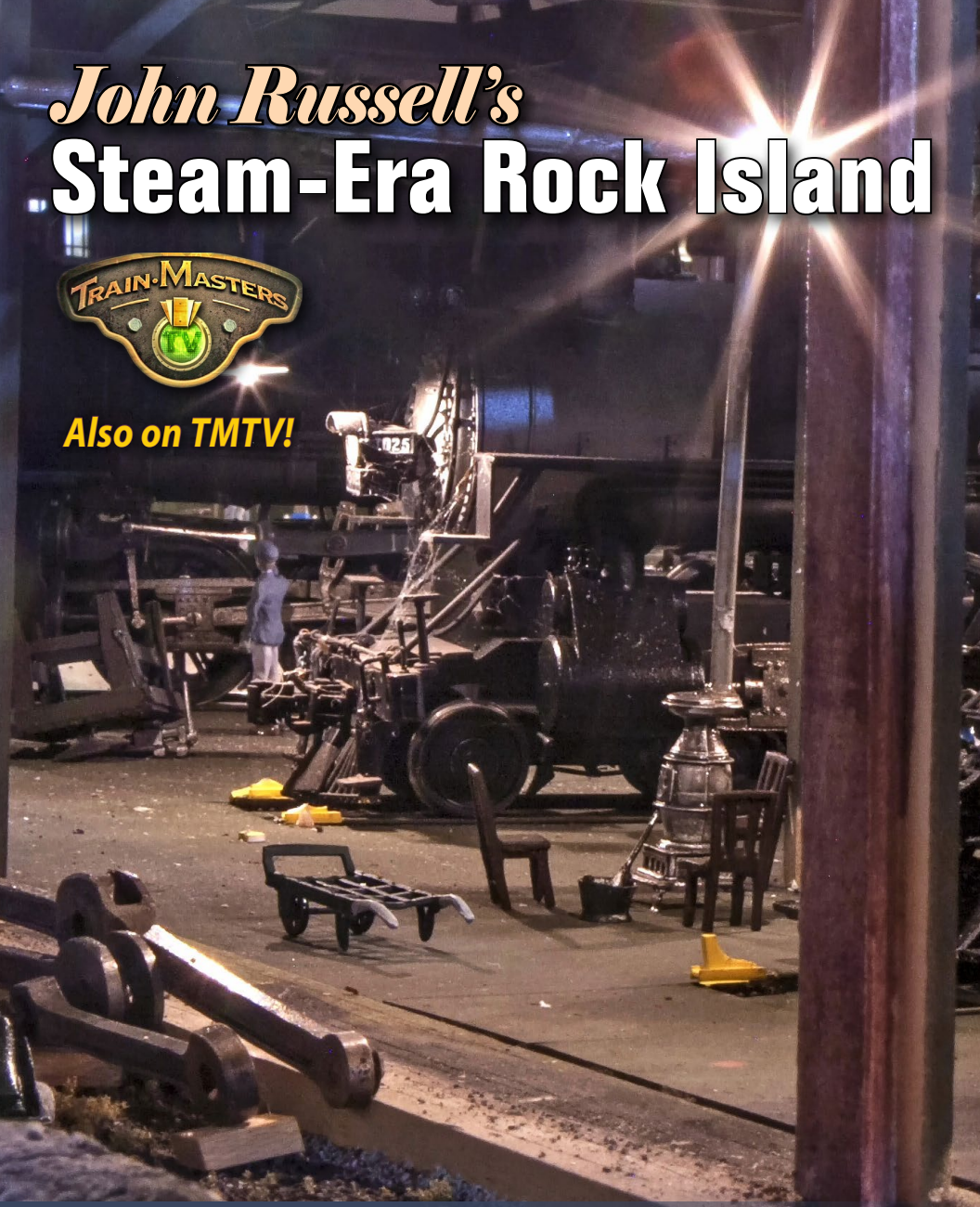


MRH VISITS JOHN RUSSELL *and tours his O-scale basement layout in St. Louis . . .*


2116

MRH: John, how did you first get started in the hobby?

John Russell: I've always liked trains. I have no explanation, but my dad in 1947, the year after I was born, took out a subscription to Railroad Magazine. He knew this kid was interested in trains and it just went from there. I did the Lionel at Christmas that everybody did.

MRH: Where did your interest in trains go from there?

John: I later became a brakeman on the Rock Island railroad. My part of the line went from St. Louis to Eldon, Missouri. What I model here is what I saw out there in the north end of the Ozarks. This route was a single track dark mainline with no signals. I'm modeling the era of 1948 to 1952, the last of the steam and early diesels in O scale.

MRH: Did you go straight from Lionel to O scale?

John: I started with Lionel and dreaming up my own layouts and everything. But before I got into two rail O scale, I ventured into HO.

I was a typical model railroader. The big railroads were the ones that enthused me when I was looking at the model magazines. I got into HO and started buying equipment. Every time *Model Railroader* came out, I would go to the back and look at the Tenshodo ad. It was full page ad with small pictures of everything they were putting out.

1. John's layout models the last of the steam era on the Rock Island, just as things were about to transition to diesel. The Rock Island went to all diesel in 1952.

They always had a good selection of Santa Fe power. So I started modeling the Santa Fe in HO. I don't believe I ever had a diesel in HO, just Santa Fe steam.

I had a lot of steam and I even tried modeling a hump yard. But HO just wasn't working for me.

There was a hobby shop in the area known for handling O scale – and all of the movers and shakers in O scale met there. So I traded $350 of HO for one US Hobbies O scale 2-8-8-4 Rio Grande articulated steam engine. And that one loco model outweighed all those HO engines.

So I started modeling the Rio Grande standard gauge and narrow gauge both in O scale. I could find O scale narrow gauge locomotives, but I could not find cars.

I did some arithmetic and I said, "John, you ain't gonna live long enough to build this railroad." So back to Hensey's hobby shop and I traded my narrow-gauge locos for standard gauge ones.

So I started in three rail O with Lionel, then I ventured into HO. It didn't fill the bill for me, so I went to two-rail O scale and I haven't looked back. I really enjoy it.

MRH: How did you end up modeling the Rock Island?

John: By that time, I was working on the Rock Island. Meanwhile, I kept making trips to Colorado to take pictures and get information on the Rio Grande railroad. And I always thought it was kind of goofy to be traveling way out there.

I enjoyed what I was doing on the Rock Island railroad. And then it dawned on me: "Why you ninny, why don't you model what you do that you enjoy so much?"

2. In the early 1950s, the Rock Island ran a number of passenger trains pulled by brightly colored two-tone red and silver diesels such as you see here.

Yes, on the real railroad we had windy, cold, rainy nights and so on. But I always thought here I am getting paid for playing with the biggest train set in the world!

And the best day – the absolute best day – you have a full crew of say four or five guys with everybody working together on the same page. Mister, you have never seen a dance group that is any better – it's absolutely wonderful. Man, the railroading you can do when everybody is pulling together!

I liked it when you could pull up to the phone box and get on a hard line to talk to the dispatcher. And the dispatcher would say, "Well John, I know who you got for an engineer. If you think you can get him to give you a good move, then I'll take you all the way to St. Louis."

And I would say, "I've already taken it up with him. And he said, if dispatch will give us the railroad, we will go to St. Louis, we will not hog, we will go right into the yard. He'd say, "Okay John, you got the railroad!" and off we'd go.

So I just loved it – when everybody worked together, it was great, absolutely great. The dispatcher knew the engineers, he knew who would run according to the rule book, he knew who was going to drag their feet.

I guess I get kind of carried away about it, but I really enjoyed it and I enjoy it here.

Had I not gotten a job on the Rock Island, I can say with certainly I would not be modeling the Rock Island.

Anyway, back to Hensey's again with everything! I ran into a guy named Chris McCoomb and he had an O scale RS3 and a GP7 painted in Rock Island wings. He also advertised in the magazines and called himself Track One, doing custom painting.

MRH: So that got you started into modeling the Rock Island with those two locomotives?

John: Yes, my first two locomotives were a Weaver RS3 and an Oriental Brass GP7 that Chris McCoomb had with the Rock Island wings paint scheme on both of them. It took me all day to make up my mind to buy them. But at the end of the day, I took them home with me.

Chris said, "You buy the equipment and I'll make it Rock Island." He said, "I'll do the detail work and paint them." So I said okay!

If I found a locomotive at a train show, I would buy it and bring it home. Then I'd call Chris and I would drive up there, drop it off, and

then when he got it done, I'd go back and get it. I've taken anywhere from two to four locomotives up there at one time. He would paint them and get them all squared away for me.

Most of my locomotives are brass. There's some very good plastic ones out there now through MTH and they come painted Rock Island. Brand-wise I have everything from Overland, Oriental, Precision ...

On the older end, I've got I got two All Nation F units from way back. They are two of the smoothest running locomotives on this layout. They never miss a lick. Both of them have open frame motors bigger than a fist and they're just as smooth as anything – a smooth, quiet gear drive.

My steam engines are all brass. Overland, Sunset, and Precision. I do have one Precision steam engine.

MRH: So that's how you started collecting O scale equipment. How did you go from there to building this layout?

3. Rock Island FA and RS Alcos pull a 30+ car manifest freight out of Raytown, Missouri on this bright summer morning in 1952.

John: You know, God gives certain people special abilities.

I met this fellow, Ed Neff. Ed loves scratchbuilding in O scale. He had some cars for sale up at the hobby shop. With each car you got a card with a handwritten explanation of what the car was and down the bottom it had his phone number.

So I called Ed and got together with him. Ed volunteered to build one of a kind Rock Island equipment that will never be produced. To this day, I say Ed Neff is probably the best thing that's ever happened to me in O scale.

I've got locomotives that I would have never built had it not been for him building the tender for me. And I've got at least five cabooses that are Rock Island prototype. And that equipment's all here on the layout.

4. It won't be much longer before steam gives way to diesel power for good on the Rock Island here in mid 1952. Light USRA Baldwin Mikado 2304 rounds the curve with freight destined for St. Louis.

Much of what's on the layout is custom Rock Island equipment that you can't buy. It's all – I don't want to say kitbashed, necessarily – but I started with something else and made it Rock Island.

Ed has been a big help with the equipment on this layout. He is what you call a good old boy, which means he's a good man. He turned 91 in December, so he's still with us.

MRH: That's great you had help like that, and it's nice to hear Ed's still around. How then did you develop the track plan for this layout? Was it easy or did you have to go through a lot of iterations?

John: When I started working on the track plan, I had brought the yard with me from my old house and that went in first.

Then I went out both directions from there, figuring out how could I get the most railroad and stay on one level. That's where I developed the dog bone, or folded dog bone. I made four trips the length of the basement.

I wanted to keep the radius on the curves as big as I could. I didn't want to forfeit the curves because equipment looks better and runs better on big curves.

After I got the mainline figured out, then I backed up. I looked and said let's put a town here or put a town there. Now, what kind of sidings am I going to have, and so on.

The next big thing was a division point. I knew I wanted Eldon, Missouri in the track plan. Eldon ended up on an angle compared to the rest of the basement – that's just the way it worked out. I think it worked out better because of the way it comes out of the curve at the other end and angles over towards the aisleway.

I've got the track laid out very similar to the real Eldon and that's what I wanted. Obviously you can't have all the towns and

everything you want to have – and in O scale, it happens real quick. You just don't have the room for everything.

But I do have room enough for a prototypical train like there was at Carrie Avenue. We had twenty tracks in the yard and each of the tracks held 36 forty-foot cars. On the prototype, it's the easiest yard I've ever worked in. You knew each track and what it would hold.

A tonnage train in the era that I am modeling would be between 30 and 35 cars. So I am able to run trains of that actual length on this layout and that's something to be proud of!

I think 99% of the layouts you go to, even if they've got a big layout, run short trains. I really enjoy running trains that are as many cars as the real road would handle.

MRH: When did you start construction?

John: We moved here in '99. I started the layout in 2000.

MRH: So how did it go for you? Did the construction go like expected? Was it as fast as you were hoping?

John: It went up faster than I thought it would, but it should have taken longer! I did not take the care that I should have taken and I didn't learn about that until later

There's a group here in town that meets on Thursday nights. They call themselves the Gandy dancers as in track workers. They go from layout to layout – these are home layouts – building, repairing, and whatever. I have learned a lot from these guys, but it came late in life.

5. Mikado 2304 drifts down an arrival track in St. Louis Carrie Avenue yard with its freight train in tow – it will be ending its run soon.

If I was to redo this, I would do a better job of building it. It went up fast. The trackwork did not go as fast as the benchwork, and the wiring drug along. But as far as getting it to where I could run a train, that happened pretty quick. I'd say probably within a year.

Even though I was able to run a train fairly soon, I had to go back and redo a lot of stuff after that.

But yes, it went faster than I thought. Had I known what I know now, it would've gone slower, and I would have done a lot better job.

MRH: Did you build it all yourself, or did you have help?

John: In 2000 I quit working. In 2006 or 2007, my friend John, Ellabrock came over. I've known John all my life and John's always been a scenery guy. So I said, "John, show me a sample of what you can do."

He started back there in the corner. Then he said, "Come over and take a look, what do you think?"

I said, "Well, there's some scenery that I put in over here – I'm going to go tear that out and you just keep hammering and come right on around!"

So John redid the whole layout, bit by bit, maybe one or two days a week. I never could get him to work more than four hours a day! He has put it in quite a bit of time here.

The scenery is nothing but foam. There's no plaster, it's all carved and painted.

I can talk about John for a long time, but had it not been for John, the scenery would have been a real clinker.

6. FA #158 leads the way as it rolls its train across the steel truss bridge on the edge of Windsor, Missouri.

I did the trackwork, I did ballast, and I did little bits of weeds here and there. But the scenery, the mountains, the trees, and ground covering – all that is John.

MRH: So what kind of track did you use?

John: The yard is all rail from my HO layout. I ripped it off the ties, then I cut and stain the O scale ties and use that code 100 rail for all of my yard here. I used up every bit of my HO scale railroad track for that.

It's all handlaid, including the switches. After a while, I thought to myself, man, this is going to be a long railroad. Atlas had some code 148 flextrack out and I bought some of that. I got about halfway down one wall and MicroEngineering showed up, and I liked the look of MicroEngineering track quite a bit better.

So I dropped down to code 125 on the main line with the ME flex track, which scales out to a pretty good weight for the Rock Island. I think we topped out at a 110 pounds. So I used code 125 on my main line and code 100 for the yards and passing tracks.

So anyway, MicroEngineering, Atlas, and handlaid.

MRH: You handlaid the switches too, then?

John: My switches are all handlaid. The entire switch has power in it continuously, except the frog is dead. You can have power continuity glitches with dead frogs, though. I have thought about doing something about the dead frogs, but everybody tells me battery power trains are coming and it won't make any difference. That will be great when it happens, I guess.

I never shied away from building a switch because it was too much trouble. If it called for a switch, I built a switch.

I did mess up over there in the corner. I hand laid a mainline switch on a curve, and I used the wrong radius for the switch.

7. This steam-powered freight rolls through RI Junction where the old and the new mainlines cross. The train is on the old line, the one with a tunnel. The new line in the foreground skirts the slope and avoids the need for a tunnel.

But after I got it done, I didn't want to tear the switch up, so I just went with it anyway.

MRH: How many turnouts do you have on here?

John: I've got well over 100 turnouts. I do have one commercial turnout that a fellow gave me. It's an Atlas code 148 switch. I put it over there in a cut. The rest of my turnouts are all hand-built. I built them in place. I did not build any of them on the workbench and then take them to the layout.

I've got a few switches that don't work right. I can take you out on the real railroad and tell you how to line a switch, you know, throw it over. First thing you do is look and make sure there's no debris or anything blocking the movement of the points. Then you gently move the lever and it make sure nothing is obstructing

the movement. If you get it all the way over, then you walk back over to examine the points and make sure that it closed up all the way.

For a lot of those prototype switches, the switch point is not flat on the back side.

It's got a rib that's the height of the stock rail web. That rib goes in between the head and the base of the rail. That way, the point can't go up and down – but if it doesn't fit when you're trying to throw the switch, you have to get it to fit!

If the point is low, you can pretty much correct it with the switch stand. But if the point is high, you need to put pressure on the

switch points. You need to go over, take your foot and stomp on the point hard one time – often it'll snap just enough to where you can go back to the stand and line it up the rest of the way.

But you really aren't supposed to do that. But they don't fix them, either. So I'm back to, how do I align the switch so I can drop the cars for the customer? You know what I mean?

They tell you, just leave the cars out there somewhere. So you come back the next day and they haven't done anything about the switch.

One time I recall, a friend of mine, Mike Yough is my brakeman that night. So he stomped on the switch points with the middle of his foot. Then I heard, "Oh crap, John. I think I just hurt something."

He tried to walk and it hurt to walk. So I said, "Okay Mike, let's get some help."

We called the yard office and they said to take him to emergency care since he hurt his foot. They didn't argue with us – they called the EMT's to come get him. And they sent me home.

8. A stopped coal freight blocks the new main in the middle background, while a priority freight rumbles by on the old main at the right.

That was last night Mike worked on the railroad. He snapped some tendon in the bottom of his foot. They tried to fix it but never could get his foot back right again.

So there we were, doing that every night. I don't know, how many times I've stomped on switch points, but I never had a problem. Everybody's different I guess.

MRH: Sounds like real railroads have their share of turnout problems too.

John: Yes, exactly. I remember one very cold day when there was lots of ice and snow. You wouldn't believe how hard ice can get.

We had tried to align the switch, but we couldn't get it to line up for our lead! A previous train had left town and nobody lined the turnout back, so it froze up. We couldn't line it back.

The dog gone Trainmaster comes out and he had a yard crew guy come out with him. He held on to the yard guy's shoulder and he climbed up on the switch stand handle. He's up there jumping on that handle and holding on to this yard guy.

Well, be doggoned if he finally didn't get those points to come over. So he comes over and says, "I got that switch lined – so, why couldn't you guys do that?"

I said, "Because it ain't safe, you know? Nobody does what you did!"

He knew the railroad would have had a fit if they found out what he did!

MRH: Those are some amazing stories. We sometimes have no idea what real railroaders go through! Back to your layout, any idea how much mainline you have? And what's your minimum radius?

John: I think I have close to 350 feet of mainline here. That's closest I can figure.

9. A passenger train pulled by this smart-looking E unit picks up speed as it departs the Rock Island's division point in Eldon, Missouri.

My minimum radius on this railroad is six feet, 72 inches. I've got some seven feet and eight feet too.

But I like big curves – that six foot portion is not all the way around if I could manage it, just on the ends with a broader curve in the middle. I tried to say stay above sixth feet where I could.

MRH: What's the ruling grade on the railroad?

John: There is not a ruling grade. I know there's places where the track is not level because you pull a pin and the cars roll away. But I do not have any intentional grades. It's a flat railroad. It may look like it's got grades, but the Rock Island even with our tunnels and hills, very little of it got over 1%.

MRH: What control system do you use?

John: When it comes to making the trains run, I didn't know better than *dependable control:* DC! You know, good ol' hardwire.

You get power to the rails and you make the train go. That I understand. That's all that was available when I started.

Here's the thing. If I was to ever show up in the ready room on the railroad and they were handing out controllers to people and saying, here, go run a train, I'd hand it back to them, and go home. This idea of having a bunch of guys in your basement with controllers running trains does not appeal to me.

Nobody cares about the rule book. With DC you have to get track authority. You have to throw a toggle switch to get the track authority.

I don't have a CTC dispatcher. And I've got hand throw turnouts like what I worked with on the railroad. And I have to walk over and line that switch back.

We had an engineer, sometimes a fireman, two brakeman, and a conductor. The head end man had to align that switch – you pull out and you stop. The rear man has to line it back.

It's a lot harder running a model railroad that it is working on a real train. On a real train, if you're the head end man, you've got a set of responsibilities for just one man. But if you're running a model railroad, you're the hogger, you're the conductor, you're the brakey, you're everything.

It's a lot easier to overlook something on a model railroad than it is on the prototype. This idea of everybody having a controller and running trains is a recipe for chaos.

If you go to a model railroad operating session and you find switches that have been aligned for the mainline, it's by accident!

I've been watching guys forever and some of them don't even try. You know, they let the guy come along behind them and find what is right or wrong.

There's some guys who have their town so close together that when a guy backs up, the rear end goes into the town behind him.

And to make it worse, the guy that just left town didn't line the switch back.

Now the next guy's trying to get down there to switch. He pulls ahead and everything starts going all over the countryside, you know. Nobody noticed the other guy didn't line the switch back!

So anyway, DC makes you do some of the things that you're supposed to do anyway. Maybe everybody ought to learn how to play the piano, since you have to use both hands!

You can do a lot of railroading with toggle switches and a DC power pack. Just block off a piece of the railroad over there. Now you have a place for somebody to operate a train. I can run trains anywhere I need with four to six guys, easy.

MRH: So you're DC all the way – the simpler the electronics, the better.

John: Well, I do have an electrical engineer from Boeing aircraft, and I told him what I wanted in crossing signals. So he designed

and built these computer – I don't even know what to call them – cards, I guess.

So in this case, here I am running a wooden axle railroad with signals by Boeing aircraft!

MRH: That's pretty good! Do you host operating sessions, then?

John: I do practically all of the operating myself. The only other two people I've had down here is a good friend of mine, Bill Geesie, and my grandson, Spencer Martin.

Bill has handled my equipment enough that he know how manage my working knuckle couplers and pin lifters and everything. My grandson just fell into it – he's a natural.

10. It's hard to not be impressed by John's modeling here in his Eldon roundhouse. John made the back walls removable, and upon taking one of the roundhouse walls off, this is what you see. Very nice!

Bill is kind of by choice shying away from running trains here lately. And my grandson has found other things to do with his life. I don't begrudge either one of them, but there's not, there's hardly anybody else that's interested in running trains here.

It's partly my problem, I know that. I won't let just anybody run trains here. You need to break in on my railroad. I'm not going to have you down here and just turn you loose the first day you show up.

You need to show me you know what you're doing. And Lord knows I screw up enough. You don't need to be perfect or anything like that, but I need to know that you understand what you're working with here.

They just think I'm crazy and that's fine. I probably am. But anyway, no, I don't have operating sessions per se.

MRH: What would you do different the next time if you were starting over?

John: If I was starting back over in the hobby again, I would start right out with what railroad I admire most that got me interested in the hobby. That's what I would try and model.

It's a lot more satisfying when you attempt something you know is what you like and you get it done.

If you like the Union Pacific in the steam era, don't let somebody tell you you're crazy if you don't do the diesel era. You buy a bunch of Union Pacific diesels with sound but try as you might, those diesels will never be a steam engine. If you want to see those rods going up and down, you better find yourself a steam engine because you'll never be happy if you don't.

I know guys that call it a model railroad but they don't do that much model railroading. They prefer building the structures or doing scenery.

MRH: What do you like least about this layout?

John: What I don't like about this railroad is how it keeps a lot of dust off of my basement floor. What I'm talking about is the size. You try keeping this monster clean – sometimes it feels like it would be a lot easier to replace some of it than it is to keep it clean.

Then there's expansion and contraction. I don't know what causes it. I got probably cheap lumber in it, for one thing. When I bought lumber, I bought anything that was straight. I didn't know anything about lumber, as in what it would do later or how humidity or temperature might affect it.

But I have had some – we used to call them "sun kinks" on railroad. I've had some terrible sun kinks. I've had rail buckled at least an inch high – you know, pull up off of the layout. This past year was probably the worst year I've had for expansion and contraction. But it can be fixed.

11. John Russell still uses straight DC and cab block control to run his trains. He calls it "Dependable Control" and likes how it forces you to make sure you have "authority" for a piece of track or the train won't move. It reminds him more of how the real railroad operates.

MRH: What do you like most about this layout?

John: Every time I hit the power switch, you know that show "Honey, I shrunk the kids" ... ? Well, I go right down and I'm just over an inch tall.

I'm out here pounding on the lead again, and I'm bending over getting switches and cussing management and throwing rocks at the window to get the engineer's attention, and whatnot. You know, this basement – this is me.

I really enjoy this! ☑

John's track plan will be in the May issue's bonus extras here [link].

Lightweight operations

Model Railroad Hobbyist | May 2020

Verryl Fosnight takes an evolutionary approach, avoiding the startup headaches of "heavyweight ops" ...

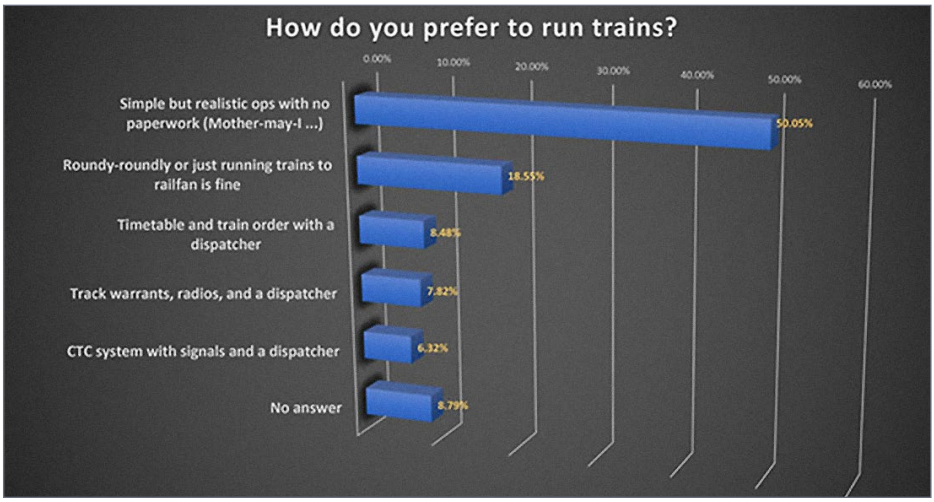
By "heavyweight ops" I mean running model trains in a highly prototypical way. Heavyweight ops requires a lot of complexity in rules, paperwork, extra operators who do not actually run trains – and often includes a computer in some form or fashion.

Requiring a computer to run trains on your layout can be impractical, or at least undesirable for a lot of layout owners – and may also be off-putting for guest operators as well.

RATE THIS ARTICLE

For a lot of us, especially for beginning operators, a book full of rules and procedures is so daunting as to deter us from even attempting to jump into "ops." Even if intimidated potential operators see the point to all these rules, that may sour them against simple ops as well. In fact, they may not realize there is such a thing as "simple ops."

I like to call this simpler approach "lightweight operations" and such ops can still have a high degree of realism. That is, lightweight ops can be prototypical, it's not an all-or-nothing approach!



1. *MRH* survey of our readers' ops preference. Note the strong preference for realistic ops that is light on the paperwork demands. In this article, Verryl addresses how to do more realistic layout operation yet keep it lightweight and fun.

For model building and for model railroad operations both, I see room for work that's "just good enough" to full-on "rivet counting." Neither extreme should be discouraged or opposed. After all, remember rule 1: It's *my* railroad …

What kind of ops do modelers prefer?

Joe Fugate, the publisher of this magazine, arrived at reader preferences shown in [1] via a survey of modelers asking how involved they prefer to be in the operations part of the hobby.

A striking 50.05% of respondents showed preference for simple or "lightweight" operations. Only 22.6% showed a preference to "heavyweight" ops: TT&TO plus track warrants/radios plus CTC with signals combined. All three of these include a dispatcher and perhaps one or more tower operators to pass orders on to engineers.

And 18.55% reported they were satisfied with the simplest sort of train movement on their railroads, so called round and round running. There is nothing wrong with such railfan running, but it does ignore one big prototypical aspect of modeling: the entire purpose of a railroad, to transport passengers and freight.

Real railroads run trains as a business to make a profit, obviously. Modelers who operate in a prototypical manner generally include a car forwarding system to add this extra transportation element. In this case, the goal is fun detail instead of profit like the prototype.

Joe commented that the standard books on "formal" operations (my term) target heavyweight operators who are comfortable with lots of minutia. This raises the question: how do you progress from being a beginner operator into a heavyweight operator? What if you feel too intimidated to get started?

And where are the resources for that 50% to refer to in their quest for either lightweight but still realistic ops?

2. This is the second of nine upper level benches of the Wyoming Division, showing Dale Junction and the Dale Fill to the left, with the Hermosa Tunnels to the right. Connected to the left bench at the far end is the Cheyenne bench, and at the far end of the right bench is Laramie. The east slope of Sherman Hill is on the left bench, the west slope is on the right one. The Sherman Hill summit is at the white station near the top center of the photo.

The nine lower level benches are concentric with these upper benches, and there are some "hidden" tracks on a third level to Park City, Utah, and to Portland Oregon (the OSL).

This view is taken from just inside the west wall of the steel building. The ribbed east wall is 75 feet away. The building width is 50 feet.

"I like to call this simpler approach 'lightweight operations' and such ops can still have a high degree of realism.."

My ops experience so far

I do, however, have the following ops experience:

- The Wyoming Division is a very large 3,750 square foot layout with about 5,300 feet of HO track, and a double track main of over 1,000 feet that I built specifically for operations.
- This is my first layout.
- I host monthly operating sessions on this layout that draws 22 to 32 operators each month
  - For my monthly op session, I have an enthusiastic cadre of operators, but I keep the operations simple, since most of them, like me, are not terribly experienced.

I have hosted six "Wyoming Division Invitational Meets," which are 3 day meets. The meet proceeds as follows:

- On Thursday, my wife and I host an open house and clinic on my car forwarding system followed by a BBQ at our home
- An op session runs all day on Friday
- A second op session runs all day on Saturday followed by a prime rib banquet in a local fine restaurant
- The first six of these Invitationals have been most successful; the next remains to be scheduled

- We encourage wives to attend – my wife entertains them with activities around our resort town of Sedona; but some wives elect to operate with the fellows
- These invited operators have all been very experienced and seem to be quite satisfied with my "lightweight" operating scheme.
- To summarize, I want to keep my sessions simple and lightweight because:


V. Fosnight

MAKING OPERATIONS MORE COMPLEX?

At this point there have been only two requests to make my operations more complex:

1. About two years ago, the operator I crowned "Passenger Superintendent" started running by timetable (with my permission) four "City of" trains: City of San Francisco, City of LA, City of Portland, and City of St. Louis – plus one or two mail and express trains.

2. We recently started using a few FRS radios so the dispatcher can call selected operators on the layout floor and issue verbal train orders. We have always had a phone system, which worked well to make On Sheet (OS) calls up to the dispatcher, but no one on the layout floor would answer a ringing phone from the dispatcher!

This reduced the dispatcher to a Train Sheet clerk who would record OS calls, and who would not actually dispatch by issuing train orders (TOs). Consequently, we usually operate without a dispatcher.

Besides, half the time no one even *wants* to dispatch, so we operate without a dispatcher because issuing orders hasn't worked.

- I am not adept at heavyweight ops
- I dread heavyweight ops because I might look dumb (male ego)
- I live in a less densely populated part of already sparsely populated Arizona, so "heavyweight" operators are scarce
- My layout ideally needs 35 to 40 operators to fill all the jobs. With fewer operators, some jobs go unfilled, which is of no consequence with lightweight ops
- Few of my "nearby" operators are local: most drive 1 to 3 hours to get to the layout

The bottom line: I prefer lightweight ops – at least until my regular operators and I learn more.

Towards lightweight ops

Now that I've laid all my justification for going lightweight, let me show how I have developed simplified approaches to operation. I'm aiming for easier ways to operate, both easier to set up and easier to learn than traditional heavyweight ops methods.

These field-tested methods have proven to be noticeably more lightweight, but they still maintain prototypical operation essentials.

I relax the rigid prototype rules (used on real railroads for safety reasons) and dramatically reduce the paperwork. In fact, I am finding ways to eliminate operator-produced paperwork entirely!

"These field-tested methods have proven to be noticeably more lightweight, but they still maintain prototypical operation essentials."

As a result, new-to-ops modelers can get comfortable right from the start with their first op session. I keep what rules remain easy to learn and apply. Simple is the name of the game.

Overview of ops on my layout

Let's look at operations on my layout, the Wyoming Division of the Union Pacific in 1957.

I located my layout in a very small town in sparsely populated Arizona where I have few modelers and even fewer experienced operators to draw from. My huge Wyoming Division layout can have up to 50 operators running trains on it.

Almost by necessity, I must keep ops simple if I am to make ops on my layout attractive to a large enough crew of local modelers – many of whom have little serious operations experience.

3. View over west end of Cheyenne, Wyoming up Sherman Hill and back down into Laramie. The yellow structure is a 7-foot-wide viewing mezzanine that hangs over the 50 x 75-foot layout.

Experienced operators may scoff at such lightweight operations. While there are some rules, they avoid taxing your skill and concentration unlike the highly detailed procedures used on real railroads do.

In lightweight ops, details as timetables, train orders, waybills, and the like get simulated by minimal substitutes – or get imagined/implied by the operators.

If you think about it, the whole miniature layout is "real" only in our imaginations – lightweight ops primarily builds upon that imagination element a bit more, which I find actually enhances the fun.

I am something of a beginning operator myself. Complicated operations, aka, "heavyweight ops," does not appeal to me. I prefer to relax and not be mentally taxed when playing with trains.

Our layout operators do not work with the prototype day in and day out, such that an array of complicated rules become second nature. Instead, we may run trains for a few hours once or twice a month.

I don't know about you, but I tend to forget complicated procedures with such a sporadic session schedule. I also don't feel it's worth it to constantly study and review such minutia just in the hope I can maintain it in my memory two - four weeks from now.

V. Fosnight

Tell us about your lightweight ops methods!

I am sure the editors of *MRH* would love to hear from others who operate their layouts with lightweight ops. My method is not the only way to streamline ops and make it less heavyweight!

The layout operating scheme

Any layout operating scheme has at least these three main components:

- Train movement authority
- Car forwarding
- Fascia signs

I have made these as simple as possible, while maintaining the appearance and feel of prototypical ops.

Let me add a fourth component as well – a crew. But like *Field of Dreams,* "if you build it, they *will* come."

The rules I recommend are the same you would use for railfan running – rules to protect the models and prevent derailments, plus to clarify the superiority of trains.


V. Fosnight

Adjust and adapt

I present the details of my operating approach as an example of lightweight ops. Those details can be adapted to many layouts as long as you keep things relatively simple!

You may not want to adopt all the facets of my operations; pick and choose what fits your railroad, and your comfort level, or use my ideas as inspiration to develop your own.

Your strategy should be to become familiar with the way real railroads operate in your chosen era, and then simulate those operations overall, but not in every detail.

For lightweight ops, those simulations may involve flights of imagination, but then isn't the whole layout just that – imagining those tiny make-believe "imitations" are big real-life trains?

4. Guy Forsythe is the Laramie Yardmaster this day. Behind him are the coal marshaling tracks of Hanna WY.

My layout has a large variety of jobs, and some can be complex. But this complexity comes because of the large layout size. This gives me a range of job complexity to choose from.

Basically, I have four complex jobs:

- Staging yardmaster
- Two skilled on-layout yardmaster positions
- And finally, a Trainmaster who must master 66 Tortoise machines on 13 panels

The remaining jobs vary from simple through freights to local freights that require a lot of switching at all spots along the route, which can include switching three unmanned yards.

You probably can make a list of the jobs like this you need if you have a layout.

Train movement authority

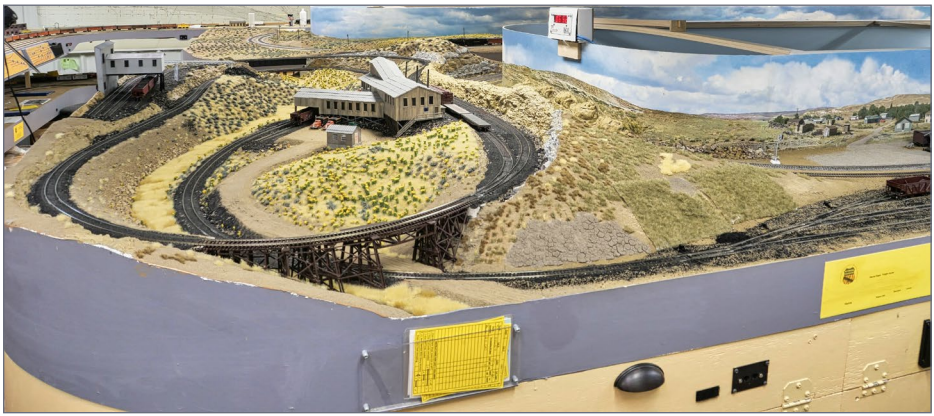
Running trains depends on the *authority* to occupy and move on a piece of track – authority to occupy the main, authority to move through a yard, and so on.

Authority gets granted by a dispatcher or via a signal by issuing *clearance for a train to occupy track* – usually within some physical limits or between given layout locations.

But as the layout owner, you can simulate dispatching as you walk around, or you can delegate someone to be dispatcher.

Your authority rules can be as simple as "don't let trains crash into each other," or "follow this hierarchy of *superiority* of trains, that is, 'superior' trains go first – and then specify which trains are superior." This assumes you do not use a timetable.

For operations, one must have trains, and a train is at least a loco and a tender for steam.



5. The three coal mines of Hanna. The curves are so tight on this approximately 4 x 8′ section that the coal extra job must use a dedicated 4 axle diesel switcher. For the delivery of loads out and empties back in the road crew uses an RS-3 combine for the 25-car train.

I'm modeling the Union Pacific in 1957, so a train nearly always has a caboose, except in yards.

I consider a train crew to usually be one person who is the engineer with a DCC throttle, and doubles as the brakeman to throw turnouts, and triples as the conductor to handle car forwarding.

I cover car forwarding in the next section. Occasionally to help an inexperienced new operator start, we have a second more experienced operator work with him, and together they fill these three jobs by operating together as a two-person crew.

I am fine with this, although soon even a new operator can do all these jobs alone. I prefer running more trains by use of single person crews, because doubling up necessitates fewer jobs on my large railroad.

The UP in 1957 on its Wyoming Division operated by rule book Rule 251D, which applies to double track. That rule allows a train to operate per signal indication only with the direction of traffic fixed for that track. That is the whole rule! But I have only had automatic block signals (ABS) for the last two years.

Before that we ignored the signal requirement for nearly four years. Operators simply watched ahead for trains that might obstruct the track your train was on. That's an example of how you can simplify the ops rules and make them more lightweight.

I do have some single-track portions, a 60-foot section with a siding – the Harriman Cutoff up Sherman Hill, and the 186-foot-long Oregon Short Line (OSL) with two sidings. I also have a 30-foot-long Park City Branch which has no siding, but it has a 3-track yard and manual turntable at the end.

But what follows accommodates all these track configurations.

Track running authority

The common types of authority used by prototype railroads to govern train movements are interlocking signals, Centralized Traffic Control (CTC), Rule 251, Track Warrant Control (TWC), Direct Traffic Control (DTC), Form D Control, and Yard Limits.

A few roads still have timetable and train order (TT&TO) rules.

If you look these up, you will see it can get as complicated as you want – enough to make your eyes cross easily.

But for lightweight ops, I prefer to first get a basic grasp of the prototype methods, and then to simulate their essence with simple procedures on the model layout.

Commonly used track authority systems for model railroads include:

- Centralized Traffic Control – a CTC machine manned by a dispatcher.
- Track Warrant Control (TWC) where a dispatcher gives verbal orders often by radio or gives written orders. Written orders may go through a tower operator to the conductor. The orders give the physical boundaries of the authority: from here to there. See my sample form [7] for a written track warrant example.

6. This view shows the remainder of the upper level of the freestanding mushroom bench layout, the Cheyenne classification yard on the far right, Wamsutter WY and the Harriman (center track) siding across the aisle from Cheyenne, and the Red Desert prairie on the left, and far left, Rawlins and the Sinclair refinery. Parts of Rock Springs WY can be seen on the left lower level, and main staging is under the right-hand Cheyenne tracks. Nearly the entire Cheyenne Steam Yard is on the bench across the far end of the building.

- Direct Traffic Control (DTC) is like TWC, but the railroad has permanent and pre-defined "blocks" to which the train orders issued by the dispatcher apply. A train order can give authority for one or more contiguous blocks.
- Timetable and train orders (TT&TO) rarely get used today on real roads. This is probably the heaviest of heavyweight ops for modelers, requiring a lot of study, memory, and paperwork. Many subtle rule nuances exist with TT&TO that makes mastering this method a long-term pursuit.
- Yard limits authorize a train to move at a safe speed within them. A yardmaster (YM) may direct movements in his yard, but the dispatcher still grants authority to be on the main in the yard and to occupy the track beyond the yard when the train leaves the yard. But for simplicity on the model, the YM can grant such authority. In the absence of a YM, the train operator can assume this responsibility.

Track Warrant

No._____ To:_____ At:_____

1. Track Warrant No._____ is void.

2. Proceed from _____ to_____ on_____ track.

3. Work between_____ and_____ on _____ track.

4. Hold main track at last named point_____

5. Clear main track at last named point_____

6. Do not exceed_____ MPH between_____ and_____.

7. Protection as required by Rule 99 not required.

8. Track Bulletins in effect_____,_____,_____,_____,_____,_____,_____,

9. Other specific instructions_____

OK_____ M Dispatcher

Relayed to_____ Copied by_____

Limit reported clear at _____ By_____

7. Sample Track Warrant form.

- On my layout, I have the luxury of having a switch engine stationed at each of the yards. The YM uses it, but if that yard has no permanent YM, the engineer passing through can use it instead. He/she just leaves their road engine and train on a siding (if one is available) or on the main if necessary.
- Protecting workers and stopped trains on the main often becomes necessary, and not just due to track maintenance. Our model layouts often have limited yard tracks, and siding tracks may often not be possible because of narrow benches. So we may need to pull and spot cars with our train left on the main.

  If you have a dispatcher, that working crew should ask for track and time authority to work occupy the main while working. If you have no dispatcher, then just do your work as if you asked for authority to protect you.

There are variations of the above authority systems by other names – but with heavyweight operations, they all can require specific and specialized paperwork.

Let's make it simpler, shall we?

Moving to a lightweight operation means these simplifications:

- No CTC machine, and hence no dispatcher needed to man it.
- TWC seems to mandate written orders as can be seen in the example of the form above. Using the track warrant system with lightweight ops requires a paperless work around.
- DTC is quite similar to TWC, but with fixed authority sections of track versus flexible boundaries set by a dispatcher. With lightweight ops aiming to be paperless, DTC works better than TWC.
- Yard limit authority can easily be worked out verbally between the engineer and the YM of each yard; no paperwork is required.

Signaling note: When we installed our Automated Block Signaling, I made the signals entering each yard staffed by a permanent YM set to RED by default. That way, an entering train must stop and ask permission of the YM to enter.

When the YM is ready and has set the route through his yard, he presses a button to change the signal to YELLOW OVER RED, and the train enters. Thirty seconds later the signal turns back to RED.

These "mother may I" signals force the train to obtain YM authority, but with no *paperwork*.

- Protecting track workers or a stopped train gets handled by the crew verbally communicating and agreeing with oncoming train crews who should yield – ideally train superiority also influencing the action. Again, no paperwork required!

8. Wamsutter WY and the beginning of the Harriman Siding on the left. The partial backdrop sky and upper building structure (mezzanine, lights, A/C ducting, etc.) has been replaced with a file sky using Luminar 4 photo processing software. A broader view of this area without the photo magic can be seen in [10].


V. Fosnight

THE "JOYS" OF HEAVYWEIGHT OPS PAPERWORK

I have operated on layouts with a "Tower Operator" writing track warrants or other documents. That guy – and the dispatcher who ordered him to write and deliver the track warrant – seemed to be having fun.

The rest of us who stood around waiting for these folks to get this paperwork created felt less enthralled.

I think it may have had something to do with the 800 miles I traveled to get to this op session and the expense of the accommodations while away from home.

There is a distinction between "authority" and "protection" for trains. Authority may be granted as discussed above.

Protection, however, is safe operation obtained by train detection (knowing where the train is) and movement authority (telling the train how far it can safely go). This can be verbal, written, or done with signals. The exact method depends on the rules and how the engineer and dispatcher or other authority (another operator or layout owner) choose to communicate.

If the layout has signals, they provide protection. But any type of protection for a model train can also be simulated by verbal communications between operators. A dispatcher or signals are not absolutely required.

Yes, it would be very prototypical to use written warrants for authority, but I do not have them on my DTC layout.

Instead I issue a single 8 ½ x 11 sheet "Train Order" (TO) with each train that lists the locations the train is to travel to and

through, and my TO also has simple directions that are common for all engineer/conductors on my layout.

You can see my form in [10]. It looks busy, but that's because it's common to all trains. Each necessary Track Warrant is simulated by each line, and they are all on this one preprinted sheet.

Running a Train on the Wyoming Division

When an operator (wearing all the hats of engineer/brakeman/conductor) first takes charge of a train, he typically calls the dispatcher to get authority to leave the yard and go on the main and head to his first destination. But this is only *if the layout has a dispatcher.*

The Dispatcher then starts a column on his Train Sheet for that train. If we have no dispatcher, which often happens, the trip is even simpler.

The train operator assumes his Train Order gives him authority to go on the main beyond the yard, and he leaves looking first to see if the tracks ahead are clear (or obeying the signals, since we have ABS signals).

You could call it self-dispatching; he simply watches out for other trains and works out conflicts with the operators of the other trains.

If there are signals (ABS on my layout), the operator obeys them. If there are no signals, he/she watches the tracks ahead to make sure they do not collide with any other train.

They also should watch the turnouts to avoid derailments as they approach them, and he/she should also watch their caboose to make sure it comes along with the rest of the train.

After passing through any turnout they throw, they should also return it to the "normal" position if it has one, so other trains do not derail or take the wrong route unexpectedly.

But really, most do not need any of the suggestions in this paragraph, they tend to be common sense. Most know to do these actions even if merely running around the Christmas tree.

Single track operations

My Wyoming Division has a lot of double track along most of its main line.


J. Fugate

SELECTIVELY COMPRESSING FOR OPS

I find Verryl's lightweight ops philosophy to make a lot of sense if you think about it. Unless we have an aircraft hangar and can model close to 1:1 distances between towns like the prototype, our length of run is very compressed.

We have learned how to selectively compress structures, bridges, and even reducing the number of tracks in a yard or town to match our space limitations.

This compression also means we have a time limitation when modeling operations. Why not time-compress the paperwork out and just use verbal interactions to get the trains over the road?

I think this "let's compress out the paperwork" approach to lightweight ops makes a lot of sense. Bravo to Verryl for taking the time to write about it in this article.

Let me also raise a callout to the Ops SIG and ask them to acknowledge that lightweight ops is a "thing" and to embrace it as a topic area they've been overlooking. If the Ops SIG genuinely wants to be the repository for all things ops, then it's time they add a discussion of lightweight ops methods to their hobby offerings!

Most layouts largely have single-track mains, with trains using the one track to travel either direction. This typically means using a dispatcher communicating with the train operator.

The communication can be a CTC panel, phones, radios, or even walk-and-shout.

But with lightweight ops, the dispatcher does not need to be a dedicated job off in some separate space. Dispatching can simply be the owner walking around and watching for sections of track that could be fouled by traffic.

Locomotive Number:	4001	NP-Portland Manifest West	Date:		Clock In:	
Train Order (p 1 of 1)	Engineer:		Conducter:		Train No:	# in Session

Key: Coal/Fuel/Water/Sand — Available = Stop only if required to do so by Locomotive Card; not available, you should continue without stopping
Pick Ups — ✔ = Check Fascia Boxes at location for cars you can pick up (going your way) and take them with you when you leave
Set Outs — ✔ = Check your own Car Cards for cars to be left here, **but move off spot cars on to spots first.** Set out number written in.
YM or None? — In yards with YM do work with him. With no YM do your own Car and Block Card work with switcher at that yard
Get Helper — Yes = Do get helper from YM, Hostler, or Helper Engineer, receive instructions on how to run with him pushing, then leave--you do OS
Release Helper — Yes = Stop per YM instructions to allow helper to leave your train
Engine Change — Yes = Stop to change locomotive(s) per YM and/or hostler instructions
Phones — In case of a problem or question, call Dispatcher. **ALWAYS** answer any phone to take orders for you or others.

SEE ABOVE EXPLANATIONS TO ENTRIES IN ARRAY BELOW

#	Stops	Road Crew Instructions for Each Location (Verbal listing of Array of 8 Columns to Right)	Direc-tion	Engine No.	Coal/ Fuel	Water/ Sand	Pick Ups	Set Outs	Get Helper	Release Helper	Engine Change
Start	East Staging Yard	Get train and clipboard with all cards from staging									
1	Cheyenne A/D (Depot)	Hostler gets Loco and gives new Loco & Card to Road Crew	R				✔	✔	Yes		
2	Tower A	Tower A Operator (TM) will help to Leave Yard									
3	Harriman Siding	Take only when directed by DS and Tower A Operator TM	R		Available						
4	Dale Junction	Change to left hand track per yellow switch panel in aisle	R->L								
5	Laramie	Change R->L track inside E Limit as enter yard Work at Ice Dock or Stock Yard as needed	L->R R		Available		✔	✔		Yes	Yes
6	Medicine Bow	No YM/Do your own work and Stock Yard as needed	R		Available		✔	✔			
7	Hanna	No YM/Do your own work and Stock Yard as needed	R		Available		✔	✔			
8	Rawlins-Sinclair	No YM/Do your own work and Stock Yard as needed	R		Available		✔	✔			
9	Wamsutter	No YM/Do own work FH & Stock Yard/Take siding per DS	R				✔	✔			
10	Table Rock	Leave Siding as directed by DS	R								
11	Rock springs	Continue to Green River to make pick ups and set outs	R		Available		✔	✔			
12	Green River	Pick up and leave cars for RS, GR, Westvaco in GR	R				✔	✔			Yes
13	Westvaco	All Pickups and setouts done by Green River YM	R				✔	✔			
14	Granger	PORTLAND TRAINS TURN OFF ON OSL JUST PAST WESVACO	R		Available						
15	Evanston	No YM/Do your own work and Stock Yard as needed	R->L				✔	✔			
16	Curvo Overpass	Change L->R track	L		Available						
17	Echo	No YM/Do your own work per Cards	L->R				✔	✔			
18	Ogden E Yard Limit	Change R->L track at E Yard Limit Deliver train to Ogden YM for him to take to staging	R R				✔	✔			
19	West Staging Yard	OgdenA/D->Staging by Ogden YM & Staging YM					Clock Out:				

NP-Portland Manifest West

Staging Yardmaster: When this train arrives at your yard, you may use any cars from it for any other train.

9. My Train Order on an 8 ½ x 11 Excel sheet. Each line of the TO simulates a written Track Warrant. Note this form is for a single train and its entire run over my layout.

The owner can start each engineer on his run, spacing the trains in mind of the trains already on the main, so he becomes in effect a "walking dispatcher."

At a minimum, each engineer may need to watch the track ahead and be ready to take a siding or stay in a yard to yield to another train if required. Superiority of his and the other train can also be a factor in deciding who goes and who waits. The two crews can simply agree the inferior train must yield. Again, self-dispatching.

A few sessions with such pseudo-dispatching may lead the owner to wanting more. The next step can be a permanent dispatcher and an inexpensive set of Walmart radios. Written track warrants may not be necessary right away, or ever. Verbal orders from a dispatcher may be sufficient.

As the layout owner, you can always evolve to *more complexity* in your op sessions if you want. But it can help to start out simple and then grow your crews' skills slowly over time.

You probably will set up some trains in advance of the session. You may even start some complete trains with locos on the layout to make all areas busy right from the session start. Other trains can be in staging or in a yard at one end of the layout, ready to go at the very beginning, so your crew (your guests) do not have to wait for them to be assembled.

These pre-assembled trains may be with or without engines. If you have a YM at the session start, if might be useful to have him hostle an appropriate loco.

On my Cheyenne to Ogden UP layout we try to use Big Boys and Turbines up Sherman Hill both westward out of Cheyenne to Laramie, and eastward out of Ogden up the Wasatch Mountains. Then in Laramie and in Green River the heavy power is replaced with F-3 or GP-9 consists or Challengers or FEF's across the nearly level "bowl" of central Wyoming.

The Big Boys and Turbines also take the point down the two slopes at the east and west ends of Wyoming – they have to get *back* downhill some way! If needed for a 30 car PFE train between the summits, the Big Boys and Turbines may be used for these.

As you can see, you can make all sorts of "operating department" rules to add interest without adding paperwork. On my layout, I declare Big Boys and Turbines should be used primarily for Sherman Hill and the Wasatch, for example.

Your staging YM can make up all the trains during the op session – if you know he can keep up with demand. You do not want to make your guests wait too long for a train!

Train types and superiority

The Train Order in [9] is one of several preprinted ones I make with an Excel workbook. Each tab of that workbook stores two blanks (east and west) for the following train types I use in naming trains.

Here are the train designations or types we run on my layout. This list "encodes" the superiority of each train into the train name used on the Wyoming Division. This list runs from highest superiority to the lowest:

- **"Passenger"**
- **"Special"** as in "PFE Special"
- **"Forwarder"** same superiority as a Special, but more of a through freight with a broader mix of different car types, e.g., box cars + tank cars + gondolas, and so on.
- **"Manifest"** a through freight with five or six head-end cars to be switched en route. Thus, a manifest often yields to most other trains when stopped to do their setouts and pickups.

10. Wamsutter and the center siding. Note the backdrop and room parts I replaced by using Luminar 4's AI Sky Replacement. The double track main has ABS on both levels, and a pair of signals can be seen here. Dennis Drury described his boards and signal installations in an MRH article about signal installations in the January 1, 2018 issue of MRH.

- **"Local"** a local freight that runs daily out and back to do pickups and setouts along a set route (Cheyenne to Green River and back – also Ogden to Green River and back).
- **"Drag"** or **"Extra"** as in a coal drag – a low priority freight or an unplanned freight formed to clear a place of excess cars. All three designations (local, drag, extra) are equivalent in superiority – that is, they form the bottom of the list.

Train Names on the Wyoming Division

Using above list of train designations, my train names have a format of "*from-to-**type**-direction*" as "LA to Denver **Manifest** East." Adding the Loco number completely names the train as in

"4001 North Platte to Portland Manifest West"

"As the layout owner, you can always evolve to more complexity in your op sessions if you want. But it can help to start out simple and then grow your crews' skills slowly over time."

On my dispatcher's Train Sheet (TS), I list the trains by locomotive number, which of course is unique for each loco. If we change the loco on a train, the train number changes, so the engineer should replace the old number with the new number on the Train Order [9].

This is the only place a pencil is needed by an engineer/brakeman/conductor!

And if you choose to have trains OS to a dispatcher, the change in locomotive number needs to be noted on the Dispatcher's Train Sheet. Again, in lightweight ops you can get by without a dispatcher or his TS. If no one volunteers for the job, then that's what we do: run without a dispatcher.

With such a naming system each train gets a kind of official name, but not the famous named trains of the past like the "Empire Builder." I do use the four named "City" passenger trains of Cities of Los Angeles, City of San Francisco, City of St. Louis, and City of Portland properly pulled by a Challenger locomotive.

If you feel prototype train names to be important to your modeling, then use them. But you do need to make clear where those trains rank in the superiority hierarchy.

For freights, I find the "coded" names to be an easy-to-remember hierarchy, making life simpler for you and your operators. Again,

remember that you and your operators only work on the railroad a small fraction of the hours real railroaders work.

With several weeks or months between sessions – everyone has plenty of time to forget the details of your layout's operating system.

So it helps to keep it simple – for both me and for my more casual operators. But when you call the dispatcher and say, "Dispatch, this is 4001 North Platte to Portland Manifest West leaving Laramie," it sounds cool.

Incidentally, you do not have to remember that name to call in an OS report; you can read it off the top of the Train Order sheet on your clipboard [9]. Better yet, you do not have to remember a bunch of train special names some railroad marketing whiz thought up!

Why did you bring that pencil to the session again?

Simpler ops

Notice how each prototype ops feature does not need to be omitted entirely, but instead replaced with a much lighter weight simulation. In the above discussion, neither OS'ing nor a dispatcher is strictly required, but some sort of accounting of train location and control is still simulated.

The goal of operations should first be that it's enjoyable, and only as complicated as you, the owner, feel comfortable and satisfied with. Your and your crews' level of comfort with added complexity may grow with experience.

I personally do not bother with a timetable. Bob Ellis, a genuine aficionado of passenger trains, made a passenger timetable for my Wyoming Division. Frankly, I never have looked at it. I suspect my YMs are familiar with it; it can help them to know when

a passenger train supposedly should arrive. That way they can usher it through their yard and help it stay on time.

When I am working a yard, it's enough for me if the passenger train operator notifies me a few minutes before wanting yard entry clearance from me. He can do this by FRS radio (if available) or verbally. My mother-may-I ABS signals at yard limits facilitate this easily.

V. Fosnight

General procedure for developing lightweight ops

Avoid paperwork or rules that you want to avoid.

To do this, first read in the "heavyweight" books and articles about how real railroads or how your specific prototype road operates.

Then develop a way to simulate what is done via a simple work around, like my "Track Warrant authority-from-each-line-on-my-Train-Order" [9] simulates a set of track warrants [7].

Regardless, you need to write a short destination or instruction slip for each train you plan on running.

This may be as detailed as a list of meets (or other challenges), with solutions written in the order that they will arise. In the extreme case you may want to make a timetable.

Or it can be as simple as one rule, "This train is inferior to x, y, and z trains, and it must yield the right of way to them." Such a general rule is easy to apply if superiority of each train is "baked into" the train names or otherwise made obvious.

If you keep the rules simple, they can be expressed verbally only without ever printing out a timetable.

"... when you call the dispatcher and say, 'Dispatch, this is 4001 North Platte to Portland Manifest West leaving Laramie,' it sounds cool."

I justify not having a freight timetable because of how my prototype ran. As I understand it, the UP pretty much ran as many trains as necessary to keep the heavy transcontinental traffic flowing across Wyoming and over the bottlenecks of Sherman Hill and the Wasatch.

The marketing department used name trains as a marketing tool, but the operations department just ran trains and lots of them. I believe the next train close to the time of a name train on the timetable simply got that timetable name. Most other trains ran as extras.

I do have one job where the operator always runs as extra. We did not put a yard in Rock Springs, Wyoming. The real Rock Springs has a yard, but we used the space for numerous industries, to increase the amount of switching on the layout.

With no yard, all Rock Springs traffic arrives and departs via Green River about 18 miles west. The Rock Springs job ferries all the cars between Green River and Rock Springs, and those trains are Extras. It is a road switching job, because that operator leaves the west Rock Springs yard limits and enters Green River at its yard limits about 8 feet away.

This road switcher's main job is switching all twenty industries of Rock Springs. That makes it mostly a 100-foot-long switching puzzle with occasional trips to Green River.

"Notice how each prototype ops feature does not need to be omitted entirely, but instead replaced with a much lighter weight simulation."

The Clipboard

Operators running trains on my layout carry an 8-½ x 11 clipboard ($13.95 for 10 on Amazon) with the following cards or sheets:

- Train Order sheet [9] or a similar one for other types of trains for either east or west directions. Recommended as your simple general instructions.
- Car Cards (I make my own simplified single move cards)
  - I do not use or recommend waybills for many reasons (not proto typical for anywhere except in the caboose. Plus the cumbersome, repetitive 1-2-3-4 moves, can lead to repetitive routing that may need to be "re-balanced" for E-W traffic)
  - Single trick car cards are good for 15 individual moves. When they're full they make a good bookmark
  - Each line is a move: From → To, loaded, or empty, or LCL
  - This promotes random moves like real cars make. I make each move as an unplanned move when I come to it during setup for the session. This is equivalent to "turning" car cards, except it randomizes the car routes
  - Printed from an Excel file
  - Large, easy to handle, four to an 8-½ x 11 sheet of cardstock

- Since I make these cards disposable, I just make a new card when an inexperienced operator accidentally separates a car from its card. Little need to start a search.
- I recommend you use some form of car forwarding, regardless.

- Block cards for blocks of cars
  - Each card is good for many individual moves; use as a bookmark when full
  - Excel file, two to an 8-½ x 11 sheet of cardstock. Contains spaces for:
  - First car: road, number, color, type—box, reefer, hopper, etc.
  - Last car: road, number, color, type—box, reefer, hopper, etc.
  - Number of cars in the block including first and last.
  - From → To locations
  - Optional, but very handy for multiple cars to the same destination, so they save setup time
  - Caution: easy to overuse – even a short block of three cars may not fit on the destination industry's siding
  - Ideal for long, through trains across Wyoming (e.g. PFE Specials) – loaded trains or returning empties enter the layout from staging, go across the layout, then leave into stag ing with no stops except for icing
  - If you have coal drags, block cards may be handier than individual car cards
  - Or do you really need car cards for every coal drag? With each car and its load equivalent to any other (unless you deal in graded coal) you may have little need for such excessive detail.

On my three Coal Extras, the operator fills out a form to note empties along his route (he is then the Coal Agent), then he assembles his train (as the YM at the mines), and he enters the main (after calling the Dispatcher, if there is one – otherwise he self-dispatches).

Next, he picks up the empties and replaces them with loaded hoppers at each location. Finally, he returns the empties to the mines (again as YM).

– For that run, those cars are captive cars – no need for car cards.

- Locomotive cards tell the tonnage rating in cars, required stops for fuel, sand, water, and ash dumping
  – Color encoded for loco type (Big Boys on red paper, diesels on yellow, etc.)
  – Laminated (use them "forever")
  – Optional, but tells engineer where to stop for coal, sand, water, ashes
  – Optional, but governs tonnage limit (in cars) for each loco type

I describe the Car Cards and Block Cards in detail in the "Articles" section of my Wyoming Division web site at: wyomingdivision.org/index_htm_files/Wyoming%20Division%20article%20FROM%20DO.pdf.

Suffice it to say, these simple cards have one move per line and 15 lines per card. They move cars randomly, they accommodate LCL ops easily, and have many other advantages over 4-Cycle Car Cards.

They do not include waybills. No trainman cares what is in the car unless it is haz-mat. If you're not billing your customers, then you don't need waybills!

And without waybills, you do not have to "balance" car cards to waybills. Balancing is equalizing east bound waybills with west bound ones, so traffic from spots stays "balanced" east compared

"I justify not having a freight timetable because of how my prototype ran. As I understand it, the UP pretty much ran as many trains as necessary ..."

to west, even if all the cars and cards don't move in a session. In other words, you don't need a special starting or stopping time to make the cards come out right.

Waybills may add realism, but only marginally. If the layout industries have good names with signs on them to indicate their business, you don't need waybills showing the cargo.

Do you "turn" one stop per line car cards?

No, each move gets added on the next blank line as a new destination. This eliminates the 1-2-3-4 repetition of 4-Cycle Car Cards.

If you could watch cars forwarded by single move cards in motion from above the layout, they would look like ants on a large ant hill. They apparently move randomly – sometimes rapidly, sometimes haltingly – but nevertheless with a purpose, as we suppose ants have.

I think this is how real railroad cars in motion would look from above.

More logical car movements

For a larger layout, maybe you need a list of locations where cars go. My Wycon Chemical just outside of Cheyenne receives trona (soda) and ships fertilizer. It would be silly to deliver a stock car of steers to it.

To make it easier to route cars logically to a business, I have a 3-ring binder with a spreadsheet listing all the spots east to west on my Wyoming Division.

I have all the columns of the multi-page sheet color coded for nine types of cars:

- Flat car
- Trailer on flat car
- Gondola
- Hopper
- Covered hopper
- Stock car
- Tank
- Boxcar
- Reefer

In the cell for location I list the number of cars per type appropriate for that spot. I black the cells out if a car isn't appropriate there.

For a small layout with just a few industries, such a list may be overkill. But the Wyoming Division has 52 industries with 906 spots, so it's easy to overlook some and overload others.

And if one seems to be overused, looking at the list can restore car destination randomness.

You can find more about my car spots table here in this PDF: wyomingdivision.org/index_htm_files/Wyoming%20Division%20article%20FROM%20DO.pdf

But even with seven copies of this binder distributed at various yards, they only get used as reference. No writing required. I have multiple copies available, and anyone can mark a new destination for any freight car at any time.

If a YM gets tired of looking at a car in his freight house and he thinks it has been there long enough, he can pull the car and mark it up for a new destination. This adds to the randomness of car movements – but you do need a pencil!

Locomotive cards

I have laminated the locomotive cards in 8 ½ x 11 sheets. I see the loco cars as optional, especially for smaller layouts where train lengths get limited by layout size, rather than by the actual loco tonnage rating.

On the Wyoming Division, if we cannot find a loco card, we just run without it. You can find examples of my loco cards in this PDF:

wyomingdivision.org/index_htm_files/Wyoming%20Division%20article%20FROM%20DO.pdf

Fascia signs

I tell any new-to-my-layout operator: "Every instruction you need to operate is on your clipboard or on the fascia signs. Be glad you did not waste your time studying last night!"

I believe that next to good running track, cars, and locomotives – the most important element of a model railroad for good operation is the fascia.

Use the fascia liberally for signs to aid the operator and give them all the information they need to navigate around the layout. No big pile of handouts with maps or charts needed.

This is especially true for new operators. Being befuddled by a layout you have never seen before can be disorienting – and that's especially true for a layout modeling an area they're not intimately familiar with.

"Waybills may add realism, but only marginally. If the layout industries have good names with signs on them to indicate their business, you don't need waybills showing the cargo."

I do not expect my operators, especially ones new to the Wyoming Division, to intimately know the geography of either the layout or of the prototype.

I like to illustrate this very understandable befuddlement by asking, "Where the heck is Wamsutter?"

Answer: It is between Rock Springs and Rawlins, WY. Aren't you glad you asked?

On my fascia you can find the following kinds of signs.

Compass Star signs (on sun yellow paper):

- With north always "up," that is, across the bench away from you
- West to your left no matter which bench or level you are on
- East to your right no matter which bench or level you are on
- All these directions work just like a regular map
- To the left of each compass star, I list the next 3 or 4 locations west of that spot, and to the right I list the next 3 or 4 locations east.

OS reporting sign (on hot pink paper):

- I put these very close to where an operator should report by phone to the dispatcher their train number and current loca-

tion. The dispatcher uses this information to keep track of train location. Since it's 1957, station agents used phones or telegraph to report this info, so we also use phones.

- These signs have three parts:
  - A triangle on the left has a notice to report to the Dispatcher here
  - The bottom right tells what to say to when you make an OS report
  - The upper right tells how to report based on your location
    - When at passing a depot
    - When leaving or returning to the main at a junction
    - When leaving or returning to the main at a siding

Yard and town maps tell operators where to pick up or set out cars (on sun yellow paper):

- Operators use these maps to find the spots for setouts listed on the card cards they're carrying and for those pickups indicated by car cards they find in the fascia pockets (boxes).

Yard limit signs (on white paper) where a train enters or leaves a yard:

- Within Yard Limits an operator must run slowly to be able to avoid accidents, and ...

"To make it easier to route cars logically to a business, I have a 3-ring binder with a spreadsheet listing all the spots east to west on my Wyoming Division."

- He should follow the directions of the Yard Master (YM).

Current of running signs (on sun yellow paper):

- Trains must change tracks at these locations
- Generally, the "current of running" is to keep right on the double track main
- At three places trains must take a crossover to the opposite track, and at one place there is an overpass where the west bound track crosses over the east bound track.

That means the layout has two lengths of double track requiring trains to keep left rather than keep right.

- Yard instructions (on blue paper in sheet protectors or laminated) in the "Spots" binder, with that binder stuck to the fascia with Velcro:
  - One set for each yard and unique to that yard
  - With details, if you need them, or
  - You can skim only the bold type if you're familiar with yard ops in general
  - Handy to send out to prospective yard operators

So there you have my examples of fascia signs. Those on your layout may be different, but appropriate to the era and prototype you model.

Notice, you do not need to memorize or carry any of these items around with you as you operate. The fascia signs plus the four sets of cards on your clipboard have all you need to operate on the Wyoming Division.

I have made a strong effort to place *all* the fascia signs in a uniform location. On my two-level layout, I place the upper level fascia signs on the fascia just below the benchwork.

I have placed all the lower level signs on the fascia above the tracks – that is, the part of the fascia that shields the lights [*the valance is what we call it – ed.*] from operator eyes.

I recall my op first session at a club layout where I looked and looked for half the session to find a certain small town. Finally, from across the room, I saw the town name posted above the layout on a hanging sign – all others town signs on the benchwork were at eye level!

Summary: Amount of paperwork and rules

I maintain you will find great value in keeping the operations of a model railroad simple.

That requires minimizing both the rules and the writing of paper orders.

"But Verryl," you may say, "you have shown examples of *a lot* of paperwork and have referred to a lot of rules." It took this entire huge article to describe this so-called "lightweight operation!"

This may seem inconsistent, but remember nearly all my written paperwork I describe here, I have done *in advance* as the layout owner.

Operators themselves create *little to no paperwork* when running trains. Nor do operators need to study and commit a pile of rules to memory before an op session. I maintain 99% of any papers needed to host an op session can be done before the first session *by the layout owner.*

I also insist on keeping the rules easily digestible, so they come to you pre-written on your Train Order sheet [9], one sheet per train. All other rules on the Wyoming Division I have posted on the fascia. So there's nothing to remember.

This covers all the written rules that exist for the Wyoming Division. Notice an operator need only refer to rules in the locations where they get posted. You have easy access to the very few rules you need, right as you need them.

For operators, I limit paperwork to four items on your clipboard:

- Train Order sheet
- Loco card (optional)
- Car cards
- Block cards (optional)

Note you need not write anything down, except maybe the loco number in the space near the top of the Train Order. Adding the train number completes the train order sheet title, giving you a simple train name to give to the Dispatcher when OS'ing to him.

My point about any paperwork for lightweight operations is this: while there may seem to be a lot of paperwork that I describe in this article, it can nearly all be prepared in advance as part of the op session setup.

In fact, the paperwork prepared by the layout owner can be reused for many operating sessions – in other words, it can be a one-time effort by the layout owner that can then be re-used over and over.

As a result, the paperwork to be filled out during the session can be kept to near zero.

I encourage you to try lightweight ops on your railroad. We have had several young regular operators in addition to adults. It's been all boys so far, but girl operators are welcome too – spread the word. We have had some adult ladies operate, which has been great!

The youngsters operate just as well – or better – than some of the adults. Some are as young as 10! See the article about kids and ladies on my web site at:
wyomingdivision.org/articles_kids_ladies.htm

If they can do it, so can you! ☑

11. The Cheyenne Classification Yard beyond the Frontier Refinery in Cheyenne. Behind Bob Burke is the Harriman Siding out of Wamsutter. The signals at the west end of the Harriman Siding can also be seen.

Verryl Fosnight

Verryl lived his early years in Cheyenne, Wyoming. He often saw a Big Boy fired and ready to go up Sherman Hill, and an hour later he saw "smoke on the Hill."

His family moved to southern California just as Verryl was entering high school. After graduating as a physicist from Stanford, he did research on electric propulsion for space use and on RF proton sources for injection of extremely high density, high energy proton beams into nuclear fusion devices such as tokamak fusion reactors.

Verryl left the technical world to take over the family real estate investment business in the late 1980s. He later retired and moved to Sedona, Arizona where he built a house and observatory to do astronomy and astrophotography. Just before moving to Sedona he visited an NMRA convention in California and decided to include model railroading in his retirement hobbies.

Verryl enjoys the comradery and cooperative nature of monthly operations on his large Wyoming Division HO layout. These operating sessions draw 20 to 30 modelers from all over Arizona. In addition he hosts an annual Invitational 3-day session specifically aimed at operators from other states, with as many as 50 having attended these sessions to-date.

Sharon, Verryl's wife, hosts the Invitational meals and organizes a full program of sightseeing for wives of the operators! ▪

Savvy Modeler Online

Rate this article

Modeling realistic weathered pavement

In this video, YouTube modeler ***railfan220*** demonstrates how to build and weather this road to look like weathered pavement. Back in the April 2019 issue, we covered how *railfan220* built this grade crossing. In this video he demostrates step-by-step how to build and weather the accompanying roadway. Follow along and give these methods a try on your layout! ■

View reader comments

GREAT MODELER VIDEOS ON THE WORLD WIDE WEB

MAY NEWS column

Model Railroad Hobbyist | May 2020

Richard Bale and **Jeff Shultz** report the latest hobby industry news

Rate this article

INDUSTRY NEWS

NMRA 2020 National Convention Cancelled

The NMRA Annual Convention and National Train Show scheduled to start July 12, 2020, in St. Louis, Missouri, has been cancelled due to the coronavirus pandemic. In addition to the concern of attendees gathering at the convention and exhibit hall, some members in the local community have withdrawn their offer to allow home tours of their model railroads. According to convention official Robert Amsler, a refund policy for those who have already registered for the cancelled event has been published at Gateway2020.org.

Joel Lovitch 1942-2020

Joel Lovitch, founder of Model Traction Supply and MTS Imports, passed away March 26, 2020, in Sun City Center, Florida. He was

THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

78 years old. Established in Middletown, New York, in 1973, MTS became the hobby's largest importer of HO and O scale brass trolley and interurban models. For the past several decades MTS models were handcrafted by Ajin Precision Manufacturing Co. of Korea. Mr. Lovitch retired to Florida in 2013. He is survived by his wife Carol. George Huckaby and Dr. Richard Allman assisted in developing this obituary.

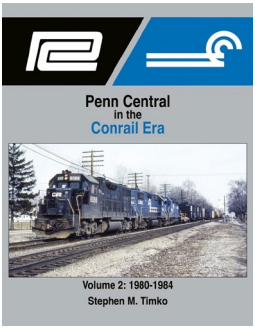
NEW CLUB CARS

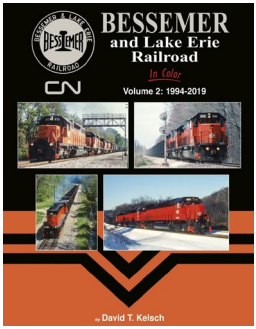
The **Chesapeake & Ohio Historical Society** is offering two commemorative HO scale boxcars in celebration of the Society's 50th year. Both cars are produced by Accurail, with the first being a 50' insulated plug door boxcar painted blue with a yellow door and lettering with the number 2019. The second is a 40' AAR boxcar painted brown with white lettering and numbered 1969. Both cars are lettered for the Chesapeake and Ohio Historical Society, with "Preserving C&O History for 50 Years" on their sides. For more information or to purchase the cars, visit chessieshop.com.

NEW PRODUCTS FOR ALL SCALES

K.I.S.S. Method Inc. is selling bags of cleaned scrap metal for scrap piles or rail and vehicle loads. The bags measure 6 ½ x 5 7/8" in size and are available containing steel, copper, brass, stainless steel,

or aluminum. K.I.S.S. Method can be contacted via email at kiss@kissmethodinc.com.





New books from **Morning Sun** include *Penn Central in the Conrail Era, Volume 2,* by Stephan Timko. This volume continues the examination of former Penn Central territory under Conrail ownership from 1980-1984. Author Timko includes coverage of foreign operations over Conrail and former Penn Central territory.

Also new is *Bessemer and Lake Erie Railroad in Color, Volume 2.* As a continuation from volume 1, David Kelsch picks up the B&LE story in 1994 and continues thru 2019. Of note is the transition from Transtar to Great Lakes Transportation and the road's decline as a major participant in the steel industry. For additional information contact a dealer or visit morningsunbooks.com.

Motrak Models has released a craftsman-style kit for Alton Fire Station. The walls, garage door, diamond shingles, and other details are all laser-cut. The windows and doors are injection molded

plastic. Kits are available in N, HO, S, and O scales. For additional information visit motrakmodelsusa.com.

Atlas O has scheduled the release of a 40' single-bay Airslide covered hopper for the 3rd quarter of 2020.

Road names will be Union Pacific, Rock Island, Revere Sugar, SSW-Cotton Belt, Conrail, Con Agra, Chicago & North Western, Brach's Candies, Delaware & Hudson, and Burlington Northern.

The ready-to-run O scale model will feature a see-through roof walk and brake wheel platform, operating roof hatches, and separately applied grab irons. Road specific details will include either 70-ton roller-bearing or Bettendorf-type solid-bearing trucks. Atlas O rolling stock is available with a choice of 2-rail or 3-rail trucks and couplers.

New Atlas O products scheduled for release during the 3rd quarter of this year includes a well-detailed 1973 Ford F-100 pickup truck decorated for eight popular railroads. Features include a chrome plated grille and bumpers, and separate plastic lenses for the head and tail lights. Road names on the 1:48 scale pickup will be Union Pacific, Penn Central, Milwaukee Road, Great

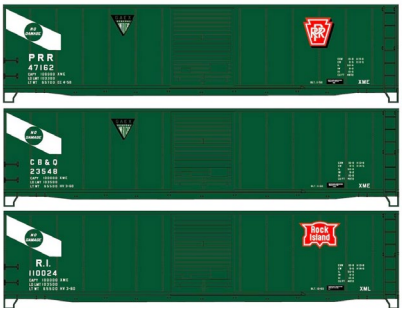
Northern, Erie Lackawanna, Chessie System, Canadian National, and Boston & Maine. For additional information contact a dealer or visit atlaso.com.

Berkshire Valley Models is selling a kit for an O scale horse-drawn Water/Sprinkler wagon. Used for water delivery as well as dust abatement on unpaved roads, the kit includes laser-cut wood and white metal parts. The rear decal is included, and driver, horses and mules are available separately. For more information visit berkshirevalley-models.com.

Crow River Products is selling a kit for a Forge Crane. The O scale kit consists of 21 pewter castings, assembly instructions, and helpful drawings. For additional information visit crowriverproducts.com.

Interaction Hobbies has released a line of 1911 and 1912 Ford Model T vehicle kits in O scale. Available are a Closed Cab Truck, Depot Hack, Delivery Van, and a Flatbed Truck. Consisting of laser-cut resin bodies, fenders and wheels, the kits also contain a 3D-printed cowl, radiator, and lanterns. For more information see interactionhobbies.com.

HO SCALE PRODUCT NEWS



Accurail has released several new kits for HO scale freight cars including a selection of three General American 50' steel boxcars decorated to support the GAEX No Damage program. Road names are Pennsylvania Railroad, Rock Island, and Chicago, Burlington & Quincy.

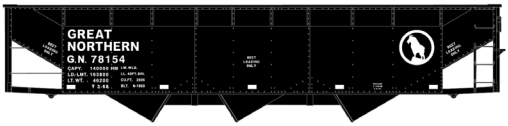
Also new from Accurail is an HO kit for a Louisville & Nashville PS-1 steel boxcar built by Pullman-Standard in December 1953.

The billboard lettering on this 40' Milwaukee Road boxcar identifies it as a 1964 version of the unique rib-side car. Accurail's HO scale kit includes Bettendorf-style trucks.

Accurail's HO scale kit for this Fowler 36' Grand Trunk Western wood boxcar is based on a prototype built in 1918.

This Northern Refrigerator Car Company 40' double-sheathed wood refrigerator car follows a prototype built by Pullman in 1930. The extensive lettering on Accurail's HO

scale kit indicates that NRC assigned the car to the Banana Distributing Company.



The latest hopper car kit from Accurail is this Great Northern 70-ton triple-bay car with offset sides. Data stenciled on the side of the car indicates it is for beet loading only. Additional new HO scale kits from Accurail include a 36' Fowler boxcar decorated for Erie Express Service, a Maine Central 50' riveted steel boxcar with double doors, and a 50' Southern Railway steel boxcar with welded sides. All Accurail HO scale kits include Accumate knuckle couplers and appropriate trucks with plastic wheelsets. For additional information contact a dealer or visit accurail.com.


R. Bale

GP18 Diesel Locomotive

Visually, EMD's GP18 is very similar to its GP7/GP9 predecessors, the notable exception being the metal grid replacing the chicken wire over the radiator shutters at the top of the long hood. GP18 customers had a choice of either a high or low short hood, which was available previously only on special order. Internally, the GP9 and GP18 shared the same 16-cylinder model 567D1 prime mover, however, output was boosted slightly from 1,750 to 1,800 horsepower for the GP18. EMD delivered 372 GP18s between 1959 and 1963.

Athearn has included a Genesis series high-nose GP18 Road Switcher in its March 2021 production schedule. Road names for the HO scale locomotive include an Illinois Central unit with a nose-mounted bell, a Nathan P3 horn, and can-type radio antenna.

Athearn's Baltimore & Ohio GP18 will have a bell mounted on the roof, spark arrestors, and a firecracker antenna.

Features unique to Athearn's Northern Pacific GP18 include spark arrestors, dynamic brakes, winterization hatch, lifting lugs on the pilot face, a Nathan P3 horn on the cab roof, and steam engine-style bell mounted on top of the nose.

Four Burlington Northern versions of the GP18 will be available including No. 1996 decorated in BN's 1980s-era paint. Unique details include a Western Cullen beacon, all-weather windows, a 5-step walkway, and no footboards. The production run will include two 1970s-era Cascade Green repaints with NP details except for new all-weather windows on the engineer's side. BN GP18s from the early 1970s will be represented by No. 1997 still in its NP paint with BN patched road numbers.

GP18s decorated for the Nickel Plate Road will have a forward facing 2-chime horn and rear-facing single chime horn, cab

sunshades, a nose-mounted bell, firecracker antenna, and a forward facing Gyralight with a DCC-activated flashing effect.

All of the Genesis GP18s in this release feature correct bidirectional LED lighting with constant brightness, MU stands, MU and trainline hoses, uncoupling levers, nub-style walkway tread, wire grab irons, lift rings, windshield wipers, sander lines, see-through cab windows, cab interior details, etched-metal fan and radiator intake grilles, correctly positioned air tanks, Blomberg-B trucks, and detailed fuel tank with fuel fillers, fuel gauges, breather pipes, and retention tanks.


R. Bale

SD70M Diesel Locomotive

Although outwardly similar to its SD60 predecessor, the SD70M that EMD introduced in 1992 featured several refinements both internally and in its outward appearance. In addition to the North American safety-cab (hence the M in the model designation), the battery boxes, blower housings, and ducting were reconfigured. Also new were HTC-R radial trucks with their unique ability to shift, or steer, wheelsets laterally through curves, resulting in greatly reduced wear on both wheels and track. By 2004 the SD70M began to be delivered with the distinctive flared radiator grilles. Following extensive testing with an EMD demo, Southern Pacific and Union Pacific ordered the SD70M. Norfolk Southern's initial order was for SD70 units with a Spartan cab. Subsequent NS orders specified the SD70M.

Athearn's production schedule for March 2021 includes a group of HO scale Genesis series EMD SD70M diesel locomotives. The selection of road names includes a Union Pacific unit with the early flared grille (above) and a later version with two-panel flared grilles, a yellow sill, front ditch lights, UP style pilot plow, and radial trucks.

Athearn's EMDX Demo version replicates the four 1995 as-delivered SD70M units that were leased to SP and UP, and eventually sold to CSX.

The CSX/Yn3 version of Athearn's SD70M will be available in four road numbers.

Athearn's Canadian National version is an SD70I. Features include a CN-style pilot plow, and both front and rear ditch lights. CN road numbers 5606 and 5617 will have early EMD trucks, numbers 5620 and 5624 will come with late EMD trucks.

Features in this production run of Genesis SD70M and SD70I locomotives include LED lighting, uncoupling levers, flexible MU and trainline hoses, see-through cab windows and full cab interiors, walkway tread, Celcon handrails, windshield wipers, lift rings, wire grab irons, sander lines, knuckle couplers, and a detailed fuel tank with fuel fillers, fuel gauges, and breather pipes. The Genesis drive mechanism includes a 5-pole skew wound motor, machined and balanced flywheels, all-wheel drive, and all-wheel electrical pickup.


R. Bale

FP7 Diesel Locomotive

EMD produced the 1,500 horsepower FP7 diesel from the summer of 1949 until the end of 1953. Four feet longer than a standard F unit, the P designation indicated the locomotive had an auxiliary water tank and steam generator to supply steam heat to passenger cars. Although originally intended for passenger service, FP7 locomotives were regularly assigned to freight service.

Athearn's lineup of HO scale Western Pacific FP7 diesels includes A units, B units, and matching A/B sets. Road number specific details on the Genesis series diesel include a unique paint scheme without wings on the nose of locomotive No. 805-D, which was assigned to the California Zephyr in the late 1960s to early 1970s. WP No. 915-A, which was renumbered for freight service, will be decorated in Athearn's Primed-for-Grime faded paint.

WP No. 916-D will have F9-style replacement car body louvers, and will also wear faded paint. WP B unit No. 801-B was a regular trailing power unit on the California Zephyr. Features of note on all models in this release include LED lighting, cab interior, uncoupling levers, lift rings, wire grab irons, detailed fuel tank, and Blomberg-B trucks. Athearn's FP7 body is derived from original Highliner F unit tooling.

All Athearn Genesis series locomotives are available for DC operation with DCC-ready Quick Plug™ plug-and-play technology with a


R. Bale

Airslide Covered Hoppers

For the first half of the 20th century, bulk goods were usually bagged and carried in boxcars. By the late 1940s the use of covered hoppers greatly simplified the process of shipping bulk material. However, flour, starch, sugar, and plastic pellets do not flow readily from a standard hopper bay. The Airslide concept, developed by the Fuller Co., solved the problem. In the patented Airslide system, the discharge bays are formed into two narrow, steep-sided troughs with a layer of air-permeable material at the bottom. Air is pumped through the material causing the lading to fluidize and flow easily through the hopper outlets. General American Transportation began building Airslide covered hoppers in 1953. One of the two original configurations was a 2,600 cu. ft., single-bay car with 70-ton capacity. Larger Airslide cars quickly followed. To increase the usefulness of the original 2600 cu. ft. cars, some were permanently connected in 2-unit drawbar sets.

21-pin connector. DCC models come with SoundTraxx Tsunami2 sound and DCC decoder.

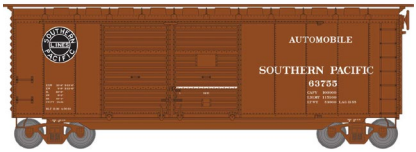
Athearn has included a Genesis GATC 2600 cu. ft. Airslide covered hopper in its March 2021 production schedule.

Road names will be available for Union Pacific, Union Pacific with WP reporting marks, Burlington Northern, SSW-Cotton Belt, Penn Central, Denver & Rio Grande Western, and GATX.

The models will be packaged individually as well as in a two-car pack with a drawbar.

Three different body styles are in this run with variations in rectangular or oval shaker brackets, gravity or gravity-pneumatic outlets, and roller-bearing or solid-bearing Bettendorf trucks with metal wheelsets.

Features common to all road names include detailed underbody and brake piping, see-through metal roof walk, wire grab irons, round roof hatches, and knuckle couplers.



Ready-to-Roll models coming from Athearn next March include this 40-foot steel boxcar with double Youngstown sliding doors. In addition to the SP scheme shown, road names for the HO scale model will include Great Northern, Canadian Pacific, Esquimalt & Nanaimo Railway, Canadian National, and two Union Pacific schemes.

Also due from Athearn next March is a 62' tank car.

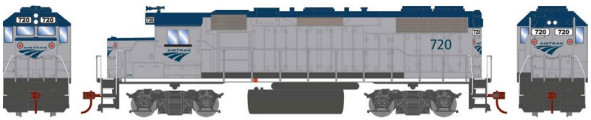
Decorating schemes will be BNSF, Burlington Northern,

Chicago, Burlington & Quincy; Gulf Oil, Alaska Railroad, NA-Churs, and three safety training cars.

Athearn recommends a 22" minimum track radius for these extra long tankers.

A new production run of 53' CIMC containers is scheduled to be released by Athearn next March. The HO scale ready-to-use models feature horizontal ribs on the front and separate door closure rods at the back. Carrier names will include Marten Intermodal, YRC, Twin Logistics, Hob Group, and two JB Hunt schemes.

Roundhouse brand models coming from Athearn in March 2021 include an economy priced GP38-2 road switcher. The HO scale model features Celcon handrails, wire formed grab irons, see-through cab windows, LED front and rear headlights, and blackened machined wheels. DCC models will have a factory-installed NCE decoder. DCC-ready models will have a 21-pin NEM socket for installation of an aftermarket DCC decoder.



Four road numbers each will be available for BNSF (blue and white scheme), GATX, HLCX, HELM Leasing, and Amtrak.

Roundhouse is scheduled to release a cupola caboose next March that will feature

new Bettendorf-style Barber swing-motion caboose trucks with machined metal wheelsets.

Road names will be Southern Pacific, Southern Pacific (police scheme), Bessemer & Lake Erie, New York Central, Frisco, Rio Grande, and two Santa Fe schemes. The HO scale steel caboose will also be available decorated for Athearn 75th Anniversary, and Horizon 35th Anniversary. For additional information on Athearn and Roundhouse brand products contact a dealer or visit athearn.com.

Atlas plans to release several versions of EMD SD24/SD26 diesels during the 3rd quarter of this year.

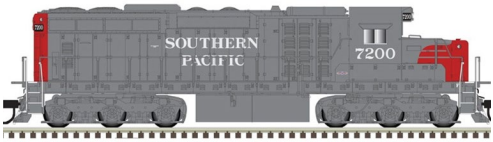
Aging SD24 units rebuilt by Santa Fe in its San Bernardino shops acquired the SD26 designation. SD26s, identified by the notch in the roof, will be offered by Atlas decorated for Guilford and three Santa Fe schemes: yellow bonnet, Kodachrome, and Maersk.

SD24 low nose diesels with a winterization hatch and a 3-chime horn mounted between the 2nd and 3rd radiator fans will be available for Union Pacific, Southern Pacific, and Santa Fe in the original blue livery.

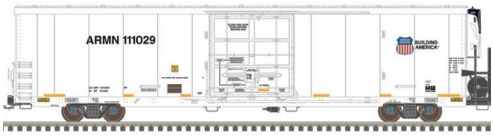
EMD built the SD24 in both low and high nose configurations. Atlas will offer high nose SD24s decorated for Southern Railway,

and Chicago, Burlington & Quincy. The Burlington version will have a winterization hatch, a single-chime air horn on short hood, and a non-functioning Gyra-light on short hood.

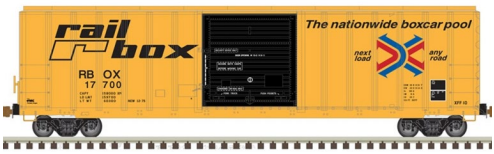
The SD24/SD26 ready-to-run HO scale locomotive will be available as an Atlas Master Series Gold DCC unit with a factory installed ESU LokSound decoder.



Silver series DC versions of the SD24/SD26 will come with a speaker to simplify conversion to sound with the installation of an aftermarket DCC decoder.

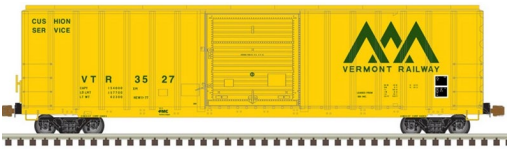


Also coming from Atlas during the 3rd quarter of this year is an HO scale 64' Trinity reefer. The Master series model will have Kadee couplers and BLMA 100-ton trucks with 36" machined metal wheelsets. Road names will be CIT Group/Capital Finance, Naked Juice, Tropicana (with safety stripes), and ARMN-Union Pacific.

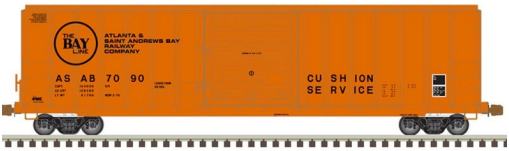


Atlas' 3rd quarter production schedule includes another release of FMC's 5077 cu. ft. Plate B boxcar with a single Youngstown sliding door.

Features include wire grab irons, etched metal detail parts, an X-panel roof and non-terminating box-corrugated ends.



Road names will be Railbox, Railbox (pink, On Track for a Cure), WRWK/GATX, Vermont Railway, CSXT Quality Car, BNSF, Atlanta & St. Andrews Bay, Sabine River & Northern, and Hartford & Slocomb.

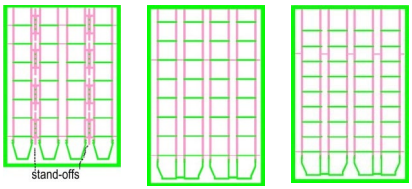


A standard steel cupola caboose and an extended-vision caboose, based on prototypes built by the International Car Company in the 1960s, are both included on Atlas' 3rd quarter 2020 production schedule.

Road names for Atlas' HO scale extended-vision caboose will be NDM-Ferrocarriles Nacionales de México, Air Products, BNSF, Chesapeake & Ohio, and Denver & Rio Grande Western.

Steel cabooses with a standard cupola will be available for Illinois Central Gulf, Maine Central, Specialized Rail Transport, Great Northern,

and two Norfolk Southern schemes. For additional information on all Atlas products contact a dealer or visit atlasrr.com.



Black Cat Decals has expanded its selection of etched metal detail parts to include (from the left) 7-rung ladders for CPR wood cars, 8-rung ladders for CPR steel cars, and 9-rung ladders for CNR 8 hatch reefers. Although the ladders are accurate for the specific cars mentioned, they can be readily adapted for other applications. For additional information visit blackcatdecals.com.


R. Bale

H-11 Coal Hopper

The class H-11 triple-bay 100-ton coal hopper was designed by the Norfolk & Western Railroad in 1960 as a larger version of the successful PRR 70-ton class H-39 hopper. In 1964, the sides of the H-11 design were raised to 12' 3", which increased the cars capacity to 3433 cu. ft. Three distinctive characteristics highlight the H-11 hopper: roping eye with integral end buffers, end slope sheets that are at a steeper angle than the hopper sheets, and 13 riveted side posts with the middle two panels being wider than the others. Over 130,000 H-11 hoppers were built.

Rate this article

Bowser is selling an HO scale H-11 class 100-ton triple hopper car in eight different decorating schemes. Multiple road numbers are available for Pennsylvania Power & Light, Conrail, Conrail Quality, D&H (ex-Reading), Southern Railway, and Union Pacific.

Ex-WP cars patched for SOO are available with one end painted either blue or white.

Features of the ready-to-run model include Wine hopper door locks, full height side ladder stiles, interior slope sheet braces, knuckle couplers, and appropriate roller-bearing trucks with metal 36" wheelsets. For additional information contact a dealer or visit bowser-trains.com.


R. Bale

NP and SP&S 4-8-4 Northern

In 1938, Baldwin delivered eight 4-8-4 Class A-3 steam locomotives to the Northern Pacific Railroad. They were numbered 2660 through 2667 and were assigned to handle passenger traffic. The 77" drivers of the A-3s were four inches larger than the original 4-8-4 Northerns Alco built for NP 12 years earlier. Recognizing that the Spokane, Portland & Seattle was in need of fast, modern steam, the joint GN/NP team that controlled the subsidiary included three 4-8-4s for SP&S in the 1938 Baldwin order, the only difference being the SP&S units were oil-fired instead of burning coal. SP&S 700 is part of the Oregon Rail Heritage Center in Portland, OR, and is undergoing a periodic rebuild.

In the next few months, **Broadway Limited** plans to release an HO scale rendition of the modern 4-8-4 locomotives Baldwin built for the Northern Pacific and Spokane, Portland & Seattle Railroads in 1938. The NP's class A-3 coal burner and the SP&S's class E-1, which was fueled by oil, were virtually identical.

A variety of liveries will be available including NP in-service scheme (top), and with a gray boiler (below). The SP&S locomotive will be available in the modern excursion scheme (No.700 left) and as No. 701 in postwar in-service livery (below middle).

The model will also be available unlettered in brass colored paint.

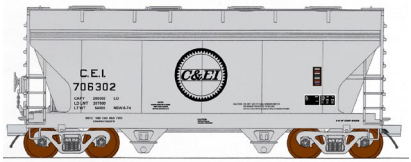
The locomotive superstructure and tender body are brass mounted on a diecast chassis. A 22" minimum track radius is required. All versions of the HO scale model come with Paragon3 sound with Rolling Thunder that functions in both DC and DCC environments. For more information contact a dealer or visit broadway-limited.com.

Interaction Enterprises has a craftsman-style HO scale kit for Keeger's Garage & Repair. The foundation, windows and

doors; and basswood clapboard walls are all laser-etched and cut. Additional features include rolled roofing paper, front room interior details including an LED lighting strip, front and back screen doors, and 3D printed corbels. The assembled model has a 3.6" x 4" footprint. For additional information visit interactionhobbies.com.

InterMountain Railway has expanded its production run of ACF twin-bay covered hoppers with eight additional road names. Advance reservations for the HO scale model are due by May 31, 2020.

Road names being rerun are Denver & Rio Grande Western, Grand Trunk Western, BNSF (new image), and Chicago & North Western (block lettering).



New road names include CEFX, GFCX, HLMX (ex-MKT), and Chicago & Eastern Illinois. The ready-to-run model comes with knuckle couplers and appropriate trucks with machined metal wheelsets. For additional information contact a dealer or visit intermountain-railway.com.

Kadee has released a 40' Southern Railway ready-to-run PS-1 boxcar as built by Pullman-Standard in 1948. Like the prototype,

the HO scale model has 6' seven-panel Superior doors. All Kadee ready-to-run models come with Kadee couplers and two-piece self-centering trucks. For additional information contact a dealer or visit kadee.com.

Rapido is preparing to release an HO scale 37' wood reefer that replicates a prototype General American Transportation Corporation built between 1937 and 1941. To ensure adherence to the prototype, Rapido employed an impressive group of freight car experts in developing this model including Ed Hawkins, Richard Hendrickson, Frank Peacock, Jerry Stewart, and Pat Wider.

The wood sheathed body and roof give the car the look of an earlier era, but the reefers were entirely modern for their time. They were constructed on a steel underframe similar to boxcar underframes of the period. Like the prototype, Rapido's HO scale version has AB brakes and complete underbody details. Additional features include ice hatches with unique latches, an Equipco brake wheel and gear housing, tongue and groove body sheathing, a wood running board, and Barber S-1 trucks with blackened metal wheelsets.

Road names will be GARX-American Stores, ARLX-Armour, CRLX-Cudahy, URTX-Dubuque Packing, URTX-Hormel, KGNX-Kingan, URTX-Morris Rifkin, URTX-Oscar Mayer, SRLX-Swift (orange body, red block logo), SRLX-Swift (red body), and

SRLX-Swift (red, white and blue War Bonds scheme). Popular decorating schemes repeated from earlier runs will have new road numbers. An undecorated model will also be in the release. For additional information contact a dealer or visit rapidotrains.com.

R. Bale

Santa Fe Whalebelly Boxcar

In the late 1930s the Santa Fe Railway rebuilt large numbers of older wood-sheathed furniture and automobile boxcars to capture a share of the expanding automobile industry. Classified as Fe6 through Fe-20, the 50' rebuilds had massive underframes that earned the nickname whalebelly or battleship underframes.

Resin Car Works has introduced a craftsman-style kit for an HO scale ATSF 50' whalebelly rebuild.

The RCW kit represents 1209 prototype cars with 50' 6" interior lengths that were rebuilt between 1936 and 1940. Components include a one-piece car body, Tichy Train Group ladders and brake hardware, correct Tahoe

USRA 50-ton Andrews truck sideframes, and Microscale decals. Couplers and wheelsets are not included. The kit is available with Ship and Travel lettering or with the ATSF system map. For additional information visit resincarworks.com.

Coming from **ScaleTrains.com** this spring is another production run of Gunderson 5188 cu. ft. triple-bay covered hoppers. ScaleTrains.com's top of the line Rivet Counter models will be available decorated for CMO/GATX, NOKL, and SOXX (ex-BNSF). In addition, multiple road numbers will be available for BNSF, Union Pacific, and Kansas City Southern.

Operator series versions of the HO scale ready-to-run model will be available in three numbers each for BNSF, Canadian Pacific, Ferromex, KCS, and Union Pacific.

ScaleTrains.com has scheduled a late summer arrival for the 4th production release of its highly-detailed GE Tier 4 GEVo diesel locomotives. Models decorated for BNSF (Heritage 3), Canadian National (3 schemes), CSX (2 schemes), KCS, Norfolk Southern, and Union Pacific will all be available in ScaleTrains.com's Rivet Counter series.

Road names for Operator series models will be BNSF (Heritage 3), Canadian National, CSX, Norfolk Southern, and Union Pacific. Reservations are being accepted now for both the Tier 4 GEVo

diesel unit and the 5188 covered hoppers. For additional information visit scaletrains.com.

Walthers has announced a July release date for a selection of classic F7 A and A/B units decorated in distinctive heritage schemes. Features include individually applied handrails and metal Farr grilles. Decorating schemes include Burlington Northern in cream and Grinstein green.

Chicago & North Western units feature a Stagecoach yellow body with a green roof.

The angled Yn2 Bright Future scheme of CSX is rendered in gray, blue, and yellow.

Kansas City Southern signature locomotives No. 1 Shreveport, and No. 2 Meridian, are decorated in the road's distinctive Belle scheme of yellow, red and Brunswick Green.

Completing Walthers production run of F7 units in heritage schemes is this Norfolk Southern A unit in NS Tuxedo livery of black, aluminum, and Dulux gold. The HO scale

Mainline series models have the same gear train and drive mechanism as WalthersProto models.

A Walthers Cornerstone kit for this HO scale Ford automobile dealership is scheduled for release in late June or early July. The assembled structure has a footprint of approximately 8" x 7". Figures and vehicles in the photograph are not included in the kit. For additional information contact a dealer or visit walthers.com.

N SCALE PRODUCT NEWS

Athearn's March 2021 production schedule includes a group of N scale GATC 2600 Airslide covered hopper cars.

Road names will be Union Pacific, Union Pacific with WP reporting marks, Burlington Northern, SSW-Cotton Belt, Penn Central, Denver & Rio Grande Western, and GATX.

The models will be packaged individually as well as in a two-car pack with a drawbar.

Three different body styles are in this run with variation in rectangular or oval shaker brackets, gravity or gravity-pneumatic outlets, and

roller-bearing or solid-bearing Bettendorf trucks with metal wheelsets.

Features common to all road names include detailed underbody and brake piping, see-through metal roof walk, wire grab irons, and round roof hatches.

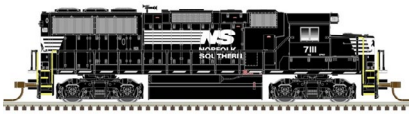
A new production run of 53' CIMC containers is scheduled to be released by Athearn next March. The N scale ready-to-use models feature horizontal ribs on the front and separate door closure rods at the back.

Carrier names will include Marten Intermodal, YRC, Twin Logistics, Hob Group, and two JB Hunt schemes. The containers will be available in 3-packs with different fleet numbers. For additional information contact a dealer or visit athearn.com.


R. Bale

GP60 Diesel Locomotive

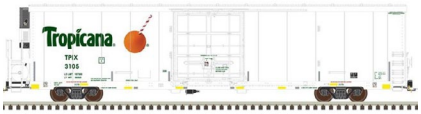
General Motors Electro-Motive Division introduced the GP60 in 1985 with production continuing through 1994. Considered the first of the "Third Generation" diesel locomotives, the GP60 was a significant step forward in the use of microprocessors to monitor and control a host of operating systems including engine performance, the cooling system, truck motors, and other important functions. Designed primarily for high speed intermodal service, the 3800 horsepower four-axle road switcher was eventually replaced by more powerful six-axle locomotives.



Atlas is developing a new N scale EMD GP60 locomotive. The Master series model is scheduled for introduction during the 3rd quarter of 2020.

Road names will be Rio Grande Western, BNSF, Norfolk Southern, Southern Pacific, Union Pacific, Green Mountain Railroad, Vermont Railway, and Texas Mexican.

The SD60 ready-to-run N scale locomotive will be available as an Atlas Master Series Gold DCC unit with a factory installed ESU LokSound decoder. Silver series DC versions will come with a speaker to simplify conversion to sound with the installation of an aftermarket DCC decoder.

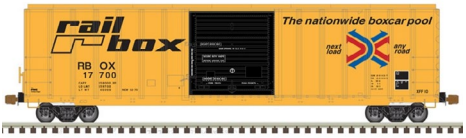


Also coming from Atlas during the 3rd quarter of this year is a run of 64' Trinity reefers. The N scale model will have knuckle couplers and BLMA 100-ton trucks with 36" machined metal wheelsets. Road names will be CIT Group/ Capital Finance, Naked Juice, Tropicana (with safety stripes), and Union Pacific.

Atlas' 3rd quarter schedule includes an N scale Master series 40' wood reefer. The model is based on prototype cars built by Pullman in 1930 for the Northern Refrigerator Car Co.

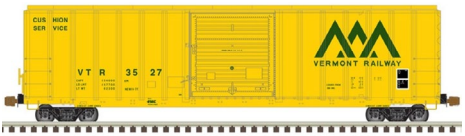
Features include opening roof hatches, horizontal brake wheel on a vertical shaft, detailed door handle and latch fixtures, wood grain finish on the car body, and 40-ton Bettendorf-style solid-bearing trucks.

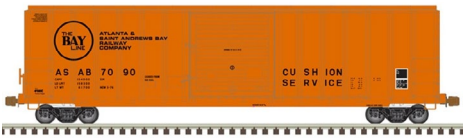
Decorating schemes will be Santa Fe-SFRD, Dorman Cheese, Harding's Butter, Bannery Creamery, Parrot Potatoes, Kirby Frozen Eggs, Canadian Northern Quebec, Producers Produce, Rath Black Hawk Bacon, and Pacific Fruit Express with UP and SP heralds on opposite sides of the car.



Atlas' 3rd quarter production schedule includes another release of FMC's 5077 cu. ft. Plate B boxcar with a single Youngstown sliding door.

The N scale models will have wire grab irons, etched metal detail parts, an X-panel roof and non-terminating box-corrugated ends.



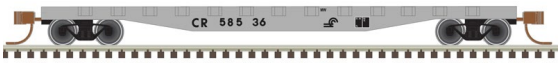


Road names will be Railbox, Railbox (pink, On Track for a Cure), WRWK/GATX, Vermont Railway, CSXT Quality Car, BNSF, Atlanta & St. Andrews Bay, Sabine River & Northern, and Hartford & Slocomb.

A standard steel cupola caboose and an extended-vision caboose, based on prototypes built by the International Car Company in the 1960s, are both included on Atlas' 3rd quarter 2020 production schedule.

Road names for Atlas' N scale extended-vision caboose will be NDM-Ferrocarriles Nacionales de México, Air Products, BNSF, Chesapeake & Ohio, and Denver & Rio Grande Western.

Steel cabooses with a standard cupola will be available for Illinois Central Gulf, Maine Central, Specialized Rail Transport, Great Northern, and two Norfolk Southern schemes.



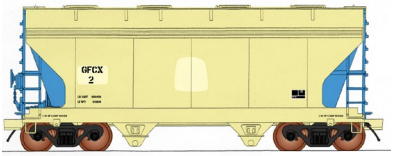
The final N scale model on Atlas' 3rd quarter production schedule is a ready-to-run flat car with stakes. Road names for the N scale Trainman series model will be Conrail, Southern Railway, Chessie System, Union Pacific, Northern Pacific, Lehigh Valley, and CP Rail. An undecorated version will also be available.

For additional information on Atlas products contact a dealer or visit atlasrr.com.

InterMountain Railway is taking reservations until May 31, 2020 for N scale ACF twin-bay covered hoppers.

Popular road names being rerun in this new release are Denver & Rio Grande Western, Grand Trunk Western, BNSF (new image), and Chicago & North Western (block lettering).

New road names include CEFX, GFCX, HLMX (ex-MKT), and Chicago & Eastern Illinois. The ready-to-run model comes with

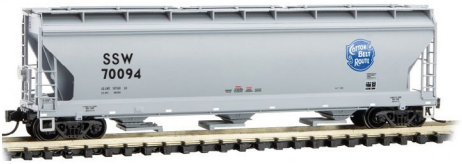


appropriate trucks with metal wheelsets. For additional information contact a dealer or visit intermountain-railway.com.

KatoUSA has added a Union Pacific SD70ACe in the unique "Powered By Our People" decorating scheme to its late 2020 production schedule. Previously announced versions of the SD70ACe include Norfolk Southern, BNSF, Union Pacific, and Union Pacific George Bush Library & Museum scheme. The N scale model will be available for DC operation as well as with factory installed DCC. Units with ESU LokSound DCC will be available on special order. For additional information contact a dealer or visit katousa.com.

Micro-Trains Line has released an N scale version of a 78' heavyweight single-window coach with two different decorating schemes. A New York Central version is painted two-toned grey and rides on four-wheel Commonwealth trucks.

A Chicago, Burlington & Quincy version of the coach comes with six-wheel trucks. It is painted Pullman green with gold lettering.



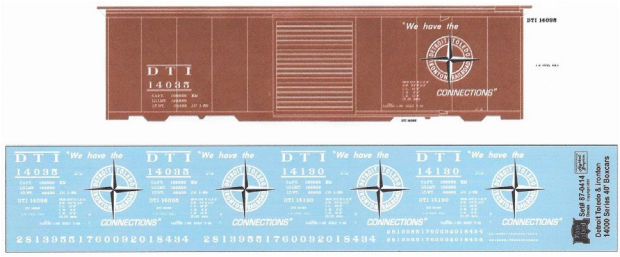
New N scale freight cars released by Micro-Trains include this St. Louis Southwestern-Cotton Belt triple-bay covered hopper with elongated loading hatches. The SSW model is available in two road numbers.

This 61' Illinois Central Gulf bulkhead flat car comes with a load of pipe. The Micro-Trains N scale model is based on a prototype built by Portec in 1982.

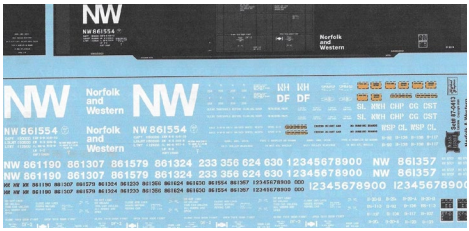
Micro-Trains has released a 39' single dome tank car decorated for GATX-Roma Wine. For additional information on these and other Micro-Trains models contact an authorized dealer.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

Great Decals! has released decals for Louisville and Nashville baggage, dormitory, RPO, and REA cars in N and S scales. Each sheet does two cars. For more information visit the greatdecals.com website.



Mask Island Decals has released two new water-slide decals for HO scale freight cars. They include Detroit Toledo & Ironton 40' and 50' steel boxcars. Item 87-414 contains sufficient material to decorate two cars.



Also new is a decal for Norfolk & Western's black 86' auto parts car. Item 87-413 will accurately decorate one HO scale car. For additional information visit maskisland-decals.com.

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Briefly noted at press time ...

Broadway Limited plans to release N scale models of classic USRA Mikado steam locomotives late this month. Both light and heavy versions of the 2-8-2 will be produced. Visit broadway-limited.com for details.

New books from **Morning Sun** include *Waterfront Railroads of New York Harbor Volume 2* (softcover) by Robert J. Yanosey, and *Central of New Jersey and Lehigh Valley Color Guide* (hardcover) by Craig T. Bossler. Details are available at morningsunbooks.com.

The **NMRA 7th Division Pacific Northwest Region** will conduct a series of virtual **Railway Modellers Meets** beginning May 21. Starting at 7 pm Pacific Time, each session will consist of two interactive clinics. For details visit mailchi.mp/806bf3599fe5/announcing-the-virtual-railway-modellers-meet-of-british-columbia.

NMRA-X, organized by Gordy Robinson, will be holding it's second online convention on Saturday, May 16 on the NMRA Facebook Group at www.facebook.com/groups/nmragroup. As this is a 24-hour long series of clinics and layout tours, it will begin in Friday in some time zones and end on Sunday in others. For more information see the announcement at www.facebook.com/events/229316695073091.

SELECTED EVENTS

May 2020

Due to the uncertainty surrounding the COVID-19 pandemic and its associated lockdowns, Selected Events will not be published this month. Please check back next month for future events. ■

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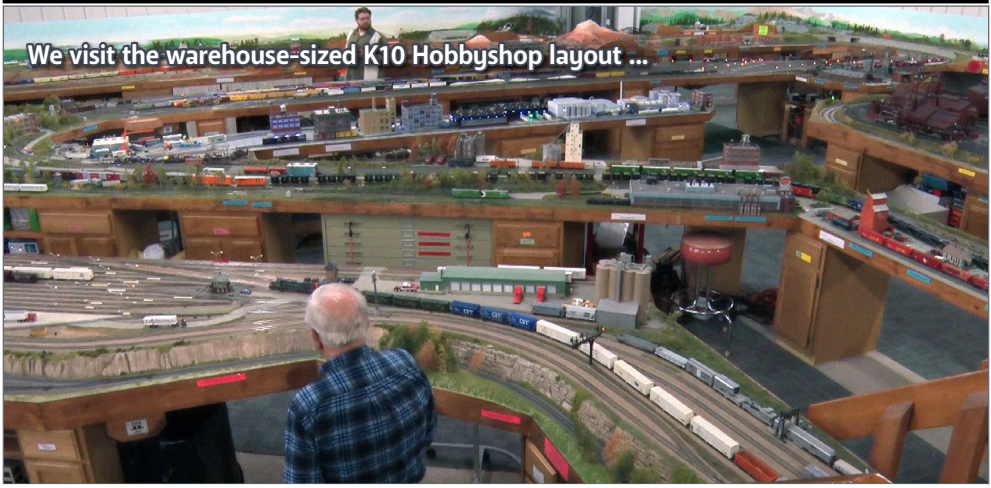

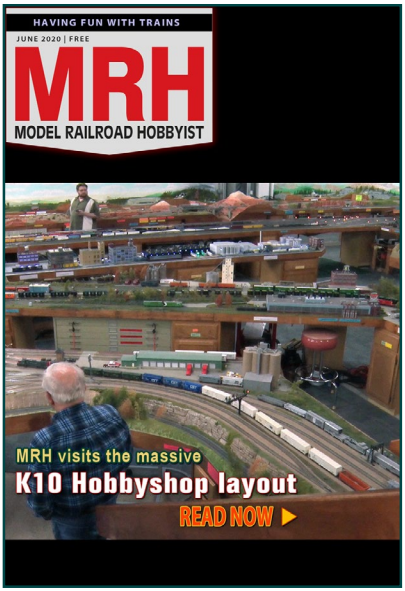

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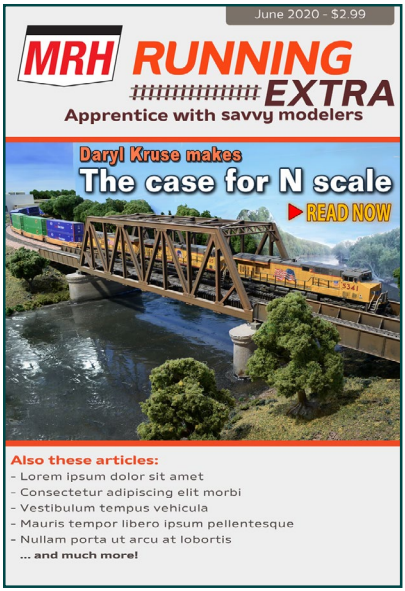

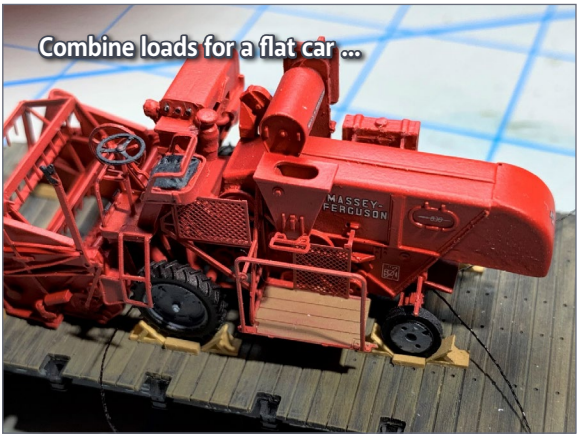

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