The Milepost

Volume 41, Number 3 — March 2021
The official newsletter of the Pikes Peak Division
Rocky Mountain Region — National Model Railroad Association.

NEXT MEETING:

CANCELLED due to COVID-19 but a Zoom virtual meeting will be held!

Friday, March 12th, 2021 at 7:00 PM

The New Sand Creek Police Station 950 Academy Park Loop
(Northeast of the intersection of Fountain/Academy)
Colorado Springs, Colorado

Calendar of Events

January 8th, 2021 (Friday) – Cancelled but Zoom

NMRA-PPD monthly meeting held on Zoom.

February 12th, 2021 (Friday) – Cancelled but Zoom

NMRA-PPD monthly meeting held on Zoom.

March 12th, 2021 (Friday) – Cancelled but Zoom

NMRA-PPD monthly meeting held on Zoom.

April 9th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}.

May 14th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}.

June 11th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}.

July 9th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}.

August 13th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}

September 10th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}

October 8th, 2021 (Friday)

NMRA-PPD monthly meeting.

Contest: {to be determined}

Program: {to be determined}

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The Milepost, Volume 41, Number 3, March 2021, is published monthly, as an electronic document (Adobe PDF file), by, and under the authority of, the Pikes Peak Division (Rocky Mountain Region), of the National Model Railroad Association. Our meetings are usually held on the second Friday of each month at the Sand Creek Police Station, 950 Academy Park Loop (northeast of the intersection of Fountain and Academy), in Colorado Springs, Colorado, at 7:00 PM. Please come to one of our meetings. We would love to meet you. All scales are welcome. Besides our monthly meeting, we have swap meets, train shows, and other model railroad (and railroad) activities. All content in this journal is copyrighted to its respective owner unless otherwise noted. Please do not use content from this newsletter in other publications, newspapers, magazines, books, web sites, etcetera, without explicit case-by case permission. The editor of *The Milepost* is Mr. David Bristow. He can be contacted at the e-mail address of: dave@bristow-family.org Thank you.

Editor's Thoughts

Inspiration, where does it come from? I'm guessing like many of you it is not from a single source. It maybe from a childhood memory, like the earliest time you took a trip on a train or maybe watching trains roll by in your neighborhood and even putting a penny on the track to see it squashed! When I worked downtown, I would often take my lunch break by walking to the tracks west of the old train depot and simply watch the freight trains go by. It could have been a Christmas gift, your first Lionel trainset. Lately, I've found a number of YouTube channels I enjoy watching. While some are from the United Kingdom or New Zealand where they use funny terms in their speech and materials unavailable in the US, but I still find them enjoyable and valuable. When times were better, there are of course swap meets and conventions with their clinics. Speaking of swap meets, if all goes well, TECO is hosting one this May in our backyard, you can read more about that in Elizabeth's article. Another source of information and often inspiration is of course the multiple railroad magazines that are published, be they about models or the real thing. For instance, in the latest NMRA magazine there is an article about mass producing freight cars from wooden blocks I found interesting and thought it might be worth actually trying!

One of the YouTube channels I watch is the DCC Guy who covers a number of different topics not just DCC. The last couple of videos have been an overview of operations. In planning my layout, I have only given a cursory thought to what industries and how to operate the railway, so the videos got me to thinking. I had asked in a survey what software you use, and for the most part it seemed to me that Excel a spreadsheet software was the most popular. Shipit and JMRI also came up, both of which support operations. DCC Guy talked about weigh bills, car cards, schedules, switch lists and eras of operations to name a few things to consider. He referred to JMRI and an Excel spreadsheet that creates a randomized switch list. All of this seems quite complicated! However, I understand the basic premise of a railroad, that is to make money shipping materials, be they bulk or pieces or containers from one location to another most efficiently to maximize profits. We can see that happen here in Colorado Springs as our utility buys coal from mines in northern Colorado and Wyoming and BSNF moves that coal to our coal fired generators. This is all inspiration for my RAILS software, as I have a comprehensive set of data on each piece of rolling stock now all I need are a few operational concepts about industries and presto a lot of work and I would have tools to operate my railroad. Hmmm but would it not be simpler to use someone else's software. Here is where inspiration and skills come to play, just as there are folks who like to simply buy a ready to run piece of rolling stock and others like to start from scratch to build a prototype freight car. I like to develop software!

Frank the author of the article "What's in a Name?" pointed out an error he made in referring to the Colorado and Eastern Railroad incorrectly as it was called the Colorado Eastern Railroad.

David

March Superintendent's Notes

Zoom Meeting and Show & Tell

Part of what we do at our Zoom Division meetings is to have a show and tell. All members are welcome to participate.

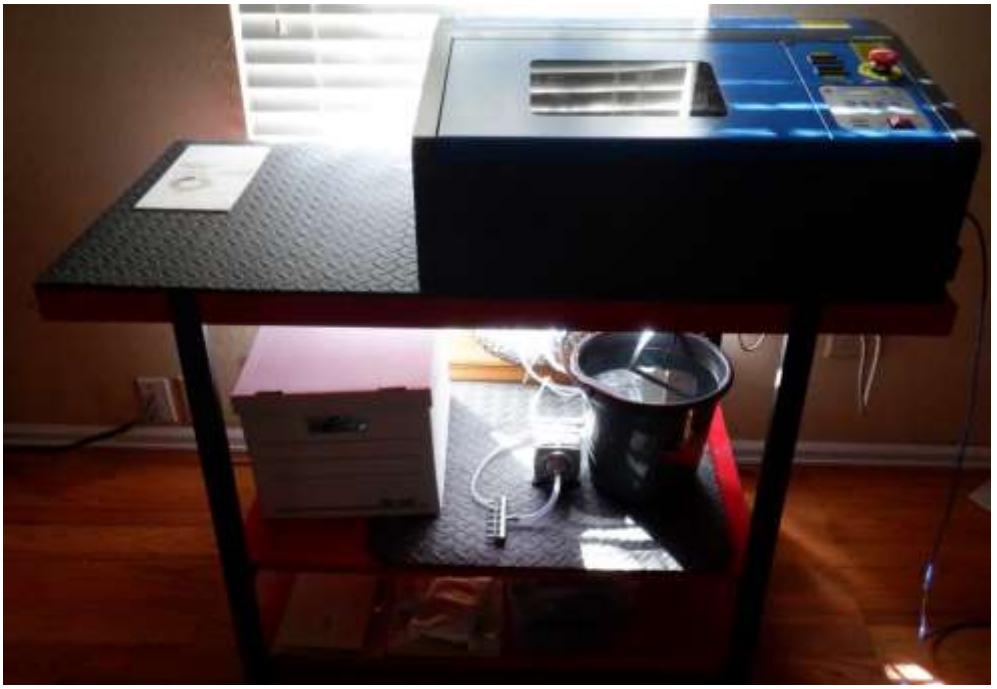
Here is the link:
https://us02web.zoom.us/j/86493099516?pwd=U3V5dmQ0VUxqNm1nM2pnWC9MTWRBQT09

Show and Tell

Tony has move on the gondola cars and Wade has been creating ore car loads. Mike Maline has been creating a system to load gold ore into his Virginia and Truckee 3D printed ore cars.

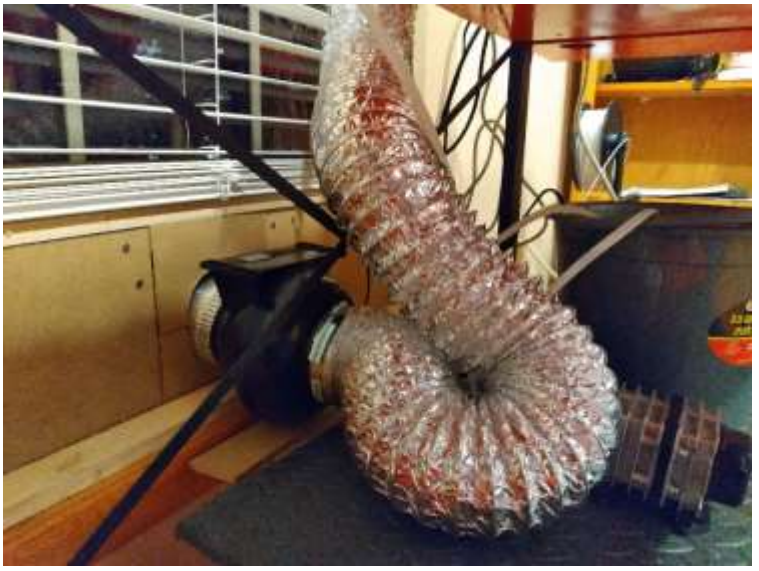
More Fun with K40 Laser

This is an updated picture. Another shelf has been added --- this time right on top the lowest leg horizontals. Like the middle shelf, it is not attached, just held down by gravity.



The Styrofoam ice chest, which leaked, has been replaced by a bucket. With a submersible pump, and the laser cooling water return tube now has a tie twist holding it to the handle. It snuck out once spilling water on my beautiful hardwood floor. That is the air assist pump next to the bucket which blows out any flame ignited by the laser. It does work but it is the noisiest part of the system. 😊

One of the things that lasers do by “burning” wood is create smokes and fumes which is not a healthy thing. This exhaust needs to be vented to the outside world. Behind this table is a strip of wood with a flapper valve beneath the partially open window. When the laser and integrated exhaust fan is inactive, the flaps close:



Before I installed the “flapper”, cold air would enter the room when the laser was inactive.

That exhaust pump is larger and more powerful than the integrated fan in the laser. Outside the window I can see the flapper flaps opening. The pump is upside down, but it fits better that way. It is resting on a piece

of MDF bolted onto the wooden shelf. The "appendix" sticking out from the duct is the air assist pump that puts out the laser fire. The bucket behind it runs water around the laser jacket to keep it cool using a submersible pump.

The two boxes contain two-inch-thick blocks of Styrofoam for insulation. Nothing is physically attached to the wall and can be removed should we go out of town. The room is no longer an ice box. Commercial grade systems have more elaborate and expensive systems to filter their exhaust.

Resistance is Futile

There's a formula for that:

Resistance to Flow $$\mathcal{R} = \frac{8\eta L}{\pi r^4}$$

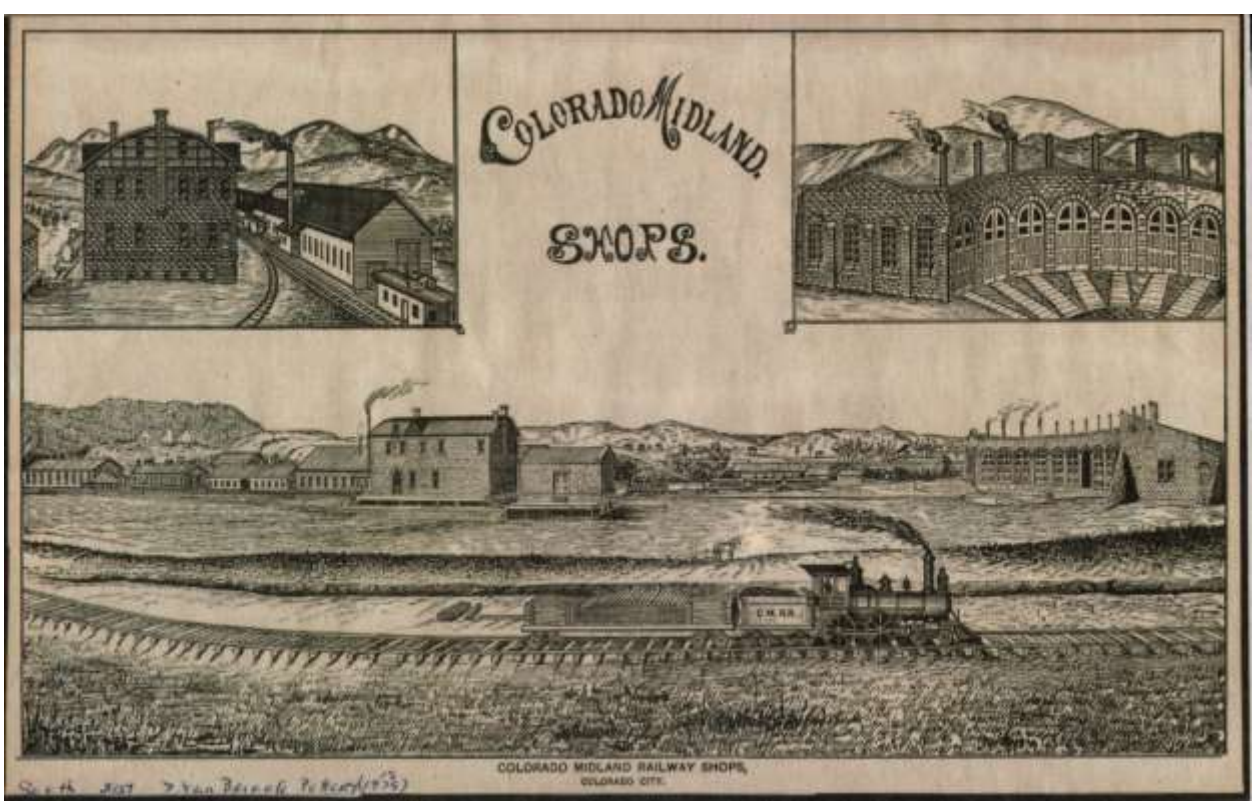
The longer a tube or duct is, the more it slows down the flow of air, whether it is air assist input to blow out any flame caused by the laser or exhaust going out the window. That is what "L" represents --- I cut my tube in half and my flame disappeared permanently.

Before I inserted the exhaust air pump, I was using a 3" to 4" adapter. In the formula "r" is the radius at the narrowest point. We are talking a factor of 16 vs approximately 5. That is over a 3 to 1 difference in resistance. After this change the windows flaps definitely opened up making for better exhaust.

Getting Back to the Fun Part

The software that works with the K40 and its stock controller board is Inkscape and K40 Whisperer created by Scorchworks. Different controllers would use different software.

There are basically two things you want to do with a laser, engrave and cut. Engraving is straightforward. I started with a scan of the picture in the Gazette:



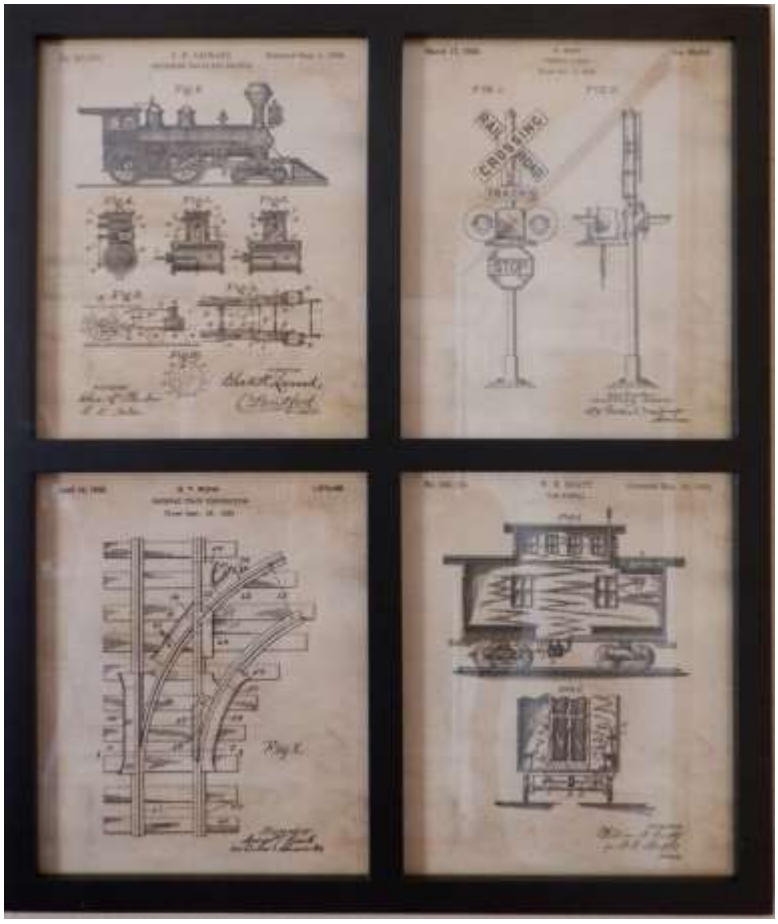
Then, as an aside, I had a 12 x 20 poster printed for about $1.50 and then I spent $50 to have it framed:

The note in the lower left corner was edited out. Even with the flash turned off, the camera doesn't quite give it justice because of the glass.

This is what the engraved image on wood looks like:

Actually, this is the second attempt. I cut the laser speed in half with roughly the same about of power (about 10%) and it came out darker with better contrast.

I got a four-panel framed picture of old-time patent drawings as a birthday present (that I might use to create more engravings). Each drawing can be separately removed for scanning:



Naturally, the glass makes for annoying reflections.

The K40 has a built-in controller which only works with a proprietary program called Whisperer from Scorchworks. I got a demo image from the website I played with to learn how create compatible SVG files in Inkscape.

At the PPLD Makerspace, Inkscape could directly talk with their commercial laser printer so I was spoiled. Staff maintained all the equipment too.

When you “do it yourself” you really got to do it yourself.

Laser cut ho scale building with commercial Spanish tile:

I’ve got some commercial benches to add.

Designs for Interlocking 3D Laser Houses Available

Upgrading from N2 Nano Controller to Cohesion3D

The inexpensive 8-bit controller board that comes with the K40 mandates the use of a proprietary free program called K40 Whisperer that imports designs created in programs like Inkspace and feeds them to the K40. With a great deal of work and ongoing frustration I made it work.

I decided enough was enough and broke down and bought a Cohesion3D controller for $200 --- almost half the cost of the K40 itself.

This controller is more powerful and more efficient, can modulate the output power and uses Lightburn software --- my son lent me an extra license key that he has. It also has its own higher voltage power supply and fits in the case where the M2 nano resided.

I installed the new board and did a smoke test Saturday afternoon. PC and LASER successfully communicated and text was printed out.

I set my hardware max power on the machine itself to 10%. As a safety feature, the controller assumes that is full power. Will have to play around with the settings.

The new software, Lightburn, is much more professional than the old and works faster. No regrets about upgrading.

Controller Compatibility

To successfully communicate with your LASER, you need to use software compatible with your hardware, software and budget. Here is a good website.

https://lasergods.com/controller-dsp-identification/

WifiTrax Passes Smoke Test

The good news is that this device plugged into my NCE cab bus coexisting with my Powercab and my phone was able to wirelessly connect to it. That was very straightforward:

To do a complete test, I need it to run a train. To do that, I need to figure out what's not working with my Powercab/track connection. They say the WFD-30 can wirelessly control 6 or 7 engines.

For the Division, this might make more senses than dragging around an old laptop and wireless access point.

For those starting DCC from scratch, they have a complete system called WFD-27 which can handle 16 locos:

The TCS is a $300 WiFi train throttle (for those who don't have an old phone or tablet laying around or want the feel of real buttons).

Have ordered a WFD board directly from Down Under --- shipping $25. Will report on results in a couple weeks.

There are discussion threads on Model Railroad Hobbyist discussing LCC vs the proprietary protocol that WiFiTrax uses.

Ironplanethobbies.com is a US dealer.

The Day of the Individual Designer is not Over

Steve Shrimpton is the creator of WiFiTrax.

Ray Kholodovsky the creator of the cohesion3D controller board.

Alaska Tourist Railroads Taking a Hit

Taking a cruise up to Alaska and visiting the tourist railroads is a top item on our bucket list.

Check out their history on the website: https://wpyr.com/history/

Between the CDC's effective suspension of cruising with no end in sight and Canada's ban on cruising for 2021, the Alaska tourist industry is into a second year of the COVID "blockade."

Prior to the pandemic in 2018, Carnival Cruises invested into the port and railroad through its Princess subsidiary. It has rail cars and lodges further north in Alaska:

Skagway is particularly hard hit and the railroad is on shutdown for the year.

https://khns.org/white-pass-and-yukon-route-railroad-abolishes-dozens-of-jobs

Further north, the Alaska railroad is still running with COVID protocols in place.

https://www.alaskarailroad.com/passenger-information

Upcoming Division & Local Events

Any events scheduled for 2021 are subject to cancellation.

May 22, 2021: Outdoor TECO Train Show at Chapel Hills Mall.

September 2021: Regional Convention in Pueblo

Information on Colorado and neighboring state events is posted on TECOshow.org.

Checkout the Rocky Mountain NMRA Callboard: https://www.rmr-nmra.org/callboard.htm

TECO Outdoor Swap Meet

By Elizabeth Maline

I do believe that I see the light at the end of the tunnel! More of us are receiving our coronavirus vaccinations, public health numbers are looking better every week, and soon this snow will melt, and we will begin seeing the world emerge from its self-imposed cocoon. February came and went, and our tentatively planned TECO show fell by the wayside. The good news is that TECO is moving full steam ahead for another outdoor swap meet. Mark May 22 on your calendar for the next TECO event. The swap meet will be held in the southeast parking lot of Chapel Hills Mall. Space for vendors is almost unlimited. Take a look! 👁👁

Date: Saturday, May 22, 2021

Time: 10 am – 2 pm

Location: Chapel Hills Mall, 1710 Briargate Blvd, Southeast parking lot

Entry: $5, accompanied children under 12 - free

Vendors: Please contact Mike Peck, (719) 640-2076 or mmp85trainnut@hotmail.com

A vendor registration form will be available shortly at https://tecoshow.org

Volunteers and Worker Bees: Please contact Elizabeth Maline, (915) 491-4819 or eamaline@gmail.com

Stay tuned as more information will be posted on our website soon!

Notes from The Siding

By John Emmot

Here we go again. I guess the most interesting thing I know about this month is the continued planning for an outdoor TECO swap meet on the 22nd of May. Assuming that the COVID don't grow and the world don't end before then, TECO intends to go outside on the north side of town. Given that the weather cooperates, it will be open to the public from 10 AM to 2 PM. The Chapel Hills Mall will host the event in the southeast corner of the parking lot east of Macys and south of the AMC theaters. There are only a couple of breaks in

the surrounding islands to provide entry control. There are plenty of marked parking spaces to delineate sales spaces and separation. There is also sufficient space for attendee's vehicles without crowding the sales area. Vendors can choose how many spaces they want to pay for to spread their wares starting at $15. Attendees over 12 will pay $5. As with the fall event in the church parking lot, it will be barebones. Bring your own tables and chairs, etc. Food and restrooms are available in the Mall. While there is a cadre of TECO personnel, there is always need for volunteer help from the Division or other associated organizations. Call Elizabeth to let her know what you would like to do or ask what we need done. As of today (Mar 5) I heard that COVID limits outdoor events to 250 present.

A couple of weeks ago a group of us went to Peyton to load and remove more of the abandoned layout. Gerry and the Youth in Model Railroading received over 70 boxes of scenery, buildings and hardware. Look forward to the YMR tables at any upcoming events. They have a bunch of 'good stuff'. At the same time, we loaded my pickup with all of the layout tops needed for the Calhan future layout and the rest of the redwood trim from the old layout. It is still in my pickup waiting for a nice day with labor help in Calhan. Stay tuned. The Division rope posts are sitting in my driveway as there is nowhere else for them at this time. We'll need them for the May 22 event.

My parlor car waits in limbo. It is ready for paint and the paint booth is ready for use. Just inertia and the fear of my wife's allergies to my possible older generation that hold me back. (That and it is income tax season.) I'll get there. Got a bunch of gondolas and boxcars that need paint too. Along those lines, the parlor needs 38 swivel chairs. While I haven't worried about interiors for my previous cars, I had hoped this one would be different. Unfortunately, I haven't found any interior pictures of it to guide my search. They don't have to be exact, but there are so many choices in my books. Maybe I can get some made on a 3D printer.

You may remember that I got my second Covid shot just before the last ZOOM meeting. Happy to report no ill effects from it. One day of sore arm.

Well, it's Saturday and I'm sure Dave is ready to publish so I better close this for now. Remember the ZOOM meeting on Friday. Hope to see another big bunch of attendees.

February 2021 Minutes

Secretary, John Emmot

The regular monthly meeting was called to order by Superintendent, Joe Costa at 7:02 on a digital ZOOM meeting. All of the officers and several members were present. Eventually, we had 12 Zoom boxes, some with multiple members. It was mostly the regulars present.

The minutes of the January Zoom-meeting were approved as published in the Milepost.

Treasurers Report

Tony Pawlicki had provided a digital update on activity in the PPD bank account to the officers prior to the meeting time. The Bank statement credited us with $0.03 interest. The statement was accepted as submitted.

Chairman Reports

Elizabeth reiterated the plan for an outdoor swap meet at the Chapel Hills Mall parking lot on May 22 between 10AM and 2PM. Admission at $5 per adult, accompanied under 12 free.

Discussion

No attendees were aware of the old Mileposts on the website. They will be discontinued.

Ken Rambo asked about the status of the Drewes' modules. He is progressing with his layout and maybe interested in incorporating them into it. He was given Gerry's telephone number.

There was discussion about PPD representation in the Region Callboard. Gary Meyers is an addressee. We will also ensure the Region Superintendent is also included. It was noted that the Callboard editor has been hard to contact. The Region website does link to the PPD website, but the Callboard expects independent input.

Mark and Amber reported that they had received a new donation of railroad equipment to the PPD. Amber has cleaned it up in preparation for the next sale opportunity. It was noted that some items are a bit rough and should be priced low. The Division should acknowledge their effort in this project.

It was also noted that several PPD members were instrumental in a significant donation to the Rocky Mountain Railroad Heritage Society at Calhan and to the Youth in Model Railroading.

New Business

There was no new business introduced.

Old Business

Kristin acknowledged the project from last spring of acquiring 2 new banners for the PPD layouts at train shows. She will continue to work it.

Contest

There was no formal contest.

Program

Mike showed an ore house from Virginia City on the Virginia & Truckee RR. It was built by combining two wood kits to make a 7-chute loading facility for his 3D printed ore cars.

Tony talked about the marking changes needed to update the Nickle Plate covered hoppers from late 1960s to continued use in the 1980s.

Wade showed gravel loads he had made for the 36' open hoppers that serve his new gravel operation. He used reinforced plastic inserts with steel weights under them and scale gravel glued to the tops.

Joe discussed how he copied and framed the picture of the Colorado Midland shops that appeared in the Gazette this week. He also used his laser to burn a copy of the same picture onto birch plywood.

Dave discussed the static grass applicator that he is building. Pictures and specifications will appear later after it is finished.

Meeting adjourned at 8:18.

Extra 6310 East

by Jerry Hansz

Bob Handiman was called as engineer on a short extra freight from Agua La Sal to Tesolc on February 25, 1971. The train was scheduled out at 0800.

Bob left home about 0600 to arrive at Chestnut Hill engine terminal by 0700. U23B #6310 was parked in the roundhouse, and the hostler would have it warmed up by then.

Here we see Bob arriving at the yard office.

Agua La Sal switcher had the train assembled on the yard lead. Bob would take #6310 to the train at about 0730. Joe Goodenou would be the head brakeman. He was waiting at the head end to hook up. The conductor Robert Knowital and rear brakeman Barry Moving were in way car #999538.

Bob brought #6310 to the train at 0730. The rain was connected, and the air was checked.

With all good, Bob took the slack out at 0800 on the dot.

It is a two-hour run to Hays.

Here we see the train passing the Hays station.

Another two hours to Midwest City.

At 1200, the crew tied up on the main at Midwest City and went for beans.

Their appetites quenched; the train departed Midwest City at 1230.

With a clear track and good running, two hours took them to Talheim.

#6310 passes Talheim and takes the line to Tesolc.

Here we see the way car clearing Talheim. Extra 6310 East arrived Tesolc at 1630.

The crew tied up overnight and took the next freight back to Agua La Sal.

Rocks and More Rocks

By Wade Mountz

My NEW rock crusher on my layout needed an "easy" way to load my eleven 36-foot ore cars for an operating session. I did not want to use loose rock and gravel in the cars as several of my friends use simply because - it spills!! Cleaning up spilled product after a session was more work than I wanted to handle. A one-piece load that would fall out of the car was the answer. A magnet to pull out the load seemed even better. Virtually any piece of steel, washers or nuts will work to add weight and be attracted to the magnet. I still need some stronger magnets. Almost all the materials were already on hand, so I did not have to purchase anything at all, except for strong magnets.

Some of the loads use a piece of cork that the gravel is secured with, others use scrap styrene plastic strengthened with styrene "I" beams, but an old paint stick or poster board would also suffice. I used what I believe to be something stronger than white glue to secure the material to the base. Almost anything will work. If one layer ow gravel does not come up high enough setting in the car, add a second layer or even a third after the glue has dried. I tried to round the tops of my fine crushed loads.

My (almost) finished loads looked too much like "playground" sand to suit me - so I "dusted" each load with a little "rattle can" primer gray, primer red - or anything that looked "reddish". The loads were starting to look too dark - so a quick pass or two of very light yellow brought the mixture to look very close to natural quarry stone. Or at least close enough to suit me - a truly NON artist. Hardly anyone ever questions the artistry of the layout owner in their presence.

So far, the loads are holding up very well and a far cry from "playground" sand that I had before adding the rattle can spray paint dusting!!!

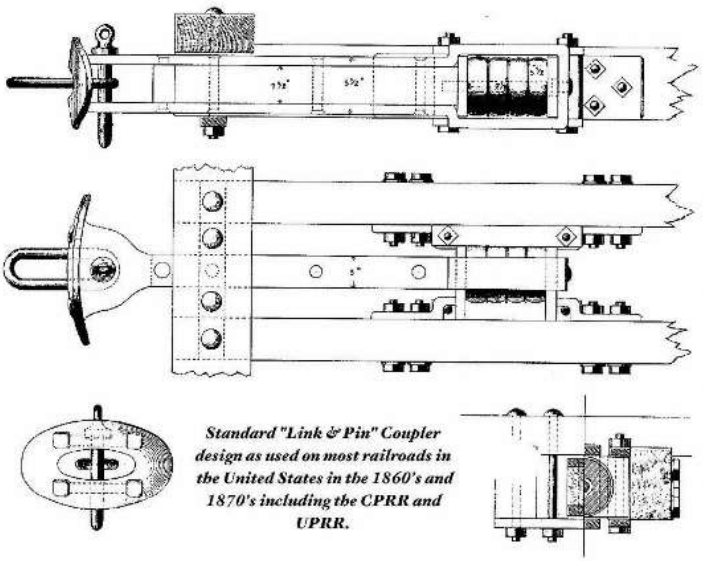
Link and Pin Couplers

or

"The missing fingers rail car connector"

By Mike Maline

While constructing my Virginia and Truckee Railroad layout, my goal is to make it as close to the original as possible. Of course, compromise is necessary, for example, using Kadee couplers for all rolling stock. Well, I decided what the heck; why not try using link and pin (L&P) couplers? Link and pin couplers were the standard on all railroads used back in the 1870s. So why not try it? Interesting note; read that a job interview for being a brakeman was to hold out your hands, the more fingers missing the more experience the job applicant….



First, I needed volunteers to mount the L&P on, which I had, a brass 4-4-0 loco with an L&P coupler already mounted (previous owner must have had the same idea). Next something to connect to it. For this, I used my Bitter Creek 25' Central Pacific boxcar. It was a "box of sticks" kit less trucks and couplers built to 1870's livery, notice no needless extraneous markings on the car.

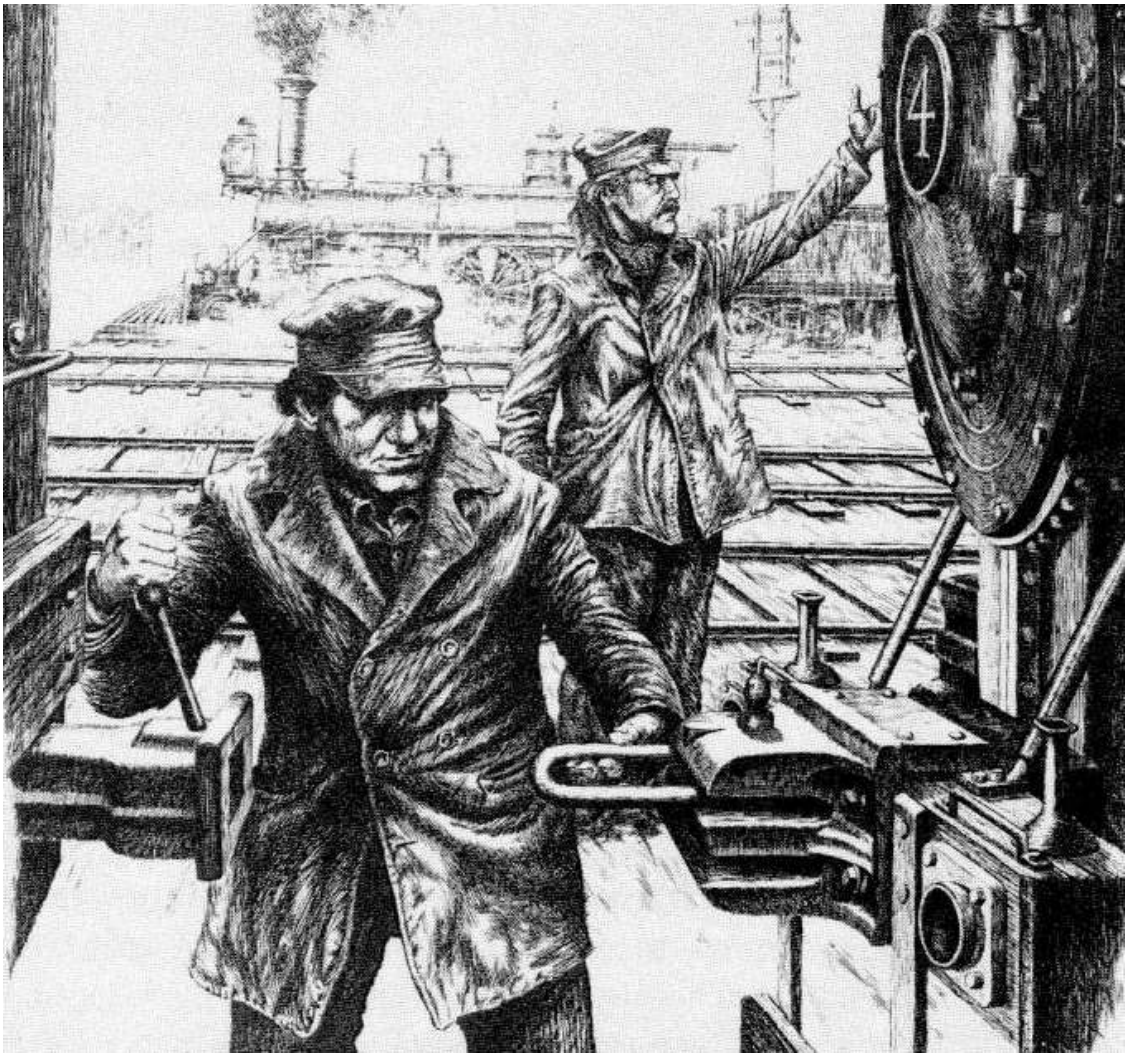
Now I needed the L&P couplers and coupler boxes. Alexander Scale Models produces them: items # 6002 Link and Pin Coupler and #6003 Coupler Pocket. They are made of white metal and brass. The coupler pocket is slightly different than a Kadee coupler box with three upright studs on the inside to hold a spring and the coupler. As for the pin, it is the same as a sailing ship-belaying pin used to secure running rigging (also used as an equalizer in a fight). A source of additional pins is ordering them through a model wooden

sailing ship supplier of parts. The link is a thin brass wire bent in an oval shape, about the size of a metal staple.

Installing the link and pin coupler pocket is precisely the same as a Kadee coupler box. Use washers if needed to raise the railcar, or a shim to lower the coupler pocket. After installing, paint the coupler pocket the same color as the car it is mounted on. Word of note: installing the pin is done with a very steady hand using a long pair of tweezers.

On March 3, 1893, President Benjamin Harrison signed the Safety appliance Act, which made automatic couplers and air brake mandatory on all trains to be effective 1900. The Link and pin coupler had made its swan dive and job-related accidents dropped dramatically.

Decided to stick with Kadee couplers….



Now what could be dangerous about this????

A Static Grass Applicator

By David Bristow

At one of our meetings, when we met in person back in 2019 Mark showed a couple of YouTube videos from the Boulder Creek Rail Road which inspired me to look into the construction of a static grass applicator (see Luke Towan's "Static Grass Applicator – Professional Tools for Modelers". Turned out the videos were great. However, Luke made his from stuff he could get in Australia so I wasn't sure I would be able to find all the parts, in fact it turned out the static generator Luke used was relatively expensive. I decided that I wanted to keep it simple, so I choose of a no battery option.

Parts List

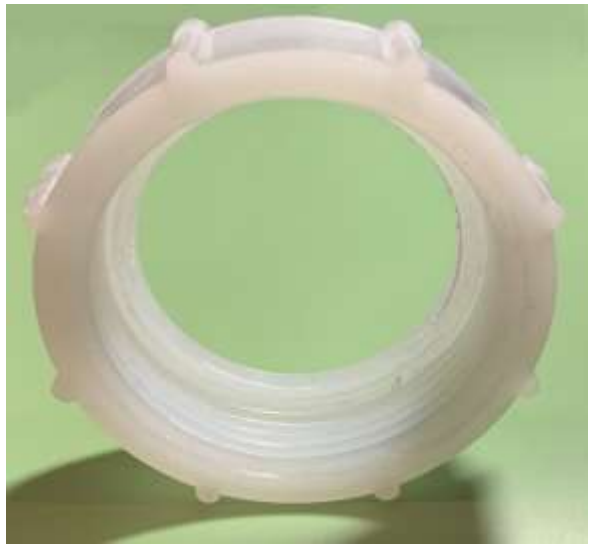
The parts without pricing came from my parts bin, the others I had to purchase.

- 1 5” 2" PVC pipe
- 1 pieces of aluminum
- 1 SPST switch
- 1 LED
- 1 LED holder
- 1 390-ohm resistor
- 1 power socket
- 1 terminal connector

- 1 Electrostatic Generator - DC12V 15000V to 20000V Adjustable High-Voltage Electrostatic Generator Igniter Boost Step up Module Negative Ion Ignition (AliExpress $7.11)
- 1 Woven Wire Mesh, 304 Stainless Steel #20 Mesh, 10"x14" (2 Pack) (Amazon $10.29)
- 1 Sistema To Go Collection Breakfast Bowl Food Storage Container, 17.9 oz./0.5 L (Amazon $6.48)
- 2 1-1/2 in. PVC DWV Hub x Slip-Joint Trap Adapter by NIBCO (Home Depot $1.37)

After acquiring all of the parts the assembly requires very little machining the following were the steps taken

Remove the inside flange in the slip-joint adapter, I used a diamond cutting blade in a Dremel as seen in figure Cut the threaded portion of the hub so that the slip-joint adapter touches the shoulder of the hub and there is less than 1/8” between the end of the threaded portion of the hub and the inside of the slip-joint adapter.

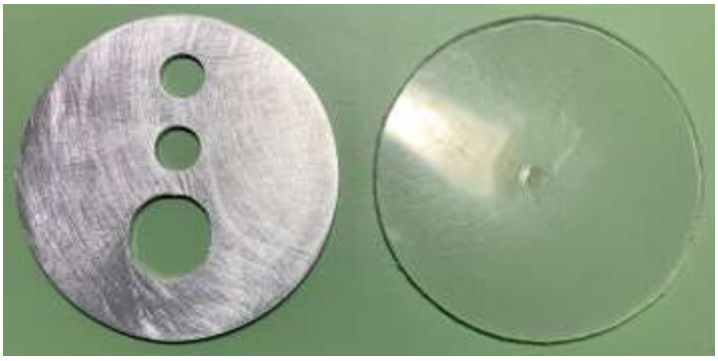


Slip-joint Adapter

Remove the center from the lid of the Sistema container, keeping the center plastic piece to file one of the slip joint adapters. Cut the mesh into circle that fits the inside of the lid of the Sistema container. Pour epoxy around the inside edge of the lid of the Sistema container making sure to cover the edge of the mesh. The result should look like the following:

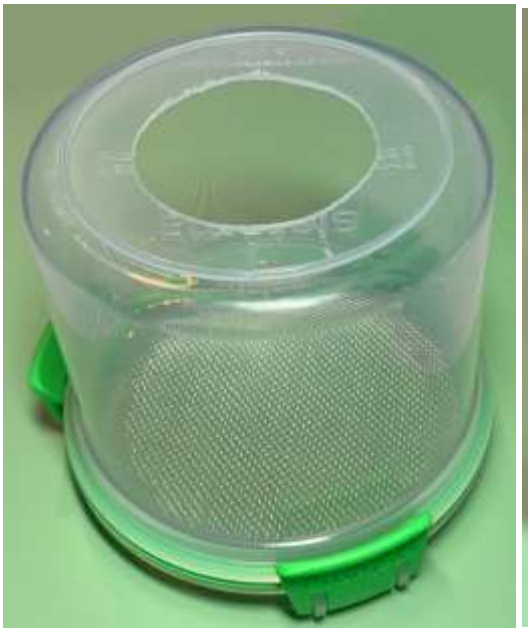
Cut the 2" PVC pipe to a length of about 5". Remove the tab nearest the high voltage out of the electrostatic generator. Drill and countersink a hole near one end of the PVC pipe such that the hole will be covered by the PVC DWV hub, this will be the power input end. Using a bolt attach the electrostatic generator to the pipe.

Drill a hole for terminal in one of the PVC DWV hubs. Create a notch in the PVC pipe the other end of the screw attaching the electrostatic generator. Shorten the black output wire of the electrostatic generator. Solder the black stripped wire to the terminal. Glue the PVC DWV hub onto the PVC pipe making sure to align the terminal with the notch.

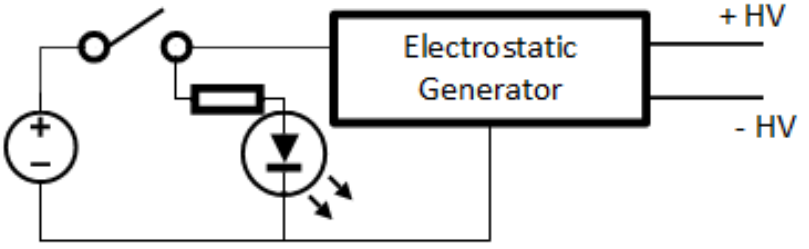


Cut the leftover plastic from the lid of the Sistema container to fit inside one of the slip-joint adapters. Drill a hole in the center. Cut a piece of aluminum to create the faceplate to hold the power input, LED and switch.

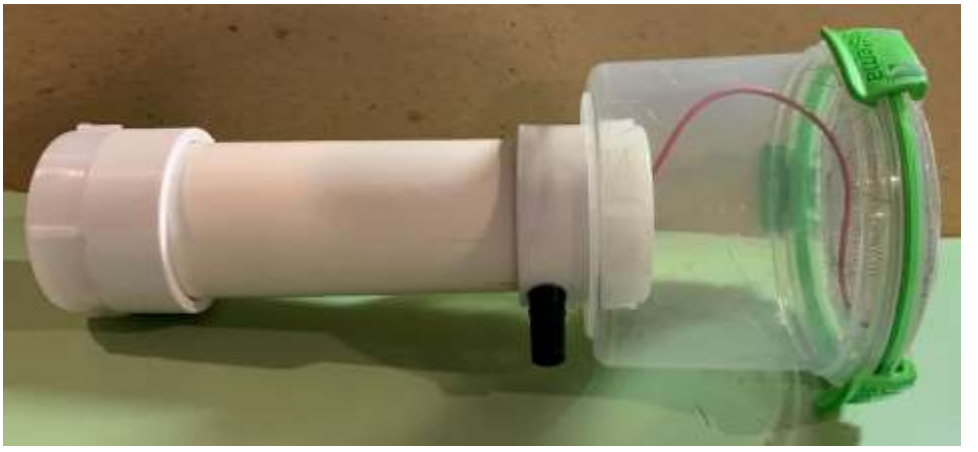
Cut a hole in the bottom of the Sistema container to fit the hub.



Assemble a slip joint adapter, and the plastic disc, using a bolt a solder lug, and nuts. Shorten the red output wire of the electrostatic generator. Put the red wire through the hole in the bottom of the Sistema container. Solder the red stripped wire to the lug. On the other side of the lug attach a short piece of wire. Attach the other end to the screen. Then thread the slip-joint adapter onto the hub through the bottom of the Sistema container.



Assemble the electric components into the aluminum disk and wiring it as defined in the circuit diagram.



The last step is to test the completed device, plug a 12v DC power supply into the power socket, put some static grass in the container, turn on and shake. Presto grass stands up!

The most expensive part was the stainless-steel mesh; however, I have enough left over to create another eleven static grass applicators. If I discounted the cost of the mesh to the portion I used and had to pay for the parts I had the overall cost for this static grass applicator would be less than $25. If anyone is interested in building a similar device, I'd be happy to share more details and even some parts.

3 KATO Covered Hoppers

3 NKP Covered Hoppers – Detailing and TECO-Prep

By Tony Pawlicki

1.0 Introduction

Subject: This article covers the upgrading and detailing of 3 NKP 2-bay covered hopper kits produced by Kato.

Background: Roy's Trains had a bargain on offer that I couldn't resist, a 3-pack of finely-detailed KATO HO scale Nickel Plate 2-bay covered hoppers. Really beautifully engineered plastic models! To upgrade some details and prepare them for service on TECO train show layout operations (discussed in an earlier article about TECO-toughening), I made some modifications, as discussed below and shown in the accompanying photos.

2.0 References

Official Railway Equipment Register, Jan. 20, 1992 [ORER92]. Relevance: Identifies by owner and reporting mark the series and individual cars in service as of 20 Jan. 1992. Notably:

- NKP reporting marks were still in use under Norfolk Southern (NS) ownership for many types of cars.
- 3-bay, 77 ton covered hoppers NKP 90500-90564 were still in service.
- Not even one of the relevant NKP 2-bay covered hoppers (91xxx or 99xxx series) was still in Norfolk Southern service (at least, not under the NKP road name).

www.alphabetroute.com > nkp > models.php, titled "Nickel Plate road Available Models." Relevance: lists models "relatively close to the prototype" with fictional models excluded. Under the heading "Freight cars (HO scale)" are:

- "91000-91461/99500-99857 series" "Bowser".
- "91000-91461/99500-99857 series" "Kato".

www.nkphts.org > nkp > freight_cars_1950, titled "THE NICKEL PLATE ROAD'S FREIGHT CAR ROSTER IN 1950" with an introduction that concludes with the statement "The cars below would all serve into the NKP's merger with the N&W in 1964". Relevance: List of car series and photos of some cars.

- List of car series:
  - 91000-91049, 35' 3", 50 cars
  - 91050-91111, 35' 3", 62 cars

- 99500-99509, 32’ 4”, 10 cars
- 99605-99629, 31’ 11”, 25 cars
- 99630-99639, 31’ 11”, 10 cars
- 99700-99799, 35’ 3”, 100 cars
- 99800-99807, 35’ 3”, 8 cars
- 99808-99832, 35’ 3”, 25 cars
- 99833-99932, 35’ 3”, 100 cars

- Prototype photos:
  - NKP 91163 – open-side, roping staples, ACI, Consolidated Stencil (not in any series listed by this source but in series listed by models.php)
  - NKP 99504 – open side, roping staples
  - NKP 99773 – open side, roping staples

www.nkphts.squarespace.com > nkp_model_list_216 (Version 2.16, 27 Feb. 2019) titled “All-time, All-scale NICKEL PLATE ROAD and Predecessor Railroads MODEL LIST”, with introduction stating it covers models “either built to closely resemble...or come factory-painted and lettered for NKP...” (hence, not guaranteed to bear any resemblance to the prototype structurally). Relevance: Includes the Kato kits, calls length 34’.

www.rr-fallenflags.org Relevance: Provides prototype photos:

- NKP 91526 – closed side, no center rib, shaker pads, roping staples, round hatches [March 1966]
- NKP 99789 – open-side, center rib [July 1963]

www.RailroadPictureArchives.net Relevance: Provides prototype photos:

- NKP 91134 – open-side, center rib, U1, ACI, Consolidated Stencil [June 1980]

3.0 Research Findings

This section provides the research findings.

As a quick summary, the research efforts were frustrating, with no photos of the prototype found despite data being found on the production series photos being found of related prototype cars.

For details of what data were obtained from what sources, see section 3 above.

3.1 Specific Findings

Per www.nkphts.org > nkp > freight_cars_1950, the NKP 91034, 91067 and 91085 cars all lie within the two adjacent series of identical-length cars:

- 91000-91049, 35’ 3”, 50 cars
- 91050-91111, 35’ 3”, 62 cars

Per photos on www.rr-fallenflags.org, NKP covered hoppers included both open-side and closed-side designs and designs with and without shaker pads.

Per photo on www.RailroadPictureArchives.net at least one car remained in service as of June 1980 and it had appropriate stencils, et cetera for the time frame (U1 wheel sticker, ACI placard and Consolidated Stencil).

Per the Official Railway Equipment Register, Jan. 20, 1992, while NKP reporting marks were still in use under Norfolk Southern (NS) ownership for many types of cars, not even one of the relevant NKP 2-bay covered hoppers (91xxx or 99xxx series) was still in Norfolk Southern service (at least, not under the NKP road name) as of 20 Jan. 1992.

Per www.alphabetroute.com > nkp > models.php, NKP 91000-91461 were 2-bay covered hoppers. Per www.nkphts.org > nkp > freight_cars_1950 there was a series ending with NKP 91111. But no partitioning of the range 91112-91461 into one or more distinct series has been identified.

3.2 Conclusions

The NKP 91034, 91067 and 91085 cars all lie within the two adjacent series of identical-length (and plausibly structurally identical) cars, 91000-91049 and 91050-91111.

It is plausible that between 1980 and 1992 any remaining cars in the adjacent series covering the NKP 91034, 91067 and 91085 cars could have been sold off to a third party for use in captive cement train service. Such cars would have carried stencils, et cetera, appropriate for the post-1978, pre-1992-time frame (i.e., U1 wheel sticker, ACI placard and Consolidated Stencil).

We have as yet identified no photo or other data that determine, for cars in the NKP 91000-91049 and 91050-91111 series:

- What the structure (notably, open-sided vs. closed-side) was;
- What the paint scheme was;
- What the placement of U1 wheel sticker, ACI placard and Consolidated Stencil was.

Overall Conclusion: It is plausible that the NKP 91034, 91067 and 91085 cars:

- Were closed-side cars.
- Bore appropriate post-1978 stencils, et cetera.
- Entered captive cement train service between 1980 and 1992.

Thus, the models are appropriate (once U1 wheel stickers, ACI placards and Consolidated Stencils are added) for captive (i.e., non-interchange) cement train service on a 1977-to-present layout such as mine.

4.0 MODIFICATION DESCRIPTIONS

This section provides descriptions of the upgrade and detail modifications.

There were three drivers for the modifications:

- Making the cars “TECO-tough” per the article “TECO-Tough Freight Cars” in the July 2020 Pikes Peak Divisions (PPD)-NMRA.
- Making the cars suitable for use in captive (i.e., non-interchange) freight service on a 1977-to-present layout.
- Adding certain particularly noticeable detail refinements.

4.1 TECO-Toughening

Note that much of the TECO-toughening is not visible to the casual railfan. The benefit is to the owner (in reduced damage to the models) and the layout operators (reduced derailments, fewer break in-two (“Hey mister engineer, your train just broke in half!”) embarrassment incidents and other more “interesting” disasters such as snagging a grade crossing timber with a coupler trip pin). The value to the railfan is in seeing smooth operation (though some prefer the disasters, naturally).

The TECO-toughening involved:

- <u>Couplers</u>: Reworking the coupler area:
    - Replacing the plastic coupler with Kadee #5 (for both strength and vertical misalignment tolerance reasons).
    - Strengthening the coupler box with 1-72 machine screw through the coupler pivot into the body.
    - Shimming coupler box cover with sheet styrene to eliminate excess vertical play.
    - Adjusting coupler height to match the Kadee coupler height gauge.
    - Adjusting coupler trip pin height to clear the Kadee coupler height gauge’s trip pin height check level.
- <u>Trucks and Wheelsets</u>: Reworking the trucks and wheelsets:
    - Replacing the self-tapping truck mount screw with drilled and tapped 2-56 machine screw.
    - Checking the wheelsets: Metal wheelsets came with the kits, so it was not necessary to replace them.
- <u>Cut Levers</u>: Installing TECO-tough cut levers (uncoupling levers) (the kits lacked cut levers):

- Installing, to the bottoms of each coupler pocket, 40-mil square styrene with a 20-mil hole to receive the coupler end of the cut lever.
- Installing to the rectangular stirrup step brace a formed wire eye bolt to provide the cut lever pivot. [TBD]
- Installing a formed bronze wire cut lever. [TBD]

- Weight: Adding weight to the otherwise greatly underweight cars (lead shot added to the bottoms of the hopper bays) to bring car weight to a little heavier than NMRA recommendation (to promote reliable tracking at inter-module joints).

4.2 Adapting to Captive Cement Train Service

This just involved applying era-correct U1 wheel stickers, ACI placards and Consolidated Stencils.

Note: In captive service, the friction-bearing trucks are acceptable and do not need upgrading to roller-bearing trucks.

4.3 Noticeable Detail Refinements

Trucks and Wheelsets: The trucks and wheelsets were weathered using the techniques described in the November 2020 PPD-NMRA Milepost article "Dirty Up Those Wheelsets (And Trucks)!"

Roofwalk Corner Grab Irons: Replaced cast-on roof walk corner grab irons by formed wire grab irons and eye-bolts at the corners.

Roping Staples: All other cars in related series have roping staples. These can be added using formed bronze wire, in the same positions as in related series. [Partly done, NKP 91067 only so far. TBD]

5.0 PHOTO POINTS

This section points out the upgrade and detail modifications shown by the accompanying photos. This includes not just results but some photos of the techniques involved. The photos show:

- The 3-pack kit box.
- The pre-painted body casting of NKP 91085 after installation of the hatch covers. (No, I'm not yet fanatical enough to replace the 3 x 8 = 24 cast-on hatch cover handles with formed wire; maybe some other century.)
- Scheme for carving off the end sill cast-on grab irons so they can be replaced by formed wire grab irons. Shown are the carving tool (removes material with minimal disturbance of the surrounding material) and the way to hold the delicate body shell firmly while the carving was done.
- Scheme for using a milling machine to remove the cast-on roof walk corner grab irons so they can be replaced by formed wire grab irons and an eye-bolt at the corner. (The corner grabs are in an eye-catching location, so are worth upgrading.) The jig has a pocket to hold the bottom's 3 pins and one offset block (that spaces the corner walk away from the roof). The corner walk lies dead flat in the pocket and is then held down to the overall aluminum plate. The whole assembly is then slid beneath the end mill to remove the old cast-on corner grab. The sliding is done manually with the assembly sliding on another aluminum plate that lies atop the bed of the UNIMAT 3 milling machine. Notice that the assembly is big enough that one can keep one's fingers safely away from the whirling end mill.
- The finished corner walks after the cast-on corner grab irons have been replaced by formed wire grab irons and eye-bolts at the corners.
- Weathered trucks and wheelsets, using techniques described in an earlier Milepost article.
- Adding weight to the hopper bays: # 7.5 lead shot held in place with 40 mil styrene sheet glued in place, topped off with the pathetically inadequate weights that came with the kit. For solid, reliable tracking in TECO service (don't want any derailments at inter-module connections), I like to weight at least a little above the NMRA standard.
- Overhaul of the truck attachment – discard self-tapping screws, drill and tap for 2-56 machine screws for reliable and maintainable mounting.
- Overhaul of the coupler complex. Original had plastic couplers (into the trash with them) and coupler pocket covers that installed via a pin into a hole in the pivot. How much could one possibly do in this area? Quite a bit, actually. Modifications were:

- Use Kadee #5 couplers for strength and vertical misalignment tolerance. This is really important at inter-module connections – a lesson drummed into me painfully by repeated spontaneous uncoupling events at TECO shows: "Hey, mister engineer! Your train broke in half!"
- Remove the pocket cover pin and drill the location for 1-72 machine screw clearance.
- Add a shim to remove vertical slop of the coupler shank in the pocket – Kadee #5 shank is thinner than the original plastic coupler's shank.
- Add 40-mil square styrene attachment for cut lever and drill a 20-mil hole to receive the cut lever.
- Drill and tap the pivot for 1-72 machine screw, providing strength and maintainability and preventing the pocket cover from popping off in service – that pin-in-hole scheme either needed gluing (interfering with future maintenance) or would be prone to popping off at just the wrong moment.

6.0 For March 2021 Milepost

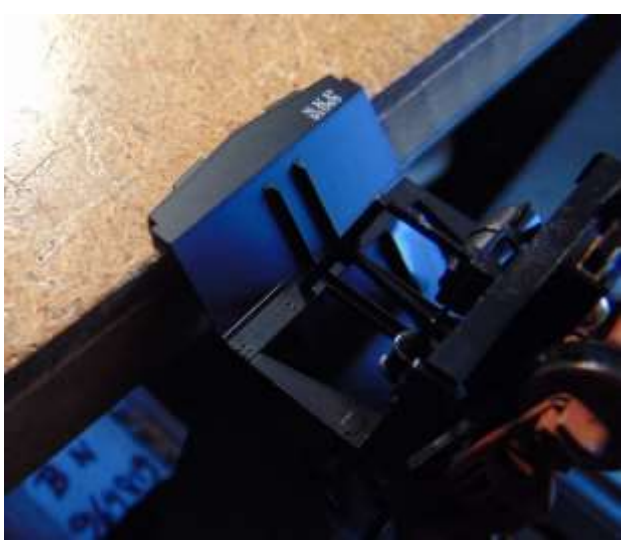
This section describes updates since the previous (February 2021) NMRA Pikes Peak Division Milepost issue.

6.1 Surviving a Blunder: Get Creative (Physically and with a Story)

Bays Plus Frame

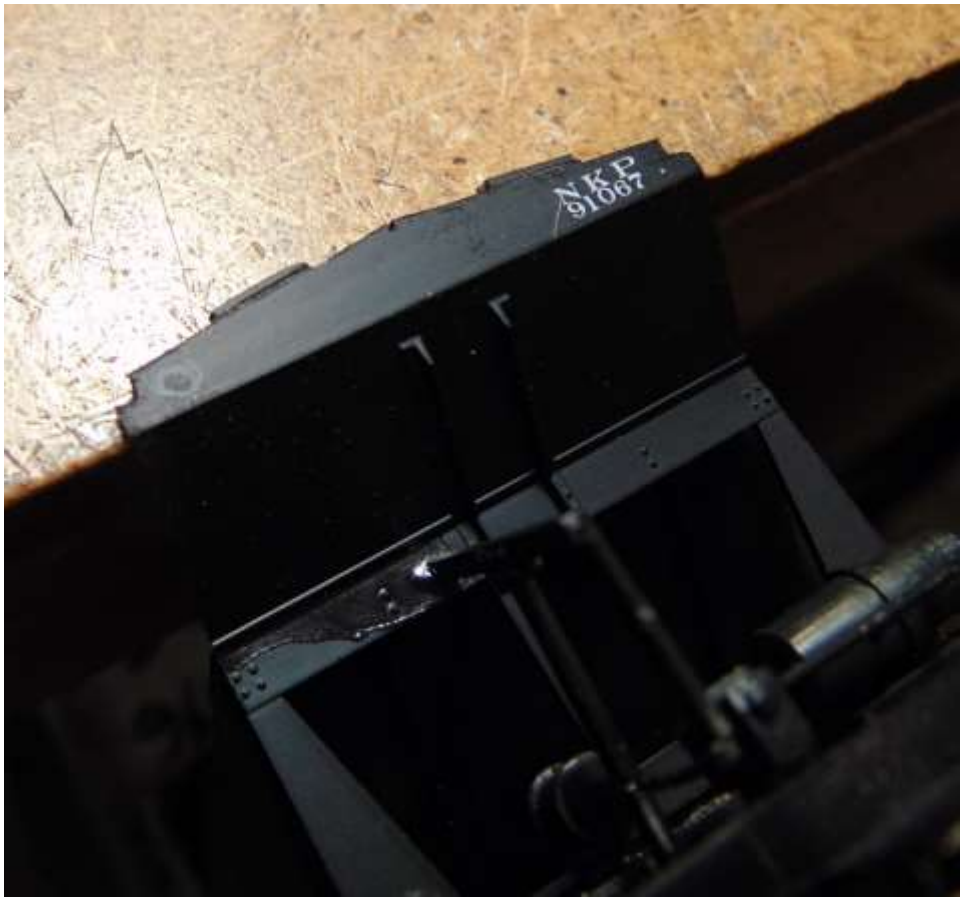
Inked Oops on B End

Photo **BaysPlusFrame.JPG** shows two cases of correctly assembling the frame to the weighted hopper bays. Photo **InkedOopsOnB_End.JPG** shows, by comparing the two circled areas, THE BLUNDER. For NKP 91067, I somehow failed to seat the "B" end of the frame fully between the hopper bays. Since the end sheets are registered on the hopper bays, the "B" end sheet isn't fully seated into the frame. Sadly, everything was glued together before the blunder was spotted. Since the outer shell seats against the end sheet, this would keep the outer shell from seating fully onto the frame at the "B" end, very noticeably. [Insert your favorite style of ***AARGH!*** behavior here.] What to do? [Stomping on the offending kit and claiming that "2 out of 3 isn't bad" is not an option, however tempting.]



Normal B End

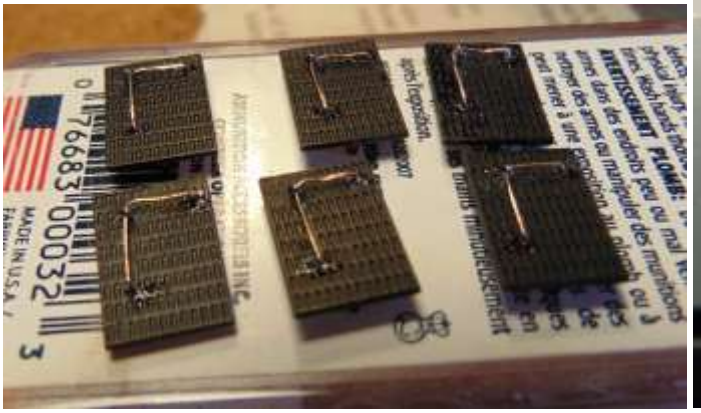
Held for Marking



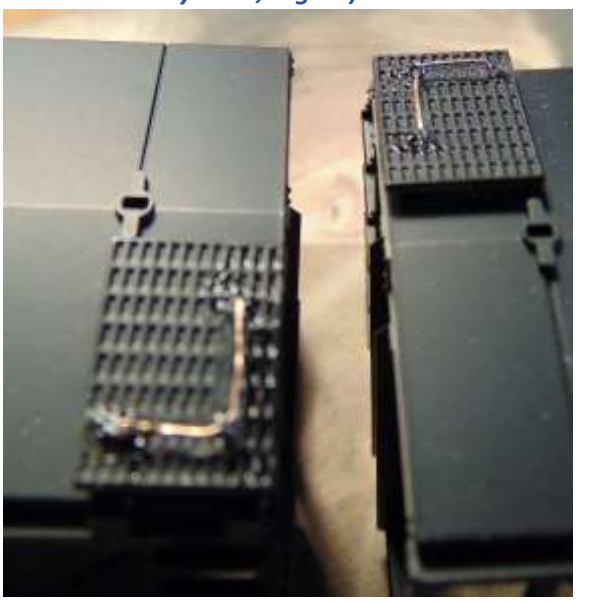
After Trimming B End

Fortunately, examination of the printing on the end sheets revealed (see photo Normal B End) that the road mark is applied a way down from the top of the end sheet. “All” that is needed is to trim off the amount by which the end sheet failed to fully seat into the frame. The outer shell will sit down fully onto the frame, the road mark will be closer to the top of the end sheet than on the other cars, but who would notice and anyhow that’s the sort of variation that happens in the real world, so a nice realistic touch, right? So, how to firmly hold the end sheet (currently flapping in the breeze) while marking it for the trim cuts? The coupler sticking out makes standing the assembly on end tricky. Aha! Here’s an old plastic box with a cover. Cut a hole in the cover to pass the coupler and the frame sits on the cover nicely. Hang the car off the edge of the workbench, open the workbench drawer, shim the plastic box to the right height and voila! we have photo Held for Marking after the scribe and straightedge have been applied. A little work with Xacto knife and files and we have photo After Trimming B End. Problem solved.

6.2 On with the "Normal" Modeling (Blunders Are Very Rare, Right?)



Corner Walks



Corner Grabs Installed

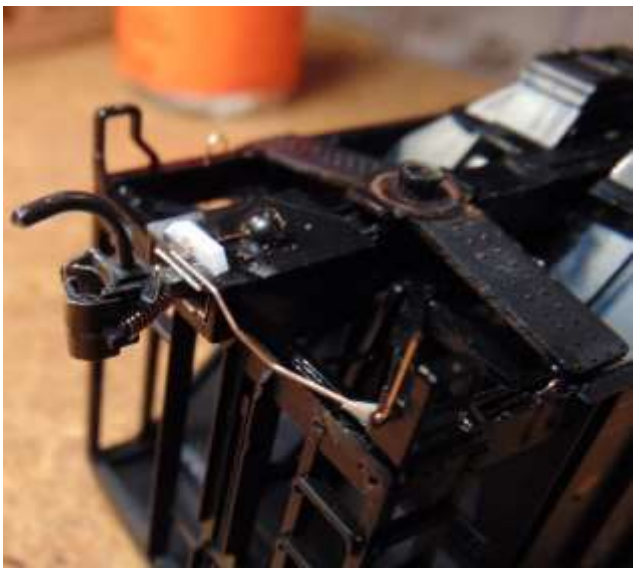
Corner Roof Walks: The corner roof walks with eye bolts and bronze grab irons have been batch-produced (photo Corner Walks After) and installed (photo Corner Grabs Installed). Don't worry, they'll look better after they are painted.

Decaled

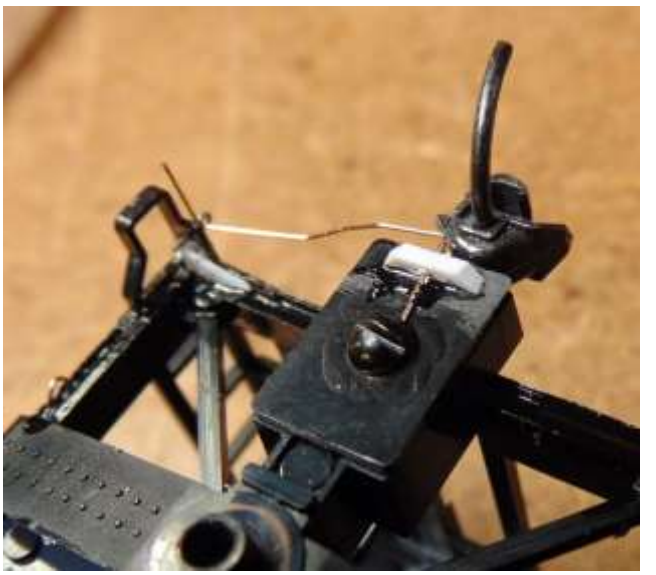
Cement Train Service: Adapting to captive cement train service (circa mid-1980's) continued with applying era-correct U1 wheel stickers, ACI placards and Consolidated Stencils (photo Decaled). Minor placement variation is to be expected as all of these markings were applied by hand, as each car came into the shop,

long after the cars were originally placed into service (probably mid-1930's to mid-1950's – no NEW or BLT markings are on these models and prototype research has not yet turned up the data).

Roping staples are being added with bronze wire (see lower right of photo Decaled). These are present on all prototype photos of related car series and allowed car-puller winches to move cars to loading and unloading spots one by one without the expense and delay of keeping a switch engine around.



Cut Lever Front View



Cut Lever Back View

Cut Levers: Photos Cut Lever Front View and Cut Lever Back View show various aspects of the uncoupling lever mounting scheme. A triangular styrene sheet reinforcement strengthens the glued-on stock kit stirrup step-plus-rectangular bracing plate (a little TECO-toughening). The eye bolt is attached by a hole drilled through the rectangular bracing plate. The cut lever mounts to the eye bolt and the 40-mil square styrene piece glued to the coupler pocket cover. The only glue on the cut lever is a dab of superglue holding it in position on the coupler pocket cover.

End Grab Irons: Also visible in photo Cut Lever Front View are mounting holes for a grab iron, below the eye bolt, at the base of the end ladder. These have now been drilled through both outer shell and inner frame, using the previously drilled (see the Feb. 2021 Milepost) carefully laid out holes in the outer shell as starting points.

Still to Come are lots of hole drilling, grab iron bending, cars NKP 91034 and 91085 final assembly, touch-up painting, weathering and testing on the layout. With any luck, ready when we get back to in-person TECO shows.


21

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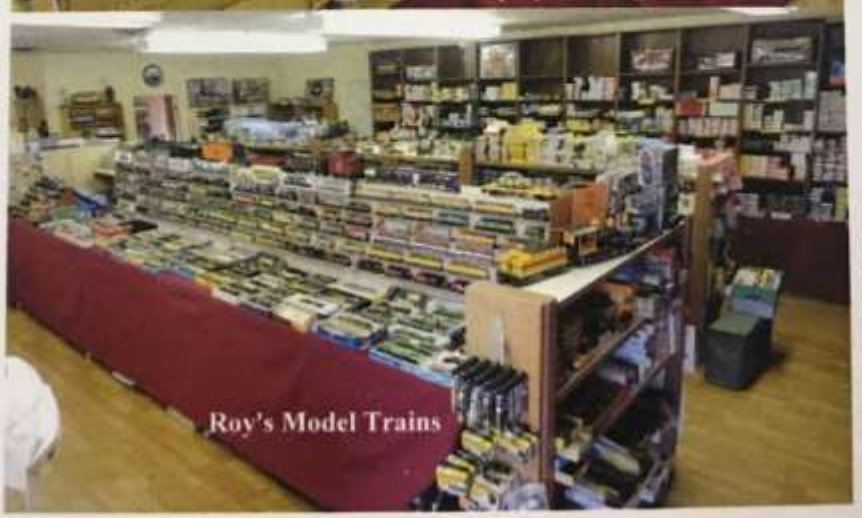
Display of Freight Cars



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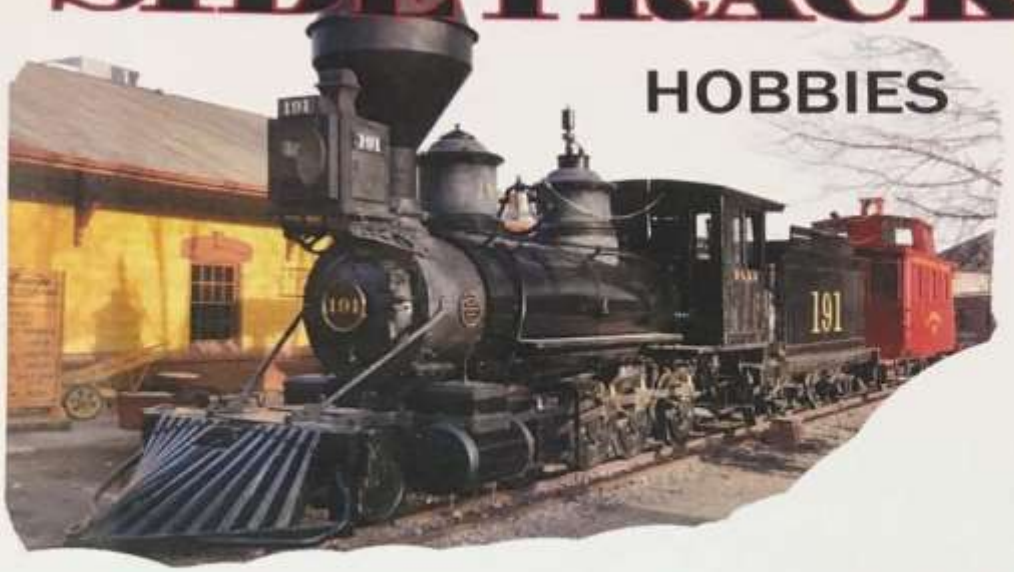
SIDETRACK

HOBBIES



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