



MRH **RUNNING** ##### **EXTRA**

Apprentice with savvy modelers



Daryl Kruse makes
The case for N scale
▶ **READ NOW**

ALSO in this month's edition:

- No more glued points when ballasting
- More realistic model scenes
- Staging yard wiring and detection
- Harvester load for a flat car
- ... and much more inside!

To go to the next or previous page, just use the arrow keys on your keyboard.

TABLE OF CONTENTS | RUNNING EXTRA

June 2020



RATE THIS ISSUE

Rate Running Extra issue ...

**RUNNING
EXTRA**

Publisher's Welcome: Fix wheelset slop ...

JOE FUGATE



ALL SCALES

Limited Modeler: Modeling Lorain, OH, part 2

JIM SIX



ALL SCALES

Imagineering: A better illusion of reality

ROB CLARK



ALL SCALES

Building a staging deck, part 2

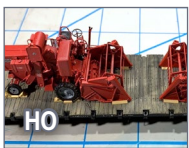
JASON MILLER



N

The case for N scale

DARYL KRUSE



HO

Detailed harvester load for a flat

GEORGE TOMAN



ALL SCALES

Ah-Hah Moment: No more glued points

JOE FUGATE

TABLE OF CONTENTS | MRH

June 2020



Publisher's Musings: Belt tightening and changes coming ...

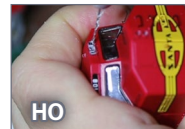
JOE FUGATE



ALL SCALES

MRH Website this month: How strong is your layout? ...

Compiled by JOE FUGATE



HO

What's Neat: Locomotive upgrades ...

KEN PATTERSON



HO & S

Make your own StayAlive

BOB MORNINGSTAR



HO

The K10 Hobbyshop layout

The MRH STAFF



ALL SCALES

Double-deck benchwork construction

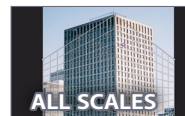
NEIL DENBY



HO

First Look - ScaleTrains Dash 9-40C

JEFF SHULTZ



ALL SCALES

Savvy Modeler online: Awesome photo editor

Compiled by the MRH STAFF



June 2020 news and events

RICHARD BALE and JEFF SHULTZ

MRHMAG.COM

 **REGISTER**
(free)

 **SUBSCRIBE**

[INDEX](#)

[TABLE OF CONTENTS](#)

PUBLISHER'S WELCOME

introduction



MRH Running Extra | June 2020

JOE FUGATE: FIXING WHEELSET SIDE-TO-SIDE SLOP ...



HAVE YOU EVER ENCOUNTERED A DERAILMENT-PRONE car and could not figure out why? You check the wheel gauge and it's fine, yet the car keeps mysteriously derailing. So what gives?

One cause of these mystery derailments can be excess side-to-side slop of the wheelsets in the truck sideframe. As you can see in [1], excess side-to-side slop allows trucks to proceed down the track at a canted angle, which makes the flanges find every imperfection or wander down the wrong route at turnout frogs.

So how much side-to-side slop is okay? Generally, you want about a half-flange width of slop, which is 0.015" in HO standard gauge or about 0.010" in N scale. Look at NMRA S-4.2 wheels standards, dimension T (flange width) for your scale and gauge to get your flange width and then divide by two.

The ideal solution is to replace the truck sideframes with ones that allow the wheels to only slop to the recommended limit.

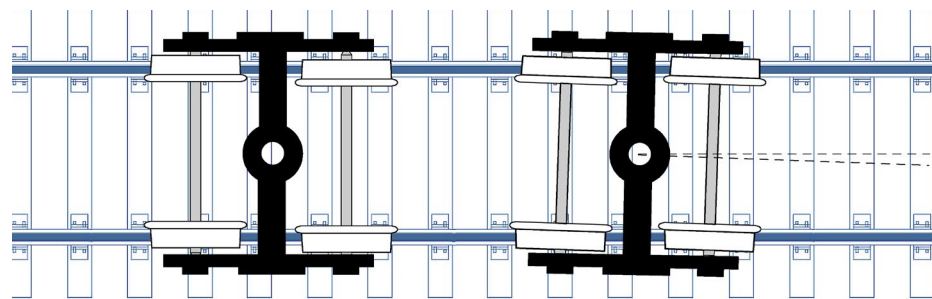
But second best is to limit the wheelset side-to-side slop with tiny washers on the axletips [2, 3].

I use Intermountain all metal wheelsets in all my rolling stock, so tiny #0 washers on Amazon do the trick nicely [2].

Some wheelsets such as those from Bowser have an axle tip that's too fat to accommodate the #0 washers. For those cars, #2 brass washers work well. You can paint or weather them so they effectively disappear [3].

To get a shopping list for this article, visit the MRH website at this link: mrhmag.com/magazine/running-extra/2020-06/publishers-welcome

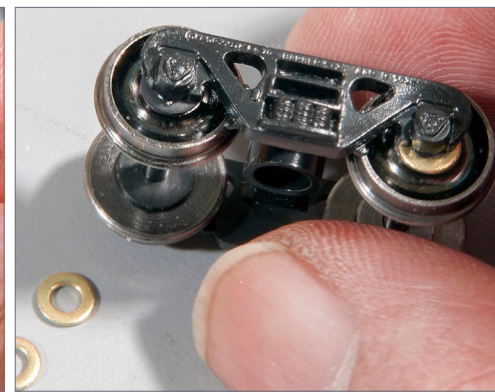
PUBLISHER'S WELCOME | 2



1. Avoid excess side-to-side slop in wheelsets such as shown here, otherwise the truck will tend to roll at a canted angle down the track. The flanges will find every minor imperfection in the track and derail or wander down the wrong route at turnouts. This problem can be very subtle: besides side-to-side slop, it can also be caused by wheels at different locations on the axle between the two wheelsets.



2. I have found these tiny #0 washers on Amazon and I can apply them to the end of my wheelset axle tips to reduce slop. The washers are 0.015" thick and three of them on each axle tip eliminates the excess slop in these Blue Box Athearn trucks. The washers disappear behind the truck sideframes.



3. On some wheelsets such as Bowser, the #0 washers won't fit over the axle, so you need larger #2 washers. The washers show (on the right wheel), but you can paint the washers black (or weather them to match the wheels) so they disappear. The washer on the left wheelset is painted black and it's virtually invisible.

You may find those mysterious derailments go away after eliminating the excess side-to-side slop in your rolling stock trucks! ☑

THE LIMITED MODELER

column

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

JIM SIX ON MODELING LORAIN,
OHIO PART 2 ...

THIS MONTH'S LIMITED MODELER COLUMN IS Part-2 of our study of Lorain, Ohio. Last month we looked at the steel industry and the Nickel Plate Road through Lorain. This month we will look at the Baltimore and Ohio Railroad in Lorain.

We start with a quick review of what railroads served Lorain in classic time, and in more recent times after the mergers of the 1960s and since.



MRH Running Extra | June 2020



ORIGINAL RAILROADS SERVING LORAIN, OHIO

Baltimore & Ohio RR
Cleveland, Lorain & Wheeling Railroad (B&O)
Lake Erie & Pittsburgh (NYC)
Lake Shore Electric Railway
Lake Terminal RR
Lorain, Ashland & Southern RR (PRR)
Lorain & West Virginia RR
New York Chicago and St. Louis RR (NKP)
Wheeling & Lake Erie RR

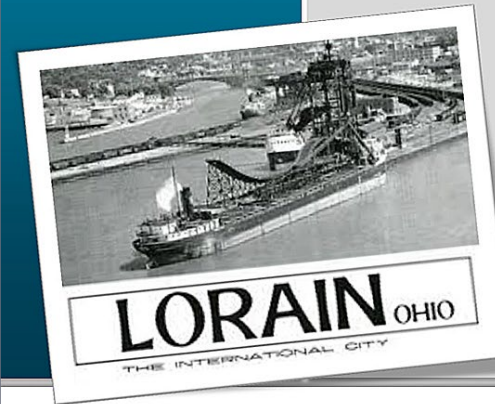
► DOING MORE WITH LESS

MERGED RAILROADS SERVING LORAIN, OHIO

Chessie System
CSX
Norfolk and Western
Norfolk Southern
Penn Central
Conrail

Lorain – “The International City”

- Mouth of the Black River and Lake Erie
- Population ~ 64,000
- Industrial & Steel Town



1. Lorain, Ohio was a Baltimore and Ohio town. While many railroads served Lorain, rail operations were dominated by the B&O. From the huge EM-1 articulated steam locomotives to the coal and ore docks at the mouth of the Black River. ohiowea.org



THE LIMITED MODELER | 3

As I pointed out last month, I grew up in South Lorain near the National Tube steel mill. Our home sat only five short blocks from the B&O roundhouse where all those EM-1 and other steam locomotives got serviced. My father's best friend, Louie, was a B&O fireman out of the South Lorain roundhouse where he worked trains south, and back to Lorain.

Because of Louie I had access to the roundhouse, and made friends with the workers there. I even managed to get a cab ride in a Mikado, and also in one of the fabulous EM-1 Mallets. Talk about being a lucky boy!

By time I was six or seven, I began bicycling to the B&O roundhouse with my friend Joey, who was a few years older. During the summer we would spend the better part of the day roaming the



2. Here are two of the B&O's monstrous EM-1 Mallets. They are resting near the Lorain roundhouse awaiting their next assignment. This photo was taken some time in the early to mid-1950s. I personally witnessed them as late as 1958 at this location. Some of the finest steam locomotives ever produced dominated the scene in Lorain. American-Rails.com

THE LIMITED MODELER | 4

roundhouse, and tagging along with the shop foreman who had befriended us. What a great time – try that today, ha!

While many railroads served Lorain, Ohio, it was really a B&O town. As we examine the B&O in Lorain, let's begin at South Lorain where the railroad entered town. The B&O rebuilt the roundhouse after the original burned down in 1904.

The B&O built a new large brick structure with 14 (or more) stalls [5]. A very large coaling dock loomed at the south side of the roundhouse. A rather large yard also lay just south of the roundhouse, always buzzing with activity. The B&O stayed very busy in and around Lorain.

The B&O South Lorain facilities sat relatively close to the National Tube steel mill [4]. There were nine residential blocks of homes between the National Tube steel mill and the B&O roundhouse to the south.



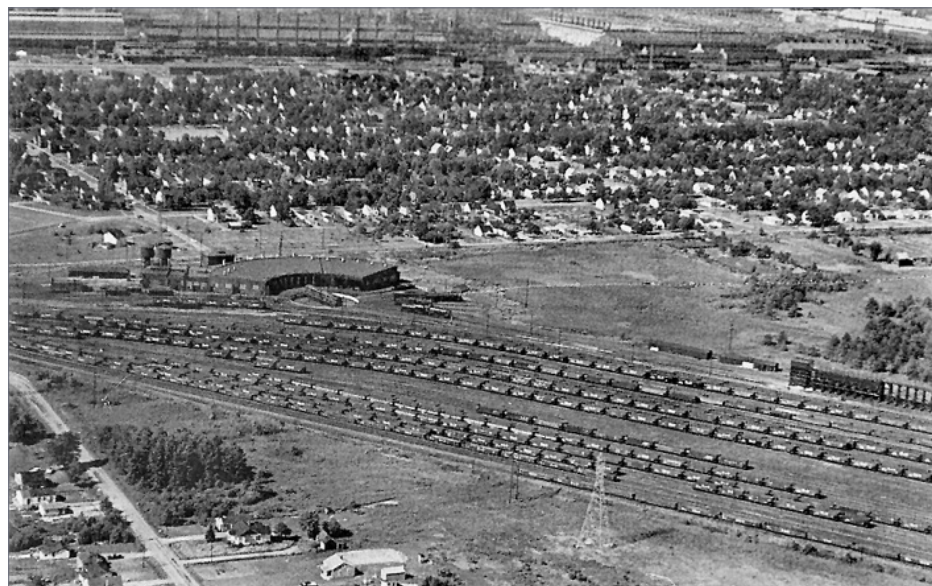
3. B&O EM-1 7610 is backing onto the turntable. The 2-8-8-4 Yellowstone was a huge locomotive by any standard. The B&O regularly double-headed them and even at least one time triple-headed EM1s. *Joseph Testagrose collection*

Lorain and its harbor made up a terminal location for the B&O line up from West Virginia. It couldn't go any farther north because Lake Erie sat right there. There was plenty of steel product exchanged with the National Tube's Lake Terminal Railroad.

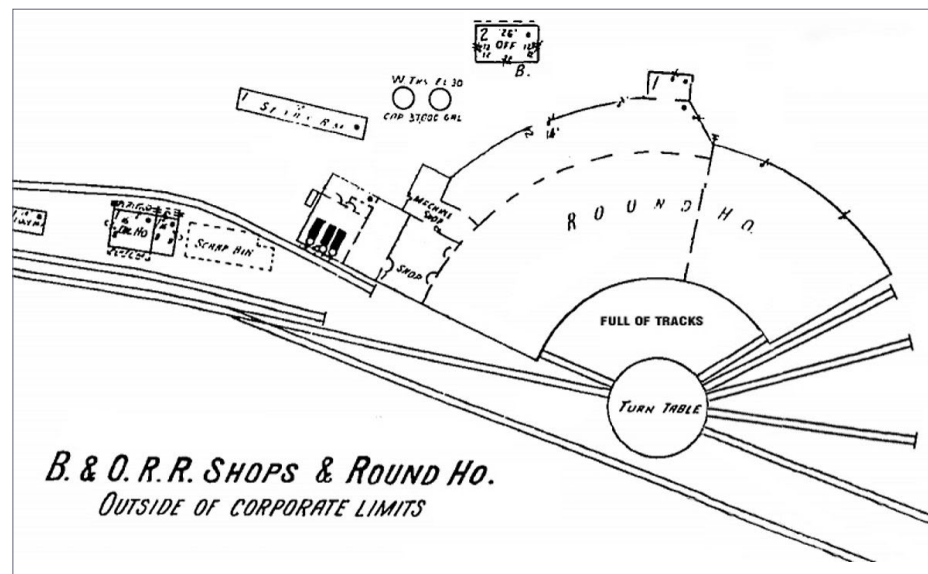
Even more business came from the coal and ore docks at the port. I would suggest that traffic to and from the docks made up the majority of rail traffic on the B&O in Lorain.



RATE THIS ARTICLE



4. This 1936 aerial view of South Lorain shows the National Tube steel mill across the top, and the B&O yard, roundhouse, and coaling dock across the bottom. The yard extended a fair distance off the photo to the right. All the freight cars look to be either hopper cars, or gondolas.
Black River Historical Society



5. A 1926 Sanborn map of the B&O roundhouse and associated facilities. I recall 14 stalls in the roundhouse. This facility serviced B&O steam locomotives until almost 1960.
Sanborn Map



6. If you think I am fooling about EM-1 Mallets being regulars in South Lorain, then check this photo out. This is what I remember as a child – we lived a few blocks east of the B&O roundhouse and this scene. I regularly bicycled here to see such displays of motive power. Here two of the famous B&O EM-1 2-8-8-4 Mallet articulated locomotives prepare to head a couple of trains south. *David King collection*



7. By any standard, the EM-1 was a large, powerful, and "modern" steam locomotive. I am one of the few alive in our hobby to have witnessed these beasts

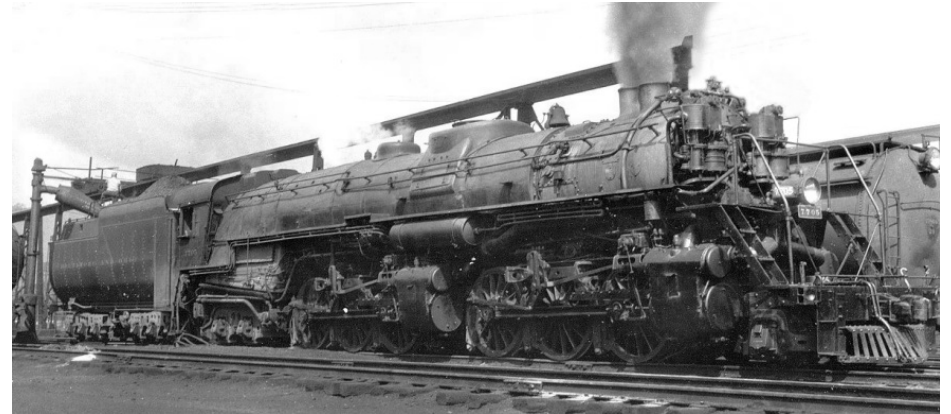
first-hand. I also had the pleasure of climbing onto and under them in the South Lorain roundhouse where railroad workers befriended me. It helped that my Dad's best friend worked as a fireman there at the time. My, how things have changed.

J. Thomason collection



8. The EM-1 Mallet 2-8-8-4 articulated steam locomotive served as the primary steam power on the B&O to the end of the 1950s. I suspect at least three, and probably more, sit on tracks at the South Lorain roundhouse. Very impressive locomotives!

David King collection



9. The B&O also had some former Seaboard Air Line 2-6-6-4 articulated steam locomotives acquired after the Second World War, and classified as KB-1. These also visited Lorain on a regular basis. I saw them several times as a youngster. They seemed intimidating to me, with the air pumps mounted in front of the smokebox. *David King collection*



10. This 1956 photo shows the roundhouse and turntable along with several steam locomotives, and an AA set of EMD F7 diesel-electric locomotives. Ah . . . I can still smell the coal smoke. I loved it! *David King collection*

THE LIMITED MODELER | 9



of town. *photographer unknown*



ond World War. This is a 1956 photo. *photographer unknown*



yard and the docks at the mouth of the black River.
photographer unknown

11. B&O class Q-3 4565 USRA 2-8-2 takes a drink in the summer of 1956. Several USRA Mikados worked Lorain, and the local trains south out

12. B&O converted 0-8-0 number 1039 from a 2-8-0. The B&O had several of these conversions that worked Lorain at times after the second

13. B&O 2721 E-27CA at the water plug in 1952. These 2-8-0 locomotives shuttled coal and ore hopper cars between the South Lorain

THE LIMITED MODELER | 10



14. All that remains of the Lorain roundhouse by 1970 – not much. Just another reason why I don't model more modern times. So much of what

made railroads great and so appealing has vanished.
Towns and Nature.com.



15. What's left today? Not much. You can see a faint outline of the turntable and the roundhouse tracks radiating from it. Not much else left other than a hint of where some access roads ran.
Google Maps satellite image

THEW SHOVEL

From the Baltimore and Ohio's main yard and the locomotive facility in South Lorain, the railroad continued north to East 28th Street where it reached Thew Shovel, the National Tube Company and a few other customers. The railroad also intersected with the Lorain, Ashland & Southern (PRR) at East 28th St. where both the B&O and the LA&S serviced Thew Shovel and National Tube.

Most credit Captain Richard Thew with building America's first fully revolving shovel. Thew, captain of an ore-carrying lake boat on the Great Lakes, often encountered the problem of handling iron ore once it got deposited on the docks. At that time, "railroad-type" steam shovels that traveled on railroad tracks handled such



16. An aerial photo of Thew Shovel taken sometime in the early 1930s. The curving track at the lower right in this photo belongs to the Lorain, Ashland & Southern railroad (a Pennsy subsidiary). Thew Shovel erected this good-sized facility to produce LORAIN shovels, cranes, and other heavy equipment. The West 28th Street "subway" under the Lorain Ashland & Southern RR and the Baltimore & Ohio, completed in 1917, allowed unhindered access to the steel mill and Thew Shovel from Lorain. *Great Lakes Collection, BGSU*

work. They were heavy, cumbersome, and could only swing their booms from side to side in a half-circle.

Thew studied the problems of ore handling and conceived a unique machine that would overcome the difficulties and restrictions. Thew built his first machine at the Variety Iron Works in Cleveland in 1895. A fully revolving steam excavator with a 5/8-cubic-yard shovel attachment, it could swing in a full circle.

This became the first shovel with this capability built in America. Thew mounted the machine on four steel traction wheels, which could steer and propel itself without the need of railroad tracks [19]. The shovel performed any loading or cleanup work over the entire dock property, doing away with most of the hand labor.

Thew Automatic Shovel Co. was incorporated in 1899 at Lorain, Ohio. The company soon became Thew Shovel [16, 18], and expanded its line of shovels, covering all popular sizes by 1912, to become the third largest manufacturer of excavators in the United States. The machines found their way into mines, brick plants, and all types of construction work.

In 1924, the Thew completely redesigned their line of products and identified the new machines by the trademark "LORAIN" after the city where they were produced [17, 20]. In 1964, sales declined and Thew became the Thew-Lorain Division of Koehring Co. Today, the remnants of Koehring and Lorain can be found under Terex Corp., which acquired the division in 1987.

Moving north from Thew Shovel, the B&O crossed over East 28th St. to another yard of several tracks to interchange with the Lake Terminal Railroad – National Tube's on-site railroad.

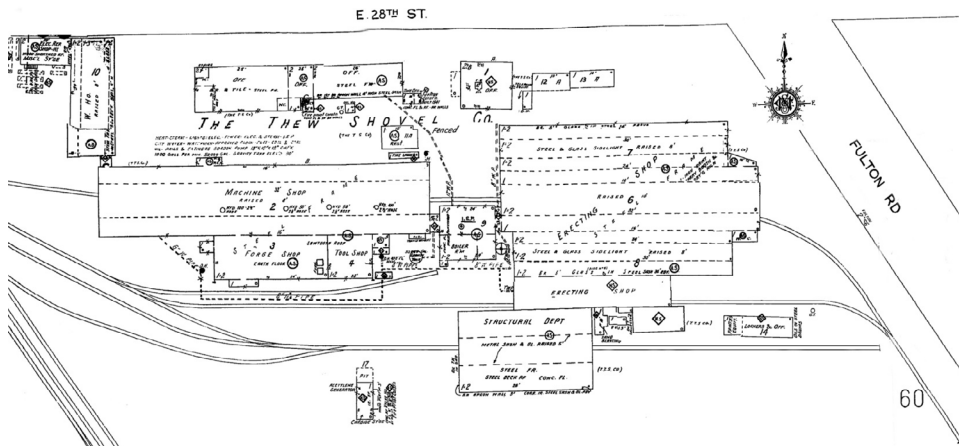
While a mix of freight cars interchanged at National Tube, the majority probably included gondolas for shipping pipe. Lake

Terminal had a fleet of their own gondolas, but the B&O and other railroads were regulars. This active interchange helped keep B&O 2-8-0, and 0-8-0 locomotives busy [12, 13].

Moving north toward the lake from National Tube leads us to the Baltimore and Ohio's car shops next to where Henderson Drive crosses Erie Avenue. Set back off in the northeast quadrant of the intersection of Erie



17. Lorain cranes ad. [eBluejay.com](#)



18. This Sanborn map dated 1926 shows the Thew Shovel manufacturing plant in South Lorain. It is located on the south side of East 28th Street across from the west end of the National Tube steel mill. The Baltimore & Ohio Railroad switched the tracks on the Thew Shovel plant throughout the lifetime of the facility. *Sanborn Map*



19. Here is another "shovel" produced by Thew Shovel. The date is November 30, 1912. [historicpittsburgh.org](#)

Ave. and Henderson lay the B&O car shops [24]. As a youngster I remember them well.

Several buildings stood here, along with a turntable. I remember lots of cabooses either waiting their next train south, or awaiting repair.

There always seemed to be a lot of B&O cabooses there, along with many freight cars for repair. What a great place to see some action in the mid-1950s!

Between the steel mill and the docks, the B&O in Lorain featured an engaging beehive of activity. In fact, if I didn't already have a fleet of NYC and PRR locomotives and rolling stock, I would be seriously considering modeling the B&O or the NKP in Lorain. Next month I will let you know what I have actually decided to do with my layout. Hint, hint.

North of the car shops the B&O more or less paralleled Broadway Avenue, all the way to the lakefront. The line ranged from a few tracks to a couple of dozen tracks wide at various places. At the



20. Some Thew marketing materials. worthpoint.com



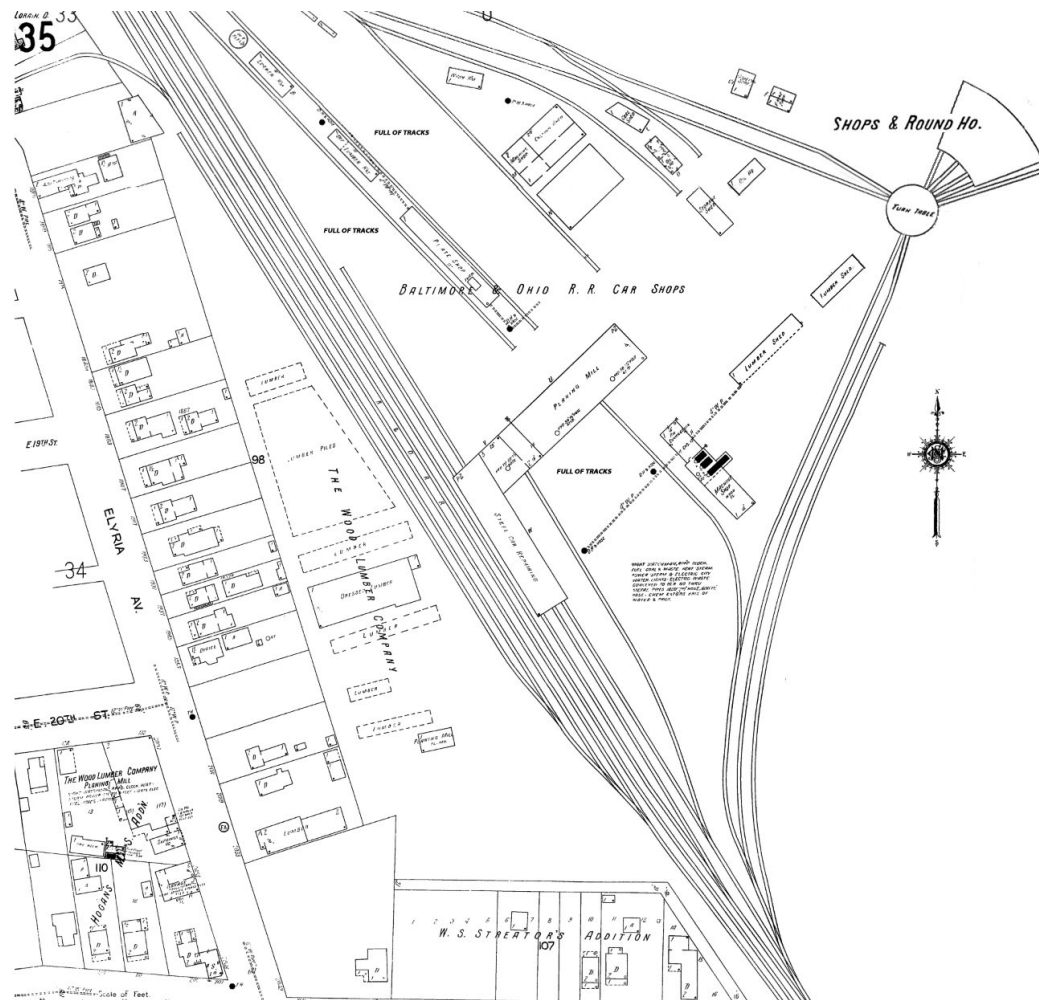
21. Looking east into the National Tube steel mill from the B&O, circa 1915. This scene looks like a bleak, colorless moonscape. However, it was colorful as you can see in the subsequent pictures. wisconsinhistory.org



22. National Tube boiler shops postcard, circa 1920. postcard, Lorain Historical Society



23. National Tube old postcard, circa 1920. [post card](http://postcard), Lorain Historical Society



24. B&O car shops stood in the northeast area where Elyria Avenue and Henderson Drive intersected. This Sanborn map shows how large this facility was in days past. Cabooses got set out, stored, and serviced here as well as freight cars. I remember in the 1950s seeing this busy facility. It was jammed with cars awaiting service. My great-grandfather Butts was the facility manager until he retired after the second World War. *Sanborn Map*

crossing of B&O and Nickel Plate, both railroads shared a depot (featured last month).

Another yard of about a dozen tracks sat just south of the Nickel Plate Road. Immediately south of the depot stood a good sized freight house, [25] kept busy until after the late 1950s downturn.

The year 1960 was a turning point. From that time on, railroad business on both of the B&O and the NKP waned year after year. Rail operation on the B&O declined, until by year 2000 essentially nothing remained of the former B&O in Lorain.

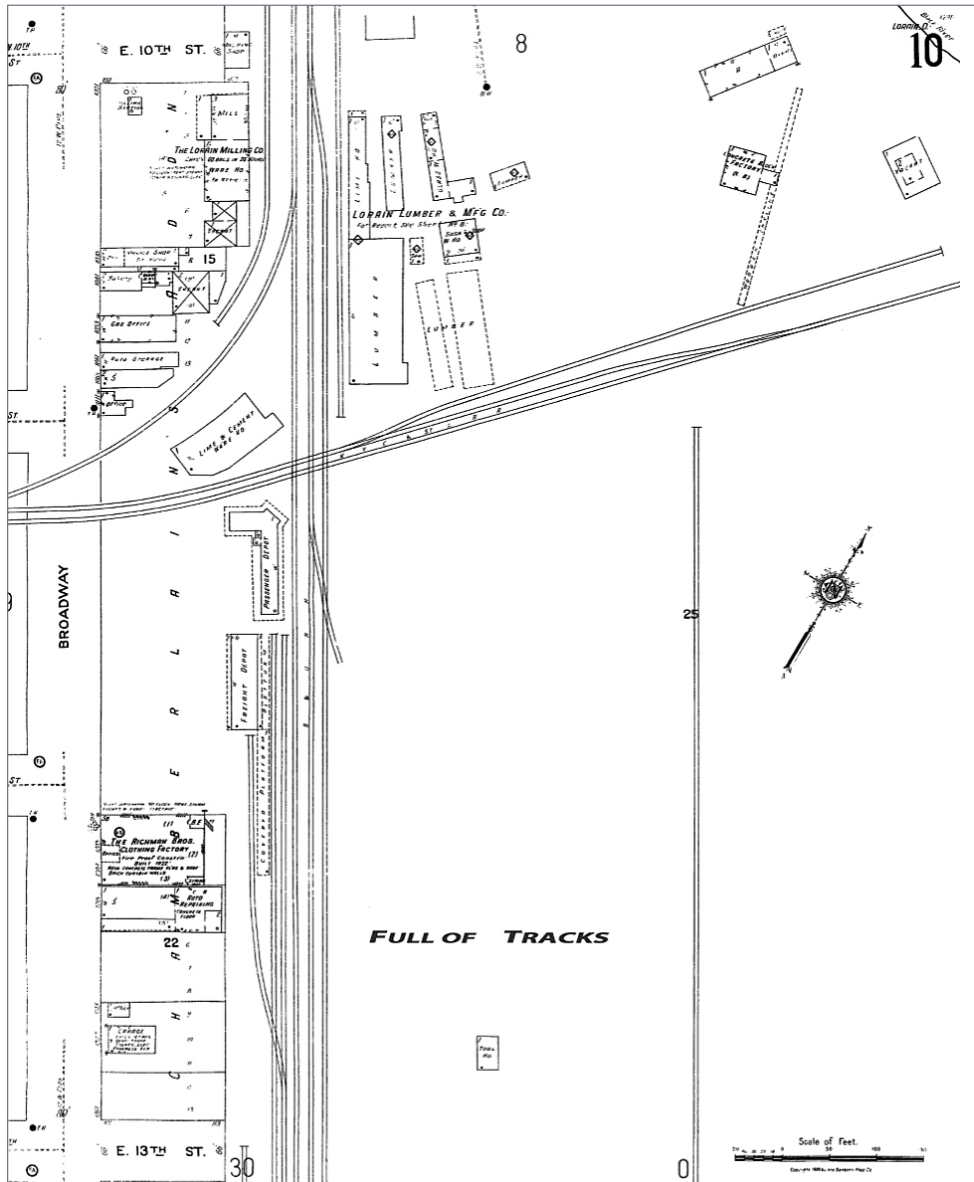
Sadly, if you visit Lorain today, and didn't already know what used to be there, you would never know. Hardly a trace remains of the one-time glory of B&O railroading in Lorain.

The track (yes, just one now) stops a short distance south of the Norfolk Southern (former Nickle Plate Road). All tracks have been removed north of there, and a public park now resides where the one-time rail yard proudly stood between the NKP and the Erie Avenue bridge over the Black River.

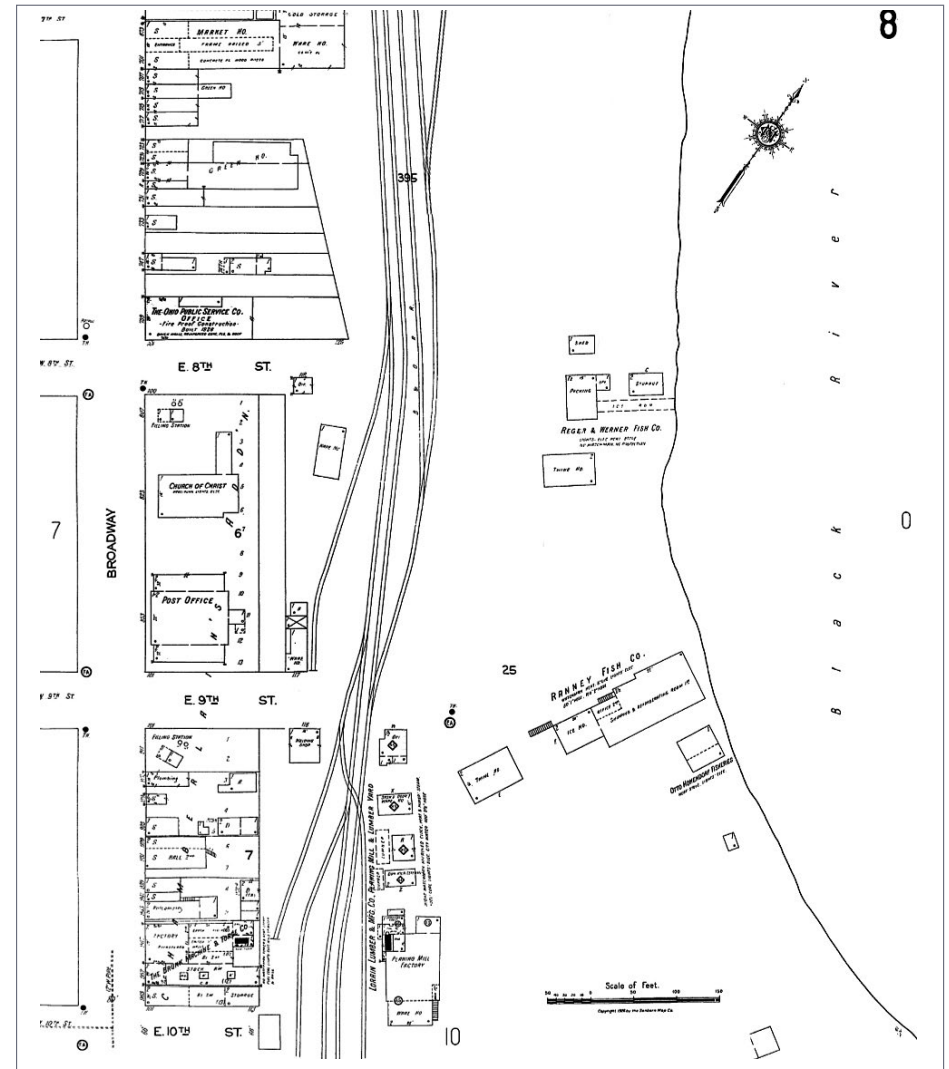
Rail/Water transfer formed the heart of B&O operations. All three of the Baltimore and Ohio's coal dumpers in Lorain have long disappeared. The B&O ore docks are gone. The coal docks are gone. The Edgewater power plant is gone.

Only ore unloading remains at the original National Tube Company (now Republic Steel) ore dock. Even this unloading facility doesn't stay very busy. For this old man, who spent near countless hours as a child watching railroading in Lorain, it's all very sad. It's all gone.

But I digress. Let's continue with our look at rail operations in Lorain along the Baltimore and Ohio when it thrived.



25. This Sanborn map shows the depot area where the NKP crosses the B&O. Note the industry to be modeled here along with the interchange with the NKP. *Sanborn Map*



26. This area lies immediately north of the depot area [25]. There are more industries serviced by the B&O along with tracks continuing north to the coal and ore docks. North of this area sits a balloon yard for more temporary storage of coal and ore cars. The B&O in Lorain included a series of five yards closely spaced north to south. *Sanborn Map*

LORAIN HARBOR

By 1900 Lorain Harbor had become a busy port for receiving ore and shipping coal. National Tube had its own large ore docks upriver behind the steel mill. The B&O had its ore dock at the mouth of the Black River.

I find it interesting that none of the ore unloaded at the B&O ore dock was consumed at either of Lorain's two steel mills. Instead, they shipped the ore south to the hungry steel mill at Warren and Youngstown, Ohio and other inland steel mills.

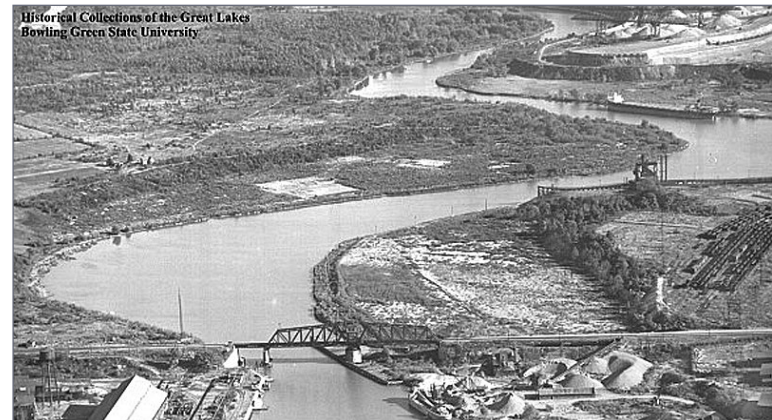


27. B&O No. 1 Coal Dumper was replaced by this McMyler dumper about 1920. In turn this McMyler was dismantled in the 1950s after being replaced with a new, modern McMyler dumper at the mouth of the harbor in 1948. 1946 photo. *Great Lakes Collection, BGSU*

Once crossing north of Erie Avenue in Lorain, we reach the coal and ore docks of the B&O. They got sandwiched in between Erie Avenue and the lake front on the west side of the Black River. The B&O built both coal and ore docks here in the 1890s.

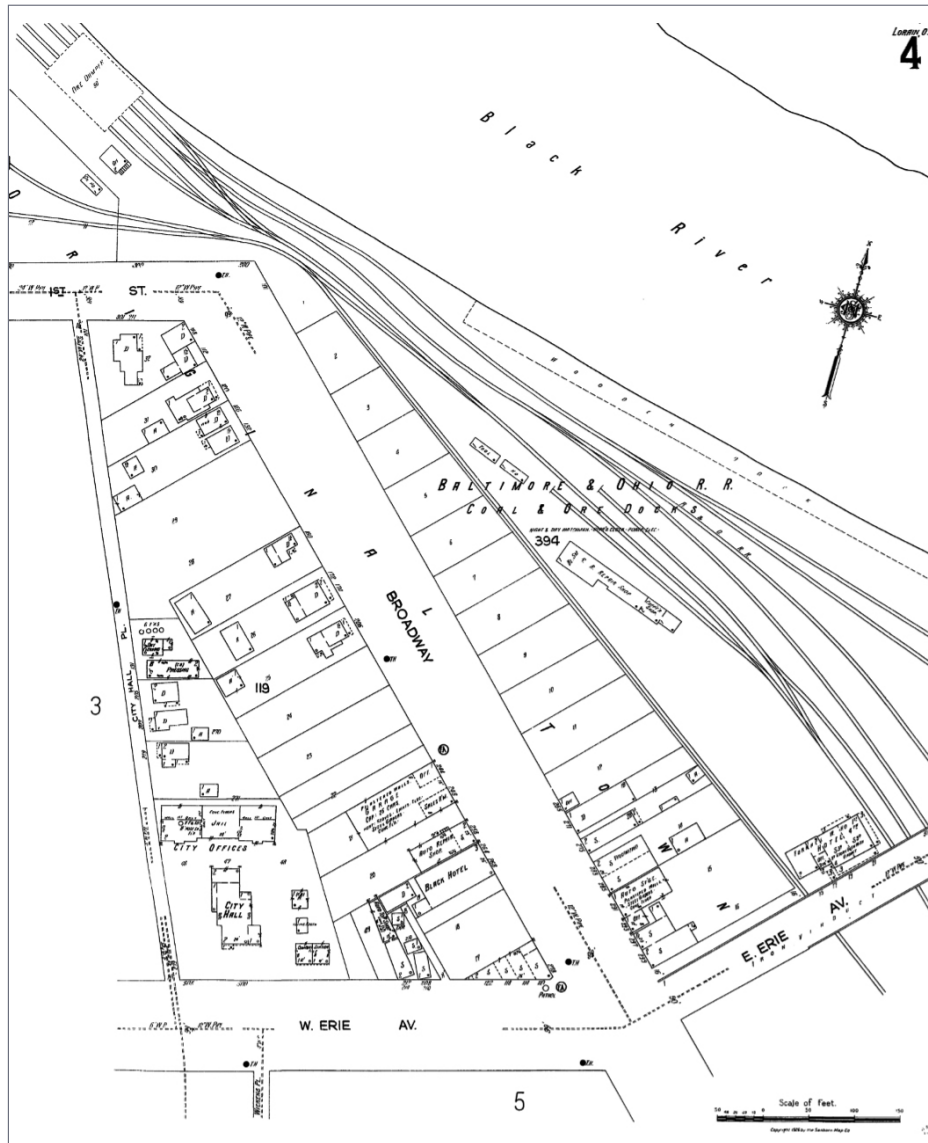
The early facilities were replaced by the early 1920s with more modern equipment to handle the increased demand and longer lake boats. By then lake boats ran typically 700 to 800 feet in length. They were massive!

Next month we address the Lorain, Ashland & Southern Railroad, along with the interurban rail lines that served Lorain. We also discuss modeling Lorain and how you might go about it. I hope you will be with us in July. ☒

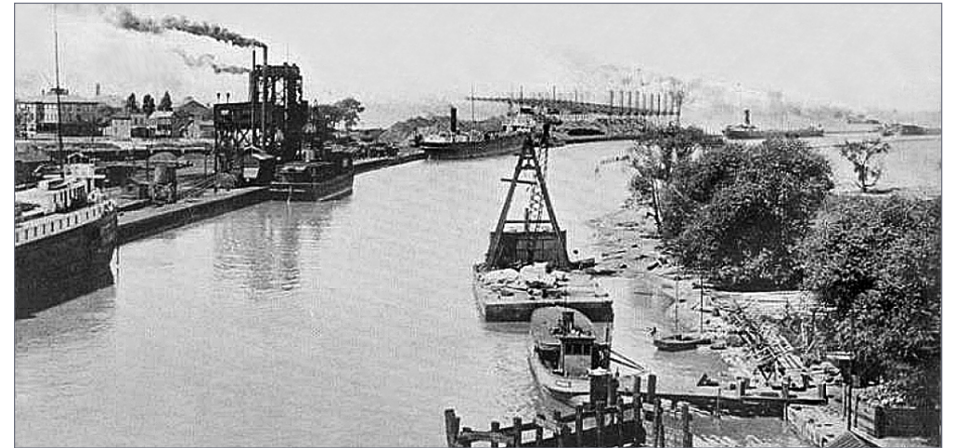


28. The Black River twists and turns through Lorain. This scene sits just south of NKP bridge over the river. B&O No.1 Coal Dumper [27] can be seen at about 3 o'clock in this photo. It replaced the earlier coal dumper [30, 31, & 32]. This facility got replaced by the new, modern McMyler dumper at the mouth of the harbor in 1948 and was dismantled in the 1950s. *Great Lakes Collection, BGSU*

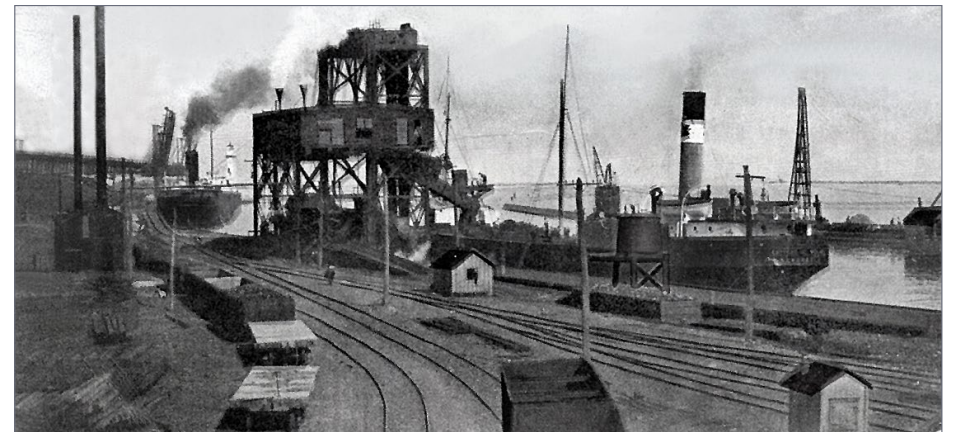
See more photos following...



29. This is part of the B&O ore and coal docks. Actually it's just part of the ore dock. The coal dock lays off the map to the upper left. I have been unable to find a map that shows that area, but I do have a satellite image. *Sanborn Map*



30. This 11-2-1905 dated photo shows the B&O coal and ore facilities in Lorain. The photo was taken from the Erie Ave. Bridge looking north toward Lake Erie. While dated as November, the month has to be earlier in the year because the trees in Lorain don't have leaves in November. The view looks more like the summer of 1905. *photographer unknown, Jim Six collection*

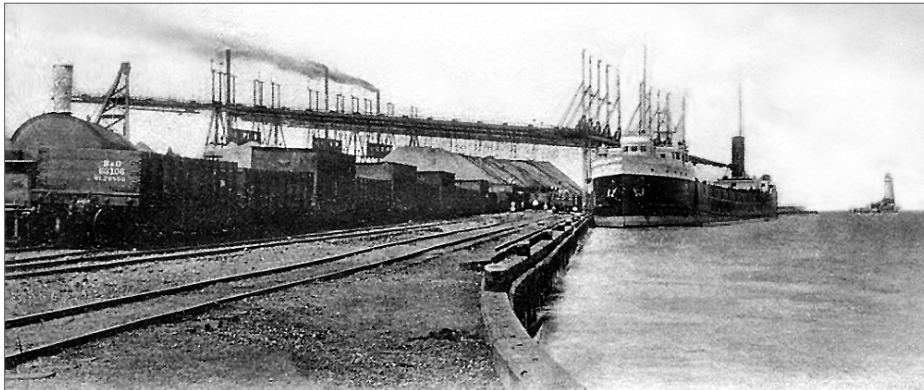


31. Another view of B&O's No.1 coal dumper with the Brown Hoist ore unloader in the background. A 1909 photo, this coal unloader lasted in service until the early 1920s. *photographer unknown, Jim Six collection*

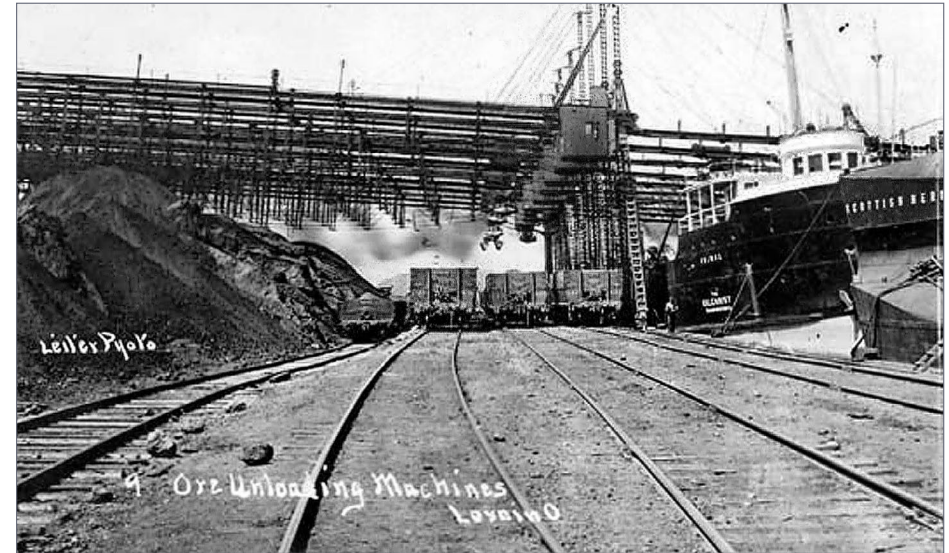
No 1, Coal Dump, Lorain, O.



32. This old postcard shows B&O's No. 1 coal dumper in Lorain. I believe it lasted in service until the early 1920s when a new McMyler dumper went into service up-river. There was a short time with both working. *Jim Six collection*



33. Very old photo dated 1901. The photographer has their back to the coal dumper. The Brown Hoists for ore unloading ore stretch from the lake boat to the left in this photo. *photographer unknown, Jim Six collection*



34. A closer look at the Brown Hoists that unloaded ore from the lake boats back in 1905. The ore cars are all wood-sided gondolas. This was a time that hopper cars were just being thought of. *photographer unknown, Jim Six collection*



35. B&O's No. 1 coal dumper is being dismantled in this 1924 photo. The Brown Hoists for unloading ore got replaced about 1920 with the ore unloader shown mid photo. A new ore bridge is being assembled beyond the ore unloader. *Great Lakes Collection, BGSU*



36. This is the same scene as [38] about 1930. The ore bridge crane is in service at this time, and No. 1 coal dumper is gone. A sand/gravel facility has replaced the coal dumper. The bridge crane in the background was demolished on December 20, 1946. The Lorain Coast Guard station is at the right. *Great Lakes Collection, BGSU*



37. B&O Lorain ore dock circa 1950. Ore has been unloaded here since about 1900 or earlier. *water color by Kinley Shogren*



38. This photo dates back to the 1950s, or possibly the late 1940s. The ore unloaders empty the lake boat of its cargo. danielebrady.blogspot.com



39. Closeup of the Lorain ore unloaders, installed in Lorain about 1920. They were designed between the time of the Brown Hoists and the Hulett ore unloaders. No Hulett unloaders ever got used in Lorain. The above unloaders worked well, and lasted until the 1970s, some fifty-plus years of hard service. *Great Lakes Collection, BGSU*



40. This 1947 photo shows B&O No. 3 coal dumper a few months before being placed into service. This was one of the last and most modern McMyler coal dumpers on the Great Lakes. *Great Lakes Collection, BGSU*



41. Looking south from Lake Erie, this view shows it all. The modern B&O coal dock in the foreground began operation in 1948 – the year your author was born. Behind it stands the ore unloader that replaced the Brown Hoists about 1920. The coal and ore docks each had their own pier jutting into Lake Erie. ohiowea.org



42. Here is the larger McMyler coal dumper that replaced the old No. 2 dumper in 1948. It sat at the very end of the harbor on the west side of the Black River. I believe it was demolished about 1980. Beyond this pier you can see Lake Erie. *photographer unknown, Jim Six collection*



43. This view shows the heart of downtown Lorain and its relation to the B&O Railroad and the river. All the railroad you see in this photo from the 1950s has now disappeared without a trace. *Great Lakes Collection, BGSU*



44. This is the only photo I have found that shows the location of the Edgewater power plant relative to Lorain, and the B&O docks at the mouth of the Black River. The power plant can be seen to the right of the docks in this early 1980s photo. One of the thousand-footer lake boats unloads ore at the iron pellet plant. *Great Lakes Collection, BGSU*



45. This photo was probably taken about the time the Edgewater power plant went out of service. Note no smoke or any vapor emitting from the plant, indicating it's not producing power and not in "stand-by." danielebrady.blogspot.com

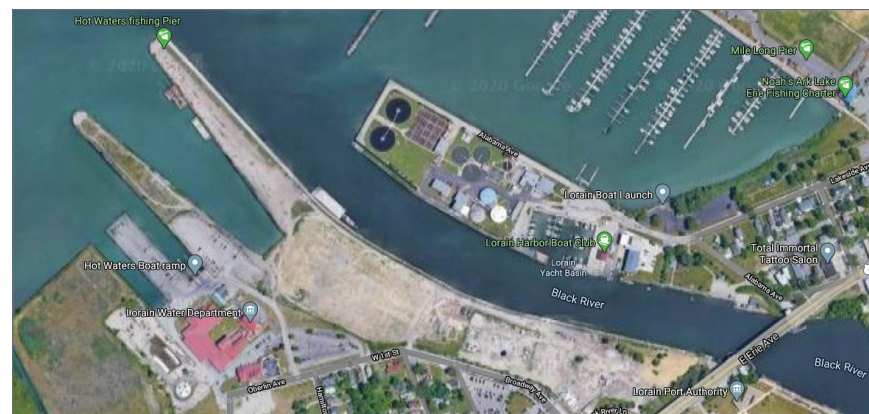


J. Six

THE EDGEWATER POWER PLANT

The B&O served one notable power plant – the Edgewater plant on the lakefront. This power plant began producing electricity in 1919, and operated almost continuously until finally taken out of service at the end of 2002. It was demolished on December 17, 2010.

This coal-fired plant had the coal provided by the B&O. The plant sat just to the west of the coal and ore docks at the mouth of the Black River. A single-track curved west from the docks, and divided into several tracks between the plant and the lake for unloading coal.



46. This satellite view shows the mouth of the Black River. At the left you can see the pier for the coal dock. To its right (east) sits the pier for the ore dock. The peninsula across the Black River at the right-center is the municipal sewage treatment plant. I thought I'd close with this image to illustrate how the greatness from Lorain's industrial days has now passed. *Google Maps*

★★★★★
RATE THIS ARTICLE



MRH Running Extra | June 2020

ROB CLARK ON GETTING A BETTER ILLUSION OF REALITY IN OUR MODELING ...



THE ART OF MODEL RAILROADING HAS DEVELOPED hugely over the years and commercial products of today are achieving levels of detail that approach near perfection in terms of reproducing the look of the prototype.

Scenic materials, modeling and weathering techniques have kept pace with the technical developments, so that scenes combining all of these elements are reaching unprecedented levels of realism.

Some modelers concentrate on creating pictures that attempt to look indistinguishable from real life. These are usually in the form of dioramas that are small enough to permit massive attention to detail of every element and then photographed outdoors against a suitable landscape and sky.

The results are stunning and often require a careful look to answer that question “Is it a model?” [1, 2]

I look on these dioramas more as works of art than model railroads. On anything other than the smallest of layouts, I would find it difficult to maintain the standard of detail. That fact,

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



1. Jürg Rüedi, working with the help of talented friends, creates photographic dioramas of breath-taking realism. Jürg Rüedi photo

coupled with the impracticality of having a “real” backdrop and sky means that my approach to model railroad visual realism takes a different path.

Rather than strive for absolute perfection of every element, I prefer to present an overall feel to scenes so that the viewer enjoys what they are looking at, perhaps without knowing quite why. They immediately accept that they are looking at a model, but also instinctively relate it to “reality.”

I aim to create an illusion of reality which pleases the eye.

This approach has a parallel to painting a picture. People look at a painting with the full knowledge that it isn’t real, but can still

appreciate the visual message. Often a picture's strength is based around overemphasis of elements which are clearly not real, but still pleasing to the eye and mind. These visual messages can be so powerful that they actually transcend reality!

So how can we take principles from the world of art and apply them to model railroading? I am going to tackle this in four stages:

- Human vision – how you see and interpret what you see
- Defining what makes a scene “attractive”
- Guidelines for success
- Applying the principles to train rooms



2. Here is the reality behind the previous image. Intensely detailed model elements are combined with an exterior backdrop to create a diorama. Jürg takes his photos on the balcony of his home.

Jürg Rüedi photo

THE WONDER OF VISION

Human sight is powerful in its field of vision, but restricted in its precision. The lens in our eye projects the image of what we are looking at onto the spherical retina inside our eyeball and we can see around us beyond 180 degrees, but this is a relatively low resolution and blurred picture.

Precise focal definition (the sharp high definition bit) is available only on a small area of cells at the back of the eye known as the fovea. What this means in practical terms is that when viewing an image from a couple of feet away we only clearly see a disc about one inch in diameter. So how is that we don't see life as a blur?

This is achieved by the eye “scanning” the picture in a complex series of movements known as **saccades** (French for jerk). Our brain suppresses vision during each jerk (three to five per second) so we aren't conscious of them. We start from the point of main interest (the thing we see first) and then we scan outwards to things of secondary interest.

Our experience of life (our personal “things” database) allows us to identify what each element is and after that we start working out the relationships between these elements.

Then (again from life's experiences) we may start applying feelings evoked through memory, build a story (if there is one) and finally, we make a judgement about whether or not we like what we see. All that can happen in microseconds, although often we spend much longer exploring the view and possibly modifying how we feel. This explains how a scene can initially appear “real,” but within seconds we realize it's a model.

From the moment we are born, we are building our life experience database. What starts as flashes of light and blocks of color becomes a recognizable world, through investigation of our

environment. Our brain becomes so good at recognizing objects that often only a glimpse of part of something is enough for us to know what we think we are seeing and as a modeler this can be put to good effect when creating scenes.

WHAT MAKES A SCENE SUCCESSFUL?

The first thing is to define what a “successful” scene is.

I believe a successful picture makes you feel good – things are in harmony, the colors fit the mood, there may be reminders of times in the past or places you might have been, or would like to go to. You look at it and “It works” – in through your eyes, onward to your heart.

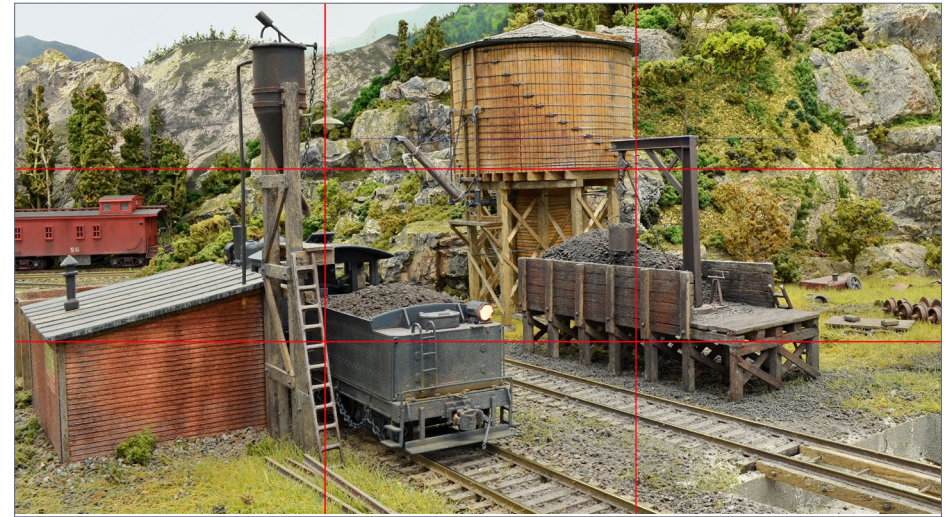
The trick is to produce a scene where key elements are easily identifiable and pleasingly arranged. Curiosity is raised and this persuades you to examine what you see more closely and a story may unfold.

Often showing less of a scene is better than cramming in as much as possible, because our imagination is a powerful sense. Given a set of clues, we will expand the scope of the visible scene to what might go beyond.

We can’t “crop” our train room view, but we can attempt to influence how the viewer sees things by slowly drawing them in so that the brain does some virtual cropping as each level of detail is examined.

Of course a great scene requires some skill, but being aware of some visual “rules” (more like guidelines) can make the chance of success more likely.

I have touched on these visual guidelines in previous Imagineering articles, but a re-cap is appropriate and what better way than to look at some picture examples [3 – 9]. These are clearly views of models, but I hope you agree the images are easy on the eye:



3. This shows the “rule of thirds” at work. The image is roughly composed of three vertical and three horizontal zones. Objects of particular interest (sand bin, tender, water tank, coal dock) get placed very near the intersection points of the zones.



4. The Golden ratio puts an object of interest offset from the center of the picture. For the record, the math is: $AB/AC + AC/CB = 1.618$. This introduces visual tension.



5. Nothing kills a scene more than smooth uniformity – in this scene you can see many examples of rich textures. Dense tree foliage, tree stumps, grass and weeds. Moss on the rocks and ballast too. Even the train consists of dust-covered rolling stock. This kind of effect does take a little time to achieve since it requires multiple layers, but it's rewarding work and the end results justify the effort.



6. A restricted color palette assists with harmonizing a scene and on my layout I'm using primarily green and grey with the odd bit of pale red! Small splashes of color (always a matt finish) add points of interest. I believe that a reduction of "color clutter" gets better focus on the content and story. Black and white photographs take this technique to an extreme level, but we can also do it in our modeling by removing potential color distractions.

5. Nothing kills a scene more than smooth uniformity – in this scene you can see many examples of rich textures. Dense tree foliage, tree stumps, grass and weeds. Moss on the rocks and ballast too. Even the train consists of dust-covered rolling stock. This kind of effect does take a little time to achieve since it requires multiple layers, but it's rewarding work and the end results justify the effort.

6. A restricted color palette assists with harmonizing a scene and on my layout I'm using primarily green and grey with the odd bit of pale red!



7. This scene has differing levels, big depth of focus, and a few key objects that provide a rich image for the viewer to take in. The rule of thirds applies both in terms of horizontal and vertical zoning with key objects positioned roughly at the intersection points. I'm using a subdued and limited color palette with a variety of strong textures – for example the long grass in the foreground with the mud and moss-covered bank. The train leaving town has a strong presence and the figure disconsolately trudging past the company housing adds interest – what are his (clearly troubling) thoughts? The guy leaning on the switch stand looks down the track at something out of the picture we can't see, but the fact he is looking makes us wonder.

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





8. This is more or less the same scene as [7], but viewed from aisle-side. The guy leaning on the pickup indulges in

the age old pastime of watching the trains go by, defining the mood. The three vehicles parked obliquely guide our scene viewing sequence from front to back and from right to left.

Note the lack of shine on the vehicles. Unless you're really close to a gloss surface (much less than any normal viewing distance on a model railroad) it won't shine! The empty flatcar neatly frames the house behind and sits on the point of the "Golden Ratio."

GUIDELINES FOR SUCCESS

In all of the previous examples, there is never any doubt the scenes show models. If we get picky – the wheel flanges, ladders, and track ballast all look over-scale. Textures of the grass and foliage look too pronounced.

The graining on wood sections appears coarse and the transition between the two dimensional back scene and three dimensional trees stands out.

In general, *overemphasis* can be found at many levels and I think this actually makes the scenes work better by stimulating our eye and life experience ability.



9. I heavily cropped this image, and paradoxically when you crop a picture, you increase the scope of the scene because imagination kicks in. I see strength and confidence in the fireman's

lowered arm covered with oil and coal dust. The body and head vanish into shadow, but I sense a man with dignity and integrity standing there – all this from a tiny HO plastic model of a figure! I believe this level of engagement with your model world can provide a lot of pleasure and yield a more satisfying end result.

APPLYING THE PRINCIPLES TO A 3D TRAIN ROOM

Even allowing for those few microseconds of doubt when looking at a picture, there is no way that anyone looking at these train room images would be fooled into thinking they were looking at something real.

With a picture, the artist controls your viewpoint with absolute precision. That's why portrait eyes "follow" you round the room because the subject was looking directly at the painter.

A visitor to your train room has the freedom to walk around and view from almost any angle – so how do I influence how things get viewed and make use of the visual success guidelines?

I consider the experience of exploring a model railroad as a hierarchy of five visual levels, each of which focusses on an increasing level of detail, namely: train room, module, scene, vignette, and finally cameo.

The visual journey starts from the moment you enter the train room [10]. Just as when viewing a picture, there is a period of orientation where everything is quickly scanned to work out what we are seeing and where we prefer to start looking in more detail.



10. The upper valance is an important part of the train room experience. Mine is curved and fully bridges the gap between the top deck of the railroad and the ceiling. The color is neutral sandy beige and note the pale sky blue color on the walls. I prefer this neutrality to any attempt to replicate clouds. The sky should not register, other than to be interpreted by the brain as “there is sky behind the scene where it ought to be.” On the right wall you can see the many attempts at getting a shade of blue that I liked.

I’m going to draw a parallel with entering an art exhibition where the room and décor are kept neutral to focus attention on the exhibits. You may just walk left to right, or you may be attracted to a particular exhibit because of its shape and color.

Many pictures will have a frame to provide mechanical support, glass for protection, and then a border (known as a mat) with the picture in a cut out. The neutral space provided by the mat gently leads you to the image, and also separates it from the outside world. Then you can appreciate the picture without distraction.

How your train room looks is often dictated by circumstance, and even when a purpose-built location exists, personal choices will be applied. I aim to make the model railroad the only thing that the viewer is aware of.

If you combine your train room with your den, then there will be some visual distractions. Other than the model railroad, I have nothing else in my train room – no posters, railroad artifacts, display cases, in fact nothing that could distract attention.

For the first weapon of neutrality, use flowing curves on the fascia boards to break up their lines and extend horizontal vision [11].

The “best fascia color” debate has had many lively eruptions, and I’m sure these will continue for as long as we build model railroads. I (like others) have strong views on what’s best, but they’re my personal preference, and no more or less valid than anyone else’s.

For the record, I take my lead from many art galleries, and prefer the neutrality of a sandy beige color with a satin finish. I find green, black, and grey (all popular options) to be intrusive and fail to create a gentle illusionary boundary between the model and real worlds.

After the initial holistic view of the train room, the next level of engagement becomes the module, which obviously can be of different sizes. “Module” usually refers to an individually built section of

a model railroad, but here I am considering it as a “unit of visual opportunity.” Given a viewing distance of three feet, then six feet, makes for a good target module width, assuming a scene depth of 12 to 24 inches.

Trying to take in more than this risks confusion, because there are so many elements that they become “visual noise,” and you have to start scanning back and forth to take in everything you can see.

I use this six foot width when applying scenery to my railroad because it helps me visualize the final picture. Even the first look at modular level [12] should be an absorbing experience.



11. Note the flowing lines in all three dimensions of the lower fascia. The middle and upper fascias however have straight lower edges – curves here would draw unwanted attention to what should be sky and a horizon stretching to infinity.

Note the rise and fall of the scenery and gaps between building groups. Even without looking closely your interest should be aroused initially.

SUMMARY

The real world is a detailed place, but it’s not possible (or desirable) to reproduce every individual detail. Although it can be fascinating to have multiple cameos, I think you end up with “detail clutter” and the overall scene suffers as a result.



12. This is a double deck layout, so two modules (upper and lower) are visible, but the fascia boards separate the geography both visually and physiologically. A module contains a number of scenes, each of which has some logically-related elements.

In the above example each deck module has two primary scenes:

- Upper deck - lumber mill, company housing and depot
- Lower deck - rural, depot and industrial

Note the staging layer below where I have painted the fascia black. I did this because I didn’t want to “frame” anything here – staging does not visually exist!

Far better to have smaller amounts of detail, but emphasize them strongly so that each can take their place in the overall scene, but be individually found and enjoyed.

In the train room you must attempt to make each scene visually attractive from many (if not every) angle, so although I am advocating a simplicity approach, if something displeases you, then you should fix it. Scenery is “soft,” relatively cheap, and therefore easy to change. Don’t be afraid to change something you feel isn’t right – don’t let yourself regret it later!

“It just needs to be good enough” was a piece of great advice attributed to Allan McClelland, but what is “good enough?”

Good enough to satisfy the “three foot” rule, or a visit from some modeling buddies, or a submission for a contest entry. The missing two words are “For you.”

In conclusion, my advice is to become more aware of everything you see, not only looking closely at railroad photographs, but observing the world around you.

I have found myself looking at the world in a different (and very enjoyable) way; trees, tree lines, rock formations, architectural details, decay of structures as nature takes over things built by man.

Over time you start to absorb the reasons why things happen, so when you come to create a scene, you don’t need to copy anything. You build something that fits the space and the era, and more importantly, the feel that you want. Embrace the illusion of reality you are creating, and enjoy it for what it is. ☒



RATE THIS ARTICLE



13. This is a rural themed scene with a “Feed and Seed” store and Livery stable. The threshing machine

parked up beside the grain bin hints at activities that take place off-scene. The road running between the buildings draws the eye and expands the depth of the relatively narrow baseboard. This is actually a corner of the railroad, but the wide radius coving of the back scene flattens out the 90 degree bend quite effectively.



14. This vignette featuring the livery stable is a picture of tranquility with a shade tree, a relaxed horse tied by the barn and a few old guys just passing the time of day by watching the world (and occasional train) go by.



15. (Top left) At the “cameo” level inside the stable, the modeler can indulge in fine levels of detail that normally won’t be seen, but can be enjoyed if the viewer lets themselves be drawn in sufficiently. Because of the small work area, I found the very fine detailing to be a modeling pleasure rather than a chore.

16. (Bottom left) I use view blocks to separate different viewing modules. In this example it’s a tree covered mound. It could just as easily be a foreground building or just some dense trees. Even just partially hiding the view of a train is enough to create a separation in the mind.



**Take the MRH
2020 Reader
Survey ...**

amazon

... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



TAKE THE SURVEY >>



BUILDING A STAGING DECK



MRH Running Extra | June 2020

Part 2 – Wiring and detection on the staging deck

JASON MILLER tackles the intricacies of wiring and detection ...

Jason has been working on his layout for the past eight years. His HO scale railroad is based on the Reading Railroad in the early- to mid-'70s and into the Conrail merger era.

The layout is being built as a standalone shed that is 36' x 13' (11m x 4m), in Victoria, Australia.

BUILDING A STAGING DECK PART 2 | 2



RATE THIS ARTICLE

WHEN ALL THE TRACK AND TURNOUTS WERE
installed for the staging deck, it was time to install the wiring for
DCC power, detection, and automation of the turnouts.

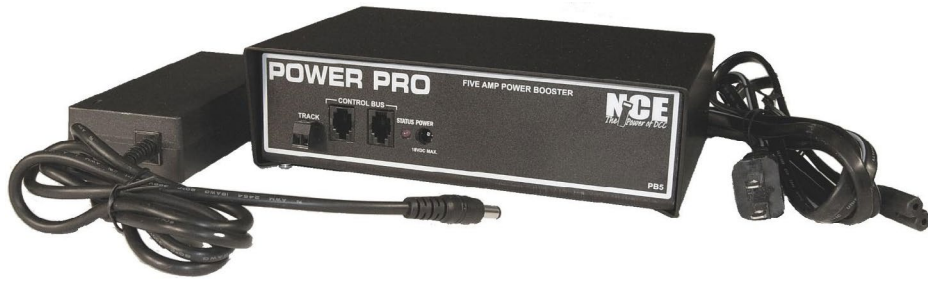
Like the existing upper layout deck, I decided to use a combination of a Digitrax BDL168 for the distribution of DCC power, and for detecting trains across the storage tracks, yard leads, and arrival/departure track via JMRI and Panel Pro. The BDL168 was fed via a DCC – Specialties PSX Circuit Breaker [1].

One major addition I decided on was installing another NCE – 5 Amp Booster to power the entire staging deck [2]. Due to the number of sound locomotives that could be present at one time on the staging deck, I decided to power the entire deck with its own booster.

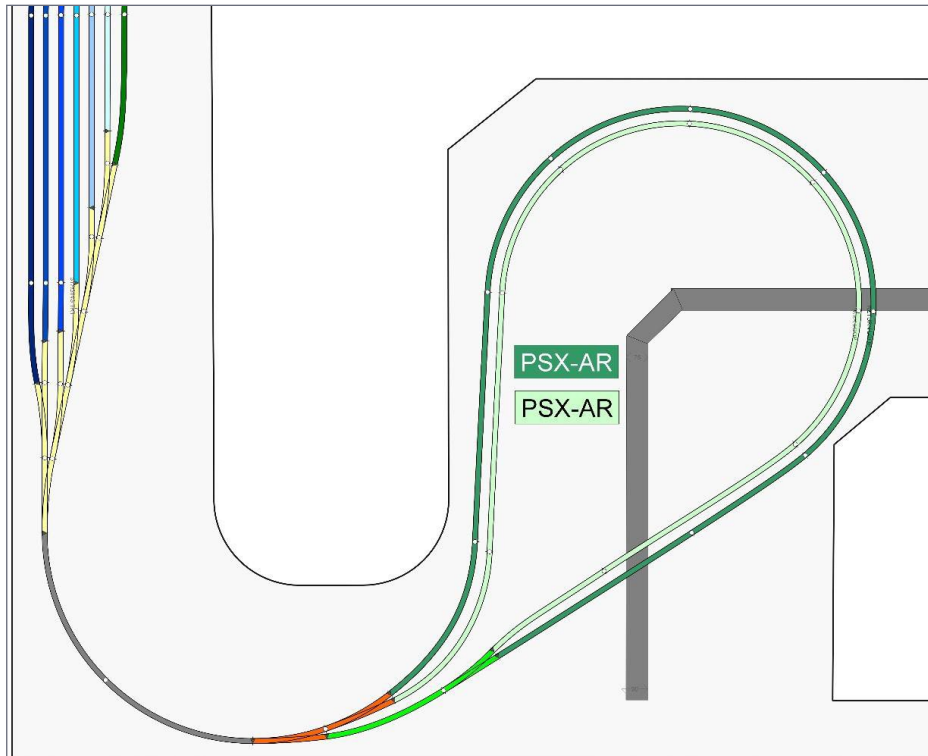
One complexity that I needed to account for was the two return loops at the end of the staging tracks [3]. Both of these require



1. The components required to complete the staging deck wiring and detection.



2. The NCE PB5 – 5 Amp DCC Booster.



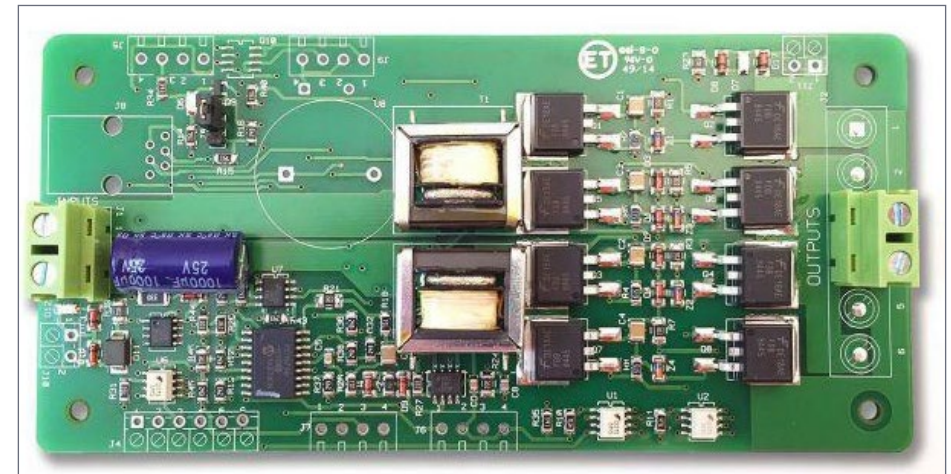
3. AnyRail plan showing the 30"R curve into the return loops.

the installation of separate DCC Specialties – PSX-AR [4] to ensure the whole operation could be automated via JMRI and PanelPro, and to switch the polarity of the DCC signal.

One of the added bonuses of using the PSX-AR is that they have a detection function incorporated into the board. By connecting the network feedback output from the PSX-AR to the Digitrax SE8C – Detection Section Inputs, you can have occupancy detection via the LocoNet to JMRI and PanelPro.

One of the critical pieces to make the detection side of the staging deck work was the addition of a DCC Booster – Case Screw – Ground Wire [5, 6]. Due to the staging deck being electrically isolated from the upper layout, and the need for the BDL168 to be grounded with the remainder of the layout, a wired connection is required between the case screws of both NCE boosters.

The booster ground will also help eliminate any stray voltage, or voltage difference between boosters. This practice is recommended by NCE.



4. PSX-AR used to switch the DCC polarity and provide occupancy detection.

BUILDING A STAGING DECK PART 2 | 5

One anomaly that needs to be mentioned is the polarity of the tracks on the staging deck. The upper layout is wired with the positive (red) for the DCC along the front of the layout closest to the fascia. When the helix finishes on the staging deck the polarity is reversed, and the DCC positive (red) is oriented to the rear of the staging deck.

By keeping the polarity the same as the upper deck, and not changing the staging deck to reflect the positive towards the fascia, the only reversing section required is at the two return loops at the end of the staging deck [7, 8].

As I've previously stated before in my articles, when I'm wiring I label everything. The advantage to doing this as you progress is that when any changes, additions need to be made, or faults need to be found, the work is far easier when each wire is labelled.

With the positive polarity being towards the rear of the staging deck, the labeling was critical to avoid mistakes because it is physically reversed from the upper layout deck.

Once the main staging deck wiring was completed, I had to wire in the two DCC Specialties – PSX-AR's [9, 10, 11]. These were quick to install, and easy to set up. As mentioned earlier on, the PSX-AR units come with a block occupied detection circuit built in.

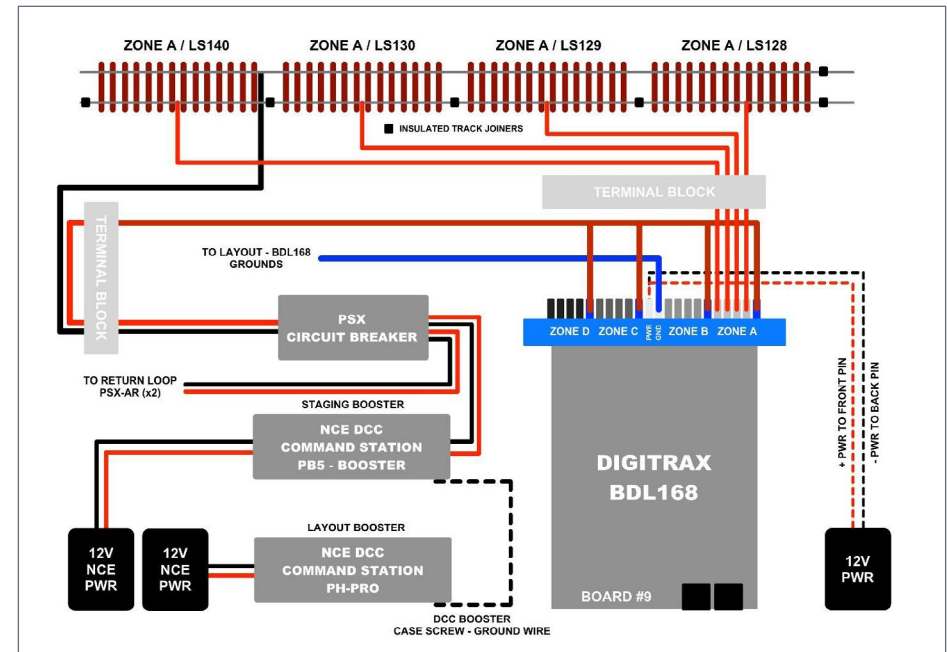
The detection circuit from the PSX-AR is connected to the detection inputs on the Digitrax SE8C. The power is supplied from the same 12V source that is feeding the SE8C.

After completing the wiring for all of the detection, I added the staging deck to PanelPro and input all of the detection blocks into it too [12].

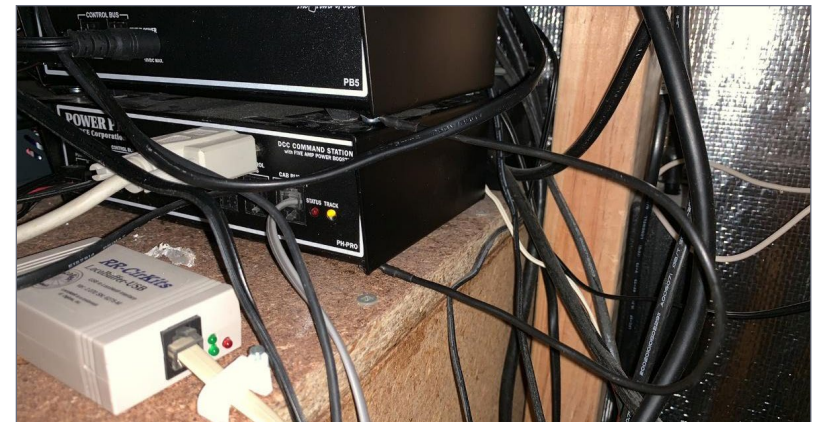
The six storage tracks, yard ladders, arrival and departure tracks are all detected, along with the inner and outer loops of the return loop.

www.youtube.com/watch?v=-mxuksQN62g&feature=youtu.be

BUILDING A STAGING DECK PART 2 | 6



5. The schematic shows how the staging deck is wired for DCC power.



6. The Case Screw – Ground Wire connection between the two NCE boosters.

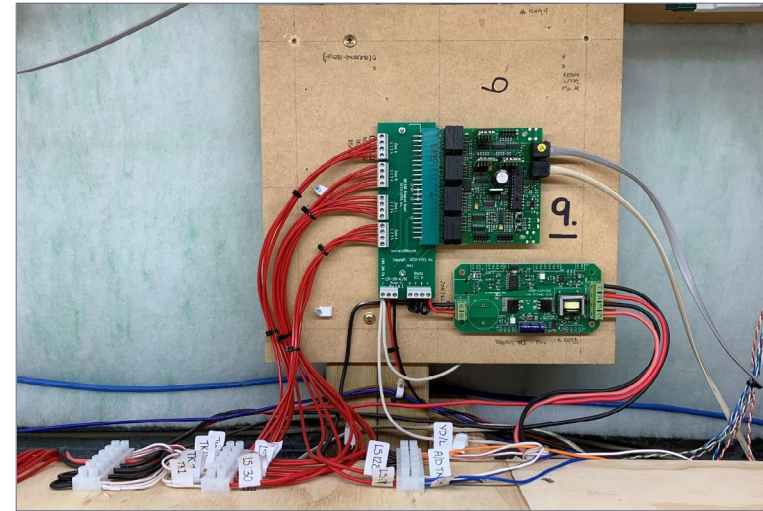
CONCLUSION

Now that I have completed the helix, staging deck and its wiring and detection, the major portion of building the benchwork, trackwork and electronics is completed for the layout. It is also the beginning of operations on the layout too, as I now have that “other world” staging that will give the layout purpose to create inwards and outwards movements.

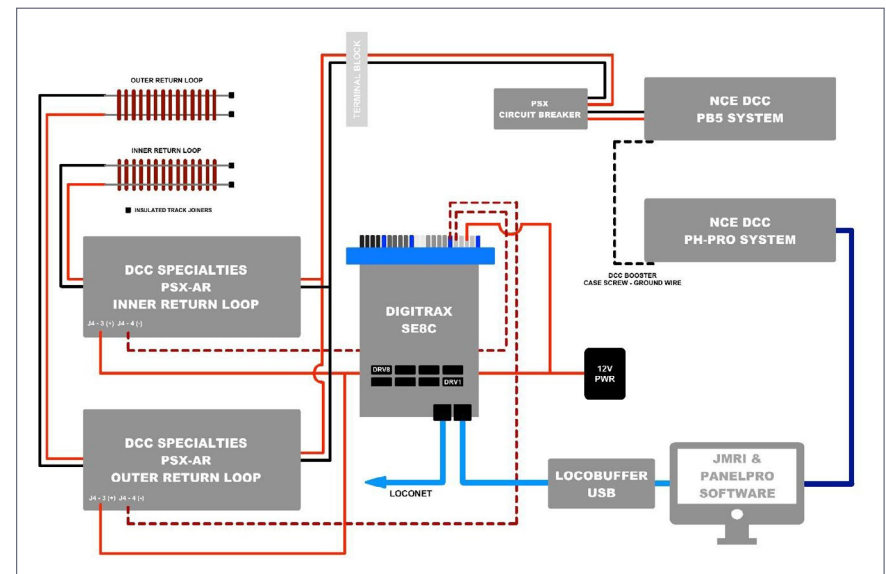
The next few months, operating sessions will increase, to really test out the layout to see its optimum operating capacity. Also to create an operating scheme.



7. Jason kept the polarity the same when wiring from the upper deck throughout staging.



8. The completed Digitrax – BDL168, PSX, and wiring for the staging deck.

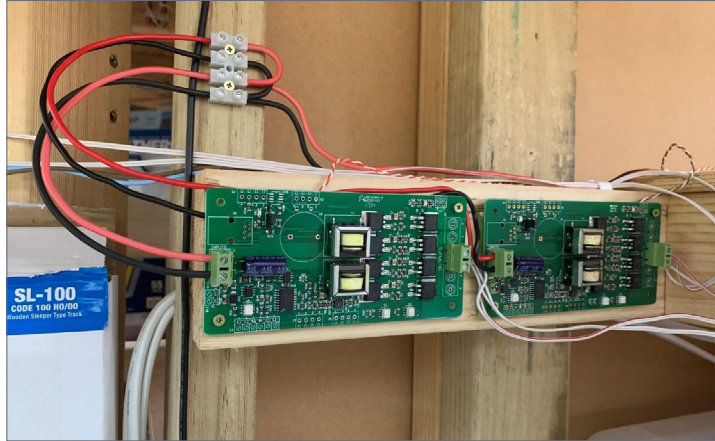


9. The wiring schematic for the connection of the two PSX-AR – auto reversers.

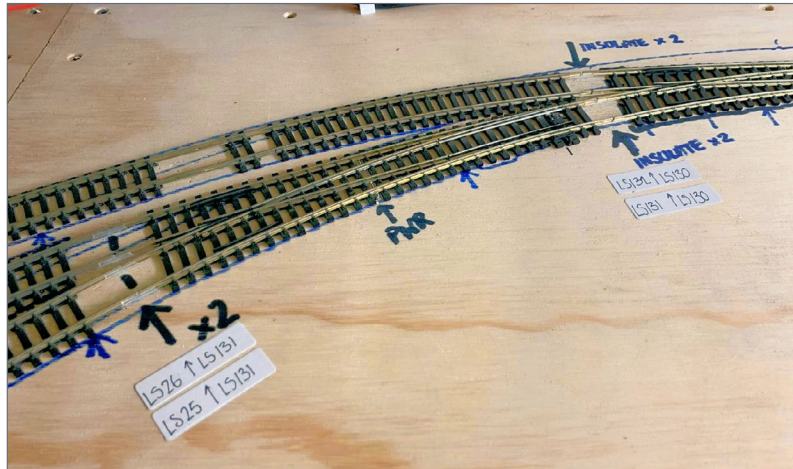
BUILDING A STAGING DECK PART 2 | 9

I hope you have all enjoyed this series on how I designed and built my staging deck, and hopefully it will inspire other modelers to attempt one on their own layouts. ✓

★★★★★
RATE THIS ARTICLE

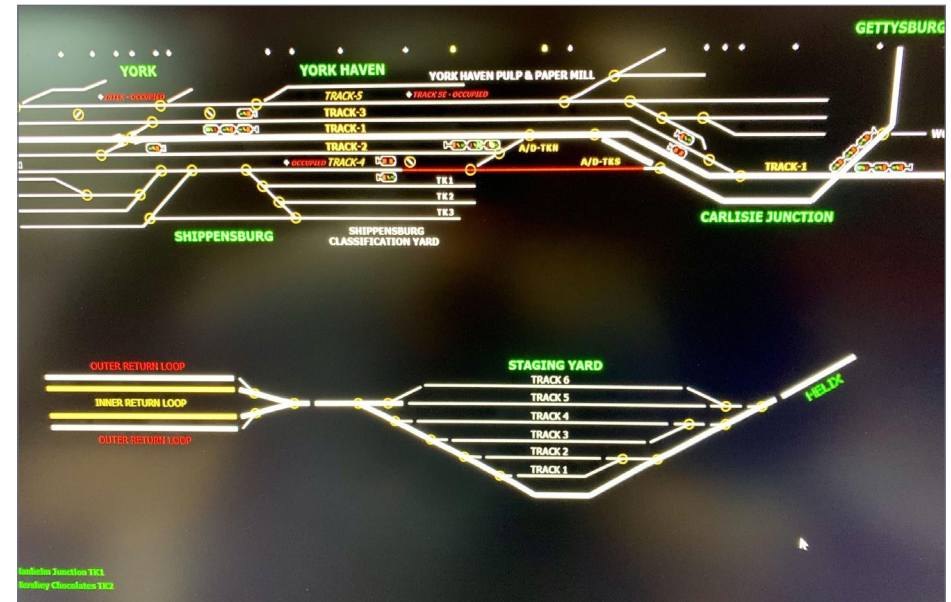


10. The connected PSX-AR modules for the outer and inner return loops on the staging deck.



11. The turnout that is serviced by the two PSX-AR units and where the polarity is reversed.

BUILDING A STAGING DECK PART 2 | 10



12. The staging deck and return loops on Jason's - PanelPro panel showing the detection.

JASON MILLER



Jason lives in Diamond Creek, Victoria, in Australia.

Jason has been a professional firefighter for 18 years. When not at work, he enjoys spending time with his family, coaching Toby's Australian Rules Football team.

Jason is married to Linden and has two sons, Lachlan, 12, and Toby, 9. ■

The case for N scale

MRH Running Extra | June 2020



DARYL KRUSE ON MODELING HIS *UNION PACIFIC GENEVA SUBDIVISION* IN *N* SCALE ...

1. Led by a pair of AC4400's, an eastbound manifest train crosses the Mississippi River and begins the trek across northern Illinois.



RATE THIS ARTICLE

SO WHAT'S YOUR PREFERRED SCALE – IS IT HO scale, N scale, or something else? You must address this first question before launching into the adventure of building a model railroad empire, big or small.

You have many great scales to choose from. But for most, the choice narrows down quickly to just these three scales: O, HO, or N. While only you can answer this question for yourself, let me help you in your analysis of the different scales by providing my experiences with N scale, especially as it relates to proto-typical operations.

My N scale building adventure goes back to the very beginning of N scale itself. In 1969, my father brought home a Bachmann N scale train set. As we ran the train around our kitchen table, it did not take long to realize the train set's locomotive running quality and level of detail was rather low.

Still we came away smitten with the N scale bug and in the next five years, built an L-shaped layout comprising two 4x8 sections. My father came up with a set of 20 or so index cards that had car movement instructions on them for us to use in operating trains on the layout. The cards made running trains on the layout so much more interesting and enjoyable compared to just running the trains round and round. I got my first taste of more serious ops as a result.

My father had designed the index cards so that when you finished the last card, all the trains and cars were set up for card number 1 and the process began anew. Pretty cool!

BACKSTORY

In 1975, I went off to college and got married, after which I started a career and raised four children.



D. Kruse

NOTE:

If you want to see my UP Geneva Subdivision in action, here's a link to my YouTube channel:

www.youtube.com/watch?v=5m4mgbWwC_yY&list=PLX1NxLb-DQwbiQfhZZPQLoNfZyfwGuH1X

I'm regularly adding new videos of my layout, so check back periodically! Readers can follow ongoing construction on the layout through Instagram and Twitter username UPRRGenSub.

Through it all, I built a series of small N scale layouts. Each layout had operations similar to those index cards. Instead of being handwritten, however, I wrote a BASIC computer program to generate the car switch lists.



2. The Global III yard crew switches container well cars while truckers check in/out with containers.

THE CASE FOR N SCALE | 5

While living in Austin, Texas in the 1980s, I operated on David Barrow's large HO scale Cat Mountain and Santa Fe railroad. This did not convince me to switch to HO – the longest trains on Dave's layout had 15 cars while I was running 25 cars on my 12x12 layout at home – but it did show me how enthralling prototypical operations can be.

Dave Barrow's CM&SF lead the way in how to do state-of-the-art layout ops with its pre-DCC command control, staging yards, a dispatcher, phone system communications, and prototypical train movements. I also got exposed to researching railroads and patterning layout operations after the prototype though these experiences.

I built my first layout using these new concepts in Independence, Missouri. Five blocks from the school where I served as Principal,



3. Railfans get a close up view of a trio of ES44AC Gevos banging across the diamonds at the UP/BNSF crossing in Rochelle.

THE CASE FOR N SCALE | 6



4. The BNSF Rochelle switcher works the interchange yard near the Del Monte warehouse while an Eastbound stack train crosses 1st Avenue.

ran a Union Pacific line (formerly MOPAC) called the River Subdivision which followed the Missouri River to St. Louis.

In 1989, I began building an N scale layout based on this River Subdivision of the Union Pacific Railroad. My prototype ran within driving distance of my house, so I spent many afternoons walking the mainline, watching trains, and measuring buildings.

My layout had a staging yard in the garage that fed trains to the layout off in the family room. I modeled the towns of Bonner Springs, Kansas City, Independence, and Pleasant Hill on my layout. My modeled trains included through coal trains, Intermodal trains, manifest trains with switching stops, and a local that operated out of the KCK yard.

THE CASE FOR N SCALE | 7

You will find more about this layout in the January 1993 issue of *Model Railroader*.

In 1997 we moved to Rochelle, Illinois, famous for Union Pacific and BNSF railroad action, including a four-diamond crossing. I cut my Independence layout into four sections, moved it to Rochelle, and incorporated it into a new layout I called the Rochelle Subdivision.

While the layout included an accurate model of Rochelle, I free-lanced the rest of the layout using the four sections from the Independence layout.

By 2008, I was done with this layout, so I dismantled it and made a fresh start. My new layout encompasses the entire



5. A westbound coal train takes empties past the Rochelle Railroad Park. N scale is ideal for creating prototypical scenes with a high scenery to track ratio.

THE CASE FOR N SCALE | 8

basement. Thus began the Union Pacific Railroad Geneva Subdivision.

WHY N SCALE?

Before I get into the present-day Geneva Subdivision, let's look at what I see as the advantages of N scale if you want a more prototypical operating model railroad.

First, N scale's smaller size means more railroad in a given space. No matter what size you have available for your railroad, N scale allows for more trains in that space.

How much more? About 84% more. That means if you have space for 1 scale mile of track in HO, you will have room for 1.84 scale miles of track in N scale. If you have space for an HO yard that holds 22 cars, you have space for a yard that holds 40 cars in N Scale. If you have space to run 11 car trains in HO, you can run 20 car trains in N scale. You get the idea.

When it comes to operations, N scale's smaller size simply means you get 84% more prototypical train operation in N scale compared to HO scale. *[All other things being equal, it also means 84% more cost than HO in the same space, however. – ed.]*

I suggest, however, you only build 50% more railroad in the space and use the other 34% to allow for a larger minimum curve radius, larger turnouts, and a higher scenery to trains ratio.

N scale can really shine here and this leads to the second advantage in prototypical operations. N scale lends itself to more robust overall scenes as opposed to the more highly compressed vignettes that HO or the larger scales require.

People often claim, "I can't see the trains" for why they don't like N scale. But you do not need to see the rivets, bolts, door knobs, or individual shingles when participating in an ops

THE CASE FOR N SCALE | 9

session. You do need to see the blocks of cars, the passing sidings, the signal indications and the printed instructions during an ops session.

These things can be seen in N scale as easily as in HO. In fact, being able to see the overall scene actually helps an operator. The broader perspective allows them to more easily understand what's going on at their location, and gives them a leg up on how to proceed with their given tasks.

The third advantage of N scale – you can get a more prototypical look to the railroad. Not only can this be done more easily because of N scale's smaller size, but it's also easier to avoid the temptation to cram as much track as possible into your space.

Broader curves, larger turnouts, and a higher scenery to track ratio make viewing the railroad more satisfying. To understand



6. Keeping the scenery to track ratio high enables long trains and broad curves in N scale.

THE CASE FOR N SCALE | 10



7. A eastbound manifest train rumbles past the Metra Station in Elmhurst, Illinois.

this, check out the many “drone” videos of the prototype on YouTube. Notice what you’re viewing looks a lot like an N scale layout!

UP GENEVA SUBDIVISION

In October 2008, I began construction on my UP Geneva Subdivision.

In planning the layout, I wanted to use the strengths of N scale to maximum effect. So, instead of using N scale's small size to simply put almost 2x the track compared to HO in the same space, I set a number of higher standards to get a more prototypical look to the trains and to have more realistic scenes.

- 36” minimum radius (translates to over 66” in HO)
- #10 turnouts on the mainline, #8 turnouts in yards and secondary track.

- 3/16" thick roadbed on the mainline, 1/8" thick in yards and secondary track.
- Fully functioning signaling system, computer controlled, or controlled by a dispatcher during formal ops session.
- Prototypical double track mainline for free flow of trains, but also train meets when locals switch along the mainline.
- Up to 40 car train lengths.

STAGING YARDS

The layout has an eleven-track staging yard that connects to both ends of the layout. This allows continuous running which I find crucial to my own enjoyment of the layout. It also makes it easier to trouble shoot the layout in between group ops sessions.



8. A long, 40 well eastbound stack train rounds a broad 36" curve before heading across the Rock River in northern Illinois.

Believe it or not, I find the eleven tracks to be a bit limiting for a busy double track mainline! To compensate for this, I run some trains twice during an op session to generate over 20 trains per session, not including the Metra commuter trains.

BENCHWORK

I've always avoided going double deck when building a layout. Single deck layouts can be built with all track at a more optimum viewing level and gives an uncluttered view of a scene. I find both of these qualities enhance prototypical op sessions.

We also tend to move periodically. I have found a single deck layout to be easier to cut up and move to the next location. Possible future moves also rule out valances and layout-specific lighting. Instead I aim for very good room lighting to keep things simple but still have the layout look its best.

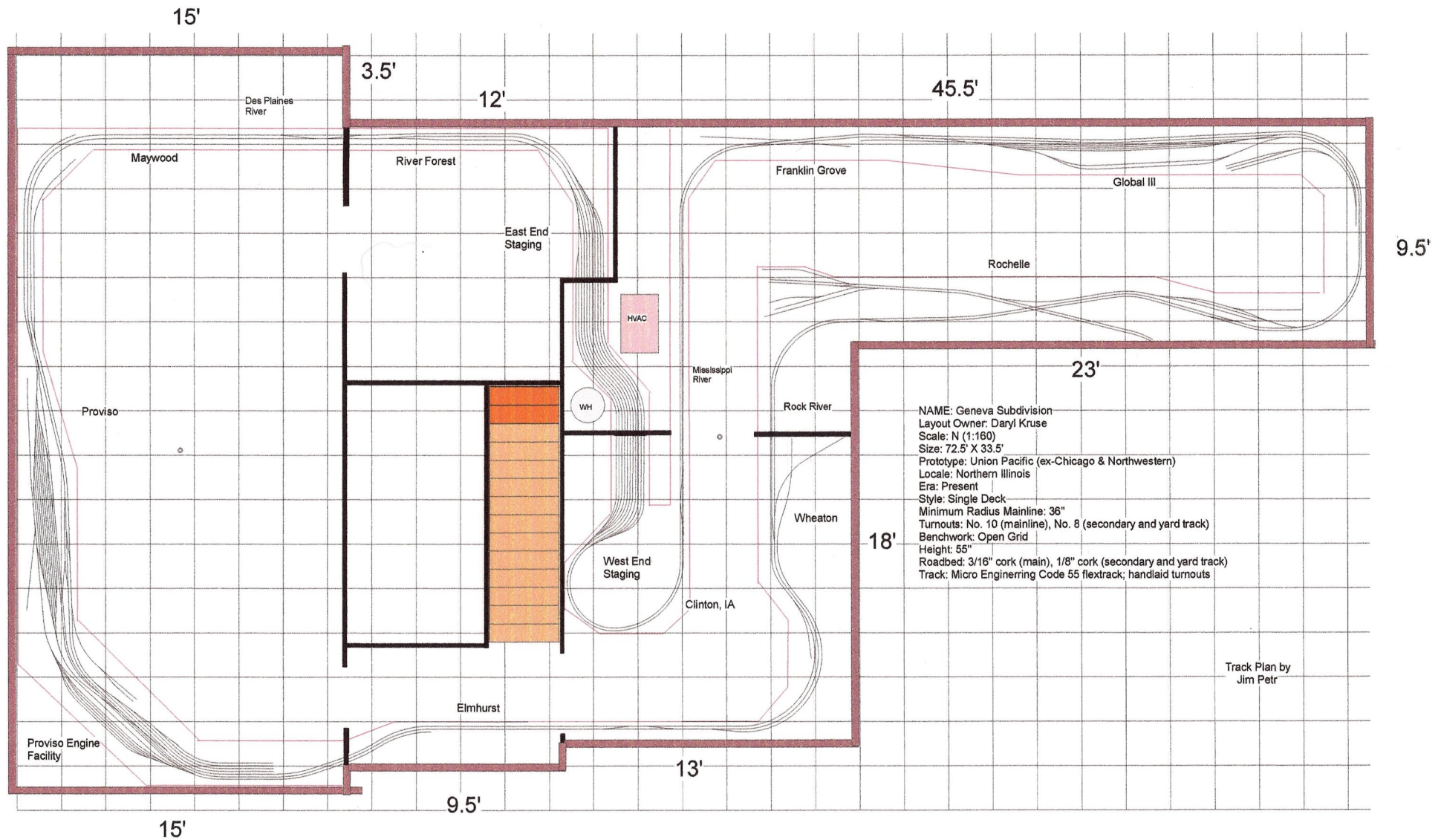
N scale's small size allows for more space to be given to the aisles, giving ample people space throughout. I make all my aisles at least 40" with most 50" or more.

This still allows for benchwork widths of 12" to 30". I build the benchwork in 8' sections so it can be cut into pieces and moved to a new location, if needed.

DOUBLE TRACK MAINLINE

The prototype Geneva Subdivision is entirely double-tracked and, in some cases around the Chicago area, triple-tracked or more. I double-tracked my N scale version throughout.

This allows for a smooth flow of traffic during operating sessions. However, when locals switch along the right-of-way, train meets must be coordinated through the dispatcher. Metra commuter trains also add to the operational complexity of operating sessions.



9. My UP Geneva Subdivision track plan.

★★★★★
RATE THIS ARTICLE

Per the prototype Geneva Subdivision, traffic generally defaults to left hand running.

FREIGHT YARDS

I have two freight yards on the layout, Proviso and Global III. I modelled both after their prototypes referring to lots of pictures and satellite photos in configuring trackwork, buildings, equipment and structures.

When we lived in Rochelle, Global III was less than five miles from our home. Taking pictures, however, proved to be a challenge as road access was limited, and security pretty tight.

I did get some good pictures of structures last summer since they closed operations and security seemed less evident.

I still tried to abide by all no trespassing signs as best I could. I found getting good pictures of Proviso to be a bit less complicated, plus many pictures can be found online.

Operations in both yards follow the prototype as closely as possible.

The Proviso yard crew builds three outgoing trains and sorts three incoming trains during an op session. We also run local switching at Proviso if time permits. Proviso can keep up to three people busy but can also be scaled down to just one person.

Global III receives three trains a day, but we don't break up or build trains at the yard. Trains stop at Global III to swap power and to drop/add cars. Global III can keep one or two people busy, although it is less hectic than Proviso can sometimes be.

MAINLINE SWITCHING

We have four trains that conduct local switching on the mainline:



10. Norfolk Southern locos wait at the foreign road holding tracks in Proviso. The locos and crews will take NS trains back east to Indiana.



11. Engine servicing at Global III in Rochelle, Illinois.

- One at Franklin Grove
- One at Wheaton
- Two at the Rochelle UP/BNSF interchange yard.

A stopped local transforms the double track mainline at that location into single track.

The dispatcher must then coordinate other through trains around the stopped train, creating some interesting train meets. Things get really interesting when two or more trains switch locals at the same time.

METRA COMMUTER TRAINS

Two Metra commuter trains operate as often as we like during an op session. Generally, we run the trains when we get a lull



12. A Metra commuter train stops in Elmhurst while a manifest train led by brand new Tier 4 Gevos pass through on the other main.



13. A Metra train pulls into River Forest as auto traffic passes underneath.



14. The same rush hour Metra train pulls into River Forest station.

THE CASE FOR N SCALE | 19

in mainline action. The prototype only runs as far as Elburn, IL and does not make it to Rochelle.

MAINLINE OP SESSION TRAINS

Tables 1 and 2 list the mainline trains we run during a typical op session. I have based all the trains on actual prototype trains.

The trains can run in any order determined by the dispatcher and myself.

In the future, I'll detail how the trains operate, how we create switch lists and how everything gets communicated to the operators. Besides descriptions, I'll include videos of the actual trains in operation on the layout.

Join me in running trains on the UP Geneva Subdivision. We'll be making the most of N scale's many advantages. ☒



15. Workers get a pair of units ready for the mainline at the Proviso Engine Facilities.

THE CASE FOR N SCALE | 20



16. Manifest and stack train action at the River Forest Metra Station.



17. The yard crew switches well cars at the loading tracks at Global III in Rochelle, Illinois.

THE CASE FOR N SCALE | 21

Westbound trains		
Train symbol	Type	Routing
OCSRO	Crude Oil	Canal Street Yard to Roper Yard SLC, UT
MPRDM	Manifest	Proviso Yard to Rochelle, IL to Des Moines, IA
KG1LT	Container	CN Glen Yard to Global III to Lathrop, CA
CWIBM	Coal	Romeoville, IL to Belle Ayer Mine, WY
AGBMI	Auto	NS Gibson Yard to Proviso to Milpitas, CA
NS-33E	Manifest	Yard Center to Proviso
CWKNA	Coal	Waukegan, IL to N. Antelope Mine, WY
IAHTA2	Container	Ashland Yard to Tacoma, WA
MPRNP	Manifest	Proviso Yard to Franklin Grove to North Platte
OCSSV	Crude Oil	Canal Street Yard to Savage, UT

Table 1: Westbound trains.

Eastbound trains		
Train symbol	Type	Routing
MDMPR	Manifest	Des Moines, IA to Proviso Yard
ITAAH5	Container	Tacoma, WA to Global III to Ashland Yd.
OROCs	Oil	Roper Yard Salt Lake City to Chicago Canal St Yard
CATIM9	Coal	Antelope Mine, WY to Rockport, IN
NS-12A	Manifest	Proviso to Yard Center (Norfolk Southern train)
MCLCH	Manifest	Clinton, IA to Wheaton to BRC Clear House Yard
OSVCS	Oil	Savage, UT to Chicago Canal Street Yard
CEYWD	Coal	Energy, CO to Superior, WI
AMIGB	Auto	Milpitas, CA to Proviso Yard to Gibson, IN (NS)
KL TG1	Container	Lathrop, CA to Global III to CN Glen Yard

Table 2: Eastbound trains.



THE CASE FOR N SCALE | 22



18. West coal drag crosses the Mississippi River and heads into Clinton, Iowa.

DARYL KRUSE



Daryl Kruse and wife, Patti, spent 40 years as Christian teachers in Lutheran Schools. Daryl was Principal for 31 of those years. They recently retired in June 2019. Daryl and Patti have four children, and four grandchildren with a fifth on the way.

In addition to always actively building N scale layouts since 1970, Daryl is an avid Kansas City Chiefs, Kansas City Royals and Atlanta Braves fan.

While this is Daryl's first article in MRH, his layouts have been featured numerous times in national model railroad publications.



19. The Proviso classification yard uses #8 turnouts for more prototypical yard throats.



20, 21, 22. (Left top and bottom, above) The most famous location on my N scale Geneva Subdivision is the Railroad Park in Rochelle, Illinois. If you have visited the real park, see if you recognize any of the real park's elements in these photos from Rochelle on my layout.

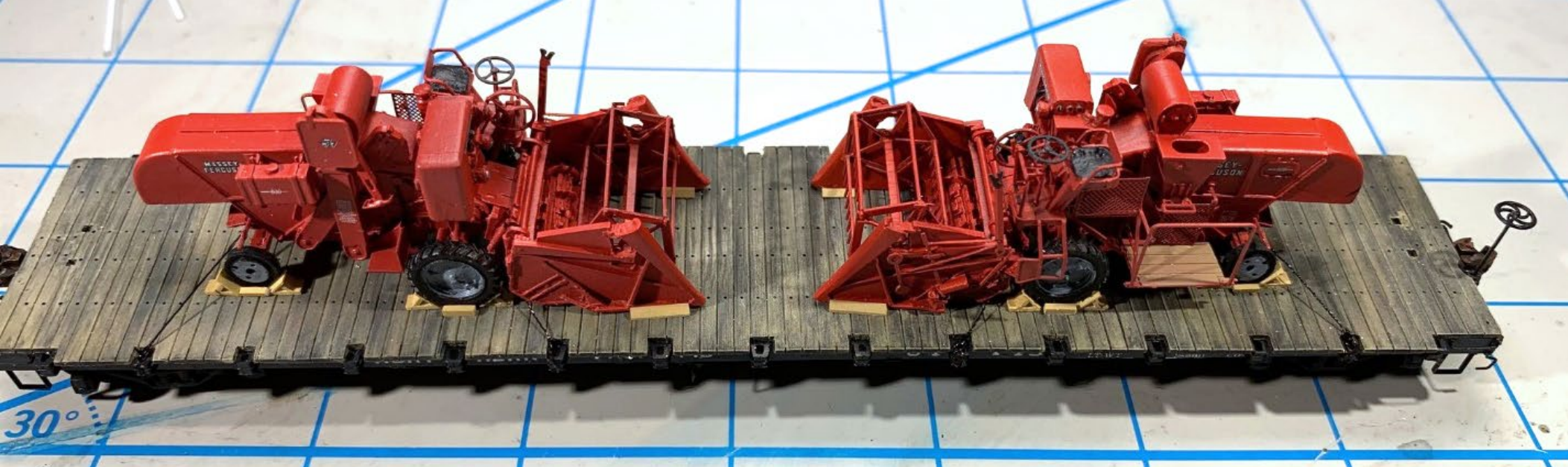
MRH
MODEL RAILROAD HOBBYIST

**Take the MRH
2020 Reader
Survey ...**

amazon ... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)

TAKE THE SURVEY >>





Detailed load for a flat car

Part 1

MRH Running Extra | June 2020

★★★★★
RATE THIS ARTICLE

GEORGE TOMAN on modeling a Massey Ferguson combine load ...

FLAT CAR LOADS HAVE ALWAYS INTRIGUED ME, and I recently saw some well-done models, and attended two clinics on open top loads at the 2019 Chicagoland RPM last October.

One open load that really caught my eye was a flat car by Craig Wilson carrying three Massey-Ferguson MF-830 combines, and a second one built by Jerry Hamsmith with two combines loaded on a flat car.

What great looking cars and loads! The MF-830 combines are created in resin and produced by a Dutch company named Artitec. They are available either built up or in kit form.

But who was Massey Ferguson? Are these MF-830s something that a late steam or early diesel era modeler can use? How difficult are these resin kits to build?

The Massey Manufacturing Co. was founded in 1847 and located in Ontario, Canada. In its early years, they imported parts from the United States and assembled their mechanical threshers in Ontario.

DETAILED LOAD FOR A FLAT CAR | 3

Massey was soon designing its own equipment. In 1891 Massey merged with A. Harris and Son to become Massey-Harris Lt, one of the largest agricultural equipment makers in the British Empire. In 1910 they purchased Johnston Harvester of Batavia, New York.

In 1938 Massey-Harris developed the first self-propelled combine. They merged in 1953 with Ferguson, and changed their name to Massey Ferguson. Five years later the MF-830 combine/harvester was invented, which was modeled by Artitec. Studying photos reveals the MF-830 as a late '50s to early '60s modeling candidate.



1. George Toman built a pair of Massey Ferguson MF-830 combines, and followed AAR guidelines to load them on a Northern Pacific 52' flat.

DETAILED LOAD FOR A FLAT CAR | 4

Wikipedia research yielded the following:

“The modern combine harvester, or simply combine, is a versatile machine designed to efficiently harvest a variety of grain crops. The name derives from its combining three separate harvesting operations – reaping, threshing, and winnowing – into a single process.

“Among the crops harvested with a combine are wheat, oats, rye, barley, corn (maize), sorghum, soybeans, flax (linseed), sunflowers, and canola. The separated straw, left lying on the field, comprises the stems and any remaining leaves of the crop with limited nutrients left in it: the straw is then either chopped, spread on the field and ploughed back in or baled for bedding and limited-feed for livestock.

“Combines are equipped with removable headers that are designed for particular crops. The standard header, sometimes called a grain platform, is equipped with a reciprocating knife cutter bar, and features a revolving reel with metal teeth to cause the cut crop to fall into the auger once it is cut.”

I found that the MF-830 was available with different options such as a header to harvest wheat or a header to harvest corn as well as other variations. These could also be ordered with a platform for loading grain in sacks, or a version that has a movable arm that directs the grain into a truck following next to the combine. The Artitec version has a header to harvest grain, and the wood platform for use with grain sacks.

PLANNING THE BUILD

I wanted to model my Massey Ferguson MF-830 combines as factory fresh, and purchased two Artitec resin MF-830 combines in kit form. The model MF-830 is also available built-up, painted, and weathered.

DETAILED LOAD FOR A FLAT CAR | 5

For the flat car I chose a Northern Pacific 52' flat built in 1948/49 at the Brainerd, Minnesota NP shops, and numbered in the 64000 series. My kit was a resin model from Northern Pacific Models. In part 2, I discuss how I modeled these as flat car loads.

I wanted to load the MF-830 equipment following AAR standards and I was able to locate AAR Open Top Loads Rules booklets from the '50s and '60s to get these properly secured.

I considered this a three-part project:

- Building the MF-830 Combines
- Building the Flat (Not covered in this article)
- Loading the MF-830s using AAR Rules



2. Massey Harris combines, like the MF-380, with their heads detached and secured to the flat. Notice that these still have the Massey Harris logo and not a Massey Ferguson logo, dating the photo between name changes in 1953 and 1958. *Photo courtesy of Jim Parker*

DETAILED LOAD FOR A FLAT CAR | 6



3. The kit package, its contents, and assembly instructions.

PART 1: BUILDING THE ARTITEC MF-830 KIT

Before starting my kits, I checked that all the parts were in the box. Pictured above are the contents of the kit including resin parts, photo-etched parts, decals, and instructions [4]. There are not too many parts for such a nicely-detailed model. I reviewed the instructions to plan my build, and gather the necessary tools.

After reviewing the instructions, I had some questions on various parts in the exploded diagram instructions. I visited the Artitec website to view four photos of the MF-830 built-up:

DETAILED LOAD FOR A FLAT CAR | 7

www.artitecshop.com/en/mf830-combine-kit.html

I'm not familiar with combines and looking at these photos helped me understand how to assemble my kits properly.

Viewing online also allows those of us with lesser eyesight to enlarge the photos and instructions. I also found a few good photos of the MF-830 and similar combines by searching with Google.

Next was opening the packages and inspecting for missing or damaged parts. The resin parts looked very crisp and required minimal clean-up.

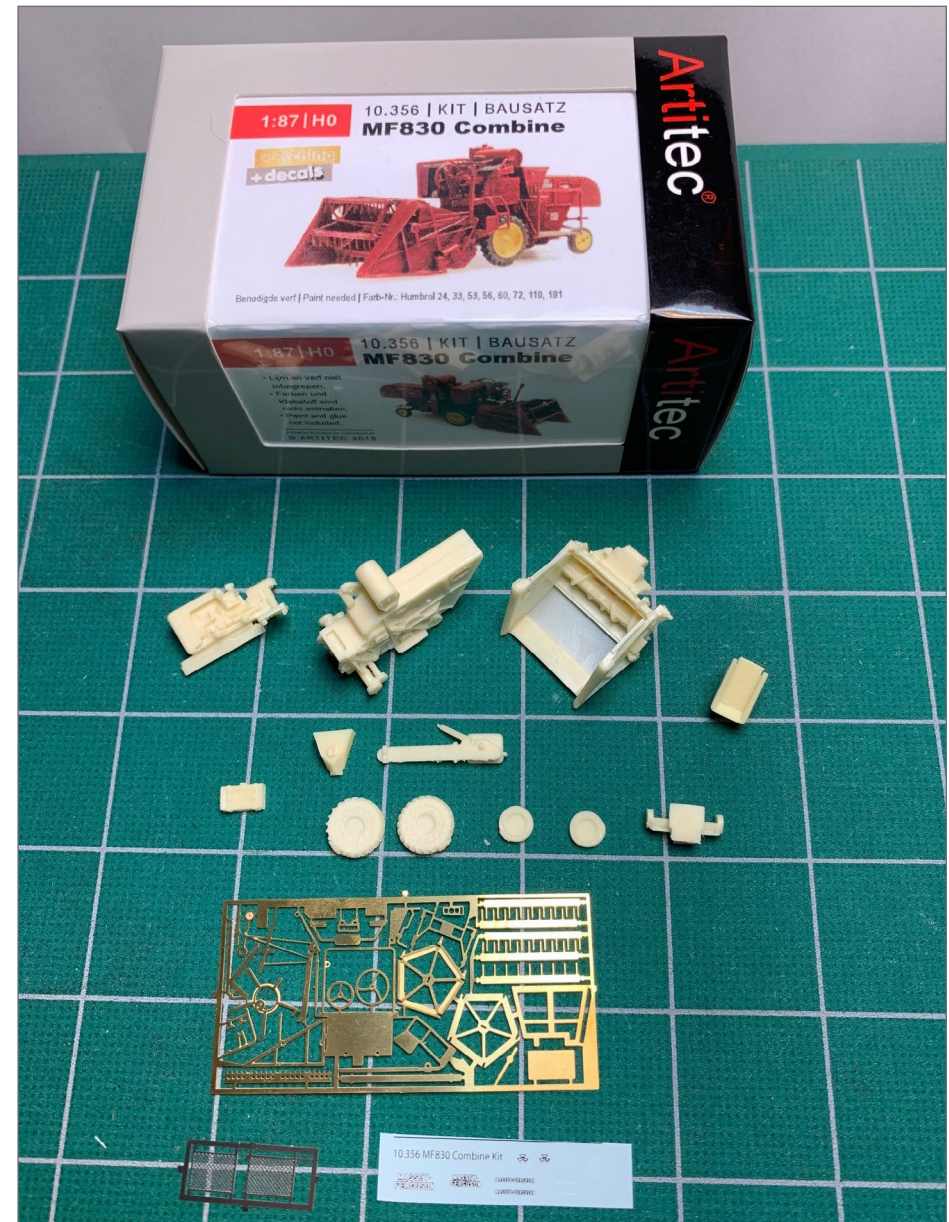
Working with resin parts is very much akin to working with styrene. Common tools used for assembly include drill bits, a pin vise, photo-etch shears, smooth jaw tweezer nose pliers, tweezers, a micro chisel, X-Acto blades, small files, sanding sticks, a fiberglass scratch brush, and a micro saw [5].

While the construction is not difficult, care should be taken in construction, especially if you are not accustomed to working with resin or etched parts. What follows is how I went about building my Artitec MF-830s. I spent about six hours of actual work building two kits. It does take longer when taking pictures along the way to document the build.

I started by cleaning the resin castings using the X-Acto knives, files, and sanding sticks. In [6] are the two main resin parts. The header is on the left and the combine's main body on the right. Flash on the two parts' mating surfaces may prevent them from aligning perfectly when glued together.

It is important to test-fit for alignment and clean and gently file the parts before gluing them. As these loads are often viewed from above, misalignment could be very noticeable.

DETAILED LOAD FOR A FLAT CAR | 8



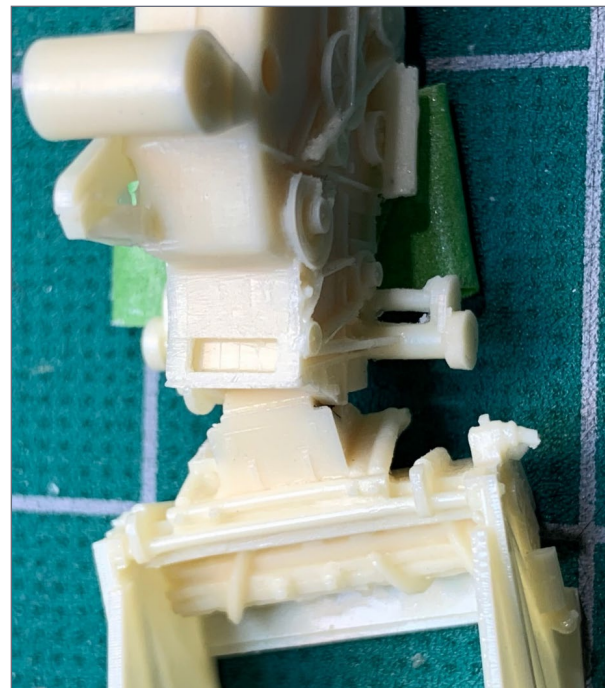
4. The kit includes resin castings, brass and stainless-steel etched parts, and decal transfers.



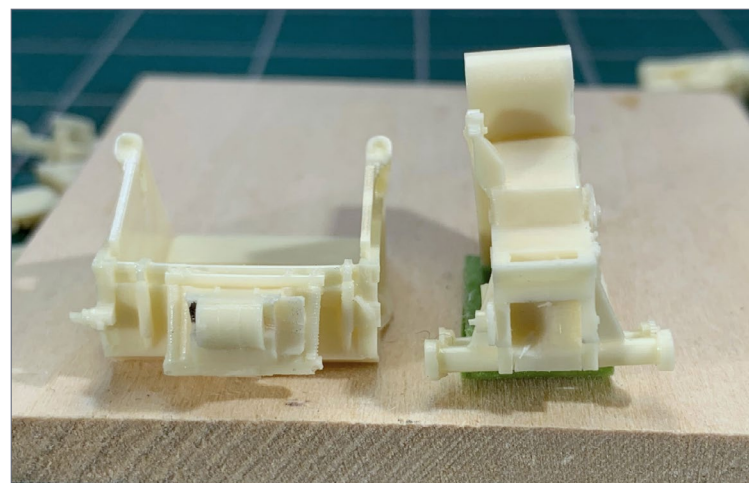
5. Shears, smooth jaw pliers, tweezers, files, sanding sticks, and drills are essential.



6. The head is on the left side of the photo, and will hold the etched reel. I placed a black mark on the angled surface in the middle where it attaches to the combine main body on the right side of photo. It is important that the surface be clean, and that you can install this straight. I have four models, and all but one tended to install crooked. Holding parts in place with tape temporarily reduces the amount of juggling needed.



7. An exaggerated view of a misaligned header and combine body as viewed from the top. The joint must be square, not angled.



8. View of the mating surface of the header on the left, and the combine body on the right.

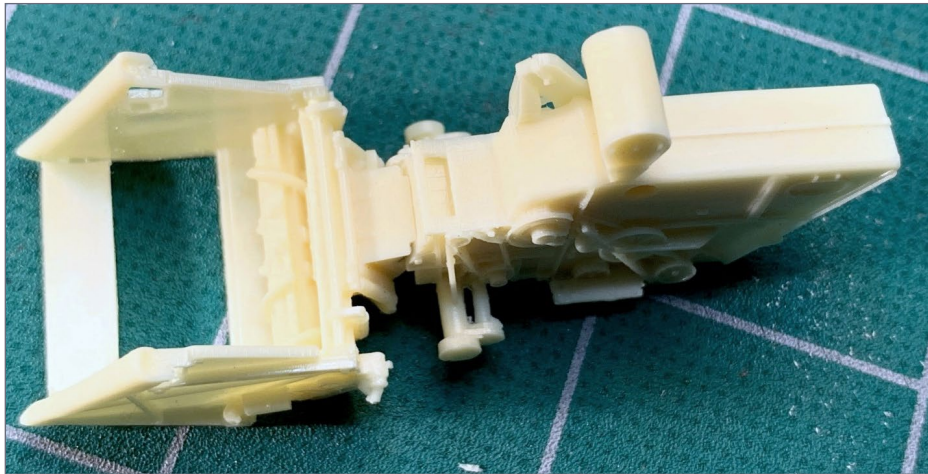
DETAILED LOAD FOR A FLAT CAR | 11

After I cleaned the flash off all the parts, I washed them with warm water using Dawn dish detergent and a soft toothbrush. I set them aside to dry, and moved on to the photo-etched parts.

I deviated from the Artitec assembly instructions, and did a few procedures out of sequence before gluing the pieces together. One of them was the prepping of the etched parts, but not attaching them to the resin parts just yet. For the reel assembly that is mounted in the header, I felt it would be easier to assemble, paint and install after the fact. I removed all the parts from the fret and prepped them before assembly.

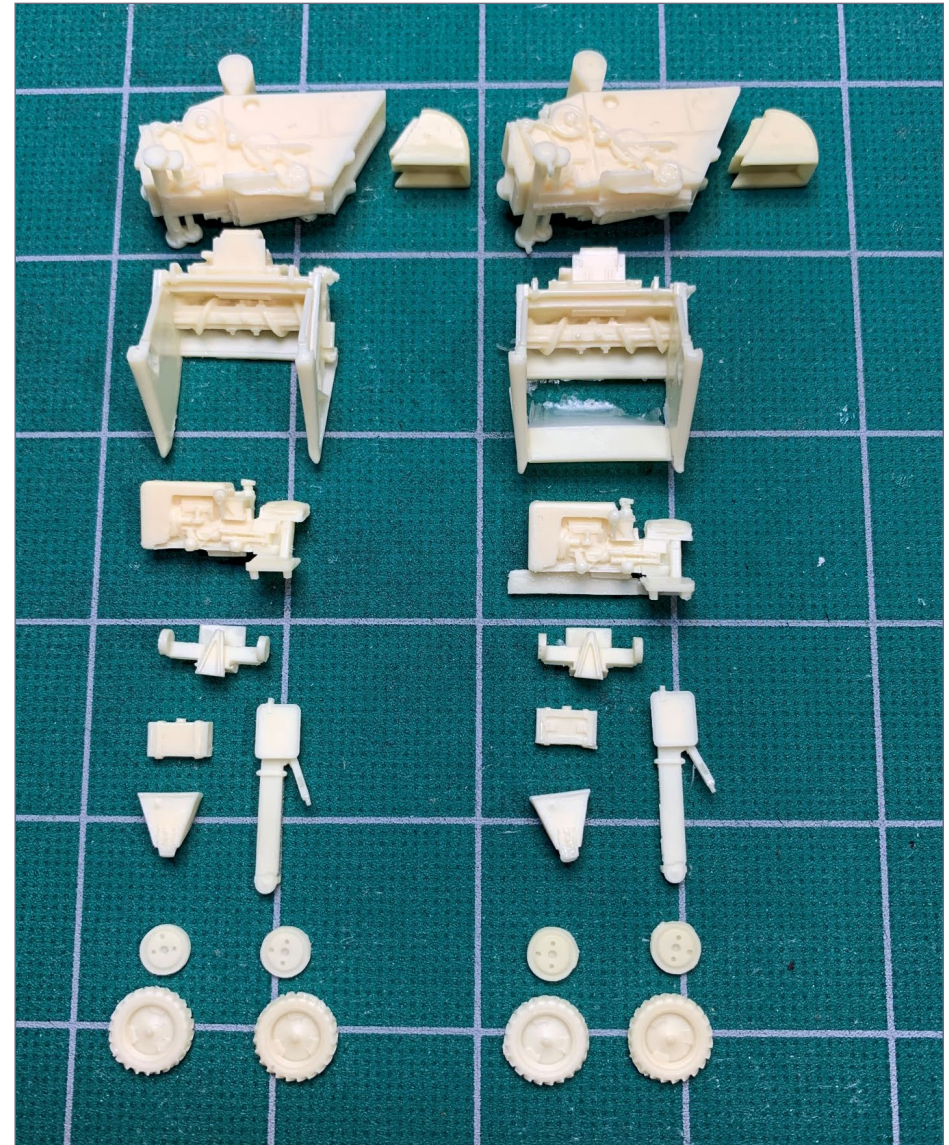
You will notice in [11] the tools I used including Xuron Tweezer Nose Pliers, a Xuron PE Micro Shear, tweezers, a #320 grit sanding stick, and a fine flat file.

Also pictured are the etched fret and the portion of the instructions which identifies each item on the fret with a letter



9. With the mating surface cleaned and squared, the head is properly aligned with the combine body, and ready to be glued in place with CA.

DETAILED LOAD FOR A FLAT CAR | 12



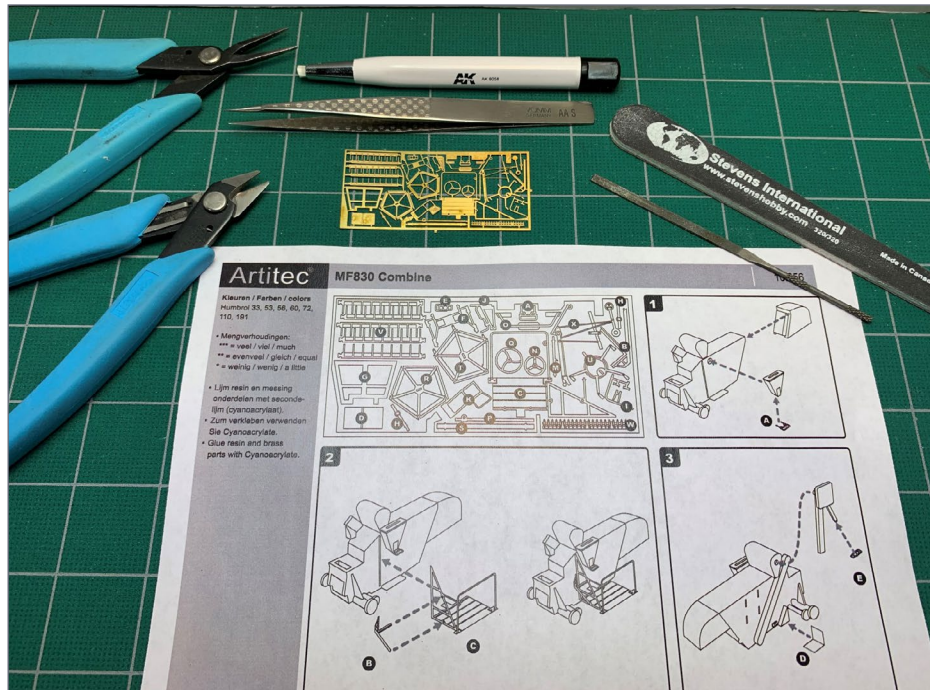
10. Castings cleaned of flash are on the left, ready for a wash in Dawn dish soap. The right side displays castings as received, with minimal excess material. Check the parts before trimming to avoid trimming details off the parts.

DETAILED LOAD FOR A FLAT CAR | 13

designation that match the steps in the instructions. There are a few steps that I felt were not clear, and I will note how I attached and formed my parts.

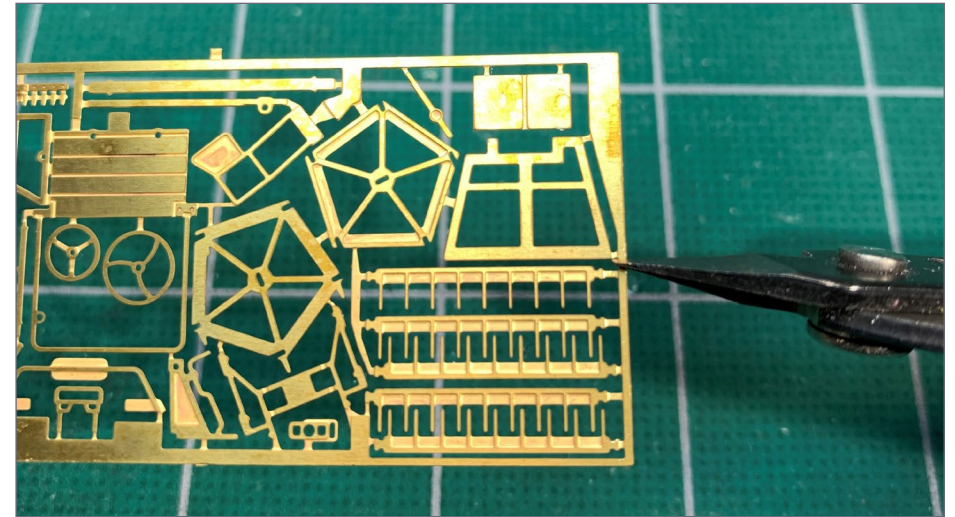
At the top center, you can see a fiberglass scratch brush (AK brand) that I used to lightly burnish and clean the brass etchings as necessary.

I used two methods to remove the parts from the fret. My most common method was to cut the part from the fret using the Xuron 440 shears. When doing this, I often cut those fragile parts from the main fret while trying to remove excess, and making room to get in close for the final cutting and cleanup.



11. The instruction sheet identifies the individual parts on the etched parts fret.

DETAILED LOAD FOR A FLAT CAR | 14



12. Using shears to cut parts from the fret. Don't twist the fret and distort parts.

An alternate method is to use a square end X-Acto #17 blade, or single-edge razor blade to cut parts from the fret. In [13] you can see this technique, and it works well if the fret is thin. I normally placed the fret on a glass or steel surface to do this, but used the cutting mat so it would show better for the photo.



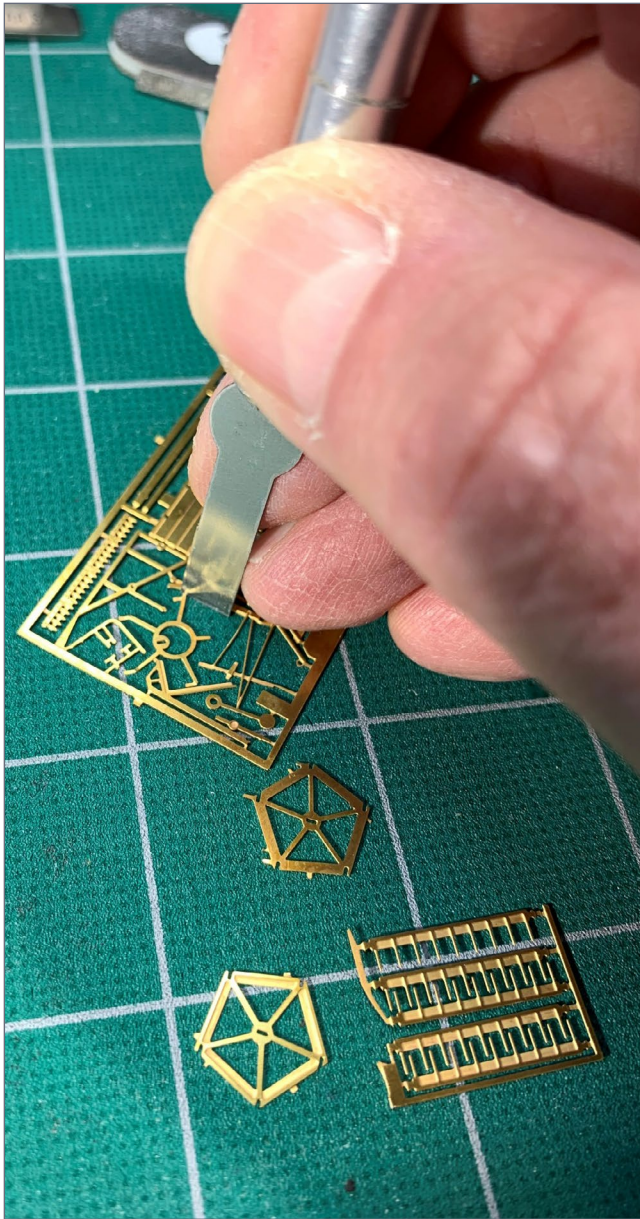
G. Toman

INFO ON THESE HARVESTERS

Some of the information on Massey Ferguson and these early harvesters was from a website called Massey Harris Ferguson Legacy. I found some helpful images from their Issue #3 quarterly magazine that can be viewed at: www.legacyquarterly.com/LQ/Outtakes-Harvesting-Issue3-Images

Also here's an article on grain harvesting at: www.legacyquarterly.com/LQ/Outtakes-History-Grain-Harvesting

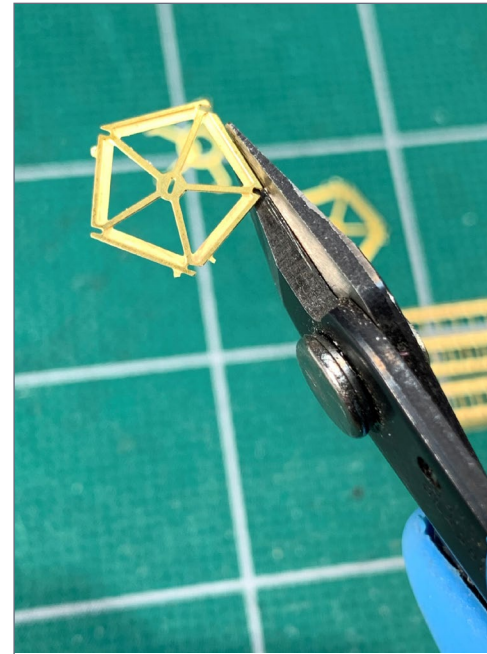
DETAILED LOAD FOR A FLAT CAR | 15



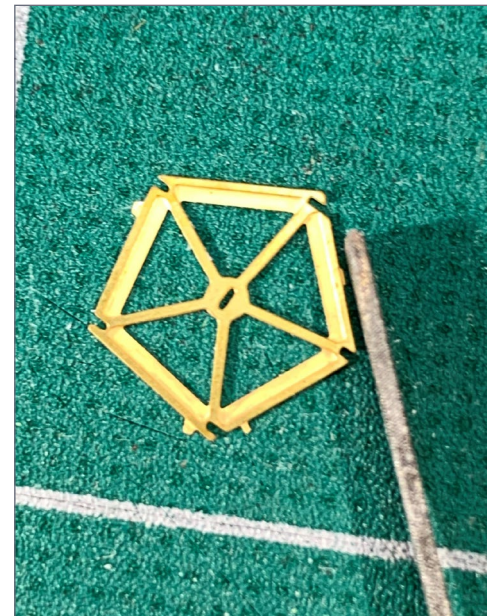
13. Push straight down on a hard surface (not a soft cutting pad) to separate an etched metal part from a fret with a #17 blade.

Once the parts are loose from the fret, I use my shear to cut as close to the part as possible, and remove the remaining small pieces of the fret. I can get very close with that Xuron shear.

DETAILED LOAD FOR A FLAT CAR | 16



14. Smooth the edges of a part by trimming with a small, sharp shear. Any remaining excess metal fret can now be easily cleaned using a fine flat file, or #320 grit or finer sanding stick.



15. A fine file will clean any remaining burrs from the part. The #320 grit sanding stick also works well.

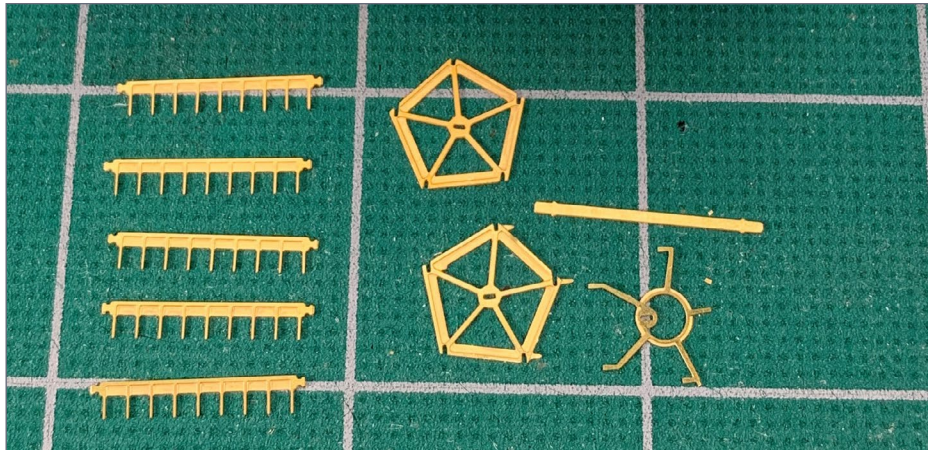


ASSEMBLING THE REEL

Following is my procedure to assemble the reel that will go into the header after painting. It is very important to try to keep everything straight, and in the right orientation. Keep the instructions at hand for easy reference. When viewing the photos you will see that there is a front and rear to the parts, and they must be put together properly. One side is flat, and the other has raised detail. After removing the five reel fingers and the reel sides from the fret, I assembled them with the aid of a metal block and tape to hold everything square.

I started the reel assembly by picking out the octagon-shaped end labeled part T on the instructions, and part S that looks a bit like an axle. Part S passes through a rectangular hole in the end of part T, and protrudes a bit.

I wanted to make sure everything was plumb and square, so I took an 0.060" thick piece of scrap styrene, and drilled a hole slightly

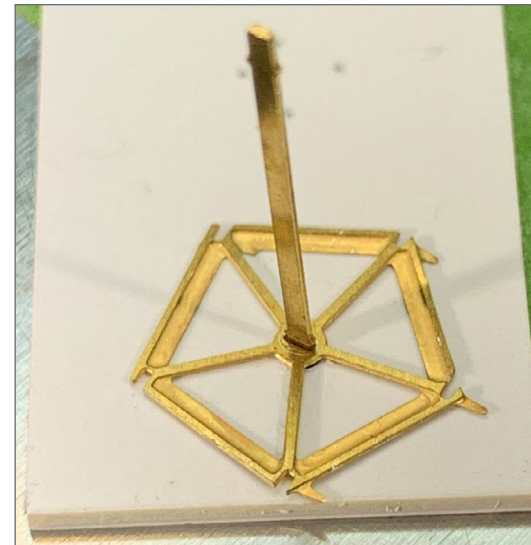


16. The reel parts ready for assembly. The five parts with points are called reel fingers. I wrap a metal block with tape to give me a square surface for accurate assembly.

bigger than part S. This allowed me to place the reel end, part T, with its raised detail side up over the hole.

I then inserted the axle to the end, and held it perpendicular while adding some CA glue to secure it. I let this set for about 15 minutes until I was sure it was fully set up [17].

I next inserted part R onto the axle, part S, with the raised detail facing inward, and placed both pieces on the tape as shown in [18]. I was careful to make sure everything was lined up and square. When I was happy with the positioning, I secured the parts with CA using a curved applicator made by a company called The Glue Looper. I like these as they allow you to reach into the area to be secured without disturbing other parts. The assembly was set aside, and the glue allowed to set for 15 minutes. CA accelerator may be used to speed up drying time [18].



17. An 0.060" thick piece of styrene with an 0.080" hole is used to support the axle end while it sticks through reel side and keeps it level and square.



DETAILED LOAD FOR A FLAT CAR | 19

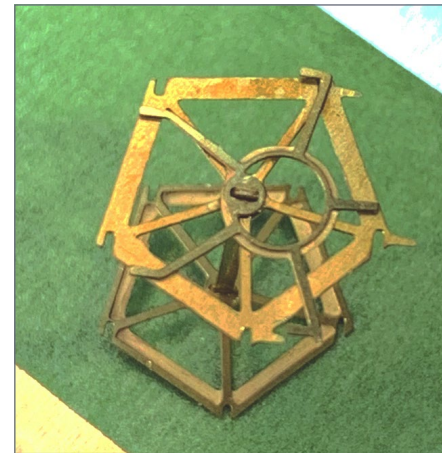


18. Gluing the second side of the reel. The masking tape helps hold the pentagon-shaped piece square as the CA glue sets up. I use the small plastic cup to contain a few drops of CA. I dip the tip of the applicator in to pick up a bit of glue. It prevents spills, as fresh CA works quickly.

DETAILED LOAD FOR A FLAT CAR | 20

Next step is to attach part U on the outside of part T. Please make sure the raised detail is facing outward this time, and is properly oriented as shown in the instructions, and in [19].

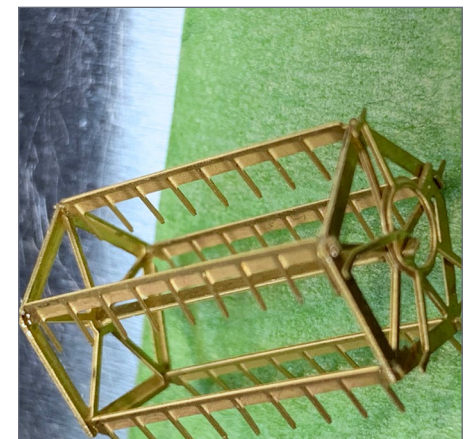
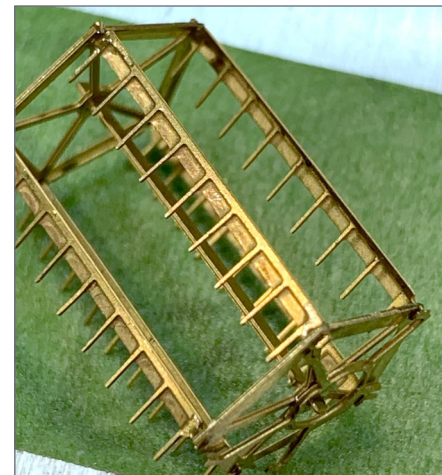
I next attached the five reel fingers, known as tines, into the keyed rectangular slots in the sides of the reel. Note that the reel fingers have again a front and back side, with the raised detail facing the front of the header, and tines pointing down. I used my block with



19. (Left) Part U is positioned on the reel assembly for gluing. Note the raised detail facing out, and the orientation of the axle and reel ends.

20. (Bottom left) Fingers or tines glued in place on the reel assembly.

21. (Bottom right) A rotated view of the reel as it will go into the resin header.



DETAILED LOAD FOR A FLAT CAR | 21

masking tape to hold the reel while I added the reel fingers (Part V), and used CA to glue them in place. I waited for each one to dry before installing the next. See [20 & 21].

I next glued some of the resin parts, and attached the etched parts. Step 1 of the kit instructions tells you to attach the curved end to the main combine body, the grain chute, and etched part A that is



22. The rear axle, grain bin, rear deflector, and etched grain sack holder are attached with CA.

DETAILED LOAD FOR A FLAT CAR | 22

a holder for the grain sacks. I also added the rear wheel axle at this time. You can see these in place in [22].

Moving on to step 2 of the instructions, we need to form the platform using parts C and B from the etched fret. I used my tweezer nose pliers to hold them, and make the two 90-degree bends as shown in [23].

Also shown is the fuel tank, with part F bent and attached to the tank as viewed from the back side. Note the positioning of the bracket on the top of the tank. I will not attach these to the body until after the parts are painted.

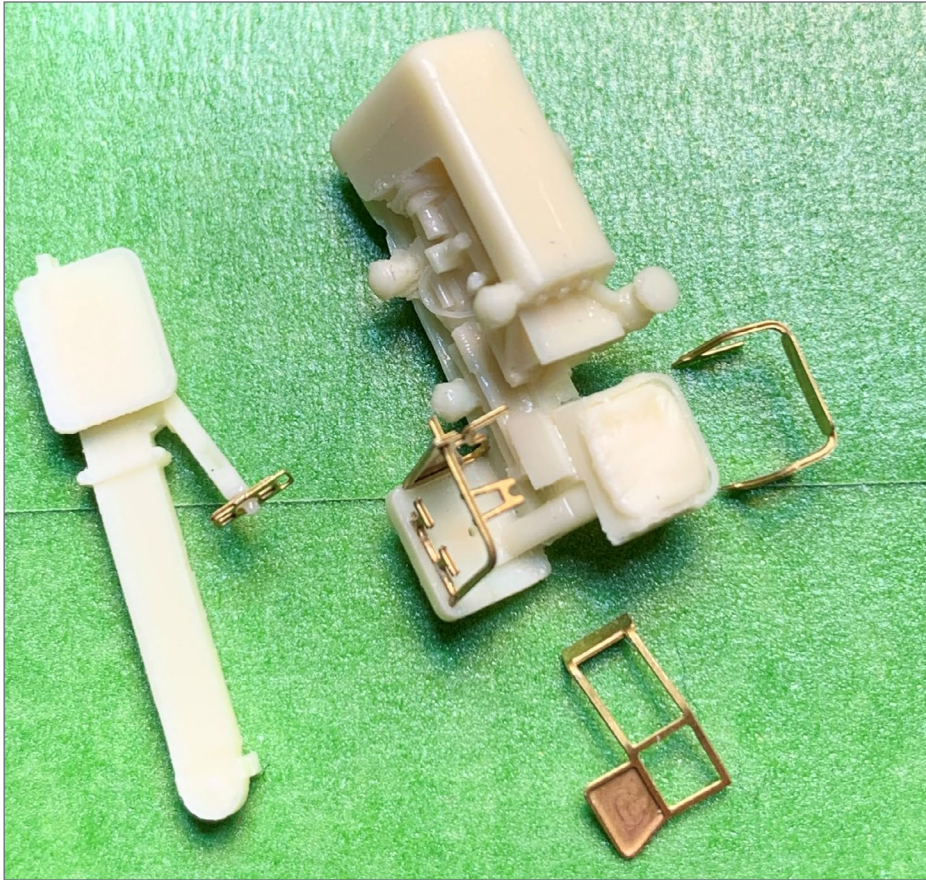


23. The gas tank (left) and the grain platform are assembled and ready for painting and installation.

DETAILED LOAD FOR A FLAT CAR | 23

After prepping the parts in [24], I added the detail parts to the tractor resin casting as explained in the instructions. Notice the frame and armrest, Part O for the seat, and how I bent a slight curve and not a right angle. I used fine round nose pliers for this task.

I did not glue the seat assembly to the tractor at this time, as I felt it would be easier to paint the seat cushion black and add that



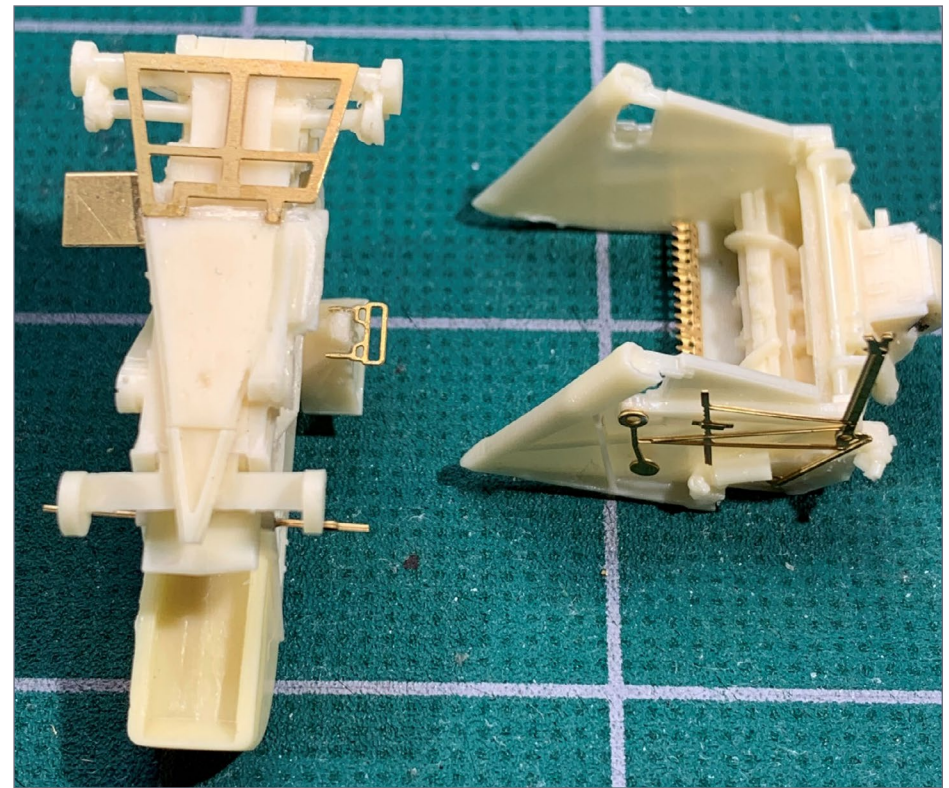
24. The tractor subassembly is coming together with etched parts.

DETAILED LOAD FOR A FLAT CAR | 24

later. Parts J and I are attached, and the steering wheel shaft support is bent at a 90 degree angle.

I also elected to hold off installing part M, the steering wheel shaft, and part N, the steering wheel. These will be painted first before I add them during final assembly.

Another item, part E from Step 3, is also shown to the right, and was installed on the resin part to be painted first and attached later.



25. Proper installation of etched parts to the combine and the header.

DETAILED LOAD FOR A FLAT CAR | 25

The tractor will not be mounted yet as Step 8 shows. I wanted clearance to get in and paint the tractor details with a brush.

Now is the time to add the cutter bar parts W and X to the resin header [25]. Note that there is raised detail on one side that faces out. Also shown is the underside of the combine showing the frame part G attached to the front bottom.

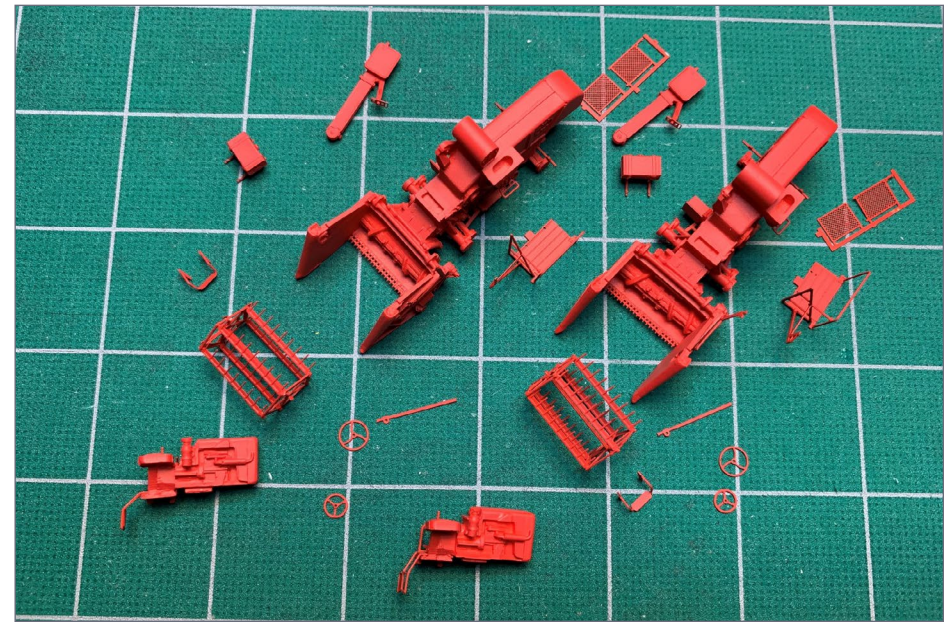
Painting the subassemblies is next. I gave the parts a wash again with Dawn and water, and set them aside to dry before moving to the paint booth. I used acrylic paint for my model and tried to match what I call a bright Tractor Red.

I like Vallejo part no 71.003 Red Model Air to match Massey Ferguson red. Before applying my red to the combine, I sprayed



26. The top image shows Neutral Yellow Primer and white with Gray Stynylrez Primer. The bottom is Vallejo Red air-brushed over the above primer. Notice the color change over the gray primer.

DETAILED LOAD FOR A FLAT CAR | 26



27. The two MF-380 combines are painted in Vallejo Red with a light coat of Model Master Insignia Red. They are meant to represent brand-new harvesters.

it with primer. I like a primer product made by Badger called Stynylrez, a water-based acrylic polyurethane. It comes in about eight different colors.

I sprayed my usual gray primer, and then used the Vallejo Red [26]. What came out was not the Tractor Red I expected, but more of a boxcar red. I found that I needed a lighter color primer, and chose to use Stynylrez Neutral Yellow this time.

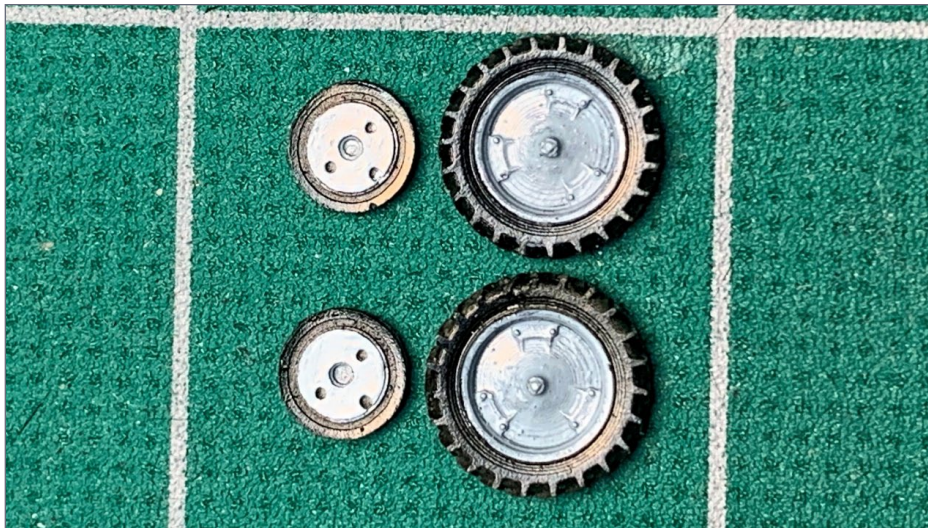
I resprayed the model with the Neutral Yellow, and top coated it with the Vallejo Red. Now the color looked a bit too bright, so I decided to spray a light coat of Model Master Insignia Red. Now I had the Tractor Red I wanted.

DETAILED LOAD FOR A FLAT CAR | 27

I used Vallejo 70.950 Black to paint the wheel and tire assemblies. For the wheels themselves, after researching the internet for photos of these when they were brand-new, I found most to be a silver/grayish color.

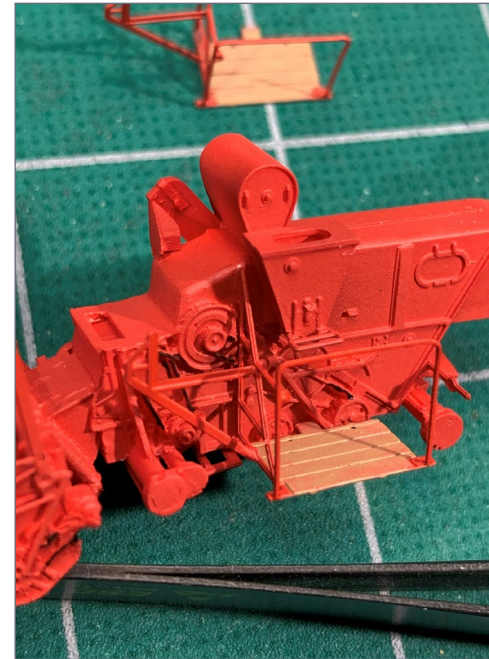
I used some Vallejo Silver 70.997 and hand-painted the wheels. It dried not quite the color and shade I wanted. I took some PollyScale New Gravel Gray, and gave the wheels a wash of this color. That was the look I was after. A bit of that aluminum showing through the gray as in [28].

With all the subassembly parts painted Tractor Red, I needed to paint the combine tractor seat and various other parts black, like chains and belts. Using the photos from the Artitec website, and the step 15 kit instructions for guidance, I hand-brushed all these details.

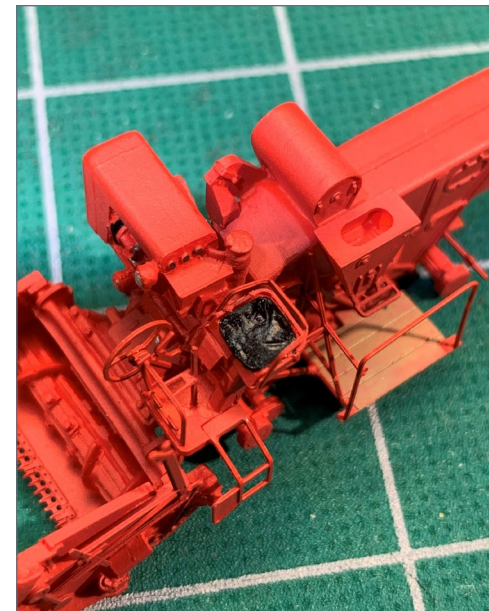


28. The tires are Vallejo Black. The wheels were painted with Vallejo Silver followed with a wash of PollyScale New Gravel Gray.

DETAILED LOAD FOR A FLAT CAR | 28

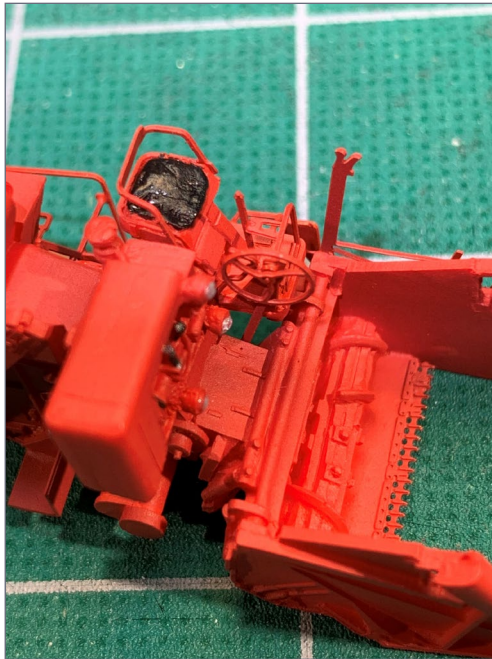


29. The grain platform with grille support is attached to the driver's side. You can see an unattached one in the background. Note the belts painted black.

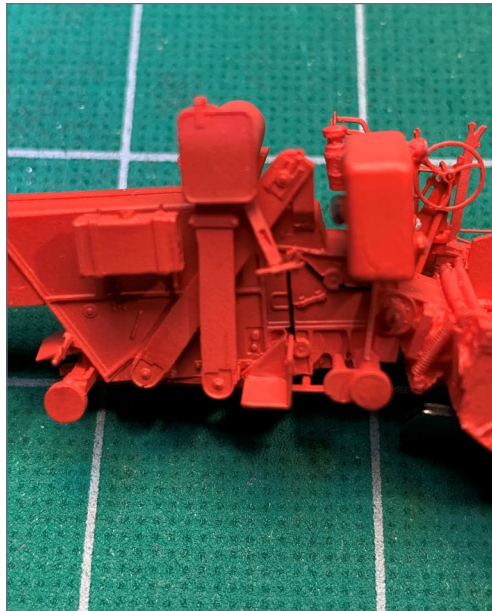


30. Tractor and seat assemblies are positioned and attached with CA. This is a good time to add the steering wheel post.





31. A slightly different angle shows the mounting of the tractor and seat assemblies with wheel and lever in place per kit instructions.



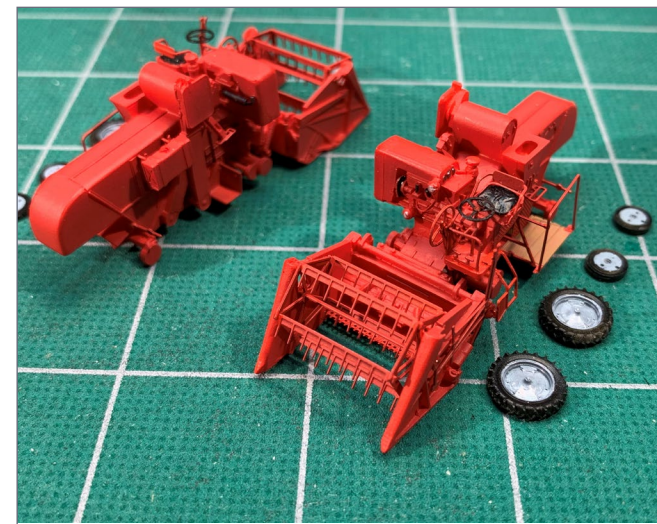
32. The mounting of parts and painting are visible on the right-hand side of the combine.

I used Vallejo's Black 70.950, Silver 70.997, and Dirt 73.005. For the muffler. I mixed a bit of black and silver to make a color I was pleased with.

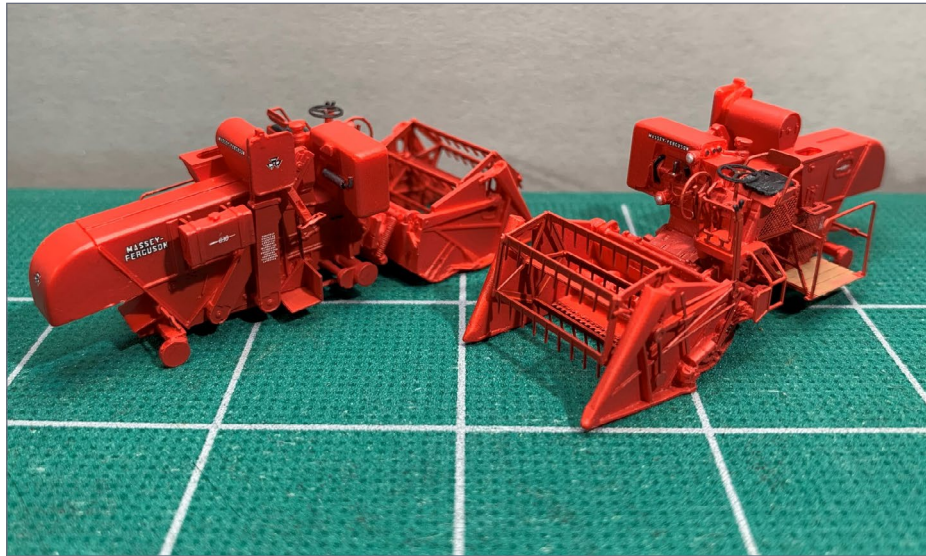
With the details all painted, I started to assemble the remaining parts. The combine is now ready for the application of decals. I brushed on S.C. Johnson Floor Gloss clear acrylic in areas where decals will be applied. After it dried, I used the Artitec kit instructions Step 16, and the photos, to properly place my decals. I used Micro Scale setting solution to help them settle down in place.

Once the decals set up, I coated the combines with a semi-gloss clear coat from Model Master for the as-delivered look.

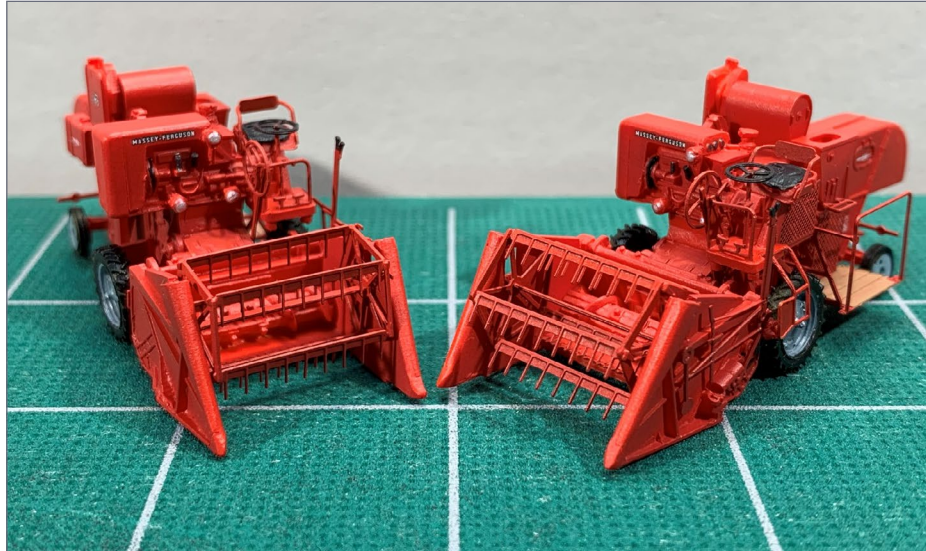
This completes the build of the two combines. Next time, I show how I modeled these two combines as a flat car load. See you then! ☒



33. Two combines ready for decals. The tires and wheels will be the last items to be glued on after the decals are applied, and semi-gloss clear coat is dry.



34. Both sides of the almost-finished products.



35. With decals and paint applied, and wheels installed, the combines are ready to be loaded for shipping.

GEORGE TOMAN



George is currently enjoying retirement from a 40-year career with Xerox Corporation.

He has been a model railroader for as long as he can remember. His first train was a Lionel Santa Fe in classic War Bonnet paint, and then he switched to HO with a Varney Dockside. He did model in Sn3 for a few years, where he learned a lot of skills because there were not many kits read-

ily available. He switched back to HO to model the trains he remembered growing up.

He enjoys scratchbuilding and superdetailing. He is an RPM Modeler who enjoys trying new techniques, materials and research. Besides model railroading, George enjoys spending time with his wife Sue gardening, working in the yard and spending time with family and grandchildren. ■



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

THE AH-HAH MOMENT

column



MRH Running Extra | June 2020

JOE FUGATE DOES FLAWLESS TURNOUT
BALLASTING WITH NEVER-STICK POINTS ...

★★★★★
RATE THIS ARTICLE

I USED TO HATE BALLASTING TURNOUTS BECAUSE every time I ballasted them, the points would get glued shut.

Some careful prying with a tiny screwdriver would generally free the points, but some turnout just never threw the same after that. A few forever after had points that needed a little finger pinch to make sure they sat solidly against the stock rail.

While pondering this problem one day, I took a closer look at some detail photos I had of a prototype turnout. I noticed the ballast around the points sat well below the tie tops. *Ah-hah!*

This gave me an idea. I painted full-strength white glue around the points area while carefully avoiding the throwbar itself. Then I sprinkled

ballast into the white glue and

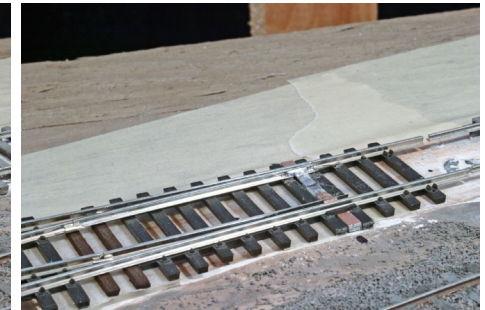
1. If you look closely at how the prototype ballasts their turnouts, you will see the ballast in the points area sits *well below* the tie tops.



THE AH-HAH MOMENT | 2



2. I like to drill a half-inch hole in the roadbed to leave plenty of room for the 0.040" throw wire. Then I put masking tape on each side of the throwbar on the ties underneath.



3. The masking tape covers up the half-inch hole nicely and gets me all set for the next step of ballasting the turnout [4].

tamped it down in between the ties with a scrap of styrene. The ballast sat well below the tops of the ties, but that was prototypical, after all.



I went on to ballast the rest of the turnout – the closure rails and the frog area – using my normal ballasting method, since there's no moving parts there.

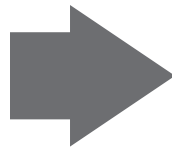
4. I paint full-strength white glue carefully around the ties in the points area and sprinkle ballast into the glue with my fingers. As long as I avoid the throwbar itself, the points never stick!

After a few hours I ran a vacuum over the points, removing any loose ballast. The points had ballast well below the tie tops, just like the prototype.

The points were never affected, they threw as freely as normal. I now use this method to ballast *all* my turnout points – and I never have the points stick, ever. Give this a try – and say goodbye to points glued shut. ☑

Bonus section!

Here are all the pages
from the June issue of
*Model Railroad
Hobbyist* magazine
as well!



Take the MRH
2020 Reader Survey ...



... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



TAKE THE SURVEY >>



ALSO:

- Build your own StayAlive
- Great locomotive upgrades
- Double-deck benchwork
- How strong is your layout?
- ... and more inside!



MRH visits the massive
K10 Hobbyshop layout

▶ READ NOW

To go to the next or previous
page, just use the arrow keys
on your keyboard.

Now Available from **ATLAS**
MODEL RAILROAD CO., INC.



HO & N SCALE SIGNALS



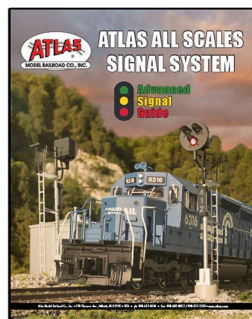
N SCALE STARTER SET



HO SCALE STARTER SET



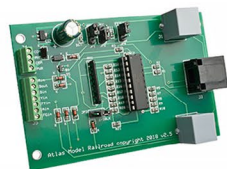
TYPE G
SINGLE HEAD



ADVANCED SIGNAL GUIDE
AVAILABLE FOR FREE DOWNLOAD!

**CHECK OUT THE ATLAS
ALL SCALES SIGNAL SYSTEM!**

CLICK HERE!



UNIVERSAL SIGNAL CONTROL BOARD



SIGNAL ATTACHMENT CABLE - ALL SCALES

FOR MORE INFORMATION OR TO LOCATE A DEALER, PLEASE VISIT WWW.ATLASRR.COM.
ATLAS MODEL RAILROAD CO., INC. • 378 Florence Ave., Hillside, NJ 07205

STAFF

HAVING FUN WITH TRAINS

MRH
MODEL RAILROAD HOBBYIST

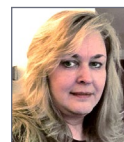
(Updated 06/08/20)

Model Railroad Hobbyist June 2020 | #124

Editorial Staff



Joe D. Fugate, Publisher and Editor



Patty Fugate, Pasteup and Layout



Richard Bale, News and events



Jeff Shultz, News and events, Tech Assistant



Joe Brugger, Copy Editing



Mike Dodd, Copy Editing



RATE THIS ISSUE

ISSN 2152-7423

Advertising

Les Halmos, Account Manager
Jean-François Delisle, Marketing Assistant

Regular contributors

Eric Hansmann, Editor-at-Large
Jim Six, Limited Modeler column
Ken Patterson, Reporter-at-Large

Rotating Columnists

Jack Burgess, Getting Real column
Marty McGuirk, Getting Real column
Nick Muff, Getting Real column
Mike Rose, Getting Real column
Tony Thompson, Getting Real column

Rob Clark, Imagineering
Dave Meek, Imagineering
Ray Dunakin, Imagineering

Issue password: Jun2020

Published for the glory of God. [What's this?](#)

MRH SPONSORS



Model Railroad Hobbyist | June 2020

A - L



acculites.com



railroadhobbyshow.com



archertransfers.com



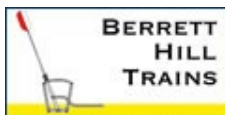
athearn.com



www.atlasrr.com



bachmanntrains.com



berretthill.com/trains



blairline.com



coffmaneng.com



deluxematerials.co.uk



www.digitrax.com



trackplanning.com



esu.eu/en



handlaidtrack.com



iascaled.com



litchfieldstation.com

MRH SPONSORS | 2

M - Z



micro-trains.com



store.mrhmag.com



ModelTrainTechnology.com



www.modelrectifier.com



handlaidtrack.com/mt-albert-scale-lumber



ncedcc.com



www.pwrs.ca/main.php



rapidotrains.com



ringengineering.com



roometteslighting.com



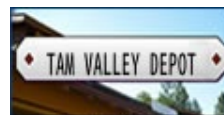
scaletrains.com



sodigi.com



sbs4dcc.com



tamvalleydepot.com



trainfest.com



walthers.com

Vendors: Get your clickable logo on these pages ...

Looking for something? Check the MRH Marketplace!



Take me there!

AVAILABLE
LATE JUNE

NEXT "TIER"

CN 100th Anniversary

Additional Tier 4 Roadnames: BNSF, CSX, KCS, NS & UP



Rivet Counter HO Model Shown



HO
1:87 SCALE

Scene and photography by Ken J. Johnson

 **Preorder Now**

© 2020 ScaleTrains.com, Inc. ScaleTrains.com, Rivet Counter, and respective logos are trademarks of ScaleTrains.com, Inc.

ScaleTrains.com, Inc. 7598 Highway 411 Benton, TN 37307
844-9TRAINS 844-987-2467 International 423-299-3689



WWW.SCALETRAINS.COM

PUBLISHER'S MUSINGS



Model Railroad Hobbyist | June 2020

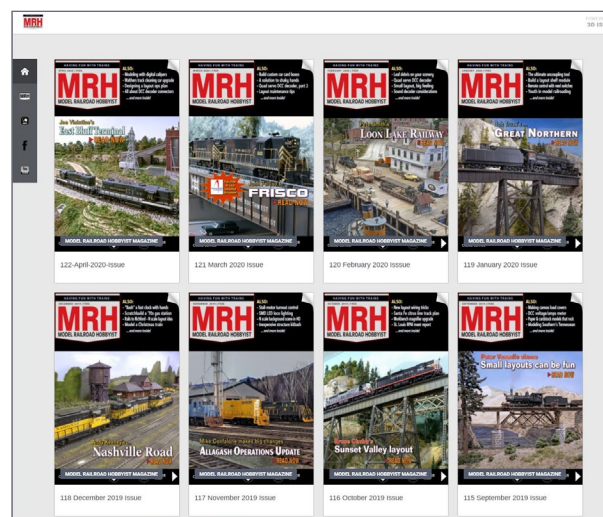
**JOE FUGATE: BELT TIGHTENING
AND MODELERS YOU'VE HELPED ...**

★★★★★
RATE THIS ARTICLE

I'VE GOT A NUMBER OF THINGS TO COVER
this month, so let's get right to it!

We're retiring the MRH App

We have had a free MRH app that you could download and install on Apple iOS iPads, iPhones, Android tablets, and Android phones. You could also visit something we called the MRH Hub in a web browser to get a similar bookshelf view of the magazines [1].



1. Notice how the MRH app and the MRH magazine hub used this convenient "bookshelf" format for presenting the MRH magazine issues. Even though we're retiring the MRH mobile app and MRH web browser Hub, back issues will move to this format.

The MRH app has a number of problems that need addressed in order to keep up with how fast the device vendors are updating their operating systems. Thanks to the pandemic, we've had to undergo some significant belt tightening and layoffs.

So sadly, as of May we stopped updating the MRH App (April was the last issue) and as of June 15, the MRH app / MRH Hub will cease functioning entirely. The MRH App has been removed from the Apple and Google app stores.

We love the “bookshelf” format for presenting back issues, so we are planning to move our back issues section to the bookshelf format. It’s a very natural and convenient way to access the magazine.

That change to the back issues won't be happening right away because we're still hunkered down with limited staff right now, just

ADVERTISEMENT

HUMVEE® VEHICLE 2-PACKS



TAN 2-PACK



OLIVE DRAB 2-PACK



UNDECORATED 2-PACK

**COMING
AUGUST 2020**

©2020 AM General LLC. HUMVEE and the HUMVEE military trade dress are registered trademarks of AM General LLC and used under license.

**MICRO-
TRAINS®
LINE**

CLICK HERE FOR MORE INFO



REGISTER
(free)

BY POPULAR REQUEST



photo by: Gordon Lloyd Jr., Paul Wester Collection



Tri-clops Railfan ▶ Athearn

Thanks Atheam for yet ANOTHER run of the 2-window SD60Ms. What would be REALLY cool would be the 3-window Tri-clops versions. They're good for more than 3 railroads now. If we could get these in Genesis that would be grreeaat 🙌🙌🙌🙌🙌🙌🙌🙌🙌🙌😬😭😘

7/29/2024 8:01 PM



❤️👍101

53 comments



Athearn
Tri-clops Railfan #WishGranted!

**THE ULTIMATE HO SCALE EMD
SD60M IN THE HIGHEST LEVEL
OF EXECUTION, GENESIS 2.0**

- All New Tooling
- Better than Brass Detail™
- Genesis 2.0 model features
 - Etched, see-through steps
 - Illuminated ground lights, and number boards
 - Dual cube speakers



ALL NEW animated spinning roller bearing caps



Cab interior easily
accessible with Lift-Off™
roof secured with magnets



Etched,
see-through steps

FOR MORE INFORMATION PLEASE VISIT WWW.ATHEARN.COM

ATHEARN

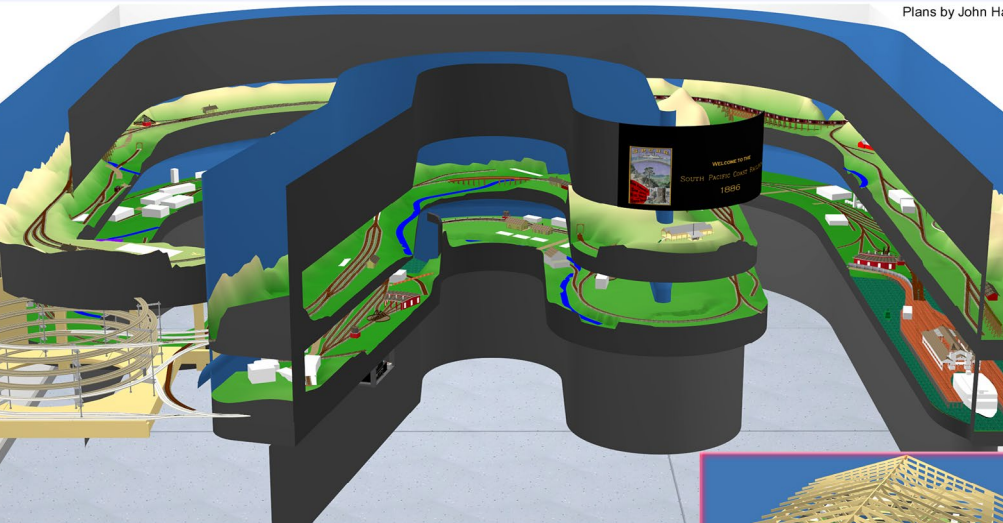
©2020 Horizon Hobby, LLC 64428



HORIZON
N O B B
35
YEARS

VISIT Your Local Retailer
CLICK www.Attheearn.com
CALL 1.800.338.4639

Plans by John Hall



How will you plan your layout?

3rd Plant 3D CAD
The ultimate track planning software

El Dorado
SOFTWARE

Click Here!

PUBLISHER'S MUSINGS | 3

focusing on the core businesses of MRH mag, Running Extra, the MRH Store, and TrainMasters TV.

MRH and Running Extra changes coming

As part of our cost-cutting measures, we're also making some changes to the two magazines, MRH and Running Extra.

First, a seemingly small change: we're dropping the left and right arrows from the page navigation. On a PC or a Mac – just use the left and right arrow keys on the keyboard. On mobile devices or with the online edition, those arrows aren't used anyway.

Next, this is the last issue where we're producing both a landscape and a portrait edition. Starting with the July issue, we will only be doing the Portrait edition.

1 FUTURE FANS



2 CLUB CAR



WALTHERS® wants you to

Join the Class of 2021

and be featured in the next Walther's Reference Book

FOUR GREAT CATEGORIES TO ENTER!

[CLICK FOR MORE INFORMATION](#)



3 BRICK & MORTAR BRIGADE



4 YARDMASTER GENERALS

This actually simplifies our life quite a bit because right now we produce three different versions of every magazine:

1. Landscape edition
2. Portrait edition
3. Online edition (no page navigation arrows on the pages)

After magazine release, if we find an error that needs corrected, we have to keep three different versions of the magazine in sync.

But with this change, there will be only one version of the magazine each month. Running Extra will be similar – the landscape version will be going away.

This actually isn't as bad as it sounds. With a little bit of guidance, you can easily make the new standard portrait edition do facing pages and look almost identical to the landscape edition [2].



2. If you display the portrait edition with facing pages, here's what you get in Acrobat. It's virtually identical to the landscape edition.

BACHMANN®

HO
SCALE

DCC
ON BOARD



Click to
learn more

NEW

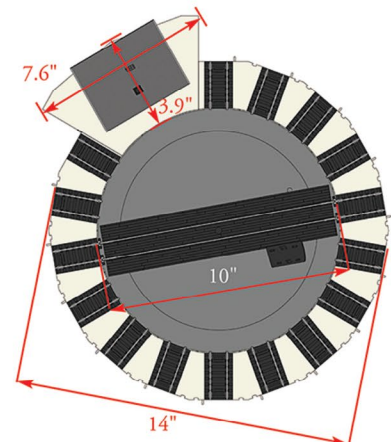
Item No. 46298
(locomotive not included)

A New Spin on Locomotive Control DCC-Equipped HO Scale Turntable

Visit your local hobby retailer to take our new HO scale, DCC-equipped turntable for a spin! Featuring a dual-mode NMRA-compliant decoder and 16 nickel silver track positions, this turntable will help achieve prototypical realism on your HO scale layouts.

Additional features include:

- track powered from track position number 4 (separate power supply not required for DCC operation)
- gear drive
- turntable indexed to each track section for accurate alignment
- painted maintenance building and operator's cabin
- designed for use with Bachmann's E-Z Track®
- easily adaptable to other popular track systems
- spring-loaded direction switch and wires provided for DC (analog) operation if desired



(turntable can be used with smaller On30 engines)



SHIPPING NOW!
MSRP \$299.00 each

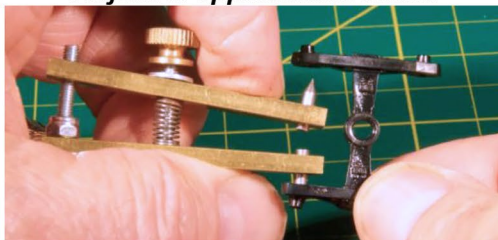
Bachmann Industries, Inc. • 1400 East Erie Avenue • Philadelphia, PA 19124 USA • www.bachmanntrains.com

Click for more information.

NEW Truck Measuring Caliper **Model RT-8-1 HO Truck Axle Caliper**



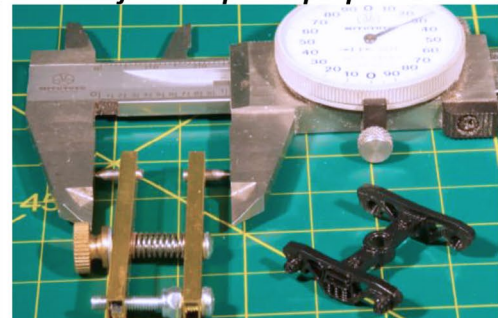
Adjust to approximate width.



Squeeze to put in truck frame.



Adjust Caliper to proper fit.



Measure for proper axle length.

Proper axle length is critical for reliable operation. Sloppy short axles allow wheels to lift off rail and derail cars.

Limited production.

Coffman Graphic Solutions
www.coffmaneng.com

PUBLISHER'S MUSINGS | 5

By doing only one version of the magazine (s), we save ourselves some work and that's especially helpful as we finish up the magazine for release.

Internal changes

As a part of all these changes, we're also moving away from using Adobe products for the magazine: InDesign, PhotoShop, and Illustrator.

In their place, we're adopting Affinity Publisher, Affinity Photo, and Affinity Designer.

Adobe in recent years moved to a software rental model they call the "Creative Cloud."

We've also had a number of nagging bugs with the Adobe products, from annoying to serious. None of these bugs have ever been addressed by Adobe.

Affinity recently came out with their applications for a one-time price of \$25 each. No rental, you own the software!

That means for a one-time purchase of just \$75, we can get these three powerful Affinity apps for about the same cost as a single

New series coming to TrainMasters TV in May ...

Make it run like a

Dream

By Joe Fugate



Become a member and follow the series!

JOIN NOW >>

30% off new memberships ending soon ...



www.trainmasters.tv



**The Difference is
in the Details!**

THE PA
...and PB

Seven Body Shells • Four Pilots • Five Number Boards
Three Grills • Myriad Horns, Antennas and Other Details

Featuring the **ALL NEW**
Made in the USA
Rapido-TCS Sound Decoder



Preliminary rendering
Subject to changes before production



CLICK HERE!

month's rental for the Adobe programs. But are the Affinity apps as powerful as the Adobe apps?

Actually, the Affinity apps are no slouch. They replace 90% of the Adobe functionality, easy. Some of the Affinity features actually work better or do more than the Adobe apps.

So we're saving a fair amount of money moving to Affinity.

Modelers you've helped

A couple months back, we announced we were taking any profits and helping fellow modelers in hardship during this pandemic. Some of you also provided direct donations for this, which we honored. The idea has been to brighten up things for these folks a little by giving them some free media to enjoy about this hobby we all love.

Hardship modelers submitted their names to us [using this link](#). Here are ones you've helped by funding almost 100 free TrainMasters TV membership months so far. Not all wanted their names shared, but here are the ones who did allow us to give out their names:

Joseph Ozoniak, John Cruckshank, Glenn Rucker, Michael White, James Ogden, Steve Walker, and Anthony Mikolaj. You've helped remind these folks there are still people who care in these tough times. ✓

Did you see this article
in **MRH RUNNING ?**
EXTRA ?



Fix wheelset slop

Get the June eBook now
[click here](#)





**Better leverage
your hobby
resources!**

**Every copy of
MRH's Running
Extra has tips
that can save
you hundreds
of dollars and
hundreds of
hours ...**

**~300 pages, \$2.99 ea.
1 year sub: \$19.99**

~150 pages of all-meat in-
depth articles and columns +
all the free MRH content with
ads ... one download gets it

You can buy and download single
issues or get a 12-issue subscription.

**Shop MRH
Running Extra**

click here



~300 pgs ... if was a paperback, would be almost 1" thick -- for just \$2.99!

Paper mags: 8 cents per page
Running Extra: 1 cent per page!



LAST ISSUE'S RATINGS

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

4.8 May 2020 news

4.3 John Russell's Rock Island Railroad

4.0 Lightweight operations

Issue overall: **4.0**

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! ■

Get the latest Model Railroading News, Tips, Reviews & Opinions



**Our iTunes feed has changed search for
"Crew Call with Mike Rose" to receive the latest episodes!**

www.themodelrailroadpodcast.com

Host:

Mike Rose: www.mrhobby.com

**Don't Miss our Monthly Interviews
& Product Announcements**

Get all these
layout tours for
just \$9.99

Ordinarily ...
1 week rental is
\$1.99 per video

Watch free samples >>

Pay just
9.99 94% discount!

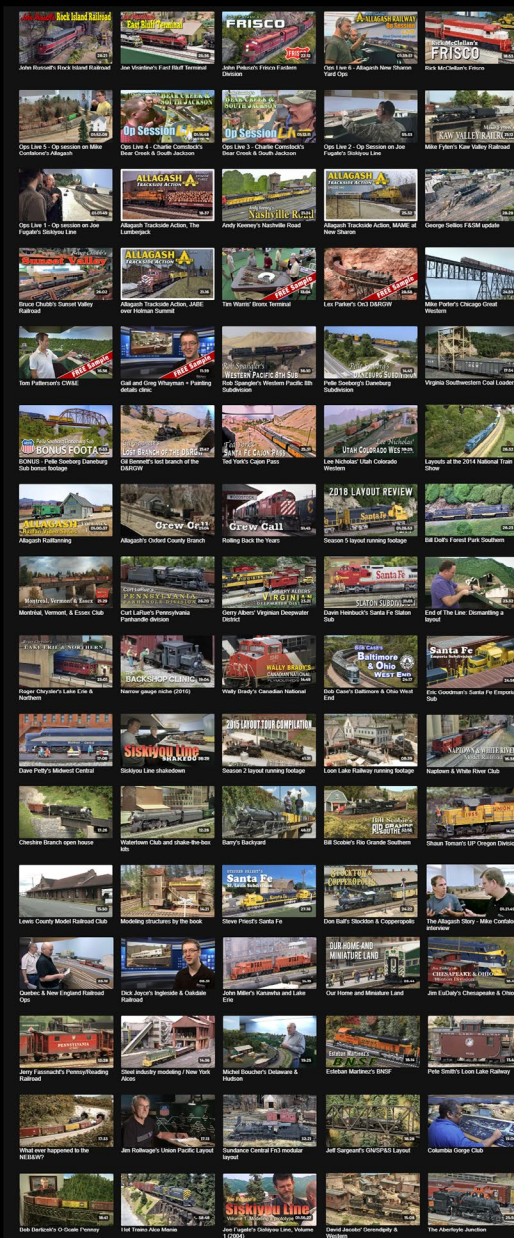
And get 12 months to
watch all 80 layout tours!

Get layout tours >>

Plus get access to new
layout videos as we add
them for 1 year



www.trainmasters.tv



Best of the

MRH WEBSITE

Website
MRH
mrhmag.com

THIS MONTH

Model Railroad Hobbyist | June 2020



RATE THIS ARTICLE

compiled by JOE FUGATE

How strong is your layout?

MRH forum member **PeterAtt** (*Peter Attanasio*) had a very unfortunate calamity hit last October. A tree fell right onto his layout room ... yikes!



View the full thread on the MRH website

► MRH'S MONTHLY GREAT MODELER POSTS



1. John Tanzillo put together this 6 minute video showing how he altered a Rowa N scale passenger car with new brass sides.

Installing N scale brass car sides

MRH forum member [jmt99atsf](#) (*John Tanzillo*) got a set of M&R N-Scale brass car sides to modify a passenger car made by Rowa. You can't buy this particular sleeper car, so it had to be created either using brass car sides or plastic sides. John chose the brass car sides approach.

The ATSF used this sleeper car for a few years on the Chicago to Tulsa Texas Chief, on the Oil Flyer, and on the KC Chief. The interchange between these trains took place at Kansas City's Union Station. John models this station and all these trains, so adding this car to his passenger fleet was a must.

The video John posted shows the techniques and tools he used to create this ATSF 8-2-2 Sleeper which he named the Segatoa.

Follow John's progress on the MRH website thread link below.

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



COUPLING WITHOUT SOCIAL DISTANCING!



NARC HIGH-PERFORMANCE MAGNALOCK BRAKE LINES

North American Railcar Corporation has taken prototypical model detail to the next level with the first automatic brake line system for model railroading available anywhere in any scale. It looks like the real thing, it couples like the real thing, and most importantly, it uncouples like the real thing. The NARC High Performance MagnaLock Brake Lines are available in 10 Pair Conversion Kits, and are available exclusively through Pacific Western Rail Systems.

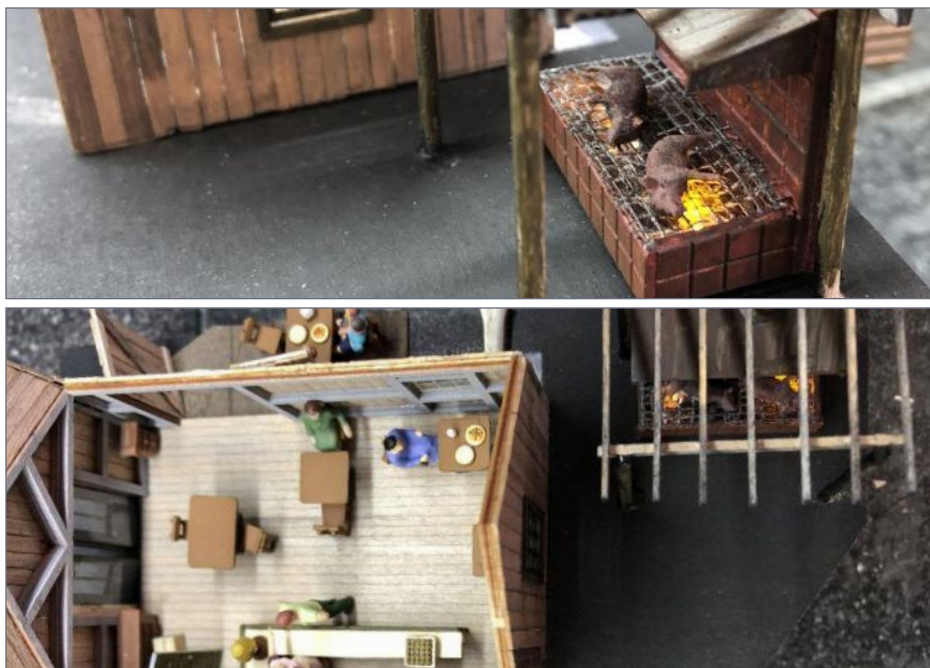
FEATURES

- Can be retrofitted to virtually any car or locomotive, regardless of manufacturer.
- Compatible with Kadee and other popular couplers.
- Hoses made of rubber for authentic appearance and flexibility.
- Hands-free operation - connects and disconnects like the real thing.
- Reversible, automatic operation regardless of orientation of car or locomotive.
- Available now in HO and N Scales and coming soon in O Scale and other Scales.
- Available with future releases of North American Railcar Corporation products.
- Downloadable instruction video is included with the product.

CLICK HERE TO LEARN MORE ABOUT HO SCALE

CLICK HERE TO LEARN MORE ABOUT N SCALE

Pacific Western Rail Systems
TRAIN ADDICTION HELP LINE 866-840-7777



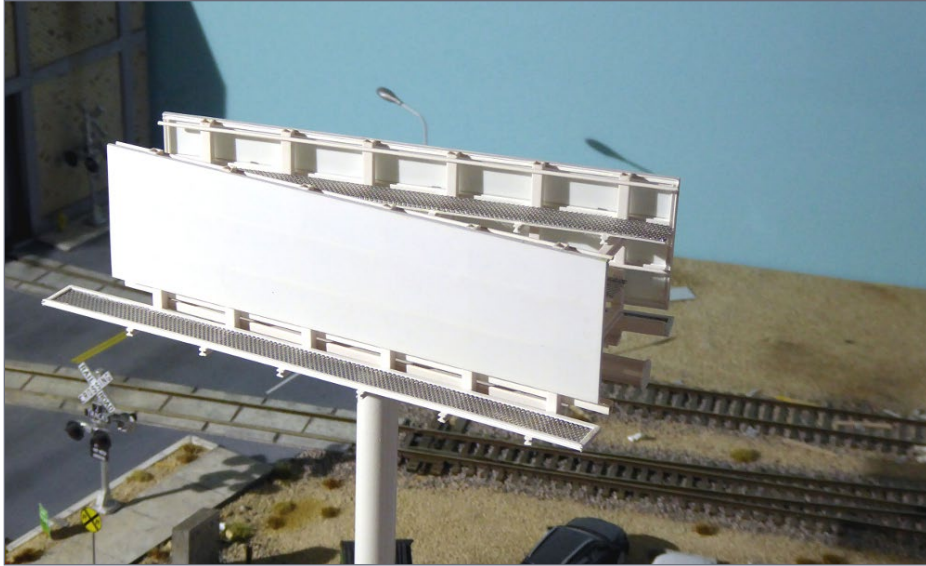
To see all the photos Chris posted, use the button below.

Read the full thread on the MRH website



WHAT'S NEW?  Established 1993... **Blair Line**

Scratchbuilding a modern billboard



4. Andreas Rittershofer shows step-by-step how he's building this modern double-billboard model for the layout on his MRH blog. Make sure to check out this thread for all the details.

MRH forum member **engineer** (*Andreas Rittershofer*) is in the process of modeling a modern billboard for his layout.

Andreas posted a nice series of step-by-step photos on how he built this billboard, along with some comments on the build process he used.

Andreas also plans to light this billboard using SMD LEDs. That's something we certainly look forward to seeing.

Visit the MRH website post any questions you have as Andreas continues to build out this nice billboard model on his MRH blog!

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

Latest MRH "Weekly photo fun" thread

As of this writing, here's a couple interesting photos from the latest MRH Weekly photo fun thread. Check it out!

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



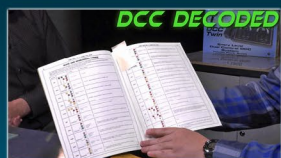
4. MRH forum members **rjthomas909** and **kevinn** posted these photos on the latest new MRH weekly photo fun thread. Visit this link to view all the great photos on this thread.



What's new on TMTV

THE BACKSHOP CLINIC

Roll your own corrugated tin



Realistic signaling for modelers



Modeling walls with plaster



Joe Vistintine's East Bluff Terminal

Watch now ...



7 day rental: 1.99 | buy: 2.99



www.trainmasters.tv

Registered MRH reader?

SAVVVE 20%
click here

MRHMAG.COM

✉ REGISTER
(free)

WHAT'S NEAT

column



Model Railroad Hobbyist | June 2020



RATE THIS ARTICLE

KEN PATTERSON'S COLUMN SHOWS HOW AN ATHEARN TUNNEL MOTOR GAINS WEIGHT FOR BETTER PULLING POWER. HE SHOWS THE STEPS TO THE GP60M UPGRADE WITH MORE WEIGHT, LED LIGHTING, A WOW SOUND DECODER, AND A SMOOTH NEW MOTOR ...



WHAT'S NEAT!
MODEL RAILROADING
Locomotive
upgrades



June 2020 show

► PHOTOS AND VIDEO OF SUPERB MODELING

[INDEX](#)

[TABLE OF CONTENTS](#)

THIS MONTH, GEORGE BOGATIUK SHARES WITH us an easy way to add weight to an Athearn locomotive to make it pull that much better. James Regier re-motors, lights and details an out of the box Ready-to-Roll GP60M locomotive with great coverage every step of the way. All of this can be seen in real time in this month's What's Neat show.

George Bogatiuk adds weight to a locomotive

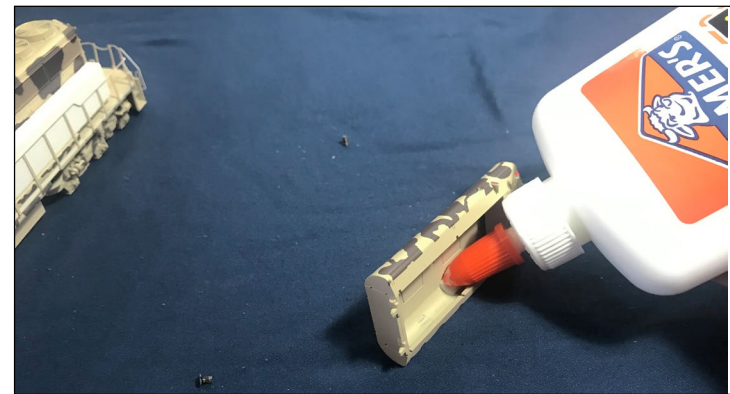
George shows us how he adds weight to the open space in an Athearn tunnel motor's fuel tank, to improve contact and increase the engine's pulling power.



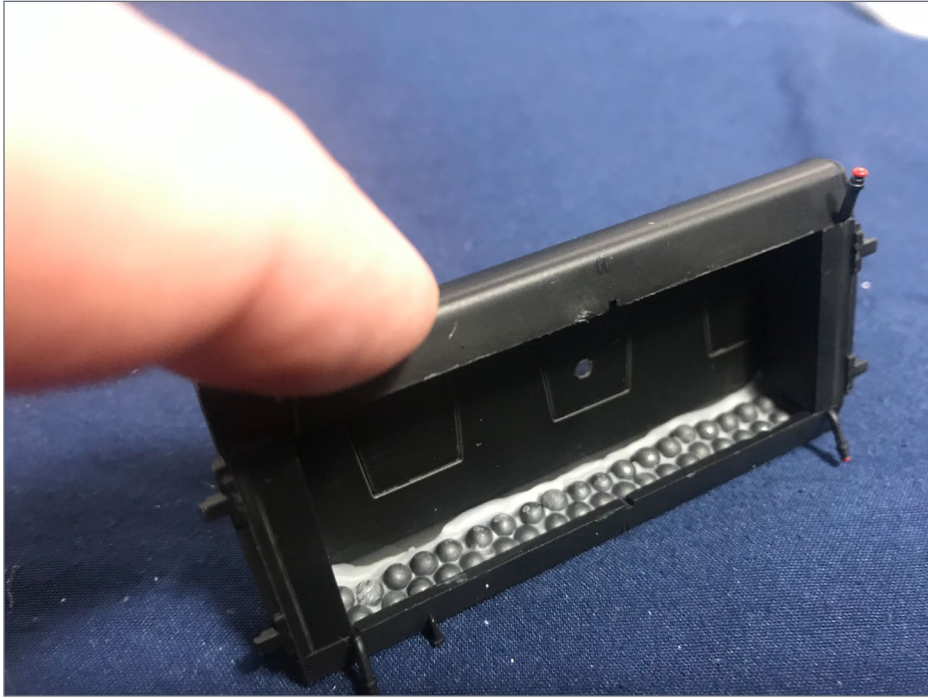
1. Remove the fuel tank by loosening the single screw in the center of the plastic molding.



2. He uses white glue and shotgun lead pellets available from any sporting goods store.



3. George fills one side of the plastic fuel tank with a bed of white glue. He then adds a few rows of the shotgun lead in the area where the tank curves on the inside in the bed of glue. Be careful to not go beyond a point where the pellets interfere with the clearance with the factory weight as the tank is reattached.



4. Once one side of the tank is filled, and after the glue cures, he repeats the process on the other side of the tank. Once this is dry, he reassembles the model with weight added to a previously hollow area.

**Use our custom
Google search on the
MRH website to find
topics of interest**

[CLICK TO FIND OUT MORE](#)

James Regier's locomotive detailing and upgrading process

I'm James Regier. For this segment of What's Neat, we're going to talk about a recent project in which I rebuilt, detailed, and upgraded an Athearn Ready-to-Roll GP60M with a new motor, TCS WOWSound, and 21 LEDs.

I was about 10 when the first GP60Ms arrived on the Santa Fe in 1990. A family friend who worked for the Santa Fe out of Hutchinson, KS passed along company newsletters and posters to us.

One such poster had a row of four GP60Ms resplendent in Superfleet Warbonnet paint, parked side by side on tracks with light gray ballast, underneath the sort of deep blue sky that is only found in the Southwest. I was smitten.



5. One look at Topeka Railroad Days in 1995 convinced James Regier that a Santa Fe GP60M was in his future.

I convinced my dad to take me on the hour drive to Augusta to observe these beasts in their natural habitat on the transcon.

When visiting my grandparents in Newton, KS I would frequently walk down to the tracks, camera in hand, especially when I thought I heard their (at the time) distinctive K3LA horn. They looked their best pulling passenger equipment, as I caught them at Topeka Railroad Days in 1995 returning with the fan excursion.

I decided that I had to have a few GP60Ms in my collection, though the brass models at the time were quite out of my means. It took a while, but when I saw an Athearn Ready-to-Roll version on eBay a few years ago, I had to buy it.



6. Out of the box, Athearn's GP60M captures the flagship appeal of the prototype very well. The colors are a good match to prototype and the lines are crisp. All of the many warning labels, safety advisory signs, and ownership statements are sharp enough to read under magnification.

The model has see-through Q-fans, which match the prototype much better than some other offerings out there. It has brass horns, wire grab irons, and durable acetal plastic handrails. The locomotive is DCC ready with the option of either a six-pin plug or a seven-pin harness to accommodate the decoder. Both options require removing the dummy plug from the seven-pin harness.

However, this was not a premium model, so there are quite a few details that were left to the modeler. I thought a cab interior, windshield wipers, and mirrors would add life to it. Many models seem to come with lift rings these days.

Looking at the fuel tank, I thought it could do with filler caps, sight glasses, and plumbing. Especially because of the high visibility of its silver paint, I thought the underbody could use air filters and a bell. I wanted to improve on the nearly two-dimensional molded air tanks with three-dimensional detail parts.

The pilots demanded cut levers, hoses, and a couple of grab irons, and the prominent plow on the front of the unit. The micro bulbs of the forward and reverse headlights begged to be replaced with LEDs, while the ditch lights needed to be made functional. The number boards needed lighting, as did the walkway, step, and ground lights.

One of the most glaring needs I saw with the model was improving on its 12 oz. weight out of the box. With a few exceptions, I consider 15-16 oz. to be a minimum weight for a road locomotive, so adding weight was a must.

Most of the parts can be found from various sellers on eBay and elsewhere on the internet, though I would certainly recommend using your local hobby store as much as possible.

WHAT'S NEAT | 8

The first step is dismantling the locomotive. The shell is held to the chassis by the couplers. I removed the coupler screws and pulled the coupler boxes out through the openings in the pilots. The shell lifts right off to reveal the insides of the locomotive. It was built with a motherboard, with options to add DCC either via six-pin plug or via a nine-pin JST harness.

For a decoder such as the TCS WOW 101 we are using on this project, installation could be as simple as removing the dummy plug from the JST harness and replacing it with the decoder.

We are doing much more with the locomotive, however, so we'll take the wire clips off of the motherboard with a screwdriver.

As a throwback from the Blue Box days, power from the conductor-side rail is transmitted through the locomotive frame. It is carried to the motherboard via a wire that is screwed to the motherboard toward the front, conductor-side of the motor.

I remove this screw. Once all wires are removed, I pry off the gear tower covers and remove the truck and gear tower assemblies from the locomotive.

Flipping the frame over, I find the four motor cradle pins on the underside of the frame. Using a screwdriver, I push in the pins until the motor cradle is unmounted.

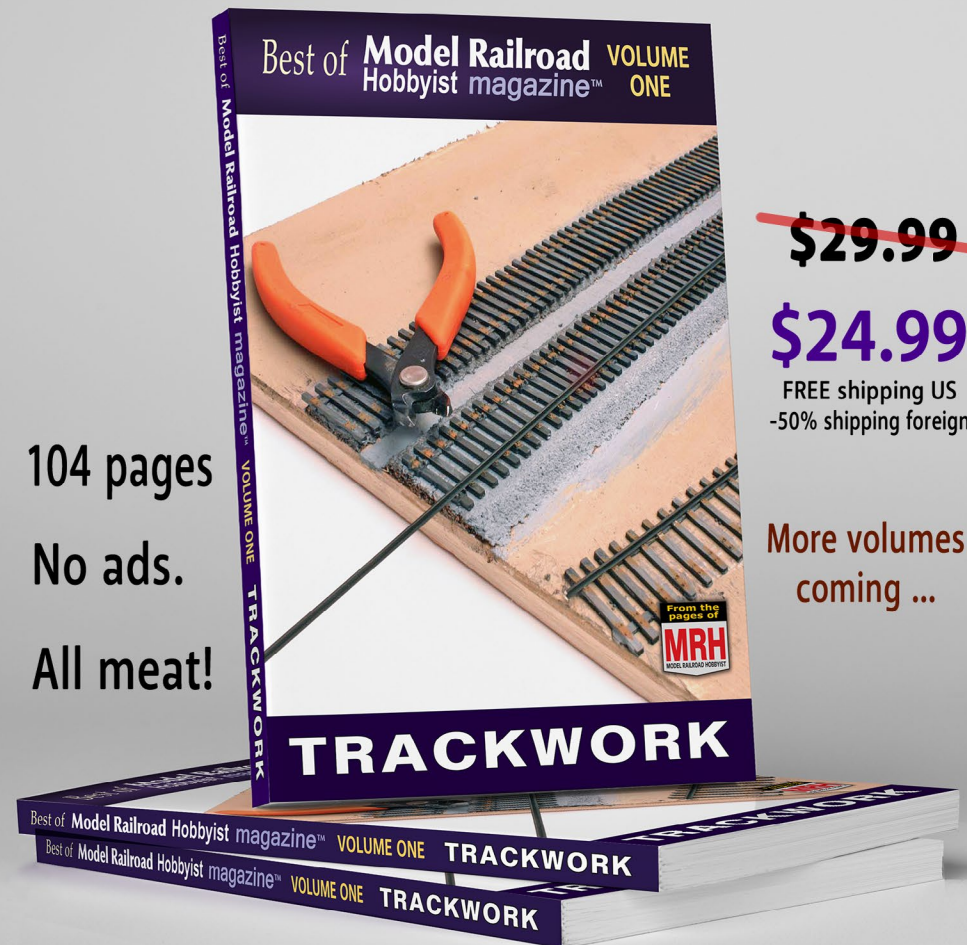
Working on the locomotive shell, I use a pair of tweezer nose pliers to pull out the headlights by their wires. I set aside the wires for later use. Because the micro bulbs were glued in place, this may break them, leaving remnants inside the headlight housing.

Simply push those out with a screwdriver or other similarly sized object. In this case, I used an eversharp pencil. The main idea is to clear whatever debris remains of the original headlights without damaging the housing.

You asked for it: so here it is!

Now available

Best of MRH in paperback! (with no ads)



~~\$29.99~~

\$24.99

FREE shipping US
-50% shipping foreign

More volumes
coming ...

Order my copy now >>

store.mrhmag.com



7. Removing the handrails saves them from damage and improves access to the body shell.

The next step is to remove all the handrails from the locomotive. For this step, I use tweezers, pliers, and, very gently, an X-acto knife as a pry tool. The side handrails come free without much difficulty, though the end handrails are trickier.

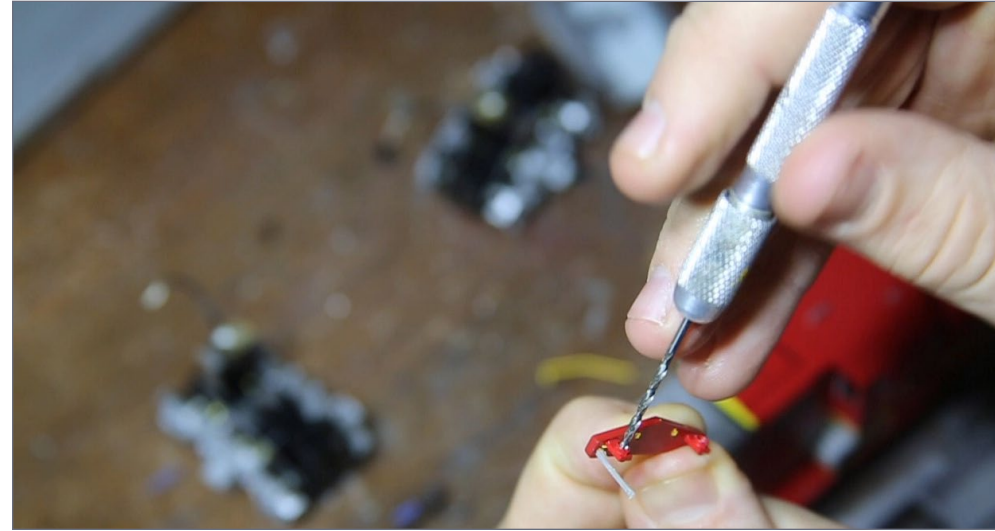
In addition to the pliers and X-acto knife, I found it helpful to push up on the mounting pins from underneath [7]. Even exercising great caution, I found these end handrails prone to snapping. Fortunately, they were also readily repairable with Gorilla Super Glue Gel.

The anti-climbers are separately molded parts secured to the frame with glue. In the case of my locomotive, the front



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

**WATCH
NOW >>**



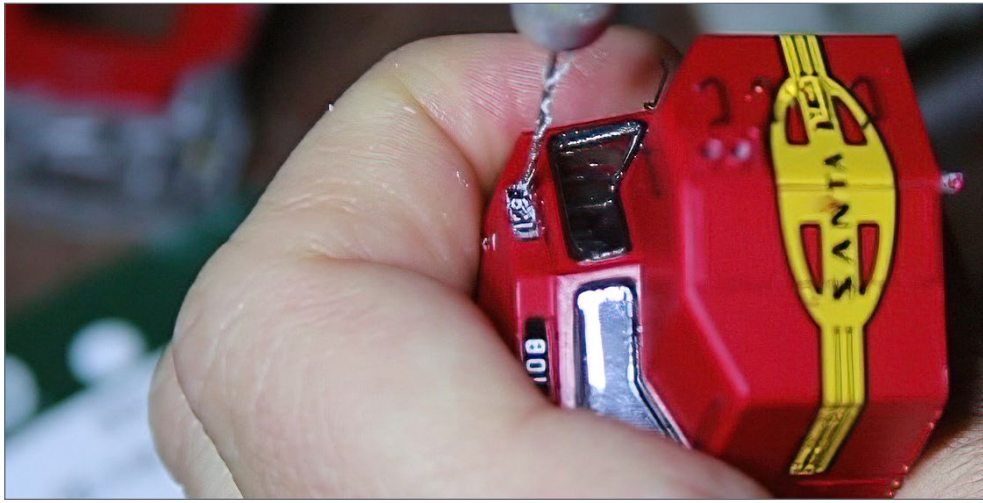
8. After easing out the ditch light lenses with fresh knife tip, use a drill to clear debris from the hole in the housing.

anti-climber had separated from the rest of the body, which made accessing the ditch light housings easier [8].

Using a very sharp X-acto blade with the tip still intact, I gently worked out the lenses. Once the lenses were removed, I used a 1/16" bit to drill out the hole, making sure there was no remaining debris.

I extended the cavity as far backwards as I could without breaching the rear wall of the ditch light housing. Then, locating the mounting pins for the ditch light housing on the anti-climber, I used a #78 bit to drill up along the center of the pin and into the ditch light housing cavity.

I set aside the anti-climber and ditch light assembly to remove the cab from the rest of the shell. The cab is a separately molded part, mounted to the rest of the shell with a pin on the front and



9. Improving the number boards with lighting became a bit of a chore.

a clasp on the back. Using an X-acto chisel blade, I worked my way around the separation lines, careful to break the glue bonds without nicking anything visible or structurally important.

After removing the cab, I set to work on the number boards [9]. Having worked on a few Genesis locomotives, I thought the GP60M would be similarly configured with an actual number plate on top of a number board housing.

After several attempts to pry the number plate loose, it became clear that the number boards were simply a molded part of the locomotive cab, with the numbers stamped on.

Using a #68 drill, I drilled each corner of each number board through to the cab, adding another hole or two along the tops and bottoms of the boards.

I then used a sharp #4 X-acto blade to score between each hole, finally placing the blade in each hole and providing gentle pressure

to cut through and connect them. Using this method, I was able to create smooth, matching, rectangular openings for the number boards. I cleaned up the number boards, cleaned up the headlight bores in the nose with a 1/16" bit, and set the cab aside.

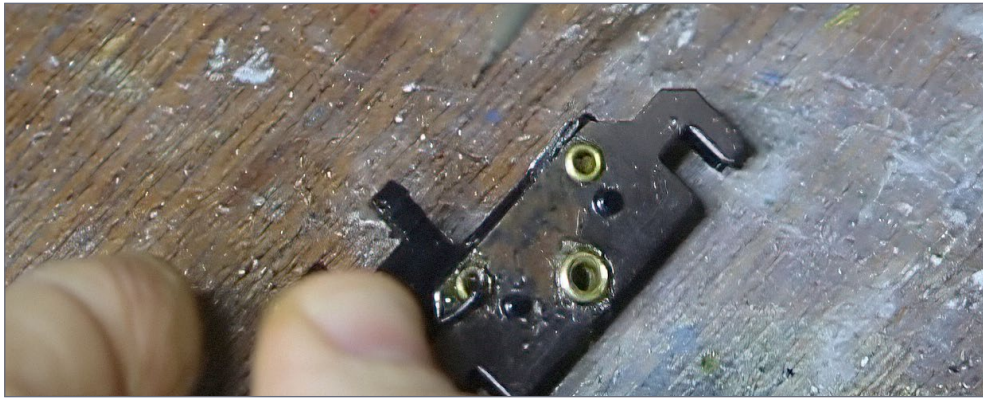
Returning to the trucks and gear towers, I set about dismantling them for an upgrade. The trucks on this locomotive are a throw-back from the Blue Box design which feeds current from the rail on the conductor-side directly into the frame. It fed the power from the rail on the engineer's side into a metal hook that was connected via clip and wire to the motherboard.

Using my tweezers like a hammer's claw, I pried the side frames off the trucks. I unclipped the plate on the bottom of the trucks, releasing the wheelsets. Removing an additional clasp on the top of the trucks, I was able to open them up and remove the gears.

ADVERTISEMENT



LIGHT YOUR CARS
ModelTrainMan.com



10. Old-design trucks require modification to improve the power's path.

Once the gears were removed, I used my rotary tool with a cutting disc to cut off the hook. I cleaned up the cut with a file after the cut was complete.

The next step on the trucks was to attach wires to either side of the gear tower. Using Kester 186 No Clean Flux, I prepared to solder wires to the forward most grommet.

I found a larger wedge solder head, combined with a higher temperature on my Weller WESD51, was the best combination for this job. Taking one of the wires saved from the headlights, I soldered it into the inside of the rivet, securing it [10].

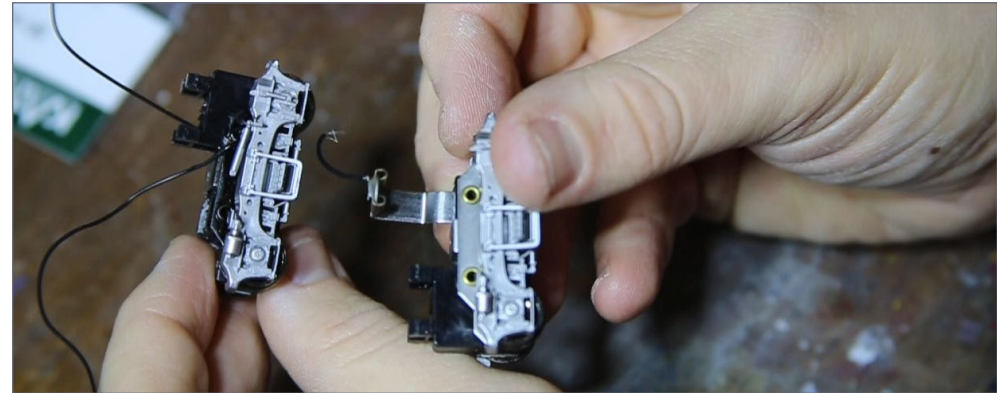
As an added precaution, I used Gorilla Superglue Gel to secure the insulation of the wire to the leading edge of the metal plate.

After giving the assembly time to cure, I swabbed it clean and applied Tamiya XF1 Flat Black paint to obscure the gray metal truck tower sides and the brass rivets.

After the paint dried, I carefully cleaned the inner surfaces with a paper towel to make sure no metal shards remained before

replacing the gears and reassembling the truck. I coated the metal plate on top of the truck towers with silicone paint, which insulate them from the frame after reassembly. I repeated these same steps for the other truck and gear tower.

With the truck assembled in its new configuration, let's compare it with the old one, side-by-side.



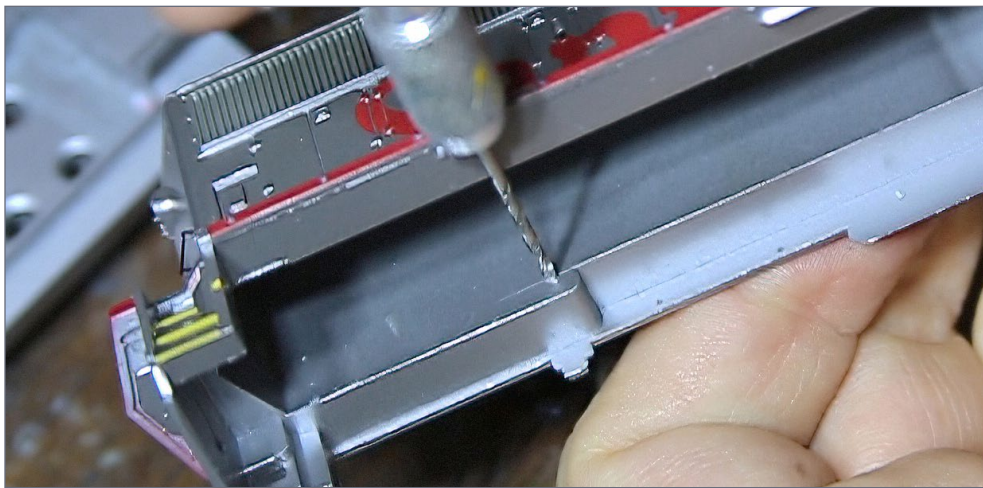
11. The rewired and modified "low-profile" truck should give more reliable contact for better sound and DCC performance.

Using wired pickup for both rails should be more reliable than the original contact pickup while the step of isolating the frame from the trucks with silicone paint has all but eliminated any risk of shorts between coupled locomotives.

The truck is somewhat lower profile without the hook [11], and it now requires only one bay on the frame for the gear tower. The other bay can be given over to added weight, an important factor as we attempt to bring the locomotive up to 16 ounces or more from its original twelve.

Moving to the long hood, let's set about drilling holes for the courtesy lights. We'll start by using a #63 drill to bore a hole for

WHAT'S NEAT | 15



12. Countersunk mounting points locate the 0402 warm white LEDs for courtesy lights.

a courtesy light along the walkway on the conductor's side, just behind the step. Once the hole is through, I countersink it on the inside with about 20 turns of a #52 bit.

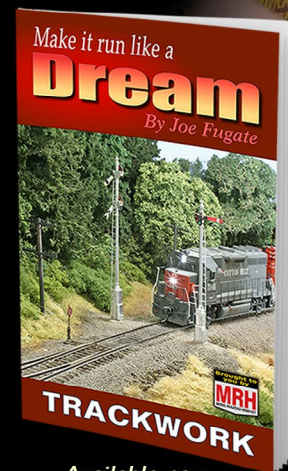
This should provide a countersink deep enough to nest an 0402 warm white LED [12]. When countersinking, one must always take care not to go all the way through.

At the rear end of the shell, the courtesy lights are toward the bottom. I used a #76 drill bit, carefully found the ends of the courtesy light slots and drilled into each end of each.

Then, I used a fresh #4 X-acto blade as a wedge to connect the holes to make slots. I carefully widened and carved the slots to the right width [13], then used my # 52 drill bit to countersink the two courtesy light openings on the inside.

The last step of this process was to paint the countersinks and surrounding areas of the shell black. A toothpick or a fine-tip mini-brush will do an adequate job of masking any glow or light

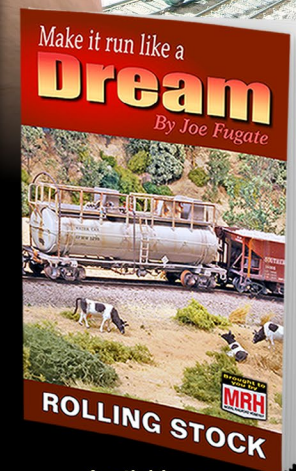
from the
**Model Railroad
Hobbyist Store**



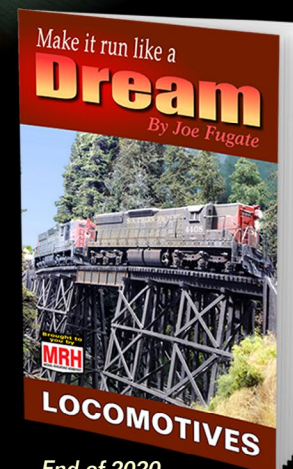
Available now

★★★★★ 5/5
"These books are
remarkable and very
well done."

- James S.



Available now



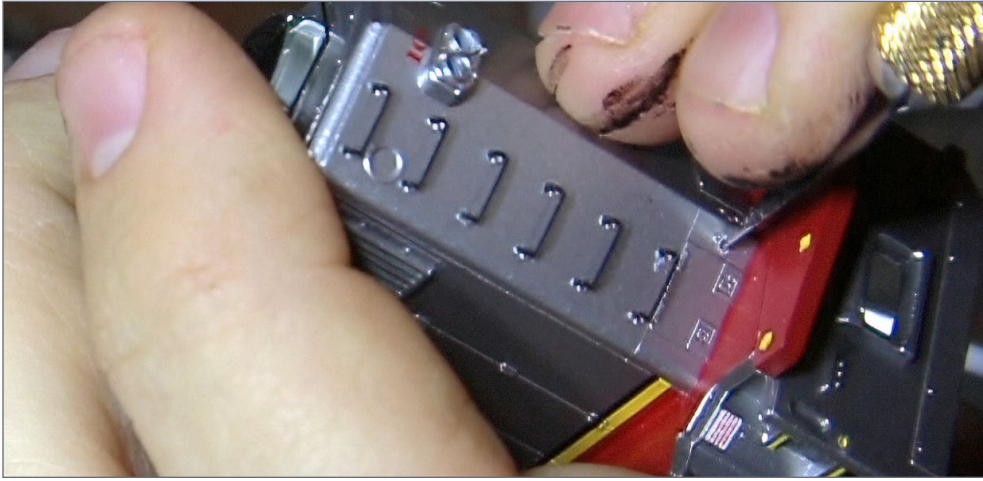
End of 2020

Buy now and get special pricing ...

PAPERBACK BOOKS: FREE SHIPPING US - 50% OFF SHIPPING FOREIGN

eBook download
or
Paperback book

Make it run like a
Dream



13. Courtesy lights for the rear platform are low on the long hood's peak.

spill. For the step lights, I used a #78 bit to drill a hole as snugly as possible underneath the overhang of the main walkway.

Once the LED housings were taken care of, it was time to work the rest of the detailing. Eric Goodman posted an in-depth photo album of ATSF 135 to qstation.org which provided all the answers for detail placement.

I started by locating and drilling lift ring holes on the top of the locomotive with a #78 bit. I laid a reference line of masking tape across the dust bin cover and drilled a hole on each side toward the front.

I carefully removed the fans from the shell, pushing up from the bottom on the mounting pins. I then laid out masking tape in a grid to help determine where the lift rings would need to go.



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

**WATCH
NOW >>**



14. Replacing the molded air tanks greatly improves the look of the underframe.

Moving down on the shell, I laid masking tape across the free flowing air duct, and put in two holes for a grab iron that would run across the duct near the top.

Using my X-acto blade, I carefully scored and cut off the molded-on air tanks from the bottom of the shell. I replaced them with air tanks from Cannon and Co., which were more three-dimensional [14].

Finally, I drilled two #78 holes immediately under the anti-climber to accommodate the wires for the ditch lights.

Moving to the cab, I carefully drilled two holes above each windshield and one above each rear cab window to accommodate windshield wipers [15].

I removed the windshields by carefully prying with my X-acto knife chisel blade. With scrap styrene I set about making backings for the number board pockets. I used a pair of wire snips to cut blanks that were slightly larger than the opening, and then honing them and trimming to accommodate the contours of the cab.



15. Next task was positioning and drilling mounting holes in the cab for windshield wipers.

I found a stainless steel carpenter's protractor helpful for this task. I set the number board housings in place with Plastruct Bondene.

After the Bondene had set, I filled any areas of daylight with Tamiya Putty. When the putty had set, I painted the inside of the number board box black.

Back on the hood, I began installing lift rings into the holes I had drilled. The rings are photo etched stainless steel from KV Models, and I find that cutting them off the sprue (or fret) over a magnet helps reduce parts loss significantly.

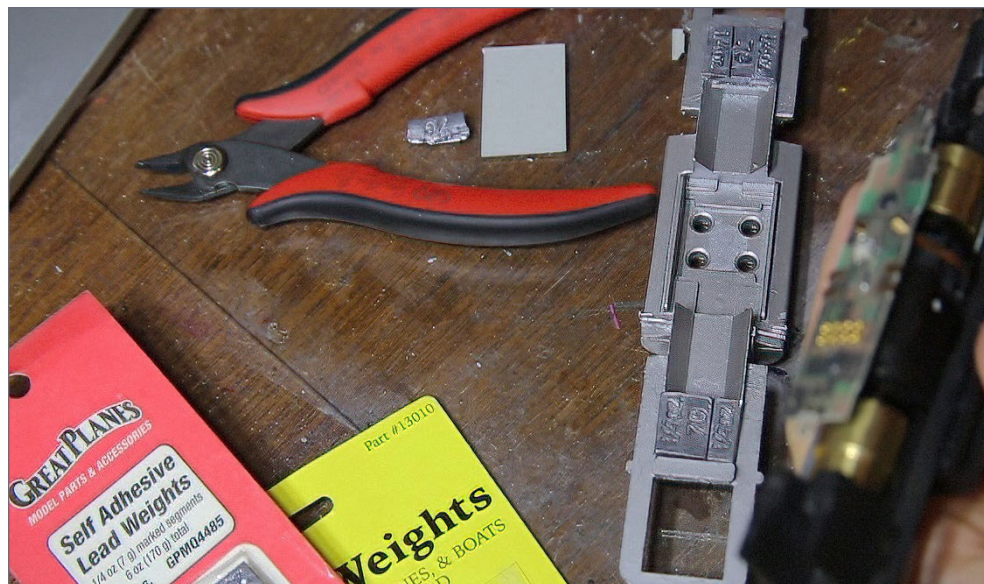
I use a non-magnetic curved jeweler's tweezers to apply the rings, first dipping their ends in Gorilla Super Glue, then inserting them into the #78 holes.

From there, I returned to work on detailing the frame of the locomotive, adding fuel filler tubes, sight glasses, and some plumbing.

For the most part, I used a kit from Cannon and Co., but I chose to bend some brass rods to substitute for plastic plumbing, since

brass is much more durable. A splash of silver paint and some red highlights for the fuel caps and the sight glass, and that detail job is complete.

With this, it was time to have fun and get a little bit crazy. From the factory, the model weighed about 12 oz, well below my preference of 16. The two bays left open by truck modifications were an obvious option. It turned out that the weights I used were the right width to fill the gap, but the number of segments was a bit challenging.



16. Openings in the frame were checked and measured for spaces to add weight. The Athearn GP60M frame was compared to a Kato GP35 frame to get ideas.

For both ends of the weight to rest on the frame, I would have to use more than one segment. However, it could not be wider than the truck mount's span because the shell would still have to fit. I measured the gap with a caliper and transferred it to a chop-it tool, gambling that the steel blade would be able to handle a

lead weight, since lead is a relatively soft metal. It worked and I chopped two weights of the same length for the front and back of the frame.

I mounted them with super glue. I was careful to taper the side of the weight closest to the truck mount to accommodate the clip, and also to file in a cavity to leave clearance for the u-joint.

Comparing the chassis of the Athearn GP60M to a Kato GP35, I found a couple more places where I could add weights vertically, which I also secured with super glue [16].

I also wanted to replace the Athearn motor with a Kato HM5. For simplicity, I chose the motor as sold with flywheels and motor mounts.

The spacing on the mounts matches the mounting holes in the Athearn frame very well, and a test fit revealed that the



17. The weight added to the frame is coated with silicone paint to keep it from rubbing off on my hands. You can also see the added weight.

flywheel was at the right height for good shaft alignment with the truck tower.

Although the spacing between the mounting and the holes matches, there is much empty space beneath the motor and its saddle that was begging to be filled with weight. Moldable lead from A-Line answers this problem.

The weights are putty-like and can form like clay to fit any space. I first formed them into a rough shape, then inserted the motor and tamped the weight into a more precise fit with a screwdriver.

It not only added more weight, but also gave my motor a firmer foundation on the frame. Because lead is a harmful substance, I coated all the weights with silicone paint after the glue had cured [17].

With the frame drying, I started making final preparations for adding LEDs. Comparing the depth of the headlight holes to the ditch light housings, I decided that I could block the back of the headlight holes with styrene to create a headlight housing.

The potential benefit was that I could achieve brighter headlights since there would be no light loss from shrink tubing, and the amount of clear acrylic for the lens would be minimal.

I used a Molotow chrome pen to coat the insides of the number board housings, the ditch lights, the headlights, and the courtesy lights. Molotow chrome paint gives a realistic and highly reflective surface that reflects light well.

It helps concentrate and intensify light sources while providing another layer to help prevent the dreaded shell glow. After the Molotow paint had set, I used Micro Krystal Klear to create lenses for the courtesy lights.

I also drilled #78 holes at the top of the steps, immediately underneath the walkway overhang, to accommodate wires for the step lights. In order to route the ditch light wiring up into the shell, I drilled two



18. Use a secured piece of masking tape to lay out LEDs for assembly.

additional holes just behind the hole where the cab's mounting pin will rest. With that, it was time to start assembling LEDs.

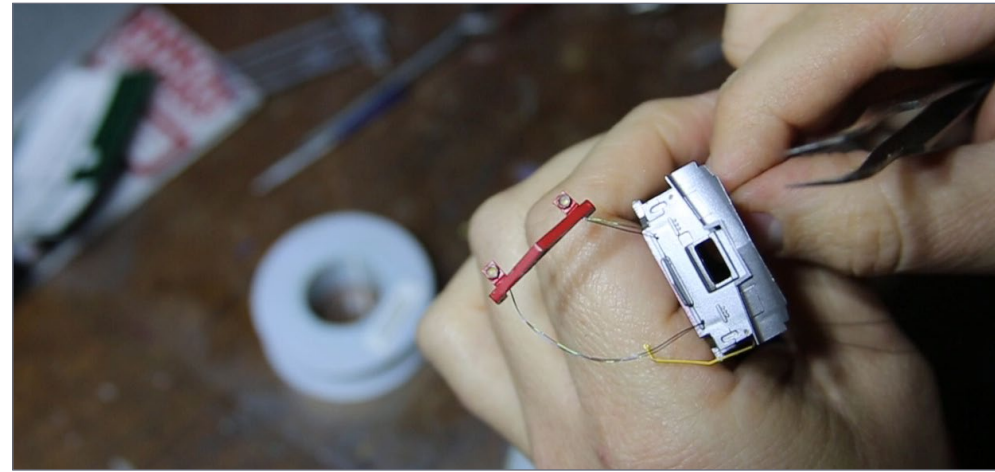
Assembly of the LEDs was fairly standard procedure. I laid a piece of masking tape sticky side down on my glass sheet, glued another piece of masking tape on top of it facing up, and laid out my 0402 Warm White LEDs, making sure that their polarities were aligned correctly [18].

I soldered blue magnet wire for the anode, green for the cathode. I tried to give myself a little more wire than I thought I needed and made sure to coat each assembly with silicone paint before installation. Coating with silicone was a must for every part of this LED installation, because most LED wires had to be fed through #78 holes and the LEDs pulled snug to the holes, meaning almost certain contact between the two wires.



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

**WATCH
NOW >>**



19. Powering ditch light LEDs required routing wires 90 degrees into the back of a tiny hole in a small housing.

I did the ditch light LEDs first, since the procedure for them is a little different. Whenever possible, if I am working with a headlight housing, I like to have the wires exit out the back, because straight lines are relatively easy to string.

In the case of the ditch lights, I chose to route the wire into the chamber through a #78 hole I drilled into the mounting pins.

This meant that installing an assembled LED would require routing it 90° into a tiny hole in the back of a narrow housing – and that's next to *impossible*.

I had to first string the wire through the channel and into the back of the assembly, where I could reach in with a fine set of tweezers and pull the leads out the front, with enough lead to solder the LED.

Once the silicone paint had cured, I could pull the LEDs back into their housing. I then secured the anticlimber/LED assembly to the front of the locomotive shell with gorilla glue, strung the wires back through the pilot, and up through the walkway into what would

be covered by the locomotive's wide nose [19]. Once so threaded, I twisted and soldered like-colored wires together.

I fitted the blue (anode) end with a 1k Ω resistor at the solder joint, and soldered one of the blue wires I cut off to the other end of the resistor. I used 1/16" shrink tubing to cover and isolate the resistor and solder joint for the blue and 0.8 mm shrink tubing for the green (cathode).

The rest of the LEDs were simpler. I could assemble the LEDs as usual and twist the wires for added durability before installing. I did the cab first, feeding the wires into the #78 holes in the back of the headlight housings, then pulling them out the other end until the LEDs were snug in place.

I was careful not to pull so hard that I risked destroying the solder connection. I twisted and soldered the like-colored wires together, adding a 1 k Ω resistor to the blue anode.



20. Lenses are shaped from acrylic rod against progressively finer grades of sandpaper.

Once the ditch light and front headlight LEDs were in place, I set about making lenses. I cut a manageable length of Plastruct 1/16" acrylic rod and put it in the chuck of my drill.

I then used the drill to grind it against a tapered file to create a convex lens. I honed it using progressively finer sandpaper, ending at about 2000 grit [20]. I cut off the rod almost immediately behind the lens, sanded the back edge smooth, and inserted it into the front of the headlight and ditch light casings.

While the ultra-short lens intensifies the light with minimal loss, it also provides little material to grip, making it a nuisance for sanding or for mounting. With a thin bead of Micro Krystal Klear around the opening, a lot of patience, and a few attempts, I inserted the lenses.

The number board housings took three LEDs each, with the wires fed through three #78 holes in the back panel [21]. The procedure was very



21. Each number board houses three LEDs, for even illumination.

much the same, twisting and soldering like-colored wires together, though in this case, instead of a 1kΩ resistor, I used a 20kΩ resistor to the blue (anode) for a much dimmer LED glow.

I have taken to using high levels of resistance for dimming instead of decoders' Pulse Width Modulation, partially because it does not provide a blinking effect on video, but also because it seems to provide a nicer warm white.

Once I completed the work on the number board lights, I used silicone paint to paste the wires and shrink tubing to the ceiling of the cab, sending the wire leads out the back.

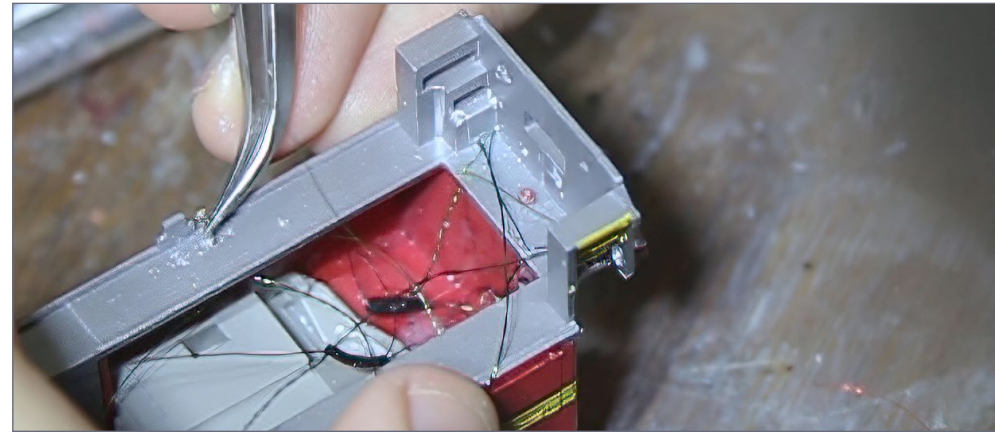
When the silicone had cured, I painted the ceiling with a deck tan that roughly matched the color of the Kato cab interior. I high-lighted some of the details of the cab interior with paint before I fit it into the cab, securing it with Micro Krystal Klear.

Once the cab interior was in, I mated the cab back to the frame and proceeded with wire routing.

I twisted and soldered the blue wires from the headlights and ditch lights together to become a function common and routed them, along with the green wires, along the underside of the cab interior and up the back.

I twisted and soldered the blue wire from the number board to the function common and routed the function common and three function wires toward the dynamic brake opening. I cut five ¼" pieces of 0.8 mm shrink tubing, lined them up side by side, and superglued them to the underside of the exhaust.

Working in the rear of the locomotive, I cut styrene to use as sound baffles to place underneath the radiator and dynamic brake fans. I then installed the rear headlights, following the same procedure as for the front.



22. After the LEDs are positioned and the wires are routed, like colors are twisted and soldered together to form common leads.

I put one LED into each courtesy light housing, with the face toward the exterior, securing them with micro Krystal Klear. I routed the wires to the locomotive ceiling.

I then proceeded to the step lights, where I inserted the LED wires into the holes I drilled at the top of the steps and pulled them snug, making sure that the lights were facing down. I secured them with a dot of Micro Krystal Klear.

Because the hole mounts were working so well to secure the step lights, I wanted to do something similar with the ground lights. I drilled two additional holes on each side of the locomotive shell underneath the cab, just inside from the jack point.

I threaded the ground light wires through the hole and they really helped immobilize the ground lights while the Micro Krystal Clear I used to mount them just in front of the jack points was drying.

I routed the wires from the step lights backwards to meet those of the ground lights, where I twisted and soldered like colors,

attempting to stagger the joints so that any exposed wires would not contact each other. I coated them with silicone paint and secured them to the underside of the walkway.

After soldering the rear step lights into the chain, I routed the wire leads up into the shell, where they met the wire leads from the rear and side courtesy lights. I twisted and soldered like colors.

This time, I soldered a 10kΩ resistor to the blue (anode) wires. I secured a ¼" piece of 0.8mm shrink tubing to the top of the underside of the baffle, just behind the dynamic brake opening.

I twisted and soldered the blue wires from the rear lights and from the ground/courtesy lights together and routed them to the front, along with the green wire from the reverse headlight [22].

With the magnet wires routed and secured, it was time to prepare the shell for mating to the frame. I made sure that all blue wires were mated together. I then soldered the magnet wires onto colored 30 AWG pieces of wire, each about 2" long.

For the wires in the front of the locomotive, I used Green for the lead from the ditch lights, Blue for the lead from the function common, White for the lead from the front headlights, Yellow for the lead from the reverse headlights, and Purple for the lead from the number boards. I secured and isolated each solder joint with 0.8mm shrink tubing.

Once it was shrunk, I threaded the wires through the shrink tubing mounted to the ceiling. From the conductor's side, the order was: Green, Blue, White, Yellow, Purple. Maintaining that order, I soldered the wires into the female ends of a set of five sip pins.



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



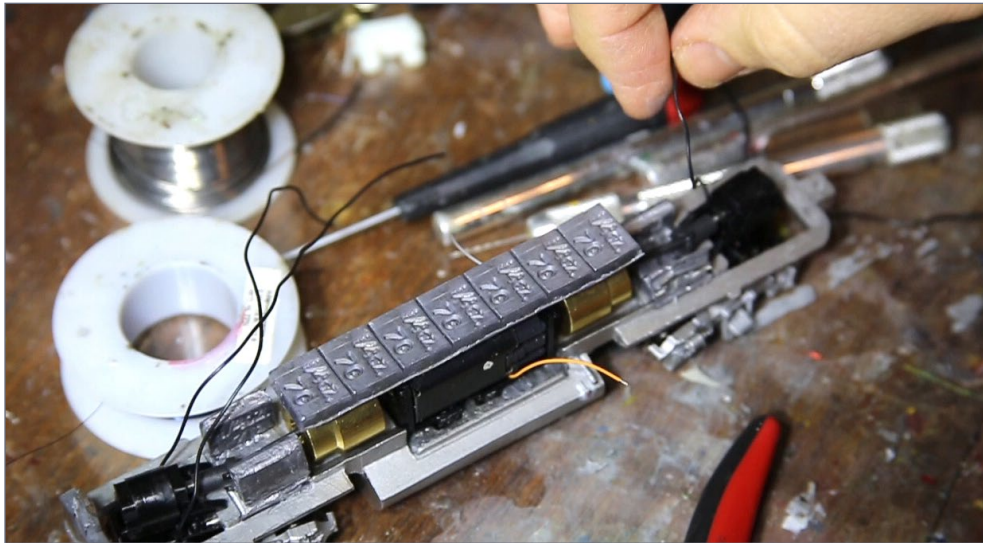
23. Mounting the Kato motor to the Athearn frame required only minor alterations to the underframe.

I soldered the lead from the courtesy and ground lights to a brown wire, insulated with shrink tubing, and fed through the ceiling-mounted shrink tube. I soldered the brown wire into the female end of a two sip pin set—two because I find that connective strength is better with more than one pin. The shell was now ready for mating to the chassis [23].

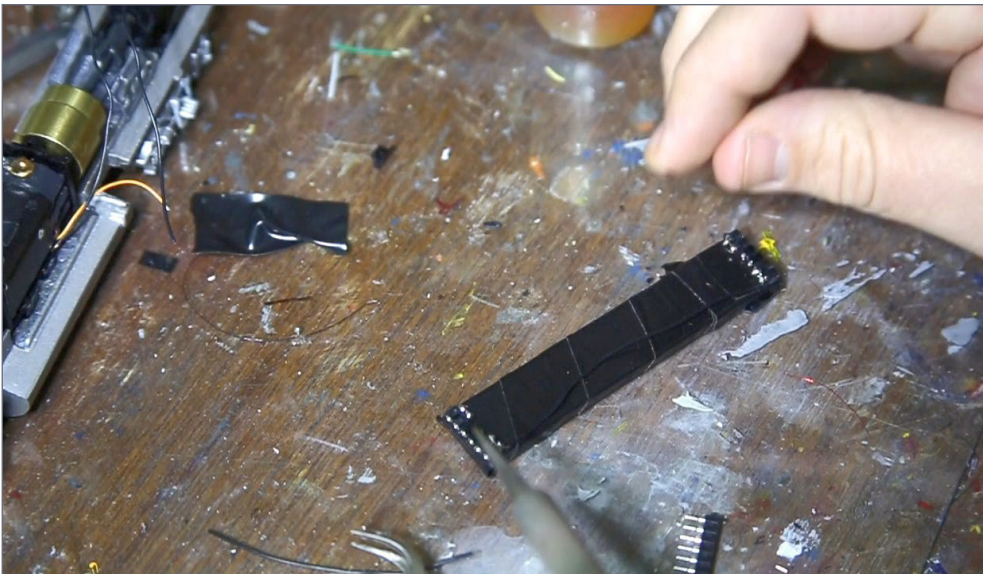
On the chassis again, I prepared the motor for mounting, cutting the copper straps short and replacing them with orange and gray wires. Gray for negative and orange for Positive, assuming the locomotive is moving forward.

In mounting the motor, I discovered the heads of the screws I was wanting to use for the motor were too small for the Athearn motor mount holes. I made washers out of styrene and threaded them through, which seemed to solve the problem [23].

For this install, I am using a TCS Wow 101, which uses a nine-pin wire harness. The major advantage of using a nine-pin harness



24. Weights fill the space that would have been eaten up by a 21-pin motherboard.



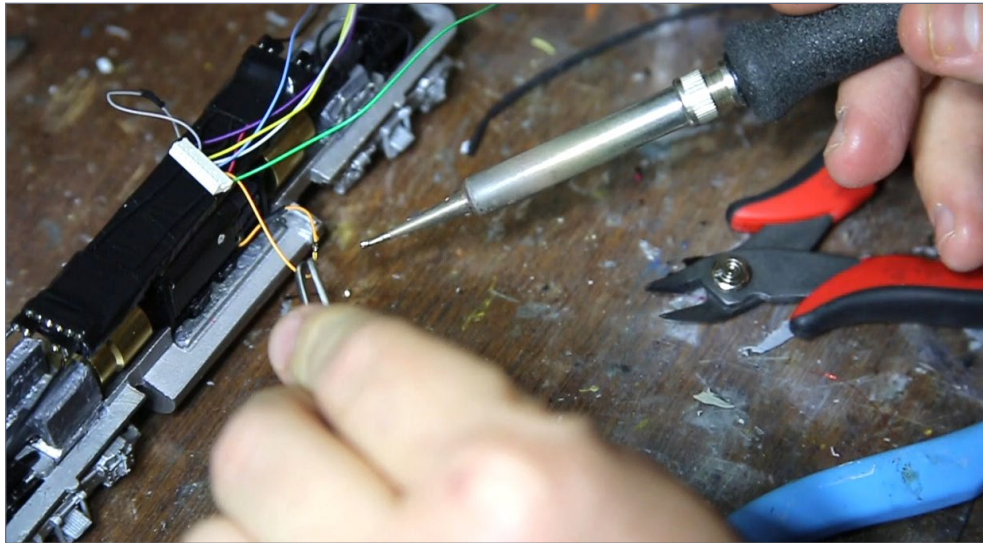
25. Pin sets are super glued to the ends of the weight strip.



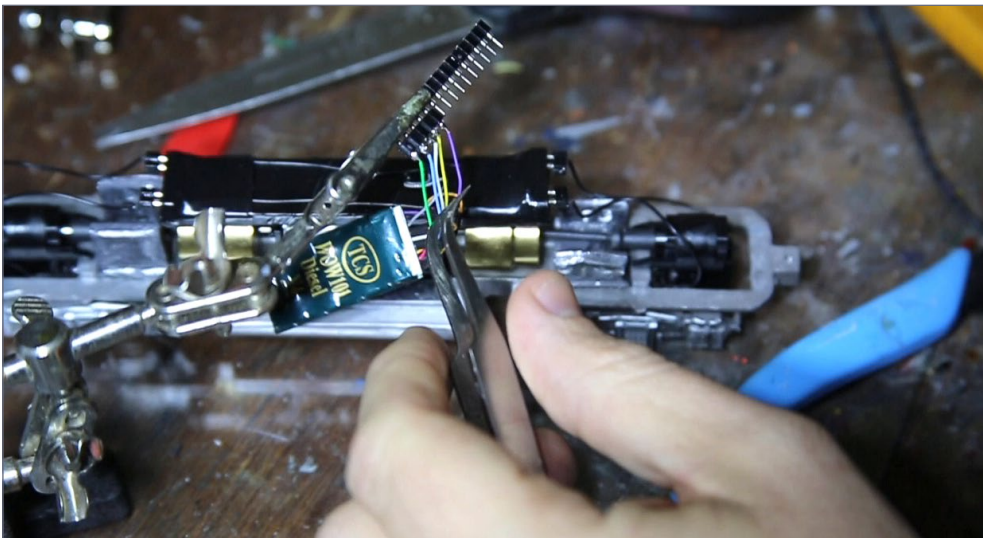
26. Red and black wire leads from this harness will connect to the decoder.



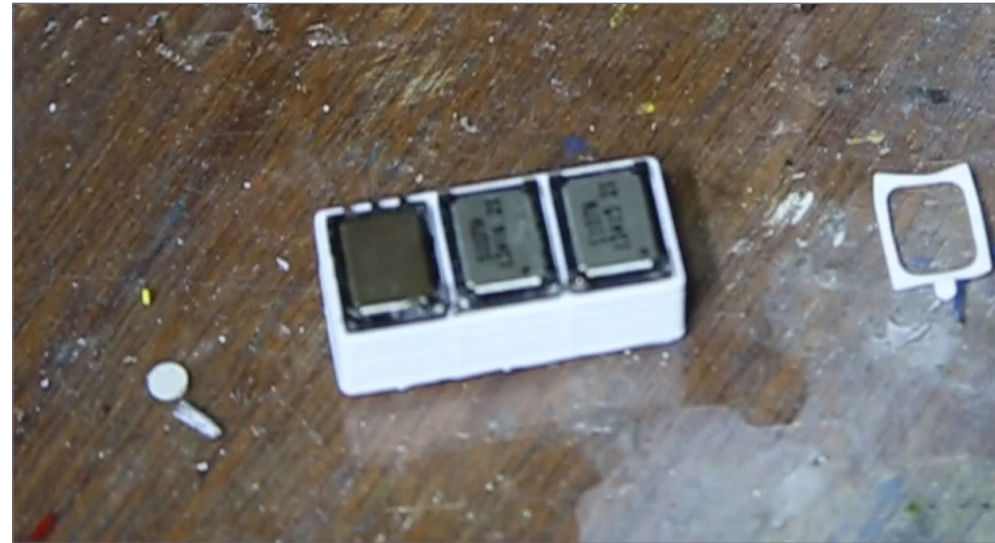
27. The decoder and weight are secured with double-side tape above the motor.



28. Motor and track power leads are soldered in place.



29. The Green, Blue, White, Yellow and Purple wires are soldered onto the male ends of a set of five sip pins from the decoder harness.



30. A customized speaker baffle accommodates three 15x11mm micro speakers with the foil side facing into the baffle.



31. One purple wire from the decoder is routed to each end of the white speaker assembly. The speaker assembly is mounted to fire down through the rear truck well.

decoder instead of a motherboard/21-pin decoder configuration is that you can use the space a motherboard might have occupied to add more weight.

I discovered I could use a seven segment, 1¾ oz. strip of lead weight on top of the motor, with the ends still above the flywheels.

I removed the weight's adhesive backing and wrapped it in electrical tape, both for isolation and for encasement. I cut two six-pin sets of sip pins, and mounted them to the ends of the weight, male ends facing toward the middle of the weight, using superglue.

I soldered red wires to connect the sip pins on the engineer's side and black wire to connect them on the conductor side. I soldered red and black wire leads to the front sip pin sets as these would be connected to the decoder [26].

The ends are secured with another round of electrical tape and the weight is attached to the motor with double sided foam tape [27]. These two wires would serve as the conduit for track power. I soldered pairs of SIP pins to each truck wire and plugged them in.

I then soldered the Red, Orange, Gray, and Black wires of the seven pin decoder harness to the motor and track power leads, being sure to cut out and set aside any excess wire [28]. I soldered the Green, Blue, White, Yellow and Purple wires onto the male ends of a set of five sip pins [29] from the decoder harness.

I am trying a speaker baffle that I found on Thingiverse, modified in Blender, and printed on my Dremel 3D printer. It has accommodations for three 15x11 mm micro speakers [30]. I fit the speakers, foil side facing into the baffle and wired the leads in series. I wired one purple wire from the decoder to each end of the assembly. I secured the speaker assembly so that it will fire down through the rear [31] truck well.



32. We're near the end, with delicate details like cut levers, windshield wipers, and wind deflectors being applied.

The final step, before I reassembled the locomotive, were some final details. I drilled four #78 holes across the top of each pilot to accommodate the cut levers.

I drilled #63 holes into the pilots to accommodate MU hoses (I use 30 AWG single strand wire for this) and the MU Cable detail assembly from Details West. I made four eye loops for each pilot from Tichy Trains Phosphor Bronze wire, and bent cut levers from the same.

I also bent a few grab irons to mount into the free flowing air duct, the rear pilot, and the plow. Checking my reference photos, I installed mirrors, wipers, and other details [32].

Finally, for the number boards, I measured the openings, used a computer graphics program to design them, and printed them on regular paper. I glued them face down onto acetate plastic packing material, which I cut to size and installed into the openings.



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





33. With assembly complete, a night scene was staged to see how the GP60M's lighting looked coming . . .



34. . . . and going.

With that, I mounted the shell to the chassis, reinstalled the couplers and handrails, completing the model.

On to programming and testing [34 & 35] the finished model's lighting at night. Finally, we photographed the finished model [36], outdoors on a diorama. ☒



35. Sunlight shows off the improved detailing. ☒

★★★★★
RATE THIS ARTICLE

Take the MRH
2020 Reader Survey ...



... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



amazon

TAKE THE SURVEY >>



Zephyr Express, the Fast Track to Digitrax Complete Train Control

- 3.0 Amp LocoNet Command Station, Booster, & Throttle
- Color 2.4" LCD Screen
- Large Backlit Keypad
- Runs up to 20 Loco addresses and throttles
- Integrated USB Computer Interface
- Control lights and sound with 29 functions
- Simple Set-Up with Easy to read display

Introducing

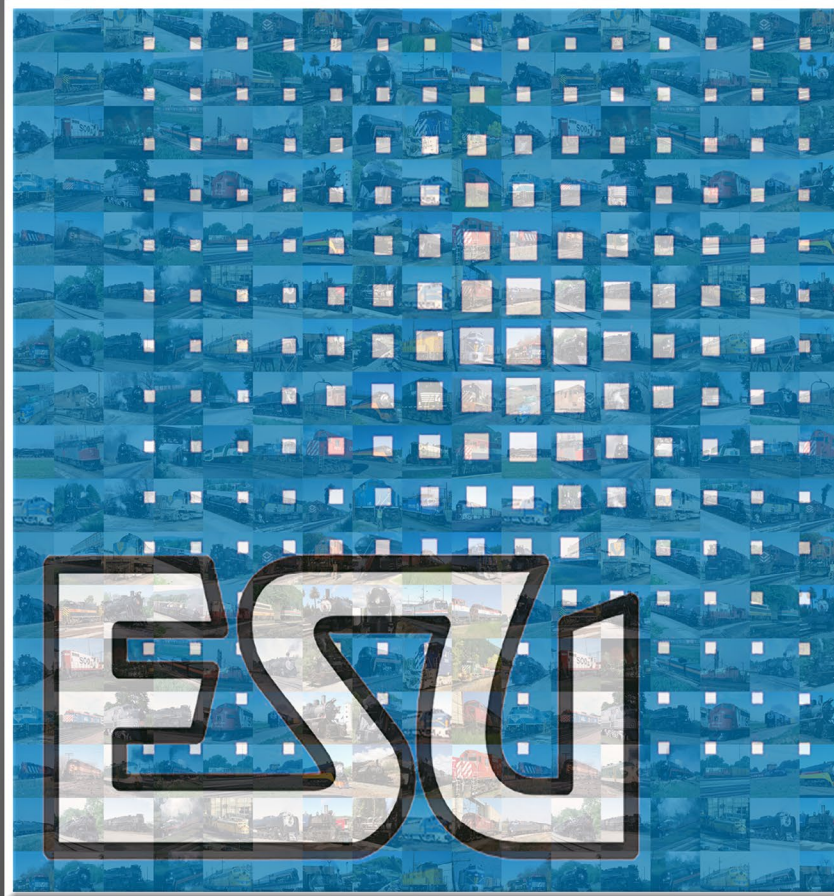


Find out more @ www.digitrax.com/dcs52

\$235.00 MSRP

Don't settle for all your locos
sounding the same!

ESU now has **OVER 100**
"LokSound" files to choose from!



Because "Close Enough" is no longer
"Good Enough"

LokSound.com

Make your own StayAlive



1. Build this compact
StayAlive circuit for less
than \$10.



Model Railroad Hobbyist | June 2020

BOB MORNINGSTAR: supercapacitor based "StayAlive" for less than \$10 ...

IF YOU WANT TO BUILD YOUR OWN INEXPENSIVE StayAlive DCC decoder circuit, then read on. My example focuses on StayAlives for Soundtraxx Tsunami and Econami PNP style decoders, but you can easily adapt my methods to other decoders. I call out call out the differences as I go along.

Capacitor-based energy storage for DCC decoders has been around for about a decade. An internet search finds model railroad forum postings from 2011 mentioning the Train Control System (TCS) KA-1 Keep-Alive® available as an add-on for any



RATE THIS ARTICLE

decoder. Other early vendors included Lenz, but their UCP Power Module only worked with Lenz decoders at the time.

TCS has trademarked the term Keep-Alive®, so for the remainder of the article I use the generic “StayAlive” term. I also have found “currentkeepers” used to describe these circuits. CurrentKeeper is a trademark of SoundTraxx

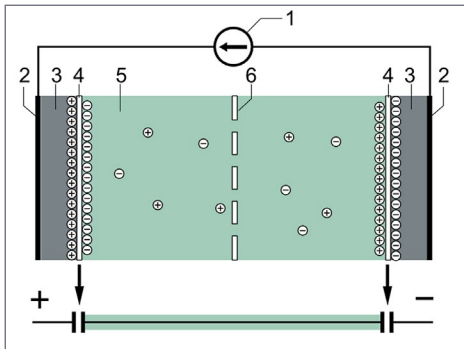
I found *MRH*’s first mention of StayAlives in the December 2012 issue’s “DCC Impulses” column by Bruce Petracca:

model-railroad-hobbyist.com/magazine/mrh-2012-12-dec/di_basic-electronics-for-dcc.

Energy to be stored enters the circuit via the two pin connector, then resistor R1 limits the current flow during charging to reduce the “in-rush” current to the drained capacitors.

Diode D1 limits the current flow to one direction only, and the optional Zener diode D2 acts as a safety device to allow current to flow around the capacitor bank (thus preventing damage to them) when the supply voltage reaches the conducting breakdown voltage specified in the diode manufacturer’s data sheet.

About capacitors



2. Typical construction of a supercapacitor:

1. Power source
2. Collector
3. Polarized electrode
4. Helmholtz double layer
5. Electrolyte having positive and negative ions
6. Separator

Source: Wikipedia,
en.wikipedia.org/wiki/Supercapacitor, Creative Commons License.

Capacitor technologies, regardless of the chemistry used, all store electrical energy in two electrodes, an electrolyte substrate, and a membrane separating the two electrodes.

The two terminals (electrodes) of a supercapacitor have an extremely high surface area and use variations of activated charcoal for construction. This high surface area gives supercapacitors the ability to store large amounts of energy.

A liquid electrolyte surrounds the electrodes – which stay separated from each other by a permeable membrane.

Improvements in electrolytic and electrode chemistry laid the groundwork for the development of supercapacitor technologies.

Over the past decade, the pricing for supercapacitors has decreased significantly, the capacities have increased, and multiple

Continued on next page ...

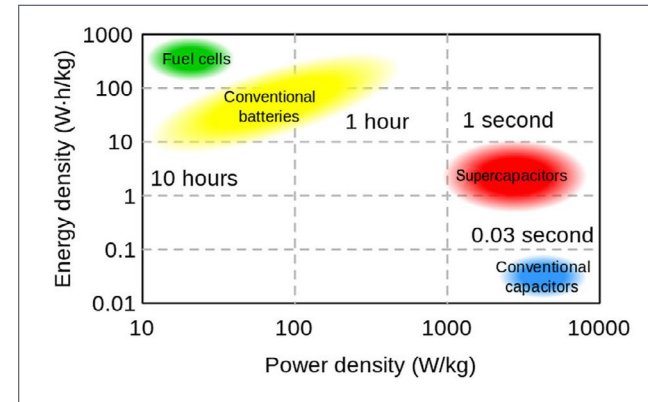
About capacitors *Continued ...*

form factors have become available. Supercapacitors have become popular in battery-based portable automotive jump start units, now available for a very reasonable cost.

The primary differences between traditional capacitors and supercapacitors are two-fold:

- They store more energy than traditional capacitors for the same form factor
- Supercapacitors have a very low operating voltage, generally 1-6 volts

The lower operating voltages can be addressed in model railroading applications by using supercapacitors in series in the circuit. I show how to do this in the article. ■

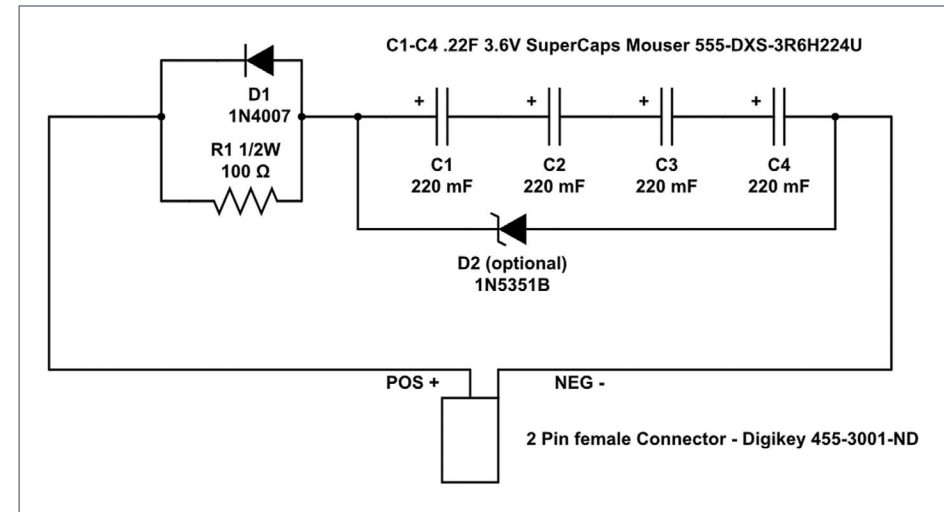


3. Source: commons.wikimedia.org/wiki/File:Supercapacitors_chart.svg, *Creative Commons license*

In the case of a 1N5351B Zener diode, that nominal voltage is 14V. If you are going to use the Zener diode, pick one that will conduct current at a voltage closest to the cumulative voltage rating of all the capacitors but not over it.

In the case of this circuit, that would be $3.6V \times 4 = 14.4V$, thus I use a 14V Zener diode. Using a 15V zener diode exceeds the cumulative voltage of the capacitor bank and will significantly reduce the service life of the capacitors, if not destroy them.

I do not use the Zener diode, since my track voltage rarely exceeds 14V. In the past three years of building and using this circuit, no damage has occurred. But if you don't want to chance it, you can always add the Zener diode.



4. Stay-Alive circuit schematic.

MAKE YOUR OWN STAY ALIVE | 6

Bill of materials

The components needed to build your own StayAlive come in at a total cost of under \$10.00 [Table 1]. Mouser, Digi-Key, and others have some or all of the components needed.

The only component that requires careful selection is the supercapacitor (and Zener diode if used). The other components have a wide tolerance in part selection.

You could pick a different capacitor based on your needs for more or less energy storage; or to accommodate a different physical form factor. The supercapacitors I have used have a very flat form factor of $\sim 1/4$ " (5mm) thick by $\sim 1/2$ " (11mm) in diameter. This flat, long skinny shape when ganged together fits quite well inside a loco shell.

It is critical to the safe operation of the circuit that all four capacitors be exactly the same, no mixing and matching of dissimilar components!

If connecting your StayAlive to decoders with a 2 pin, 1 mm pitch JST micro-connector like the ones used on SoundTraxx decoders, Digi-Key part number 455-3001-ND will work.

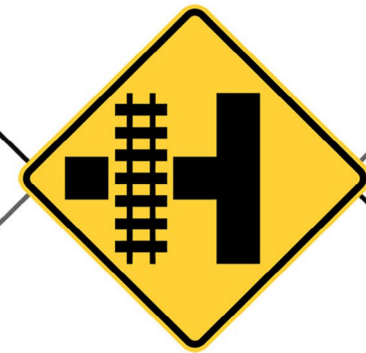
They are priced at \$0.95 cents each in quantities of 10. Each part has a connector at both ends, cutting them in half will double the available quantity, reducing the component part price to \$0.47 per StayAlive [5].

Qty	Component	Part Number	Pricing	
4	Supercapacitors, 3.6V .22F	Mouser 555-DXS-3R6H224U	\$6.64	\$16.66, quantity 10
1	Resistor, 110 Ohm, 1/2W	Mouser 603-CFR-50JB-52-110R	\$0.07	\$0.70, quantity 10
1	Diode, 1N4007	Mouser 821-1N4007G-KR0G	\$0.23	\$2.30, quantity 10
1	Zener diode, 1N5351B	Mouser 833-1N5351B-TP	\$0.49	\$4.90, quantity 10
Total			\$7.43	

Table 1. Bill of materials.



Your one stop shop for:
 Digitrax, NCE, Speakers,
 SoundTraxx, ESU LokSound,
 Train Control Systems (TCS),
 Tam Valley Depot (TVD),
 & More!



www.LitchfieldStation.com
sales@litchfieldstation.com
623-298-7355

MAKE YOUR OWN STAY ALIVE | 7

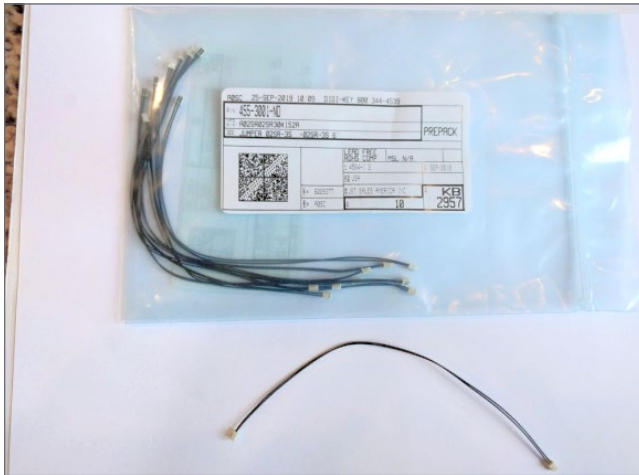
Other incidental components needed that I've not included in the price: wire and shrink wrap. You can buy these at Amazon and other distributors. Ten millimeter shrink tubing works well for encasing the capacitors and associated electronics. I also use 6mm shrink tubing to encase the diode and resistor.

For decoder installs, you can't go wrong with the BNTECHO 30-gauge silicone wire in 10 different colors available from Amazon. This product provides more wire than I can use in a lifetime of decoder installs.

Tools needed include solder, flux (helpful but not absolutely required if you're already using rosin-core solder), wire nips, and a soldering iron. I use a variable heat soldering pencil, Chip-Quik 0.020" diameter 63/37 rosin-core solder, and my own custom-made rosin flux (subject for another article).

Construction overview

I assume that you have basic soldering skills. Remember that when soldering, setup of the components and cleanliness of the parts pay huge dividends in making a solid connection with minimal heat used.



5. JST connector details.

ADVERTISEMENT

Make LocoNet wiring extremely simple!



**Suitcases belong in your baggage cars,
not under you layout!**

**Check out the DCC Vampire II ...
this guy does the job of two suitcase
connectors!
And really holds the connection good
too!**



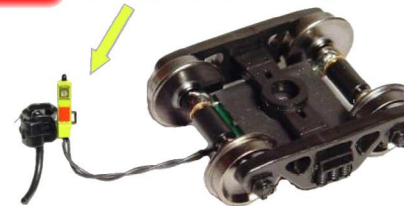
CLICK NOW TO DISCOVER THE AMAZING VALUE!

Dealer Inquiries Accepted

ADVERTISEMENT

END OF TRAIN DEVICE

NEW SAFETY GREEN



**Bright Red
Flashing Light!**

**Installs in minutes!
No freight car
modification required!**

Patented Technology - US Patent 7,549,609

Does not affect Load!

↓ Car without Load ↓



↓ Car with Load ↓



**Click Here to
Learn More**

RE RINGTM
ENGINEERING

MAKE YOUR OWN STAY ALIVE | 8

Tin both sides of a connection before making the joint. Avoid overheating components to prevent damage. Don't worry about excess solder – we will dress the connections with a file or grinding tool when done

Also observe the polarity of the diodes and capacitors during the construction. *Getting any polarity wrong may result in a non-functioning circuit or damage/destruction of components or your decoder.*

I include testing procedures so you can verify the correctness of construction prior to hooking the device up to your decoder.

Construction details

Lay out your components and note the polarities marked on each component. Diodes have a band on the cathode (-) end of the device, the supercapacitors I used have a "+" and a "-" embossed the top and bottom of the aluminum can. There is also a stripe on the packaging pointing you to the negative electrode, see image [6] on the next page, top right.

I use modeling clay to hold the components in place when test fitting the layout and when doing the actual soldering. The clay helps hold everything nicely in place and frees up your hands to hold both soldering pencil and solder.

You do not want to be soldering components and have them move while heat is applied [7].

Conclusion

Your first StayAlive might take an hour or two – after you get the hang of it you can assemble one in about 30 minutes.

With this StayAlive, you can bend your capacitor bank into shapes other than "four in a row." You could stack them vertical or connect them in a stacked two by two configuration.



DCC + RADIO CONTROL

HO Scale Locomotive Module

**ULTIMATE
SERIES
SOUNDS**

**TRUE
MOTION
TECHNOLOGY**

**LIGHT
EFFECT
EDITOR**



New Sound Technology and Mathematical Model Motion Control + more!!!

 + 

Equals
"DUAL MODE"
Control by DCC +
Radio Control

**Click Here to
Watch Video**

For more information visit our Internet site: www.RingEngineering.com

ADVERTISEMENT

ADVERTISEMENT

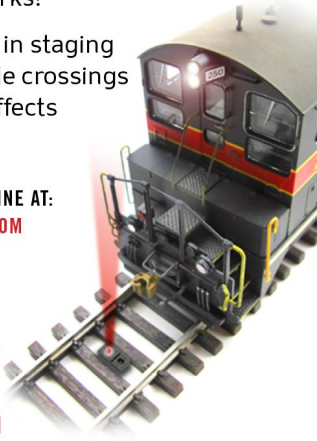

ROCK SOLID TRAIN DETECTION™

Infrared train detection
that simply works!

- Detect trains in staging
- Activate grade crossings
- Play sound effects
- And more!

Our best-selling
Micro Switch Machine

PURCHASE ONLINE AT:
IASCALED.COM

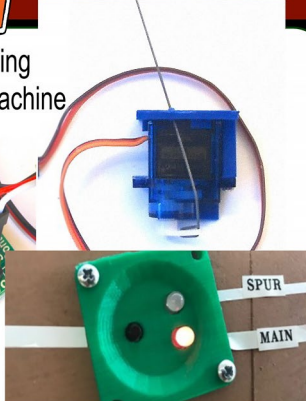
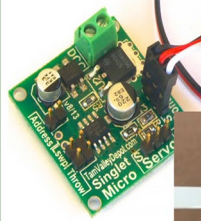




TamValleyDepot.com

Home of the
Frog Juicer

Our best-selling
Micro Switch Machine



3D Printed Switch Machines and
Fascia Controllers now available

MAKE YOUR OWN STAY ALIVE | 9

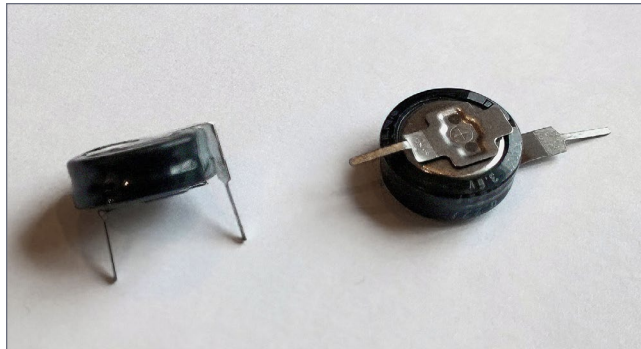
The most critical items to remember is observe the polarity of the components and to test before you install it in your \$100+ decoder

Have fun building your own inexpensive flat form-factor StayAlive!

Step-by-step on the following pages ...



RATE THIS ARTICLE



6. Close up of supercapacitor markings.



7. Use modeling clay to hold the components in place while soldering.

Great control in a tiny package



**Original
Touch Toggles**

- Touch Toggle™ plug in controls
- Bright clear indication
- Easy setup
- Flexible system

Stall Motors, Twin-coils,
Power, and Servos

Now for Tam Valley Depot
and MRservo too!



Made in the USA

What will they think of next?

www.berrethillshop.com

ADVERTISEMENT

www.SBS4DCC.com



N - HO - HO_{N3} Scale Trains



**Take the MRH
2020 Reader
Survey ...**

amazon



... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)

TAKE THE SURVEY >>

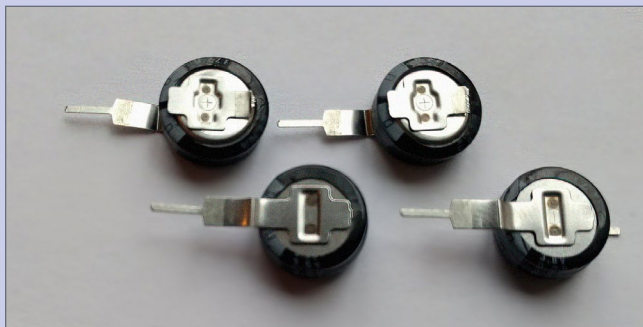
STEP 1: PREPARE AND SOLDER THE CAPACITORS

This is the most time consuming and demanding part of the construction process.

First bend the legs of each cap as shown in [8]. Lay out the components in a line and alternate the polarity orientation of each capacitor.

Starting with the leftmost cap, orient it so the “-” marking points up at you, then orient the next cap so the “+” mark faces upward, then “-” up, and finally “+” up [8, 9]. If it helps, use a permanent marker to number each capacitor left to right from 1 to 4 to keep them straight.

We will refer to side A and B of the construction throughout the build. This helps the cap orientation make sense as you follow along.



8. Caps oriented in order with positive legs removed, except cap 1 left. This is Side B.



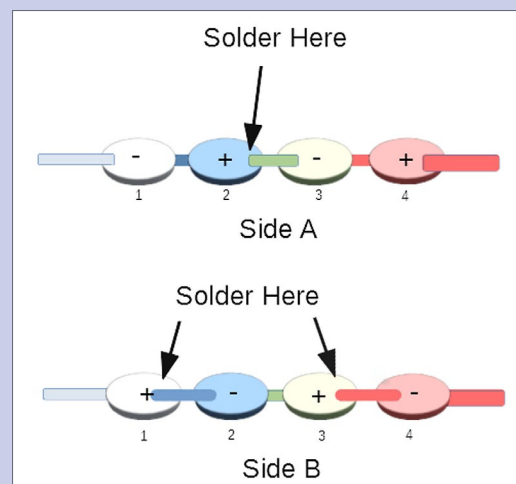
9. Caps in clay “jig” awaiting solder, with side B up.

Cut off all the “+” legs except for capacitor #1.

Use Drawing 2 and Table 1 below as a guide of which legs to cut off and which to solder. Why cut off the positive legs? They are not needed as we will use the negative legs to make the bridging connections, and it will make the entire soldering operation easier. It also allows us in later steps to fold capacitors on top of each other

to make other StayAlive geometries.

You will be soldering the “-” terminal of one cap to the “+” of the next capacitor. In total there will be three solder connections, one on side A and two on side B.



Drawing 1. Capacitor solder points.

STEP 1: PREPARE AND SOLDER THE CAPACITORS *CONTINUED ...*

Now that you have the capacitors prepped and in the right order, use modeling clay to make a jig to hold the caps in place while making the soldered bridge connections.

Look at [10] to see what side B will look like after the solder connections are made. Take a Dremel tool with a grinding disk or a file and gently remove any excess solder, but not so much as to compromise the strength of the connection. We will then turn each cap over in the jig and make the connections to side A.

Capacitor #	Positive terminal	Negative Terminal
1	No solder	Solder to positive leg of cap 2
2	Solder to negative leg of cap 1	Solder to positive leg of cap 3
3	Solder to negative leg of cap 2	Solder to positive leg of cap 4
4	Solder to negative leg of cap 3	No solder

Table 2. Capacitor solder leg connections.



10. Side B soldered.



11. Side A soldered.

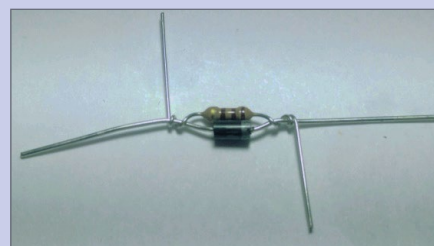


RATE THIS ARTICLE

STEP 2: PREPARE AND SOLDER THE RESISTOR / DIODE ASSEMBLY

Next, put together the diode/resistor assembly part of the Stay-Alive circuit.

I used a general purpose 1N4009 silicon diode and a ½ w 110 Ω resistor. Wrap the leads of the devices and solder them together [12, 13].



12, 13. Diode/resistor assembly.

Now mate the diode/resistor assembly to the capacitor bank. Solder the components together using the red circles as a guide. Make sure you are soldering the anode end of the diode to the “+” capacitor lead [14].



14. Solder the end of the resistor/diode assembly to the capacitor bank as shown.

STEP 2: PREPARE AND SOLDER THE RESISTOR / DIODE ASSEMBLY *CONTINUED ...*

After soldering the components together, you will have an assembled StayAlive that looks like [15].

If you're adding the Zener diode, the anode (marked) end solders to the "+" capacitor lead (red circle in [14]), and the other end of the Zener diode solders to the "-" end of the capacitor array. I ordinarily do not add the Zener diode and I have been fine.



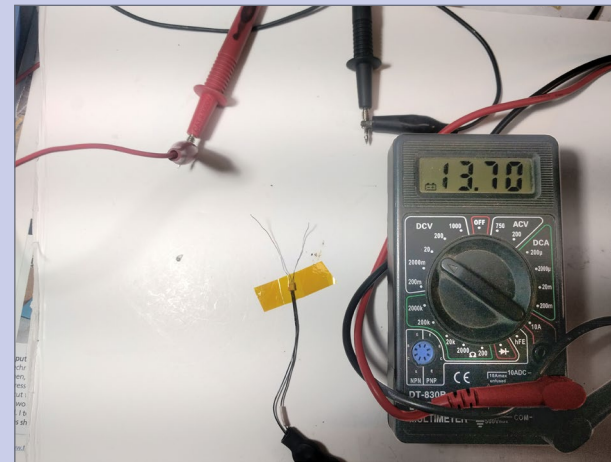
15. StayAlive completed minus shrink wrap.

VIEW READER COMMENTS

STEP 3: TESTING THE STAYALIVE

The next step is to test your StayAlive before encasing it in shrink wrap/tubing. Apply a DC voltage that is less than the working voltage rating of the StayAlive, in this case less than 14.4 V.

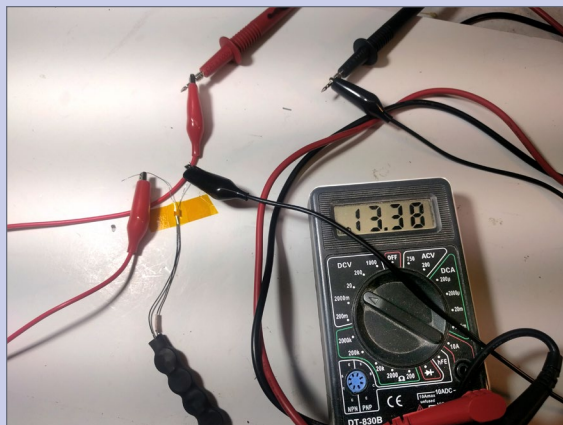
Make doubly certain that you apply the negative supply voltage to the wire lead that connects to the negative terminal of the capacitor bank, and that you connect the positive power supply wire to the wire leading from the diode/resistor assembly. Verify the supply voltage with a VOM before making the final connection.



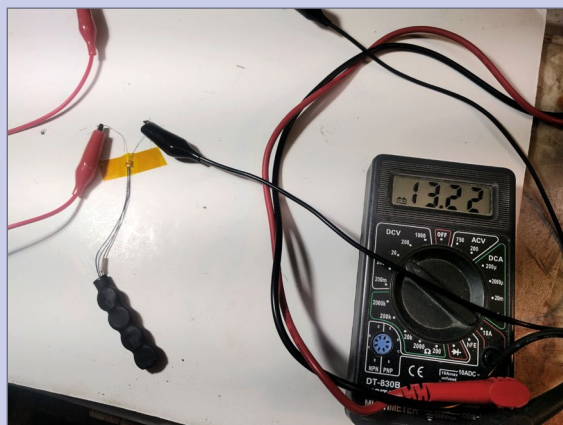
16. Verify power supply voltage before connecting – it needs to be less than 14.4V.

Attach the supply voltage to the StayAlive and let the capacitor bank charge for a minute or two, then remove the charging supply leads and apply the VOM test leads to the StayAlive leads.

Without the power supply connected, you should at first get a voltage very close to your supply voltage that will begin to steadily decrease over time [17, 18].

STEP 3: TESTING THE STAYALIVE *CONTINUED ...*

17. Discharge voltage at start of test.



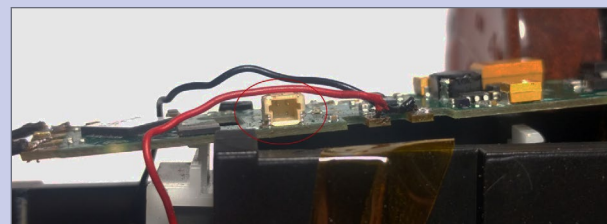
18. Discharge voltage after 30 seconds.



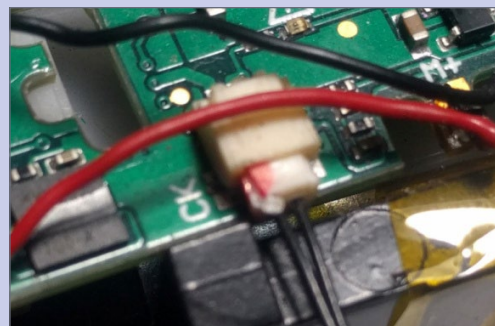
STEP 4: ADDING A JST PLUG (OPTIONAL)

If you want to install the StayAlive on a decoder equipped with a male 2x1mm pin JST connector, then follow this procedure:

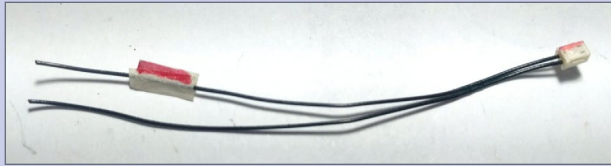
- On Soundtraxx decoders, the current keeper female connector is located on one side of the decoder board, refer to the red circle in [19]. The pin to the left is the + positive lead. For other decoders, consult your decoder manual.
- Take the male JST connector listed in the bill of materials, plug it into the decoder temporarily to find the positive side of the plug, and mark the positive lead as shown in [20] and remove it from the decoder. Mark the wire lead for the positive pin as in [21] and [22]. I do this so I have no chance of crossing the wires when making the final solder connections to the StayAlive.



19. Soundtraxx Current Keeper JST female connector.

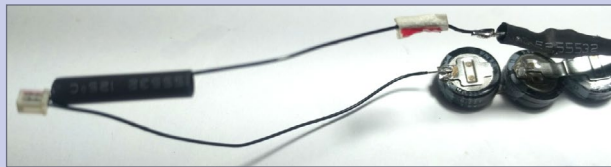


20. Closeup of the JST connection, note the CK board marking on the left side and the red marking added to the connector.

STEP 4: ADDING A JST PLUG (OPTIONAL) *CONTINUED ...*

21. JST connector positive lead marked.

Connect the female JST plug and lead to the StayAlive as depicted in [22]. I have included an additional section of shrink tubing that I will slide down over the solder connection and shrink with heat to prevent a short circuit between the solder connection and the negative terminal of the leftmost capacitor.



22. Installation of the JST leads.

Note: For non-Tsunami or SoundTraxx Econami decoders, you will need to consult the manufacturers website and technical reference material to find the appropriate positive and negative solder pads to connect to.

In the reference section, I provide links to websites by Mark Gurries and Marcus Ammann that have a wealth of material on how to find the appropriate StayAlive locations for various decoders.



RATE THIS ARTICLE

STEP 5: FINAL ASSEMBLY

I encase the StayAlive components first with 6mm shrink wrap tubing around the diode/resistor assembly, then encase the entire StayAlive in 10mm shrink tubing.

Use the tip of the soldering iron or a hot air gun to shrink the tubing [23]. Do not install the 10mm shrink tubing until you decide what type of final wiring connection you will use.



23. Shrink tubing installation.

Finally, I slip the 10mm shrink tubing over the entire assembly and apply heat to shrink tubing.

As a precaution against pulling the wire leads out, I apply two part epoxy to the end of the assembly where the wires attach. The epoxy provides more mechanical resistance than relying solely on the soldered connections.



24. Assembled and ready to install StayAlive.

References:

General Information and Theory of Operation of Supercapacitors:
en.wikipedia.org/wiki/Supercapacitor

“More Stay-Alive Insights” MRH May 2019 Marcus Ammann and MRH Staff

“Cap that Decoder” Mike Garber, Crossties (James River Division of the MER, NMRA) Feb 2019 (focus on non-supercap decoders) www.nmra.org/sites/default/files/sr202002-keepalives.pdf

Easy DIY DCC Keep Alive www.youtube.com/watch?v=EOE0BCVJ0IU&feature=youtu.be

Marking your own DCC StayAlive model-railroad-hobbyist.com/magazine/mrh2019-06/electrical-impulses

Connecting StayAlives to various manufacturer's decoders by Mark Gurries: sites.google.com/site/markgurries/home/decoders/keep-alive-compatibility

Connecting StayAlives to various manufacturer's decoders, Marcus Ammann: www.members.optusnet.com.au/mainnorth/alive.htm

General Overview of StayAlives for DCC: dccwiki.com/Energy_Storage ✓

BOB MORNINGSTAR



Bob Morningstar has been a model railroader since his parents gave him a Marx HO scale train set in 1968.

Bob based his current layout on the Western Maryland Railway as it existed in the late 1970's.

Bob also has a strong interest in the operations part of the hobby and participates in a round

robin ops group in his local area. You can find more about Bob's layout on the web and can be viewed at wmrwy.com.

Bob's manages the cybersecurity engineering division for his employer and is a retired Air Force Lt Colonel. He lives in South Central Pennsylvania with his hobby-supportive wife, Jane. ■



Southern Digital

WWW.SODIGI.COM

Celebrating 25 Years of serving you !

Complete wireless Wi-Fi Smart Phone Interface Digitrax Zephyr Set
Supports up to 5 phone throttles at a time!

Software Downloads for both Android (Engine Driver) or Apple (WiThrottle) cell phones. Free Lite version or Advanced paid versions available.



\$336.95 Value
\$265.00 Your Price
\$71.95 You Save

DCC Conversions, Service & Support
E-mail: sales@sodigi.com (770) 929-1888



From first train set to railroad empire...

Our complete line of DCC products grows with you. Discover the fun!

- Designed and manufactured in the U.S.A.
- Preferred for ease of use and ergonomic design
- Unlimited scalability for any size model railroad
- Plug-and-play means more time running trains
- Great customer service and excellent support



Visit our new and improved web site for all your DCC needs!

- Get the latest new product announcements
- Watch our detailed how-to videos
- Browse the all-new Information Station
- Enjoy secure online sales, day or night!



See your dealer

Visit **ncedcc.com**



MRH MARKETPLACE



INTER-ACTION Hobbies

Rail and Tie Craftsman Kits

Beam me up!
Click Here



El Taco Food Truck!

Kit #HO-7514

www.interactionhobbies.com



**WEATHERING
POWDER**
**MONROE
MODELS**
www.monroemodells.us

PRECISION DESIGN CO.

CUSTOM DECALS FROM
YOUR OWN ART IN JUST ONE DAY

PDC.CA

FULL COLOR & SOLID WHITE

Model Railroad Control Systems Geoff Bunza Project Boards • DCC Occupancy Detectors
CMRNet Compatible Nodes • Layout Telephone Systems • RFID Switchlist Generator • Switch Machines and Drivers

Take the MRH
2020 Reader Survey ...



... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



amazon

TAKE THE SURVEY >>

Great Decals!™

FEC, Interstate, Virginian
Railway, & L&N Titles
After Hours Graphics Line
Coupler Gages and More
In O, S, HO, and N Scales



P.O. Box 6 Paonia, CO 81428
Ph. 970 527 4586
Made in The USA
Cast resin items for All Scales.
Tunnel portals, bridge piers, abutments,
culverts, and retaining walls.
Trackside details and sage brush tree
armatures.
"FREE SHIPPING see website for details"

click me!



THE TRAINMASTER, LLC

Detailed Craftsman Kits

www.TheTrainMaster.com

MRH MARKETPLACE | 2

LOOK
at what's new at
Black Cat this month

Click here for
our website

CNR 50' DD box car
in as built leaf scheme



Black Cat Publishing
(204)489-5005
ajfergus@mymts.net
blackcatdecals.com



MOUNTAIN SUBDIVISION HOBBIES

www.modelrrsupply.com

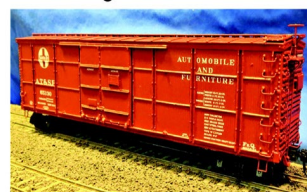
FREE USA SHIPPING OVER \$49.00

MRH Readers save with code:

MRHMAG19

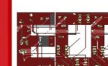


**NEW KIT: AT&SF
Fe-Q/Fe-R/Fe-V**



westerfieldmodels.com

click to learn more!



East Coast Circuits
Innovating Your Model Railroad Layout

P.O. Box 25412
Providence, RI 02905

Lighting Circuits For Your Layout

Random Lighting Circuit - Burning Fire Circuit
Traffic Light Circuit - Crossing Signal Circuit

Custom Lighted Vehicles
HO & O Scale Emergency Vehicles
HO & O Scale Trucks & Cars

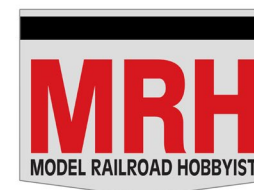
Eastcoastcircuits.com

Eastcoastcircuits@gmail.com

**MONASHEE
LASER
ENGINEERING**

COME VISIT US
CLICK HERE

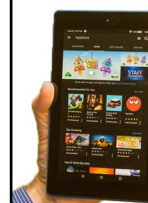
MANUFACTURERS OF RAILROAD
STRUCTURES AND SCENIC STOCK MODEL KITS
**OFFERING
NEW SERVICES**



**Take the MRH
2020 Reader
Survey ...**

amazon

... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



TAKE THE SURVEY >>

MRHMAG.COM

REGISTER
(free)

[INDEX](#)

[TABLE OF CONTENTS](#)



Take the MRH
2020 Reader Survey ...



... and get a chance
to win a 7" Kindle
Fire tablet!
(5 tablets will be awarded)



amazon

TAKE THE SURVEY >>

LOGIC RAIL™
TECHNOLOGIES

"Sophisticated
Model Railroad
Electronics"

Please visit our website and online store!

21175 Tomball Pkwy Suite 287 Houston, TX 77070 Phone: (281)251-5813 <http://www.logicrailtech.com> info@logicrailtech.com

Have you seen these
popular blogs on the
MRH website?



John Winter's PRR

108,900 reads

CLICK TO READ IT NOW



Randy Seiler's B&O/PC

326,000 reads

CLICK TO READ IT NOW



FAST TRACKS

Build your own trackwork easily, quickly, and affordably.

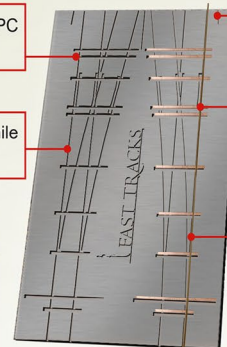


TRACK BUILDING SYSTEM

★★★★★
Precision milled pockets accommodate PC Board ties that are soldered to the rails.

★★★★★
Track slots ensure perfect alignment while soldering the rails to the PC Board ties.

Each turnout fixture can be used to construct both right and left turnouts that are DC and DCC compatible.



★★★★★
Guard rail forming grooves are provided to precisely shape the guard rails.

★★★★★
PC Board ties are soldered to the rails using a standard 35 watt soldering iron.

★★★★★
Rails are inserted into the fixture right side up, making it easy to confirm alignment.

★ Fixtures are machined out of a solid piece of high grade 6061 aluminium stock and will last for thousands of uses.

Turnouts are built using pre-cut PC Board ties dropped into pockets cut into the fixture.

Held in precise alignment, rail is then soldered in place onto the ties.



The Fast Tracks PointForm tool makes it fast and easy to file perfect frog and switch points for the turnout.

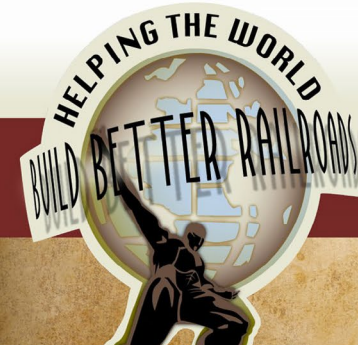
Just insert the rail into the tool and file.



Finishing the turnout is simple with QuickSticks laser cut wood ties.



Simply glue the soldered trackwork to the wood ties, break off the frets, and your turnout is ready to be installed onto your layout!



All Fast Tracks track fixtures and tools are NMRA compliant



• Easy ordering •

Earn Waypoints with every purchase

shop online 24/7 handlaidtrack.com

1-888-252-3895 service@fast-tracks.net

The K10 Hobby Shop Layout



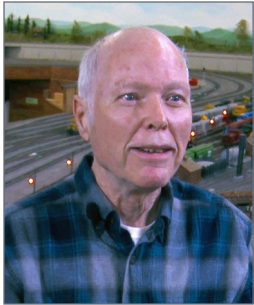
***MRH visits the 60' x 81' K10 Hobby Shop
layout in Maryville, Illinois ...***

1. Retired military pilot Ken Kroschwitz built a large prefab building to host a hobby shop and this nicely done HO layout. In recent years Ken has developed Parkinson's, but he carries on running his K10 hobby shop and hosting this large layout behind the shop.



RATE THIS ARTICLE

MRH: KEN, AS THE PROPRIETOR AND OWNER OF the K10 hobby shop and layout, tell us a little bit about why model trains?



KEN KROSCHWITZ: I grew up in New Jersey in the 1950s. For my first Christmas at six months old, my Dad got me a Lionel train. Then every year for Christmas, it was more trains.

I continued on as a teenager by building an HO layout in our basement. Then I went on to college and stopped modeling for a while

– I just collected.

I went to flight school and spent 20 years as a military pilot. I did not do a lot of model railroading during those years. Sometimes I did have something set up when I was stationed somewhere for a while, but at other times when I was on a ship, not so much.

MRH: How did you go from being career military to starting K10 and this layout?

Ken: In my last job after retiring from the military, I was a helicopter pilot at Arch Air Medical in St. Louis. I worked twelve hours a day, four days on, and four days off. Because I had so much time off, I needed something to do.



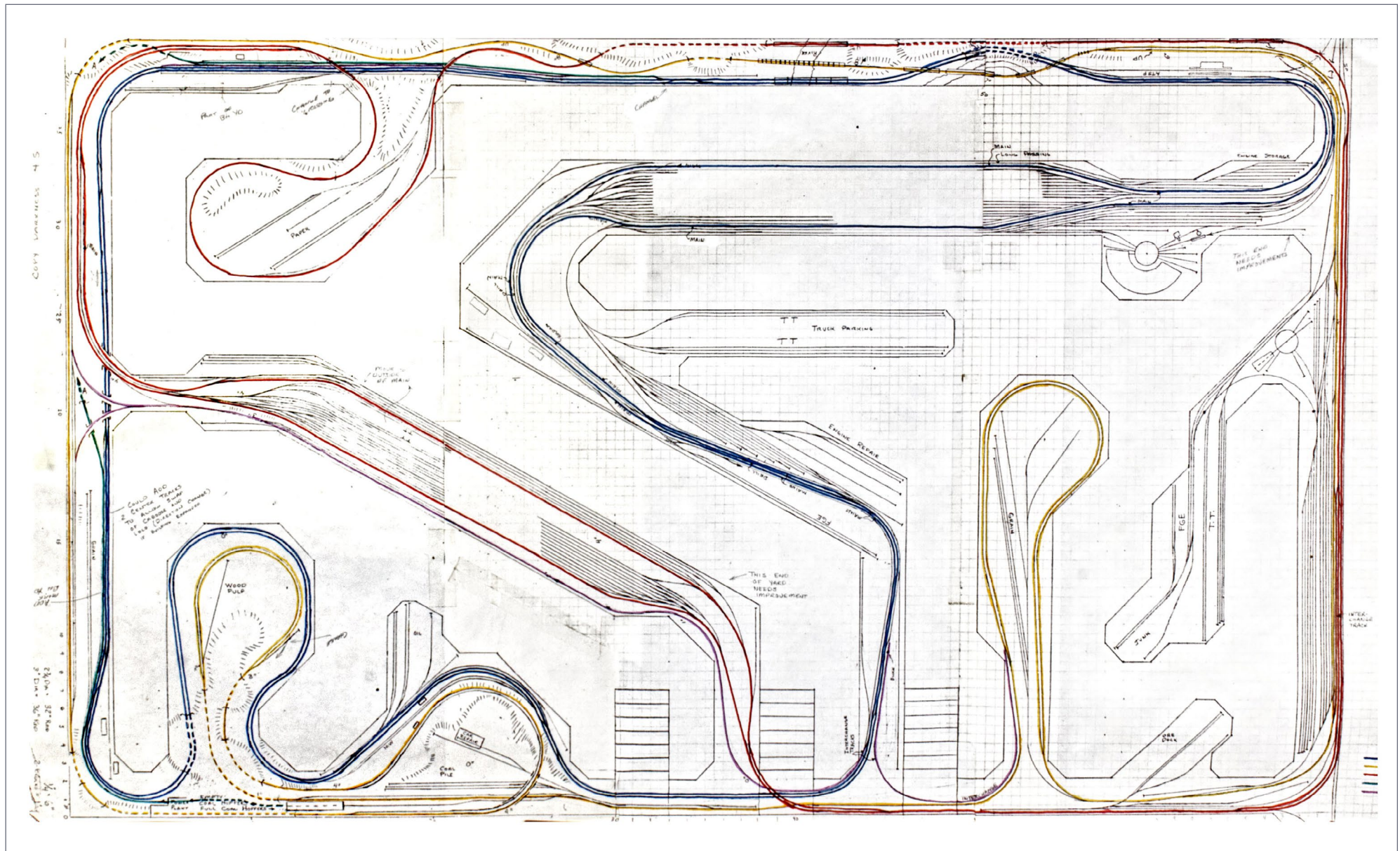
2. From the outside, the K10 store and layout looks like a modest enough structure. Once you get inside, however, the magic begins!

So I investigated buying a building to put a layout in. Because used buildings were just as expensive as new buildings, I finally opted for a new building. But then I had to find a place to build it.

I chose Maryville because they gave me the zoning to live in the building, as well as having my model railroad and hobby shop in that building. I chose Morton brand prefab buildings because they had the best building for the dollar at the time.

We began construction in March of 1997 and continued through the summertime, finishing by Halloween. There was a lot to get organized since I had decided to put a hobby shop on the front of the building.

The parking lot and the like still had to be completed. I bought some 40-foot containers to put things in – things necessary to run a hobby shop business to go with the layout.



3. K10 layout track plan drawn by Ken. The layout fits in a 60' x 81' space.

★★★★★
RATE THIS ARTICLE

KEY	
—	Santa Fe
—	Southern Pacific
—	Union Pacific

MRH: How did you do the layout plan?

Ken: The planning for the layout began before I even built the building. I planned while watching trains. The St. Louis area (Valley Junction) was a great location for watching trains. I would sit down and watch trains for hours while working on a layout design.

The basic layout plan just came and continued to adjust it here or there. I had two years to work on it, while sitting there watching trains. I kept changing turnouts from right to left and using a little genius here or there to make the plan better.

When we finally had a finished track plan, we had the building with a 60' x 81' space ready to go.

MRH: When did you actually start building the layout?

Ken: In about June of '98, we began construction of the layout.

We built a balcony, if you want to call it that. The layout benchwork took about three years to finish. We started on one side of the building and worked our way around. All the sawdust stayed in this room.

We put the benchwork on kitchen cabinets. Right now, there's 137 kitchen cabinets that hold the layout. The layout may be a bit lower than most because of the kitchen cabinets.

The kitchen cabinets are 34-1/2" tall, with 3-1/2 to 4" of benchwork on top, bringing the layout level to about 39". Some eight people helped me, most retired – so we worked on it for maybe 40 hours a week.

The layout construction worked its way around the building, and things were slow at first. But after we got the technique down with the kitchen cabinets, it went pretty well.



4. On one side of the layout, this balcony has stairs that feed into each of the aisles. The dispatcher also works from this location, which gives a birds-eye view of the entire layout.

MRH: Did you stick with the plan, or did you make any changes along the way?

Ken: We didn't change much from the original plan. We made the biggest change in the southwest corner with the big mountain on the layout. We had to change it because of too much track in the original plan.

I designed the layout the way I did because I wanted a big yard. The Santa Fe yard runs 26 tracks across – and from drill track to drill track, east to west end, the yard runs about a hundred feet.

So it's a significant yard but that's what I like: yard operation. Other people like road switching operation and others just like train running.

MRH: Did What's the minimum radius on the mainline?

Ken: The minimum radius is 37-1/2". That's what the Peco large turnout curve radius turned out to be. We like the over-centered spring mechanism they use. We use that to our advantage because with 473 turnouts, we don't have to bother with turnout switch machines. It saved us a lot.

For example, the area on the north side of the layout, the DEW line as we call it, has a hundred turnouts just in that one section along the wall. Using powered turnout throws would have driven the cost up, way up.

MRH: That's some great practical insight – using finger-flicking turnouts to avoid all the hassle of under-the-layout turnout mechanisms.

Ken: At layouts and clubs that I had belonged to, with the Tortoises and twin coil turnout throws, it seemed like you were



5. The entire layout sits on kitchen cabinets, which provides lots of storage space for equipment, tools, and supplies to populate and maintain the layout.

always tinkering with them. We didn't want those problems, so we just went with Peco center-over turnouts where you directly flick the points over.

So we now we have more than 470 of these turnouts, with very low maintenance and no need to crawl around under the benchwork!

The mainline is 1004' long. The first Sunday of each month we host open op sessions for the kids. They all travel around following each other – you are looking at up to 18 trains. It's chaos at its best!

K10 member, Tony Pellegrino



MRH: Tony, how did you get into the hobby of model trains?

Tony Pellegrino: At about two years old, I developed an affinity for trains – anything trains. Brio trains, train videos, TV shows, you name it. Apparently before I was born, my dad Joe wanted to build a model railroad but his wife said, "No, you're not building a model railroad! That's for kids!"

Three years later I was born, mom relented, and he got his model railroad! So since then, we've built five railroads together. We've spent 37 years so far enjoying the hobby together, which has been great.

MRH: How did you get associated with Ken and K10?

Tony: Back in 1998, when K10 was just getting started, a coworker of my dad's, Don McReynolds, brought us here and showed us the layout. We were impressed, and we started coming to help out. My main interest was – and is – realistic operations.

With Ken's help, we developed an ops plan for the railroad. Developing an ops plan for a railroad this size turned out to be a challenge.

This layout has three class 1 railroads on it. There's the Santa Fe, the Union Pacific and the Southern Pacific. We also have two short lines, the Switchback Railroad, and the Dugan, Emdey and Western (DEW).

MRH: Wow, that's a lot of layout. How did you tackle the problem?

Tony: We switch over 500 cars in a session. We run over 20 locals, and we run maybe 10 or 12 transfer trains. So there's plenty of work. Trying to coordinate all this is kind of like herding cats.

We developed a software system that generates four-cycle switch lists. Most people are familiar with four-cycle car cards. Ours uses the same concept. We just make switch lists for the entire train instead.

So every four cycles, the entire thing will repeat itself. The software also generates yard lists for the yard masters to switch cars with, and to interchange with the other railroads.

MRH: So you're hosting regular operating sessions, how are those going?

Tony: We operate the third Thursday of every month, and we have between 10 and 20 people come and operate. We've been doing that for probably 15 years.

We just redid the system about two years ago, and that renewed the interest. Everybody got bored with the older system because we had ran it so many times.



6. Tony developed a car forwarding system based on car type and color – like a black tank car – and uses *that* to control car movements. The effect is similar to using car numbers, but it reduces the massive “matching car number” headaches for a layout with over 600 pieces of rolling stock.

We added some new challenges and new industries –reception has been great. We've had a lot more interest, and a lot more people showing up – and continuing to show up, which is important.

MRH: How does your switch list car forwarding work?

Tony: We don't do car numbers with our car forwarding. We do blocks of cars by color, so you'll switch two red box cars in for one blue box car.

It sounds elementary, but in essence it works the same as doing car numbers. It allows us to restage the railroad much easier than requiring us to look through 600 cars to find one car. We can substitute blocks of cars, so we don't run out of car cards.

MRH: That sounds intriguing. How does it work exactly, do I just pick any brown car, for instance?

Tony: Normally we're trying to make it fairly obvious. The orange boxcar is bright orange, the brown boxcars are brown.

We make up the trains before you take them out of the yard, so they match the switch list. Even if you have three brown boxcars together, your switch list may say a group of two brown cars, and then one more brown car as well.

The beautiful part is if you screw it up and put two of the wrong cars in the wrong spot, it doesn't matter as long as they're both brown. It's very forgiving – we call it operations 101: an introduction to serious operations.

Many people here don't have their own railroads and have no experience with operation. So this works well to get them interested in that side of the hobby. It seems a lot of people feel intimidated by ops.



7. The K10 layout models three different Class 1 railroads: the Santa Fe, the Southern Pacific, and the Union Pacific. You can see part of the UP route here.

So we use this easy, laid-back way to get them interested in that side of the hobby when they have had no exposure to it.

MRH: Is this a purchased package? Or did you program it yourself?

Tony: To develop the switch list system, I used Google sheets. I basically have an inventory of all the cars, or the blocks of cars on the railroad, and the industries and which kind of cars they take. The system matches the car types to the industries and cycles them through a four-session cycle.

It also tracks the routing of the car. If it goes from the Santa Fe to the UP, it will automatically calculate that it needs to interchange on interchange train, and get it to the receiving railroad before it puts the car in another train outbound on the UP.

It took me a couple months to write it and get everything to work correctly, but it works reliably now. You just generate switch lists, and each month it updates itself.

Then we hand out the switch list and the operator goes their way and switches the train.

MRH: So you are not tracking by car number?

Tony: You will switch five red covered hoppers – you'll pick them up from the white grain elevator and take them back to the Santa Fe yard.

They'll get classified and sent to the DEW, and a local train will take them to the ADM mill on the DEW. And like I said, it works just like car cards with car numbers. It's just not as detailed.

MRH: Yes, it seems like the traffic movement would be the same.

Tony: Yes, it does the exact same thing. You just don't have to worry about an individual car. You still have the five cars that represent the block, which you're moving.

MRH: Do you have a dispatcher during an op session?

Tony: We do for the UP and SP. They run as a combined railroad.

The Union Pacific and Southern Pacific railroads run by verbal dispatching. Each session has a dispatcher that clears blocks, using verbal track warrants. It'll give you a section on track from Devor to Eco Mills, and you have that track.

I can also issue instructions like, not in effect until after the arrival of train XYZ. Or they'll be given limits ahead of XYZ, which means if you're train XYZ, you will be passed from behind. Things like that.



8. This section of the Santa Fe route (lower track) includes a number of dramatic bridges. The upper route belongs to the Union Pacific line – the line in the distance, to the Southern Pacific.



9. Near the yard where the Union Pacific and Southern Pacific interchange cars stands this extensive steel mill complex with plenty of spurs to be switched.

Everybody wears a radio, and the dispatcher communicates with the train crews that way and keeps track of trains on a dispatcher sheet that we've created for the railroad.

We try to model not just the car forwarding but also the handling of traffic as well as we can, without making it too intimidating for a first-time operator.

MRH: What kind of control system are you using?

Tony: We use Digitrax. We have one of the largest Digitrax installations I'm aware of. We're on a first name basis with a lot of the guys at Digitrax because of the size of this layout. Digitrax has worked reliably for us the entire time.

We have ten boosters, which is a lot more than even most clubs. But we've had no problems with it. It's been great.

MRH: You're using wireless rather than tethered throttles, correct?

Tony: As you can imagine, if the system was tethered, folks would be walking around tripping over each other. Tethered throttles would be a complete pain. So it's all wireless.

We have about 18 throttles, and we also allow phones, using the WiThrottle through JMRI, and we also have the Digitrax WiFi system as well. So we can take any number of operators at one time between using the phones and the throttles.

MRH: Tell us about your decoders. Do you have a particular type of decoder that you use? How you program them?



10. The K10 layout also hosts a monthly session specifically for kids with an accompanying adult. They get to run a train around the massive layout over the various routes for four loops. That's sure to leave a lasting impression and help spark some new blood for the hobby.

Tony: We used to use Digitrax 163 decoders forever. More and more, we're using out-of-the-box locomotives with sound. We don't really have a standard for decoders anymore, which is both good and bad.

The kids love the sound on Sundays. Those who operate on Thursdays, some of us like it, some of us don't like sound as much.

The sound has definitely generated more interest from the kids, which are the ones we are trying to expose to the hobby. So it's been a plus to get the sound use onboard.

MRH: What's your take on those sessions with the kids?

Tony: The first Sunday of every month we're open to the public. For a donation, as long as your kid is tall enough to see over the benchwork, we'll put a throttle in their hand and teach them how to run trains on a DCC wireless system, which is pretty cool.

There are not very many places in the country that allow you to do that. You can also bring your own equipment, or you can run the equipment that Ken provides.

On those days, it's a "four loops around the room" operation. It gets people introduced to the hobby and shows them what DCC can do. And it shows that the hobby is not just about little kids' toys anymore.

This is a hobby for adults too, and it can be taken as seriously as you want to take it.

MRH: Any feedback from the parents?

Tony: Mostly positive. A lot of them get interested just because their kids first get interested in the hobby. It's a place where they can bring their kids and have a shared experience with them.

And the kids get to run the trains and the parents will help out to make sure that they're going in the right direction on the turn-outs, controlling the train properly, things like that. So it's a good way for parents and kids to bond.

K10 member, Joe Pellegrino (Tony's dad)



MRH: How did you get into the hobby?

Joe Pellegrino: I came home from some place where I had seen a model railroad, and I thought it would be cool to have. I told my wife I wanted to build a model railroad, and she said, "No, that's a kid's toy!"

So no model railroad.

Then Tony was born and somewhere around six months, trains became his focus. He got one of the first Lego trains ever made – and he still has that. He also had Brio trains, lots of toy trains, push trains, and so on.

As Tony got older, my wife's uncle sent him a Santa Fe passenger trainset. That led to our first layout, which took over one side of our master bedroom.

It was a 4' x 8' and Tony couldn't play with it unless I was home. So every time I got home from work, the first thing we did was go play trains. We didn't eat supper first, didn't go to the bathroom first – no, we went and played trains *first*. That started the hobby for me.

MRH: Where did it go from there?

Joe: The hobby for me started with Tony's interest. We've learned a lot together. We have learned to build a lot of the scenery through our work here at K10 actually.

A lot of our track planning skills, Tony learned by going to other places to operate. He developed that through the years until we got to our fifth layout, which is probably one of the best ones we've built. That's where we are today with our own layout.

MRH: How did you get affiliated with Ken and K10?

Joe: Dominic Reynolds, a fellow employee at Shell Oil Company was a model railroader and my son and I were model railroaders. We all got together and Don taught me how to decal locomotives and so on. We did the hobby together.

One day Don called me up and said, "You need to come with me to Maryville, Illinois. They have a train shop there you won't believe!"

I wasn't real enthusiastic about it at the time, but some 6-8 months later, we finally made it over here. Don and his son Chris, along with myself and Tony visited K10 here and we became regulars on Thursdays.

At first we didn't do too much. We just roamed around, handed people tools, and so on.

Eventually, we got into the building of the layout. When we first visited, the benchwork was done and most of the track was done. The DEW had been scenicked by a really good guy who felt he "owned" the scenery. It was his, and he wouldn't let anybody help him. It took a while for him to allow us to do things.

Finally, I went to Kenny and told him how I kept asking Paul (the scenery guy), "Let me help, please let me help". But Paul would say, "Here, I'll show you how to do it". And he would do it.

I said, "Ken, Paul's not letting us do anything. He's just continues to do it". Since Kenny wanted to get some grass down on all the

plywood, he said, “Come over here and build this scene by the meatpacking plant.”

So Tony and I started working over there. We carved out the foam, we put the ground foam down, put some trees in, those kinds of things. Paul came over to have a look and remarked, “Wow, that looks pretty good!” So that’s how it started.

From there we (the McReynolds and the Pellegrinos) just dove in and started doing all the scenery along with Paul. And that’s how it went for a long time.

MRH: So what is your role here now as part of the group

Joe: My role, along with many others, is as a volunteer to do about anything that needs to be done. The most important thing



11. The front of the K10 building hosts this hobby shop. Ken does the hobby shop as a secondary income and to get wholesale prices on equipment for the layout. It also works in concert with the layout to get folks started in the hobby after being inspired by running trains on the layout.

is setting up third Thursday ops night for adults. I manage that and make it happen. I also get the trains restaged every time.

I generally do all the dispatching because everybody else seems too intimidated. They don’t like to dispatch, so I just do it. I hardly ever



12, 13. Left half of the K10 layout as viewed from the balcony. In the foreground of [13] you can see the Southern Pacific yard.

run trains here. I also work the shop, putting stock away, and those kinds of things. So I am a general volunteer type worker.

MRH: This layout is really big. Is it too big?

Joe: Wow, can a layout be too big? No, I don't believe so.

When people walk through that door into this layout for the first time, they're pretty intimidated. Once they've been here a few times and they start to operate on the railroad, all of a sudden it's not as big as it seems.

Could this layout be twice as big? It would be awesome if it were twice as big. Kind of hard to do, though. It would take a lot of money.

But it would be crazy to run something bigger than this one!

MRH: What do you like best about this layout?

Joe: What I like best about this layout is the reliability. After 20 years, we are starting to get some issues. We're fixing those, but this railroad has run reliably for 20 years.

Rarely ever do we get derailments that are not caused by an operator somewhere. We have some specific locations with problems, but we're working on those.

All in all, it's the reliability of this railroad, it's the size of the railroad that I like best. You can't build one in your home basement *this big*.

The number of cars we move in one session is just unbelievable. And the camaraderie that we have with everybody here is really, really good.

MRH: What would you say is your least favorite thing about this layout?

Joe: Least favorite? I almost can't think of one really. It does everything that we want it to do. There have been a few folks in the past who have tried to participate and help, but they didn't do a very good job. Eventually they weeded themselves out.



14, 15. More of the layout to the right of [12, 13] as viewed from the balcony. In the distance where Tony is standing [14], you can see the extensive Santa Fe yard.



16. More of the layout to the right of [15]. Along the far wall to the right you can see part of the UP yard. In front of that, you can see the peninsula with the steel mill complex that's on the SP route.

If I had to explain it, I would say it's just those few who came and didn't understand the philosophy of this railroad and its intention. They did what they thought was best, but it just didn't fit this railroad. Eventually those folks all left.

Most of the current folks today fit right in line with what we're doing here, so it's pretty good. That's probably my least favorite part, dealing with people who are a poor fit here.

MRH: Ken mentioned the Peco center-over spring turnouts. How do you like them?

Joe: I think the Peco turnouts have been fantastic. A few people don't understand how they work, but they figure it out pretty fast. If we had would put something in like Tomar or Caboose

Industry's ground throws, those would break frequently, although they're pretty reliable in a home layout setting.

With as much use as this place gets, I think they probably would not work out as well here. The Peco turnouts have been the right choice for this railroad, no doubt.

It actually helps people understand how turnouts work to have to throw them by hand, rather than relying on some electronic circuitry that may or may not throw the right turnouts at a distance.

So I think the Pecos were definitely the right choice for this railroad.



17. The layout also plays host to more serious operating sessions one night a month. These op sessions have plenty of switching opportunities, such as switching this tank farm on the Santa Fe route.

MRH: That is an interesting perspective. The thought of crawling under the benchwork working on Tortoises and maintaining them for almost 500 turnouts would be a huge effort.

Joe: Wouldn't it though! It would definitely be fun trying to make some of them align all in the right direction, such as in a yard! When you have six or seven turnouts you need to align, they all need to be thrown together, so that when you push the button for track seven, they all go to track seven.

Yes, that would be fun. I know you can do that, and it would work great for layout with a hundred turnouts, but not for 470 plus turnouts!

MRH: How has using the Digitrax system been?

Joe: We like Digitrax because we know Digitrax. The other systems such as NCE have their benefits also.

With Digitrax, we've been able to expand this railroad easily, and create the power blocks as needed. We don't have many issues with locomotives that eat up the power and don't start.

We have a number of people who have learned the Digitrax system very well.

If you have any questions whatsoever, you can come in here and we can probably find someone with an answer for you. That's with the group that's here on a Thursday night.

So Digitrax has been our choice here at K10. I'm running with Digitrax on the home layout. The other brands are similar, and they have the same benefits and downsides as the rest of them.

There's no one perfect system out there.

MRH: How is maintenance on this layout?

Joe: The maintenance on this railroad has been mostly track cleaning and wheel cleaning. We're still using the eraser type track cleaner. We had used Goo Gone, but we quit using Goo Gone in the last year or so, after we realized it was making bigger mess than we anticipated.

We've gone to isopropyl alcohol, and that has made some difference. We have worked really hard on turnouts because the turnout points need to make contact with the outer rail. We've had some issues with some turnouts, because the points can get bent.



18. The layout uses all Peco center-over turnouts, which has totally removed the need to have under-the-layout mechanisms like Tortoises or solenoid/servo control. With almost 500 turnouts on the layout, not needing to crawl under the layout to maintain the turnouts has proved to be a wise move. The only limitation: make sure all turnouts can be reached from the aisle.

After a Sunday session with the kids running around, they accidentally knock over trees or move buildings, so we go back and fix those.

Every once in a while, there'll be a car problem where a coupler has fallen off, so we have to find the loose coupler on the layout somewhere, and then put it back on, those kinds of things.

But the hardest part has been the wheel maintenance of our locomotives. They pick up a lot of dirt. So we're moving forward with a hint from you guys, *Model Railroad Hobbyist*.

We're going to start using mineral spirits and see how that works for us, and move forward with that. That sounds like a really good idea, because we're still having issues with dirty track. We're looking for any way to help solve that.

MRH: When the kids operate, it's just through trains – there's no switching, right?

Joe: Correct. When kids operate on Sunday, they just chase each other around the railroad, and it takes approximately 12 to 15 minutes for them to make the entire four lap loop.

Some try to go fast, some go really slow, and it causes bottlenecks.

We keep folks stationed around the railroad to help alleviate the problems that may occur with the kids. Most of them do well, but there's always a few that get a little rambunctious. We try to manage those as best we can.

MRH: So in the adult session, do you have switching?

Joe: On the adult session on Thursdays, we do switching, as Tony explained with the car switching lists that we have.



19. As to era, the layout loosely aims to model the late 1990s to the early 2000s with the equipment Ken provides. Group members can bring their own equipment as well, and the era is pretty much anything goes in that case.

One thing Tony didn't mention – and one of the reasons for the simplicity of using the car color-and-type switch lists to do our switching is how it saves us from car card headaches.

If we had car cards for over 500 cars in car boxes around this railroad, after Sunday session with the children, it would be an absolute nightmare trying to match those car cards back with those cars.

The car color system has been perfect for us. We don't have to worry about losing cars, swapping cars, moving cars, or any of that. We have a switch list and it works.

MRH: Talk a little bit about how you do car uncoupling. Do you use magnets, coupler picks, what?

Joe: When we do switching on this railroad, most of the time with locals we send out, we use a coupler pick.

For a long time, the guys used to just lift a car off the rails and put it back on. But now we use picks. That was a learning curve there with the guys. They had to figure out how the picks work. But they've gotten better at the picks, so they're working really well now.

So for the locals that do switching, we use the picks. But in all the yards, the Santa Fe, SP and the UP, we have a magnet at each track. So you can just pull in, uncouple, and go. That makes it a lot smoother in the yard to have the magnets.

When we're doing switching on this railroad, the nice thing about it is that almost all the switching can be done off the mainline. When you get to an area to do your switching, 99% of the time, you're off the mainline, which is great for the dispatcher. He doesn't have to worry about locals blocking the main.



20. While Ken provides equipment appropriate to the Santa Fe, Southern Pacific, and Union Pacific lines, group members can also run their own equipment, such as this set of locos paying homage to the freelanced Appalachian Lines of Tony Koester, Steve King, and Allen McClelland.



21. The group calls the Santa Fe route the "low line" since it tends to run under the Southern Pacific and Union Pacific routes on the layout.

We do have a couple places where sometimes you may need the main for a bit, but it works pretty well.

MRH: Have you always been DCC?

Joe: When the original train layout was built – what we call the lower level, the Santa Fe side – was all analog. We had 22 transformers running the analog section of this railroad.

There were no blocks switches or anything like that. Each transformer was insulated in its own block. When you ran from one block to another, you just picked up the next transformer.

It helped a lot to have a track arrangement that allows the local to get off main, so it was away from those transformers and on their own transformer.



22. Joe Pellegrino helped do a lot of the scenery on the K10 layout. Here an SP train winds down through an extensive hand-carved rock canyon.

But once we switched over to DCC, that's really not necessary any longer as to how the locos get their power source. But this design does help keep them off the mainline when the locals do their work.

MRH: Based on your experience in the hobby, what would be your advice to someone brand new coming into the hobby?

Joe: When people ask me about how to get into the hobby – and we have a lot of that – it's amazing the number of people that walk in to the hobby shop and want to "piece buy" their own custom trainset.

When they walk in here and see this railroad, their eyes light up like a little kid's. We try to convince them to start small. Start out with just a 5' x9' – a ping pong sized table.

You can literally buy a ping pong table, set it up, and go with that – it's quite solid. With a 5' x 9' table, you can do a 24" radius curve real easy. It works well and there's plenty of room for some structures or scenery.

We also give them advice on what control system to use. Naturally it's Digitrax for us, and we get them into that part of the hobby as cheaply as we can, with the smallest and most affordable system.

We also advise them on wiring, and voltage drop, and those sort of things, so that they get a feel of what to do when they start expanding. If you're 30' away, you're only going to get 12 volts instead of 14 volts, so your engines will slow down.

Just give those kinds of little hints, and advise them to not put track everywhere. Include room for some switching. Start slow and get the feel for things.

My problem is, I give them lots of options that cost more money, and I have scared people out of the hobby. After they walk out, they have that glazed deer-in-the-headlights look in their eyes. I know they're never coming back, and we've lost a customer at that point.

Did you see this article
in **MRH** **RUNNING** **EXTRA** ?



Modeling Lorain, OH

Get the June eBook now

click here



So I try really hard not to do that anymore. I just give them basic information, and if they ask pertinent questions, I will answer those questions. But I don't try to overwhelm them, because it will drive them away from the hobby before they even get started.

MRH: This layout is going to be open for the St. Louis convention this summer. When people come to visit this layout, what would you hope that they'll take away from the visit here? (Sadly, this has changed due to Covid-19 and the convention being cancelled – ed.)

Joe: The NMRA 2020 in St. Louis this year is pretty new for all of us. We had a convention many years ago, but it hasn't been back. I think it's going to be interesting to see how much hobby enthusiasm this draws to St. Louis.

When visitors come here, I would like for them to take away that this is a very large layout that is fun to run on. And it doesn't have to be complicated to have a great time doing ops. But I think most of the folks that come to the NMRA conventions generally do ops anyway.

We had a local session here where we invited some folks from the Midwest, and they all came.

These guys were big-time operators, and they all know how ops works. They came in here and had a blast, even though it was a rudimentary system. They had a blast, and they all want to come back.

I hope the convention goers realize how much fun this layout can be, as I think that would be a great takeaway. ✓



23. The K10 layout operates quite reliably for a large club layout – having very few derailments or equipment issues. They're also adding more locos to the layout with sound and lights such as this KCS heritage diesel. The kids love the trains with sound and lights best of all!

Note: Now that the 2022 Convention in the UK has been cancelled, there is discussion about St. Louis being the convention location for 2022 and that we try again. We hope that happens, because the K10 layout and other layouts in the St. Louis area are well worth seeing!

Did you see this article
In **MRH** **RUNNING** ?
***** **EXTRA**



**How to better
model reality**

Get the June eBook now

← click
here





It's all about trains



*All things train related,
whenever, wherever.*

**TRY
24TRAINS.TV
2 WEEKS
FOR FREE**



WWW.24TRAINS.TV

On 24TRAINS.TV you can find:

videos | travel reports | magazines | vlogs
model railways | workshops | documentaires | holidays

MRHMAG.COM

 **REGISTER**
(free)

Double deck benchwork construction



Model Railroad Hobbyist | June 2020

NEIL DENBY builds double sided, double deck free-standing layout benchwork ...

WHEN I WAS A YOUNGSTER IN THE SIXTIES, MY Dad arrived home one evening with a box full of Hornby/Triang trains, track, and buildings he had been given by a client. In short order, I constructed a table top layout with a hill in the back and track through a tunnel.

The layout had three roundy-roundy loops coupled together with turnouts – the cat and I ran the three locos and many

[INDEX](#)

[TABLE OF CONTENTS](#)



RATE THIS ARTICLE

railcars, all from the box of parts Dad brought home. (The cat seemed more interested in batting the trains *off* the tracks ...)

When I left home and joined the military, I took the layout apart and packed the trains up in a box.

A few years later after I fell in love and got married, I passed the box of trains on to my new brother-in-law who was 10 years my junior. He used them for a while and then passed them on again.

I had no time or room for trains any longer, I was busy raising two boys and dealing with military life. In 1991, I retired from the military and got a job in the real world security industry as a technician.

Re-entering the hobby

Around 2005, this same brother-in-law called to tell me about a big closing-down sale at Santa Fe Models in Auckland where we were living at the time. Because he was back into model railroad-ing again, he asked me to go have a look, and see if I could find anything worth buying for him.

You can guess what happened next. I bought one or two items for him, and about \$800.00 worth of sale items for myself. Surprisingly, my wife encouraged this!

Over the next 10 years, I discovered how much the hobby had changed in the previous decades, which changed my buying habits. I started buying DCC and more up-to-date and locomotives and rolling stock. I ended up with about 50 locomotives, and lots of rolling stock.

“Over the next 10 years, I discovered how much the hobby had changed ... I started buying DCC and more up-to-date and locomotives and rolling stock.”

My locos all have DCC, many with factory sound, or sound I have installed myself. I partly finished a small layout in my garage until I retired in 2015 when we decided to relocate. I had been a member of the North Shore Model Railway Club in Auckland, New Zealand.

We built a new home in Matamata, also known as Hobbiton. Since we have been here, I have joined the Greater Waikato Railway Modelers Club, which is based in Cambridge, about 50Km from home.

The new layout space

When I designed our new home, I got to specify the garage size and included facilities. I made my layout room two cars wide, and two cars deep. Yes, there's space for the car too.

But I have plenty of space for a layout and for the crew room when operations are on. My garage layout room has no laundry, no garden tools, no lawn mower, and no workshop in it.

Outside I have added two good sized sheds where I can do all the dirty work. My drop saw is in one of the sheds, and the other has my workbench and an airbrushing bay which has fans venting to

- Keep wiring runs and connections orderly, with easy connection and ease of access (most of us older guys and gals don't work at our best under the benchwork!)
- Maintain easy reach as much as possible
- Build with future portability in mind. If the layout ever needs to be moved and re-erected, I am building in pre-planned break points
- Consistent, strong, and economical construction method with all the layout corners rounded
- Adequate aisle space for operators to easily pass each other. Seems tummy size plays a part here!

Construction)

Taking advice from model railroad magazines and online sources, I decided to construct a one-fifth scale model on a sheet of plywood the shape of my garage, with my goal being to prove my plan would fit and function as I wanted. This gave birth to MiniMe, because at my height of 5'-6" I wanted to determine the perspective from my viewpoint.

This has proven to be a valuable planning tool, and I highly recommend it. The necessary "pause" to build this miniature mockup before the layout building starts has paid off, I assure you.

Too often, we get over-eager to put the track down. The idea of catching any gotchas in advance gets overlooked. This came home to me very pointedly when reading about an experienced model railroader on his fourth layout – he lamented that he needed to not be in such a hurry – he should have learned by now to construct the backdrop and paint the sky *first!*

I decided to use plywood because in New Zealand, plywood goes for half the price of timber, plus it's straighter and stronger. I did reuse three L-girders under the helix section salvaged from my last layout.

From the photos of the miniature mockup, and the early layout construction, you can see the "standing tree" method of construction I have used. The dimensions came directly from my one fifth scale model which I transferred to the carpet on the floor with masking tape. This gave me the exact position of each stud, and the length of the tree "branches" for each side [3].

In April 2018, my first tree supports went up, and I secured them to the floor to keep them in position [4].

Since I had all the plywood cut, and on hand, the first part of the framing happened quite quickly. I treated the project like a job,



2. MiniMe and my one-fifth layout scale model.

which meant that I did a full day's work, rather than doing a bit here and a bit there.



3. Dimensions transferred to the floor.



4. The first free-standing tree frames go up.

I am very much a list maker and process-orientated, which led me to do things in the right order. There is nothing worse than having to redo something. I won't say that never happened, but it has been minimized [6-8].

I made the main center supports of two laminated pieces of 21mm (7/8") plywood, giving me a piece 42mm (1.5") thick. I made these supports 75mm (3") wide and 1800mm (71") tall, glued and brad-nailed together. This approximates a 2x3" stud. The joist cross pieces are 21mm x 75mm (1x3") plywood.

By the way, I have glued and brad nailed the whole layout using my Ryobi 18 gauge nail gun. It accepts nails from 15mm up to



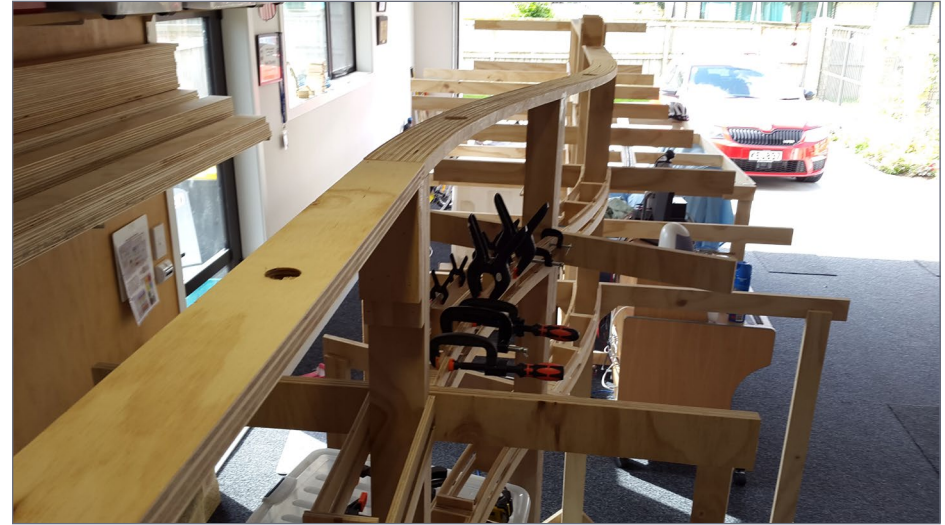
5. Securing to the floor.



6. Joining the tree frames together.



7. Setting the S curved section.



8. The upper laminated beam.

50mm, which makes it very versatile and speeds construction as compared to the drill, countersink, and screw method.

The only screw joints I have, come at the module seams, where I used no glue

My buddy Richard cut all the plywood for me on a dimension saw at his work. Believe me, having perfectly sized timber is great.

Most of the main benchwork tree supports have feet for lateral stabilization, but you can leave some out to accommodate underside storage, as I have done. At the ends of the feet I used a small L bracket to fix it to the floor [5]. This removed the possibility of the layout moving or tipping if someone leans on it or bumps it.

I store a three-seater and a two seater couch under my layout which can be brought out when the operation crew arrives for

the start of a session. The long side of the layout has an “S” curve as it narrows to allow for the helix to fit, and also leave a walkway to the center.

I constructed a laminated upper beam for the long portion of the layout. I angled a supporting stud to fit on the ends, which made aligning the upper and lower levels to the beams quite a straightforward task.

As you can see [6], the tree supports have cross members for the lower and upper level tabletops. I decided, after much consideration, to have the bottom level at 1000mm or 39” and the top at 1400mm or 46”. This leaves a nominal 325mm 13” gap between lower and upper levels. It does make the upper level a bit of a stretch for me as I am only 5’ 6” tall.



9. Backdrops fitted. Likewise on the other side as well.

On the lower level, I have a 70mm or 3” drop from the front deck to the rear deck because it fit my plan better, and I wanted a gradient, not a dead flat line. The distance between the support trees is 800mm or 31”.

Because the layout is on both sides of the tree, all cabling can be dropped down the center, and sitting on the floor underneath to work on the wiring makes it easy to deal with. After I completed the main framework for the long side of the layout, I moved on to doing the backdrop sky for that portion [9].

Around about this time, I had the concrete laid for my second shed. This gives all my tools and materials somewhere to live.



10. Marking the helix for fit.

Once I had completed all that, I moved on to the rear part of the layout and the connection to the helix.

I moved the helix back a bit from my original plan to give more room at the front for the brick works business and some other scenery. With the shed up and all tools moved out of the way, I completed the framework around to the helix. The L-girders I have used here came from my last layout, so they did not go to waste [10-13].

The helix has a radius of 30" and takes three and three quarter turns from bottom to top. The gradient is about 1.9% [14-16].



11. Progressing the levels round towards the helix.



12. Setting out on the floor to test fit.



13. Fitting the helix on to the tabletop.



14. Start of the helix.



15. Helix with track bed and track.



16. Checking levels for track clearance.

Richard cut the helix baseboard in 90-degree pieces from 12mm (1/2") ply for me on the CNC cutter at his work with 28" and 32" inner and outer radii. I find building a helix with exact-cut wood to be such a luxury!

I made the backdrop attached to the helix from 3mm (1/8") hardboard, as I did all the other backdrops. Wetting the hardboard on the outside makes curving it for the scenery backdrop a breeze.

We started the helix upper level entry at 100mm or 4" below the future upper tabletop level, so I had to construct a downgrade to that level from both the east and the west double track mainlines on the upper deck. A 1.8% grade worked out to be over 5 meters or 17'.

That is a long distance and you don't appreciate how far it is until you do it. I found it challenging to get this right, but not so much of a problem in the real world, because a bit of distance doesn't matter to the prototype. I also have a run around track as an alternative to entering the helix, which has a 34" radius – Richard also cut this for me.

The 100mm drop in level came about because my plan calls for a stub-end passenger terminal served by double tracks from both east and west on top, without being encumbered by a loop track or the helix.

Per my logic, I want to enable freight trains to transit under the passenger terminal and have full access to the helix. It does mean, however, that passenger trains need to traverse around the upper level to access the helix.



17. Helix run around and connection from east and west.

The east and west gradients get switched via the upper level double tracks that proceed around to the Passenger Terminal. Trains on the lower level can also loop around the helix and service the brickworks factory, or just pass on by to a different destination on the lower level.

I expect the helix interchange area will be the busiest part of the layout, and will need strict management and traffic control.

The helix can be accessed from east or west on both the upper and lower levels. Both upper and lower levels can loop around the helix without entering it. The first track gang that built the lower interchange for this helix/loop part of the layout really screwed it up, so they were fired and a much smarter crew were brought in. Live and learn!

Since I have essentially completed this part of the layout now, next I want to construct control panels to give local, and eventually remote control from a JMRI CTC panel (he says, in a hopeful tone).

On to the roadbed and track

I have installed fixed tabletops of 12mm (1/2") plywood on the whole layout as the starting point for the track, and the starting point for the scenery. If the terrain needs to go below the tabletop, I will just cut holes as necessary and add the base height I need.

I do intend to chop into the fascia to get the terrain changes and contours I have visualized. I made the front fascia made from 12mm (1/2") plywood, but where I needed curved corners, I laminated 3mm (1/8") hardwood to do the job.

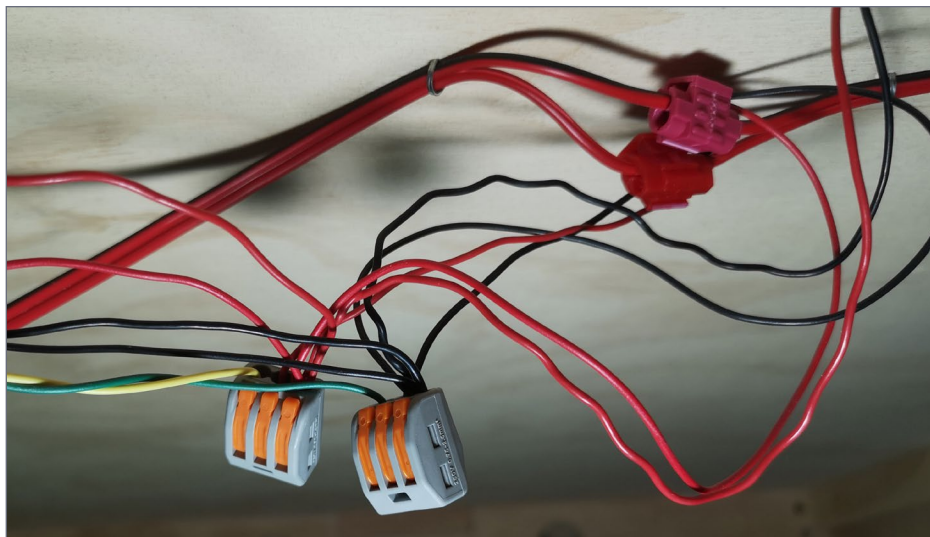
With all the tabletops all fitted, I decided to lay some track and get trains running. Richard cut some master radius templates,

so I did not need to draw arcs with string to set up curves during track laying. I am using a 5mm (3/8") high density foam for my underlayment.

I very much made an economic decision here, because cork underlayment costs about \$8.00 a length. This foam cost me less than a dollar per length. Mind you, I had to invent a cutting jig to cut it to the same dimensions as cork roadbed. I have posted a segment on my YouTube channel (youtu.be/mLJqChoT6MY) that shows how I did this.

I decided to invite the guys from the club for an operating session before 2019 year end. Having set this goal, I worked toward it, and by October 2019 I had all the track laid top and bottom to access the helix so trains could now run.

After I had laid the track, I had a visit from Jayden, who is "the guy" (niece's husband) who will paint my backdrops. On his advice, I



18. No Solder DCC BUS connections.

had to mask off the track, and spray a lighter color gradient on the lower half of the sky.

In November 2019, the Greater Waikato Railway Modelers Club members came for a running day. This turned out to be a hit with the guys, because they run the club layout using DC with Block control – so running on DCC was a new experience for them. I am pleased that the layout ran well with only a few glitches, and no incidents in the helix.

The last few pictures [19, 20] give an overview of where I am at now as of this writing (April 2020). I have lit the entire the lower level [lead photo], and have added curtains on all the windows. That's thanks to my buddy Neville – he and his wife helped out recently – until China put a spanner in the works of the world, that is.



19. Overview toward the front.

I look at where I am today, and then look back to where I started. It gives me the confidence to carry on and make more progress on this thing! ✓

Visit Neil's YouTube channel for regular updates on his layout progress: www.youtube.com/channel/UC5sc5tmRyNDW--fqyuMaCNw.

Did you see this article
in **MRH RUNNING EXTRA?**



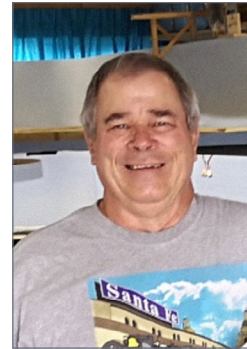
Wiring a staging yard

Get the June eBook now ← click here



20. Overview from the rear corner.

NEIL DENBY



Neil lives in Matamata, New Zealand. Neil is 69 years young and retired ex-military. After time in the military, Neil finally retired, and worked in the civilian security industry before finally retiring from that as well. ■



RATE THIS ARTICLE

ADVERTISEMENT



Introducing
THE
LUMBER STORE



ROTATING STORAGE RACK
On its own, or fully loaded with Mt. Albert Scale Lumber!

handlaidtrack.com **1-888-252-3895**





LOOK column

Model Railroad Hobbyist | June 2020

JEFF SHULTZ looks at a ScaleTrains.com Dash 9-40C ...

WHEN SCALETRAINS.COM INTRODUCED ITS DASH-9 lineup at the 2019 Railroad Hobby Show in West Springfield, MA, I quickly took photos of all the new samples and headed back to the *MRH* booth to work on editing and uploading the photos.

That is when I discovered this odd looking locomotive in the middle of a photo [1]. It was a standard nose swan among the safety, or wide cab, ugly ducklings. I grant that your opinion on the attractiveness of the noses may differ from mine!

Some research revealed this to be a Norfolk Southern “Top Hat,” the lone standard cab model of the Dash-9 line, purchased only by NS, and even more interestingly, it was a Dash 9-40C/C40-9, configured for 4,000 horsepower instead of the standard 4,400hp of the rest of the Dash-9s. Plans included releasing this option in the second run of Dash-9 locomotives.

I wrote a First Look article on ScaleTrains’ first run of the Dash-9s in the April 2019 issue of *MRH*, and the basic locomotive hasn’t changed.

FIRST LOOK | 2

★★★★★
RATE THIS ARTICLE

This model of a six-axle GE has incredible details including:

- walkway and ground lights
- etched metal grills on the radiator intake and exhausts
- plumbing and traction motor cabling
- wire grab irons
- snowplow
- MU hoses
- uncoupling levers
- windshield wipers
- mirrors
- sunshades
- openable cab windows
- many other factory-applied details

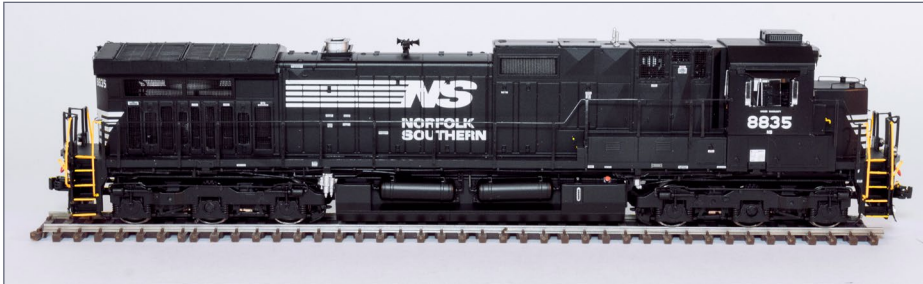


1. First sighting at the Railroad Hobby Show in 2019.

FIRST LOOK | 3

The paint is crisp with tiny lettering legible – and the cab windows open!

The standard cab makes the Norfolk Southern Dash 9-40C unique among the Dash 9s. A year after GE introduced the Dash 9 with wide cabs, Norfolk Southern ordered 125 locomotives with standard cabs, numbered 8764 to 8888.



2. Engineer side view.



3. Rear quarter engineer side view.

FIRST LOOK | 4



4. Close-up radiator and truck view.

The “Top Hat” name came from the location of the air conditioner on the roof. According to Wikipedia the locomotives went through an upgrade program to 4,400hp in 2015, and was then further rebuilt as AC44C6Ms with wide cabs, AC traction, and other improvements between 2015 and 2018. As AC44C6Ms, the units were renumbered from 4000-4124.

This Rivet Counter model comes equipped with a LokSound 5 DCC sound decoder with ESU’s “Full Throttle” functions, FDL-16 prime mover and auxiliary sounds, including the horn, bell, air compressor and more. The motherboard also includes a 2-capacitor PowerPack stay-alive circuit.

The model has a full suite of LEDs, including front and rear headlights and ditch lights, and lighted number boards, walkway lights, and ground lights that come on when you run the engine startup

cycle (F8). The ditch lights flash when blowing the horn, per prototype practice. From F0 to F21, the decoder setup does not use F7, F14, or F15.

When it comes to running, I tested the locomotive with a TCS UWT-100 throttle with 126 speed steps. On step 1, the locomotive crept through my Accutrack II speedometer at 0.9mph.

At speed step 126 it whistled through at 70mph – also sailing through the 18” radius reverse loop around my staging yard without a hitch. Speed step 10 registered as 5.1mph, step 25 as 15mph, and step 38 as 24mph (for those who maintain a 25mph maximum speed on your layout).

The locomotive ran smoothly, with ScaleTrains.com’s standard of momentum in the decoder. ✓



5. Front aspect.



Did you see this article
in **MRH** **RUNNING** **EXTRA** ?



Daryl Kruse
makes the case
for N scale

Get the June eBook now

[click here](#)

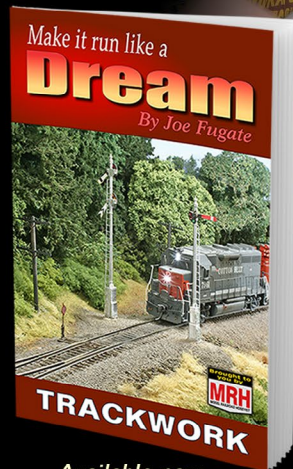


6. Engineer side, with the “Top Hat” AC and standard nose shape.

**Did you know
there’s an
MRH/RE index
available?**

[CLICK TO FIND OUT MORE](#)

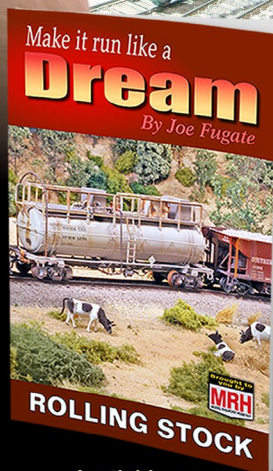
from the
**Model Railroad
Hobbyist Store**



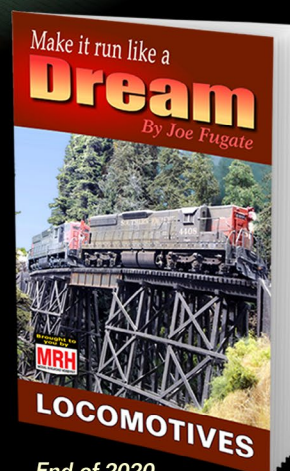
Available now

★★★★★ 5/5
"These books are
remarkable and very
well done."

- James S.



Available now



End of 2020

Buy now and get special pricing ...

PAPERBACK BOOKS: FREE SHIPPING US - 50% OFF SHIPPING FOREIGN

eBook download
or
Paperback book

Make it run like a
Dream

MRHMAG.COM

✉ REGISTER
(free)

SAVVY MODELER Online



Model Railroad Hobbyist | June 2020



RATE THIS ARTICLE

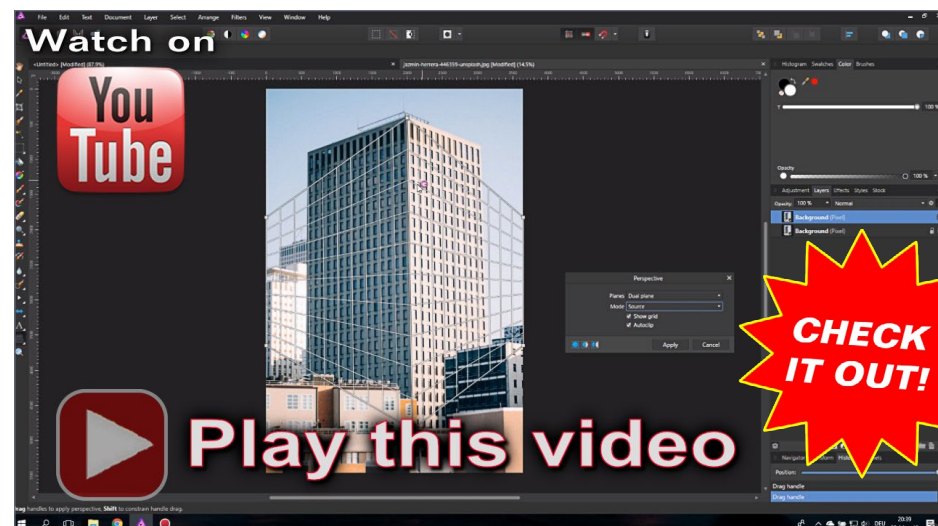


Photo editing for modelers ([Affinity Photo](#))

This is not a model railroading video per se, but it's about some cool features in a very powerful and affordable photo editing program: *Affinity Photo*. Right now it's on special for just \$25, and wow!

If you have ever wanted to make your own photo backdrop or if you've wanted to take some building photos and make flat photo-realistic walls for a model, here is your tool! ■



▶ GREAT MODELER VIDEOS ON THE WORLD WIDE WEB

[INDEX](#)

[TABLE OF CONTENTS](#)

AMERICA'S LARGEST OPERATING MODEL RAILROAD SHOW

49TH ANNUAL

Trainfest®



NOVEMBER 14 & 15 MILWAUKEE

**PRIME ACCESS
TICKETS**

GET AN
EXTRA HOUR OF TRAIN FUN
ON SATURDAY BEFORE EVENT
OPENS TO GENERAL PUBLIC

4 FOOTBALL FIELDS
OF SERIOUS TRAIN
ENTHUSIAST FUN

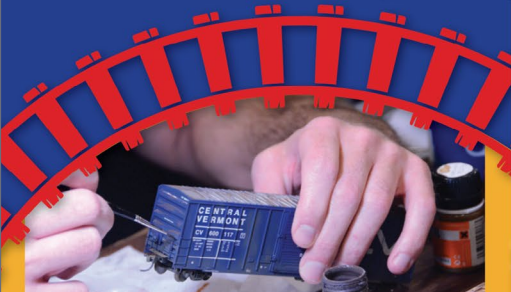
70 SPECTACULAR, HUGE
RUNNING RAILROADS

110 MANUFACTURERS &
HOBBY DEALERS

NEW PRODUCTS
UNVEILED

**EVERYTHING TRAIN.
RUN. RIDE. LEARN.**

STAGED BY THE
NMRA WISE DIVISION



HUNDREDS OF
FREE CLINICS
& DEMOS

Sponsored by
Wm. K. Walther, Inc.

Trainfest
BUILDERS

**NEW
FOR KIDS!**

Trainfest
**CELEBRATE
(A)
RAILROAD**



EVENT INFO, DISCOUNT
TICKETS, AND HOTEL DEALS AT
WWW.TRAINFEST.COM

MRHMAG.COM

✉ REGISTER
(free)

JUNE NEWS

column



Model Railroad Hobbyist | June 2020



RATE THIS ARTICLE

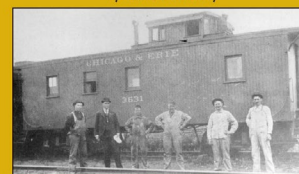
RICHARD BALE and
JEFF SHULTZ report the
latest hobby industry news

NEW PRODUCTS FOR ALL SCALES

ERIE LACKAWANNA
THE WEST END
VOLUME TWO



The Chicago & Erie
1895 to 1917
By Donald E. Hanley



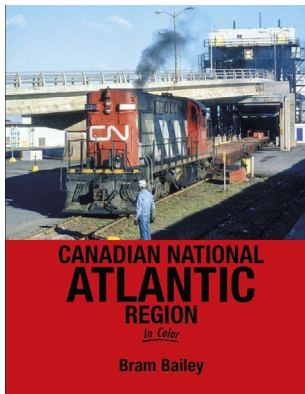
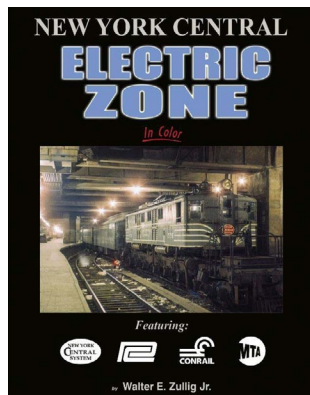
Don Hanley has released *Erie Lackawanna – The West End Volume Two*. Covering the history of the Erie/ Erie Lackawanna's line between Marion, Ohio and Chicago, Illinois between 1895 and 1917, the book includes information on the conversion from single-track into a double-track mainline, the entry of the Erie Railroad into Chicago over the Chicago & Western Indiana Railroad, the elevation of the C&WIRR tracks, and the

store of the Erie's Lake Line operations on the Great Lakes. With over 450 pages, the book also includes over 225 historic photos, illustrations, maps, and drawings. For more information visit dehanley.com.

► THE LATEST MODEL RAILROAD PRODUCTS, NEWS & EVENTS

[INDEX](#)

[TABLE OF CONTENTS](#)



New books from **Morning Sun** include *New York City Electric Zone* by Walter E. Zullig, Jr. A 1903 law prohibiting the use of steam locomotives in Manhattan became the catalyst

that started the predecessor companies of the New York Central and New York, New Haven & Hartford Railroads on the path to electrification. Starting with that era, *Electric Zone* documents the story of the massive electrification projects of both railroads with special emphasis on the new Grand Central Terminal that opened in 1913 and continues to serve the public today.

Also new is Bram Bailey's *Canadian National Atlantic Region*, which features photos of operations in the provinces of New Brunswick, Prince Edward Island, and Nova Scotia from the late 1970s to the mid-1990s. For additional information contact a dealer or visit morningsunbooks.com.



O SCALE PRODUCT NEWS

3rd Rail/Sunset Models has announced that reservations are being taken for the GE E60 family of electric

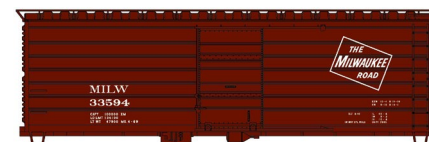
locomotives in O scale. A family of six-axle, 6,000 hp. electric locomotives, they were built between 1972 and 1983. Amtrak E60CH (HEP), E60CP (steam generators), and E60MA (modernized), as well as NJT versions are available for reservation. The models will feature ABS bodies with brass details and pantographs, ball bearing trucks, an illuminated cab interior, and TMCC (3 rail) or ESU LokSound DCC with sound (2 rail). For more information visit your dealer or 3rdrail.com.



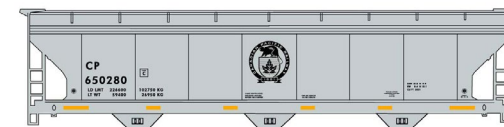
Lambert Locomotive Works has acquired the production rights to Tom Yorke's Junkyard Dog. Based on a diminutive Porter locomotive, the resin kit is designed to convert a Bachmann On30 trolley to a diesel switch engine. A release date is pending. For additional

information visit lambertlocomotiveworks.com.

HO SCALE PRODUCT NEWS

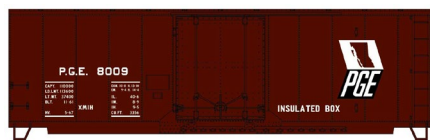


New HO scale freight car kits released by **Accurail** include this 40' Milwaukee Road rib-side boxcar. The model represents a car built in 1940 and redecorated with the small 1968-1974 era MILW mark.



Accurail has released a special 3-pack of ACF triple-bay covered hopper cars decorated for Canadian Pacific.

JUNE NEWS HO SCALE | 4



Accurail's HO scale kit for this 40' Pacific Great Eastern insulated steel boxcar with plug doors is based on a prototype

built in November 1961.



This 50' Grand Trunk Western riveted steel boxcar was built in October 1953 and rebuilt

14 years later. It is not known if the Superior doors were original equipment or acquired during the 1967 rebuild.



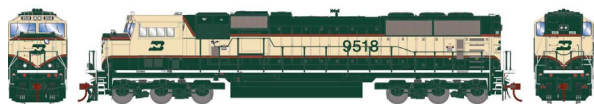
Accurail's HO scale kit for this Canadian National 70-ton triple-bay hopper car with offset sides represents a proto-

type built in March 1959.



Accurail's latest kit for a 36' Fowler wood boxcar is decorated for New Haven Railroad. The HO scale model represents a proto-

type built in 1928 with a horizontal brake wheel mounted on a vertical rod. All Accurail HO scale kits include Accumate knuckle couplers and appropriate trucks with plastic wheelsets. For additional information contact a dealer or visit accurail.com.



with a new run of Genesis SD70MAC diesel locomotives. Road names for the HO scale model will include BN's new green and cream executive scheme.

JUNE NEWS HO SCALE | 5



Also in green and cream is BNSF locomotive No. 9647 that briefly wore a test

scheme that earned the nick name Vomit Bonnet. No. 9647 was later repainted in the familiar orange, yellow and black swoosh scheme, which is also in this release.



Additional road names include PRLX-Progress Rail Leasing, and four Alaska units with the name of a different Alaskan city displayed on each cab.



Completing this run of Athearn Genesis SD70MAC are diesels decorated for CSX, and TFM-Transportación



Ferroviaria Mexicana.



Athearn's April 2021 schedule includes a new run of Genesis GP7 road switchers.

Road names include both B&O and C&O Chessie System units.



Additional road names include Illinois Terminal, Western Pacific, and Sacramento Northern in WP paint.

JUNE NEWS HO SCALE | 6



parent NYC's Lightning Stripes scheme.



rated in Santa Fe's Zebra Stripe scheme.



Athearn HO scale Genesis series locomotives feature an onboard DCC decoder with SoundTraxx Tsunami2 sound.



Athearn's April 2021 production schedule includes a 60'

Gunderson 100-ton high-cube boxcar. The ready-to-roll model features wire grab irons, etched end platforms, and roller-bearing trucks with 36" metal wheels.



In addition to the TTX Railbox scheme shown, road names will include Canadian Pacific, General

American Marks, Mississippi & Tennessee, and two Arkansas Oklahoma schemes. Athearn's model accurately depicts a Gunderson-built boxcar, however some of the paint schemes offered appeared on a similar Trenton/Greenbrier-built prototype.



A 57' Trinity 3-unit spine car is included in Athearn's April 2021 schedule. The low-slung model features heavy diecast construction, etched-metal walkways, and 33" metal wheels. A minimum

A New York Central GP7 will be available along with a Peoria & Eastern unit wearing

Single GP7A units and GP7A/B sets will be available deco-

JUNE NEWS HO SCALE | 7

track radius of 20" is required for reliable operation. Road names include BNSF and three variations of TTX.



Additional intermodal equipment coming from Athearn next April includes

a 53' Wabash Plate trailer. Carrier names will be JB Hunt, Central Transport, ACE, Werner, and Schneider. Non-lettered owner-operator trailers will be available in white, orange, and pale blue.



A spotting feature of the 1990s-era piggyback trailer is the uneven spacing of the

exterior ribs. Wabash subsequently favored the DuraPlate construction over the Plate trailer, but both types are still seen in use today.



53' JINDO Containers will also be coming from

Athearn next spring. Carrier names will include UPS, Swift, Canadian Pacific, Estes, Ferromex, Florida East Coast, Pacer Stacktrain, Werner, and two Canadian National schemes.



Features include separately applied Patch-type door

closure rods. They will be available in 3-packs with each container individually numbered.



New **Roundhouse** brand products coming from Athearn

next April include EMD GP59/GP60 diesel road switchers. In addition to an EMD Demonstrator, road names for the HO scale model will include Norfolk Southern (Operation Lifesaver), NS

Southern Heritage, Denver & Rio Grande Western, CSX, Vermont Railway, BNSF, and Southern Pacific.



Standard DC models will be DCC-ready with a 21-pin NEM plug. Factory

equipped DCC locomotives will have a non-sound NCE decoder. For additional information on Athearn and Roundhouse products contact a dealer or visit athearn.com.

.....

Atlas has released a 64-page on-line consumer catalog of HO, N, and O scale products. It can be accessed at download.atlasrr.com/SpringInStockVoll.pdf?mc_cid=a3c8ab63a2&mc_eid=6bff0ec9ce.

.....



R. Bale

PRR P5 ELECTRIC LOCOMOTIVES

The Pennsylvania Railroad class P5 electrics comprised 92 locomotives constructed in the early 1930s for high-speed passenger service along PRR's Northeast Corridor. The success of two initial locomotives resulted in orders for 90 class P5a electrics with production split between General Electric and Westinghouse. The GE examples were assembled at Erie, Pennsylvania. Final assembly for the Westinghouse order was subcontracted to the Baldwin Locomotive Works. The P5a designation reflects a modification to the original cab design after a fatal grade crossing accident. In daily high-speed service P5 locomotives suffered from reliability issues centered on high torque from the dual traction motors causing heavy damage to the axles. Development of PRR's highly-successful GG1 electric locomotives in the mid-1930s bumped the P5s to slower freight service.



Broadway-Limited has released five versions of Pennsylvania Railroad's P5a electric locomotive.



In addition to PRR passenger and freight variations, the HO scale locomotive is available in fantasy schemes for three

railroads that operated main lines under wire: New York Central, Great Northern, and Milwaukee Road.



The well-detailed model features Paragon3 Sound & Operation System with Rolling Thunder in both DC and DCC environments. For additional information contact a dealer or visit broadway-limited.com.



Classic Metal Works is releasing several new 1:87 scale vehicles this month including 1941-46 Chevrolet flatbed trucks decorated for REA. Printed signs are included with the model.



Box delivery versions of the 1941-46 Chevy truck will be available decorated for Coca-Cola and REA.



A 1957 Chevy tractor and tank trailer will be available for ESSO, Phillips 66, and Millstone Fire Dept.



A White model WC22 tractor with a bottled drink trailer will be decorated for Peoples Beer and two Coca-Cola schemes.



Completing Classic Metals June release of new 1:87 scale vehicles is a 1960 Ford pickup and trailer. The vacation trailer with tandem wheels will be

available in green and red. For additional information contact a dealer or visit walthers.com.



InterMountain Railway has released its HO scale 10'6" Modified 40' 1937 AAR steel boxcar in 16 paint schemes. Road names include Erie

Lackawanna, Rock Island, New York Central, Fort Worth & Denver, Missouri Pacific, Southern Railway, Union Pacific, Chicago & North Western, Missouri-Illinois, Erie, and SOO Line.



Additional roads include Duluth, South Shore & Atlantic, Gulf, Mobile & Ohio; Toledo, Peoria & Western; and two Canadian Pacific schemes.



The models come with Bettendorf-type trucks with machined metal wheelsets.



RATE THIS ARTICLE



R. Bale

PFE REEFERS

Pacific Fruit Express was a joint 1906 venture of the Southern Pacific and Union Pacific Railroads. PFE developed a fleet of thousands of refrigerator cars carrying agricultural products in interchange service throughout the nation. In the 1930s and '40s thousands of the older wood cars were refurbished incorporating new improvements including retrofit electric fans, convertible ice bunkers, AB brakes, steel roofs, and convertible interior bulkheads. Many of these rebuilt cars continued in service into the 1960's.

Also new from InterMountain are PFE ice refrigerator cars in seven decorating schemes. The HO scale models represent cars with steel underframes and wood bodies built in the 1920s. Unless otherwise noted, the PFE cars all have orange sides, brown roof and ends, and black ladders, door hardware, and underframes. All of the HO scale ready-to-run models come with machined metal wheels in Bettendorf-type solid-bearing trucks.



This PFE R-30-18 (IMRC #47402) represents five cars produced in 1923 that were rebuilt in Roseville, CA in July

1941. The decorating scheme includes two unique brown stripes on the car sides. The SP herald is on one side and a three color UP Overland herald is on the opposite side.



The decorating scheme on this PFE R-30-18 (IMRC #47401) has an SP herald is on one side and a three color UP Overland

herald is on the opposite side. The model is based on a prototype built in 1923 and rebuilt in 1942.



This double herald R-30-18 displays both SP and UP heralds on each side. InterMountain's version of this PFE reefer represents a car built in 1922 and rebuilt in August 1943.



When rebuilt in 1944, the ladder and hardware on this 21-year old R-30-18 PFE reefer (IMRC #47404) were painted orange. Note the black and white UP herald.



The black circle above the left truck represents the grille of a Preco fan this PFE R-30-21 reefer (IMRC #47416) received during its 1946 rebuild. The car also received dual heralds with the UP version in full color. A similar group of post-war rebuilds (IMRC #47415) got single SP and UP heralds on opposite sides.

Fundamentally, this series of InterMountain reefers are accurate models of the PFE prototype. Reports of minor assembly errors, including incorrect positioning of underframe appliances, can be readily corrected by competent modelers. For additional information contact a dealer or visit intermountain-railway.com.

KatoUSA has released HO scale models of the Gunderson MAXI-IV 3-unit articulated double-stack well-cars. Each car accommodates containers from 20' to 53' long in the well, and containers 40' to 57' long in the top, or double-stacked position. The models are



composed of a metal injection-molded frame that provides stable operation with or without container loads.



Like the prototype, Kato's HO scale model has 33" wheels in the end trucks and 38" wheels in the middle trucks.



Road names include TTX (both old and new logos), BNSF (Swoosh), and Pacer Stacktrain. Kato containers (sold separately) have a magnet and a metal plate

to hold it securely to the well car bottom or to the top of the lower Kato container. For additional information contact a dealer or visit katousa.com.



Maple Leaf Trains is selling accurately dimensioned HO scale pallets. The 48" x 48" pallets are laser-cut from thin plywood. They are sold in 12-packs.



Also new from Maple Leaf are two sizes of laser-cut wood crates. They can be assembled with the top either closed or open. Available

sizes are 48" x 48" x 42", and 27" x 27" x 31". They are sold as a set that includes five large and 10 small crates.

Other products newly released by Maple Leaf Trains include 2x4x8 lumber stacks, brick wall sheets, and office desks with drawers. For additional information visit mapleleaftrains.com.



R. Bale

STEAM HEATER CARS

Auxiliary cars with steam generating units were introduced in the diesel era to provide steam heat to passenger trains. When passenger trains were hauled by steam locomotives, there was always a reliable source of steam, but unless a diesel locomotive was specially equipped with a boiler and water tank, heat could not be provided. Heater Cars were often rebuilt from boxcars, B-units, and old steam locomotive tenders, so they varied in shape and size from railroad to railroad. In Canada, purpose-built steam generator cars were built by Canadian Car & Foundry, General Motors Diesel Division, and National Steel Car. Steam generator cars created their own unique sound that was often louder than the diesel locomotive pulling them.



Rapido is booking reservations for another production run of steam heater cars. Rapido's HO scale model is accurately scaled from a General Motors Diesel

Division prototype. A unique feature is a factory installed speaker and sound decoder that works in both DC and DCC environments. The model has working backup lights controlled by a magnetic wand.



Two different decorating schemes are available for Canadian

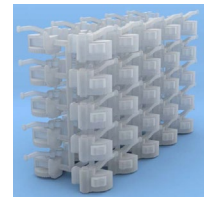
National, Milwaukee Road, Ontario Northland, and VIA Rail Canada. Additional road names include Santa Fe, Amtrak Phase II, Algoma Central, Canadian Pacific, Denver & Rio Grande Western, Great Northern, New York Central, Northern Pacific, Pennsylvania Railroad, and Union Pacific. An undecorated version will also be available.

For additional information contact a dealer or visit rapido-trains.com.



Resin Car Works has added new 3D-printed HO scale detail items to its product line. They include a well-

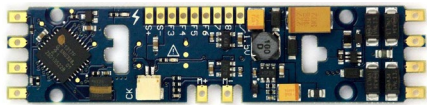
detailed group of six transformers suitable for flat car or gondola loads. Insulators, blocking and tie-down details are supplied by the modeler.



New freight car details include Klasing ratchet handbrake suitable for drop-end gondolas, and Preco fan plates.



For additional information, including a Shapeways purchase link, visit resincarworks.com.



SoundTraxx has released the TSU-PNP8, an 8-function PNP decoder board. Equipped with 2 more light functions than the

standard TSU-PNP board, this decoder replaces the mother-board or decoders found in many HO scale diesel locomotives. The TSU-PNP8, currently only available through dealers, comes in five different versions: EMD, EMD-2, GE, Alco, and Baldwin and others. For more information see your dealer or visit soundtraxx.com.



Tangent Scale Models has announced five new decorating schemes for its well-regarded PS-2CD 4750 covered hopper.

The HO scale models in this run are based on cars Pullman-Standard produced from 1972 to 1974. Spotting features of cars built during this period are the solid side posts.

Details on the PTLX-Farmers Grain Dealers Association of Iowa car shown above include a bare galvanized Morton running board, and truck mounted brakes.



This PTLX- United Co-Op has a Morton running board, early Miner outlet gates, truck mounted brakes, and a distinctive

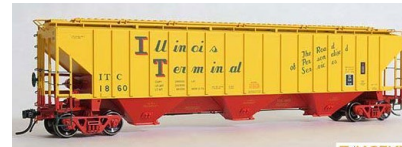
yellow brake wheel.



This plain-Jane car from the NAHX - North American Car lease fleet has an Apex running board, body mounted brake hardware

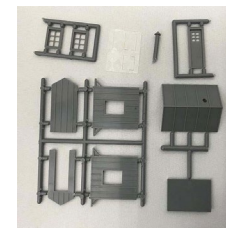
and brake beams, and Brenco rotating caps on the Barber S-2

100-ton trucks. A similar gray NAHX Benson-Quinn car is included in this release.



A bright yellow and red Illinois Terminal scheme completes Tangent's latest release of PS-2CD covered hoppers. The attractive

paint scheme includes green grab irons and matching red truck side frames and rotating Timken bearing caps. For additional information visit tangentscalemodels.com.



Tichy Train Group has released a new HO scale kit for a Watchman's Shanty. The model is based on plans used by the Pennsylvania Railroad, however, the generic design

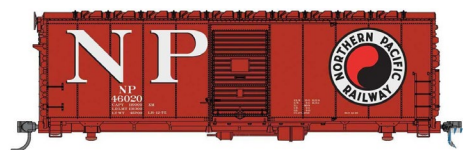
would be suitable on most layouts. For more information visit tichytraingroup.com.



R. Bale

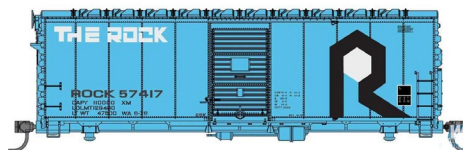
MODERNIZED 1948 AAR BOXCARS

Thousands of 40' boxcars built to AAR - Association of American Railroad standards after WWII were still in useful condition when new safety standards were adopted in the mid-1960s. Many railroads elected to bring the cars into compliance through relatively inexpensive modifications. The changes included eliminating running boards and installing short ladders on the A end, while retaining the longer ladder, high brake wheel, and a single roof-mounted grab iron on the B end.



Walthers has made another release of its HO scale 40' AAR modernized 1948 boxcars. The ready-to-run Mainline series

models feature Improved Dreadnaught 4-4 ends, a diagonal panel roof, 6' Youngstown sliding doors, riveted sides, an Ajax hand brake wheel, and Bettendorf solid-bearing trucks with 33" machined metal wheelsets.



The models are based on prototype cars that were modified to comply with post-1960 AAR standards including no running

board, a tall ladder at the B or brake wheel end, and a short ladder at the A end. Road names are Northern Pacific, Rock Island, Chicago & North Western, Erie Lackawanna, Illinois Central, Canadian Pacific, and NdeM - National Railways of Mexico.



New Walthers products scheduled for release next month include a group of rebuilt Thrall 40' well-cars. Road names will be BNSF, TTX-DTTX, and Santa Fe Leasing.

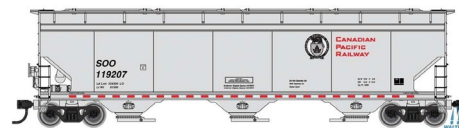


The HO scale models will be available singly and in 5-car sets.



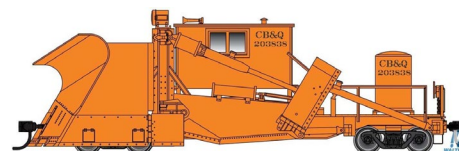
In addition to BNSF, in September Walthers plans to release this 60' NSC 5150 cu. ft. triple-bay covered hopper

decorated for Archer-Daniels-Midland, Illinois Cereal Mills, Santa Fe, Chicago Freight Car Leasing Corporation, Canadian Pacific/Soo Line, and Union Pacific.



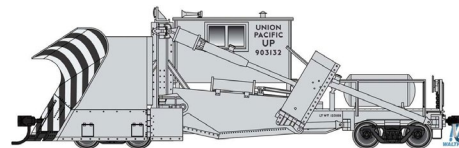
Features of the HO scale Mainline series model include raised body panels with welded seams, a thin-profile roofwalk,

trough-style roof hatches with handles, and 100-ton roller-bearing trucks with 36" machined metal wheelsets.



Walthers has posted an October 2020 date for the release of a Jordan Spreader. The HO scale Proto series model is based on Jordan's 2-200 Spreader-

Ditcher-Snowplow, a popular model that is used by numerous railroads. The wings and moldboards on the ready-to-run model will be positionable.



Additional details include factory-installed grab irons, full underbody detail including brake gear and piping, thin-

profile stirrup steps, window glazing, and a single-chime air horn. Road specific details include a horizontal or vertically mounted air reservoir, one of three headlight styles, and 70-ton roller-bearing or Bettendorf solid-bearing trucks with 33" metal wheelsets.

In addition to a generic Maintenance of Way version, road names for the Jordan Spreader will be Canadian National, Canadian Pacific,

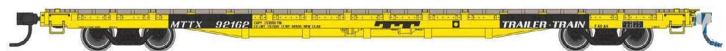
Green Bay & Western, Union Pacific, Chicago, Burlington & Quincy; Delaware & Hudson, and Chicago & North Western/Union Pacific. An undecorated kit will be available as well as unlettered RTR cars in silver or yellow.



Walthers has announced plans to rerun its HO scale 85' General American G85 flat car, with delivery planned for this November. The Mainline series model will have GATC hitches in both up and down position, or container pedestals as appropriate to the practice of the prototype road name, which will include Santa Fe, New Haven, Northern Pacific, Soo Line, TTX, VTTX and two GTTX schemes.



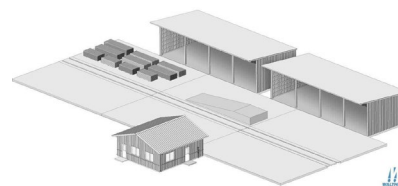
For reliable operation a minimum track radius of 24" is recommended.



A shorter flat car will also be available in November in the form of a 60' Pullman-Standard heavy-duty flat. The HO scale model will be available decorated for VTTX, Trailer-Train HTTX, Trailer-Train MTTX, and two Trailer-train OTTX schemes.



New Walthers Cornerstone structure kits available now include this Modern Section House. Details of the HO scale kit include electric and gas meters, inlet and outlet furnace pipes, shutters for the front windows, and two non-working porch lights. The assembled structure has a foot print of 6.9 x 3.3".



Also just released is a Walthers Cornerstone kit for a Modern Lumber Transload facility. Components in this trackside model include an office, two covered storage sheds with interior lumber racks,

side loading ramp, parts for 10 lumber stacks and concrete paving for the yard area. For additional information contact a dealer or visit walthers.com.

N SCALE PRODUCT NEWS



Athearn's April 2021 production schedule includes a group of N scale 53' JINDO containers.



In addition to the Canadian Pacific scheme shown, carrier names will include UPS, Estes, Ferromex, Florida East Coast, Pacer Stacktrain, Werner, Swift, and two Canadian National schemes. The containers will be offered in 3-packs with each container individually numbered.



An N scale 50' PS-1 boxcar with Youngstown sliding doors will also be in Athearn's April 2021 release. Road names will be Delaware & Hudson, Denver & Rio Grande Western, Boston & Maine, Tidewater Southern, Central of Georgia, and Gulf, Mobile & Ohio. Road specific details include roller-bearing or Bettendorf solid-bearing trucks with machined metal wheels and see-through

metal running boards. For additional information contact a dealer or visit athearn.com.



New 1:160 scale vehicles coming this month from **Classic Metal Works** include a 1957 Chevy tractor and tank trailer decorated for Phillips 66, Esso, and Millstone Township Fire Dept.



1974 Buick Estate Wagons will be available in green, gold, and Burgundy.



A White model WC22 tractor with a flatbed trailer fitted for bottled drinks will be available decorated for Peoples Beer and Coca-Cola.

For more information contact a dealer or visit walthers.com.



InterMountain Railway has released its N scale 10'6" 40' Modified 1937 AAR boxcars decorated in seven Santa Fe map schemes.



Paint schemes include Texas Chief, Scout, Grand Canyon, El Capitan, Chief, Super Chief, and San Francisco Chief. The models are equipped with

Bettendorf-type trucks with metal wheel sets. For additional information contact a dealer or visit intermountain-railway.com.



KatoUSA has announced plans to deliver a complete 13-car version of the

New York Central 20th Century Limited. Availability will begin in October 2020 with the release of a nine-car set consisting of a baggage/RPO, three 4-4-2 Pullman sleepers, a club-lounge car, a kitchen-dormitory car, a dining car, a Pullman 12 bedroom sleeper, and a 5-bedroom lounge observation car.



An add-on set of four-cars including two 12 bedroom and two 10-6 Pullman sleepers will also be available in October.



Both sets of cars will be available in November with factory installed

interior lighting.



EMD E7A diesel units decorated in New York Central's two-toned gray scheme will be available with factory installed Digitrax DCC or ESU

LokSound. For additional information contact a dealer or visit katousa.com.



New N scale models from **Micro-Trains** include this 40' refrigerator car. The model is based on a reefer AC&F built in 1911 with a wood body on

a steel underframe. The class RS reefer was owned by American Refrigerator Transit and leased to Walker's Austex Chili Company, of Austin, Texas.



This N scale Santa Fe 50' insulated class Bx-137 boxcar, available now from Micro-Trains, represents a group of cars built by AT&S&F in late 1969. Features

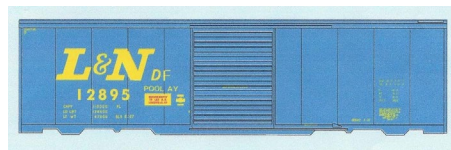
include exterior ribs, a Stanray X-panel roof, non-terminating box corrugated ends, and Youngstown plug doors.



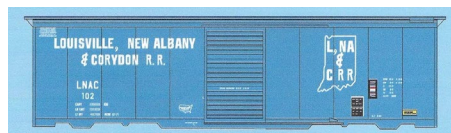
This 40' standard box car with double Youngstown sliding doors represents a standard boxcar produced by Canadian Car & Foundry. Canadian Pacific Railway rebuilt the car in

1975 in its Weston Shops. For additional information contact a Micro-Trains dealer.

NEW DECALS, SIGNS AND FINISHING PRODUCTS



New HO scale water-slide decals from **Mask Island** include 40' L&N appliance car pool boxcars, and Louisville, New Albany & Corydon Railroad 40' boxcars.



Also new are decals for a 50' Southern boxcar with a Super Cushion Service slogan, and two variations of a 60' Chicago & Eastern Illinois auto parts boxcar.



Additional new decals from Mask Island include a GACX Rock Island Airslide covered hopper, and Penn Central 50' X43B and X72A boxcars.



For additional information contact a dealer or visit maskislanddecals.com.



DISCLAIMER

The opinions expressed in this column are those of the writer and do not necessarily reflect the opinion of *Model Railroad Hobbyist* or its sponsors. Every effort is made to provide our readers with accurate and responsible news and information, however, neither *Model Railroad Hobbyist* or the writer of this column can be held responsible for any inaccuracies or typographical errors that may inadvertently appear in this column.

Did you see this article
in **MRH RUNNING EXTRA ?**



Daryl Kruse
makes the case
for N scale

Get the June eBook now

[click here](#)

Did you see this article
in **MRH RUNNING EXTRA ?**



Detailed harvester
load for a flat

Get the June eBook now

[click here](#)

! BRIEFLY NOTED AT PRESS TIME ...

Mask Island Decals has released new HO scale lettering sets for Penn Central and Norfolk Southern wood chip cars, a 50' DT&I boxcar, and a 40' Southern Pacific boxcar. Info at maskislanddecals.com ...

ScaleTrains.com has committed to a 2nd production run of its 42' Thrall-Trinity coil steel car. Delivery of the HO scale Rivet Counter model is planned for Winter 2020 with preorders due by June 22. Info at scaletrains.com ...

Sylvan Scale Models is booking reservations for a limited run of resin craftsman kits for a CPR 8-hatch tank hopper car. The HO scale kit will include etched metal end cages, and both a resin and optional etched stainless steel roofwalk. Send an email to Marc Simpson at mesagkits@gmail.com for details ...

Nick & Nora Designs has introduced new products in their line of O scale Peel & Stick Shingles. New designs include diamond pattern shingles, scalloped shingles, and half-cove shingles. Each style is available in five colors. For more information visit nickandnoradesigns.com.

The **Chesapeake & Ohio Historical Society** is now offering a limited-edition post-war George Washington 7-car set in N scale. A booklet on the train by the C&O Historical Society is included. The set does not include a locomotive. For more information visit the C&O Historical Society website at chessieshop.com.



SELECTED EVENTS



Model Railroad Hobbyist | June 2020

JUNE 2020

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

Did you see this article
in **MRH** **RUNNING** **EXTRA** ?



Fix wheelset slop

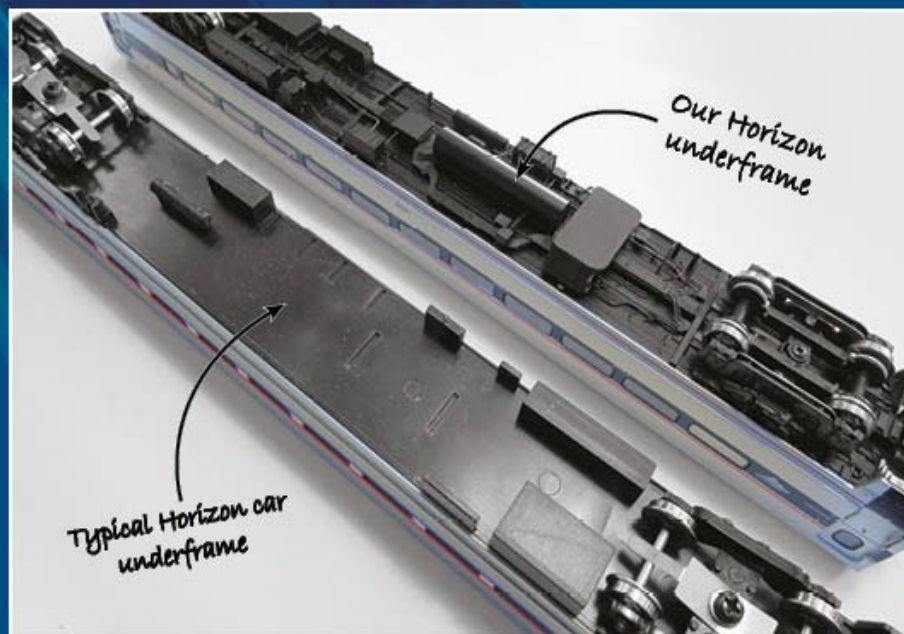
Get the June eBook now ← click here



Tell your friends what they're missing by not being an MRH magazine reader!

THE RAPIDO DIFFERENCE

There's a reason we call our models
"museum quality". See for yourself ...



Choose **THE RAPIDO DIFFERENCE**
and expand your **Horizons** (and your **Comets** too)!

CLICK HERE!



Quality. Style. Spirit.

www.rapidotrains.com

RAPIDO

CLICKABLE ADVERTISER INDEX

[Accu-Lites](#)

[Archer Fine Transfers](#)

[Athearn](#)

[Atlas Model Railroad Co.](#)

[Bachmann](#)

[Berrett Hill Trains](#)

[Black Cat Publishing](#)

[Blair Line](#)

[Canyon Creek Scenics](#)

[Coffman Graphics](#)

[Crew Call with Mike Rose](#)

[Digitrax \(2 page spread\)](#)

[East Coast Circuits](#)

[El Dorado 3rd PlanIt](#)

[ESU LokSound](#)

[Fast Tracks](#)

[Great Decals](#)

[Inter-Action Hobbies](#)

[Iowa Scaled Engineering](#)

[Litchfield Station](#)

[Logic Rail Technologies](#)

[Micro-Trains Line](#)

[Model Railroad Control Systems](#)

[Mountain Subdivision Hobbies](#)

[Model Train Man](#)

[Monashee Laser Engineering](#)

[Monroe Models](#)

[MRH Store \(1\)](#)

[MRH Store \(2\)](#)

[MRH Store \(3\)](#)

[MRH Store \(4\)](#)

[Mt. Albert Scale Lumber](#)

[NCE \(2 page spread\)](#)

[North American Railcars \(PWRS\)](#)

[Pre-Size Model Specialties](#)

[Precision Design Co.](#)

[Rapido \(1\)](#)

[Rapido \(2\)](#)

[Ring Engineering \(1\)](#)

[Ring Engineering \(2\)](#)

[Roomettes](#)

[ScaleTrains.com](#)

[Southern Digital](#)

[Streamlined Backshop Services](#)

[The TrainMaster, Inc.](#)

[Trainfest](#)

[TrainMasters TV \(1\)](#)

[TrainMasters TV \(2\)](#)

[TrainMasters TV \(3\)](#)

[Tam Valley Depot](#)

[24 Trains.tv](#)

[Walthers](#)

[Westerfield Models](#)

Did you see this article
in **MRH RUNNING** **EXTRA ?**



Modeling Lorain, OH

Get the June eBook now

[click here](#)

Clickable "other" index

[Other - Contents](#)

[Other - Cover](#)

[Other - MRH Marketplace](#)

[Other - MRH Sponsors](#)

COMING NEXT MONTH IN MRH ...

New "zip ballasting" technique – only two simple steps and you're done!



How to install a 21-pin ESU sound decoder in an Athearn RTR switcher ...



Model this Ready-Mix cement plant ...



... coming in the
July MRH

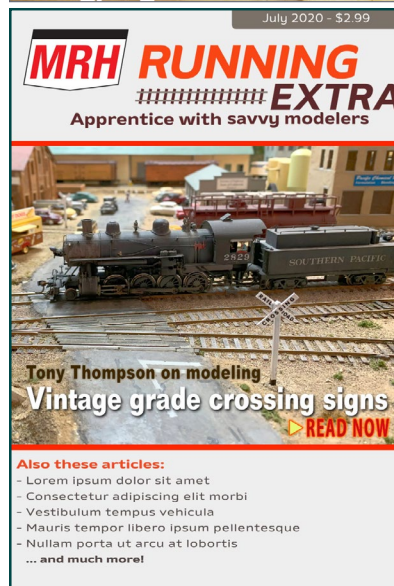
COMING NEXT MONTH IN *RUNNING EXTRA* ...

... all the MRH articles and ads, *PLUS*:

Modeling vintage grade crossing signs ...



Cutting Central Valley bridge girders at precise angles ...



Build this structure: Buck's Grain & Feed



... all this and much more!

RE SUBSCRIBE: 1YR \$19.99