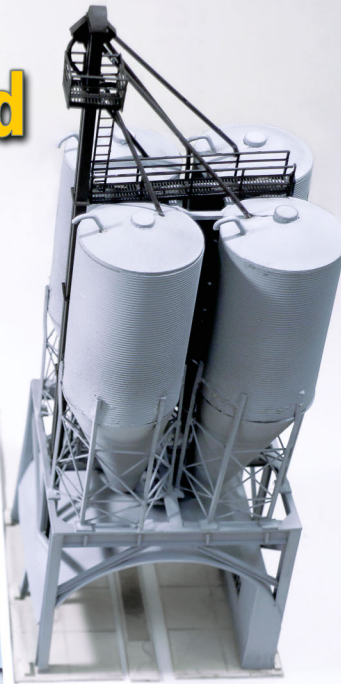


MRH **RUNNING** ##### **EXTRA** Apprentice with savvy modelers

Nick Muff step-by-step
Modeling corrugated
feed bin silos
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October
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inside!



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- Better layout duck-unders
- Clyde, Ohio, a town you can model
- Modeling with the new Wondercutter
- Paint that won't flake off handrails
- ... and much more inside!

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NICK MUFF



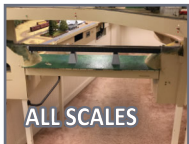
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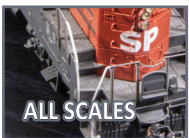
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JOE FUGATE



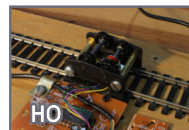
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What's Neat: Scenery from start to finish

KEN PATTERSON



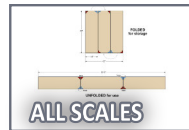
Model railroad running stand speedometer

GARY WINTERGERST



TrainMaster TV's new game plan

JOE FUGATE



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JEFF SHULTZ



Savvy Modeler online: Awesome diesel weathering

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October 2020 news and events

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PUBLISHER'S WELCOME

introduction



MRH Running Extra | October 2020

JOE FUGATE GETS A PERFECTLY
SQUARE BLOCK AND MAGNET JIG ...



RATE THIS ARTICLE

WHILE YOU CAN BUY SQUARE-UP MODEL MAKING JIGS THAT USE magnets from places like Micro-Mark, I wanted something that doesn't limit the model size to 10" on a side. Thanks to a discussion on the *MRH* forum, I found exactly what I wanted.

The *MRH* forum discussed 1-2-3 blocks, a block made of hardened steel that measures 1" thick × 2" wide × 3" long for about \$10 each [1]. The makers of these 1-2-3 blocks accurately grind them to size with perfect square angles, within 0.0005" or less. Machinists trust these blocks as de facto setup standards and use them for a myriad machine and inspection setup tasks.

You can get 1-2-3 blocks either solid or with various hole configurations. In the shopping list link, I provide three different configurations, solid, single center hole, and multiple holes. These steel blocks also make good weights when you need to weight something down at the workbench such as when gluing.

Because 1-2-3 blocks are steel, magnets work great with them. I bought a set of six 1.25" rare earth magnets [2] for about \$10. These magnets have a very strong pull, easily clamping thick materials to the steel 1-2-3 blocks [3].

Do be careful with the magnets, though, they're rather brittle and will crack easily if you allow them to "slap" hard onto the blocks.

I have four of these blocks with the magnets and I love them! ☑

To get a shopping list for this article, visit the *MRH* website at this link: mrhmag.com/magazine/running-extra/2020-10/publishers-welcome

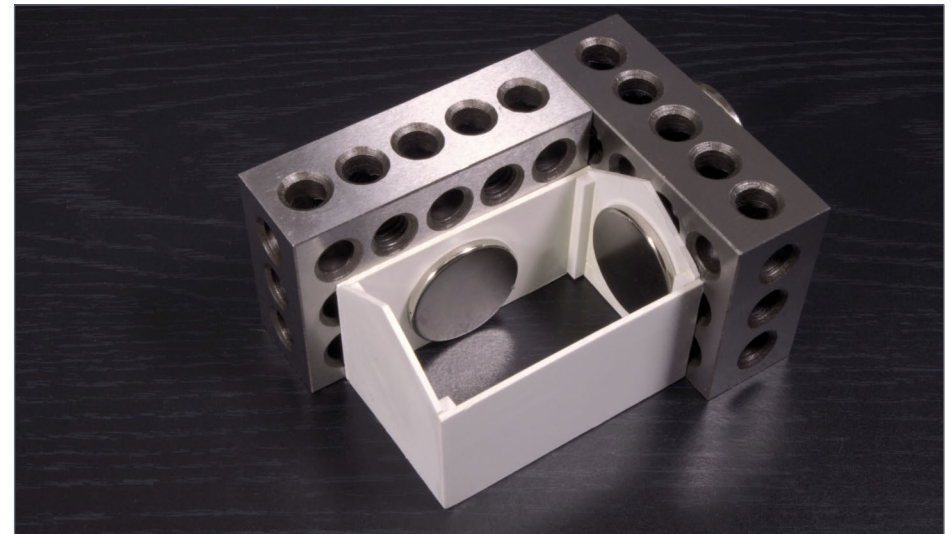
PUBLISHER'S WELCOME | 2



1. 1-2-3 blocks come in a number of different hole configurations from solid, to a single center hole, to various combinations of multiple threaded holes. Naturally, the more holes, the lighter the steel block. These blocks are perfectly square and precisely ground to ~0.0005".



2. These powerful 1.25" diameter rare earth magnets pull right through thick plastics, cardstock, and metals such as brass, phosphor-bronze, or copper. They work great holding parts in alignment with the precisely ground steel 1-2-3 blocks.



3. The 1-2-3 blocks combined with the rare earth magnets make a great jig for getting perfectly 90° square and vertical walls on structures of any size.



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THE LIMITED MODELER

column

Images are from the author's collection, except as noted.

MRH Running Extra | October 2020

JIM SIX CONSIDERS CLYDE, OHIO
AS A TOWN YOU CAN MODEL ...



RATE THIS ARTICLE



THIS MONTH WE RETURN TO STUDY A SETTING YOU CAN model. We look at the small town of Clyde, Ohio. It is perfect for building a one-town layout that will fit into a bedroom-sized room.

When I drive through a town that I know was a railroad hot-spot in years past, my mind starts to wander as I try to picture how it was back in the day, even though there is nary a trace of railroading today. Clyde is one such town. This charming little northwest-Ohio town has much to offer. I have been to Clyde many times and watched as railroad business in town was cut back until most all was removed. Today, only the Norfolk Southern runs through Clyde on what used to be the Wheeling & Lake Erie.

Until the late 1960s three railroads operated through Clyde – the Lake Shore & Michigan Southern (LS&MS), the Cleveland Cincinnati Chicago & St Louis (CCC&StL), and the Wheeling & Lake Erie (W&LE). There also was the Lake Shore Electric interurban railway.



DOING MORE WITH LESS

THE LIMITED MODELER | 2

Following the 1914 restructuring of the New York Central Lines, the LS&MS was folded into the NYC, but the CCC&StL remained as the Big Four until 1936 when the New York Central Lines were reorganized into the New York Central System. At the same time, the former LS&MS route between Elyria and Millbury became the NYC Norwalk Branch. It lasted into Penn Central before being abandoned.

This old LS&MS line also went through several communities including Oberlin, Kipton, Wakeman, Norwalk, Monroeville,



1. Shown here is a northbound NYC local on the former Big Four line through Clyde. The photo was taken in the early 1950s. The locomotive is an NYC H6 class USRA 2-8-2 Mikado. Note the post WWII extended coal bunker on the tender. At the left is the LS&MS/CCC&StL depot located a block from Main St. in Clyde.



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Bellevue, Clyde, Fremont, Lindsey, and Elmore before reconnecting with the NYC mainline at Millbury at the southeast side of Toledo [2].



Bellevue was the important railroad town in the middle of this line between Elyria and Millbury. Bellevue was a big Nickel Plate town. Before 1916 the NKP was part of the New York

Central Lines and there was a lot of interchange between the LS&MS and the NKP at Bellevue.

The Wheeling & Lake Erie also passed through Clyde. Today this is Norfolk Southern, and the only active rail line through Clyde.

2. A historic railroad map of north-central Ohio reveals many lines. Clyde is to the east of Fremont at the upper-left. Lorain is at the upper-right, Sandusky is at the upper-center, and Norwalk is near the center. This area is literally blanketed with mainlines, secondary lines, and branch lines. It is a target-rich area with many places to model. The brown line through Clyde is the LS&MS. The yellow line is the CCC&StL. The black line is the W&LE.



SPOTLIGHT ON CLYDE

My passion for railroading is set in the 1920s and earlier. Clyde can inspire anyone modeling the mid-1880s up to about 1970, although there was little left by the 1960s. By the mid-1970s, both NYC lines were gone and only the N&W (former W&LE/NKP) remained between Bellevue and Toledo.

While the LS&MS ran from Elyria to Millbury, the Big Four (CCC&StL) ran from Sandusky, at Lake Erie, to Tiffin then on to Bellefontaine – a major point on the Big Four. The LS&MS and the CCC&StL crossed and interchanged in Clyde. The Wheeling



3. An eastbound LS&MS passenger train stops at Clyde in this 1895 image. Upcoming stations to the east are Norwalk, Elyria, and Cleveland. The LS&MS crossed the Big Four from Sandusky at Clyde. The Big Four depot was located in the west-facing wing of the depot – the side most visible in this photo. The Big Four tracks are visible just this side of the depot.

& Lake Erie (W&LE) also crossed and interchanged with the CCC&StL in Clyde, but did not interchange with the LS&MS.

Before the Great Depression, all the railroads serving Clyde ran passenger trains. The two NYC -owned railroads shared a depot [3-5]. The W&LE had its own depot [22].

The LS&MS passenger trains generally ran between Cleveland and Toledo, diverting off the mainline at Elyria to serve Oberlin, Kipton, Wakeman, Norwalk, Monroeville, Bellevue, Clyde, Fremont, and Elmore before rejoining the mainline at Millbury. An LS&MS depot was maintained in each of these towns.

These towns were dominated by grain elevators, feed mills, and light industry. If you have space for a larger layout, the LS&MS branch from Elyria to Millbury is a great candidate. I have considered this, but I don't have nearly enough space.

Clyde wasn't the largest town along the LS&MS between Elyria and Millbury. Fremont had that honor. Still, Clyde was important due to the industry there. Some of these companies evolved into Whirlpool, which maintains a large manufacturing facility there today. Clyde was also the intersection of the LS&MS and CCC&StL rail routes.

Before the Second World War, Clyde was home to four grain elevators that served the many farms in the area. The industries and elevators featured in this column are all long gone. Compare [6 & 7] taken from the same location, 100 years apart.

The LS&MS/CCC&StL depot was a busy hub in 1895 [3]. If appropriate model locomotives and rolling stock were available, I would model the 1890s in a heartbeat. There was more railroading that interacted with the community – much more to model and operate than the post-WWII years.



A 1906 view of the LS&MS/CCC&StL depot [4] shows electrical cables connecting to the depot building at the left end. Having worked in the electrical business I wondered about that.

In 1906 there was little, if any, electrical service in small Midwest towns like Clyde. Cleveland, 75 miles to the east, did not get its first real power plant until 1906. Cleveland was a huge city compared to Clyde, and had many more customers for electricity.

I suspect the wires to the depot may have been for telegraph or some other communication lines. It's also possible the photo [4] was mis-dated.



4. This is the LS&MS side of the joint Clyde depot, circa-1906. Note the light rail and lack of ballast. The tracks rest in cinders and earth. This is a large depot for a small town. At this date there were probably no automobiles in town, no paved roads, and the railroads were the only way to get from town-to-town, other than by horse-drawn wagon.



5. This image is a composite of a 1910 photo (left half) with a 1958 photo (right half). I used Photoshop to merge the two for this view. The Nichols House is at the left, with the Ervin T. Fangboner elevator at the right. The depot wing in the sunlight is CCC&StL.

Few images of the Clyde depot clearly show the building has two wings, so I merged two to show both wings [5]. This photo also shows the close proximity of the depot with the Irvin T. Fangboner feed mill. This scene was located in the center of town, and the CCC&StL served the Fangboner elevator, not the LS&MS.

We get a 1907 view down the LS&MS mainline [6] to see the track details. The joint depot is one city block in the distance to the left of the tracks. The main LS&MS track is second from the left, with a passing siding to its right, and then a single yard track.

The tracks at the right serve the two Sandusky Farm Bureau Association elevators and Clyde Cutlery. The track on the left serves the Hughes Granite & Marble Company.

A small switching layout could be built based on this scene and the three online industrial customers. Little seems to have



changed when we compare [6] with the 1923 Sanborn map [15]. The layout would look great with Accurail and Roundhouse (Athearn) 36' boxcars, Bowser gondolas, and a few resin freight cars spotted at the customers.

With a small staging yard at each end of the scene, freight and passenger trains could operate in both directions. A longer wall would make it easier to include all the Clyde industries along the LS&MS.



6. We are looking west along the LS&MS in Clyde, Ohio, circa-1907, at the East Buckeye Street crossing. On the south side (at left) is the Crates Insulation and Parts Co. Across the mainline are the Sandusky Farm Bureau Assn. elevators and the Clyde Cutlery Co. (at right). Note the man driving a horse-drawn buckboard at the left edge of this photo.

This is the kind of model railroading I really enjoy.

INDUSTRIES

The Clyde industries along the LS&MS are modelable as mid-sized structures or combinations of smaller buildings with a simple track arrangement. Clyde is on my short list for possible locations on my new layout. It joins Sturgis, Michigan, as a favorite.

Clyde Cutlery [8-11] would make a great modeling project and a wonderful industry to switch. After all, who didn't need scissors and knives? It is only two stories tall and is of wood and brick construction.

The foundations of the added-on buildings use slightly different materials of early concrete or stone block construction. The red color is also appealing.



7. This Google Maps street view is almost the same location as [6]. The bicycle trail at the right is on the LS&MS grade. There is literally nothing left of the earlier scene. Do you still prefer modern railroading over modeling the past? *Google Maps Street View*



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The downside is all of those windows! Postcard picture [11] shows what appear to be early pallets, which dates this picture into the late 1920s or 1930s.

A block-and-a-half east of Clyde Cutlery was the Clyde Kraut Company. A constant parade of horse-drawn wagons, then trucks later, brought loads of cabbage to make sauerkraut [12, 13]. The LS&MS served the company, shipping canned sauerkraut and processed pickles.

Across East Street and on the same side of the LS&MS, was the Clyde Canning Company. Cans were manufactured there and probably used by Clyde Kraut to ship product.

Both companies were served by the LS&MS and W&LE on the opposite sides of the facilities [16].



8. The Clyde Cutlery Co. circa-1890s. I can only speculate what is loaded onto the flatcar. *(These look like millstones to the Editor's eyes. - EH)* Clyde Museum

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9. Clyde Cutlery was established in 1850. The original brick building is at the left, with a newer, wood building added later. Note the large block foundation and all of those windows. The railroad is five tracks wide in this circa-1890s photo.



10. Clyde Cutlery has expanded in this 1920s view as the scissor-and-knife business has grown since the 1890s. An addition to the left has doubled the size of the manufacturing facility.



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A combination of interesting industries, the joint depot and freight house, and a limited space requirement would make Clyde a great one-town layout. Add staging at each end of this setting for operation, and you have a great layout opportunity. Lay the Sanborn maps together [14-16] and you have your track/layout plan!

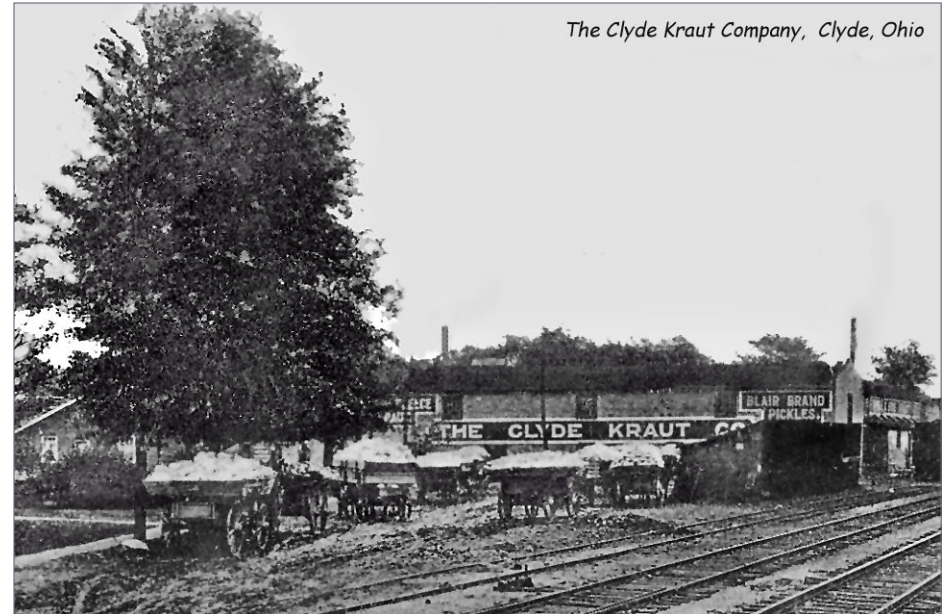
INSURANCE MAPS

Regular readers know I'm a believer in using Sanborn Fire Insurance Maps. They document the existing structures at the time each map was made. I find them accurate enough for building a model railroad. They show the basic locations of the railroad.



11. A circa-1930 postcard adds more inspiration. Clyde Cutlery could easily be a focal point on my layout, along with the Sandusky Farm Bureau Assn. elevators just visible to the left. (Be wary of color rendering on old postcards. Many were hand-tinted in Germany, far from the location of the original scene. - EH)

The Clyde Kraut Company, Clyde, Ohio

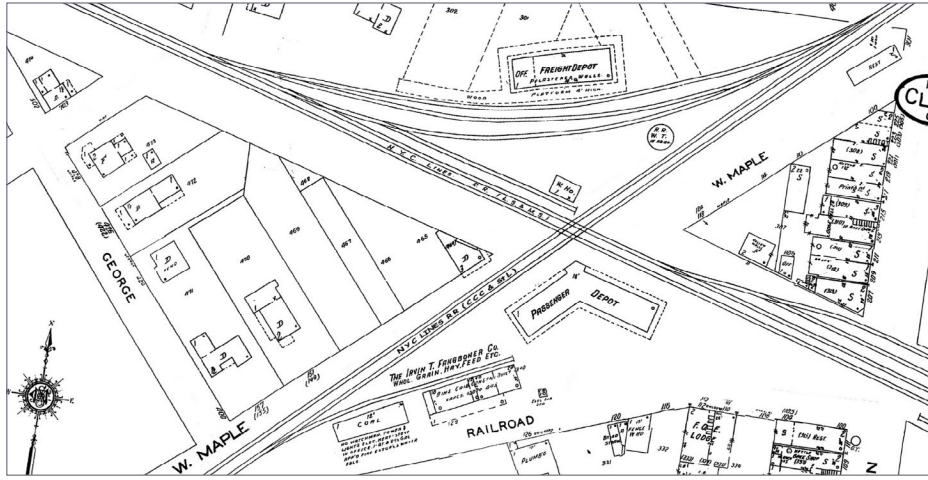


12. Here is the Clyde Kraut Company circa-1910s. Note all the horse-drawn wagons full of cabbage.

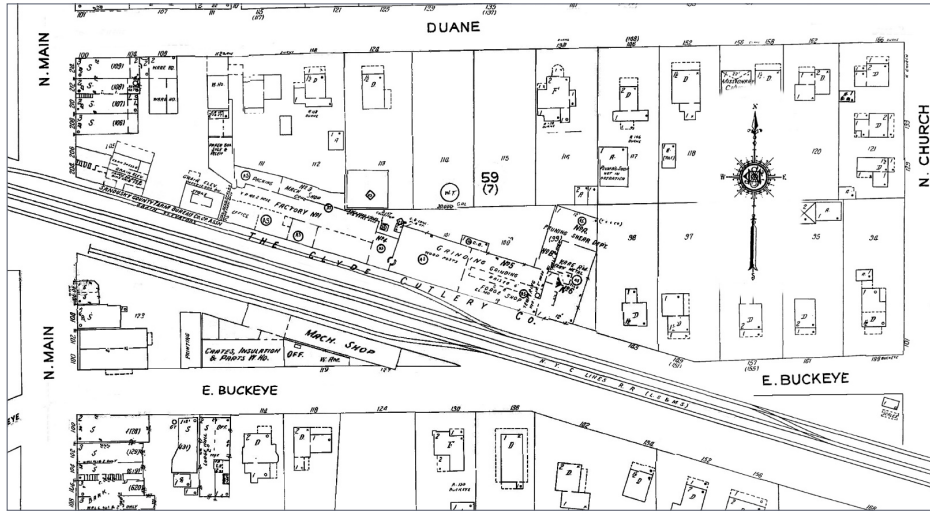


13. A load of cabbage arrives at Clyde Kraut Company. Clyde has a long history with cabbage, and at one time there were three plants that processed cabbage for sauerkraut and other produce. The Clyde Kraut Company was the largest of the three and was served by the LS&MS railroad. Clyde Museum

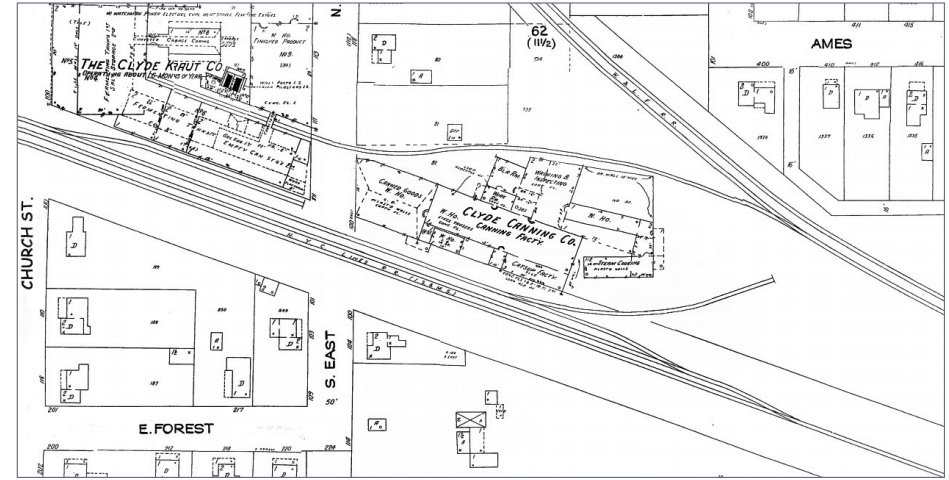




14. This November 1923 Sanborn map shows where the LS&MS and the CCC&StL crossed and interchanged. The freight house and passenger depot were shared facilities. *Sanborn Fire Insurance Map Company*



15. This 1923 Sanborn map shows the setting in photos [9-11]. Those photos were taken from the lower right part of this map. A current view [7] shows nothing remains of the former industries. *Sanborn Fire Insurance Map Company*



16. Clyde Kraut and Clyde Canning were immediately to the east of [15]. The LS&MS and W&LE serviced these industries. I have not found photos of the canning company. *Sanborn Fire Insurance Map Company*

THE BIG FOUR

The CCC&StL (Big Four) ran through Clyde as it connected Sandusky with Tiffin and on to Bellefontaine. It crossed Clyde northeast to southwest, closely following Maple Street through town. Before crossing the W&LE there was a coal yard on the west side of the Big Four track [22].

Modeling the coal yard before WWII would make a busy customer, as most homes were heated with coal before 1950.

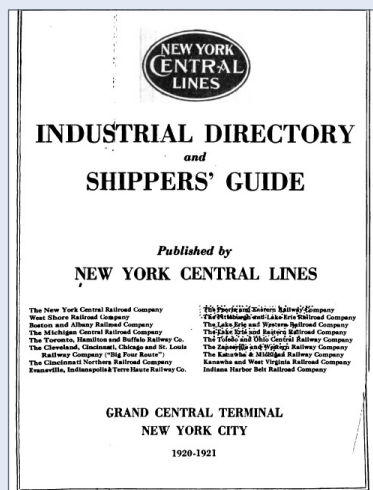
The Big Four interchanged with the W&LE, where a Wheeling freight house was nearby. Across the W&LE was the L.M.



SHIPPERS' GUIDES BY ERIC HANSMANN

Many railroads published shippers' guides with listings of customers served across their system. These range in size but all offer insight into long forgotten industries that were part of small towns and cities.

The NYC guide is organized by commodities. To find the Clyde industries, use the CTRL+F find function and enter Clyde in the search box to find many entries in the book. Some shippers' guides have a separate section organized by communities on the line. The NYC book lacks this feature [17, 18].



17. A 1920-1921 New York Central Industrial Directory and Shippers' Guide is available to download online. The 1000+ page book is a large file but worth the time to download via [Google Books](#).

[books.google.com/books/about/
Industrial Directory and Shippers Gu
ide.html?id=2bUNAQAAMAAJ.](https://books.google.com/books/about/Industrial_Directory_and_Shippers_Guide.html?id=2bUNAQAAMAAJ)

18. The Clyde coal dealers are listed, but we also find there is another Clyde location on the NYC.



Climax, Ohio
Climax Equity Exchange Co.
Clinton, Mich.
Atlas Milling Co.
Clyde, N. Y.
Brislin, Geo. E. & Co.
Ranco Milling Co.
Wood Milling Co.
Clyde, Ohio
Fangbner, L. T. Co.
Reel Milling Co.
Slessman Sons Co.
Clymer, Pa.
Clymer Milling Co.
Coal City, Ind.
Coal City Milling Co.
Coburn, N. Y.

19. The list of grain dealers has one entry that is also listed with the Clyde coal dealers.



used for freight car forwarding or inspire research if one of those plants is in a town you are modeling.

As you click through each of the search results, enter the info into a document to summarize all the industries served in the towns of your interest [19].

Not all companies were directly served via a rail siding. Many directory entries used a local team track or the freight house for regular shipments. This opens up possibilities for additional freight car movements to tracks without a need for an additional industrial structure.

While this is an early-1920s directory, you can cross-check company names with a telephone book from your modeling era.



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Meggitts Elevator [21] before the Big Four reached the LS&MS interchange [1].

The Big Four and LS&MS shared a freight house at the middle of the interchange tracks. The jointly used depot was diagonally opposite the freight house.

Just past the depot was the Irvin T. Fangboner Elevator & Feed, which included another coal yard. A few blocks down the line across the track was the Clyde Lumber and Supply Company [24]. Beyond the lumber yard the Big Four left town.

All of these CCC&StL customers can make for a great one-town layout just as the LS&MS line through Clyde that I presented earlier. There was the coal yard, the interchange with the W&LE, Meggitts elevator, the LS&MS interchange with freight house, the depot, Fangboners elevator, and finally Clyde

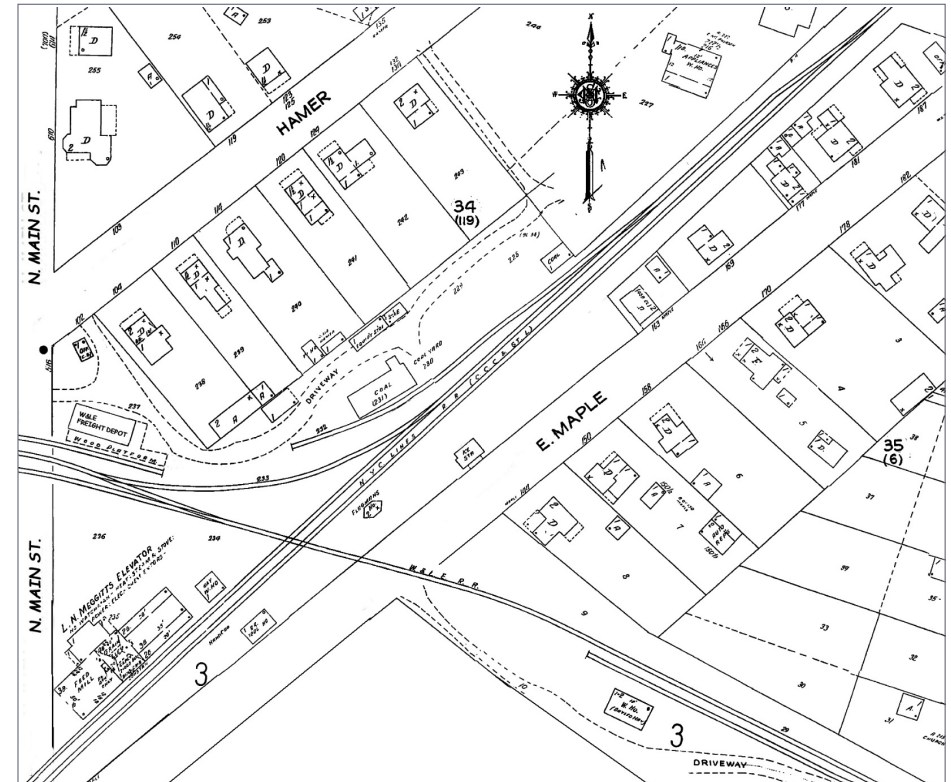


21. You are looking south along Main Street toward downtown Clyde. This is the L.M. Meggitts Elevator pictured not long after it was built in 1895. The CCC&StL tracks cross Main Street just on the other side of the elevator. Note the paved brick street. The W&LE crossed North Main St. behind the photographer.

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Lumber and Supply. That's six places to pick up and set out freight cars plus the depot for passenger trains. As with the earlier proposed LS&MS layout, a Big Four layout could have these industries with staging at each end of town.

An option for either layout would be to build around the walls with one side as the town and the opposite side as staging.



22. The Big Four and the W&LE lines dominate this Sanborn map of Clyde. The two railroads interchanged here. The W&LE freight house is near the interchange at the upper left. The coal yard is just to the right of the freight house, while the L.M. Meggitts Elevator is across the W&LE line on the left side. *Sanborn Fire Insurance Map Company*



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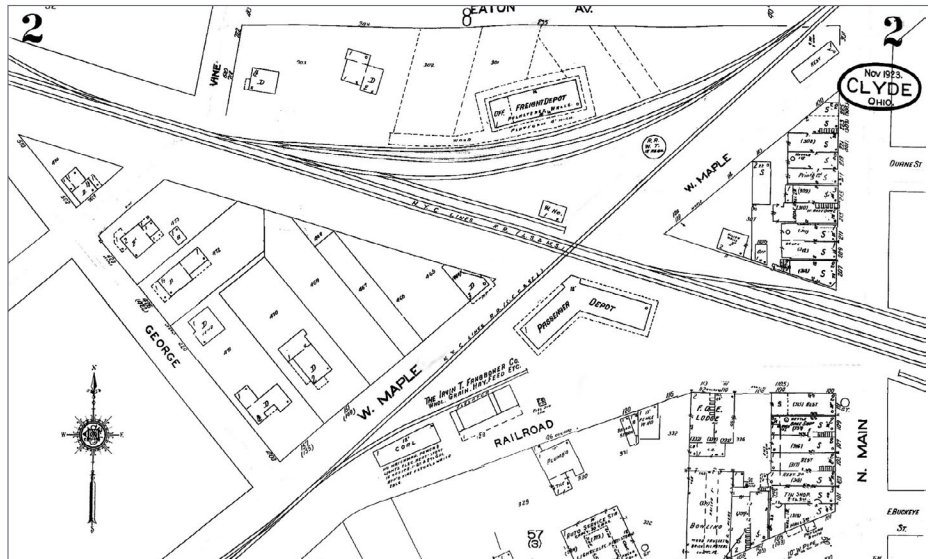
THE LIMITED MODELER | 21

This option would provide sceniced areas along the walls between the town and staging.

INSPIRATION TO DESIGN

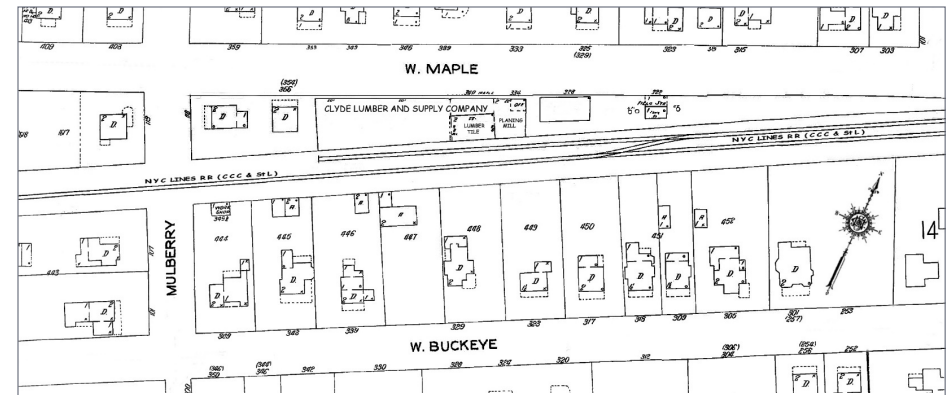
When designing a model railroad layout to represent a real setting, I recommend you gather prototype photos, maps (Sanborn and others), printed data, and postcards. There are a lot out there on the internet. Without a few postcards [11-13], I would not know much about Clyde Cutlery.

Many small towns had a small, but diverse, number of industries that can offer enough operational opportunities on



23. The Sanborn map shows the relationship between the LS&MS and the Big Four, along with the streets. The freight house is at the interchange tracks, with the joint depot across the diamonds with Fangboner elevator, feed, and coal. The street on the right is North Main, which is on the far left in [22]. The three railroads were in close proximity in Clyde. Sanborn Fire Insurance Map Company

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24. The Clyde Lumber and Supply Company was just southwest of the joint depot. The Big Four followed Maple St. through Clyde. There was a filling station just to the right of the lumber company. All the buildings marked with a D are dwellings. Sanborn Fire Insurance Map Company

★★★★★
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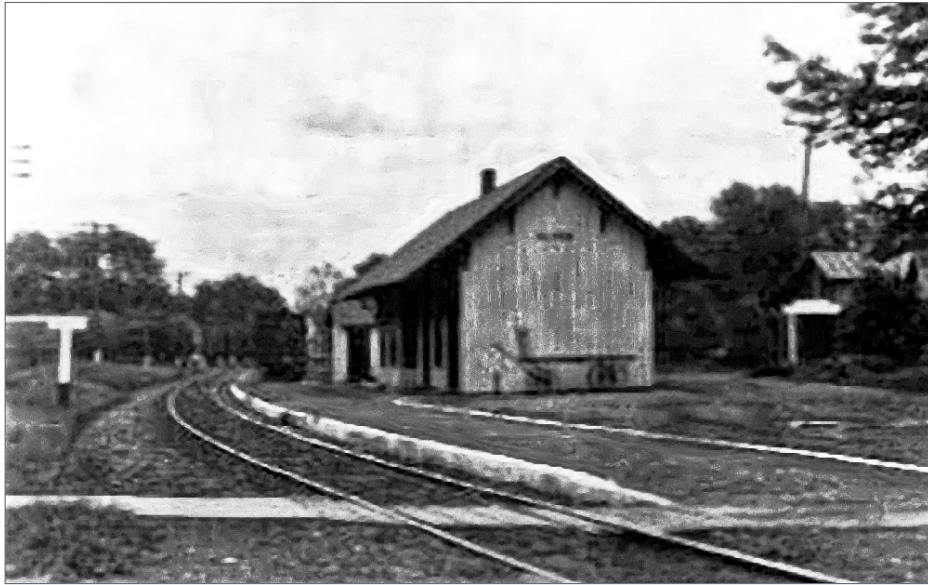
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a manageable-sized layout. Rail and industry action slowly disappeared from small towns as the years went by. The farther back you go, the more railroading you can find to model.

There remained some local railroad activity into the mid-1960s, but in many cases there was more action in the 1950s. The surge of traffic during WW2 would increase the possibilities. I chose to model the Roaring Twenties when railroads were a busy transportation network. I would consider modeling the previous decades but finding proper motive power and freight cars can become a challenge.



25. I looked long and hard for a photo of the W&LE Clyde passenger station, and this is all I found. The W&LE took this passenger station out of service in the early-1920s. The nearby freight station may have handled some passenger traffic afterward. The W&LE ran their last passenger trains in the 1930s. *Depots of Sandusky County*

The LS&MS or the Big Four in Clyde can offer an interesting setting and operational opportunities in my available space. That's why it's on my short list of places to model. ☑



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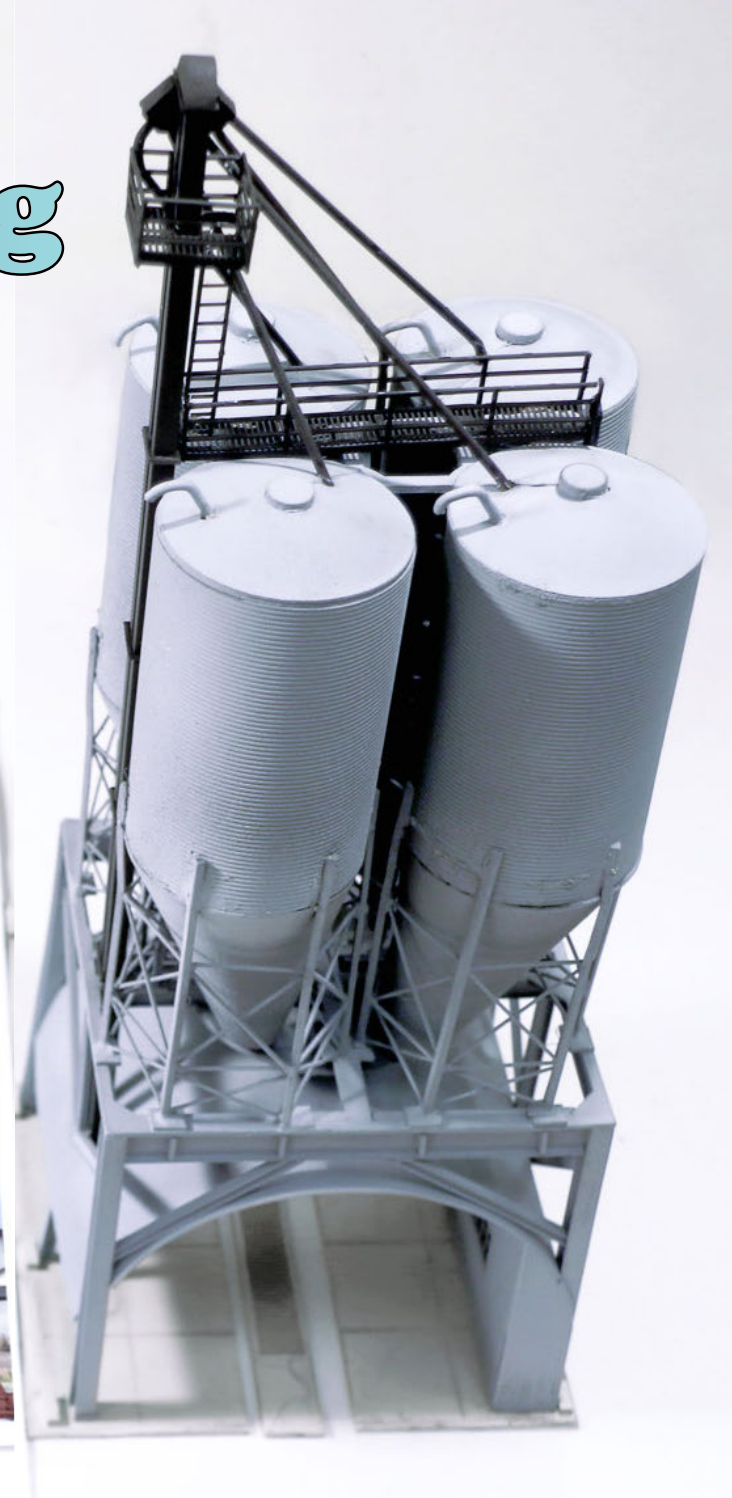
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Modeling **Powell Feed & Milling** **in HO Scale**

NICK MUFF MODELS SILOAM SPRINGS, ARKANSAS, POWELL
FEED & MILLING ...



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GETTING REAL



column

MRH Running Extra | October 2020

*All photos by the author
unless noted*



ONE OF THE REWARDING ASPECTS I FIND IN

PROTOTYPE MODELING is the need and challenge to replicate specific structures from real life. I am in the process of completing my recreation of the town of Siloam Springs, Arkansas, to represent its appearance in the late 1950s. An industrial spur just south of the Kansas City Southern depot served a complex of four corrugated metal silos belonging to the Powell Feed and Milling Company.

Though the milling company still exists, it has relocated north of the depot site, and has torn down the old silo complex in favor of a larger facility. I have only been able to find two period photographs of the original silos [1 and 2].

Based on the photos, the structure would be an impressive model in HO scale. It would stand about 11" tall and have a footprint of about 3.5" x 3.5". There is no signage on the prototype, so it could fit in many geographical settings.

MODELING POWELL FEED & MILLING IN HO SCALE

I began my project by creating CAD drawings for the structure [3]. With only two views to work from and the original long

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

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gone, the drawing is my best effort to create a design for a model that captures the feeling of the prototype from available information.

I began the model by creating the large galvanized corrugated sheet metal silos. I broke down the structure into three sections: roof cone, silo body, and funnel.

For the silo bodies, I used a core and veneer approach. The first step was to find PVC piping to create a cylindrical plastic core of suitable size. As it turned out, I could not find any with the diameter I was after, but PVC couplings fit the bill, so I used those instead. I glued them together with PVC cement and cut the assemblies to the proper length [4].

I used Evergreen Scale Models (ESM) No. 4526 Metal Siding with 0.040" spacing and 0.040" thickness for the veneer. I cut



1. Powell Feed and Milling Silo Complex from the north.



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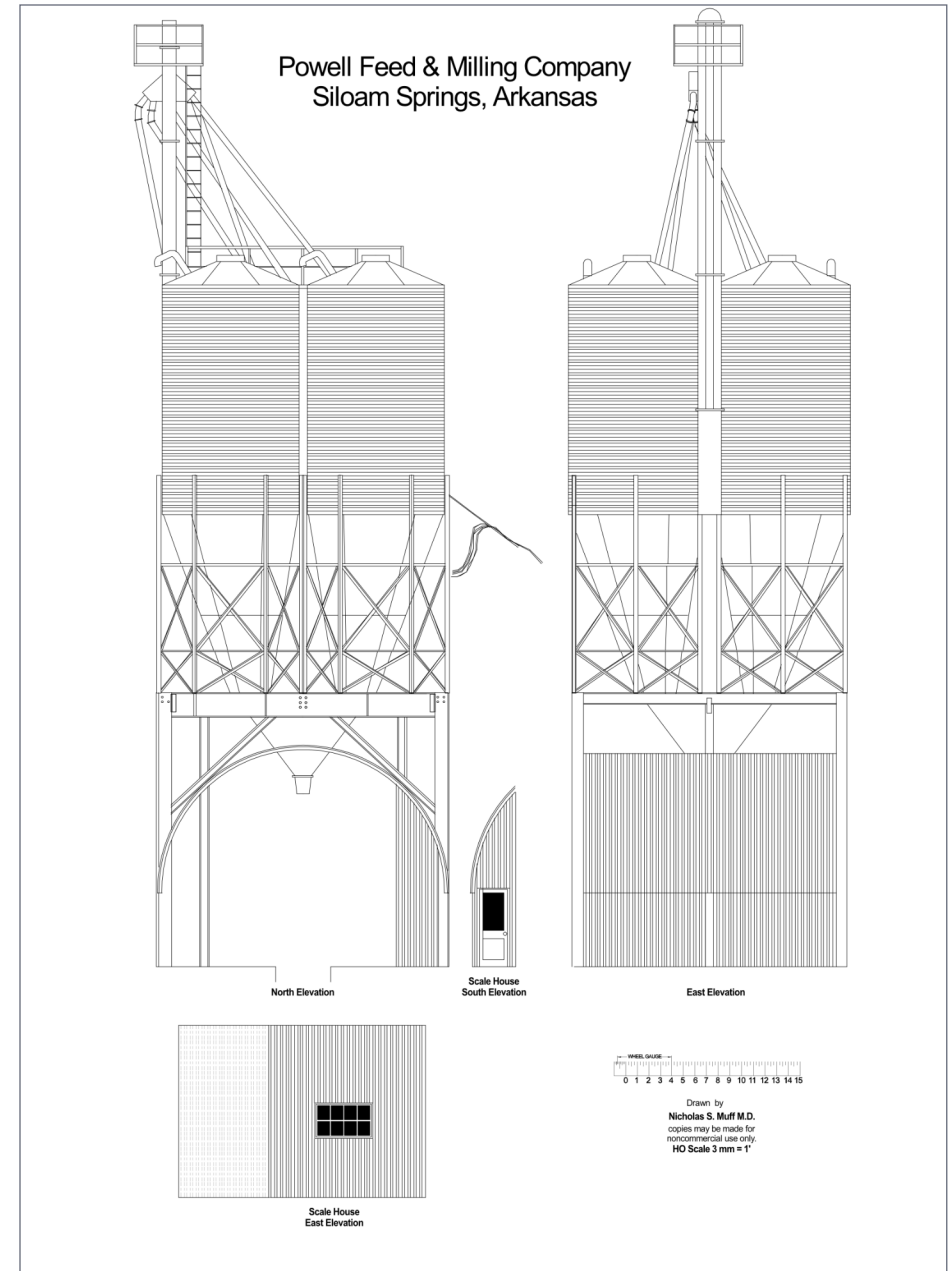
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2. Powell Feed and Milling Silo Complex from the south.

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3. Powell Feed & Milling CAD drawing.



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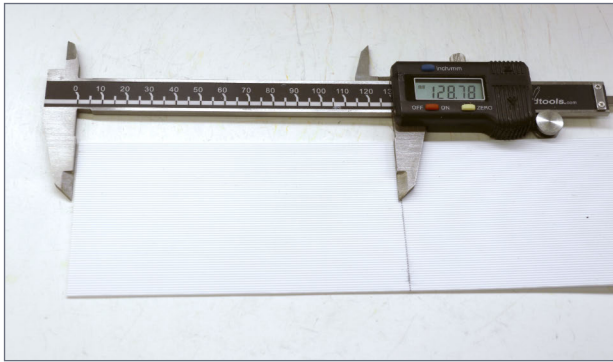
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4. I glued PVC couplings together and cut them to length to form the silo cores.



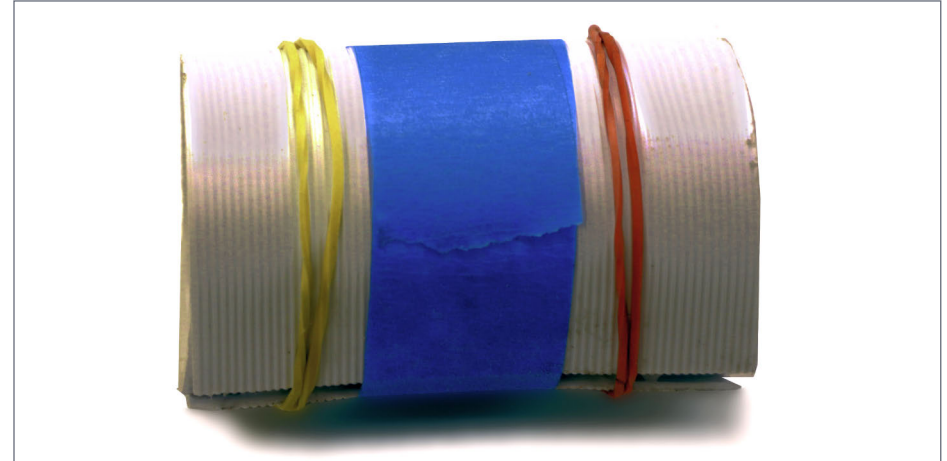
5. I used a caliper to get accurate measurements for the corrugated veneer.

the siding wrapper to proper height to match the PVC cores. I calculated the width I would need using the formula $\pi \times$ diameter, and cut [5].

To help make the veneer easier to curve around the PVC piping, I began curling it with my fingers. Then I wrapped it around the PVC core and glued it using PVC cement. I used blue masking tape and rubber bands to hold the veneer in position while the cement was curing [6]. After this had some time to set, I reinforced the seams by applying additional PVC cement under the edges. I held the seams down tight with Quick-Grip clamps and allowed it to set overnight [7].

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Once the PVC cement had a chance to cure completely, I flattened and squared the bottom and top edges of the silo



6. I used blue painter's tape and rubber bands to hold the corrugated styrene in place as it dried.



7. I used Quick-Grip clamps to hold down the seams overnight as the PVC cement cured.



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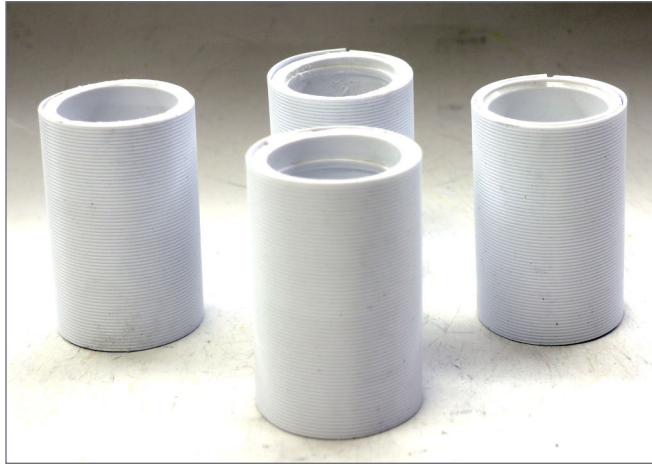
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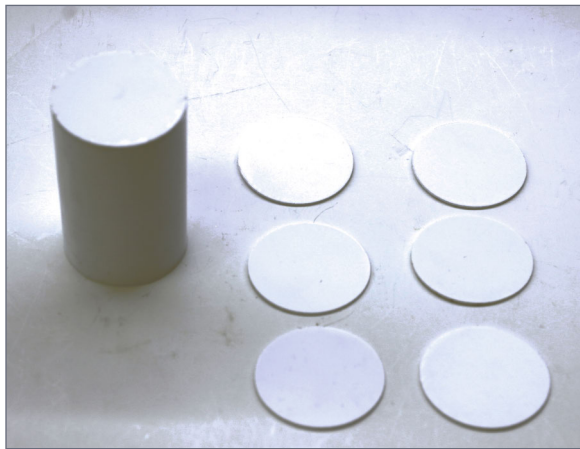
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bodies with sandpaper [8]. I completed the silo bodies with end caps that I cut from 0.040" styrene plastic and glued to each end [9]. These end caps would come in handy later on as mounting points for the silo's roofs and funnels.



8. Sanding took care of any rough edges after the silos had cured.



9. I glued 0.040" styrene caps to each end of each silo.



Once the end caps had time to cure, my next step was to mark the location and height of the six angle iron legs around one end of each silo. I used K&S 1/16" brass angle that I cut to length for the 24 support legs. I secured the legs temporarily with Walthers Goo, since I would need to remove the supports later on to fit the funnels to the bottoms of the silos [10].

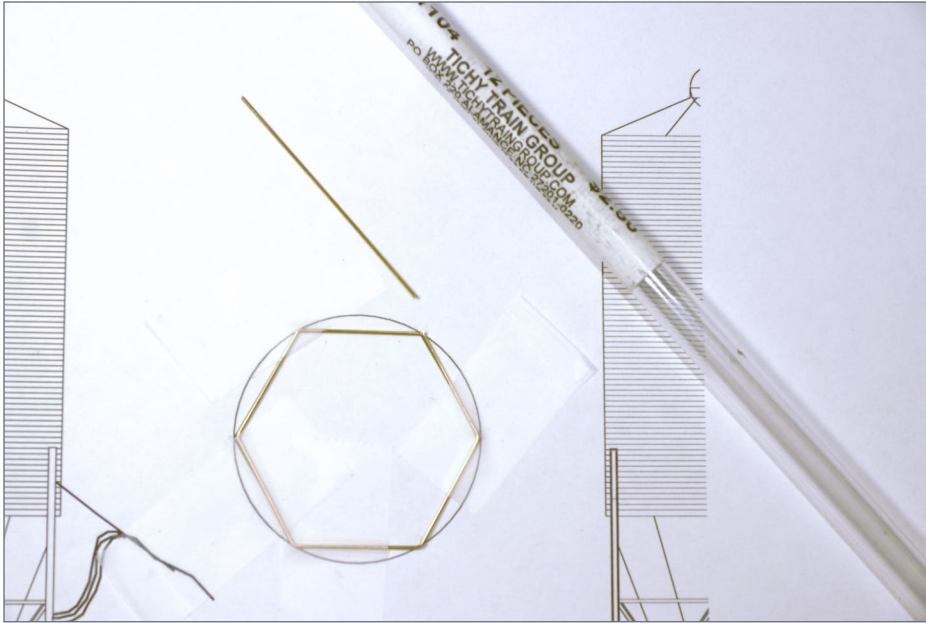
I made the support braces from Tichy 0.025" phosphor-bronze wire. Though not quite the angle iron of the prototype, it represented the best available option. I began by creating hexagons over a paper pattern that matched the diameter of the silos [11]. These hexagons would form the upper and lower horizontal braces for each bin. Once I soldered the horizontal braces to my legs, I added X-bracing pieces [12].

I cut the conical roof for each silo using 0.020" sheet styrene. I formed the cones and secured them in place using a minimum



10. Walthers Goo temporarily held the legs in place to ensure proper alignment for the support braces.





11. I began the support bracing by bending phosphor-bronze wire into hexagons using a paper pattern.



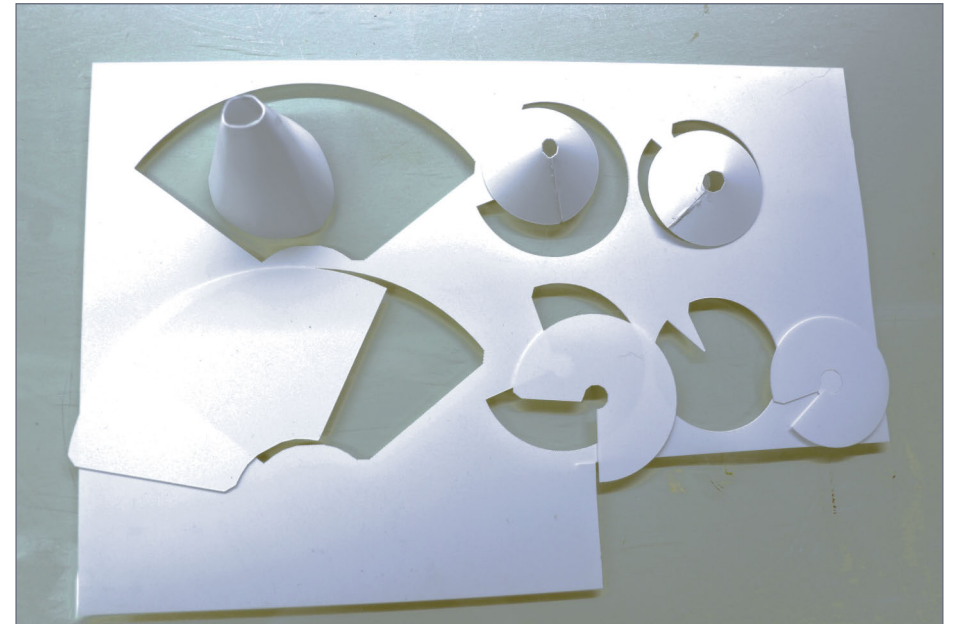
12. Smaller brass bracing completed.



amount of glue to avoid distorting the roof pieces [14]. I used a short piece of 9/32" tubing (ESM No. 229) to strengthen and support the roof. I pushed the tubing through the opening and glued it to the center of the silo body end cap. I filed it flush with the top of the roof cone. I cut a hatch covering from 0.060" sheet styrene and glued it in place on top of the tube [15].

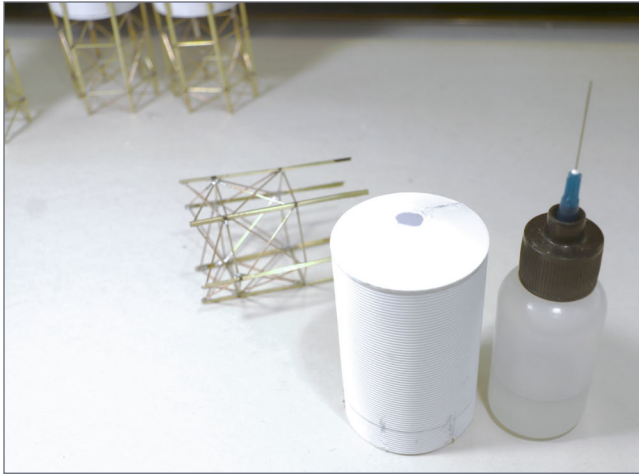
There is a great tutorial on how to lay out an eccentric offset cone from flat stock at www.youtube.com/watch?v=xjN1ZmWXnXQ.

In a manner similar to the roof cone, I placed a piece of 3/8" styrene tube (ESM No. 232) through the small opening at the

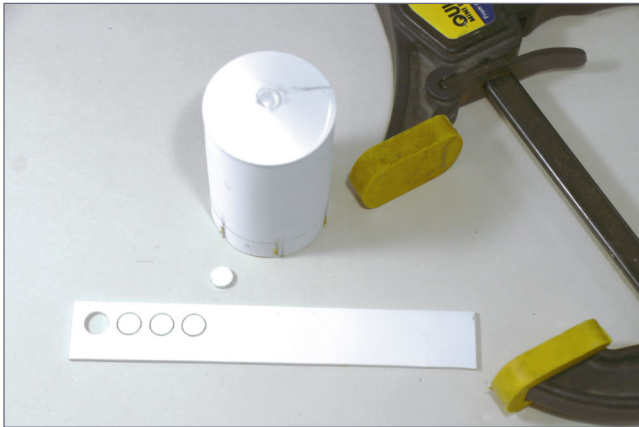


13. I cut conical pieces from 0.020" styrene.

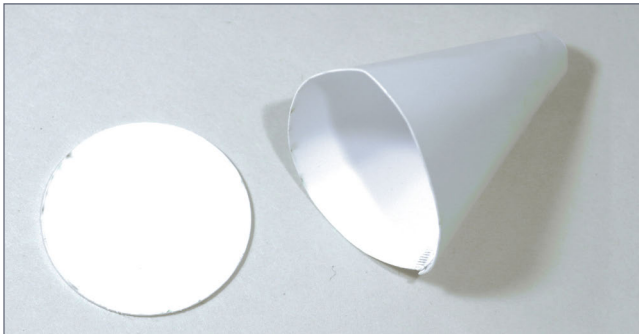




14. I used glue sparingly on the conical roofs.



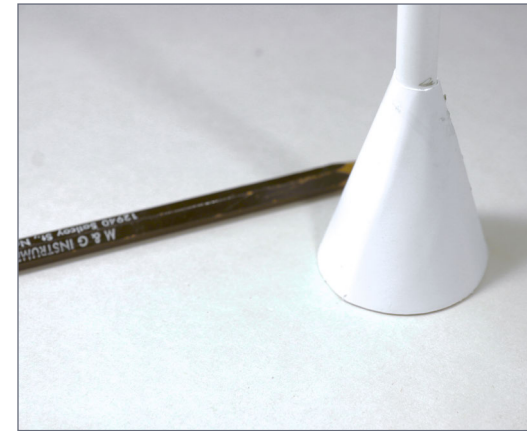
15. I glued a small circle of 0.060" styrene into place for the top hatch cover.



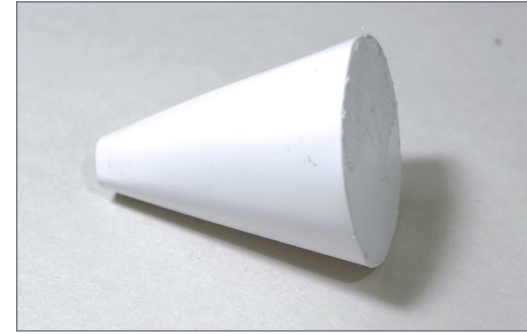
16. Round piece glued into top of the funnel.

base of the funnel. I glued the end to the circle at the top of the funnel and filed it flush with the funnel's base to add structural integrity [17].

For all the tedious effort, the results were less than satisfying. [18]. The offset of the funnels was not nearly enough; the slope needed to be almost vertical on one side. Rather than trying again with styrene, I decided to draw the funnel on my computer in 3D and print it on my 3D printer. Designing the funnel cone and giving it the perfect offset in 3D took all of two minutes [19].

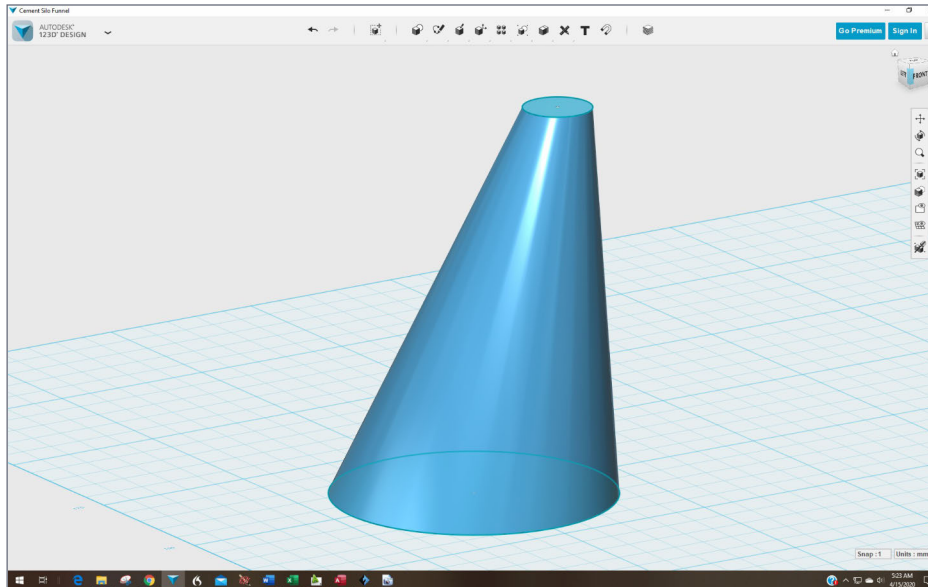


17. 3/8" styrene tube glued inside of lower cone.



18. Lower cone made from styrene and complete.



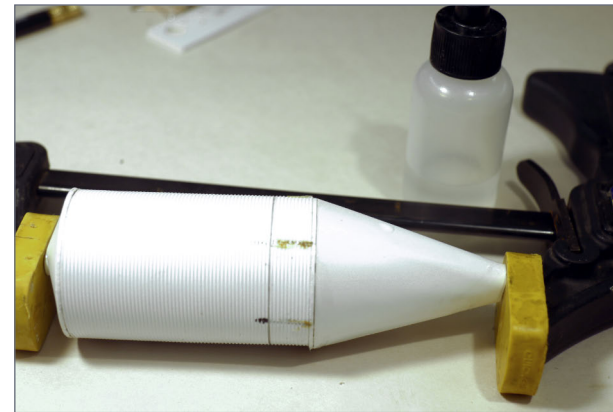


19. Designing the bottom cone in 3D and printing it on my 3D printer proved much quicker and more precise.

Whichever method is used to create the funnel for the silo, the next step is to remove the brass legs and bracing from the silo (Goo makes this easy) and then position and glue the funnel in place.

Be sure to orient the offset peak of your funnel so that it is aligned with the seam on the silo's main body [20]. Because the funnels of the four silos offset toward the center of the complex, this will help conceal the silos' seams by putting them in the center of the structure, out of view.

Once the glue for the funnels has set, it is time to attach the support structure permanently. Use CA adhesive sparingly to glue the structural brass legs to the styrene silo. Using a rubber band can help to hold everything in place but take care that the glue does not seep under the rubber band [21]. Repeat the steps with each of the four silos [22].



20. Gluing the lower cone in place. Note that the offset of the silo's funnel and the seam of the silo are aligned, with both facing away in this photo.



21. Gluing the brass support legs in place.



22. Four silos complete.



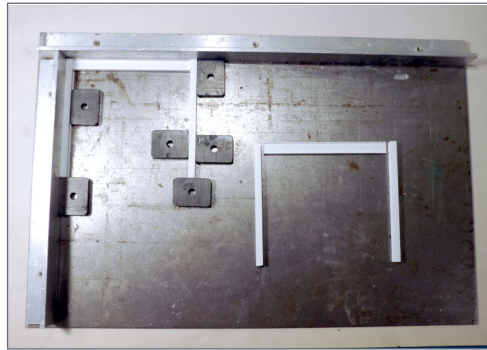
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With the four silos completed to satisfaction, I began construction of the structural steel base for the four silos with the creation of the top piece, which I laser-cut from 0.040" sheet styrene [23]. This provided a precise template to help me place all the remaining pieces of the structure and hold them together.

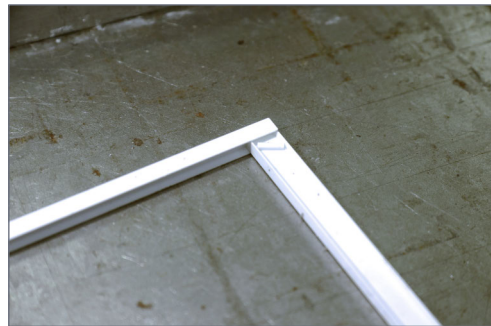
I used 5/16" I-beam (ESM no. 278) and 3/16" H-column (ESM 286) for the major parts of the base assembly. I glued a small piece of 0.040" x 0.060" styrene strip (ESM no. 143) between



23. Styrene top piece for base construction.



24. Gluing the I-beams and H-columns together.



25. I added a small support strip to the joint on both sides to strengthen it.

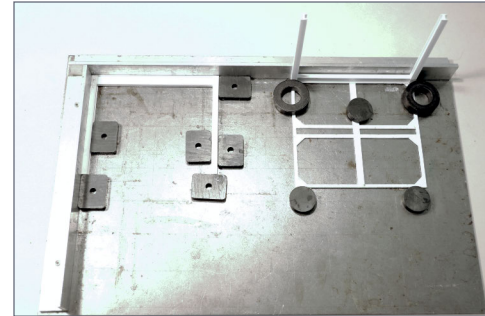


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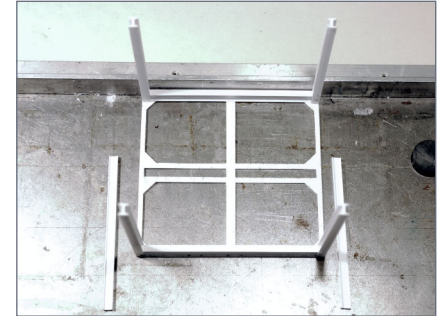
the I-beam and the H-column to strengthen the joint [24, 25]. I used the same process for both sides.

After the glue for the U-shape support members had set, I proceeded to glue them to the top piece [26]. I followed this by cutting and gluing the top side beams between the two end pieces on either side [27].

I cut and fit the double center beams and glue in place [28]. Then I did the same with the single cross beam. I used small cutters to trim the end of the crossbeams to fit into the side beams [29].



26. Gluing the end beams in place.



27. Fit and glue the top side beams in place.



28. Cut and fit and glue double cross beams.



29. Cut and fit and glue single cross beam.



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Then I laid the structural steel base over the plan to properly position the angled 1/8" I-beam (ESM No. 274) supports at each end [30]. The plans helped me place the semicircular corrugated sheet that shelters the scale and track area in its proper position [31].

I constructed the collection funnel that fits under the bottom of the four silos with 0.020" sheet styrene. I formed it to shape

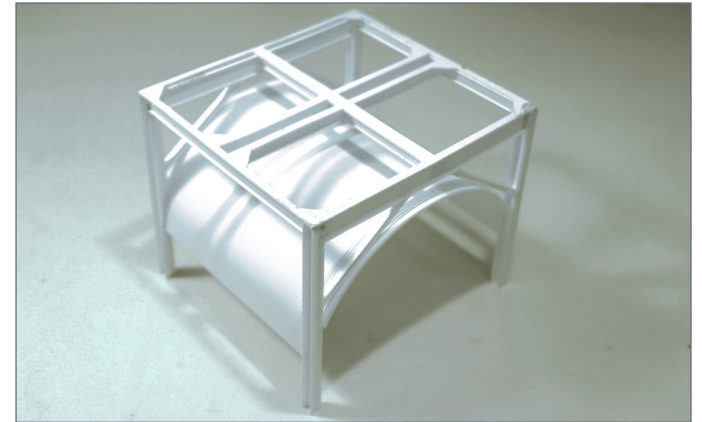


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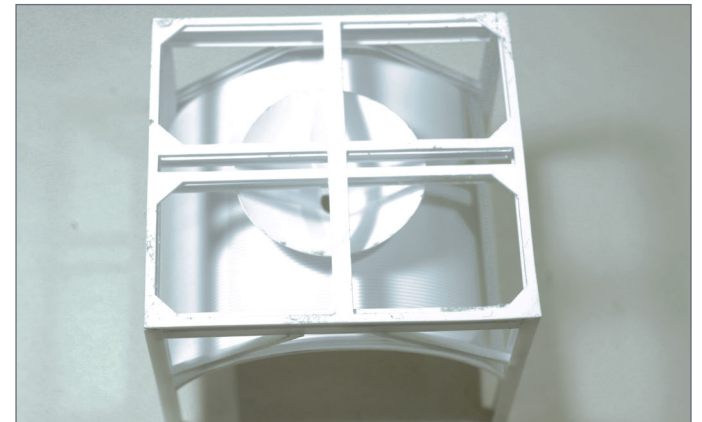


30. Fit angle I-beam braces to the ends.

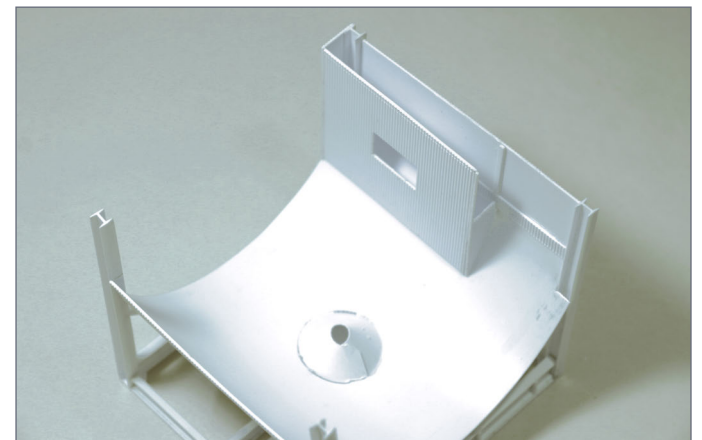
31. Cut shape and fit the 0.040" corrugated shelter for the scale area.



32. Top collecting cone fitted in place.



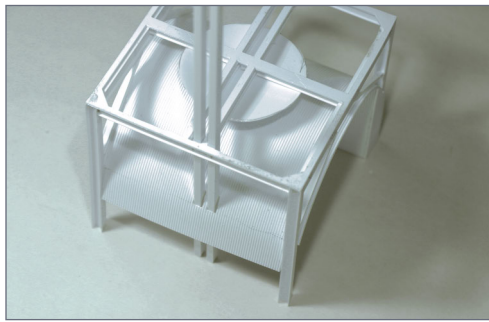
33. A view from the bottom. Three scale house walls fitted in place. Note the collection funnel protruding through the ceiling of the shelter.



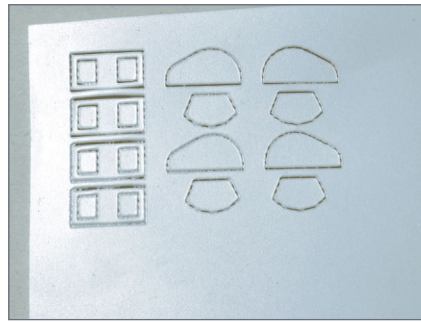
and slipped it into place between the top of the corrugated shelter and the I-beams above [32].

Because I wanted the bottom of the collection funnel to protrude though the corrugated shelter roof, I cut a hole in the center of the roof to accommodate. I also cut and fitted the three corrugated walls that form the scale house [33].

I used rectangular styrene strip to create the upward and downward conduits for the bucket conveyor system of the



34. The belt conduits of the lift pass through square holes cut in the round roof at the base of the silo complex.



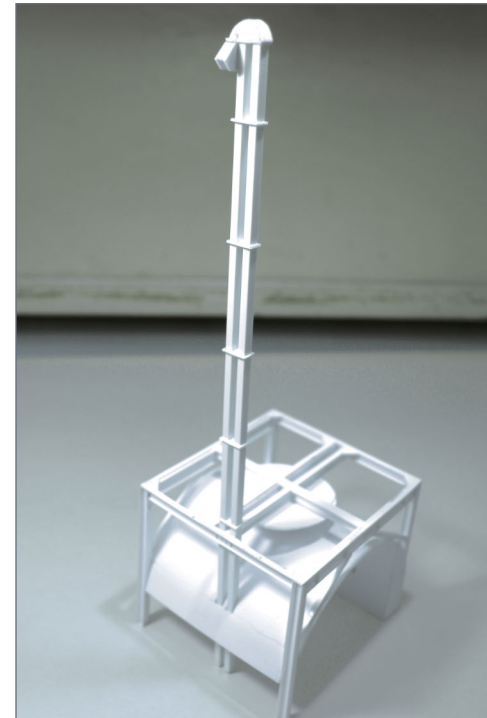
35. Support bracing pieces and parts for the head and distributor.



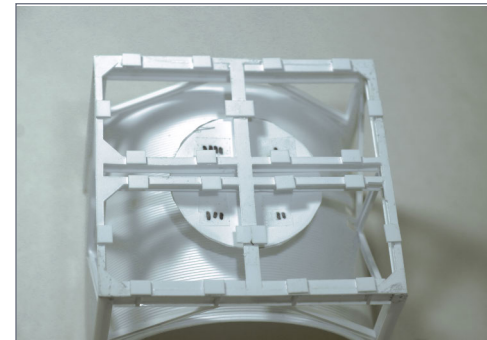
36. Assembling the distributing head. The tubes helped position and space the components but were not glued into the assembly.

silo's grain leg. I had to cut rectangular holes in the top of the corrugated shelter roof for the two legs to pass through [34].

I cut the support and bracing pieces for the conveyor legs and the pieces to form the head and distributor at the top from



37. Test-fitting the conveyor assembly.



38. Support pads at the top of the base strengthened the bond between the silos and the base.



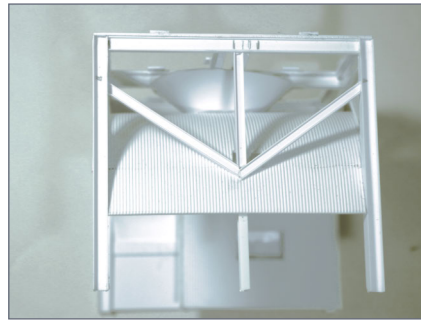
0.040" sheet styrene [35]. I used short pieces of tubing to help position and space the components for the head and distributor [36]. Once I had the leg assembled, I was ready for a test fit [37].

Next, I marked the position where the support columns for the silo would rest on the base structure. I added small styrene strip pads that these points to strengthen the glue joint between the silos and the base [38].

Finally, I added the small columns in the middle of either side of the round roof using 1/8" H-column (ESM No. 284).



39. 1/8" H-column and 1/8" I-beam angle braces added to the scale house side of the base.



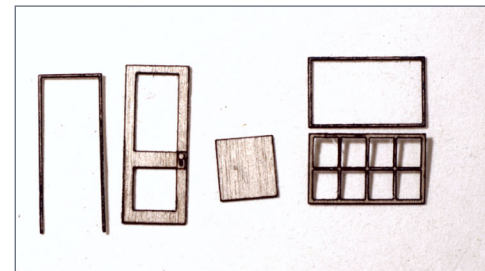
40. 1/8" H-column and 1/8" I-beam angle braces added to the opposite side of the base.



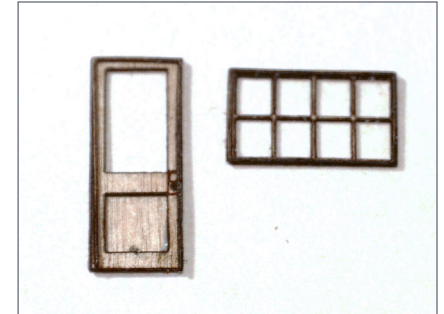
41. I added a short piece of 1/8" H-column to the inside of the scale house roof opposite the scale house to maintain the illusion that the column passes through.

This step required some cutting and fitting to allow the columns to look like they pass through the scale house arch roof. In this case, I did not actually cut a hole in the roof for the H-columns to pass through. Instead, I added a short H-column to provide the illusion of a continued column on the side without scales. I added 1/8" I-beam angle braces to either side of the H-columns [39-41].

I laser-cut pieces for the scale house door and window frame from 1/64" sheet plywood [42]. I then assembled pieces and glued them into the scale house window and door openings [43, 44].



42. Laser-cut window and door pieces.



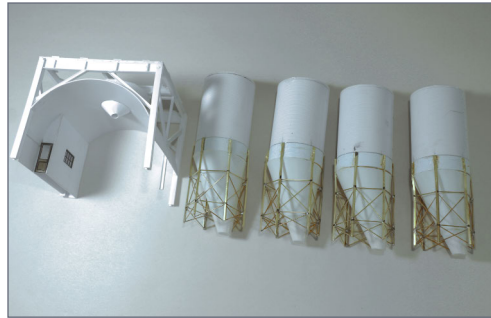
43. Window and door pieces assembled.



44. Scale house windows and doors installed.



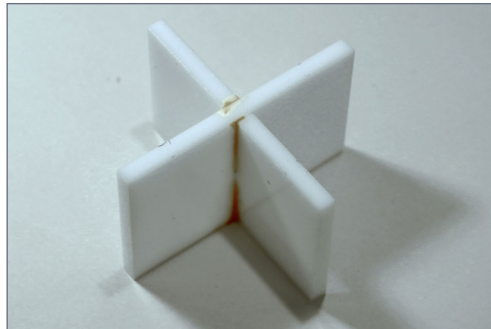
The next step was painting and assembling the structure [45]. I spray-painted the silos and base with Rustoleum No. 208 Light Gray Primer [46]. I laser-cut a jig from 1/4" white acrylic sheet to assist in properly spacing the silos for assembly [47].



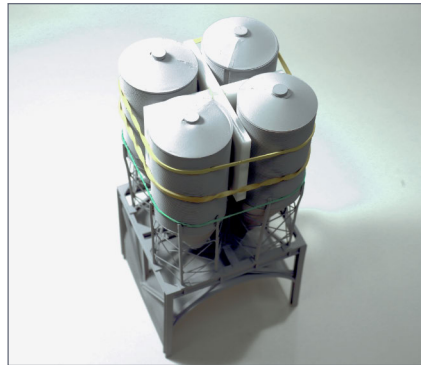
45. Silos and base structure ready for painting.



46. Silos and base painted and ready for assembly.



47. Acrylic tower construction jig.



48. Gluing the silos in place with rubber bands and the support jig.



49. I chose to add an open square support brace between the tops of the silos.

I glued the silos in place and secured them with rubber bands. I used CA to glue each of the silo support legs to corresponding styrene support pad on the base [48].

From a mechanical engineering standpoint, I decided it was likely that there would have been an open square brace between the tops of the silos to help strengthen the structure. I used 1/16" sheet styrene for the brace. Whether the prototype had it or not, it looked right [49]!

With this, the structure was complete and ready for detailing [50]. I added ladders and walkways, piping from the distributing head to the silos, and J-shaped angle vents for the silos.

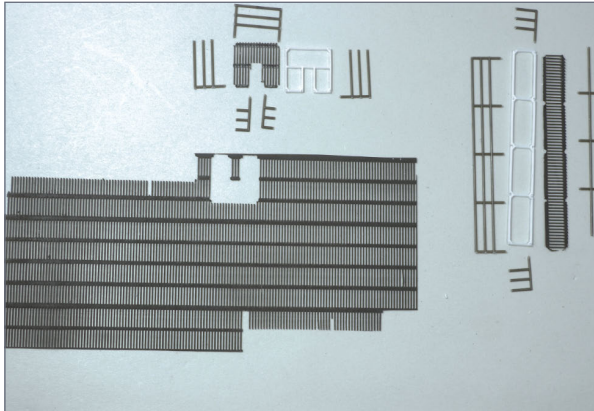
I used Central Valley Fences and Railings (no. 161) and Steps and Ladders (no. 162) to create ladders and walkways. To



represent the grating of the walkway surfaces, I used pieces of plastic sheets I had found in an old, destroyed car battery. Of course, not everyone has a destroyed car battery handy, so etched or solid material would also fit the bill for the



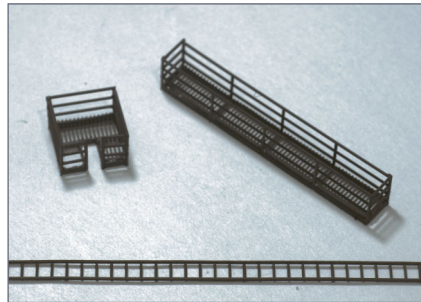
50. Silo painted and ready for detailing.



51. Base and railing pieces cut and ready for assembly. Note the sheet material salvaged from a car battery.



52. Walkways were assembled with PSA.



53. Platforms and ladder material painted and ready for installation.

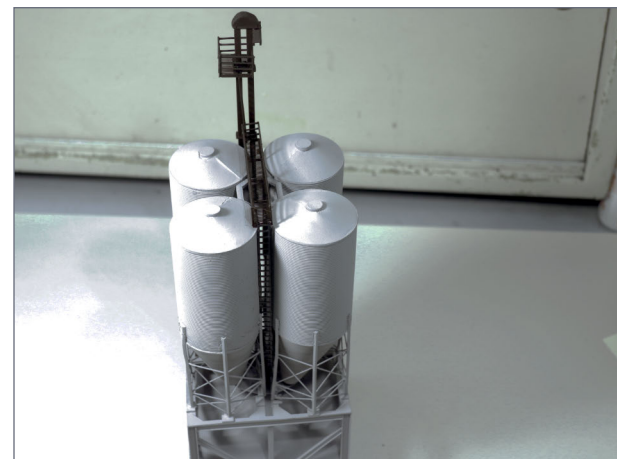
walkways. I laser-cut walkway frames from 1/16" sheet acrylic, including holes for the railings [51].

I assembled the pieces using Micro-Mark PSA, pressure sensitive adhesive. Once the assemblies had set, I spray-painted them with Rustoleum Camouflage no. 1918 Earth Brown [52, 53].

I glued the ladders and platforms into place using PSA and Walther's Goo [54]. I placed the access ladder going from the



54. Platforms, ladders and conveyor glued in place.



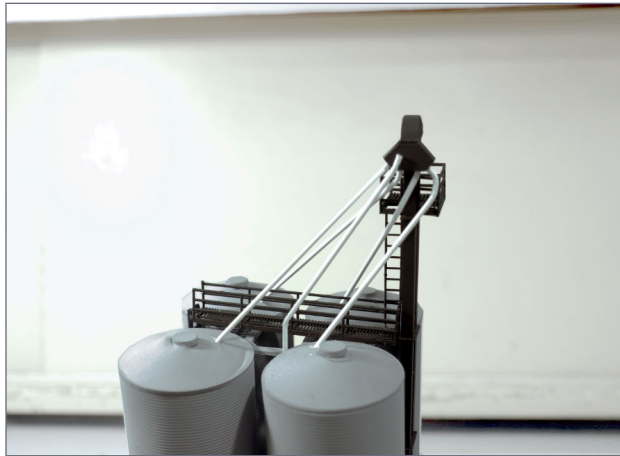
55. A ladder passes from the lower platform down between the two silos in this view.



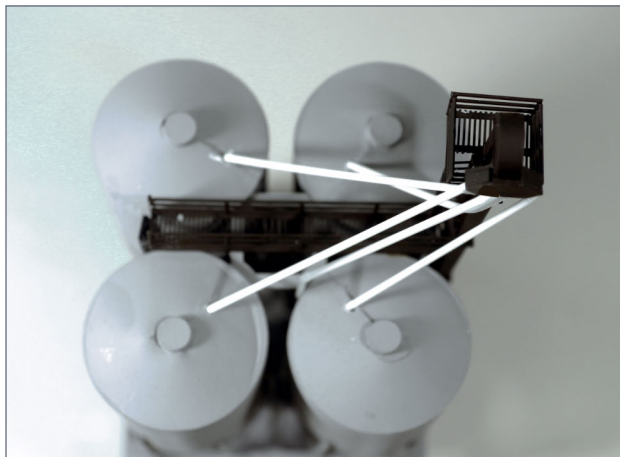
lower platform to the base of the silos so that it passes down between two of the silos [55].

Originally, I planned to use ESM styrene tube for the piping from the distributor to the silo roof vents. Unfortunately, the styrene tubing was hard to bend and did not hold shape well enough to create the complex piping bends.

So, I turned to an old friend. I used Plastruct 1/16" Butyrate Coated Wire (part no. 90102). It bends easily and holds it



56. Piping created from Butyrate Coated Wire.



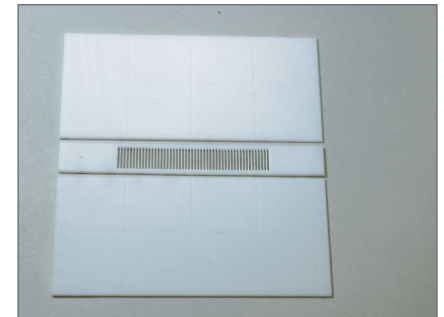
57. Note the fifth pipe running down the inside of the lower-right silo.

shape well. I created all of the top side silo piping and vents from this material [56]. I sprayed it with Rustoleum Earth Brown before final assembly. The main goal was to create the affect that piping goes everywhere! Four pipes go to the individual silos and a fifth pipe goes to the center of the silos, running down the side of one silo [57].

I used microscope slide glass material, PSA adhesive, and cotton gloves to glaze the scale house door and window [58]. I laser-cut a concrete base for the industry from 1/16" white acrylic plastic and painted it with Testors Camouflage Gray [59].



58. Glazing materials.



59. Laser-cut acrylic base.



60. Weathering with "Blackohol" dilute India Ink.



I weathered the whole structure with “Blackohol,” a dilute wash with two teaspoons of India Ink in a pint of alcohol.

This is especially helpful for bringing out the detail in the corrugations [60]. When this was dry, I weathered the structure with Bragdon Chalks in earth colors, plus light and

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dark gray with a dusting of “Dust Bowl Brown” around the base [61].

The structure was now complete and ready for installation on the layout. If the industry will operate after dark, I could add lights inside the scale house and to the underside of the arched roof.

The model looks pretty convincing to me! ✓

61. Ready for installation on the layout.





Chesapeake Western and Kankakee Part 1



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MRH Running Extra | October 2020

**YARON BANDELL CREATES NORFOLK SOUTHERN UNIT
TRAINS IN 24'x24' ...**

HERE IS MY JOURNEY CREATING A LAYOUT PLAN.

It is an attempt to show my thought processes behind creating a layout. All this work is done before even nailing a single piece

1. Unit train 42T at the diamond and wye leaving Harrisonburg, Virginia. This scene, and more, inspired my layout design. The image comes from video I shot on April 18, 2020, and available to view on YouTube. youtu.be/9Wt5Rce6Pic

of lumber to a wall. By going through a planning and design process like this, you should be able to gain a high degree of confidence in your own layout vision.

This layout is designed to fit inside my 24'x24' garage, with a side access door into the house [2]. Design started as a possible submission for the *Model Railroad Hobbyist* February 2019 layout contest. Time constraints prevented details from being completed on time, and the plans were never submitted for the contest.

A year went by with no progress until January 2020. On the *MRH* forums Paul Krentz posted his Pokey 3.0 track plan and asked for design feedback. After providing detailed feedback, I ended up with fresh ideas to get my unfinished plan looking the way I wanted. I completely redid the layout plan in two weekends by committing it to XTrackCAD layout design software. I spent another three weekends creating the layout features, industry descriptions, and initial set of train jobs for operations.

FORUM FEEDBACK

“Using the *MRH* forum to get feedback on your layout plan before you start to build can provide valuable insight. Feedback ranges from overall benchwork shapes down to individual track arrangements and how to switch an industry. This free feedback could prevent you from having to make costly fixes down the road.

You can find Paul Krentz’s “Pokey 3.0 Trackplan & Operations” discussion here: mrhmag.com/node/37210. Paul got 33 pages of feedback so far, and his original plan looks nothing like the final plan! ■



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GIVENS AND DRUTHERS

Every model railroad is built with givens and druthers in mind. No matter the size of the layout, during the planning phase we all end up making choices. These givens and druthers can be as simple as running a specific prototype, a specific time frame, include a specific iconic structure, an envisioned signature scene, etc. They are all personal in the end.

I envisioned having unit trains originating at an industry on one deck, then travel through a mainline level to the receiving industry on another deck. The different levels would give a sense of distance between originator and receiving industries, and justify two distant geographic areas modeled in a single layout. I also wanted several local trains serving industries from a nearby yard, and staying on the same deck during a session.

Another given was using industries with loop tracks as design elements to support running unit trains. Loading loop tracks typically eat up a lot of space, just like reverse loops and helices. Part of my planning challenge was to include two industries using loading loops, yet minimize the space used by



them. As an added difficulty, the loops required a minimum 36" curve radius.

An often-overlooked design element is sufficient track space at an industry. Each industry needs some extra track around its loading and unloading spots. Unless an industry has a spur only the length of their unloading area, they will need extra track space to move cars.

All these industrial track constraints take up more space. You could selectively compress this space and not treat the moving, loading, and unloading rail cars as part of the operating sessions. But including the extra track provides more realism for me. It is this type of operations that got me hooked on model railroading: the puzzle of unloading sugar beet cars on a module without fouling the main.

Continuous running is not a priority for me but would be a bonus. It could allow through trains to be modeled.

SELECTIVE TRAIN COMPRESSION

As modelers, we are aware of space constraints. We frequently compress track length, reduce the amount of track, or reduce curve radius to make a scene fit the space. We often omit buildings and make buildings shallower to install at the backdrop.

On this layout I need to compress unit train length. While my unit train

2. A panorama of my dream space shows some clutter, but soon my layout will fill much of the area.



desire is high, track space constraints force selectively compressing their length. Unless your *MRH* forum signature has “Rob in Texas” in it, you’re likely not running 100+ car trains on a layout.

The need to reduce unit train length becomes evident through some simple math. A relatively short 75-car HO scale covered grain hopper unit train, at 60’ per car, reaches a total length of 52’. A 105-car coal hopper unit train, at 45’ per car, reaches about 60-1/2’. Even in the available 24’x24’ space, this is pushing the workable limits. N scale train lengths would be about half of the HO scale length. But I’m not switching to N scale.

I need to compress unit train lengths. I feel these trains should span a full length of one layout wall plus a few extra feet. A unit train would always be rounding one corner of the layout and about to enter the next. The curves in the layout corners act as view blocks and make unit trains seem longer.

With my 24’ layout length, a total unit train length of 33 cars would be ideal. This train length covers several locomotives and a consist of sixty-foot covered hopper cars that are 8-1/4” long.

For industries without a loading or unloading loop, a unit train needs to be divided into cuts and spotted on storage tracks before the cars are processed. Dividing 33 cars equally is problematic: three cuts of 11, or 11 cuts of three. These are too short or rather long; neither is ideal for storage tracks.

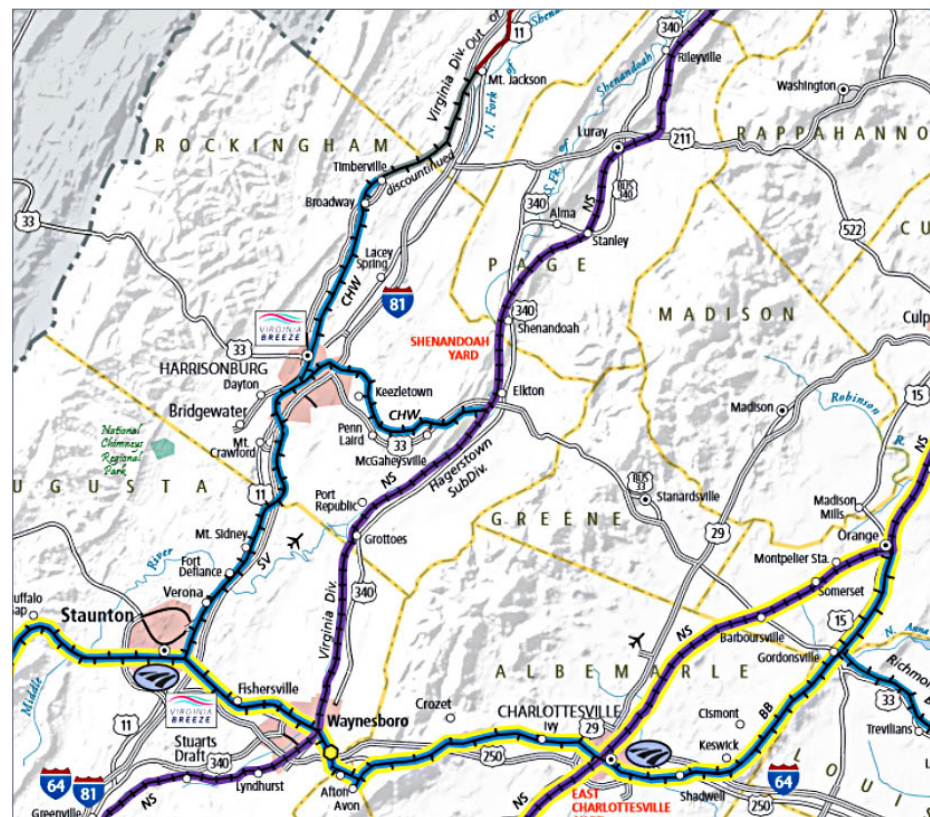
Making a unit train length of 35 cars becomes manageable. A 35 car train can be split into seven cuts of five cars, or five cuts of seven cars each. This gives me industrial storage track length options of moderate length. An industry-owned 44-ton switcher, or an EMD SW1500 locomotive, can handle these cuts. It would be pushing the limits of a Trackmobile.

MODELING FAMILIAR LOCALE

I live in Rockingham County, Virginia, where we have many more cows, pigs, and poultry than people. I am reminded of

the surrounding farms on a daily basis. You simply can't escape the odors. These farms and associated industries inspire me to have grain elevators and feed mills on a layout.

The Chesapeake Western (CHW) branch line from Norfolk Southern (NS) in Rockingham County and Harrisonburg, Virginia, serves several of these grain facilities [3]. On average, there’s one 75-car grain unit train per week. The CHW



3. This Virginia railroad map edit illustrates the Rockingham county railroads and connections. The blue line is the CHW. A PDF of the Virginia map is available online. www.drpt.virginia.gov/media/2944/2019-09-24_front-of-rail-map_print-final.pdf.



connects to the NS mainline, the H-line, at Elkton, Virginia, with Shenandoah Yard just north of this junction. I see regular coal unit trains, manifests, and intermodal hotshots running north-south on the H-line.

The northern part of the CHW branch physically connects to the NS B-line in Strasburg, Virginia. However, service has been discontinued between Broadway, Virginia and Strasburg for many years.

In Strasburg, there is an interchange with a CSX line that runs north via Winchester, Virginia, to Harpers Ferry, West Virginia. At Winchester, CSX meets, and even shares some trackage with the Winchester and Western (WW) short line which runs north to Martinsburg, West Virginia, and beyond.

The southern part of the CHW interchanges with the Shenandoah Valley Railroad (SVRR) at Pleasant Valley, Virginia. The SVRR gives access to the Buckingham Branch

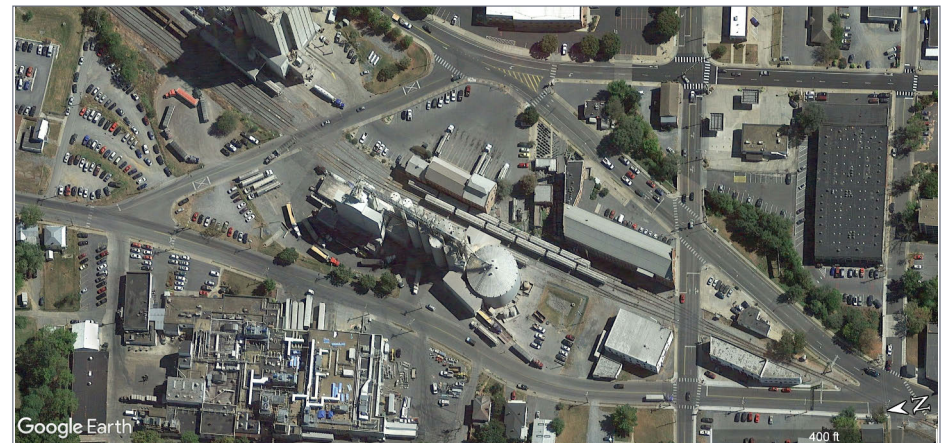


4. Harrisonburg Yard in Harrisonburg, Virginia is the main yard for the CHW branch line. It's not much more than a runaround track and two storage spurs. *Google Maps*

Railroad (BBRR) and CSX railroads in Staunton, Virginia. A western branch of the CHW runs only to Dayton, Virginia



5. The Cargill Feed Mill is located in the middle of Harrisonburg, Virginia. They use a Trackmobile to move hoppers for unloading. *Google Maps*



6. George's Feed Mill is on the other side of the Kratzer Ave. crossing, right across from the Cargill operation (upper left). *Google Maps*



these days. The tracks to Bridgewater and beyond were removed decades ago.

LARGE INDUSTRIES SELECTION

Harrisonburg has several industries that are still rail-served. Harrisonburg Yard [4] exists, but it's merely a runaround track with two spurs these days.

Within a mile of track on the north side of Harrisonburg, both Cargill [5] and George's [6] have feed mills, while Pilgrim's Pride [7] has a combined grain elevator and feed mill. Farther north, the local Virginia Poultry Growers Co-Op (VPGC) [8] has a grain elevator in Linville, Virginia. VPGC also has a feed mill [9] further north in Broadway. The VPGC feed mill receives grain by one of the NS locals from the VPGC grain elevator on a nearly daily basis. They also get potash and soy loads from outside the region.



7. Pilgrim's Pride Grain Elevator is at the far north end of Harrisonburg, Virginia. Due to space constraints, Mount Clinton Pike next to the facility has to cross four tracks. This facility is barely large enough to hold an entire 75-car unit train. *Google Maps*



8. The VPGC Grain Elevator in Linville, Virginia, was purpose-built in 2008 just beyond the Harrisonburg city limits. In 2019, an additional metal grain bin (not shown) was added, nearly doubling their grain holding capacity. *Google Maps*



9. VPGC's feed mill in Broadway, Virginia. In 2019, two large storage bins were added to hold more grain. Only one of them is visible in Google Earth imagery. *Google Maps*



Active West Virginia coal fields are west of Harrisonburg. An interesting example is the Alex Energy coal mine [10] near Drennen, West Virginia. It has its flood loader situated on a balloon track. It's 114 miles, as-the-crow-flies, west of Harrisonburg, but several times that by rail.

The grain elevator, feed mill and coal mine industries will be my traffic anchors on the first deck of my Chesapeake Western layout.

MOVING GRAIN

During my online searches I found information in a BizNS PDF document about a grain-loading facility being built in Dwight, Illinois, which is on the NS Kankakee branch. This branch line runs from Wheatfield, Indiana, in the east, to Hennepin, Illinois, in the west. Within the nearly 127 miles of trackage, it crosses CN, BNSF, CSX, and two UP mainlines.

The Consolidated Grain and Barge Co. (CGB) grain loading facility [11] was built in 2011. It uses four large metal storage bins arranged in a square pattern and straddling the loading loop. A few miles east of Dwight is another grain loading loop on the west side of Kankakee, Illinois in Limestone Township.



10. The Alex Energy coal mine near Drennen, West Virginia. The coal is transported via a 2.2 mile conveyor belt system from the mine to the coal storage next to the balloon track. *Google Maps*

SEARCHING GOOGLE EARTH

The NS grain unit trains to the CHW typically originate in the Midwest, around Decatur, Illinois. I looked online for suitable industries NS serves in this area. I used Google searches, Google Earth and Google Street View to find and inspect locations. I looked for grain elevators with a loading loop, coal fired power plants, and ethanol bio-refineries. The grain loading facility had to be in a wide-open space with metal storage bins. Once locations were found, I cross-referenced the locations against the NS system map at the following website: nscorp/en/system-overview.html ■

EMPLOYEE MAGAZINES

I found more details in BizNS, an NS employee magazine. Volume 4, Issue 1 of BizNS has details on the new Consolidated Grain and Barge Co. facility (pages 16-18). You can download a copy of this magazine at: www.nscorp.com/content/dam/nscorp/bizns/archive/BizNS_Vol4_Issue1.pdf. ■

RESEARCH DETAILS

I found FS Grain facility information on a computerized weighing systems vendor website. PDF files of trade magazine case studies were available. A file of technical data was useful. It can be found at; www.compuweigh.com/wp-content/uploads/2016/03/Eastern-Grain-Marketing-SmartTruck-Bulk-Weigh-Scale-Case-Study.pdf. ■



This facility opened in 2013, and is owned and operated by FS Grain [12]. The bins of FS Grain are metal and arranged in a classic single line.



11. The Consolidated Grain and Barge Co. grain elevator facility with loop track near Dwight, Illinois. Notice the placement of the metal bins: some inside, some outside the loop track. *Google Maps*



12. The FS Grain elevator facility with loop track. Here the grain bins are in a single line outside of the loop. This facility also has a small storage track branching off the loop. *Google Maps*

West of Dwight, near Hennepin, is the large Marquis Energy ethanol bio-refinery [13]. It has long linear loading and storage tracks with



13. The Marquis Energy ethanol plant located near Hennepin, Illinois. *Google Maps*



14. Hennepin Power & Energy is a coal-fired power station near the end of the Kankakee branch line. The end of the branch line can be seen just to the left of the compass "N" in the lower right corner of the image. *Google Maps*



concrete silos for grain storage. North of Marquis Energy is Hennepin Power & Energy [14], a coal-fired power station.

Although Hennepin Power & Energy closed in 2019, satellite imagery showed rail service had been removed many years before.

I found online sources indicating coal was brought in by barge. Some trackage reportedly remains on-site. The Kankakee branch line currently ends at a spur for the Washington Mills silicon carbide abrasives producer, right next door to Hennepin Power & Energy.

East of the FS Grain facility is Kankakee Yard [15]. It's a decent-size yard. Based on the assigned NS train symbols, many local switch jobs originate there to serve local industries.

The east side of the Kankakee branch line ends in Wheatfield, Indiana, at the NIPSCO R.M. Schahfer power station [16].



15. The large Kankakee Yard in Kankakee, Illinois, originates local trains for FS Grain, CGB, Marquis Energy and Hennepin Power & Energy industries. These are all located west of the yard. *Google Maps*



16. The NIPSCO R.M. Schahfer power station in Wheatfield, Indiana, is a massive facility with five full unit train arrival tracks and two full unit train departure tracks. It lies at the end of the NS Kankakee branch line. The facility is slated to be decommissioned in 2023. *Google Maps*

The NIPSCO facility has four active units with a power capacity of 1,943 megawatts. It's slated to close in 2023.

The plant has five arrival tracks in front of the coal unloading shed. Each arrival track is capable of holding a full 125-car coal unit train. Past the unloading shed there are two departure tracks, each long enough to hold an entire 125-car train.

The NIPSCO facility is too large to model in the given space, even if selectively compressed. However, I can imagine a rail-served Hennepin Power & Energy using elements from the NIPSCO facility and the Clover Power Station near Clover, Virginia [17].

These industries form the basis of the second deck: the Kankakee.



ADDITIONAL HARRISONBURG INDUSTRIES

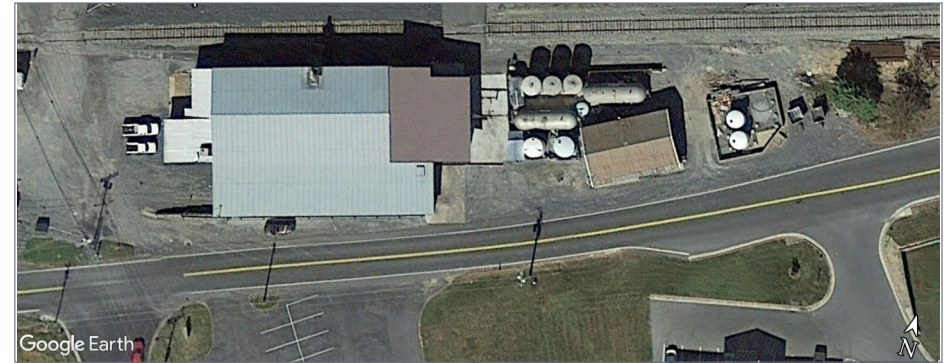
After selecting the major industries served by unit trains, I need smaller to mid-size industries to generate local traffic.



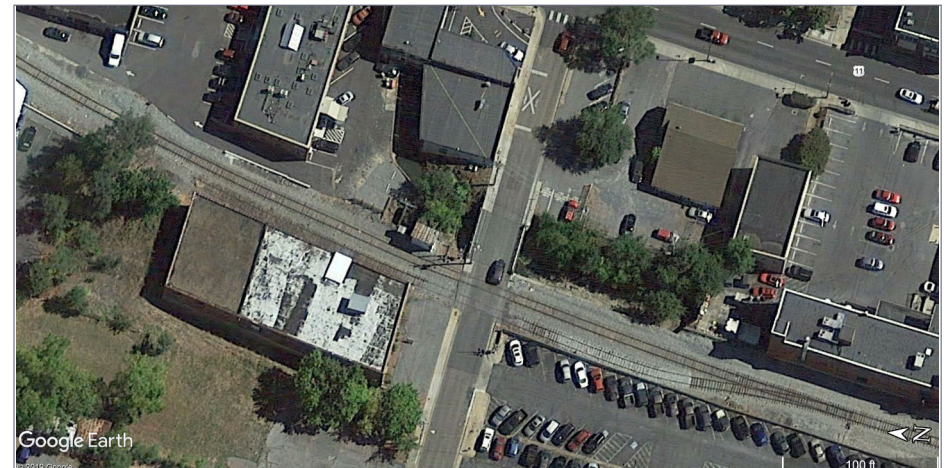
17. The Clover power station in Clover, Virginia will supply track arrangement elements for my Hennepin Power & Energy facility.
[Google Maps](#)



18. AmeriGas has a four-spot propane unloading station.
[Google Maps](#)

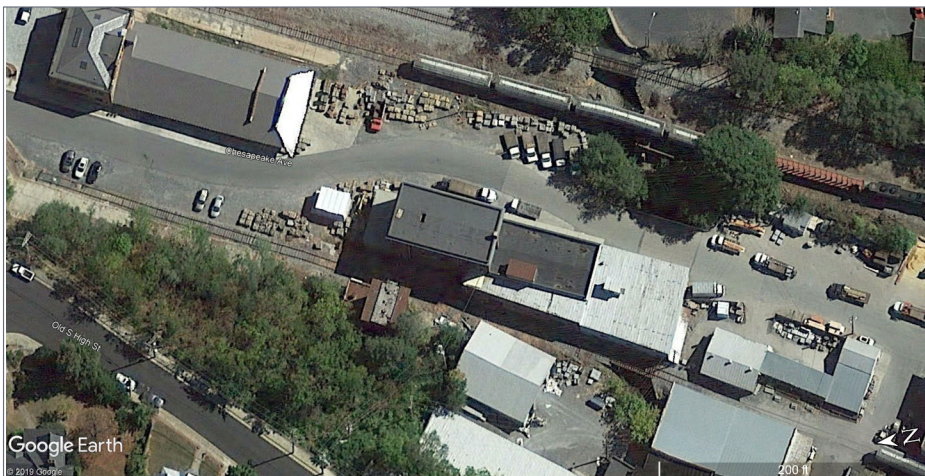


19. The S.L. Hess & Sons fertilizer dealer is on the south side of town.
[Google Maps](#)



20. To the left of the car at the grade crossing is a small white block building. This is the pump station for Artisan Packaging, a plastic-packaging manufacturer. The unloading spot is located on the west side of the main across from the pump building. The unloading spot is nothing more than a pipe sticking out of the ground. Pellets are sucked out of the hopper and conveyed by underground pipe to Artisan Packaging's facility, located two or three city blocks west of the unloading location!
[Google Maps](#)





21. R.S. Mongers & Sons building material supplier is located at the end of a storage spur in the yard. *Google Maps*



22. R.R. Donnelley & Sons has two printing facilities. This one is on the north side of town. A second rail-served facility is on the south side of town [33]. *Google Maps*

I found several simple industries on the CHW. AmeriGas [18] has a propane facility with four unloading spots just north of Harrisonburg.

Added into the mix is the S.L. Hess & Sons fertilizer company [19], Artisan Packaging plastic packaging manufacturer [20], R.S. Mongers & Sons building materials supplier [21], and R.R. Donnelley & Sons large printing operation with two rail-served facilities [22, 33].

OTHER LOCAL INDUSTRIES

Skyline Post and Pole [23] manufactures fence posts in Broadway. While they have not received rail service in decades, their mainline switch is still there, and service can be revived to ship finished product. They get their lumber via trucks from logging operations in surrounding national forests.

Farther north at Strasburg, we cross onto CSX tracks while heading toward Winchester.



23. Skyline Post and Pole in Broadway, Virginia. The spur is barely visible because it hasn't been used in decades. The spur ends near the saw building at the left. *Google Maps*



Just north of the NS-CSX interchange in Strasburg we find one of several Carmeuse stone quarry facilities [24]. Each facility has a kiln to transform limestone into oxides for steel making and to scrub sulfur at coal-fired power plants.

WINCHESTER INDUSTRIES

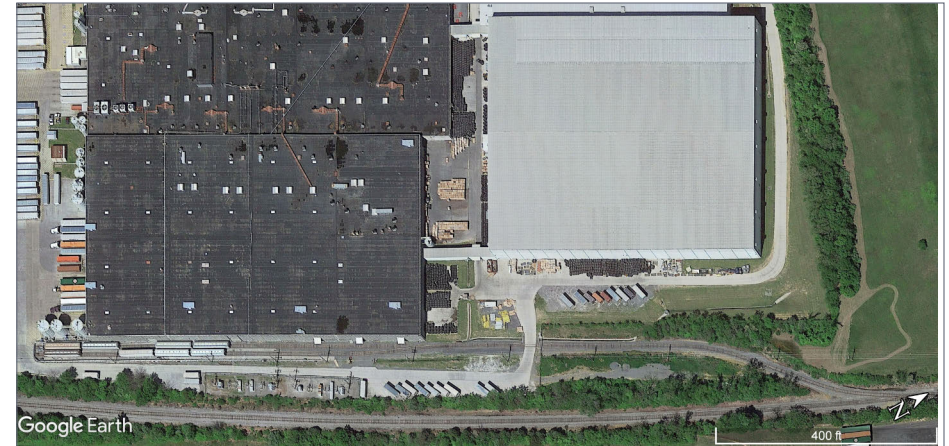
South of Winchester is a Rubbermaid Commercial Products facility [25]. In Winchester, the tracks are shared between CSX and WW. Miller Milling [26] is located where CSX splits from the WW tracks.

Miller is a large grain elevator and flour mill receiving at least one grain train with at least 100 cars a week. It provides flour and grain to next door neighbor Riviana/New World Pasta. CSX also serves Kingspan Insulation [27], a producer of extruded polystyrene (XPS) foam boards and plastic house wrap products.

Going north on the WW is Cives Steel [28], a steel-frame building manufacturer. They receive flat cars with steel beams.



24. Carmeuse Strasburg Operations ship limestone products for steel and power plants. *Google Maps*



25. Rubbermaid Commercial Products facility. *Google Maps*



26. The Miller Milling grain mill is served by CSX unit trains on a nearly weekly basis. Look at the crossover switches at the south end of their storage tracks, allowing locomotives to escape to the next track. *Google Maps*



Another simple WW industry is Crown Cork and Seal [29], a manufacturer of cork and bottle caps from raw products received by boxcar. At the far north end of Winchester is Hub Scrap Metal of NOVA [30]. It's your average messy-looking scrap yard facility. Beyond Winchester on the WW, Associated Asphalt [31] is near Martinsburg. It's a large facility with 20 tank car unloading spots for bitumen products.

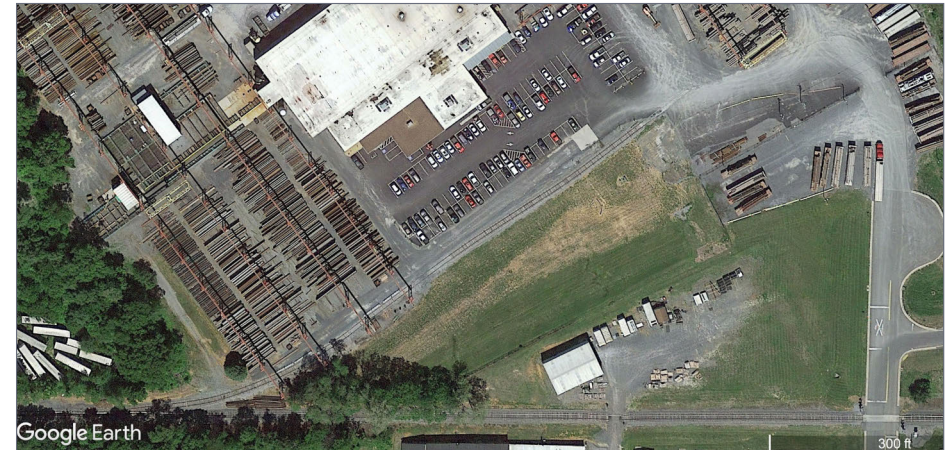
Back in Harrisonburg, US Cold Storage [32] is on the south end of the CHW. The single spur leads to two of their three warehouses. This spur has not seen active use for several decades due to track conditions. The company is focused on truck traffic and avoiding reefer car loads.

Just a few miles south on the SVRR, cold-storage competitor Interchange Cold Store built a brand new cold-storage

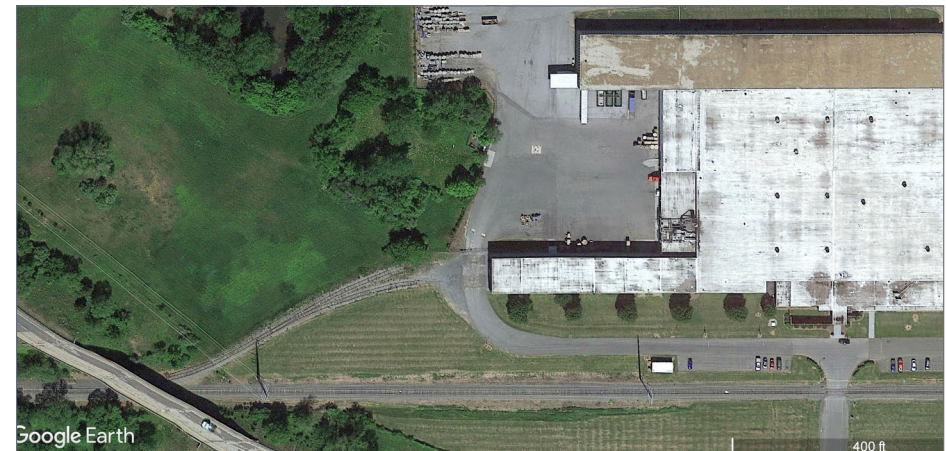


27. Kingspan Insulation is one of two insulation manufacturers on the CSX line. One of the products made here are XPS foam boards, which we modelers frequently use as the base of our scenery. There are two covered hopper unloading spurs because different types of plastic chemicals are unloaded. *Google Maps*

facility in 2019 with rail service. In September 2020 Interchange Cold Store took an ownership stake in the SVRR, citing the value of rail service for their business.



28. Cives Steel on the WW stocks steel beams for industrial, commercial, and residential building use. *Google Maps*



29. A somewhat unusual industry is Crown Cork and Seal, producing cork and bottle caps. *Google Maps*





30. Hub Scrap Metal of NOVA is at the far north end of Winchester on the WW. *Google Maps*



31. Associated Asphalt is one of two asphalt product facilities on this part of the WW line. *Google Maps*

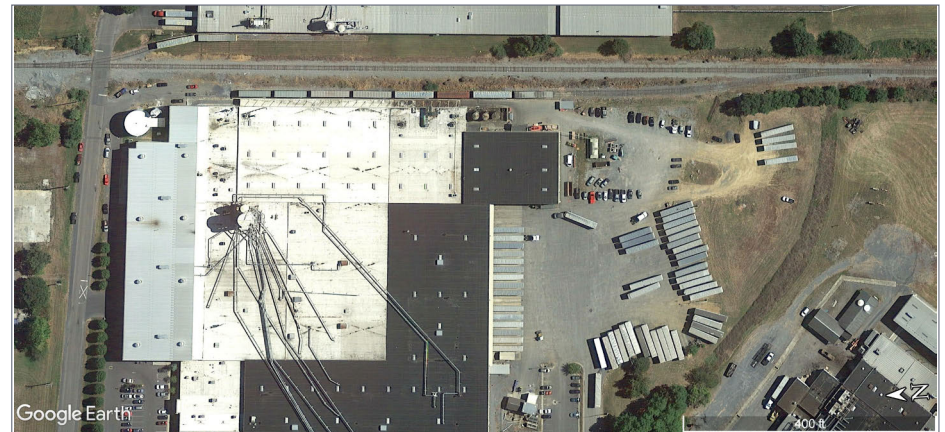


RATE THIS ARTICLE

Going farther south, near Harrisonburg city limits is Package Company of America (PCA) [33], a producer of cardboard packaging products. Their facility is right across from the second R.R. Donnelley & Sons facility.



32. US Cold Storage facility in Harrisonburg. *Google Maps*



33. The industry west of the mainline is Package Company of America, a cardboard-packaging manufacturer. East of the mainline (top) is the second R.R. Donnelley and Sons facility in Harrisonburg. *Google Maps*



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Transload facility Virginia Rail Services (VRS) [34] is the last customer on the south side of the CHW. Lam's siding is the only rail point before the SVRR-owned interchange point in Pleasant Valley, Virginia.

In the past, VRS unloaded double- and triple-deck auto racks for a used car dealership in town. The facility is reported in the yearly *AAR Automotive Facility Guide* as inactive for car unloading. Satellite images show a variety of rail cars stored on this spur throughout the decades: auto racks, flat cars, center beams, box cars. It is currently actively used for transloading plastic pipe to trucks.

I've found many more industries between the WW and CSX around Winchester and farther north into West Virginia, as well as on the south side of the CHW on SVRR trackage. Amongst them more asphalt facilities, chemical supply facilities, more insulation material producers, food producers, lumber mills, a protein producer, a sand quarry, more limestone quarries, and even a large stone quarry served by both WW and CSX.



34. Transload facility Virginia Rail Services on the far end of the CHW near Pleasant Valley. Google Maps

INDUSTRY PLACEMENT

I'll close this month with details on the Chesapeake Western layout level. After several layout plan iterations, I came up with an industry plan that fits the space. Paul Krentz's Pokey 3.0 design inspired an entrance change to the peninsula, which swayed me from earlier attempts of a W-shaped layout.

The plan now flows around the room with a single extra-wide peninsula in the middle. The extra width of the peninsula works for industries requiring a balloon or loop track. A hatch enables access to the far side of the loading loops [35]. I was able to fit 16 industries and a yard on the Chesapeake Western deck.

My design focuses on selecting and placing industries. I didn't specify or draw any benchwork elements. Those are outside of the scope of this article. There have been plenty of benchwork articles in the hobby press.

As you can guess, there's a lot going into the layout design. I'll review staging and the Kankakee design details in the November issue. ☒



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Wondercutter S



RATE THIS ARTICLE

MRH Running Extra | October 2020

JEFF PALMER TESTS OUT THE WONDERCUTTER S ...

I WAS RECENTLY PERUSING THE MICRO MARK CATALOG WHEN I happened upon a tool called the Wondercutter S (Micro Mark part #88195) [1]. As I read the

WONDERCUTTER S | 2

1. The Wondercutter S is a new, powerful cutting tool from Micro Mark. Its knife blade vibrates 40,000 times per second to make precision cuts easy, even in thick styrene.

tool's description, I began to imagine how I could use it. It just so happened that I wanted to remake an old Roundhouse MDC Climax.

I wanted to dismantle the Climax, separating its parts. The precision of a knife would have been ideal for the job, but the plastic was too thick. My other option was sawing, which was less than ideal. For one, you lose the width of the sawblade to dust. For another you have to sand and fill the rough edges left behind in order to have a good finished project.

This new Wondercutter is a knife with a blade that vibrates 40,000 times per second. It promised the cutting ability of a saw, but with the precision of a knife. This device got my attention. I'm a tool junkie anyway and I was needing a fix. My enabler, PayPal, transferred the funds, and the next thing I remember, UPS delivered a couple of days later. And then I opened the box [2].

Needless to say, that note got my attention. I understood the part about 50/50 duty cycle – use the tool continuously for 5 minutes, let the tool cool for 5 minutes—but what's with the “Max run time not to exceed 10 minutes?” This caused me to pause and read the manual. Yeah, I know. It's against the tool junkie creed to read the instructions first, but I'm confessing. I did.

It turns out that 40,000 vibrations per second produces heat, and as the transducer gets hotter, it needs more power to keep going. Eventually, this could cause an overload on the unit's motherboard and cause it to shut down. To avoid this, the cutter automatically goes into Standby Mode to cool down after 10 minutes of continuous use. If this condition happens, the Wondercutter needs a minimum of 10 minutes to cool



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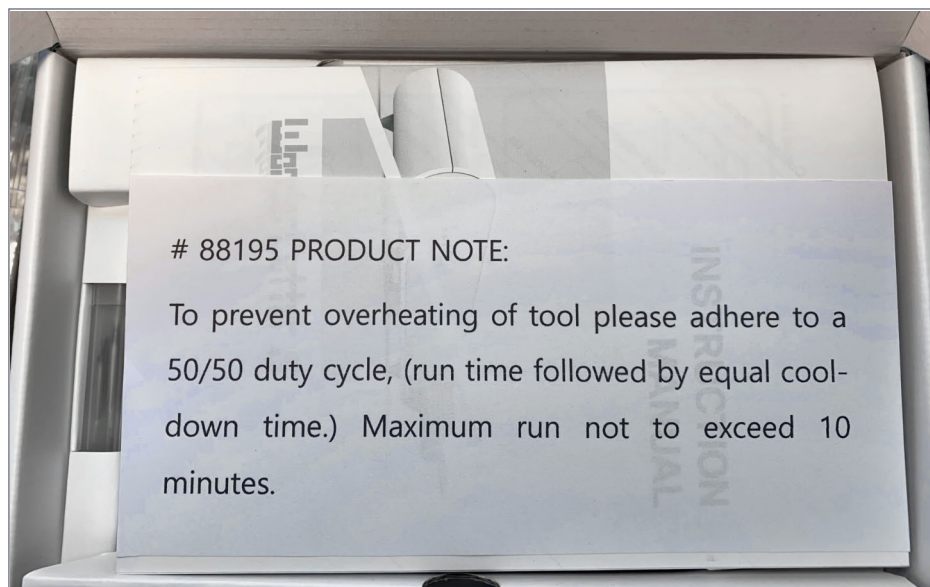
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down. I'd give it at least 15 minutes – don't ask me how I know – so you don't accidentally damage anything.

With my anxiety under control, I proceeded on to see what I got in the package [3].

Feeling the adrenaline and excitement surge in my veins, I began the task of removing the plastic encasing the cord going to the knife. The task was easier said than done. I'm not sure why, but the plastic protecting the cord was actually embedded in the case of the knife handle. I had to loosen the rear screw to release the last of the plastic so it could be removed. Yeah, I know, OCD.

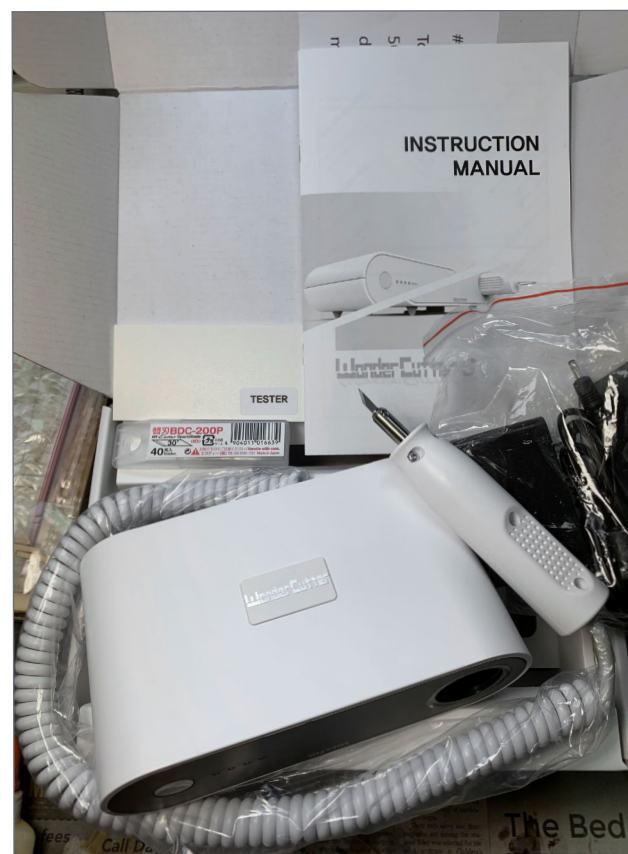
I walked the device and its charger over to the workbench and plugged it in. I pushed the power button and the battery indicator displayed four LEDs. The unit comes fully charged [4]. Tapping the power button did not turn the device on, however.



2. A warning note is the first thing new owners see when opening the Wondercutter's box.

You have to hold it for about a second or two. Turning it off is the same procedure. Two beeps indicate the device has powered up, and the same two beeps, in reverse order, indicate the device has powered down. Listen for the beeps, because the device powers up into Stand-by Mode.

In Stand-by Mode, the knife is ready to work, but it only activates when you press the button on the handle [5]. The knife looks like any other hobby knife, but when you touch that button and the light on the handle turns green, stand back. You have a powerful tool in your hand.



3. The Wondercutter package includes extra blades, collet, Allen screws for the collet, an Allen key, a charger, an instruction booklet, and a 1/8" thick piece of styrene for testing the knife.



WONDERCUTTER S | 5



4. Tapping the power button displays the battery status. The unit came fully charged, with all four LED indicators lit. Pressing the button for 1-2 seconds turns the Wondercutter on.



5. The Wondercutter blade activates with the push of a button on the side of its handle. A green light indicates the device is working.

WONDERCUTTER S | 6

Not knowing what to expect, I clamped the TESTER styrene sheet to the workbench and prepared to make my first cut. Although the knife was vibrating at 40,000 vibrations per second, I did not feel anything but the weight of the tool. I touched the blade to the styrene, and WOW! The cuts were so effortless they were addictive. I kept making small cuts [6].

The knife went through the plastic as smoothly as the proverbial "hot knife through butter." Well, almost. After one of the cuts, I felt the freshly cut plastic edge and noticed it was warm, but not melted. I noticed though that you don't want to



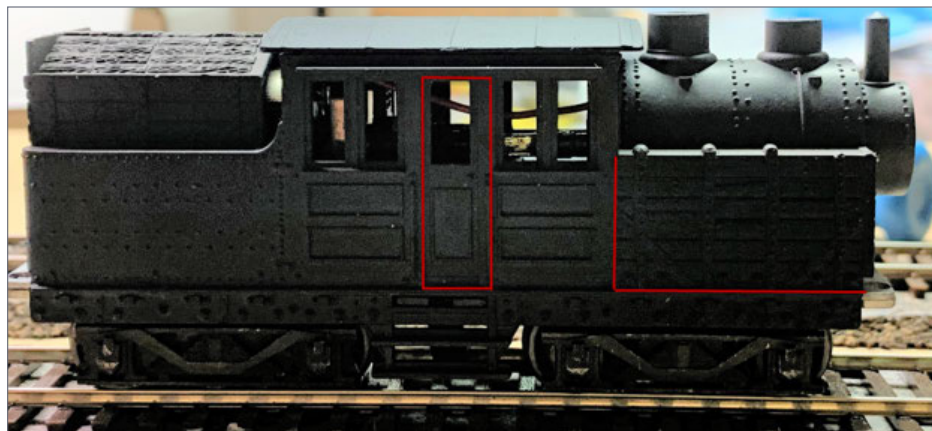
6. The package included a sheet of 1/8" styrene for making test cuts. Though it did not actually melt the plastic, the Wondercutter worked as smoothly and effortlessly as a hot knife in butter.

WONDERCUTTER S | 7

leave the knife in one place very long, because that will melt the plastic. It is important to keep the knife moving or withdraw it immediately after making a cut. I quickly learned to use this knife just like I would my X-Acto or scalpel. Draw the knife lightly along the cut line. It's OK to make more than one pass.

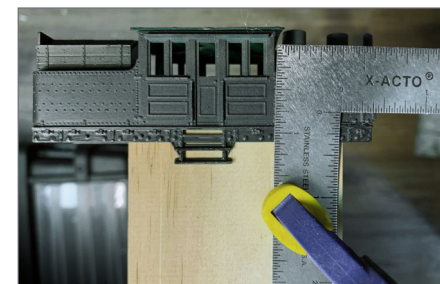
This brings me back to the original project, and the real test for the Wondercutter. Can it make fine enough cuts for kitbashing a model? Roundhouse MDC produced a climax that was all wrong; it didn't match any prototype that I could find. Even so, with a few modifications, you can make it pass for a first-class Climax. Specifically, for the purposes of this article and the Wondercutter, the cab doors needed to be removed and the boiler needed to be lowered. So I removed the shell from the frame and took it to my workbench.

Using a piece of 1"x3" lumber and a couple of Quick-Grip clamps, I improvised a jig to hold the body shell while I made

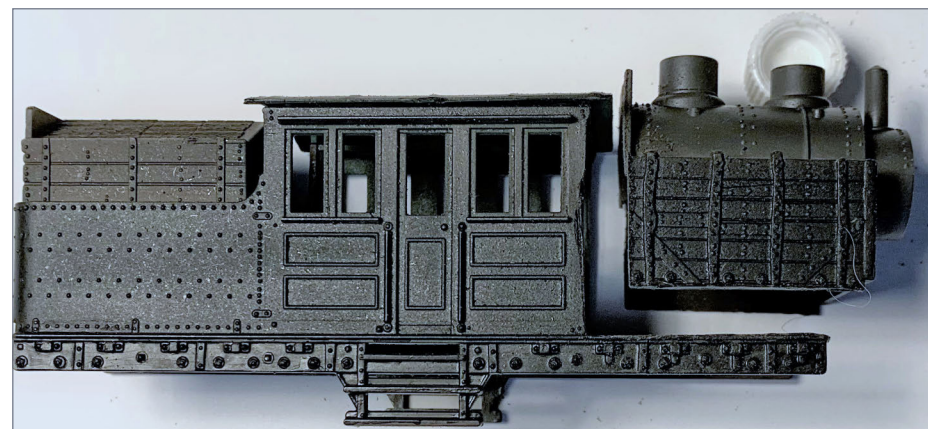


7. This old Climax locomotive from Roundhouse MDC matched no prototype I could find. Lowering the boiler and removing the cab door could convert it into a passable Class A.

WONDERCUTTER S | 8



8. I set up a jig consisting of a 1"x3" piece of limber and Quick-Grip clamps to hold the project steady and a square to guide my cuts.



9. Using the Wondercutter, I was able to make the two cuts to remove the boiler in a matter of seconds.

the cuts. I added the straightedge to help guide the cut and protect what I didn't want to cut [8].

It took longer to set up the clamps than it did to make the cuts; the cuts were done in under 10 seconds. They were smooth and required minimal sanding. I started my cuts in the corner where the two lines meet and simply drew the knife to me. It was that fast. Since I was using the ruler as my guide, it was that



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smooth [9]. I went on to make the rest of the necessary cuts to remodel the Climax, but that's material for another article.

I'm really happy with the Wondercutter's performance on plastic, but I wanted to know how it would work with wood. I'm a scratchbuilder, which requires me to use scribed siding from time to time when I'm not doing board-on-board construction.

First I grabbed a piece of ¼" bracing sock and made a cut. The Wondercutter cut the material faster than I could using my #5 X-Acto knife with a new blade, but the tool of choice for this job is still my NWSL Chopper.

If I lingered making the cut, I would see a puff of smoke. It was not like the smoke from a flame, but more of the smoke you get from scorching the wood. The same sort of smoke you get when cutting a piece of lumber with a dull table saw blade.

Undeterred by this, I pressed on to sheet stock. I laid out a house end and went to work [10]. I started with board and batten, the roughest siding to cut. The knife didn't struggle, but it took two or three passes per cut. To me, this was not much faster than using an X-Acto knife with a new blade, though the cutting was definitely easier. It was certainly faster than using an X-Acto knife with a not-so-new blade.



10. I set up a house end pattern on various pieces of sheet stock to test the Wondercutter. The cross-grain diagonals of the roofs consistently required the most passes.



11. The Wondercutter consistently made clean, precise cuts in the sheet stock. The smell of scorched wood was prevalent.

For corrugated wood siding, the results were the same. In both cases, cutting the roof diagonals was the slowest, requiring three to four passes to cut completely through. Clapboard siding was faster, only requiring two or three passes to complete the cut. The fastest cut was scribed sheathing, which only required one or two passes. In all cases, the Wondercutter made clean cuts. In all cases, I experienced scorched wood odor [11].

Things slowed down when I was cutting plywood. The thinner pieces of plywood, 1/32" and 1/16", were quick work for the Wondercutter. It was through in one or two passes.

At 1/8", things slowed down, requiring three or four passes to get a cut. I also noticed that as I went through each ply, the blade would wander slightly, making it difficult to get a clean cut. Keep



in mind that as a scratchbuilder, I'm used to making delicate cuts, so some of this could be my learning curve with the tool, and I will get better and faster with practice.

The other main material in a scratchbuilder's supply piles is cardstock. We're not talking paper, index card, or folder-thick material, we're talking 1/16" and thicker. The knife cuts through this material, as with plastic, like the proverbial "hot knife through butter." Where I would normally do several strokes with my X-Acto knife, one pass and done with the Wondercutter.

A note of interest: I usually work on Pyrex glass or stone. When doing that, I hear the blade vibrate as it cuts, sometimes making a screeching sound. That sound is the blade striking the hard surface and dulling. Since I'm not sure about 40,000 vibrations per second and Pyrex, I have started using my old reliable cutting mat. This change eliminated the noise, while increasing the life of the blade.

The only thing I did not like about the Wondercutter was the cord that goes between the knife handle and the main body of the unit. The cord is stiff. No matter how I stretched it before using the knife, it would return to its original stiff shape. I could not get the coils to slacken. I found the length of the coiled cord restricting. At times, I had to drag the Wondercutter body across the workbench when I was making a cut, knocking things over in the process. I even tried clipping it to my belt, using the built-in clip, but it would pull off my belt. The cord was so stiff that the unit never hit the floor. A safety feature, perhaps?

One final note to be aware of: When you place the knife handle in the hole/socket of the console, be sure to align it properly. Otherwise, the sides of the socket may press the button on the handle of the knife so that it will be working, rather than cooling. I've never done any damage doing this, but my knife did not receive its proper recovery time. As a solution, I simply lay the knife on the table with my other tools between cuts. I return

it to its socket only when I'm finished with the tool and am ready to turn it off with the main power button, and put it away.

In the final analysis, the Wondercutter is a great knife. If you are working with plastic, it's a must-own. In wood, it's a good tool to have available for making those tough cuts like windows. I have added the Wondercutter to my arsenal of tools. It is the best tool I have for working with plastic and cardstock. I plan on using it with my wood projects, too, but there it has stiff competition with the table saw, chop saw, and chopper.

If you don't have those other tools, then the Wondercutter will do the job for wood, too. To answer the question which started the article, the Wondercutter S turned out to be the perfect tool for my Climax project. ☒



JEFF PALMER



Until Jeff retired, he spent 50 years developing software, and 25 years as a college professor.

His interest is in logging and mining with narrow gauge.

About two years ago, he completed his MMR (Master Model Railroader) certificate from the NMRA. During that journey, he had the privilege of meeting many of the modelers he looked up to. His goal is to be recognized in this group someday. ■





MRH Running Extra | October 2020

JACK BURGESS SHOWS HOW TO MAKE THE BEST OF A COMPROMISE ...

FEW MODELERS WOULD DELIBERATELY CHOOSE TO INCLUDE A DUCK-UNDER in their plans for a new layout, but duck-unders are often unavoidable compromises for accessing and making the most of available spaces. In an ideal world, we would have our layouts in a basement (or an attic) with the stairs arriving in the middle of the space. But if that is not an option, as is often the case in California, you must build the layout in a garage or purpose-built structure, which means accessing the layout through a door on an exterior wall which, in turn, necessitates a duck-under. With some thought and planning, I was able to make the best of this compromise on my Yosemite Valley Railroad layout.

A duck-under was a given when I was designing the layout in 1980 to achieve the goals I had adopted. I wanted a reasonably long mainline that would include most of the stations on my prototype, which meant a multi-deck layout that climbed the exterior walls of my space. I designed my duck-under to be as high, long (side to side), and narrow (front to back) as possible. Each of these design goals is important, but some are more difficult to implement than others [1].

1. My duck-under is stacked with four levels of track. The lowest track is actually under the lake. The first crossing is on the very top of the photo.

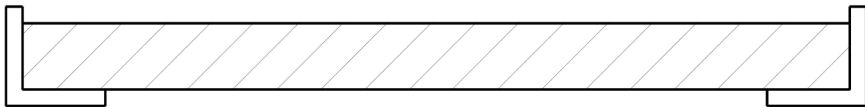
layout *Duck-unders*

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CLEARANCE HEIGHT

You should make your duck-under as high as possible to minimize the amount of ducking needed to pass under. With a single-deck layout, you simply set the deck height as needed. My layout, however, was a little bit more complicated, because I had multiple decks. Raising the height of the first level automatically raised the height of the second, and so on. This meant that I had to think about the maximum reachable height of the top deck and limit myself from there. After all, you don't want a duck under so high that it would put the top deck beyond operators' reach.

The maximum lower deck height near the duck-under was set at 47". Once construction got underway, I sought to make the duck-under "bridge" as thin and narrow as possible. I used 1/2" Homasote for the roadbed, with a pair of 1/2" aluminum angles for support [2, 3, and 4]. This resulted in a clearance of 42". The Homasote bridge is 36" long, and the design has performed satisfactorily for the past 35 years.



2. The track ties on that lowest level are glued directly to a piece of 1/2" Homasote supported by a pair of 1/2" aluminum angles. The Homasote is attached to the aluminum angles with screws and nuts every 6" or so. The "bridge" is 6-1/2" wide and 36" long.

DUCK-UNDER WIDTH

The width of a duck-under is also a factor. If it is narrow enough, visitors and operators can negotiate it with a single "duck and go." Wider duck-unders will require more effort to crawl under. While I don't have regular operating sessions, I do



3. One side of the duck-under lifts up to allow for track cleaning and a possible train derailment on the bottom level. The bottom level's deck is 1/2" Homasote, supported by a pair of 1/2" aluminum angles. During construction, I made this section removable. The vertical 1/2" aluminum angles on the fascia kept everything in alignment with the layout. Once construction was done, I fixed the duck-under in place with screws through all four corners.





4. This is the view looking under the Homasote bridge. The aluminum angles on each side of the bridge rest on another piece of aluminum angle attached to the layout with screws.

have my layout open for conventions and other events in our area, so being able to accommodate visitors was important.

There is also a turnout on the track on the duck-under “bridge” which required that the duck-under be wider than required by a single track. I also have three more tracks stacked above the lowest track and I needed enough width to support these crossings.

That second crossing is one of the bridges crossing McClure Reservoir as it was named in 1939 – now Lake McClure [5]. The width of the “lake” is the same as the “bridge” below on the lowest track. Above the McClure Reservoir bridge is another crossing [6]. Not completely shown in any photos is a fourth crossing that is 74” above the floor. It connects the top of a working incline with a logging operation.

OTHER DESIGN GOALS

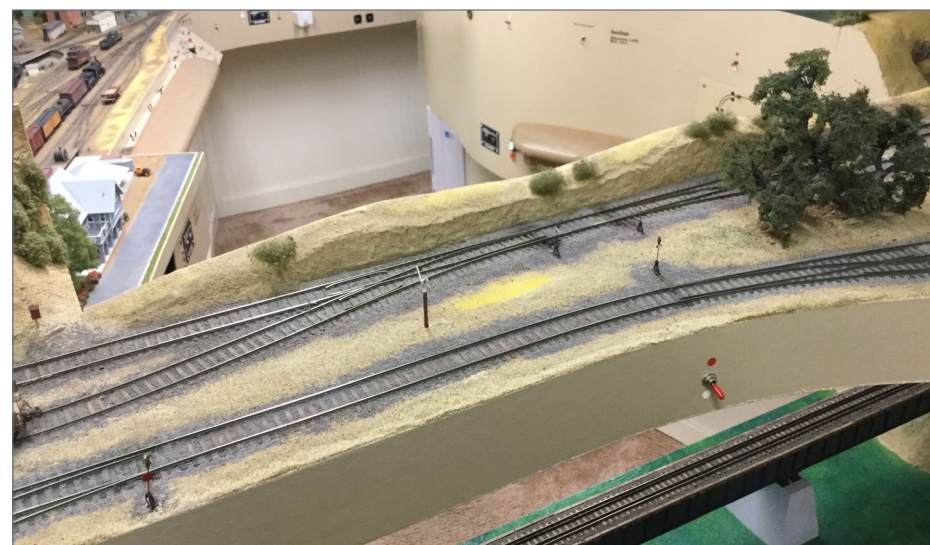
Basic construction (benchwork construction, laying track, scenery, wiring, and such) continued on my layout for a couple of decades. To make that easier, I made the combined duck-under and the crossing above it removable. Once the layout neared completion, I bolted that assembly in place.

HANDRAILS

Regardless of the “length” of a duck-under, there will be visitors or operators who need assistance negotiating it. In the early 1980s I was able (with permission) to save a few



5. The second level of tracks is this bridge over McClure Reservoir. The bridge connects the first level with a hidden climbing section and emerges on the far wall to connect with the second level.



6. The third crossing connects the second level with a wye to the left and the railroad terminus at El Portal on the right.



artifacts, including a number of grab irons, a brake retainer valve, and a coupler cut leaver from a YV stock car scheduled to be burned.

I installed one of the grab irons as a railing for my duck-under when I was much younger. I don't know if I used the railing back then, but I now use it every time that I "duck-under" that stack of crossings [7]. ☒



7. One of my Yosemite Valley Railroad grab irons which can be used by visitors to help get under the duck-under.



Tell your friends what they're missing by not being a Running Extra subscriber!

JACK BURGESS



Jack Burgess has pursued his passion, the Yosemite Valley Railroad, for more than 50 years and actually finished his HO layout in 2011 after 31 years of effort.

With the layout finished, Jack has been working toward a goal of modeling every locomotive, freight car, passenger car, maintenance-of-way car, and caboose on the prototype in August 1939, the month/year that he models. His model of this railroad is known around the world for its dedication to following its prototype as exactly as possible. ■



THE AH-HAH MOMENT

column



MRH Running Extra | October 2020

JOE FUGATE ON HOW TO PAINT HANDRAILS SO THE PAINT DOESN'T CHIP OFF ...

★★★★★
RATE THIS ARTICLE

ONE THING I'VE LEARNED TO DO OVER THE YEARS: STAY ON THE lookout for what other hobbies and disciplines do to solve their common problems. I often discover some great solutions to my own problems in the model railroading hobby.

In this case, I wanted to find something to make paint stick better to delrin plastic loco handrails and no longer flake off with handling. As I started looking around, I realized the auto paint guys have this figured out – how do you think they get the paint to stick to flexible bumper moulding without flaking? *Ah-hah!*

In my research for the *MRH Acrylic Painting Guide* (eBook available free [here](#), or get a paperback from the MRH Store [here](#)), I discovered Createx paint, a popular brand with the auto paint guys.

Createx sells a flexible adhesion promoter [1] that's exactly what I had been looking for. You can apply it first to the surface as a sort of flexible adhesion promoter/primer (just what it says). Or you can mix it with the paint and do it all in a single coat. I prefer the single coat option because the more coats you add, the thicker the handrails get.

I mixed it with the paint and applied just a single coat with a brush. With the adhesion promoter added, the paint still covers quite well.

The Createx instructions say to mix the adhesion promoter 25% additive to 75% paint. If you do want to thin the paint, don't add more than 10% thinner. When I thin the paint, I use the High Performance acrylic thinner formula from the *MRH Acrylic Painting Guide* mentioned above.

THE AH-HAH MOMENT | 2

As extra protection, Createx also recommends adding their UVLS protective clear coat [2] over the paint. I use the matte clear finish and also apply that with a brush over the painted parts of the handrails.

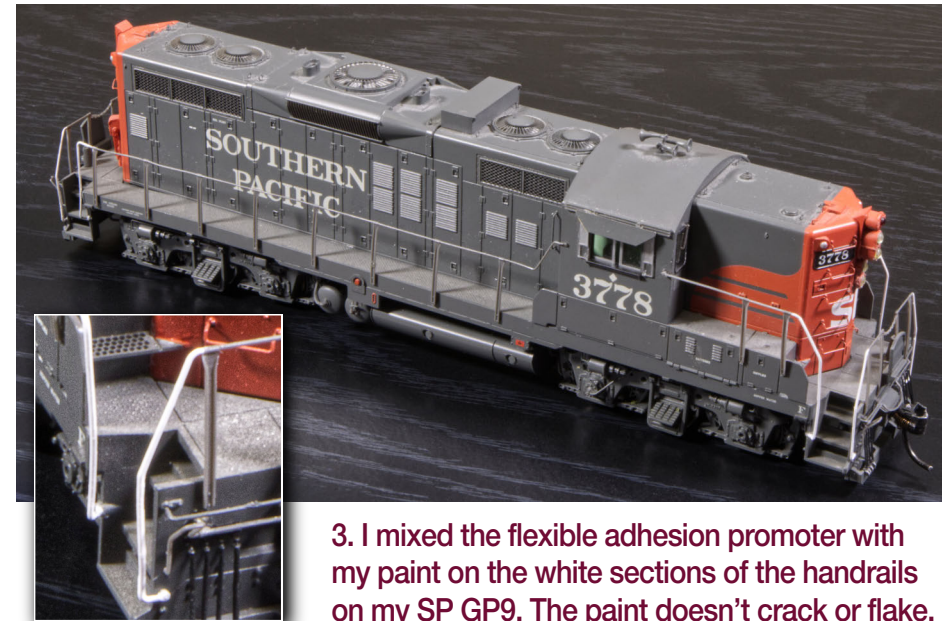
For example, I painted the end rails white on my SP GP9 per the Southern Pacific practice during my modeled era of the 1980s. You can see the excellent result in [3]. ✓



1. Createx flexible adhesion promoter for acrylic paint.



2. Createx UVLS matte protective clear coat.



3. I mixed the flexible adhesion promoter with my paint on the white sections of the handrails on my SP GP9. The paint doesn't crack or flake.

To get a shopping list for this article, visit the MRH website at this link: mrhmag.com/magazine/running-extra/2020-10/ah-hah-moment



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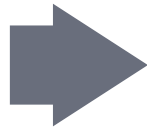
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Bonus section!

Here are all the pages from
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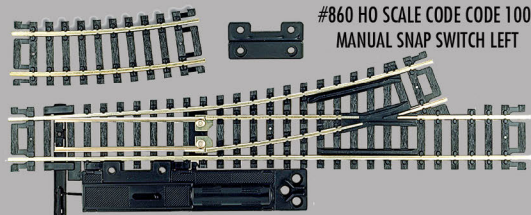
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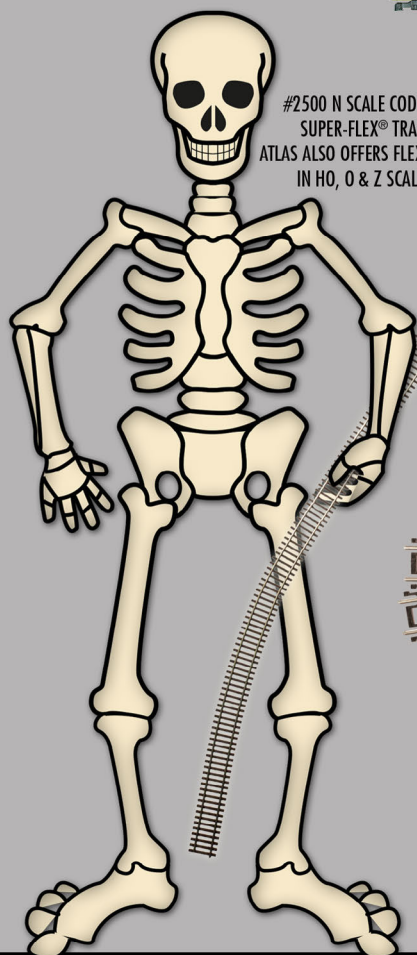
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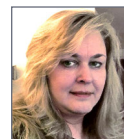
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Model Railroad Hobbyist | October 2020 | #128

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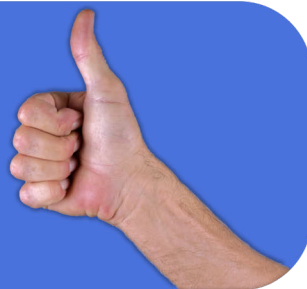
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Editorial | Model Railroad Hobbyist | October 2020

**JOE FUGATE: ANNOUNCING
THE ALL NEW MRH WEBSITE ...**

**★★★★★
RATE THIS ARTICLE**

WE LAUNCHED *MRH* IN JANUARY 2009 USING THE SAME forum software we're using now. We're going on 12 years with this same software, which in the web world is several generations – in other words, it's quite obsolete.

When we started *MRH*, flip phones were all the rage and tablets did not exist. Windows XP still ranked as the leading Windows OS and a PC with 4GB of RAM memory was considered huge. We still measured hard disk space in gigabytes – a terabyte, what's that?

At 12 years and counting, our *MRH* forum software really shows its age. Back-end failures such as our private messaging between members keep mounting, clear signs we're overdue for a major upgrade.

Our current site software pre-dates mobile devices, so it's not particularly mobile-friendly, either. Time to change all that.

Brand new *MRH* website coming

So it's official, we're starting the process of moving to a brand new, state of the art website.

The old website uses open-source website building software called Drupal. We're still on Drupal 6 since that was new at the time. The newest robust release of Drupal is version 8.



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However, in modern terms, Drupal ranks as a pretty heavy-weight system and it needs a lot of web horsepower to run. It's also graduated out of its open source status for high-traffic websites to more enterprise level hosting. In short, not cheap.

So for our new *MRH* website, we're moving to "subdomains" for the various parts, none of which use Drupal. The new main site domain will officially become **mrhmag.com**, shortened from our old site URL of **model-railroad-hobbyist.com**.

We already started this new subdomain thinking with our store a few years ago, so its URL is **store.mrhmag.com**.

Notice, *store* is the subdomain, yet it's clearly still a part of **mrhmag.com** as a whole.

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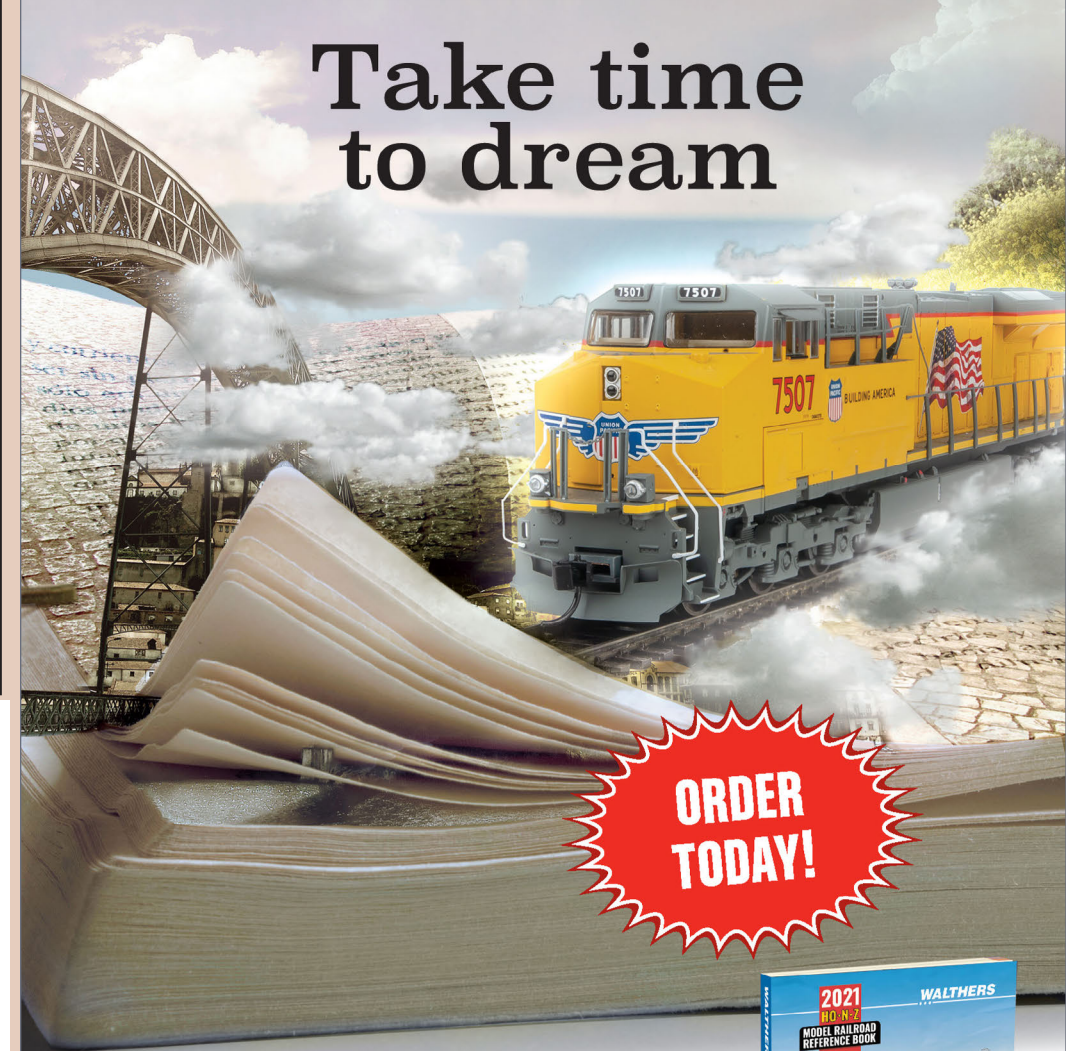
The new *MRH* forum

For the rest of this editorial, I want to focus on one of the more fun new subdomains, *forum.mrhmag.com*. The new software driving this site is ready, but we won't be ready to use it until we export all the data over from our current forums.

This new forum website does exist, but it's invitation only. The developers are currently building the software to move the ~50,000 threads from the current *MRH* forum to this new site.

Anything posted on this new test forum will be deleted when we load it with the real data, so it's locked down right now. We expect the migration software development to take about 90 days.

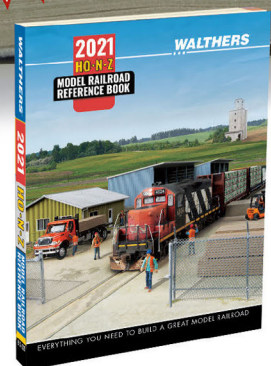
This new forum software has a lot of fun new features, so let's take a sneak peek at some of those.



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The new forum looks great on desktops, laptops, tablets and smartphones [1]. It smart resizes everything to fit the screen size you're using.

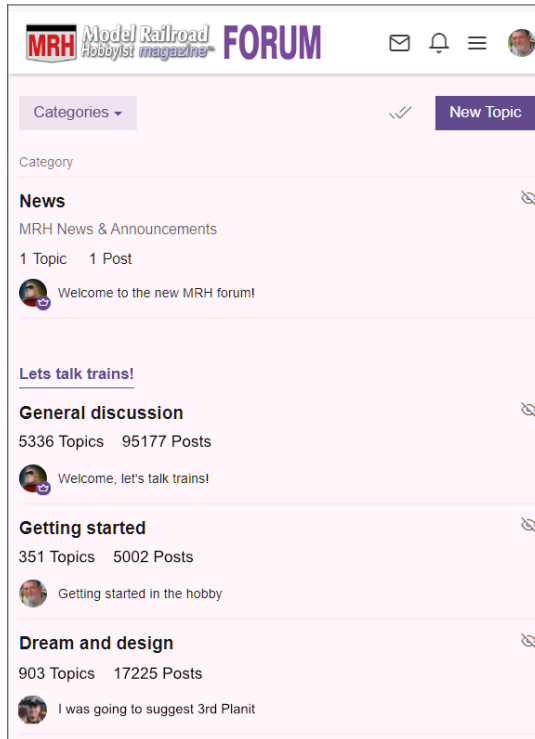
If there's a particular category of discussions that just isn't interesting, you can hide it by selecting the eyeball icon.

If someone private messages you, the little letter icon at the top will be marked with a purple dot indicating you have a private message waiting. You will also get an email with the message. Yay, private messaging that finally works!

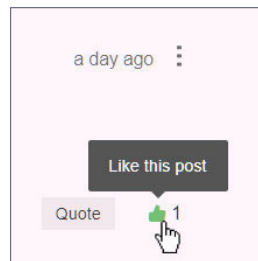
Also note that if someone private messages you and you do not want to talk to them, you can check mark ignore so they can't keep messaging you.

There's more, lots more!

We're finally enabling you to like a post or thread [2]. We aren't doing dislikes, just likes. If you don't like a post, then just move on, don't bother liking it. This should eliminate most of the more unfriendly aspects of a like system.



1. Sneak peek look at the new MRH forum coming in 2021. This view shows how it looks on a smartphone.



2. You can like a thread or post.

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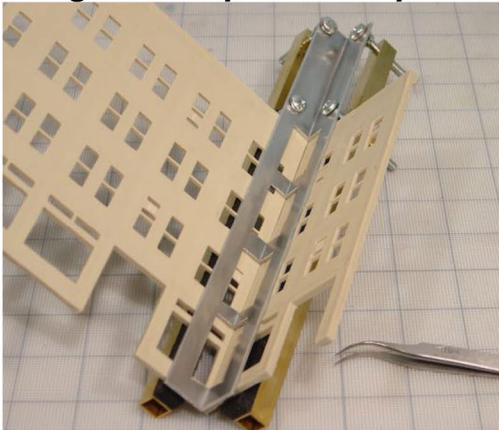
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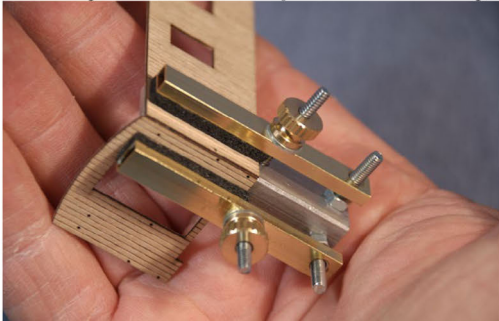
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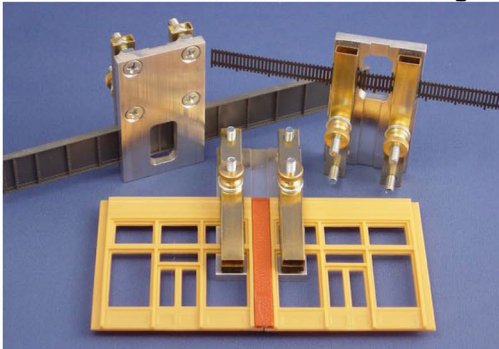
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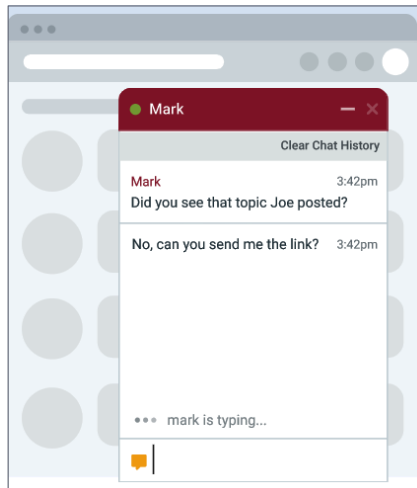
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PUBLISHER'S MUSINGS | 5

The new forum also includes instant chat [3]. If some key discussion comes up and you'd like to do an impromptu chat with the folks online about it, you can fire up a quick chat.

You can indicate how you want to be contacted for chat, via Facebook messenger, for example. There are about 20 different choices for how to be contacted for a chat. If you don't like chat, you can quietly go "offline" and be unavailable.



3. The new *MRH* forum includes the ability to instant chat with those online.

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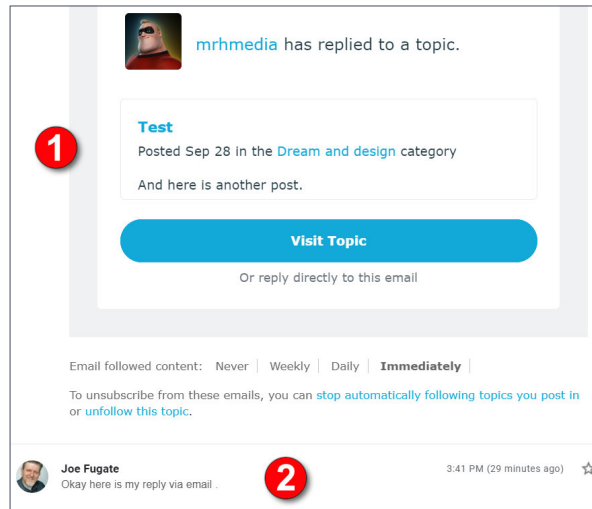
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When you follow topics of interest, you now will get an email any time a new post appears on the topic. In addition, you can reply via email and the reply will be posted back to the forum thread [4, 5]. How cool is that?

Simplifying the forum

One thing we will be doing with this change is simplifying some things on the current forum that have been confusing.

Blogs will no longer be a "separate thing" on the *MRH* website. If you want to do a personal blog, you can start a thread in a category called "blogs" and it will just be another forum topic, except we will treat it as if it's a topic you own. All the old blog posts will be added to the new Blog



mrhmedia has replied to a topic.

1

Test
Posted Sep 28 in the [Dream and design](#) category
And here is another post.

[Visit Topic](#)

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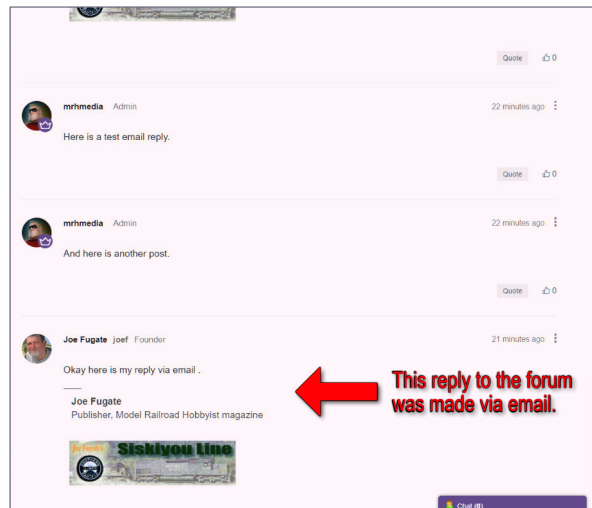
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Joe Fugate
Okay here is my reply via email .

2 3:41 PM (29 minutes ago)

4. In (1) above, I got notified of a reply by the admin on a topic I had started. I clicked reply and posted my response in (2) above. Below in [5], you can see what showed up on the forum.



mrhmedia Admin 22 minutes ago
Here is a test email reply.

mrhmedia Admin 22 minutes ago
And here is another post.

Joe Fugate Joe Fugate 21 minutes ago
Okay here is my reply via email .

Joe Fugate
Publisher, Model Railroad Hobbyist magazine

← This reply to the forum was made via email.

5. My reply via email got posted on the forum just as if I logged in and posted it.



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PUBLISHER'S MUSINGS | 7

forum category. There will no longer be a special type of blog section per se, it's just a kind of forum category now.

The *MRH* feedback threads will also be moved to the new site, and as new issues come out, they will point to the new *MRH* forum now.

However, the bad news is all old *MRH* magazine comment buttons will no longer work because the URL will no longer be the same. Unfortunately, there's no easy way to handle this, about all we can do is re-issue back issues with corrected comment thread links, which we will probably do over time.

We also have a lot more cool new things coming to other subdomains such as mrh.mrhmag.com – an *MRH* magazine back issue bookshelf, and re.mrhmag.com – a *Running Extra* back issue online bookshelf for *Running Extra* subscribers.

In summary, the *MRH* web presence will be getting a major new facelift in 2021. Not only will things get a fresh new look and enhanced functionality, this change simplifies our back-end support and reduces our hosting costs too.

A real win-win in this era of belt-tightening during the pandemic. ☑

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LAST ISSUE'S RATINGS

The three top-rated articles in the [September 2020 issue](#) of *Model Railroad Hobbyist* are:

4.9 September 2020 news

4.7 Publishers Musings: High-density car weighting

4.6 Fiber optic structure lighting

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! ■

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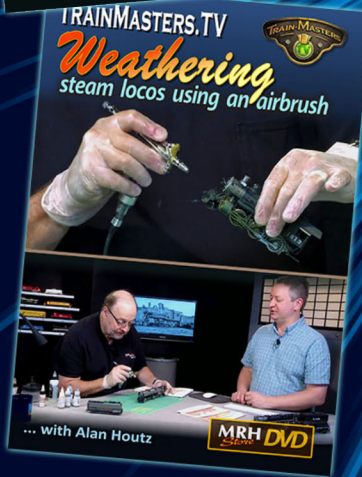
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THIS MONTH

Model Railroad Hobbyist | October 2020

Compiled by **JOE FUGATE**

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BLAST FROM THE PAST: Kitbash two Canadian Pacific GP35s

MRH forum member **Lucky_Luke** (Luc Comtois) posted years ago:

"I had a deal on a pair of Athearn RTR Canadian Pacific GP35s. At first I thought that a good weathering job and a few details here and there was all they needed. But when I started to look for some prototype reference pictures, it doesn't take long to realize that these CP models are all wrong.

My easy project became a bigger one, so I thought I would share the progress."

Even though this is an older thread, it's still a great read!

[View the full thread on the MRH website](#)

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



1. Jason Miller posted a video showing the latest updates to his Seaboard Central layout. Jason posts these updates every month or so, and it's great to see the progress!

Re-installed and updated fascia panels

MRH forum member **JLandT Railroad** (Jason Miller) posted a nice update on his layout fascia panels.

Jason documented the installation of signals on his layout in the October, November, and December 2018 issues of *MRH* magazine.

After installing the signals, Jason found his fascia panels were no longer totally accurate and up-to-date. So he embarked on a project to revamp all his fascia panels.

Read more about Jason's updates on this project in the *MRH* website blog link below. Feel free to ask him questions!

[View the full thread on the MRH website](#)



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2. On his multi-part blog series, James Willmus did an in-depth analysis of state-of-the-art affordable 3D resin printers.

Latest-and-greatest DIY 3D printing evaluation blog

Forum member **JamesWillmus** has posted a multi-part examination of affordable 3D resin printers on his blog. If you're at all interested in pursuing do-it-yourself (DIY) 3D printing, make sure you check out James' blog series. James says:

"Now that I'm getting back into the hobby, one of the big things I wanted to dive into was 3D printing. It seems like a great technology that has finally evolved to the point that people can start using it en masse. 3D printing lends itself well to small parts that are difficult to make at the workbench and one-off models that model train manufacturers can't make a profit on."

"I've decided to do a series of posts that explain what I've come to learn and document my journey into what is basically a hobby all on its own."

To read the complete blog series, use the button below.

[View the full thread on the MRH website](#)

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4. Milt Panton recently ventured into electric locomotives for the Hanna Mining on his layout. Read all about it in his *MRH* blog.

Hanna Mining and its electrics

MRH forum member **mspanton** (Milt Panton) chronicles his layout projects on his long running *MRH* Missabe Road blog.

"This is my first venture into electric locomotives, albeit an un-powered one. Electric haulage was common across the Mesabi Range, so it was inevitable that at least one should appear.

This had been the site of the Shenango mine, which once rostered a Shay, but I could find very little on the operations other than a track plan, and the Shay was long gone by the 1950s.

Hanna mining rostered some small electrics, which my friend Todd Monroe replicated in 3D. Bill Brillinger created decals from our artwork to finish off the electric. I am now learning how to string the overhead wire."

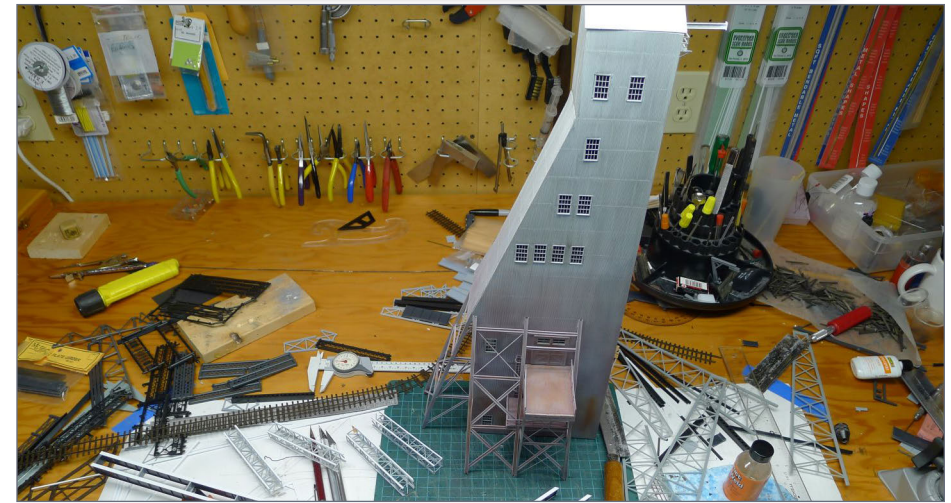
Visit Milt's blog and dialog with him about his layout!

[View the full blog on the *MRH* website](#)

Latest *MRH* "What's on your workbench" thread

Every month, a new What's on your workbench photo thread appears. It's frequently loaded with inspiring projects ...

[View the full thread on the *MRH* website](#)



5, 6. *MRH* forum members **gogebic** (Hans Schlegel) and **ChrisFrissell** posted these ambitious projects on the latest "What's on your workbench" thread. Check it out for lots more great projects!



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WHAT'S NEAT

column



Model Railroad Hobbyist | October 2020



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KEN PATTERSON'S COLUMN THIS MONTH ...

- Building rocky scenery from start to finish with Tim Schreiner ...
 - Terrain and rockwork
 - Dirt and ground cover
 - Ballasting
 - Grass, bushes, and trees



WHAT'S NEAT!
MODEL RAILROADING
Scenery from
Start to Finish



October 2020 show

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WHAT'S NEAT | 2

THIS MONTH TIM SCHREINER (timsscenerycreations.com) came by Ken Patterson's studio and shared his techniques for building rocky scenery from start to finish.



1. Tim and Ken showing off the finished diorama.

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WHAT'S NEAT | 3



2. The base scenery for the demonstration consists of stacked foam covered with plaster gauze. Atlas track is laid on cork roadbed at the base of the cliff.

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3. Tim uses Bragdon Enterprises (www.bragdonent.com) rock molds. Here he is filling one with a thick blend of Ultracal 30 Gypsum plaster, after which he lets it set for about 10 minutes. Ultracal is made by USG (US Gypsum) and is available online in various amounts, including 50lb bags, for between \$25 and \$50 on eBay.

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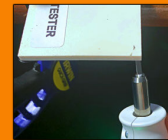
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4. After the Ultracal sets up a bit, Tim wets the plaster cloth base with a water sprayer and presses the rock casting into the side of the hill, holding it there for another 10 minutes.

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5. Tim uses a variety of molds, placing them in several locations on the hill. Here he peels off the rubber mold, revealing the new rocky cliff underneath.



6. Tim uses colors from Liquitex's "Basics" line of acrylic paints. They include Mars Black, Raw Umber, Burnt Umber, Burnt Sienna, Red Oxide, and Raw Sienna.



7. Tim thins the paint with water to create a thin wash. He uses a 2 inch wide brush to apply black, burnt umber, red oxide, and burnt sienna in layers across the rock faces.

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8. For the base ground color, Tim uses a latex earth tone color, painting it around the rocks and along the track.



9. Tim adds fine dirt to the entire scene along with a mix of small rocks to represent talus at the base of the slopes. Tim's dirt is some that he found in Arizona and sifted himself.



10. Tim glues the dirt and rocks into place using a small squeeze bottle filled with Elmer's White Glue mixed 1 to 3 with water and a little detergent. He lets it dry for 30 minutes.

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11. Tim then sprays the dirt areas with a spray adhesive and adds fine and coarse ground foam to the entire scene.



12. Tim sprays AquaNet Extra Firm Hold hair spray over the entire diorama to glue down the ground foam.



13. Tim adds clusters of lichen to the scene, using Woodland Scenics Scenic Glue to secure them.

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14. Tim adds a mix of small pine trees to the diorama. To install them he uses a sharp scratch awl to poke a hole in the plaster and foam scenery and then presses the trunks into the holes. Tim uses trees from multiple manufacturers to prevent the scene from looking too uniform.

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15. After painting the track with spray paint from Krylon’s Camouflage line, Tim uses a ballast spreader to apply Arizona Rock & Mineral Union Pacific Gray ballast to the right of way.

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WHAT'S NEAT | 14



16. After grooming the ballast and soaking it with a water sprayer, Tim again uses his Elmer's white glue, water, and detergent mixture to glue it in place. The bottle was originally used for applying hair products at a hair salon. The track is cleaned with a Bright Boy. With that, the diorama is complete. See the entire process in this month's What's Neat video.



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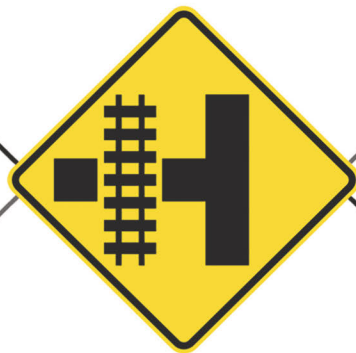
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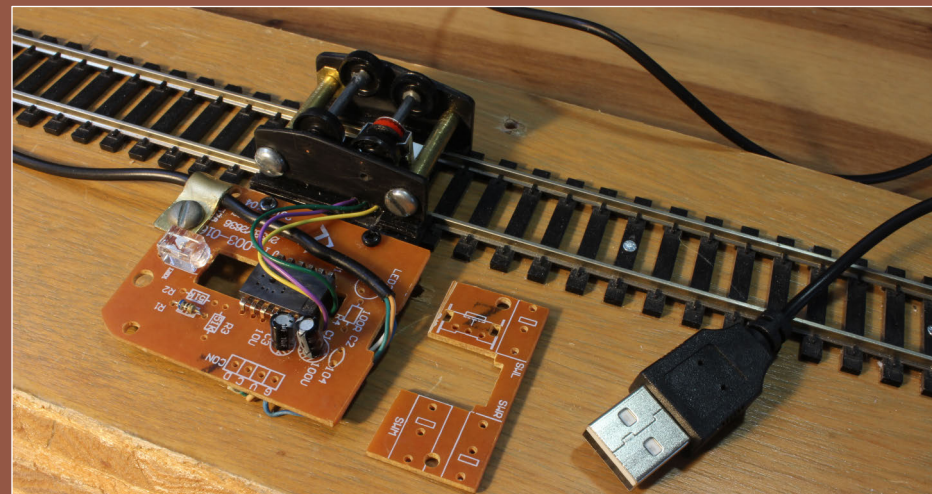
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Model Railroad Hobbyist | October 2020

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GARY WINTERGERST EXPLORES PUTTING
A SPEEDOMETER CIRCUIT ON A LOCO
RUNNING STAND ...

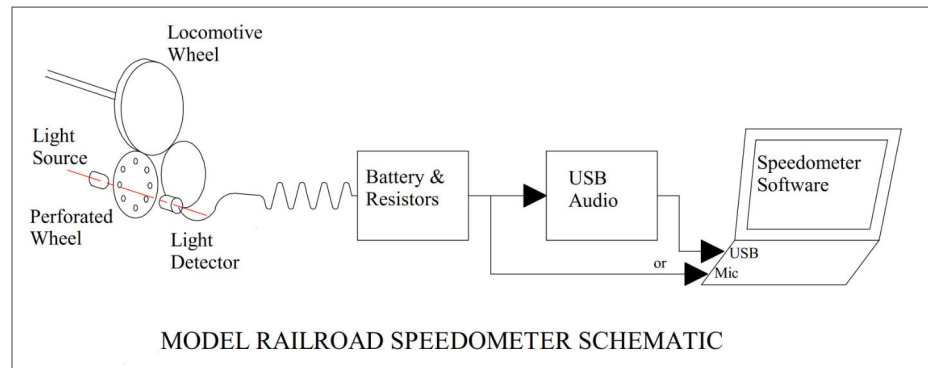
BACK WHEN I GOT STARTED IN DCC, I wanted to build a running stand speedometer to assist in speed-matching locomotives. I thought I could use old plastic wheelsets with holes drilled in the web of one of the wheels and have a light shine through the holes for driving a pulse counter.

I could not come up with a stand-alone timer/pulse counter, so I dropped the project. Later on, the TrainSpeed product came along, and even more recently the Bachrus speedometer – both of which I own. A running stand such as the Bachrus product has the advantage, unlike the TrainSpeed, of not requiring a lengthy track.

Unfortunately, the owner of Bachrus has retired and closed the business, so I began to rethink my old idea. I reasoned that a computer's microphone input might be adapted as a pulse counter, so the idea evolved into what I've illustrated in [1].

Many ways exist for converting the analog pulse to a digital value, but most involve costly data acquisition devices beyond what this project merits. Most laptops used to include a microphone input, but they've now largely been replaced with USB ports. That said, inexpensive USB audio adapters with microphone inputs can be had for between \$5 and \$20.

In this article I describe how a reasonably competent modeler can build a running stand speedometer at minimal cost. Since I did the development of my working model during the early COVID-19 lockdown, I built mine almost entirely from parts on hand. Using some commercial parts can simplify construction.



1. Model railroad speedometer concept.



G. Wintergerst

WHY THIS ARTICLE?

I offer this article to my fellow model railroaders as a way to get a speed measuring device that no longer can be had on the commercial market. My hope is that those with a more technical bent might find what I have done useful – and that some of you may experiment with what I have done and submit suggested improvements to both the hardware and software.

I should note that all my tests so far have been on HO scale diesels. I guess tests for steam and other scales are, as they say, left as an exercise for the reader.

BASIC SPEEDOMETER HARDWARE

Photo [2] shows how the battery pack and the sensor unit go together.

The hardware consists of a few mechanical parts and some very basic electronics. Let's start with the schematic [3].

For the sensor, I use a photo resistor sensitive to visible light, but other types could be substituted. I use a red T1 LED for the light source. A plus for visible light – you can tell when it's on!

I chose a 3-volt source using a couple of AA cells. I chose a 150-ohm resistor to provide around 10-15ma of current for the LED – high enough for reasonable brightness but low enough for long LED life. I tried a variety of resistors on the output and went with 82K since I had one handy.

I didn't have a battery holder on hand so I built one from styrene, using brass strips for the contacts. I added a small compartment for the resistors in the battery holder. I didn't have a 3.5mm phone jack around, so I scrounged one out of a



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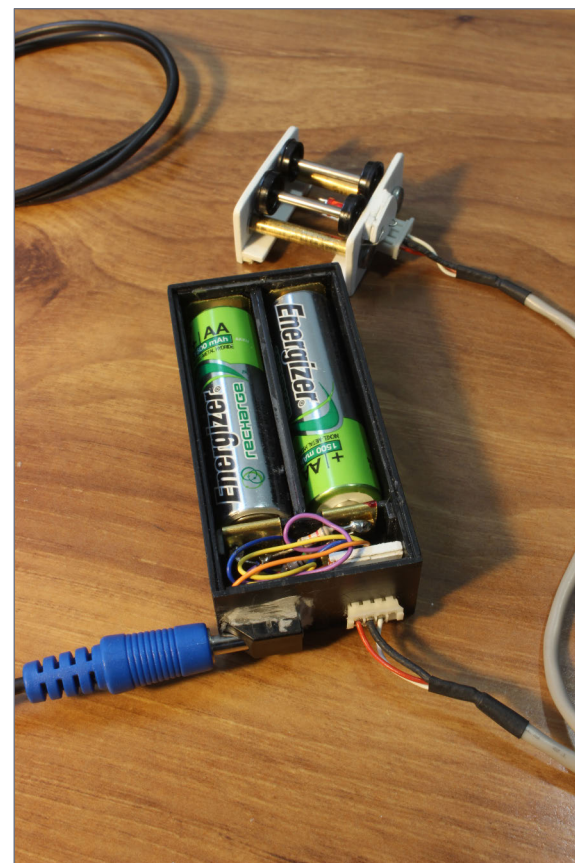
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RUNNING STAND SPEEDOMETER | 4

defunct cell phone. I made the contact pins penetrate the battery holder case, and glued the jack on the outside. A small on-off switch would be nice, but lacking one, I just remove a battery or unplug one end of the interconnect cable.

Since the computer I'm using has a mic-in, I avoided the need for a USB audio interface. But if you do go with the USB port option, you can use the USB port as a source of 5V power and avoid the battery box. Because you will be supplying 5V of power instead of 3V, you will want to increase for your LED to 330Ω to compensate [4].

You can use a USB extension cable between the connection box



and the computer. If you're feeling adventurous, you can enclose the USB audio module in the connection box. I can't vouch for this approach since I haven't tried it, but I offer it as a suggestion.

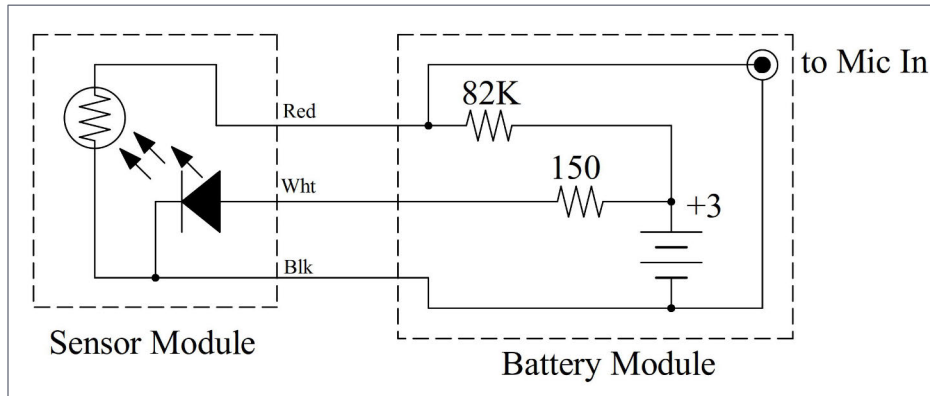
2. Battery box and sensor unit.



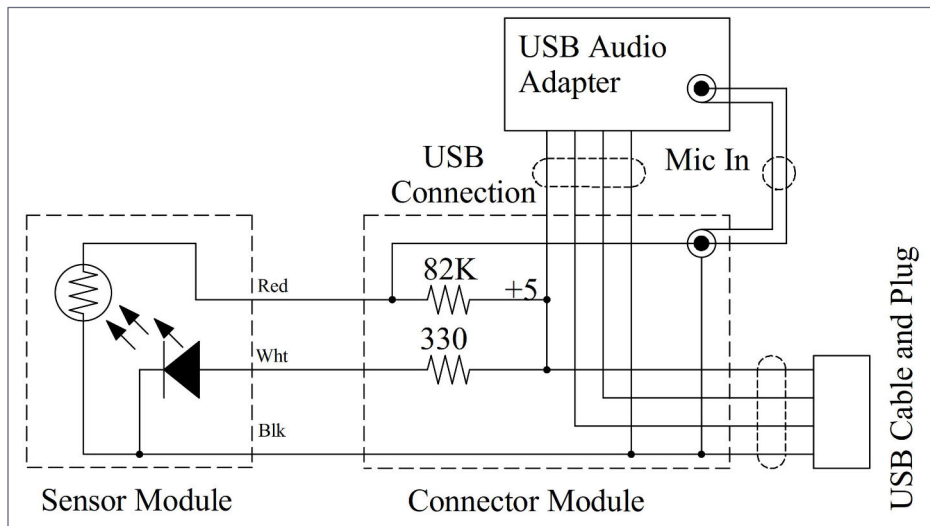
RUNNING STAND SPEEDOMETER | 5

BUILDING THE SENSOR UNIT

Other than the electronic components just described, you don't need a lot of parts to build a sensor unit [5].



3. Electronics schematic.



4. Alternative USB audio schematic.



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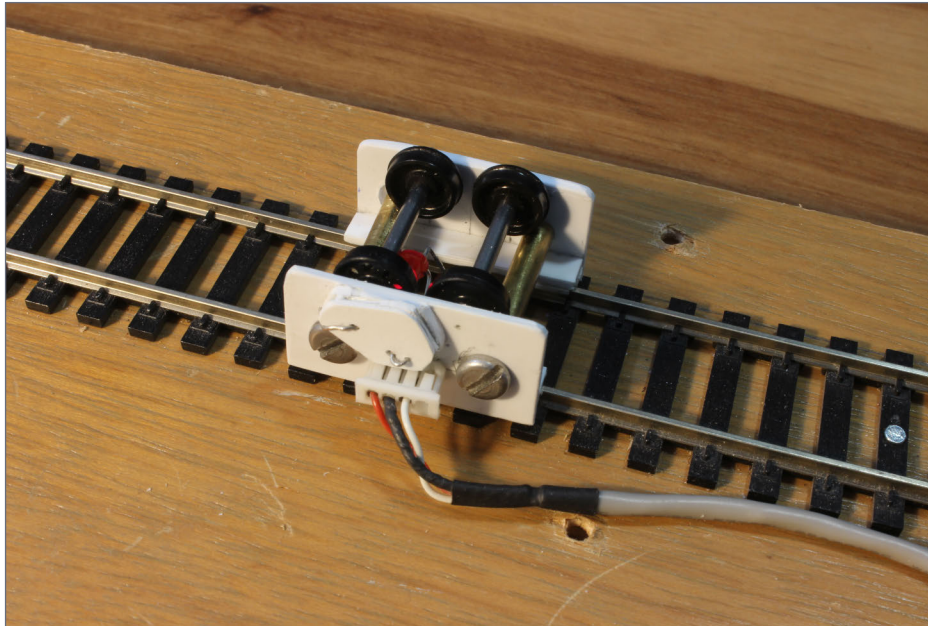


RUNNING STAND SPEEDOMETER | 6

- Previously mentioned plastic wheelsets (actually Delrin)
- Side pieces built up from 0.060" sheet styrene
- 5/32" brass tubing
- 6-32 screws

Drawing [7] provides dimensions and assembly details, with the most important factor being free-rolling wheelsets. To ensure that, the wheels on the two axles cannot touch each other or the brass tubing frame pieces. I turned-down the flanges and reversed the wheels on the axle (flanges on the outside instead of inside) so they interlock better with the locomotive wheels.

Turning the flanges down gives more clearance within the assembly and with locomotive truck frames. Just *do not* nick the tire when turning-down the flange.



5. Sensor unit.



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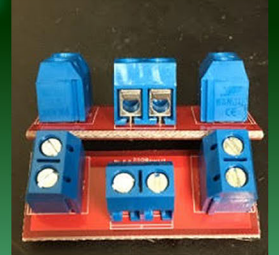
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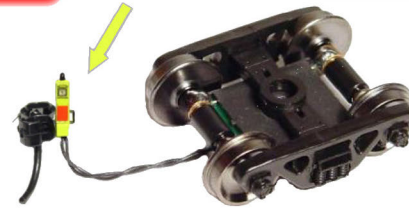
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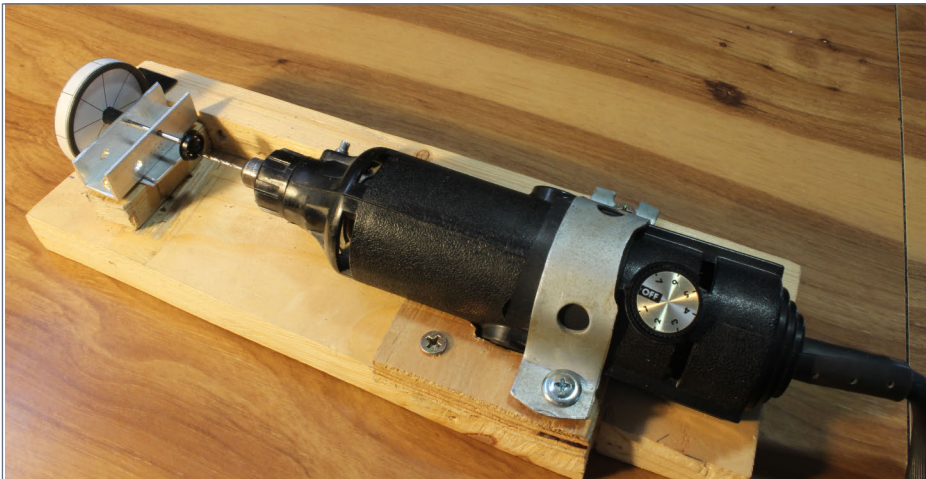
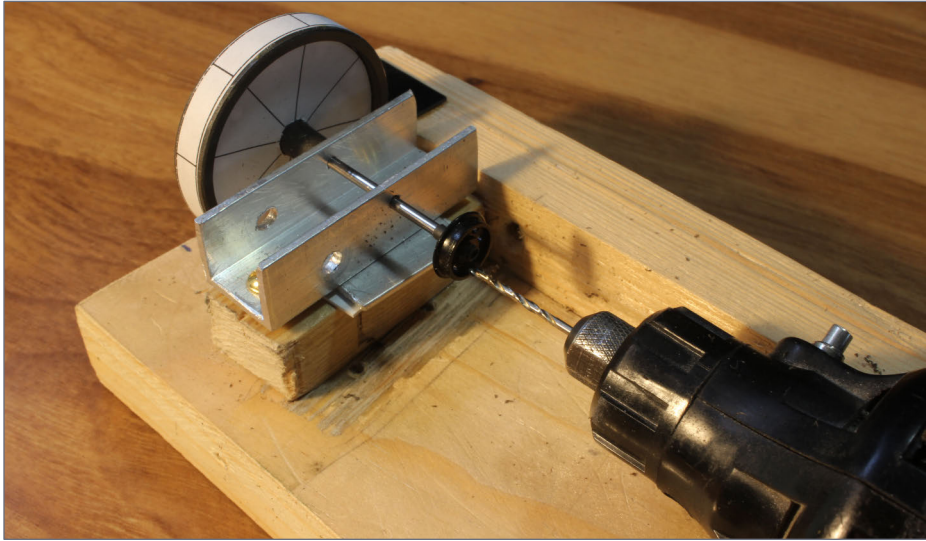
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RUNNING STAND SPEEDOMETER | 7

I experimented with six, eight, and 10 holes in the wheel, and ended up with eight. Six provided too little resolution and 10 seemed to over-attenuate the signal.

I drilled the 0.050" holes by mounting the wheel on an axle with a larger indexing wheel marked off in eighths of a



6a, 6b. Wheel-drilling jig.

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revolution [6a]. I mounted that assembly in a jig that held a rotary tool with the 0.050" drill bit. I then slid the wheel into the spinning drill bit, withdrew it, rotated 1/8 revolution, and repeated the process until I had completed all eight holes.

In both the drilling and the flange turning, carefully remove any loose flash that could interfere with axle rotation or pulse sensing. I fashioned a plumber's tape clamp to hold the motor tool in the frame [6b]. Some may recognize the frame as a piece of discarded L-girder.

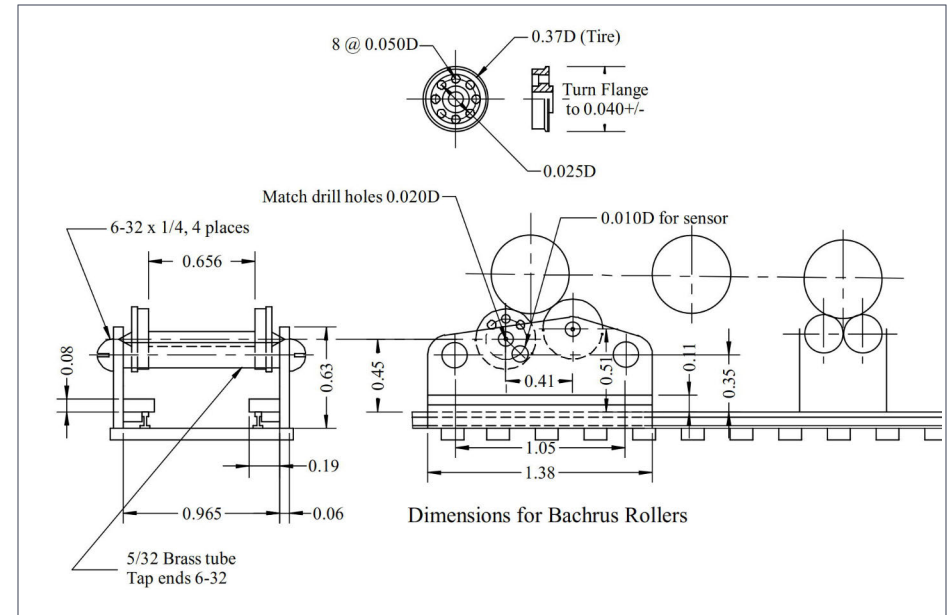
Drawing [7] shows a 0.020" hole in the side frames where the axles ride. Take special care that the side frames match up on these. After drilling, I countersunk the insides very slightly to provide a small cone for the axle to ride in.

Watch the spacing between the side frames carefully because you want a few thousandths end-play for the axles to roll freely. The drawing shows a side frame spacing the length of the brass tubes. In practice, I found it best to cut the tubes a bit long and then file them and check the fit until achieving an optimal frame spacing with just the right amount of end-play.

I built this all without machine tools, so I had to allow for the tube ends being slightly out of square. I used spacers (0.010" or so) on the tubes to help ensure fit. Most of the dimensions are not critical as long as the frame ends match up closely and the axles roll freely.

You might notice that the drawing states, "Dimensions for Bachrus Rollers." The plastic rollers for the sensing module of course do not conduct power – so unless you're into dead rail, you need conducting rollers on other roller axles. You can also use Bachmann Rollers, but they're about 0.1" lower, so adjust dimensions accordingly.

Now a bit of digression: you may note my drawing doesn't exactly match the photographs. In particular, the drawing



7. Sensor unit mechanical details.

shows the axle of the idler (non-sensing) wheelset elevated about 1/16" relative to the sensing wheelset. I did this to shift some of the locomotive axle weight toward the sensing axle, improving the contact between the locomotive and the sensor. The height difference must be fairly small to prevent the locomotive driving off the roller assembly.

This weight shift became particularly important as I investigated an alternative sensor mechanism based on a mouse wheel encoder, which deserves a separate discussion.

ALTERNATIVE: MOUSE WHEEL SPEEDOMETER SENSOR

As I thought about how to connect the sensor to a computer, it occurred to me that a computer mouse comes with its own USB drivers. I also know the Java computer language includes a

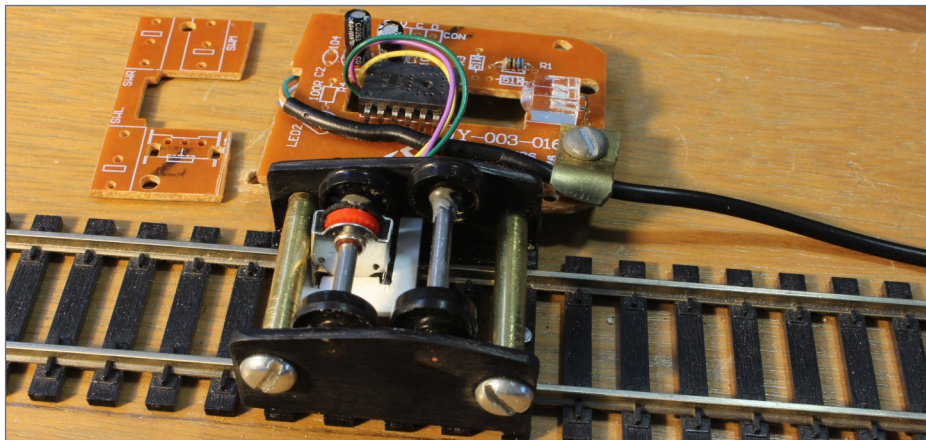
mouse wheel listener to simplify the Java programming when using a mouse with a computer program.

I obtained a Verbatim Wired Optical Notebook Mouse (\$5.99 on the internet) and took the sensor module apart. I removed the button microswitches, detached the wheel encoder from the board, and cut off a portion of the board where those components had been.

The mouse wheel sensor mechanics work similarly to those of the light pulse sensor, except that instead of light pulses through a wheel, the mouse wheel encoder generates pulses with the model train wheel I mounted on the mouse sensor “axle.”

In the underside view [9], you can see where the wires attach to the mouse sensor. Also note the white styrene collar I added around the sensor housing to keep it from rotating. The mouse wheel encoder has some rolling resistance within it, but mounting the wheels on the mouse encoder shaft helped reduce rolling resistance.

The encoder has a metal spring to provide tactile feedback of the rolling with ticks, but that spring added further resistance,



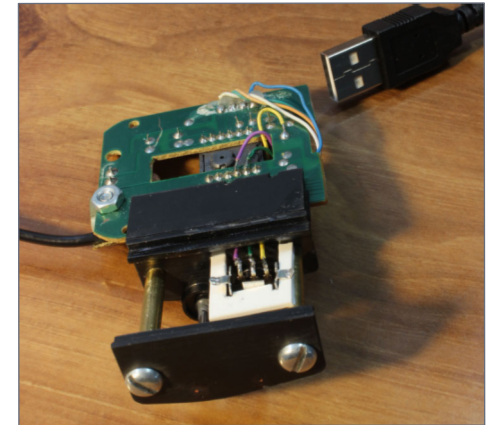
8. Mouse wheel sensor circuit board and sensor from the top (red wheel).

so I opened up the encoder, removed the spring, and reassembled it.

I found the most critical—and most tedious—part of constructing this sensing mechanism was mounting the sensor wheel and its housing on the train wheel axle. The center hole was hexagonal and smaller than the axle diameter. Filing the encoder wheel hole large enough to fit tightly on the axle without damaging the raised part of the encoder wheel hub required some care. I’ve only been on the receiving end of root canals, but I suspect that opening out the encoder wheel center hole would be good practice if you ever want to learn to perform one!

SOFTWARE

I developed a fairly minimalist Java application to use with the speedometer. Anyone familiar with the Bachrus speedometer available in JMRI may notice some similarity in purpose, appearance and operation to my simple application.



9. Mouse wheel sensor, bottom view.

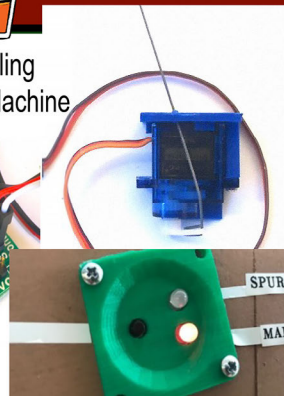
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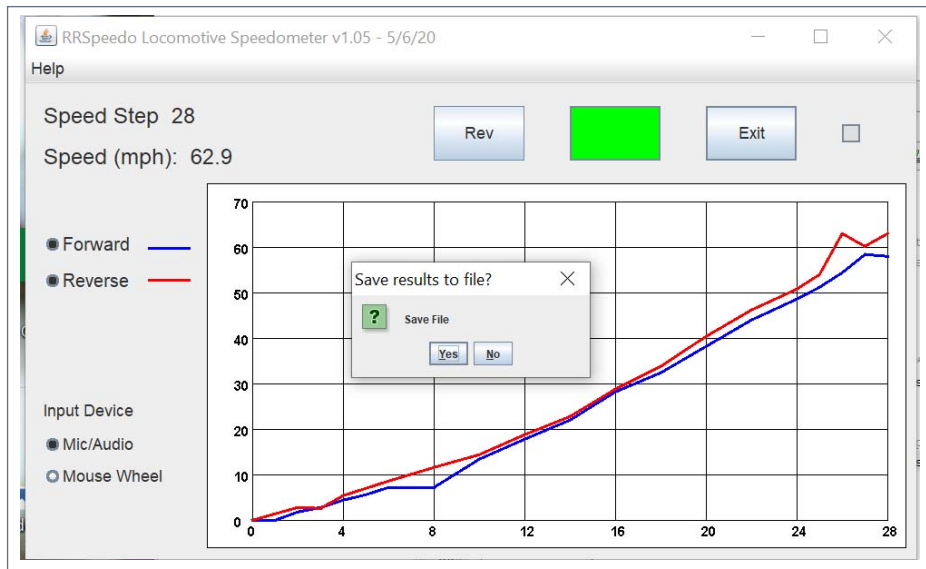


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With my simple program, however, the user has to manually set the throttle speed for each step rather than letting the program handle the whole operation. It means the user has to pay attention to what's happening rather than stepping out for coffee.

Ideally, either of these speedometer interfaces could eventually be incorporated into JMRI and make my application obsolete. That could happen someday but is probably above my pay grade, as they say. The program screen image [10] shows a forward/reverse cycle.

After I had the program working with the microphone input sensor, I modified it to accept either the microphone sensor or a mouse wheel sensor. My modified version provides for a choice of input sensor.



10. Speedometer program screen image.

TEST RESULTS AND CLOSING REMARKS

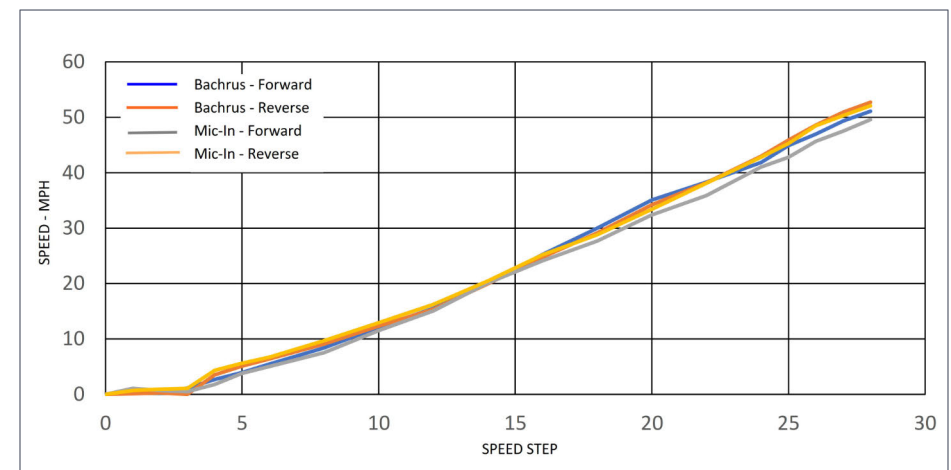
I've run several tests of the Java program so far and have obtained these results.

Performance for a fairly well-behaved locomotive can be seen in the following two charts [11, 12]. As the test locomotive, I used a Proto 2000 SD45 with an NCE D13SRJ decoder. The first chart [11] compares results from Bachrus and the Mic-In speedometer for forward and reverse directions.

The second chart [12] adds a target speed profile and results from the TrainSpeed product, from the now defunct Bachrus speedstand speedometer, and from my mouse wheel speedometer. Since I programmed the locomotive with the Bachrus product, correlation with it comes as no surprise.

I did not expect the results for TrainSpeed to vary so much, with speeds around 40 percent higher than those measured with any of the roller stand devices!

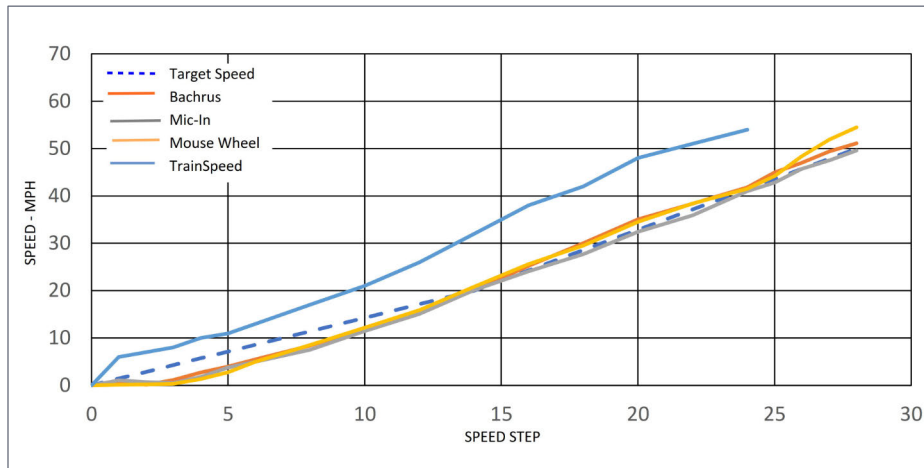
What I thought should have been a straightforward calibration of the mouse wheel sensor turned out not to be so simple.



11. Comparison of Bachrus and Mic-In speedometer results.

I finally just adjusted the mouse wheel's feet-per-tick so that it agreed with the data from the Bachrus and microphone sensors.

So if you have a technical bent and you would like to try building your own static test stand speedometer, I've given you the steps for doing so. If you have improvements, please don't hesitate to post them on the comment thread to this article. ☒



12. Comparison of speed measuring devices when running the loco in the forward direction.

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GENERAL OPERATION OF JAVA SPEEDOMETER PROGRAM

To get my Java program, [visit the bonus downloads for this issue](#).

My Java program works similarly to the JMRI Bachrus speedometer except that the user must manually set the locomotive speed based on program prompts.

First, the user must select an input device, either Mic/Audio or Mouse Wheel.

User can select forward or reverse profiling, or both (default). For example, reverse would need to be deselected if you only want forward. If you deselect both, you'll be admonished!

OPERATING STEPS

Select the "Start" button once to move to "Fwd" or "Rev."

The user should then start the locomotive at step 1 in the desired direction. Select "Start" (now showing "Fwd" or "Rev") to begin the sampling cycle. After 3 seconds, the green light will turn red to show that the speed is being timed.

After each sampling time, the step number will increment by one or two (as explained below) and there will be a 3 second delay for the user to set the throttle to that speed step. Then the light turns red again and the cycle repeats until all 20 steps have been processed.

Why do I only have 20 steps and not all 28? Since my program requires you to manually set the throttle to the speed step before sampling, I skip some of the intermediate speed steps because I don't need all of them to adequately profile locomotive speed.

So my program samples these speed steps: 0 (not really a step), 1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,

Sidebar continued on the next page ...

GENERAL OPERATION OF THE JAVA SPEEDOMETER PROGRAM, *CONTINUED* ...

25, 26, 27, 28. I skip speed steps 7, 9, 11, 13, 15, 17, 21, and 23.

The user may also notice some timing steps take longer than others. My program times lower speeds for 4 seconds but reduces the duration to 2 seconds at higher speeds.

After “Fwd” the “Start” button changes to “Rev” if reverse has been also been selected.

The user will need to change throttle direction and begin step one, then select “Rev” button to begin the reverse cycle. After the one or two requested cycles have been completed, a file save dialog box comes up to offer the user the chance to save the results.

If saved, the data gets written to a space separated text file, named as the user chooses. Note that if you desire a .txt suffix, the user must supply it.

Yes, this is a fairly minimalist program and lacks some “would be nice” bells and whistles. For example, it would be nice to be able to go back a step because the wrong throttle speed got selected. It would also be nice for the program to take over the throttle and handle the steps itself.

Maybe some of you can help with adding these enhancements.

I would like to thank Michael Pulling of the San Diego Model Railroad Club for his review and valuable comments on this article. ■

MATERIALS LIST

This materials list is rather general since I built my test models largely from materials on hand.

I list parts for both the Mic-In model and the mouse wheel model but you don’t need both. I omit the parts for the wheel drilling jig since various methods could be adopted to perform that task.

One should also have available a suitable test track and either Bachrus or Bachmann idler rollers. If using Bachmann rollers, adjust sensor dimensions as described in text. ■

Part	Source	Comments
0.060 styrene	Hobby supply	
Plastic wheelsets	Junk box	
T1 Red LED	Electronics supplier	
Photo resistor/photocell	Electronics supplier	Believed to be similar to CdS 80-240K
Sacrificial mouse*	Office/consumer electronics	For wheel encoder & USB I/F (e.g. Verbatim 99743)
2 x AA battery box	Electronics supplier	
3.5 mm mono jack	Electronics supplier	
Interconnect cable	Computer audio cable	Other 3-conductor interconnect usable
USB Audio	Office/Electronics supplier	If mic input not available
150-ohm resistor	Electronics supplier	For use with 3 V power supply
82K-ohm resistor	Electronics supplier	
3.5 mm mono cable	Office/consumer electronics	Battery box to mic-in
5/32" brass tubing	Hobby supply	
6-32 x 1/4" screws (4)	Hardware	Pan-head preferred if available

*Only needed if you build the mouse wheel version.

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GARY WINTERGERST



Gary Wintergerst models primarily 1970s and 80s Southern Pacific with a smattering of Burlington Northern plus the Atchison, Topeka, and Santa Fe. Gary began modeling in the mid-1970s and has been a member of Southern California's Roundhouse Gang Model Railroad club since the late 70s.

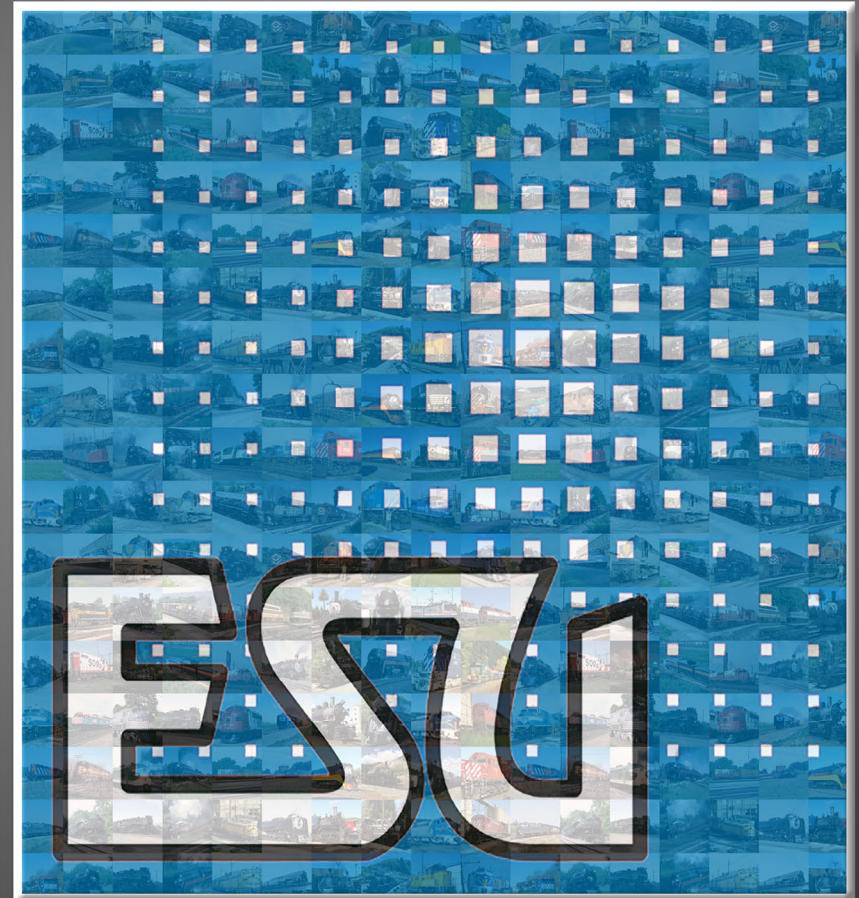
Gary's modeling interests, besides speed-matching locomotives, include scratchbuilding and detailing equipment, especially locomotives. Two of his scratchbuilding projects were a 16-axle, depressed center flatcar (with load) and a GE U50, a year or two before the Athearn version was released.

Gary is a native Californian and a retired civil engineer who spent most of his engineering career on transportation-related projects. While trained in civil engineering, he's been known to dabble in things mechanical and electrical.

Gary holds a B.S. in Civil Engineering from California State Polytechnic University, Pomona and an M.S. in Engineering from University of California, Los Angeles. Gary and his wife Rachel have been married 46 years and have a daughter, son, and two grandsons. ■



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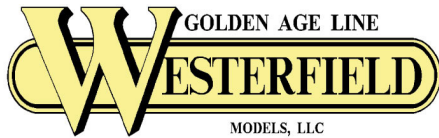
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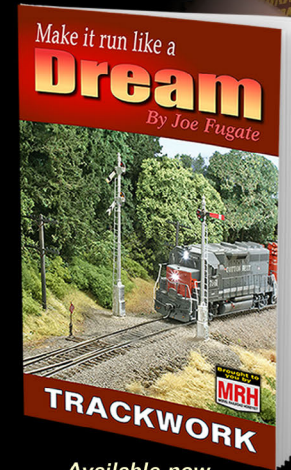


Ken Glover's Shelf Layout

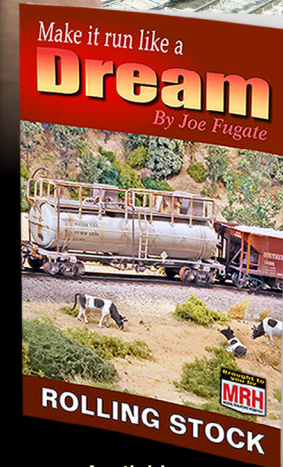
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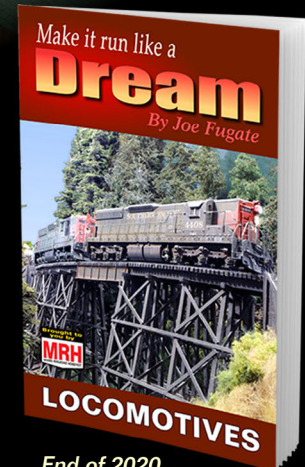
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by Joe Fugate



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1. During this era of lockdowns and uncertainty, it's difficult to visit layouts and shoot layout stories. For that reason, we're resurrecting a TrainMasters TV segment we called "MyLayout." We work with you to have you shoot your own layout and we pay you when your segment appears on TMTV. We cover the details for this and a lot more here as we describe our new TMTV content game plan.



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RATE THIS ARTICLE

WELL BEFORE THE CRAZINESS OF 2020 HIT, we had been planning to give *TrainMasters TV* content a fresh new look for 2021 and to launch a number of new shows as part of that. Thanks to the lockdowns and all the uncertainty, we've been rethinking our strategy and adding some interesting new wrinkles.

The planned new look changes actually work to our advantage because they replace the "live" segments with "scripted" segments that don't need both a host and a guest. The scripted segments can be shot without anyone needing to go on the road. For more on this change, see the sidebar, *New TrainMasters TV segments*.

But with the lockdowns during these times, we're rethinking how we produce our video content. This is actually good news – the technology needed to shoot network TV quality segments *without* going on the road has arrived.

If there's one approach to what we do that defines *MRH Media* more than anything else, it's that we're all about exploring leading edge media tech to produce and deliver our model railroad-ing content to our fellow hobbyists.

We're gearing up to adopt this new technology with gusto, and you can help. Read on for the details!

NEW: LAYOUT STORIES WITHOUT TRAVELING

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J. Fugate

WHAT IS TRAINMASTERS TV?

MRH launched *TrainMasters TV* (TMTV) back in November of 2013. We call TMTV "The web TV channel for people who love model trains."

You can think of TMTV as Hulu or Netflix for model trains – it's a paid web streaming video channel loaded with hundreds of network TV quality videos about model railroading. We post three to four *new* videos (running at least 90 minutes total) on model railroading topics each month. ■



2. Every few months before the lockdowns, we would go on the road and shoot layout stories for *MRH* and *TrainMasters TV*. We're running out of layout story backlog now and we haven't been able to go on the road and shoot more layout stories in 2020. Until things return to some level of normal, we're moving to "plan B" for getting more layout stories by having *you shoot your layout* for us. See the text for details.

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3. We used to have a segment called “MyLayout” where you could send in footage of your layout to us and we would add commentary to it, but it never caught on. Now that high resolution video cameras come with smartphones and tablets, most people have a great quality video camera at their fingertips. We think it’s time to resurrect MyLayout. See the text for details on how you can contribute and get paid for your layout video.

We’re not sure how soon we will get back to the normal ability to travel again, yet we don’t want to forgo having layout stories to present.

When we launched TrainMasters TV in November of 2013, we included a segment we called MyLayout [3] that took home-made video footage and added a nice commentary wrapper to it to provide some fun spit-and-polish to the presentation.

However, MyLayout never really caught on so we dropped it from the TMTV lineup. Well, times have certainly changed and we think we need to resurrect MyLayout once again. Most folks now have a good quality video camera they carry in their pocket.



J. Fugate

SUBMIT YOUR LAYOUT TO TMTV

We’re putting out a new call for layout tour videos to everyone who has a layout. If you send us video and we use it, we’ll pay you \$200. Every five months we will look at the first month viewership for your video and the leader will get a \$500 bonus!

To learn exactly how to do a layout tour video for us, see the details in the text below. ■

Doing a video for MyLayout

Okay, let’s say you want to do a video to submit to MyLayout. Here’s what you need to do.

Video camera: If you have a fairly new smartphone or tablet, then you have a high enough quality video camera for a MyLayout submission to TMTV.

Go the extra mile: Using a dedicated video camera like a GoPro or a consumer digital video camera is a plus, but not required.

Caveat 1 - Use good lighting: Pay attention to your lighting if you want the best video. Using more light helps make our small models look sharper and have less blur. For you techies, more light increases the video camera’s depth of field, making layout closeups look better.

Go the extra mile: If you want to get an adjustable LED light [4] that’s not too expensive, see the shopping list link at the end of this article.



4. You can get this 3200-5600K adjustable LED light on Amazon for just \$85.

One other thing to watch out for with lighting, and that's consistency. Check your layout for dark spots or extra bright hot spots [5]. Adding extra lighting to the darker areas can help balance things out more.

You may also be able to manually adjust your camera settings to darken the image and help eliminate brightly blown out lighting hot spots.

Caveat 2 - Watch white balance: You can get decent video color with most digital video cameras using just the auto white balance setting.

However, do pay attention to how your layout is lit. If you have a mix of florescents and LED bulbs, for example, you could have a mix of light colors that will make your video colors look strange [5].

While it may look fine to your eye (our brain compensates for the color variations), the camera accentuates lighting color differences. As much as you can, try to match the light colors.

If you get the adjustable LED light shown previously, make sure to adjust the light color to be as close to your other layout lighting as possible. You can also compensate somewhat for mixed lighting on your layout by using the LED light set to the opposite color temperature. Shoot some test footage to be sure.

For a good introduction to how white balancing works, see:

boxcast.com/blog/video-white-balance-101

Go the extra mile: If you want to explore manually adjusting your video camera's white balance, that can help solve certain lighting challenges and make your video look even better.

Caveat 3 - Video file size: Video files can get big in a hurry. The most important thing you can do to manage file size is to shoot short segments of a minute or two each.

Avoid just turning on the video camera and letting it run for 10, 20, or 30 minutes at a time. Notice in [7] that a 20 minute full



5. Check your layout lighting and watch out for dark spots and overly bright blown out lighting hot spots like you see here. In those cases, extra lighting in the darker areas can help, as can manually adjusting your camera to darken the image somewhat for the overly bright blown out areas.



6. Watch out for mixed lighting like you see here. One part of the layout looks redish (warm bulbs) while the other part looks greenish (cool bulbs). See the text for how to deal with this.

Video format	Resolution	Size / min	20 min video
Ultra HD or 4K	3840 x 2160	320 MB	6.4 GB
Full HD	1920 x 1080	149MB	3.0 GB
HD	1280 x 720	105 MB	2.1 GB

7. Video files can get big in a hurry, especially if you're shooting in Full HD or 4K. Most email programs only will do a max of 20MB, so you will have to send your video files to us using a cloud file share service or load the videos onto a thumb drive and mail them to us.

HD video is 3 gigabytes! You won't be able to email video files to us, you will have to use a web file sharing service such as Drop-box, Google Drive and so on.

The other thing you can do is upload your video to YouTube or Vimeo and set it to private, then send us a link to it.

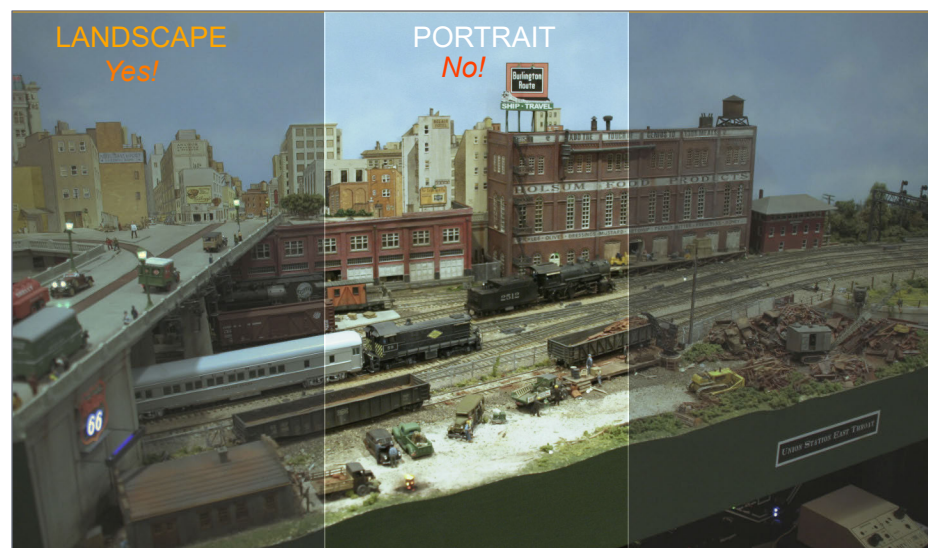
Video resolution: We want you to shoot your video in at least HD (1280 x 720), but we prefer Full HD or even 4K if your camera is capable of shooting that resolution.

Make very sure you shoot short segments of a minute or two each, that will make sending the video to us a lot simpler because the files will be smaller.

When using your phone or tablet to shoot video, please always shoot it in landscape orientation [8], not portrait!

Audio: When you're talking on the video, please remove other noises such as air conditioners, fans, the furnace and background talking. Get as clean an audio signal as you can. The most likely reason we will reject a video submission will be for poor audio.

Go the extra mile: If your video camera has an external audio jack and you want to get a lavalier mic, that will up the quality of your audio considerably. This one extra step will move your submission to the top of the list and likely put you in the possible \$500 bonus running with our viewers.



8. When shooting video with your phone or tablet, please always shoot *landscape*, not Portrait. Please turn the device so the video framing is wider than it is tall.

Moving the camera around: As a general rule don't move your camera around while you're shooting video. Nothing makes your video look amateurish faster than moving the camera all around while you're shooting video. Most consumer cameras have video stabilization, make sure it's turned on.

Go the extra mile: Get a tripod mount for your phone or tablet and you will improve your video quality. You can find a 7.2' tall camera or tablet tripod mount on Amazon for just \$30. If you really want to go the extra mile, you can also get a blue-tooth remote that lets you operate your phone camera from a distance.



9. You can get this 7.2' phone tripod mount on Amazon for just \$30.

What to put into your video

Now that we've covered the technical side pretty thoroughly, what do we want you to put into your video? Remember to keep the each video clip short, no more than 1-2 minutes each.

Tell us a bit about you: Point the camera at yourself and start off by telling us a bit about you. How did you get into the hobby? What has your hobby journey entailed? What's your current passion in the hobby? What kind of hobby projects get your hobby juices flowing?

Tell us about your layout: Point your camera at the layout at the room entrance or do a very slow (and we mean slow) pan around the layout room to show us some of the layout while you talk.

Tell us things like how large is the room, what scale is your layout, and why did you decide to model this subject, prototype, and/or era?

Give us a little layout tour by showing us some of your signature scenes. Describe the backstory on the scene and why you felt it important to model it as you're videoing it.

Remember to keep the camera steady, don't move it all around while you talk! If you want to show us a closeup, then make a mental note of that and once you're done talking, shoot some "b-roll" footage as a closeup that keeps the camera steady!

Again keep the video clips short, no more than 1-2 minutes each. Be careful, the time can go fast! If you have a lot to say, then stop, move to a new shooting angle, and talk some more. Ten 1-2 minute clips are far better than one big 10-20 minute clip.

Finally, if you have something you're particularly proud of such as a nice segment of painted backdrop or a nice modeled stream, then tell us about it!

Sending your video to us

Before you get too far along on your video project, contact us and tell us what you want to do. We will have you shoot a few samples and send those to us so we can let you know if your video is going

10. Doing in-studio segments with three cameras isn't nearly as easy to do with the lockdowns. The TMTV main studio being in Canada has made it virtually impossible for guests from the USA



to come shoot segments. Our new game plan embraces the new normal for now and moves to doing high-quality streaming clinics. We cover the technical details in this article, and we're also looking for guests who want to be on this new "remote" TMTV.

to qualify to be on MyLayout. We're just trying to make sure you don't do a lot of video shooting only to find out something's not quite right and you need to scrap your efforts and redo it.

If you kept your video clips short as we recommend, then submitting your video clips to us will involve uploading a bunch of files that are 200-800 MB each. Once you get files of 1GB or larger, the upload times can get rather long. A lot of short and relatively quick file uploads beats a few really long file uploads!

As mentioned, your upload options include Dropbox (2 GB free), Google Drive (15 GB free), or uploading to YouTube or Vimeo and making the videos private (free). On YouTube or Vimeo, you will generally be limited to no single video being longer than 15 minutes. Another reason to keep your video clips short!

If you have a video project you would like us to consider, please

use the [TMTV contact form](#) and select type: *Like to do a video*.

NEW: LIVE CLINICS WITHOUT TRAVELING

We're also going making more of our popular Backshop Clinic and DCC Decoded videos, hosted by TMTV regulars Rick Green and Bob Fallowfield, but we're doing them *remotely*.

Both of these fellows have agreed to work with us to spin up remote clinics using high-quality webcams that record a local video feed to an SD card. This way, we aren't subject to variable live webcam video degradation. The quality remains high.

The webcam also has an external audio mic input, so we're using a wired lavalier mic to we get a top quality audio feed. The guest will have two webcams, one giving the usual sitting at the work desk view. The other webcam sits on the desk with a flexible arm, allowing the camera to get a super closeup video recording of the action.

At first, we'll be testing all this new technology with me (Joe Fugate) being the guest so we can work out all the bugs in the process. So for a while, TMTV members need to get used to seeing a lot of Joe on these new remote live clinics!

Once we are ready (by November, we expect), we will be looking for modelers willing to be on TMTV for a live clinic using this new tech. If you're interested, use the button below. One final note, we pay an honorarium to guests! ■

Shopping list for this article: mrhmag.com/magazine/mrh2020-10/tmtv

I want to do a video
select "like to do a video"



NEW TRAINMASTERS TV SEGMENTS

As part of our planned 2021 major look-and-feel refresh, we've been planning a number of new segments/shows. However, with the 2020 lockdowns, we decided to launch some of these new shows early.

New segments/shows launched already in 2020:

Make it run like a dream: Joe Fugate brings his popular *Run like a Dream* book series to video. Includes numerous concrete examples and further in-depth explanation of the recommended practices. Typical episode running time: 20-30 minutes.



Aha Moment: Seasoned modelers give a quick, cut-to-the-chase video on a valuable topic. Aimed at head-slapper topics you never knew you needed but later can't live without.



Typical episode running time: 5-10 minutes.

Other shows that will be coming, but we don't have an exact launch date yet.

MRH QAT: Viewer questions answered by MRH staff members. Expected running time: 15-20 minutes.

The Siskiyou Line 2: Joe Fugate takes you into his new SL2 layout TOMA workshop and shows how the "one module" approach can transform building a home layout in the 21st century. 20-30 minutes. ■

Check out this new TMTV series ...

Make it run like a

Dream

By Joe Fugate



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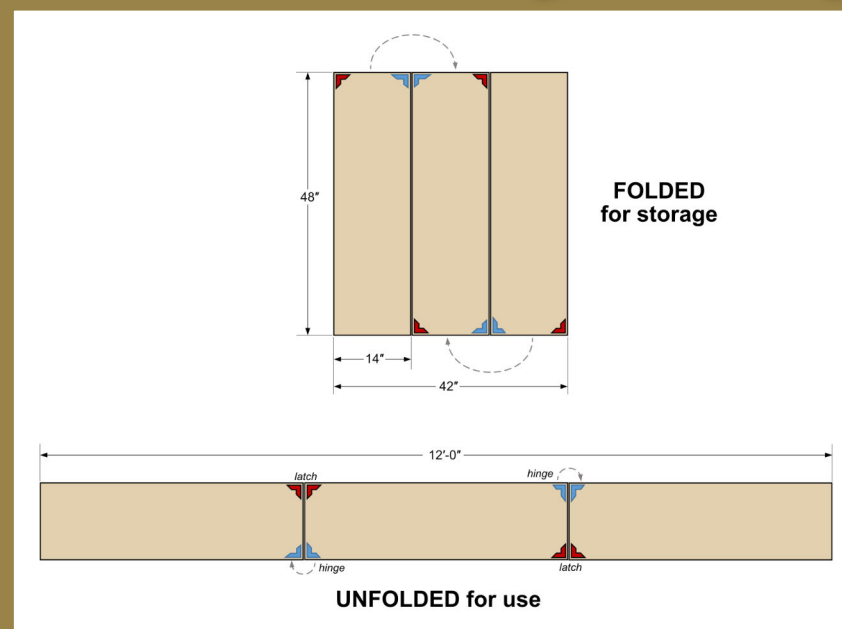


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Model railroading on-the-go



Model Railroad Hobbyist | October 2020



RATE THIS ARTICLE

TIM DUDLEY'S SWITCHING LAYOUT THAT FOLDS UP AND TRAVELS WITH HIM ...

I HAVE BEEN WANTING TO BUILD A SWITCHING LAYOUT BASED loosely on the Boston and Maine Railroad in the Massachusetts area, having an interchange with the Maine Central Railroad.

1. I designed my modules to fold up and fit into the storage space on my RV. The blue corners have hinges and the red corners have latches.

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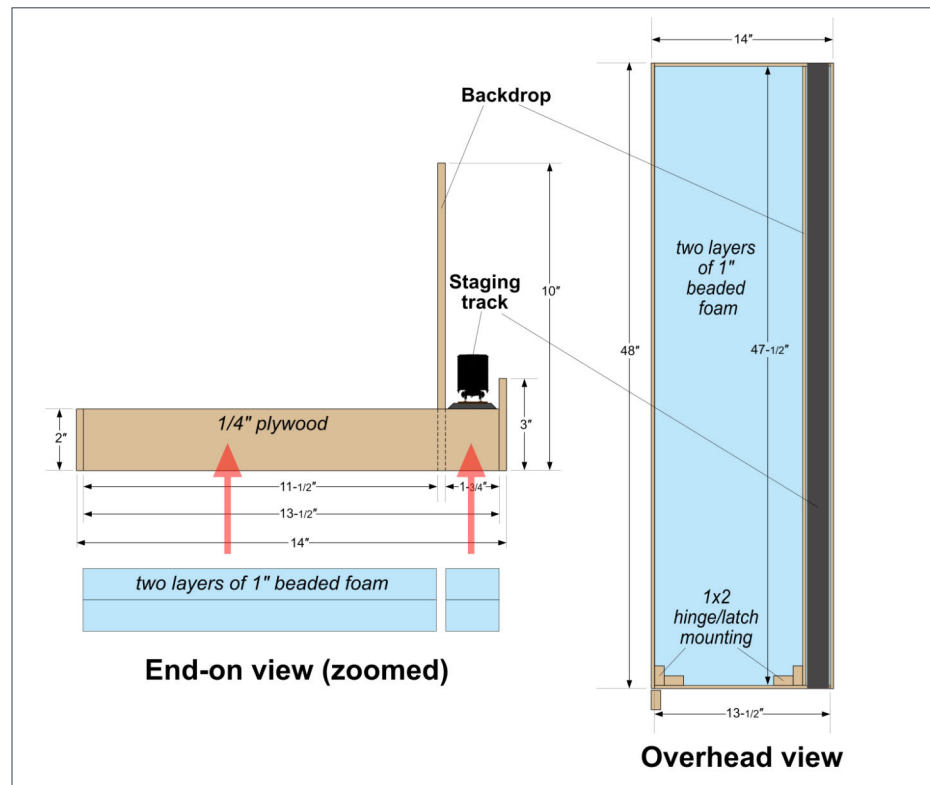
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I came up with this design for an H0 scale sectional layout with three folding sections that hinge and lock together. I designed the layout to fit in a 42" by 48" space that's a foot tall, the exact space I have in the "storage space" under my fifth-wheel RV trailer.

When unfolded for operation, the layout takes up a space 14" deep by 12' long with a 10"-tall backdrop.

I designed the first section as an industrial area. I am making the second section into a typical New England countryside scene, with a river and covered bridge. Finally, the third section is a small town with lots of switching.



2. Diagram of module construction details

Here's how I decided to make this work – I made the sections hinge together at the blue corners, and I use a locking mechanism to hold the sections together at the red corners [1].

BASIC DESIGN

I built each module out of basic bead-board foam and 1/4" plywood [2]. Together, all three modules weigh about 10 pounds. I purchased the materials for each module's benchwork from a local home improvement store for about \$15.00 – less than \$50 for all three modules.

I cut two pieces of 1" foam 11-1/2" x 47-1/2" and glued them together with Liquid Nails for Projects (safe for foam). I glued two strips of foam 1-3/4" x 47-1/2" together as support for the staging track behind the backdrop [2]. Normally I wouldn't use this bead-board foam, but it's way cheaper than the extruded polystyrene foam I normally use.

Then using pre-cut pieces of 1/4" plywood (see [2] for dimensions), I laminated the three side edges of the larger foam lamination with plywood. I then inserted a 10" x 47-1/2" piece of 1/4" plywood for the backdrop.

Finally, I glued the 1-3/4" foam lamination strip to the back of the backdrop and glued on the rear 1/4" plywood strip, forming a box to contain the foam with the backdrop strip inserted in between the layers of foam. I glued everything using Liquid Nails for foam.





3. I used two pieces of 1" bead-board foam to make the basic form of each module. The backdrop runs the length of the module minus 1/4" on each end and is 10 inches high – 2" is inserted into the foam, leaving 8" of backdrop exposed above the surface of the foam.



4. I made L-shaped corner braces from 1x2s, notched the foam, and glued them in place with Liquid Nails for foam. Hinges and latches hold the modules together at the 1x2s.

★★★★★
RATE THIS ARTICLE

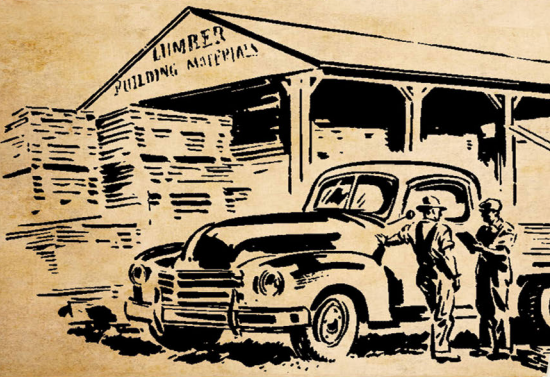


5. I added Woodland Scenics roadbed behind the backdrop for the staging track. Originally I planned on a two-track staging yard behind the backdrop, but that narrowed the modeling space on the front side of the module too much, so I chose a single track behind the backdrop instead, which only cost me 2" of module width in front of the backdrop.

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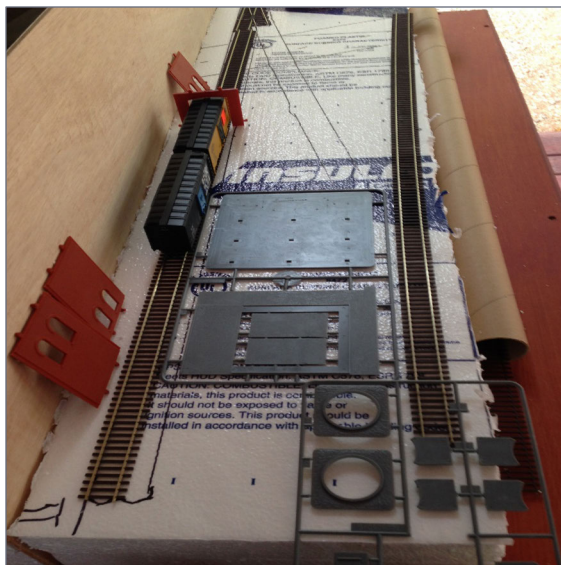


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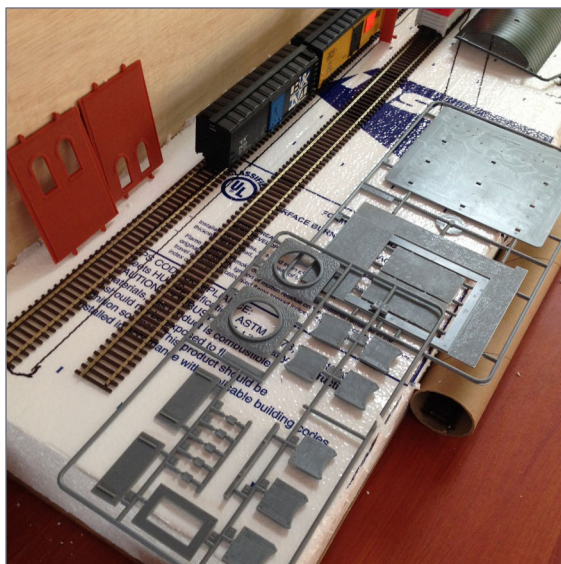


6, 7. Now on to the front of the module for some initial planning.

The module I'm highlighting here contains a furniture factory and a heating oil facility, both fairly typical for New England. I changed the track plan from the photos to have the spur run parallel to the main.

I decided to put the industrial spur side-by-side with the main so the placement of the structures had adequate space for each of them in the scene.

For the furniture factory I'm using a DPM 4-in-1 kit, and for the heating oil facility I'm using a Walther's Interstate Fuel kit.



★★★★★
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8. I painted the module foam a light tan dirt color using latex paint as a base.



9. I also glued cardboard to act as a base for the street I will add to the scene. Notice I lightly stenciled some clouds onto the backdrop.



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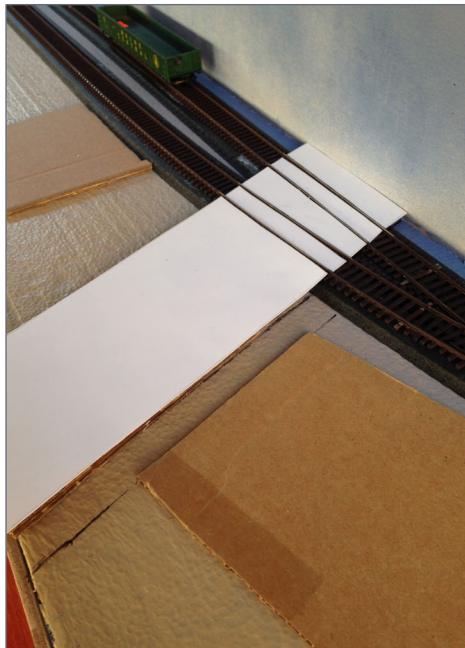
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10. Here I'm working on the track installation, basic land forms, and structure foundations. I use cardboard for all foundations. In the background there will be a building flat (furniture factory), a fuel dealer, and in the foreground of the photo I will install a church. What's a New England scene without a church?

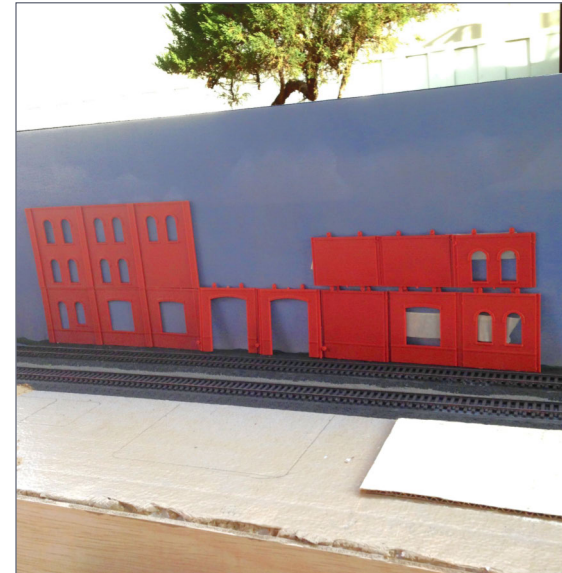


11. I made basic land forms out of glued cardboard and masking tape that I later cover with plaster and paint.

I made the road from a plastic yard sale sign I purchased at the dollar store. I trimmed the plastic and glued it to the cardboard base.



12. Initial building flat design took some thought as to the placement of each wall section and its function as part of the furniture factory.



13. I arrived at a final furniture factory wall section layout that will be glued together, painted, and detailed.



As I'm detailing these modules, I find my portable arrangement with the hinges and latches works well and allows me to take my switching layout with me on the road. Now there's no excuse for not having a layout! ☒



14, 15. I've finalized the track, weathered the structure walls, and now I'm starting to add scenery.

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Clyde, Ohio, a town you can model

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16. I made a simple ground throw for the only turnout by using a slide switch and piano wire I had in my tool box. It's very effective, and not that noticeable when you scenic over it.



17, 18. I had to have a little country church for my New England layout. I used a Model Power kit for the church. I scenicked the area around the church and modeled the parking lot with Woodland Scenics Top Coat road mixture, both concrete and asphalt.



19, 20. I also used Woodland Scenics Smooth-It plaster to form the driveway area for the local fuel dealer, painted it with a couple of coats of Top Coat asphalt mix, then sanded it.

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21. (Top left) Here is a drone shot of this end of the module, with things coming to completion.

22. (Bottom left) The fuel tank rack is the final piece to be installed. Then details and vehicles will be added to the scene.

23. (Top right) B&M 1728 switches a few boxcars at the furniture factory. It's always fun to operate a layout even when its not completed yet.



TIMOTHY F. DUDLEY



When Timothy was a little boy, his dad hid an AHM train set so Timothy wouldn't find it until Christmas morning. That set started his love affair with the hobby.

He and his brother built a four-by-four foot oval layout on a piece of plywood that barely fit under their bunk beds.

Since then Timothy has built a dozen or so layouts in N and HO scales.

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



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LOOK column

Model Railroad Hobbyist | October 2020



RATE THIS ARTICLE

JEFF SHULTZ CHECKS OUT THE ISO-TIP RECHARGEABLE SOLDERING IRON ...

I AM ALWAYS INTERESTED IN SOMETHING THAT CAN HELP IMPROVE my soldering, so when I was offered an Iso-Tip quick charge rechargeable soldering iron kit [1] to evaluate, I jumped at the chance.

The Iso-Tip is an interesting product. Normally, to change out the tip of a soldering iron you must loosen a set screw or unscrew the tip itself from the iron before installing the new tip. With the Iso-Tip #7700, the tip simply clips in [2, 3] to the cordless iron, with two prongs on the tip inserted into a two-piece copper socket.

I purchased a #7482 Long Life Ultra fine tip, which has a point between 0.010"-0.015" in diameter; a #7484 Long Life Micro tip, which has a 1/64" tip, and a #7591 Extended Micro, which has a longer 1/64" tip approximately one inch in length[4]. I wanted to see if I would be able make finer solder joints with the narrower tips.

I have used the Iso-Tip for three different soldering tasks so far; soldering Z scale Code 55 track together, soldering a Fast Tracks

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1. Iso-Tip quick charge rechargeable soldering iron kit.

H0 scale code 83 turnout together, and soldering in a Decoder Buddy motherboard, LEDs, and a speaker.

I didn't have any difficulty soldering the track together, and the cordless iron made getting in and around the track a breeze.

Likewise, as long as I pre-tinned the wires and pads I was soldering, Decoder Buddy electronics soldering worked well.

I found the trick of using the very warm side of a hot iron's tip to shrink heat-shrink tubing didn't work, since the Iso-Tip concentrates its heat only at the tip.

I could easily solder rail to PC ties with the Iso-Tip. But if you plan to make a lot of turnouts with the Fast Tracks fixtures, consider buying a resistance soldering rig like their spokesman Kevin Marks uses.

The best thing about the Iso-Tip is its availability. I can leave it on my workbench plugged in 24/7 and it is perfectly safe. When I want to use it, I just need to pull it off its charger, twist the trigger button from lock to use, press down on the button, and

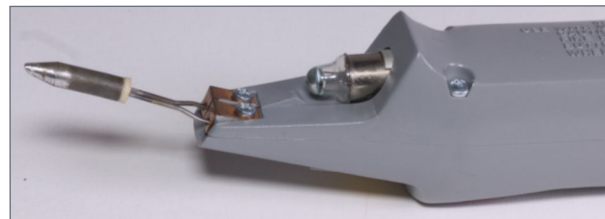


2. Tip socket.

wait a few seconds for it to come up to temperature. It also comes with a light that serves the dual purpose of lighting your work and telling you that it is in use.

The Iso-Tip Quick Charge rechargeable soldering iron kit includes a #7700 Quick Charge cordless rechargeable soldering iron, #7728-100 charging stand, #7545 Standard Fine Tip 1/16" diameter, #7546 Standard Heavy-Duty tip 3/16" diameter, and the #7733 Quick Charge battery.

The Iso-Tip website is iso-tip.com. ☒



3. Tip inserted in socket.



4. Additional tips.



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SAVVY MODELER *Online*



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Model Railroad Hobbyist | Octobere 2020



Awesome N scale diesel weathering

YouTube modeler *Trains and Dioramas* shows how he weathered this N scale diesel without an airbrush. That's right, using only washes and pastels, he did this very realistic and convincing job on this N scale diesel model.

This video runs for just 12 minutes and shows what's possible for getting some awesome realism. HO modelers, don't skip this video just because it's N scale! ■



▶ **GREAT MODELER VIDEOS ON THE WORLD WIDE WEB**

Floquil/PollyScale stash running out?



MRH has mapped the old familiar colors
to readily-available acrylic paints.



MRH's Floq / PolyScale Paint Equivalents Conversion Chart - 1						MRH's Floq / PolyScale Paint Equivalents Conversion Chart - 2					
Floq ¹	PolyScale ²	Color Samples ³	Model Name	Model's Vendor ⁴	Model's Era ⁵	Floq ¹	Color Samples ³	Model Name	Model's Vendor ⁴	Model's Era ⁵	Notes
Primer Gray			MR 4362	VMA 71256	16-13			Taucon	MR 4050 ⁶	VMA 71256	16-15
Engine Black			MR 4488	MR 70500 VMA 71251	16-01			Reaper Orange	MR 4482 ⁶	VMA 71263	16-09
Storm Petrel Black			MR 4795	VMA 71257	16-488			Reaper Yellow	MR 4279	VMA 71216	16-10
Gilly Gray			MR 4797	VMA 71257	16-46 ⁷			Reef Brown	MR 4284	MR 70500 VMA 71249	16-75a
Weathered (Camouflaged) Black			MR 4916	MR 70503 VMA 71255	16-05			Reaper Tan	MR 4485	MR 71253	16-04 16-05 ⁸ Closest match - for 16-04
Reaper Gray			MR 4483 ⁹ MR 4363	VMA 71240	16-04			Rail Brown	MR 4340 ⁶	MR 70501	16-01
Reaper White			MR 4473	MR 70504 VMA 71240	16-03			Reef	MR 4475	MR 71257	16-12
Crab Gray			MR 4487	MR 70503 VMA 71255	16-03			Concrete	MR 4476	MR 71257 VMA 71240 ¹⁰ Closest match - for 16-12	16-07 ⁸ Closest match - for 16-12
Cinnamon Red			MR 4482 ⁹ MR 4421	MR 71262 VMA 71251	16-08			Appl. Concrete	MR 4475	MR 71257 VMA 71240 ¹⁰ Closest match - for 16-07	16-07 ⁸ Closest match - for 16-07

¹ * Indicates a listed but not exact match. All MRH colors form a gamut of colors. Specimen Accuracies for MRH and MRH Paint Equivalents are listed in the MRH Color Chart. ² 1 Grams floq, 1 Samplegram floq. ³ Color Chart. ⁴ Color Chart. ⁵ Color Chart. ⁶ Color Chart. ⁷ Color Chart. ⁸ Color Chart. ⁹ Color Chart. ¹⁰ Color Chart. ¹¹ Color Chart. ¹² Color Chart. ¹³ Color Chart. ¹⁴ Color Chart. ¹⁵ Color Chart. ¹⁶ Color Chart. ¹⁷ Color Chart. ¹⁸ Color Chart. ¹⁹ Color Chart. ²⁰ Color Chart. ²¹ Color Chart. ²² Color Chart. ²³ Color Chart. ²⁴ Color Chart. ²⁵ Color Chart. ²⁶ Color Chart. ²⁷ Color Chart. ²⁸ Color Chart. ²⁹ Color Chart. ³⁰ Color Chart. ³¹ Color Chart. ³² Color Chart. ³³ Color Chart. ³⁴ Color Chart. ³⁵ Color Chart. ³⁶ Color Chart. ³⁷ Color Chart. ³⁸ Color Chart. ³⁹ Color Chart. ⁴⁰ Color Chart. ⁴¹ Color Chart. ⁴² Color Chart. ⁴³ Color Chart. ⁴⁴ Color Chart. ⁴⁵ Color Chart. ⁴⁶ Color Chart. ⁴⁷ Color Chart. ⁴⁸ Color Chart. ⁴⁹ Color Chart. ⁵⁰ Color Chart. ⁵¹ Color Chart. ⁵² Color Chart. ⁵³ Color Chart. ⁵⁴ Color Chart. ⁵⁵ Color Chart. ⁵⁶ Color Chart. ⁵⁷ Color Chart. ⁵⁸ Color Chart. ⁵⁹ Color Chart. ⁶⁰ Color Chart. ⁶¹ Color Chart. ⁶² Color Chart. ⁶³ Color Chart. ⁶⁴ Color Chart. ⁶⁵ Color Chart. ⁶⁶ Color Chart. ⁶⁷ Color Chart. ⁶⁸ Color Chart. ⁶⁹ Color Chart. ⁷⁰ Color Chart. ⁷¹ Color Chart. ⁷² Color Chart. ⁷³ Color Chart. ⁷⁴ Color Chart. ⁷⁵ Color Chart. ⁷⁶ Color Chart. ⁷⁷ Color Chart. ⁷⁸ Color Chart. ⁷⁹ Color Chart. ⁸⁰ Color Chart. ⁸¹ Color Chart. ⁸² Color Chart. ⁸³ Color Chart. ⁸⁴ Color Chart. ⁸⁵ Color Chart. ⁸⁶ Color Chart. ⁸⁷ Color Chart. ⁸⁸ Color Chart. ⁸⁹ Color Chart. ⁹⁰ Color Chart. ⁹¹ Color Chart. ⁹² Color Chart. ⁹³ Color Chart. ⁹⁴ Color Chart. ⁹⁵ Color Chart. ⁹⁶ Color Chart. ⁹⁷ Color Chart. ⁹⁸ Color Chart. ⁹⁹ Color Chart. ¹⁰⁰ Color Chart. ¹⁰¹ Color Chart. ¹⁰² Color Chart. ¹⁰³ Color Chart. ¹⁰⁴ Color Chart. ¹⁰⁵ Color Chart. ¹⁰⁶ Color Chart. ¹⁰⁷ Color Chart. ¹⁰⁸ Color Chart. ¹⁰⁹ Color Chart. ¹¹⁰ Color Chart. ¹¹¹ Color Chart. ¹¹² Color Chart. ¹¹³ Color Chart. ¹¹⁴ Color Chart. ¹¹⁵ Color Chart. ¹¹⁶ Color Chart. ¹¹⁷ Color Chart. ¹¹⁸ Color Chart. ¹¹⁹ Color Chart. ¹²⁰ Color Chart. ¹²¹ Color Chart. ¹²² Color Chart. ¹²³ Color Chart. ¹²⁴ Color Chart. ¹²⁵ Color Chart. ¹²⁶ Color Chart. ¹²⁷ Color Chart. ¹²⁸ Color Chart. ¹²⁹ Color Chart. ¹³⁰ Color Chart. ¹³¹ Color Chart. ¹³² Color Chart. ¹³³ Color Chart. ¹³⁴ Color Chart. ¹³⁵ Color Chart. ¹³⁶ Color Chart. ¹³⁷ Color Chart. ¹³⁸ Color Chart. ¹³⁹ Color Chart. ¹⁴⁰ Color Chart. ¹⁴¹ Color Chart. ¹⁴² Color Chart. ¹⁴³ Color Chart. ¹⁴⁴ Color Chart. ¹⁴⁵ Color Chart. ¹⁴⁶ Color Chart. ¹⁴⁷ Color Chart. ¹⁴⁸ Color Chart. ¹⁴⁹ Color Chart. ¹⁵⁰ Color Chart. ¹⁵¹ Color Chart. ¹⁵² Color Chart. ¹⁵³ Color Chart. ¹⁵⁴ Color Chart. ¹⁵⁵ Color Chart. ¹⁵⁶ Color Chart. ¹⁵⁷ Color Chart. ¹⁵⁸ Color Chart. ¹⁵⁹ Color Chart. ¹⁶⁰ Color Chart. ¹⁶¹ Color Chart. ¹⁶² Color Chart. ¹⁶³ Color Chart. ¹⁶⁴ Color Chart. ¹⁶⁵ Color Chart. ¹⁶⁶ Color Chart. ¹⁶⁷ Color Chart. ¹⁶⁸ Color Chart. ¹⁶⁹ Color Chart. ¹⁷⁰ Color Chart. ¹⁷¹ Color Chart. ¹⁷² Color Chart. ¹⁷³ Color Chart. ¹⁷⁴ Color Chart. ¹⁷⁵ Color Chart. ¹⁷⁶ Color Chart. ¹⁷⁷ Color Chart. ¹⁷⁸ Color Chart. ¹⁷⁹ Color Chart. ¹⁸⁰ Color Chart. ¹⁸¹ Color Chart. ¹⁸² Color Chart. ¹⁸³ Color Chart. ¹⁸⁴ Color Chart. ¹⁸⁵ Color Chart. ¹⁸⁶ Color Chart. ¹⁸⁷ Color Chart. ¹⁸⁸ Color Chart. ¹⁸⁹ Color Chart. ¹⁹⁰ Color Chart. ¹⁹¹ Color Chart. ¹⁹² Color Chart. ¹⁹³ Color Chart. ¹⁹⁴ Color Chart. ¹⁹⁵ Color Chart. ¹⁹⁶ Color Chart. ¹⁹⁷ Color Chart. ¹⁹⁸ Color Chart. ¹⁹⁹ Color Chart. ²⁰⁰ Color Chart. ²⁰¹ Color Chart. ²⁰² Color Chart. ²⁰³ Color Chart. ²⁰⁴ Color Chart. ²⁰⁵ Color Chart. ²⁰⁶ Color Chart. ²⁰⁷ Color Chart. ²⁰⁸ Color Chart. ²⁰⁹ Color Chart. ²¹⁰ Color Chart. ²¹¹ Color Chart. ²¹² Color Chart. ²¹³ Color Chart. ²¹⁴ Color Chart. ²¹⁵ Color Chart. ²¹⁶ Color Chart.

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OCTOBER NEWS

column



Model Railroad Hobbyist | October 2020

RICHARD BALE AND JEFF SHULTZ
REPORT THE LATEST HOBBY
INDUSTRY NEWS ...



RATE THIS ARTICLE

NEW CLUB CARS



The **Southern Pacific Historical and Technical Society** is selling a ready-to-run model of an SP class H-70-16 twin-bay covered hopper car. The model

represents the March 1957 as-delivered version of a Pullman Standard PS-2 car with red lettering and heralds. The HO scale model was produced for SPH&TS by Kadee.



A 1:87 scale kit for a 22' round nose Daylight PMT trailer is also available from SPH&TS. Kits are available for trailers with and without side loading doors. The kit consists of pre-painted sides, frame, roof, details, wheels, landing gear, rubber parts, and accurate decals. For additional information visit sphs.myshopify.com/collections/models.

THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

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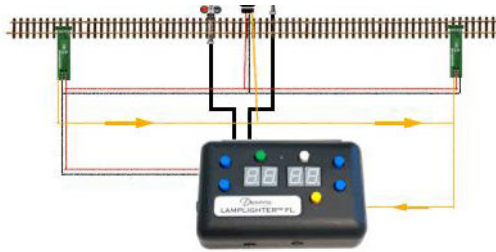
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NEW PRODUCTS FOR MULTIPLE SCALES



Dwarvin has announced the release of the Lamplighter FL, a fiber optic light source that can be programed for animated light effects. Equipped with 8 ports with individual lighting modes, two fibers can be installed per port,

allowing for a total of 16 separate lights that can be turned to on/off, flashing, or blinking. The Lamplighter FL can be programmed either through its built-in keypad or DCC.

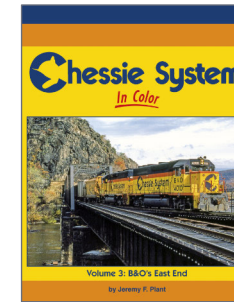
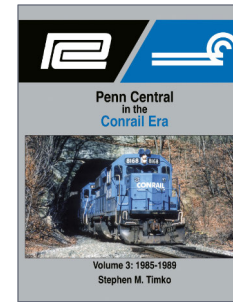


Also announced as a future release is a grade crossing system that will include the crossing signals, detectors, and sound, all controlled by the Lamplighter FL. For more

information visit www.dwarvin.com.

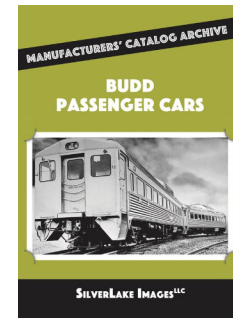
New hardback books coming next month from **Morning Sun** include volume 3 of *Penn Central in the Conrail Era*. In this third volume author Stephen M. Timko takes a look at former Penn Central territory under the control of Conrail between 1985 and 1989. Former PC motive power, equipment, and structures are featured, along with freight operations.

Also scheduled for release in November is *Chessie System: B&O's East End*, by Jeremy F. Plant. This third volume features B&O's colorful lines from Philadelphia and Baltimore to



Grafton, WV and Connellsville, PA. Locomotives in Chessie colors as well as the three predecessor roads, B&O, C&O, and Western Maryland are portrayed in action. For

additional information contact a dealer or visit www.morningsunbooks.com.



Ron's Books is selling a 120 page softcover publication that provides an overview of the Budd Company, its products and operations, through the reproduction of several in-house Budd publications. The material covers Budd products circa 1950 as well as the 1970s and early 80s. Gallery Car Operations in the Chicago area, and the Budd Universal Rapid

Transit Car. Cars built for the California Zephyr, Burlington Route, Rio Grande and Western Pacific are all included. For additional information visit www.ronsbooks.com.



ZYX Creative is now offering 3D printed Saguaro Cactus in N and HO scales and Prickly Pear Cactus in HO scale. Other scales may also be available. Saguaro can be found along the SP, Santa Fe, Ferromex and N de M railroads and features a

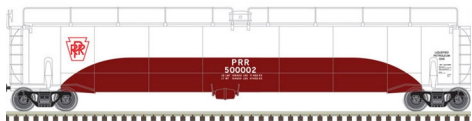
ribbed surface and horizontal bulge detail. Prickly Pear, available in various sized patches as well as individual pads, can be found throughout the US and Mexico, and is used in landscaping as well. For more information visit www.zyxcreative.com.

O SCALE PRODUCT NEWS



Atlas O has included a new 40' refrigerated container in its 2021 second quarter production schedule. The

new O scale model represents a standard 40' high-cube (ISO Type 45R1) refrigerated container. It includes a detailed picture window-style refrigeration unit. Decorating schemes for the new O scale model will be NYK Logistics, K-Line, ONE, and Maersk-Sealand.



Also scheduled for release during the second quarter of next year is an O scale 33,000-gallon tank car. The

Master series model is based on an ACF 1960s-era 33,156-gallon whale-body tank car designed to haul liquefied petroleum gas and anhydrous ammonia. Details include a see-through roof walkway, separately applied grab irons, and 100-ton roller-bearing trucks with rotating bearing caps.



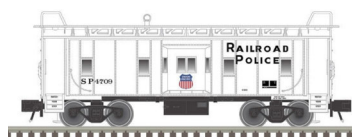
Road names will be GLNX (with conspicuity stripes), Transerv Systems, Genstar Chemicals, Pennsylvania

Railroad, Penn Central, Norfolk Southern (Safety Train), Solar Gas, and Petrolane.



Completing the list of new O scale models coming from Atlas O during the second quarter of 2021 is a bay window caboose. The Atlas

Trainman model is based on Southern Pacific class C-30-6 cabooses introduced in the early 1950s. The general design is similar to cabooses found on the nation's railroads both large and small.



caboose trucks with 33" metal wheels.



Road names will be Norfolk Southern, Nickel Plate Road, Long Island, Chicago Great Western, Chessie System, Erie Lackawanna (Bi-Centennial), NYSW, Southern Railway, Union Pacific, and Union Pacific (white police scheme). An undecorated model will also be offered. Atlas O rolling stock is available with a choice of 2-rail or 3-rail trucks and couplers. For additional information contact a dealer or visit www.atlaso.com.



Williams by Bachmann now has GE 70-ton diesel locomotives in 3-rail O gauge. Featuring "True Blast Plus" 16-bit polyphonic sound, the model is equipped with dual flywheel

equipped motors, die-cast frame and trucks, LED lighting, an electronic reverse board with directional lock-out, engineer cab figure, and flush-mounted windshield with separate wipers. The model will travel around O-27 curves. Roadnames include Southern Pacific, Canadian National, Tropicana, and Rutland. For more information visit shop.bachmanntrains.com/index.php?main_page=index&cPath=491_495_1093.



R. Bale

USRA TWIN-BAY HOPPER

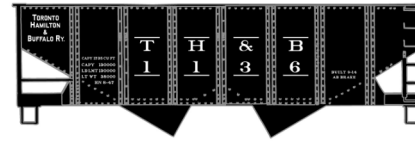
At the beginning of World War I, serviceable freight cars were in drastically short supply. To solve the problem quickly, the federal government nationalized the railroads under the United States Railway Administration. One of the USRA's first tasks was to develop standard designs for basic freight cars that could be built quickly by any of the nation's car builders. Among the USRA designs was a 30' twin-bay open hopper car. The USRA hopper was rated at 50-tons with a capacity of 1,880 cubic feet. It had eight flat panel sides supported by exterior posts. Most of the more than 25,000 built were equipped with Andrews-type 2D-F3 trucks. Many were upgraded in later years with AB brakes replacing the original K system.

HO SCALE PRODUCT NEWS



Accurail has released HO scale kits for USRA twin-bay open hopper cars decorated for Susquehanna & New York and for

Toronto, Hamilton & Buffalo. The model closely matches the prototype with the principal dimensions of length, width, height, and truck centers being accurately replicated.



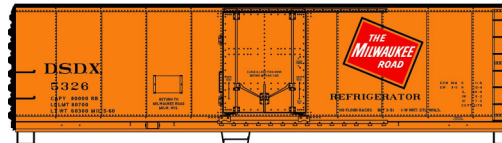
Data on the car's sides indicates the S&NY car was upgraded in 1938. The TH&B hopper was rebuilt in 1947.



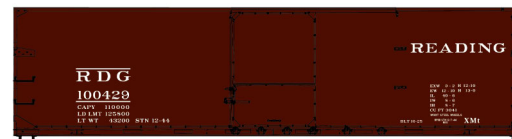
Also new from Accurail is a kit for a 36' Fowler boxcar decorated for Pittsburgh & Shawmut. The HO scale model is based on a prototype built in April 1930.



This Archer Daniels Midland triple-bay covered hopper is available as a kit from Accurail. The HO model follows a 4750 cu. ft. prototype Pullman Standard delivered in 1996.



Accurail has released a 40' steel refrigerator car with a plug door decorated for Milwaukee Road DSDX (Dairy Shippers Despatch Co.). The HO scale model represents a car built in 1951.



Completing the list of recent release of HO scale kits from Accurail is a 40' Reading USRA double sheathed wood boxcar. All Accurail kit come with appropriate trucks with plastic wheelsets and Accumate knuckle couplers. For additional information contact a dealer or visit www.accurail.com.

Athearn has announced plans to produce another run of the Union Pacific DDA40X. The Genesis model is based on the





massive eight-axle 6,600hp diesel electric locomotive

EMD built exclusively for UP in the late 1960s. Athearn has elevated its HO version of the DDA40X to Genesis 2.0 status. Upgrades include illuminated number boards and classification lights, working ground lights, etched see-through ladder steps, dual sugar cube speakers, and rubber MU hoses. The model will be available in six road numbers with each one having number-specific details. Delivery is planned for August 2021.



Athearn has included an EMD SD40-2 in its August 2021 production schedule. More than two dozen

road name/road number versions of the HO scale Ready-to-Roll model will be available including six UP units. Additional road names include Arizona & California Railroad, Rapid City, Pierre & Eastern; Canadian Pacific, Ferromex (two schemes), Burlington Northern, and Onieda & Western. Completing the run is an SD40-2 specially decorated to mark Athearn's 75th Anniversary. The SD40-2 will be available without sound and with a Soundtraxx Econami DCC decoder with dual cube speakers.



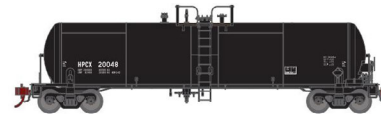
Athearn's August 2021 production schedule includes a new run of Union

Pacific class CA-8 cabooses. The feature-laden Genesis series model features DCC sound, sliding cupola side windows, cupola-mounted marker lights, and solid-bearing or roller-bearing caboose trucks as appropriate to the specific car being modeled. Athearn will offer six different UP CA-8 cabooses decorated in a variety of paint schemes and safety slogans.



Union Pacific's class CA-9 caboose differed only slightly from the earlier class CA-8 in the end cage

and window arrangements. Athearn has included six UP CA-9 cabooses with different numbers and decorating schemes in the August 2021 release. The Genesis DCC-equipped models will be available with and without sound.



A GATC 20,000-gallon tank car in a choice of six decorating schemes is due from Athearn next August. Road names for the

Genesis series model will be UCLX, HPCX, and four GATX schemes. Depending on the practice of the prototype road being modeled, the well-detailed HO scale Genesis car will have 70-ton trucks with 33" machined metal wheels or 100-ton trucks with 36" wheels. Both truck sizes will have rotating bearing caps. The models will be available singly and in 3-packs with unique road numbers.



New Ready-to-Roll models coming from Athearn next August include a Gunderson MAX-III 5-unit well-car. Road names will be Santa Fe, Burlington Northern, Southern Pacific, Ferromex, and two TTX schemes. The models are equipped with prototypically correct 33" and 38" metal wheels.



Ortnor 5-bay rapid discharge hopper cars with removable loads are due from Athearn next August.

The HO scale models feature wire grab irons and machined metal wheelsets. Road names for cars in coal service will be Energy Development Co., South Mississippi Electric Power, and Omaha Public Power.

Cars in sugar beet service include The Andersons (Holly Sugar, 3 schemes), Helm Leasing, and Cape Breton & Central Nova Scotia. Sugar beet models will come with etched upper extensions in a poly bag. The cars will be available singly and in 5-packs with unique road numbers.



Athearn has included a modern yard tractor in its August 2021 production schedule. The 1:87 scale trucks feature photo-etched steps and rear deck, an

adjustable 5th wheel, interior details, window glazing, and rubber tires. Decorating schemes will be Canadian National, Wisconsin Central, Hybrid, UPS, CSX, and BNSF Railway. Unlettered owner operator models will be in yellow and white.



Roundhouse brand models coming from Athearn next August include a PS-2 2003 cu. ft. covered hopper car.

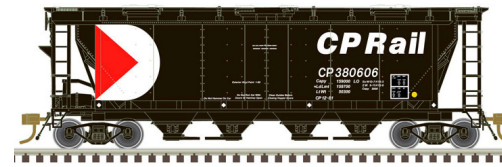
The HO scale model has been upgraded with a photo-etched running board and machined metal wheelsets. Road names will be Chessie-Western Maryland, Denver & Rio Grande Western, Northern Pacific, and two schemes each for Southern Pacific, Milwaukee Road, and Chicago & North Western. Road names will be available singly and in 4-packs with unique road numbers. For additional information contact a dealer or visit www.athearn.com.



R. Bale

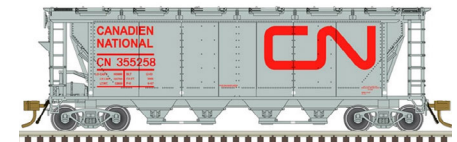
SLAB SIDE COVERED HOPPERS

In the late 1940s Canadian Pacific introduced a 70-ton, 3000 cubic foot covered hopper car with four discharge bays, interior bracing, and smooth, welded sides. The design, which earned the nickname “slab side”, maximized the interior width of the car and lowered the center of gravity. Cars of the design were produced from 1950 to 1964 by National Steel Car Company, Canadian Car & Foundry, Marine Industries, and Montreal Locomotive Works. Modifications over the years of production included different roof hatch arrangements and opening the side sills to give better access to the discharge mechanisms. Through the late 1990s the cars were a common sight hauling grain, malt, sugar, cement, and other dry commodities on Canadian and US rails.

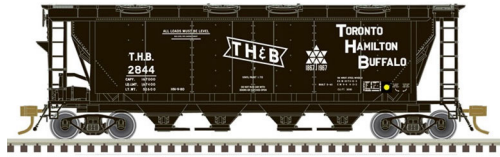


Atlas plans to release several versions of the Canadian slab side covered hopper car during the second quarter of 2021.

The Master series HO scale model will be produced from tooling Atlas recently acquired from True Line Trains, a defunct firm formerly known as Life-Like of Canada. Slab side hoppers decorated for Canadian Pacific cars will be available with six and eight roof hatches.



Models decorated for Canadian National will be available in two schemes with both 6 and 12 hatch arrangements.

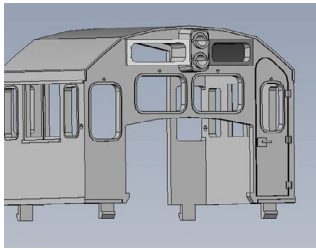


A TH&B model will have eight round roof hatches. Undecorated models will also be available.



Atlas has scheduled another production run of its Master Series GE U33B and U36B diesel

locomotives for the second quarter of next year. The HO scale model features a newly tooled cab.



Features on the Atlas Master series model include separately applied windshield wipers, metal grab irons, uncoupling levers, and directional LED headlights. Depending on the practice of the prototype road being modeled an optional electrical

equipment box will be included on the left side walkway behind the cab. Additional prototype options include AAR-B or Blomberg trucks with blackened metal wheels.



The 1970-era prototype locomotives had slightly different horsepower ratings but were visually identical. Road names for the U33B will be Conrail, Guilford (B&M), and Rock Island.

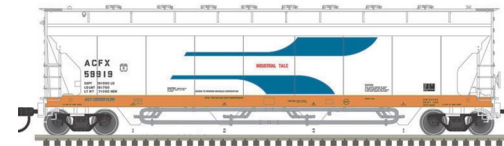


Road names for the U36B will be CSX, CSX (MCVX Safety Train), Auto Train, and Seaboard Coast Line. Atlas Master Series Gold

DCC locomotives feature an ESU LokSound DCC decoder.

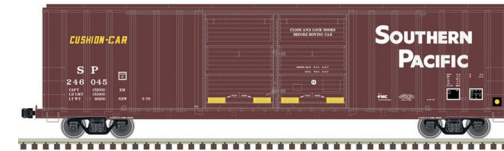


Atlas has included a Master series Center Flow Pressureaide covered hopper in its production schedule for the second quarter of 2021. The HO scale model is based on a four-bay prototype built by ACF for handling dry, powdered commodities.



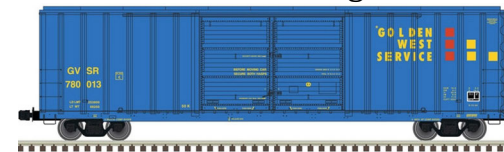
Decorating schemes will include ADM leaf design, ADM Molecule, ACFX Venturi, ACFX (conspicuity stripes), ACFX (orange

sill), Luzenac America, Grace Davison, OMYA, Solvay Chemicals, and Penwest. The model will have etched metal roof walks, Accumate knuckle couplers, and 100-ton roller-bearing trucks with blackened metal wheelsets.



An HO scale version of FMC's 52' non-insulated Plate C boxcar is included in Atlas' 2021 second quarter production

schedule. A spotting feature of the 5503 cu. ft. car is the overhang beyond the truck bolsters and the cushioned underframe. FMC's original customer was Southern Pacific,



which ordered the car with double Youngstown sliding doors for lumber service.

In addition to SP, road names for the 52' car will be Amador Central, Golden West Service, Minnesota, Dakota & Western; St Maries River Road, and Longview, and Portland & Northern.



Model builders will be pleased to learn that Atlas has included kits for a 40' 1937 AAR boxcar in its 2021 second quarter production schedule. The economy priced HO scale

Trainman series kits consist of a one-piece body with details molded on, and an underframe with brake details. The kit will include 50-ton Barber S-2 trucks with metal wheelsets.



Road names for the classic 40' boxcar will be Lackawanna, Lehigh Valley, Maine Central, New Haven, Pittsburgh & Lake Erie, Southern Pacific, Union

Pacific, Wabash, and Western Pacific. For additional information contact a dealer or visit atlasrr.com.



R. Bale

PRR FLEET OF MODERNISM

Fleet of Modernism was a marketing program the Pennsylvania Railroad launched in 1938 to promote its new lightweight passenger equipment. The streamliner revolution within the railroad industry got underway in 1934 with the introduction of the Burlington's Pioneer Zephyr and the Union Pacific's M-10000. At the time the PRR took a conservative view of the new, unproven concept of lightweight equipment, deciding not to order any. The Pennsylvania Railroad did an about face a few years later after its major competitor, New York Central, revealed it was upgrading its 20th Century Limited to full streamliner status. PRR quickly made plans to not only update its flagship, the Broadway Limited, but also three other long distance trains. Pullman Standard built most of the new PRR Fleet of Modernism cars. All were delivered in a striking new livery designed by Raymond Loewy.



Bachmann Trains has introduced three HO scale lightweight smooth side passenger cars decorated in the Pennsylvania Railroad's Fleet of Modernism scheme. Leading the consist is a 72' baggage car.



This 85' smooth side PRR coach with a lighted interior is available in three car numbers.



Bachmann's 85' observation car, Juanita Narrows, features a round end and interior lights. A

22" minimum track radius is recommended for trouble free operation. For additional information contact a dealer or visit www.bachmanntrains.com.



Bar Mills Scale Model Works has released an HO scale craftsman kit titled REA Depot at Cranberry. The model recreates, with permission, a structure originated by George Sellios for his fabled Franklin & South Manchester layout. The

craftsman-style kit, which includes the figures, features laser-cut construction. Assembly instructions are augmented with a 23-minute video. For additional information visit www.barmillsmodels.com.

Berkshire Valley Models has added three more wagons to their line of HO scale wagons. The new wagons are the #2106 Log Wagon, the #2107 Watkins Delivery Wagon, and the #2108 Buggy. Constructed of white metal and laser cut wood,



the kits are easy to assemble. Horses and drivers are available separately. For more information visit www.berkshirevalleymodels.com.

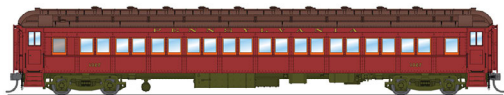


R. Bale

PRR P70 COACH

The P70 was the PRR's first 80' all-steel coach. The P prefix designated a passenger car while the 70 indicates the length of the passenger compartment.

Between 1907 and 1929 over 1,000 of the heavyweight coaches were built by Altoona and several other car builders. The design was standardized except for the windows at the washrooms at the end of the cars which varied slightly between builders. The early cars featured 88 seats, but as of 1926 they were built with just 80 seats. After the installation of air conditioning, which began in 1933, the cars were identified as P70R.



Broadway Limited has released HO scale P70 coaches in several different decorating schemes. PRR cars are available without air conditioning in the 1931 to 1937 and 1939 to 1941 livery.

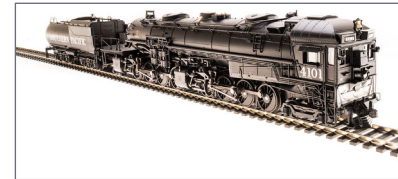


P70R coaches with air conditioning and ice bunkers are available in the 1945 to 1948 scheme.



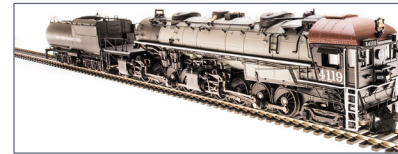
PRSL-Pennsylvania Reading Seashore Lines P70 coaches without A/C are also available. In

addition to the authentic PRR and PRSL schemes, Broadway Limited has issued the P70 cars in fantasy schemes for a Christmas car and for CNJ, NYC, MEC, and CN.



Broadway Limited has released HO scale models of Southern Pacific 4-8-8-2 cab-forward locomotives. Both AC4 and AC5 flat faced cab forwards are

available in this release, however the two classes were identical in appearance with the only difference in the prototype being the use of heavier materials in fabricating the boilers and smokebox of the AC5s.



BLI painting options include models with a black boilers, gray boilers, and gray boilers with red cab roofs. Tenders are available

both plain and lettered Southern Pacific Lines.



Carrying fantasy decorating to the extreme, BLI is offering the cab forward in SP's red and orange Daylight scheme. Broadway

Limited has offered cab-forwards before, however, these are the first models with Paragon3 and BLI's Rolling Thunder sound and control system. The HO scale cab forwards require a minimum track radius of 22".

For more information contact a dealer or visit www.broadway-limited.com.

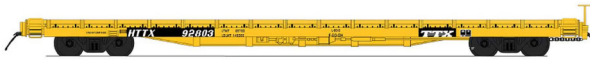
InterMountain Railway has released a new production run of 60' flat cars with four tie-down channels. The HO scale





appropriate trucks with machined metal wheels.

ready-to-run model features a laser-cut wood deck and



Road names are Illinois Central, Nacionales de Mexico, Canadian

National, Soo Line, Norfolk Southern (ex-Southern), HTTX Trailer Train (New logo patch), and both brown and yellow versions of HTTX Trailer Train with both brown and yellow bodies. For additional information contact a dealer or visit www.intermountain-railway.com.



Kadee is selling a Pullman Standard 50' PS-1 boxcar decorated for Burlington Northern. The HO scale model represents a prototype built in

1966 with a cushion underframe and 10' Youngstown sliding doors. During a 1982 rebuild the running board was removed and all ladders were shortened. For additional information contact a dealer or visit www.kadee.com.



Maple Leaf Trains has released several new detail items including a laser-cut picket fence with 3D printed posts.



Also new are two sizes of 3D roll-around mechanics tool carts, and a drum-style

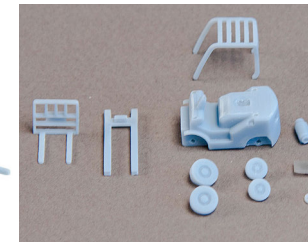
exhaust stack. For additional information, visit www.mapleleaftrains.com.



Micro-Mark is offering several new laser-cut kits from Scientific in HO scale. Among them is Parson's Home, representative of a Gothic Revival style Victorian home that was available as a Sears kit. The two-story house features a full-front porch, double width front doors, and is constructed of laser-cut basswood.



A second kit is the Protestant Church, which also features laser-cut basswood construction as well as Tichy windows and accessories. The 5" x 5" structure consists of a sanctuary and attached steeple.



Offered exclusively by Micro-Mark is a 3D-printed forklift model kit in HO scale. Consisting of eleven parts and

printed in light gray resin, the model represents a propane fueled forklift that is commonly found at all sorts of industrial sites. Illustrated instructions are included. For more information on any of these products as well as other new offerings, visit www.micromark.com.



New from **Mine Mount Models** is Pinales Petrol, a model of an early/mid-20th century gas station. Covering an area 7" x 2," the kit consists of Mt Albert Scale Lumber siding, Tichy windows and doors, BEST Trains metal castings, four each

of two different styles of gas pumps, and a laser-cut roadside sign that extends over the roof. For more information visit minemountmodels.com.



Monster Modelworks has reissued its kit for an HO scale two story brick building with a customized storefront. With the purchase of the kit, Monster Modelworks will engrave any name on the storefront sign.



The craftsman type kit includes 3D laser-engraved old brick walls, corners, terra cotta coping and a chimney. The storefront, cornice, and arched window lintels are also 3D laser-engraved. The windows and glazing are laser-cut peel & stick. The assembled structure has a footprint of 3.3" wide by 5.3" deep.

Monster Modelworks is now offering a variety of HO and O scale laser-engraved brick and stone wall materials.



For additional information visit www.larkspurlaserart.com/?utm_campaign=71c6194f-2806-489f-a32d-f4a29a007b5c&utm_source=so&utm_medium=mail_lp&cid=1268240c-1472-45ed-ac20-fc590b81cb18.



Rapido has announced plans to produce HO scale models of a Budd stainless steel baggage-dormitory car and a Manor sleeping car.



The HO scale models will have metal grab irons and stirrups, multi-color interiors, track-powered interior lighting compatible with DC and DCC layouts, full underbody detail including separate air, steam, and electrical lines, and complete D22 brake equipment and piping.



End details on each car include sprung working diaphragms, cut levers, brake chains, etched metal end gates, and legible door lettering. The cars will be equipped with detailed 41-NDO-11 trucks with end frames and metal wheelsets.



Rapido's baggage-dorm is based on a Canadian Pacific prototype built by Budd in 1954/55.



The models will be painted in Rapido's well-regarded stainless-steel finish. Road names for the Budd baggage-dorm will be CPR (maroon), CP Rail (Action Red), VIA Rail (original scheme), VIA Rail Canada, Atlantic Coast Line, Amtrak (Phase 1), Santa Fe, New York Central, Seaboard Air Line, Southern Pacific, and Union Pacific.



Rapido's Manor sleeper replicates a 4-4-5-1 car with four sections, four roomettes, five double bedrooms and one compartment. Budd delivered the sleepers to Canadian Pacific in 1954-55.



Each road name will be available in four or six individually named cars. Six names will be available for Canadian Pacific (Maroon scheme), CP (Action Red), VIA Rail Canada (1978-1998 scheme), and VIA Rail Canada (1998-present). Four names will be available for Amtrak and Seaboard Air Line.

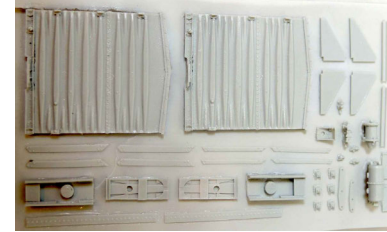


In light of Rapido's well-earned reputation for authenticity, these two new Budd passenger cars promise to be among the most accurately detailed HO scale models produced to date. For additional information contact a dealer or visit www.rapidotrains.com.



Resin Car Works has specialty kits with decals and detail parts that hobbyists can use to convert off-the-shelf models into prototypically accurate freight cars. Kit #IC-RPM2019 modifies an Accurail 7100 series HO scale boxcar into an accurate

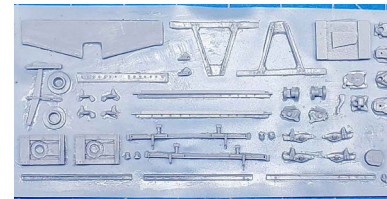
model of an Illinois Central single-sheathed wood boxcar built in 1927.



The kit includes a sheet of resin detail parts, new ends, underframe components, and additional prototype-specific hardware.



Kit #C&EI-HM provides materials to transform an Atlas twin-bay hopper car with offset-sides into an accurate replica of a Chicago & Eastern Illinois 97500-97999 series hopper car. The prototype was built by Pullman-Standard in November 1945.



The kit includes accurate decals and cast resin slop sheet supports, door latches, and additional prototype-specific hardware. A similar kit (#MP-HM) is available for a Missouri Pacific hopper built by ACF in the late 1930s. For each of the kits mentioned the hobbyist supplies the basic model to be upgraded. For additional information visit resincarworks.com.

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R. Bale

GE ES44 LOCOMOTIVE

In 2002, GE introduced its GEVo series of modern diesel locomotives. The first two units were the ES44DC and ES44AC. The ES44C4 followed a few years later. The GEVo series was designed to replace earlier AC4400CW and Dash 9-44CW units, while complying with new emission standards imposed by the Environmental Protection Agency (EPA). The EPA established allowable emission levels, or tiers, based on a locomotive's date of manufacture. Tier 2 took effect in 2005 followed by Tier 3 in 2010. Although EPA Tier 4 standards went into effect in 2015, ES44s continue to be built. This is due to a complicated government formula that allows sharing and redistribution of emission credits between GE and the operating railroad. The external appearance of ES44 locomotives is similar to the AC4400CW with the most significant visual difference being the larger radiator wing structure on the back end of the locomotive. The thicker radiators and related equipment work to cool the exhaust, which reduces emissions. The ES44 has become the best-selling diesel locomotive of all time.



ScaleTrains.com has scheduled a December release for a new production run of HO scale

GE ES44 diesel locomotives. Road names for the Rivet Counter models include units equipped with GE Hi Ad trucks decorated for KCS and Canadian National.



The feature-laden models include deck mounted LED ditch lights, walkway lights and ground lights on the left side of the locomotive. The CN model also has ditch lights on the rear deck and red DPU marker lights.



Additional road names for the ES44 will be Norfolk Southern (Horsehead scheme), BNSF (Heritage III scheme with C4 A-1-A trucks), and four CSX liveries with GE steerable trucks. In addition to YN3, the CSX units will be available decorated in a 2019-era First Responder scheme (above) honoring the Pride in Service initiative. Additional CSX schemes in this project honor Law Enforcement and Armed Forces.



A less detailed Operator series GE ES44 is scheduled for release next March. The economy priced Operator model utilizes the same motor and drivetrain as Rivet Counter series, however, all units will have the same cab and long hood configuration and the body will be predrilled for the modeler to install grab irons, uncoupling levers, and hoses. The needed parts may be purchased in a separate detail kit.

Road names will be BNSF Heritage III scheme, Canadian National, CSX YN3, Kansas City Southern, and Norfolk Southern Horsehead scheme. The Operator series ES44 will be available for DC/DCC operation with 21-pin connector or with ESU LokSound 5 DCC & sound pre-installed at the factory. For additional information visit www.scaletrains.com.



Southern Heritage Models has released two new models. The Quinimont "QN" Cabin is available exclusively from the C&O Historical Society, and the two-story Section Foreman's House is

available exclusively from the N&W Historical Society. For more information or to purchase these products visit the C&O Historical Society at chessieshop.com and the N&W Historical Society at www.nwhs.org/commissary.



scale model includes a rerun of the 1947-era SRDX Sinclair car with an AB brake system and new road numbers. Additional tankers with AB brakes include a 1964-era ACDX Allied Chemical car.



Noteworthy features on Tangent's 10,000-gallon car include a new 1917-era underframe, a radial course tank body with circumferential rivets, see-through cast knees above the bolsters, separately applied air hoses and tank strap details, and wire grab irons and uncoupling bars. The hand brakes, brake system (KC or AB), and Cardwell draft sill springs vary depending on the prototype car being modeled.



Completing Tangent's current production of the 10,000-gallon radial course tank car with K brakes is a GATX car leased to Sunburst Refining. Undecorated models are also available. The ready-to-run HO scale model comes with Kadee couplers and ASF cast steel spring plank trucks with separate brake beams and 33" machined metal wheels. For additional information visit tangentscalemodels.com.



Walthers is selling 50' Evans cushion coil cars with three styles of removable hoods. The HO scale WalthersProto models have etched metal walkways,

wire grab irons, separate brake gear, and underframe cushioning details. Walthers coil cars decorated for Indiana Harbor have round hoods.



Cars with fiber glass hoods are available for Grand Trunk Western, Detroit, Toledo & Ironton; and Missouri-Kansas-Texas.



Walthers HO scale coil cars decorated for Penn Central and Bessemer & Lake Erie have angled hoods. Additional

hoods are available for each road name. All versions ride on 100-ton roller-bearing trucks with 36" machined metal wheelsets.



Walthers is scheduled to release a new Cornerstone kit this month for an HO scale post WW-II prefab house. The model is based on thousands of factory-built, prefab

houses manufactured from 1945 to the early 1950s. They were delivered by truck to a home site and rapidly assembled. Walthers kit includes two different front walls, picture window and three doors. The assembled kit has a footprint of 4.25" x 3.5". For additional information contact a dealer or visit www.walthers.com.

N SCALE PRODUCT NEWS



Atlas is scheduled to release a new production run of EMD GP15-1 diesel locomotives during the second quarter of next year.



The N scale model is based on a 1,500hp four-axle light road switcher EMD produced between 1976 and 1982.



Road names for Atlas' N scale version include California Northern, Burlington Northern, Missouri Pacific, Conrail,

GMTX, Union Pacific, and York Rail. The DC model will have a DCC-ready plug for installation of an aftermarket decoder.



A new production run of Pullman-Standard 40' PS-1 boxcars is included in Atlas' 2021 second quarter schedule. Features of the N scale model include body mounted Accumate couplers, Barber S-2A 50-ton trucks with metal wheels, and etched metal running boards.



Road names will be New Haven, Port Huron & Detroit, Western Pacific, Vermont Railway, MKT, Erie Lackawanna, TP&W, and Delaware & Hudson. An undecorated model will also be available.



Also coming from Atlas next year is an N scale PS 4000 cu. ft. triple-bay covered hopper car. The Master series model is based on the PS-

2CD (center discharge covered hopper) Pullman Standard introduced in the early 1960s.



Features on Atlas' ready-to-run N scale model include etched roof walks and brake platforms, and BLMA 100-ton trucks with 36" metal wheelsets. Road names will be Santa Fe, Burlington Northern, Monon, CSX, Kansas City Southern, and Nickel Plate Road.



Atlas has included a 48' cushion coil-steel car in its 2021 second quarter production schedule. The N

scale model is based on a prototype built by Evans Products in 1967. Features of the Atlas model include a diecast body, two removable rounded hoods with stacking frames, and a detailed wood lined floor.



Road names will be C&O, Conrail (with NS hoods), Chicago & North Western, Illinois Central, Indiana Harbor Belt, and Norfolk Southern.



Completing Atlas' 2021 second quarter N scale production schedule is a Trainman series 70-ton ore car. The economy priced ready-to-run model will be equipped with Accumate couplers and appropriate trucks with brown plastic wheels.



Road names will be Canadian National, CP Rail, Milwaukee Road, Great Northern, Union Pacific, and Duluth, Missabe & Iron

Range. For additional information on Atlas models contact a dealer or visit www.atlasrr.com.



R. Bale

THE SUPER DOMES

The Milwaukee Road began taking delivery of the Super Domes from Pullman Standard in late 1952. The domes were used on the daytime Twin Cities Hiawatha and the transcontinental Olympian Hiawatha. The Super Domes were not a complete success in Milwaukee Road service. The heavy cars gave a rough ride, and the seats in the dome area gave a poor view because they were positioned too low in relation to the cars supporting bulkheads. Still, the fame of having the first full-length dome car was good publicity for the railroad. By 1961 the Super Domes were assigned to the City of Denver under the joint operation of Milwaukee Road and the Union Pacific. Six of the super domes were sold to CN in 1964 for use on the Super Continental. VIA Rail inherited all six and used them into the early 1980s when they were sold off to private owners.



Shops Superdome passenger cars. The N scale models will have wire grab irons, interior details and lighting, and truck mounted knuckle couplers.



Road names include Milwaukee Road, Milwaukee Road/Union Pacific, Great Northern (Empire Builder, Big Sky Blue, and Cascade Green), Chicago & North Western, Amtrak (Phase 1, Phase 1 N.C. DOT; and Fall Foliage schemes), Holland America Westours, VIA Rail, Canadian National, Ontario Northland, and CSX Safety Train.



Ten of the 14 paint schemes are being offered with the same road numbers as the previous run because

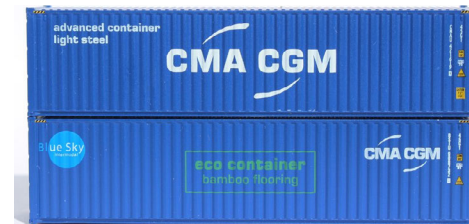
these were the only numbers assigned to the prototype cars. Production of each road name listed above may be dependent on InterMountain receiving a minimum number of advance reservations. The deadline for reservations is October 31, 2020. For additional information contact a dealer or visit www.intermountain-railway.com.



New N scale containers from **Jacksonville Terminal Co.** include this 20' standard height container decorated for Norfolk Southern OAR.



Jacksonville has also released 40' high-cube corrugated containers for Capital and in two CMA-CGM schemes.

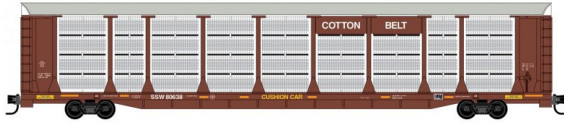


Additional new containers include Fesco (Far East Shipping Co.), Hanjin, Ivaran, ONE GCXU, P&O Nedlloyd (gray), SEAGO Line, TOUAX/MOL, and Triton. All Jacksonville containers feature a three-magnetic

connecting system. For additional information visit jtcmodeltrains.com.

New N scale models from **Micro-Trains Line** include this 89' tri-level closed autorack decorated for SSW-Cotton Belt.





The model represents a prototype built in 1976 by Pullman-Standard.



Also new is this 39' single dome tank car decorated for the Salt Lake, Garfield, & Western Railway. It had a small fleet of freight cars including a few tank cars it acquired in 1946.



The design of Micro-Trains N scale heavyweight depressed-center flat car was influenced by a

prototype acquired by the Norfolk & Western in the early 1950s. The car was later repainted for the Norfolk Southern. Since the dropped underframe could not accommodate brake linkage, each truck has its own brake wheel.



This 36' Santa Fe steel caboose with offset cupola represents an ATSF way car in the post-1971 paint scheme that included four reflective white Scotchlite rectangles on the side sills. For additional

information on Micro-Trains models contact a dealer.



The models will be finished in Rapido's well-regarded

Rapido has announced plans to produce a 10-car set of The Canadian, Canada's flagship passenger train, in N

stainless-steel finish. Additional features include etched-metal grab irons and handrails, accurately profiled Budd fluting, full underbody detail including piping and conduits, full interiors, and track-powered interior lighting that functions on both DC and DCC powered track.



Each Canadian 10-car set will consist of a baggage-dormitory car, two coaches, a Skyline dome-coach (or dome-coffee shop car), a diner, two Chateau sleepers, two Manor sleepers, and a dome-sleeper-lounge observation car.



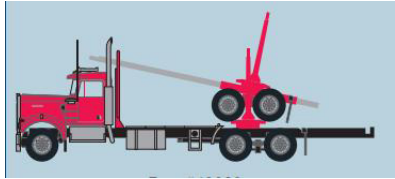
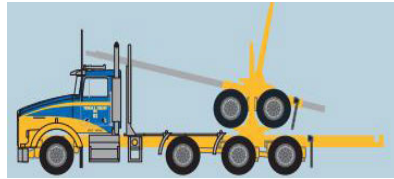
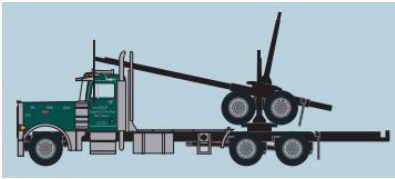
Individual Skyline mid-train dome cars and 3-car add on sets consisting of a coach, Manor sleeper and Chateau sleeper will also be available.



Decorating schemes will be Canadian Pacific (The Canadian, maroon), CP Rail (Action red),

VIA, VIA Canada, and unlettered. The deadline for ordering the N scale Canadian is October 15, 2020. For additional information, or to place a reservation, contact a dealer or visit www.rapidotrains.com.

Trainworx has announced three new N scale log trucks, a Peterbuilt 379, Kenworth T800, and Kenworth W900. All three models will be available in undecorated black, white, red, blue,



and yellow. Additionally, the Peterbilt 379 will be available in a green scheme decorated for Koch Logging, and the Kenworth T800 will be decorated for Weyerhaeuser and Ireland

Trucking. Reservations for these models are due by October 31st, 2020, with an anticipated delivery date of Summer 2021. For more information visit www.train-worx.com.



Showcase Miniatures is selling a kit for a small, prefabricated gas station. The assembled N scale structure has a footprint of 1.85" x 1.25". For additional information visit www.showcaseminatures.net.

NEW DECALS, SIGNS AND FINISHING PRODUCTS

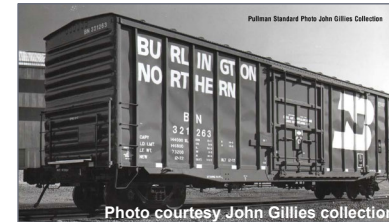


ICG Decals has released new HO scale silk-screen water-slide decals for CB&Q and BN models. Three decal sets are available for lettering a light gray Havelock-built CB&Q

twin-bay covered hopper including a placard herald, and a 1968 rebuild with a painted herald. InterMountain sells an HO model of the 1958 cu. ft. twin-bay covered hopper.



Also new from ICG are decals for the same hopper car with brown sides and ends. The roof and underframe, including the discharge bays, are black.



ICG has developed Burlington Northern decals for the new 50' PS boxcar kit available from Canon & Company (shop.cannonandco.net/category.sc?categoryId=21). The large logo is stretched, like the prototype, to compensate for

laying it across the car's exterior posts. Four different pairs of COTS are supplied with the ICG decal along with some BN re-weigh and CAPY data from the 1970s-1980s.



New decals are also available for the simplified lettering scheme BN applied to a group of 500 cars Pullman Standard delivered in late 1972.



Also new are three variations of HO scale decals for ICG 40' and 50' orange boxcars dating from the early 1970s, and GATX decals for Tangent 8,000-gallon welded tank cars. For additional information visit www.icgdecals.com.

Resin Car Works has HO scale decals to correctly letter an orange Illinois Terminal Class B freight motor. The set can also be used to partially letter other equipment painted in the



orange traction scheme. For additional information visit resincarworks.com.

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! BRIEFLY NOTED AT PRESS TIME ...

Bachmann has released four versions of its 2-6-2T Baldwin Trench Steam Engine with WOW sound. The On30 model is available in four paint schemes including a black unlettered version ...

ExactRail has released an HO scale Thrall 63' centerbeam flat car with opera window cutouts and numerous etched metal details. Multiple road numbers are available in six roadnames. Details at exactrail.com ...

Kadee's next release will be an HO scale ACF 11,000 gallon insulated tank car decorated for RTCX-Conservative Gas Corporation ...

Kato's recently announced N scale New York Central 20th Century Limited will be available with diesel power at the front end. For those preferring steam, **GHB International** is importing a 4-6-4 class J3a Dreyfus Hudson. The brass model will be produced in South Korea by Boo Rim Precision. Request details from George Barsky at geoghb@erols.com ...

New catalogs for N, S, and O scale products are available from **Tichy Train Group** at www.tichytraingroup.com/Catalogs.aspx. ■

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SEPTEMBER

Due to COVID-19 restrictions, please check with any organization hosting an in-person event for the latest status of the event. ■

Ongoing

ONLINE, Zoom, dates vary, see website. Operation Special Interest Group Meetups – limited attendance available. For more information visit www.opsig.org/Virtual. Past meets are available online at www.opsig.org/Virtual/Past.

October 2020

OHIO, CAMBRIDGE, October 18, Division 6 Model Railroad Train Show, presented by the MCR Buckeye Division, Pritchard Laughlin Center, 7033 Glenn Highway. For more information visit div6-mcr-nmra.org/trainshow.html.

ONLINE, 19-24 October, NMRA British Region – Virtual Convention 2020. Membership in the NMRA British Region required. For more information visit convention.nmrabr.org.uk.

November 2020

CANADA, ONTARIO, FENWICK, November 14-15, 21-22, Greater Niagara Model Railroad Engineers Open House, 1141 Maple Street. For more information visit www.gnmre.ca.

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INDIANA, DANVILLE, November 21, Danville Train Show, presented by the Central Indiana Division of the NMRA. Hendricks County Fairgrounds, corner of E. Main St. and County Road 200 E. Due to COVID-19 restrictions, Masks will be required, hand sanitizer stations provided, and contact tracing in effect. For more information visit www.cidnmra.org/services.

Future 2021-2022

CALIFORNIA, SANTA CLARA, July 4-11, 2021, Rails By the Bay, 2021 NMRA National Convention and National Train Show. Santa Clara Marriott Hotel. For more information visit www.nmra2021.com.

INDIANA, NOBELSVILLE, January 31, Noblesville Train Show, presented by the Central Indiana Division of the NMRA. 2003 Pleasant Street. For more information visit www.cidnmra.org/services.

INDIANA, FRANKLIN, May 15, Franklin Train Show, presented by the Central Indiana Division of the NMRA. Johnson County Fairgrounds. For more information visit www.cidnmra.org/services.

MISSOURI, St. LOUIS, tentatively September 2022, NMRA National Convention and National Train Show. ■



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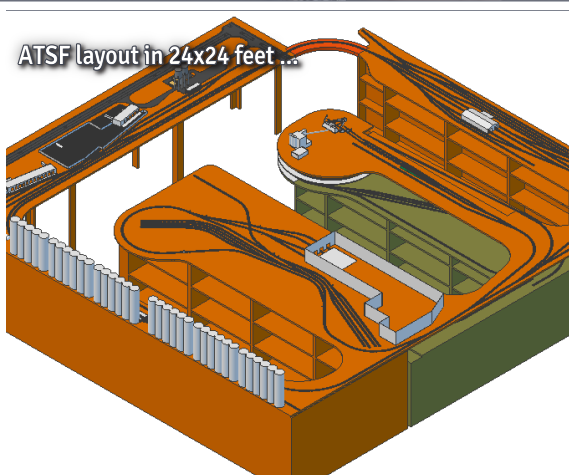
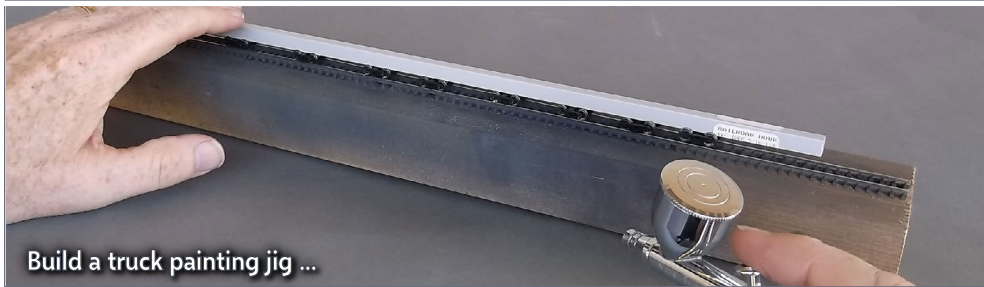
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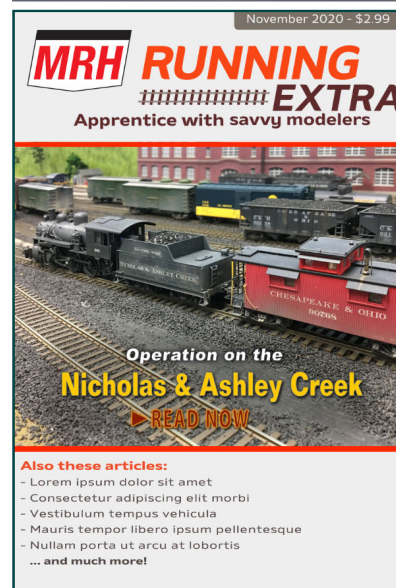
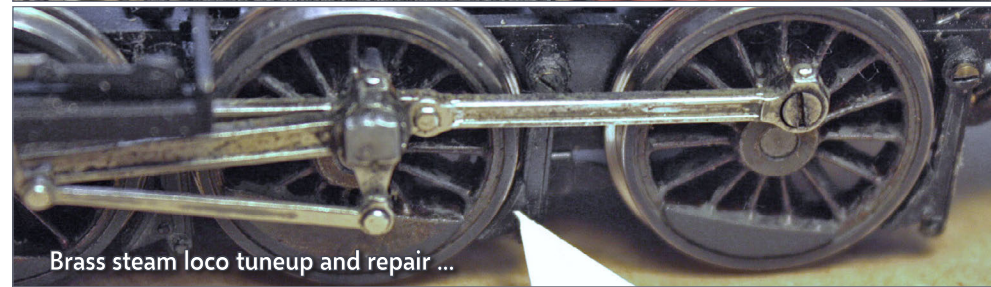
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