

Newsletter of the Carolina Southern Division 12, Mid-Eastern Region, **National Model Railroad Association** 

Volume 20 Number 8

**Division Coming Events** 

(See CSD Website for further details)

IN KEEPING WITH

COMMUNITY

**EFFORTS AGAINST** 

THE CORONA VIRUS.

**ALL DIVISION** 

**ACTIVITIES FOR THE** 

**MONTH OF AUGUST** 

**HAVE BEEN** CANCELLED.

## Superintendent's Corner

**August 2020** 

By Alan Hardee

Welcome to August. Or at least I think it is August. I have been in contact with the CSD Board and together have decided to wait a little longer before in person meetings. I hope everyone had a chance to watch some of the NMRA X clinics and videos online recently. I like the concept and I think we as a division could do something similar for our meetings. I know that Scott Perry did a clinic on NMRA X, so he has a little advantage and insight as to what we need to do. (Hint, Hint Scott) I would like to hear from you as to what you would like to see or do. Drop me a message at superintendent@carolinasouthern.org with your ideas.

I want to Congratulate Dave Chance on receiving the Meritorious Service Award for his service to the MER Achievement Program.

I believe the MER was tops in the NMRA for AP awards in 2019. A well-deserved recognition indeed. You can read about it on Page 57 of the August 2020 NMRA Magazine. Also, on the same page, I see our ED Smith has earned his Author Certificate. Although the Magazine has him listed as MCR instead of MER. Congratulations to ED. If you read the July issue, you saw an article from CSD's Fred Miller on animated window signs. Its great to see our division in print. Even during these uncertain times, we are still modeling and showing everyone the talented people, we have in the CSD. Stay cool in your train rooms and keep up the great work.



#### Little Choo Choo Shop

REOPENING TUESDAY AUG. 4TH We are so excited. We all have been eagerly waiting for this day, however we do have some guidelines that must be followed as we do not want to shut down again. Please read carefully.

1) masks must be worn. If you don't have one we will have them

2) We have a limit of 25 people allowed in the store at one time. 3) If you choose not to wear a mask due to health concerns or other reasons, please call us for curbside pickup or phone orders

Please respect these rules as they are for your safety as well as our employees safety. We look forward to the day that all things go back to normal but until that time we will do our part. We are so glad to be able to welcome our faithful customers back and we give you all a HUGE THANK YOU!

#### A recent Facebook post by Alan Hardee on the CSD Facebook page.

#### UPCOMING AREA TRAIN EVENTS

According to Railserv.com Historic Spencer Shops Train Show Previously scheduled for August 29<sup>th</sup> has been CANCELLED

SCHEDULES FOR OTHER AREA TRAIN EVENTS ARE NOT CLEARLY DEFINED.

MEMBERS WILL BE NOTIFIED OF SCHEDULED EVENTS OF INTEREST WHEN NEW INFORMATION IS RECEIVED.

IN THE MEANTIME, STAY SAFE AND HEALTHY.

## **Editor's Notes**

By Ed Gumphrey

Hopefully you have all gotten through July safely and have been able to work on more of your model railroad projects. There's hope on the horizon – to wit, The Little Choo Choo Shop in Spencer is opening again on Tuesday, August 4<sup>th</sup>. There are restrictions, like wearing a mask (no problem) and a limit to 25 people in the store at one time (also should be no problem, as I don't ever recall seeing anywhere close to that number during past visits).

I'm encouraged by this month's edition for two reasons. First, we're seeing another author that we haven't seen in a while. Duncan Parker returns, this time with the first of a three part series on 7½" gauge locomotives. Related to that, I'm also hopeful we'll be seeing some new authors in coming editions. I have recently spoken to several CSD members who have indicated an interest in working up articles on their projects.

Second, I'm impressed and encouraged by the size of some projects. In addition to Duncan's articles, Ed Smith presents the first of a multi-part series on scratchbuilding a wood chemical plant. The fact that these articles are the first of multiple parts indicates large, complex projects. I'm looking forward to the next installments, and I'm sure you will too.

To help with tackling repetitive tasks, Scott Perry is back, this time with a primer on building jigs and fixtures.

In contrast, Tim Rumph goes back to what he describes as "little things." We need to keep up with those too. As for future installments, Tim's closing comment about starting on the multi-level portion of his layout promises some good stuff in the future.

My thanks to those of you who provided me with some encouraging feedback during the last couple of months. As always, I welcome your feedback and encourage you to think about getting your model railroad project published for others in the Division to enjoy.

#### **SUBMISSION GUIDELINES**

I target the 1<sup>st</sup> of each month for publication. Please submit articles for publication by the 27<sup>th</sup> of each month.

The preferred format is MS Word, but I can convert most other formats. For questions and help, email me at <u>editor@carolinasouthern.org</u>

## Oh, What a Tangled Web...

by Gil Brauch, MMR

Well, not really... It has been my pleasure to serve as Webmaster for the Carolina Southern Division for several years. However, as I enter my octogenarian years, I realize that it is time to 'pass the (electronic) torch' to the younger – and very likely more qualified – generation. Yup, it's time for you youngsters to step up and take over.

I will step down as Webmaster at the end of the year. In the intervening months, I will work with our new webmaster – whomever that turns out to be – in turning over the files and showing him or her the design basis that I have been using. I have tried to make the updating process as painless as possible and it goes pretty smoothly most of the time without taking up a whole lot of time.

I currently use a very simple (and free) design program called Microsoft Expressions 4. It pretty much automates the process, but I did have to learn a smidgen of HTML 5 language to make things a little easier. There are a couple of online free tutorials that I found very useful for this. One thing is for sure, it isn't all that hard to comprehend since even I was able to muddle my way through.

Ideally, we would have someone with vastly more experience than me to step up and make things truly slick and professional. After witnessing the surge in neat online activities over the past few months, I hope that we can get someone who is able to take our electronic communication process to the next level and beyond – something that I cannot do.

In summary, the Carolina Southern Division needs you... Anyone who needs more information about the opportunity to serve the hobby in our area can contact me at <u>webmaster@carolinasouthern.org</u>.





## **DIVISION AND REGIONAL NEWS**

By Ed Gumphrey

The Division continues having to cancel any activities during August. As our Superintendent noted in his monthly comments, hopefully things will be better soon.

In case you missed it last month, here's a repeat...

**Congratulations** to CSD member and MER AP Manager Dave Chance who received a Meritorious Service Award from the NMRA for his outstanding service in the Region for the Achievement Program.



Social media postings by Division members continued to decline during, but there were some interesting pages. Seth Gartner recently posted a series of appetizing photos of a section of his railroad that he'll be installing scenery on. Check it out at <a href="https://www.facebook.com/groups/2475018066088907">https://www.facebook.com/groups/2475018066088907</a>

NMRA-X continued during July, with Scott Perry offering one of the clinics. These virtual clinics and layout tours are gaining in popularity and will continue in the future. Watch your email for notices from NMRA.

A little less than a year from now, The Southeastern Region (SER) will be holding their 2021 Convention very close to our Division. Hosted by our neighboring Palmetto Division, the event will be held in Greenville, SC June 10-13, 2021.

# **A CALL FOR CLINICIANS**

Dave Winans, Co-Chairman for the SER 2021 Convention is looking for any CSD members who would be interested in presenting clinics at the convention in June 2021. For those of you who present clinics at RMU and/or had planned on giving clinics during the cancelled 2020 convention, SER would be a great opportunity for you to spread your expertise event further. Contact by e-mail to <u>clinics@SwampRabbitExpress.org</u>

Their website at <u>www.swamprabbitexpress.org</u> is already populated with some interesting information. I'll publish more information about this event as we get closer.



## A TALE OF THREE LOCOS & A FALLEN FLAG

Part 1

By Duncan Parker

No, this is not about three of my train-crazy friends, rather it's about my 7.5" gauge railroad and the three locomotives I built to run on it. The first loco was a scratch built live steam scale model of a two truck Shay. The second was a narrow gauge diesel switcher kit that I kit bashed a little. The third was a labor of love, narrow gauge live steam Mogul.

My interest in trains began at a very early age, following my father's interest in all things mechanical. As the years passed Model Railroading was a hit and miss proposition for me. Starting with HO, then a touch of O, early N, back to HO, a jump to 7.5" gauge live steam, and then back to modern N scale which is currently my passion. Building and flying Radio Controlled model aircraft slipped in there for several years as well.

My involvement with 7.5 gauge model railroading dates back a little over 30 years, building my own railroad, locomotives, and rolling stock. I joining the Triad Live Steamers club in Farmington, NC running trains there until it was decided to move the railroad from Farmington to a City Park in Harrisburg, NC. I worked on and ran trains there until the railroad was again moved, this time, to Oakboro, NC. I didn't continue my membership in the club at that time due to other commitments.

What follows is a three part pictorial overview of the building of my railroad and locomotives.

#### Scratch Built Steam Loco, Shay No. 1

My longstanding interest in old logging railroads and geared steam locomotives sparked my interest in building a small 1.5" to the foot, 1/8th scale, 10 ton 2 truck live steam 1880's Shay to run on 7.5" gauge.



It took me many years of spare time to complete this locomotive using hand tools and a small Unimat lathe. Every part was hand crafted from wood, steel, brass, and copper for the Boiler.

I still have the locomotive on display at my home. It is retired from service now. See photos below.













Above is the completed steam engine as it looked in brass, then painted and mounted on the loco.



In 1986 I completed the above hand drawn sketches from measurements and photos I took of a Shay locomotive on display in California and from pictures in various publications showing Shay locos similar to the one I intended to build. Thus began a years-long project to complete the model.

The model steam engine is constructed of brass tubing and sheet metal, cut and shaped, and silver soldered together to create a component with the appearance of the iron castings that were used on the full size engine. Once the individual parts that make up the engine were completed, they were bolted together in the same manner as the cast iron components on the full size engine. Note that the engine is actually two single cylinder engines on one crankshaft. The crankshaft was turned from steel bar stock with the two cranks at 90 degrees to each other to facilitate self-starting in forward or reverse.

The engine was the first and the most complicated part of the locomotive that I made. Finished in the early 90's, the engine was now able to run on compressed air. What a high point in the project, the engine was finally running. This was a time when I wasn't sure I would ever complete the locomotive and this beautiful little engine might just end up as a paper weight on my desk. Several years went by without further work on the locomotive except for the design slowly taking shape in my head and on notes I scribbled on scraps of paper which I kept in a file folder for future reference.

A move to our new home in North Carolina finally gave me the opportunity to not only continue working on the Shay in earnest but to finally complete the locomotive.

#### The following series of photos below show construction progress.



Frame, trucks and engine



Copper boiler fitted on frame



Fiberglass lagging on boiler



Engine, T- Boiler partially lagged and jacketed



T-Boiler, brass jacket over lagging

### **Truck details**

With the exception of the wheels, no castings were used to build the trucks. All of the parts were fabricated from steel, cut and shaped, then silver soldered together to create a part that looks like it was cast in iron. The only parts that were purchased ready made for the trucks were scale bolts and the bevel gears as they were beyond my capability to machine.



Right side frame with drive line.



Universals with square drive line slip joint.



Left Side of Truck. Note Scale wooden bolster.

The drive line on a two truck Shay locomotive has four universals and square slip joints between the trucks and engine to allow the trucks to swivel on curves. The model is built just like the full size Loco. I made the square slip joints on the model from steel, silver soldered together to resemble castings and the model universals are made of machined iron halves bolted together to look and function like the ones on the full sized locomotive.

Note that the right side frame of the truck with the drive line is rigid (no springs). This allows the gears to remain meshed no mater how rough the track is. The Left side frame is not rigid and has springs and journals on each axle which gives the truck the ability to run over very rough track without derailing. The model bolsters, as in the full sized locomotive I copied, are wooden and have coil springs mounted between them. This gave the shay additional flexibility on the rough, temporary logging rail lines they ran on.

This concludes Part 1. Hope you enjoyed reading it. Next time, Part 2, "A Place to Run"



## WOOD CHEMICAL PLANT A SCRATCH BUILD

By Ed Smith

There's a saying "as one door closes, another door opens up." I'm living that scenario right now. I've been working on finishing my mainline and even though I've slowed down, I expected to finish by the end of August. That has come to a screeching halt due to acute Sciatica. I can't stand for long periods of time, so working on the upper level is impossible. But as the saying goes, another door has opened up. We all have kits and ideas, set aside for a rainy day, just accumulating dust. Well, that day is here for me. Being relegated to a couch potato, my work bench is my solace.

I've decided it's time to build my wood chemical plant complex. These were popular industries in the 1920s to 1940s in the northeast, the era and area I model. The primary reason for these plants was to produce charcoal from wood; at the time, a cheap form of fuel. The process consists of placing split wood into ovens, called retorts, applying high heat, and rendering the wood down to charcoal. The by-product was a gas that was siphoned off and distilled into lime and acetic acid. Because of the era and area, these facilities tended to be a hodge-podge of structures next to each other in a wooded rural area (pic 1).



Pic 1: My collection of prototype photos of wood chemical plants include these typical facilities.

My depiction of the industry will have multiple structures. There will be seven wood buildings. Three will have basically the same 6" x 7" dimensions. They are the two distilleries and the warehouse/office. The other main structure is the process room with heat chambers for breaking down the wood called retorts, a 6" x 6" building. I've researched and found drawings for piping

the stills and locating the retorts (pic 2, 3). I'm working on these four buildings now. Also, a pumphouse, boiler room, and cooling area will be built. Added to this will be a wood loading platform and a tank farm. In all, this will encompass an area of 18" x 36" on my layout. This siding is already installed (pic 4).



Like I stated above, I'm working on the four main buildings. The wood I'm using is balsa for the roofs, basswood for the sides, corrugated siding to laminate to the sides, dimensional wood for door and window trim, and scale 6" x 6" sticks for interior studding (pic 5). The balsa and basswood were purchased at Hobby Lobby. The dimensional trim and corrugated siding come from Northeastern Scale Lumber. The 6" x 6" studs I found again at Hobby Lobby from a company called Wood Pile. They offer many shapes and sizes of wood. The first thing I did was cut out all the sides for the four buildings. I than laid out the door and window configuration on each side (pic 6). Next, I accumulated the majority of the storage tanks for the stills, the doors and windows, corrugated siding, and wood sides and painted the windows, doors, tanks, and siding, and lightly weathered the interior sides (pic 7). Note: using India ink and alcohol to weather works great, but use in small quantities to limit warpage of the wood.



Pic 5: Materials used for scratchbuilding the first four structures.



Pic 7: Tanks, windows and doors have been painted, and inside of walls lightly weathered.



Pic 6: Structure walls have been laid out, cut to size, with window and door openings made.



Pic 8: Corrugated siding is clamped to the wall sections and set aside for overnight drying.

After allowing overnight drying, I cut and glued the corrugated siding to the Basswood sides, using wood glue and multiple clamps (pic 8). Once again, allowing overnight drying, I cut the openings for the doors and windows in the corrugated siding and rough fit the building together (pic 9, 10).



Pic 9: The first four building are rough fit together with windows and doors installed.



Pic 10: Another view of the first four buildings. Notice the clamps to maintain square assembly.

This was followed by applying dimensional wood trim to the interior of the doors and windows. Also, using thin plastic, the window glass was installed (pic 11). I save all plastic packaging just for this application. Finally, the four buildings were squared and glued together. After drying, the interior wood studs were glued in place (pic 12). Although the rudimentary buildings are done, wood putty and sanding will be used to cover any imperfections. Roofs, interiors, detailing and weathering will come later. I don't usually use mock-ups when building structures, so I took the four structures to the desired area on the layout to get a perspective on the fit (pic 13).



Well, this is as far as I have advanced in the last  $2\frac{1}{2}$  - 3 weeks. This can be labor intensive and time consuming, but I find it far from tedious. Next month, the completion of each roof using Balsa wood and popsicle sticks, cut in half and sanded to 1" x 6" dimensions, for joists (pic 14) and roof details, vent fans, skylights, etc. will be discussed. Also, the three other buildings, pumphouse, boiler room, and the cooling room should be completed. Interior floors, 2 concrete and 1 wood, and one dirt and gravel, will be installed in the four main buildings as well as planning for the foundations. Maybe there will be time for installing piping on the stills. Stay tuned.... I find I really miss our monthly meetings. Eventually, we will get together again. Until then, stay safe and make sure you wear your mask (pic 15).



STHE SOUTHERN

ED

## Getting Back to the Little Things

again, not to mention getting back to monthly meetings

By Tim Rumph

They say that putting track, especially turnouts, in places where they can't be reached is asking for trouble. I recently had personal experience with this. There's a turnout under the arrow in the picture on the right. Recently I notice that there was some trouble with this turnout. I could get up on a ladder and reach the turnout, but not well enough to do anything about it.



A section of the layout removed to access a turnout under the red arrow in the picture.

Fortunately, a layout that is built in sections can be unbuilt also. I removed what I call the Newton Crossing section. Now I can get to the errant turnout, but there's not much room past the turnout to run locomotives and cars. Running actual trains is much better than pushing cars back and forth by hand or running a locomotive by itself.



I already have something to take care of that. The picture above shows a little layout extension that I can clamp onto the end of the existing layout. This lets me connect a section of track to the track on any section and have more room to run an engine and a couple of cars. I can now get close to the turnout and see what's going on.

I found that things would only derail when going into the siding, or through the diverging route on the turnout. Troubleshooting showed:

- Freight cars would go through without any trouble.
- An RS3 would shake a bit but wouldn't derail.
- A GP38-2 would derail every time.
- My 2-8-2 steam loco would derail sometimes, but not always.

Taking a closer look at the switch (the part of the turnout that moves) I found that in the reverse position the throw rod connected to the Tortoise machine under the layout would lift up a little. That was catching the bottom of some of the locomotives.

A Dremel tool with a cut-off wheel made quick work of my long throw rod.



The errant switch throw rod was easily fixed with a Dremel tool and cut-off wheel.

While I have the section out, now's a good time to add something else. The track leading into the turnout I just fixed includes an industrial siding and it's on a 2.5% grade, which is plenty steep enough so that any cars left there will run away down the hill. The hill brake is a 1/16 inch brass tube through the roadbed. A 1/32 inch piece of music wire extends through the tubing. When extended, it protrudes high enough to catch the axles on the cars to be left on the hill. The photos below show a hill brake before it is trimmed to the correct height.



The hill brake is controlled by a BluePoint switch machine, like most of the switches on my layout. In this case, the BluePoint is mounted sideways so that end of the arm moves up and down. A bell crank is required to convert the pushing/pulling motion of the controlling rod to the up/down motion of the hill brake. This is all shown in the picture below.

The plate on the bell crank is made from .080 inch thick styrene, and is a 1.5 inch square with a corner cut off. The reinforcing pieces are made from .060 x .188 styrene strip. A .040 inch diameter steel rod is glued into a hole in the lower end of the bell crank and goes through the control bar of the BluePoint machine.

Next month I'll get the Newton Crossing section put back in and add the next section to that. My "not a helix" is about done and I'm ready to start on the two-level section of the layout.

Tim Rumph



## The Jig is Up!

#### Scratchbuilding Using Jigs and Fixtures

Text and Photos by Scott G. Perry

Copyright ® 2020 Scott G. Perry. All rights reserved. Duplication and publication are prohibited. Used with exclusive permission by the Carolina Southern Division NMRA.

When you are scratchbuilding, there comes a time when you need many duplicate parts and they usually need to be very precise. This is where jigs and fixtures are very useful. A jig is a device that is designed to guide another device's location and movement, such as that of a hobby knife blade. A fixture is designed to hold a piece in place, much like a vise. While the words jig and fixture are different most hobbyist use them interchangeably. The legs on a workbench must all be exactly the same height or the workbench will wobble (Pic 1). If you are going to make more than one model a jig/fixture would be very handy.



Pic 1: The workbench legs must be very precise so a cutting jig would help keep all cuts precisely the same length. A gluing fixture would make sure the brace/shelf support was always in the right spot.

A common jig/figure is that for making roof rafters (Pic 2). To build a structure you often need many of them, and they have multiple angle cuts and require precise gluing. The best solution is a jig, but those are complicated to build. Let's start by building a simple jig for workbench legs (Pic 3). Our first step is to either make a precise drawing of the final product or to just simply build a sample one by hand. For a very simple jig you just need to know what you want to build. Once we have what we need we can begin to design the jig.



Pic 2: Rafters on a building must be built very precisely and you often need many of them like the 11 on this model. A jig/fixture is perfect for mass production!



Pic 3: While table legs look easy in O-scale, making sure the legs are precisely the same length and the brace glued evenly for the shelf is much harder than it seems. Especially when you build several workbenches.

To start construction of the jig we need to decide on the material to build it from. The legs will be wood, so we'll want to use plastic for the jig so that the adhesive we use for the wood doesn't stick to the plastic. I use a thicker plastic sheet for the base (Pic 4), usually gray in color so there is contrast between the light-colored wood and the darker base. Gray also stands out against white styrene stock, so I can spot a jig in the workshop quickly. I work on the corner of a full-size sheet and later will cut off the jig when I know how much space I'll use. The less I have to do math the better! Small scrap plastic pieces will be used to hold the boards in place.



for jigs.

I built a sample of the workbench by hand, so I know what I need to build. What I need to do is cut the legs to the same length each time (a jig) and align the gluing of the brace on the legs (a fixture). This will be a two in one device. Since I'm using 2x4 scale board stock for this O-scale model I first need something to slide the board into so that it is measured for cutting. We'll start by gluing down a "stop" which is where the board will come to rest (Pic 5). This will be a scrap piece of plastic slightly thinner that the wood stock. Fasten this piece to the gray base using Plastruct Plastic Weld (Pic 6) or equivalent adhesive for plastic. Use it sparingly as a little goes a long way. It is best to put the glue on the side that won't be used for cutting.





Pic 6: Using a soft brush put the plastic weld along the strip. The adhesive will run up and down the length of the piece.

Now we need slots to put the wood into so that it is held steady for cutting. Cut a piece of scrap plastic like before using a scale rule to make a plastic piece the exact length of a leg. Once cut, measure it and cut three more. Check all four against each other and the scale again, and recut, sand or file pieces that are a little too long. Using a 90° square glue a plastic piece perpendicular to the stop (Pic 7). Use a short piece of the 2x4 wood stock and lay it next to the piece you just glued down. This will act as a spacer for the next piece of the slot (Pic 8). Cut a small piece of wax paper (I'm using copy paper so that you can see it in the photo) and place next to the wood board (Pic 9). This is a spacer and will make a fine gap between the jig slot and the wood. If you don't do this the jig will be too tight and your model will break or not come out at all. I use the wax paper because the adhesive won't wick into it and it will be easy to remove.





Pic 8: Insert a piece of scale 2x4 to use as a spacer.



Pic 9: Use a small cut piece of wax paper as a spacer so your jig slots won't be too tight and the model does not slide out properly. We don't want it to break.



Glue another plastic piece next to the wax paper making the slot. Give it a few minutes to dry then remove the wood and wax paper. Using the workbench top (Pic 10) or a measurement decide where the next leg should be. Glue another piece down and insert the wood piece in again. Double check your measurement of the workbench top and if good, add the wax paper and glue down the forth piece. Extremely careful measurement (Pic 11) when making the jig is critical. You don't want to make 12 inaccurate parts. Careful work here will be rewarded with many good parts so double check everything and don't be afraid to throw the jig away and start over if you must. It is worth the time and effort to be accurate.



Pic 11: Precision is the key to making jigs. Measure it very correctly the first time and you don't have to measure 12 times when making more parts. A very good trade off!



Pic 12: Cut the guide and set it where you measured it should be and test the fit with a 2x4 board.

Right now you should have two leg slots adjacent to the stop. Now we need a way to accurately mount the shelf brace. Using the scale rule I measure carefully the distance I want from the ground (represented by the stop) and the bottom of the brace. I set a piece called a guide on the jig to show you what I'm doing (Pic 12). The shelf brace will lie next to it while gluing. The plastic pieces are lower than the wood so we'll need to raise this piece up to go over the wood, but not too far. Insert some 2x4 wood stock into the jig and glue some thin pieces to the leg slot pieces (Pic 13) to raise up the guide piece and then measure and glue down the guide piece. Make sure the wood will slide out of the slot. You now have a workbench leg jig!





Pic 14: Cut and glue the brace by setting it next to the guide and letting the glue dry.

To make a set of legs, insert two pieces of 2x4 stock sticks in the leg slots all the way to the stop and trim them close but not exactly to the length of the jig (Pic 14). Cut a length of 2x4 to work as a brace and put wood glue on the ends. Put it next to the guide and affix to the wood legs (Pic 15. In a few minutes the glue will harden and you can trim the bottom of the legs to the jig end with a razor blade with a very precise cut. You can then slide out a set of legs and test them on a workbench (Pic 15)!



To finish the jig we need to do a few more things. Start by cutting the jig area away from the plastic base. Next we'll want to use this jig again so using a black Sharpie Marker (Pic 16) I write on the top of the jig what the jig is for, when you made it, the scale/gauge of the piece, what model it was first used on, and what stock wood is used. I've added a piece of wood on the side as a cutting guide for the shelf brace so I don't have to measure one again. I also decided that for a workbench in an engine shed I'd like legs that are a little longer on some so the workbenches vary in height. To do this I just drew in another cut line. There is also a note about where to glue.

The first workbench was made with the jig as-is and the guys from the shop liked the results (Pic 17). Willy is a tall fellow so he built one just a touch higher (Pic 18) to make it easier on his back. Now we store the new jig in a bag with one sample part and put it in the Jig & Fixture Box.



from the shop folks.



Pic 18: The foreman decided we needed on workbench just a little taller, so we drew a new cut line on the jig and made some longer legs.

## **CLOSING PAGE BONUS**



OOPS. There was a derailment on Norfolk Southern tracks in Roanoke on June 7<sup>th</sup> of this year. There were no injuries or spills. Photo from Roanoke Times website.

#### **Division Brass**

Superintendent Asst. Superintendent Clerk Paymaster Director 2022 Director 2023 Director 2021 AP Chairman Webmaster Newsletter Editor Program Chair RMU Chair Publicity Chair Membership

#### Alan Hardee <u>su</u> Andrew Stitt Ed Gumphrey David Thrams Ed Smith Scott Perry Larry Paffrath Neal Anderson, MMR Gil Brauch, MMR Ed Gumphrey Scott Perry Doug Algire Marcus Neubacher Nancy Campbell

superintendent@carolinasouthern.org assistsuper@carolinasouthern.org clerk@carolinasouthern.org Paymaster@carolinasouthern.org director1@carolinasouthern.org director2@carolinasouthern.org director3@carolinasouthern.org Webmaster@carolinasouthern.org editor@carolinasouthern.org program@carolinasouthern.org program@carolinasouthern.org RMUchair@carolinasouthern.org publicity@carolinasouthern.org