THE BRASS POUNDER

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

Volume 19 Number 1 January 2019

Railroad Modeling University
Saturday January 19th 2019
9:00am – 4:00pm

Information at this link: RMU INFORMATION

Register at this link: RMU REGISTRATION

Division Coming Events
(See CSD Website for further details)

Wade's Train Town Open House
Saturday Jan 12th
10:00am – 2:00pm
Brookford Community Bldg
1700 S Center St.
Hickory, NC

RMU
Saturday Jan 19th
See banner links above

Superintendent's Corner

By Alan Hardee

HAPPY NEW Year! And welcome to 2019. As we say goodbye to 2018, let's think back upon the year we had. The new people we met who became our friends. Trips to conventions or other destinations for vacation. Perhaps finishing modeling projects, or at least working on them. Even completing the requirements for Master Model Railroader. All of this was accomplished in 2018 and can be built upon in 19. Set goals for yourself, or to use the popular phrase this time of year, New Year's Resolutions. Finish that layout you have been working on, or finally start building the layout you have been planning. We can all showcase our success next year at our 2020 convention (Hint, Hint). Meet more new people this year by helping out with the division table at the train shows. You never know when you will find that one person who likes the same prototype and/or era as you. I hope to see you at RMU on Jan 19th (see announcements), another great opportunity to meet, greet, and further expand the hobby.

I am keeping it short and sweet this month. Wishing you all the best in 2019.

UPCOMING AREA TRAIN EVENTS

Central Railway Model and Historical Assoc.
2019 Model Train Expo
Friday Feb 8th
1:00-7:00pm and
Saturday Feb 9th
10:00am – 4:00pm
Rock Springs Church – Impact Center
207 Rock Springs Road
Easley, SC

17th Annual NC Rail Expo
Saturday April 6th
9:00am – 4:00pm
Hickory Metro Center
Hickory, NC

Carolina Piedmont Division
Tichy Train Group Tour
Saturday April 13th
10:00am
Burlington, NC

PRE-REGISTER ON SIGN UP SHEET AT RMU CHECK-IN DESK
See Division News for more details

Editor's Notes

By Ed Gumphrey

Happy New Year to all my fellow CSD Members. As I start into my second year as your clerk and newsletter editor, I look forward to seeing more of your ideas, projects and layouts for future issues. I'm also looking forward to RMU on the 19th of this month. Not only will I be enjoying my second year of clinics there, I'm also taking my first plunge into the realm of giving clinics.

RMU isn't the only exciting activity on the horizon. In the section on Division and Regional News, you'll see my notes about an upcoming opportunity to visit Don Tichy and see the inside operations of Tichy Train Group.

Articles in this issue lead off with a fascinating "how to" article by Duncan Parker on an innovative and cost effective method of using servos for operating your turnouts. By the way, in addition to the information in the article, Duncan informs me that three of his friends have also used this methods. Among them, Fred Brooks holds the record as he approaches 100 installations.

Henry Reeves has provided a link to a rolling stock weight calculator he developed.

Jack Monette, MMR, offers a number of thoughts on how to avoid letting circumstances get in your way of enjoying the wonderful hobby of model railroading.

Tim Rumph is back in action with the ongoing saga of his Southern Railroad S-line as he highlights a common problem caused by shrinking lumber.

I close out the issue with the third and final review of my layout tours during the 2018 MER Convention last October.

My final words for this month – I need more inputs. Please don't hesitate to send me your ideas. I'll happily work with you to publish your work for the enjoyment of all the Division's members.

SUBMISSION GUIDELINES

I target the 1st week of each month for publication. Please submit articles for publication by the 27th of each month.
The preferred format is MS Word, but I can convert most other formats.
For questions and help, email me at editor@carolinasouthern.org

DIVISION AND REGIONAL NEWS

Without a meeting for CSD in December, there is no new Division news. The biggest upcoming event is obviously RMU coming up on the 19th of this month. See the information at the links in the billboard on page 1 for more information.

I'll make a final appeal for assistance in setting up for RMU on Friday, January 18th and helping during the event on Saturday. If you can help out, please contact Jack Monette, MMR by email at this link.

An exciting opportunity on the horizon is an invitation from our sister Division to the north. We have received an invitation from the Carolina Piedmont Division to register for a tour of the facilities at Tichy Train Group in Burlington, NC on Saturday April 13th at 10:00am. Participants in the tour will be divided into two groups. Don Tichy leads half of the tour group through the factory explaining and demonstrating the research, design, engineering and production of his great kits and detail parts. While that is taking place, Don's wife (and sometimes his daughters) handles the sale side of the business. Half way through, the two tour groups switch off. The tour now includes his new product line of decals. Nice discounts, no shipping and handling charges and great fellowship. CPD has to limit the total number of participants and needs NMRA members to pre-register. I'll have a sign-up sheet at the registration desk for RMU. The visit will require an early morning start to get there in time – perhaps we can work up a carpool or two from CSD. I first met Don Tichy years ago at a train show in Timonium, MD and have managed to collect many of his superb kits and detail parts over the years. I plan on signing up for this tour, and I can take three passengers comfortably in my Explorer.

Turnout Motor & Controller

By Duncan Parker

Looking for an inexpensive control for your turnout points? Here's how to make one that won't break the bank, uses off the shelf components, is simple to install, and will work for all scales. At the time of this writing, one Motor & Controller costs less than $5 installed. The Turnout Motor & Controller consists of three readily available components. A Servo to move the turnout points, a Servo Tester to control the Servo Arm throw, and a Switch (Slide or Toggle) to control the Servo Tester output. For those of you that have not used RC devices before, I have included a brief description of the components. If you are familiar with them just skip the explanations below.

The Servo

A Servo is a device that responds to a digital pulse from an electronic controller to provide a precisely controlled position of the control arm. Servos come in many sizes, shapes, and powers. Most of them operate on a 4.8 to 6 VDC power source. They are commonly used for Radio Remote Control of model airplanes, drones, boats, and cars. The one we use for this project is small and referred to as a Micro Servo. Turnout points don't require much throw or power to move so Micro Servos work quite well and are easy to install, conceal, and have plenty of punch for the job.

9G SG90 Micro Servo

The Servo Tester

A Servo Tester (also referred to as a Servo Exerciser) is an electronic tool used to test the operation of a Servo. For this project the Servo Tester is re-purposed by the addition of a DPDT switch for turnout point control. The tester is an inexpensive component with three test functions with LED indicators. A small tactile switch mounted on the circuit board can be used to change between functions, however, there is no need to change the default setting. When power is applied to the tester it automatically starts in function number one and should remain there. Connectors are provided for DC power input and three Servo outputs.

3CH CCPM Servo Tester

The Control Switch

A DPDT (double pole double throw) ON-ON switch is one that has two poles and two ON outputs per pole. Connecting a DPDT switch to the Servo Tester converts it to a two position device. One ON position causes the Servo Arm to rotate clockwise to a preset position. The other ON position causes the Servo Arm to rotate counter clockwise to a preset position. The second pole on the Control Switch can be used to control a LED or Lamp that indicates turnout point position. It can also be used to provide input to a computer for signals, JMRI, etc.

DPDT On-On Slide Switch

The Power Supply

To power many Turnout Motors & Controllers installed on a layout requires a dedicated DC Power Supply with a bus. The voltage range of the Remote Control devices is from 4.5V to 6V so the output from a 36W to 50W 5VDC Switch Mode Power Supply is ideal. These are currently available on eBay (see parts list below). The Power for testing on the bench can be any 4 to 6 VDC source. A four cell 6V AA battery pack with a connector or alligator clips works well. All of the components described above are available from eBay. See the parts list at the end of this article.

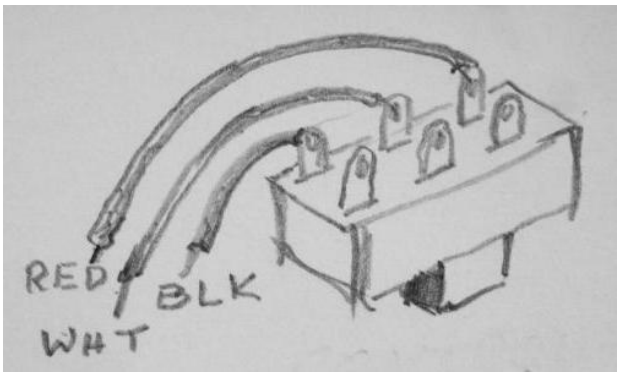
AC 110V-220V DC 5V 10A 50W Power Supply

Assembly Instructions

Now that you have some idea of how the Turnout Motor/Controller components work, lets tackle the addition of the Control Switch to the Servo Tester.

The Servo Tester comes with a knob and a blue plastic wrapper, both of which have to be removed. Pull or pry the knob off, we won't be needing it. Then cut off and discard the blue plastic cover. If you prefer to keep the cover and put it back on the circuit board, it can be squeezed and worked off the board, then replaced after the circuit has been modified. Next locate the potentiometer (Pot) near the center on the top side of the circuit board. It's the square silver device with the black shaft that the knob was attached to. Locate the center pin on the Pot and, using a small pair of side cutters, cut the pin as close to the circuit board as possible. Now bend the part of the pin attached to the pot up to allow a wire to be soldered to it. Make sure the pin doesn't touch any metal on the pot or other parts on the circuit board. With this task complete, set the Servo Tester aside. We will come back to it later.

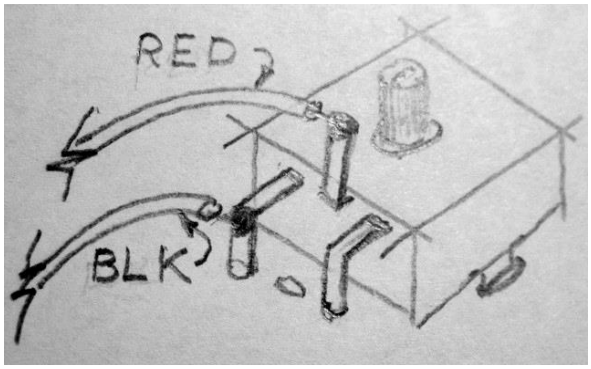
The next job is to prepare the 3 wires that connect the Control Switch to the Servo Tester. You need to decide where you are going to mount the Control Switch, Servo, and Servo Tester on the layout. Make the connecting wires long enough to reach between the Control Switch and the Servo Tester with a little extra length for wiggle room. Red, Black, and White #22 AWG stranded wire with PVC insulation is preferred but if that's not available, use what you have on hand. Any color wire, including a single color, is fine as long as you mark the wires as red, black, and white so you can identify where each wire goes when connecting them. It is also important to be consistent when wiring the circuits for several units .Wiring all circuits the same helps when troubleshooting and repairing. Note: The switch terminal with the red wire connected to it is used later on to identify the Control Switch position when setting the Servo Arm Throw. This will become clear later during set up and testing. Select the three terminals on one side of the DPDT Control Switch and solder the white wire to the center terminal (pole). Note that it is important the white wire is soldered to the center pole. The red and black wires are then soldered to the remaining two terminals on that same side. (see SKETCH NO. 1 below) Note: The remaining terminals on the DPDT switch are used for controlling LED's to indicate point position. They can be wired at this time if you plan on using them. See the schematic diagram for details.



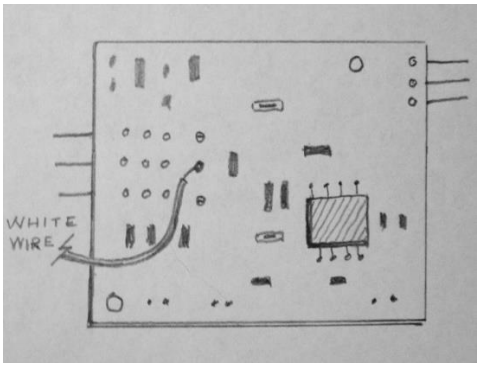
CONTROL SWITCH
SKETCH NO. 1

With the wires soldered to the control switch it's time to connect the other end of the wires to the Servo Tester. Just a reminder, make sure the wires are either color coded or marked to identify them. At this point it's up to you whether you assemble on the workbench and then install the unit, or mount everything on the layout and solder the wires and test in place. Assembly at the workbench can be easier for testing and troubleshooting your work. Use whichever approach works best for you.

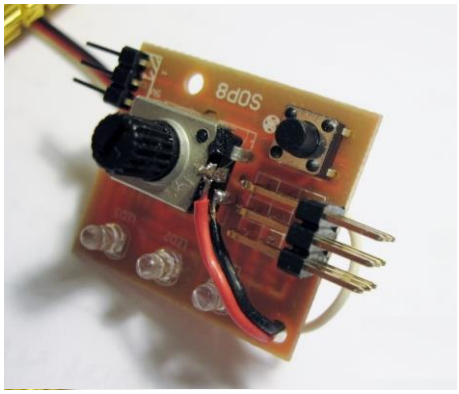
Solder each of the three wires to their proper place on the Servo Tester Pot. See Sketch No's 2 and 3 below. Note: **The white wire connects to the place on the circuit board where the now cut center pin of the pot was originally connected**.

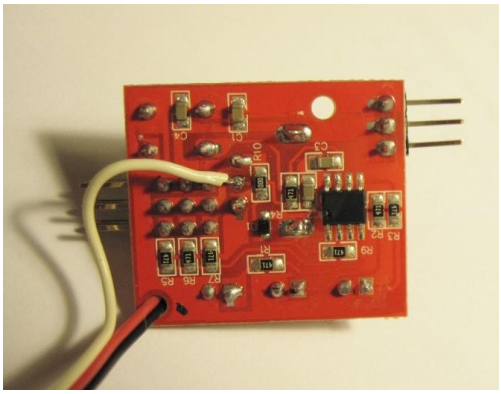


POTENTIOMETER (POT) ON TOP OF CIRCUIT BOARD.
SKETCH NO. 2



WHITE WIRE CONNECTION ON
BOTTOM OF CIRCUIT BOARD.
SKETCH NO. 3





Powering the Servo Tester

The Servo Tester operates on 4.8 to 6.0VDC, so any 5VDC power source will work. A stand-alone 120VAC 5VDC switch mode power supply is available on E-Bay (see parts list). One of these power supplies can power many of these Switch Motors with capacity to spare.

There are two ways to connect the power wires to the Servo Tester circuit board. One method is to solder the two DC power leads directly to the pins on the male connector on the circuit board and run the other end of the wires to your 5VDC power source. The other method is to buy a standard Servo Extender Cable. These extender cables come in several lengths with three wires, red (+), black(-) , and white (not used for power) and are available from E-Bay. They are available in two configurations. One way is with a female connector on one end and a male connector on the other end. If you use one of these cables Just cut off the male connector and discard it. The extender cables are also available with female connectors on both ends. These are the best if you can find them as cutting one of these in two yields two power cables for the price of one extender cable.

To power up the tester, plug the Female connector into the Servo Tester and, observing the polarity, connect the two wires directly to your 5VDC power source or a 5VDC bus.

Testing the Completed Unit

To begin, connect a servo to one of the 3 servo output connectors on the Servo Tester. Connect 5VDC to the power input connector. The Servo Tester should come to life, all three LEDs should flash blue, then the number 2 and 3 LED's go out leaving only the number 1 blue LED lit. Success! Now with the Control Switch switched to the red wire side you should be able to rotate the Pot back and forth and cause the servo arm to move. Note: If you toggle the control switch to the black wire position the Pot has no effect and the servo won't move.

Now let's set the amount of throw of the servo arm. Leave the control switch in the red wire position and rotate the Pot fully counter clockwise. With the control switch still in the red wire position, rotate the Pot on the Servo Tester clockwise to set the throw of the servo arm to about 1/4 inch. Using the control switch, toggle it to the black wire side. The servo arm should move about 1/4" back to the starting point.. Now toggle the switch back and forth and the servo arm should move back and forth the distance you set it to. If you want to increase the Throw, set the control switch to the red wire side and turn the Pot clockwise to increase the travel.

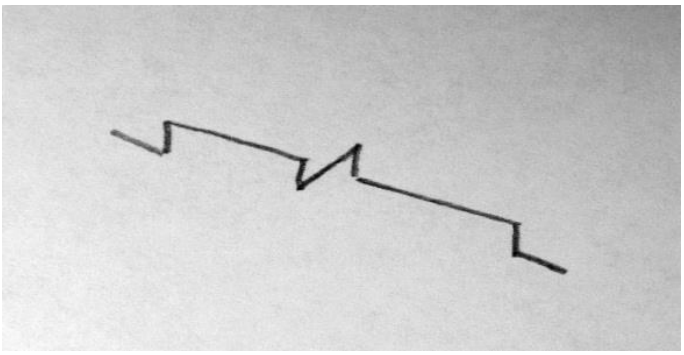
Once connected to the turnout points you will use the pot to increase or decrease the travel to move the points the exact amount needed. The servo arm is mounted on the servo shaft with a spline. Where the arm is mounted on the spline will determine the zero or starting point of the throw This location on the spline will have to be determined after the servo is mounted on the layout next to the turnout.

Installation on the layout

Installing the servo is fairly simple and can be done from the top or bottom of the layout. I prefer to install from the top for ease of access for setup and maintenance. Mounting from the top requires a rectangular hole the size of the servo, 1/2 to 3/4 inch to the side of the turnout. Make

the hole a close fit for the servo and deep enough to allow the servo arm to be near the same height as the turnout throw bar. With a tight fit, just a touch of glue will hold it in place making it easy to remove should it be necessary at some later date. Drill a hole for the Servo wire to extend below the layout for connection to the Servo Tester mounted below.

For connecting the Servo to the turnout I use a length of .025" music wire with Z bends to go between the Servo Arm and the turnout throw bar. With the Servo installed in its hole next to the turnout and powered up, remove the Servo Arm and trim it short, leaving just one or two holes for the music wire. With the Control Switch switched to the red wire position, turn the Pot on the Servo Tester fully counterclockwise, then replace the Servo Arm on the Servo shaft spline so that it is parallel to the Turnout. Next measure the distance between the hole in the turnout throw bar and the hole in the Servo Arm. Cut a length of the music wire long enough to make a Z bend on each end and one in the middle. The Z bend in the middle is used to fine tune the length of the wire between the two end Z bends. The length between the Z bends should be the same as that measured between the holes. Z bends (see Sketch No 4).



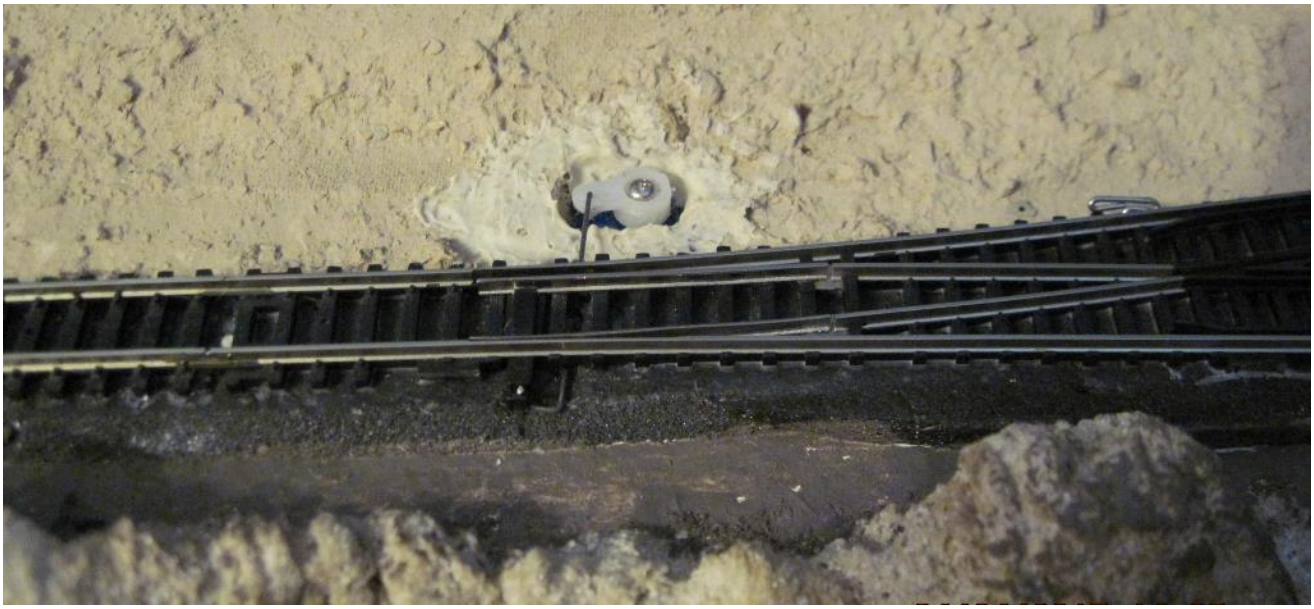
.025 MUSIC WIRE THROW WIRE
SKETCH NO. 4

To install the throw wire remove the Servo Arm from the Servo shaft and insert one Z bend in a hole in the Servo Arm. Insert the Z bend on the other end of the wire into the hole in the turnout throw bar and re-install the Servo Arm on the Servo shaft spline.

Check the point pressure on the rail and adjust the wire length for proper point contact using the Z bend in the middle of the wire. This may require removing the Servo Arm several times to get the point pressure on the rail just right. When you are satisfied with the adjustment you have made, it's time set the pressure on the outer rail using the Pot on the Servo Tester.

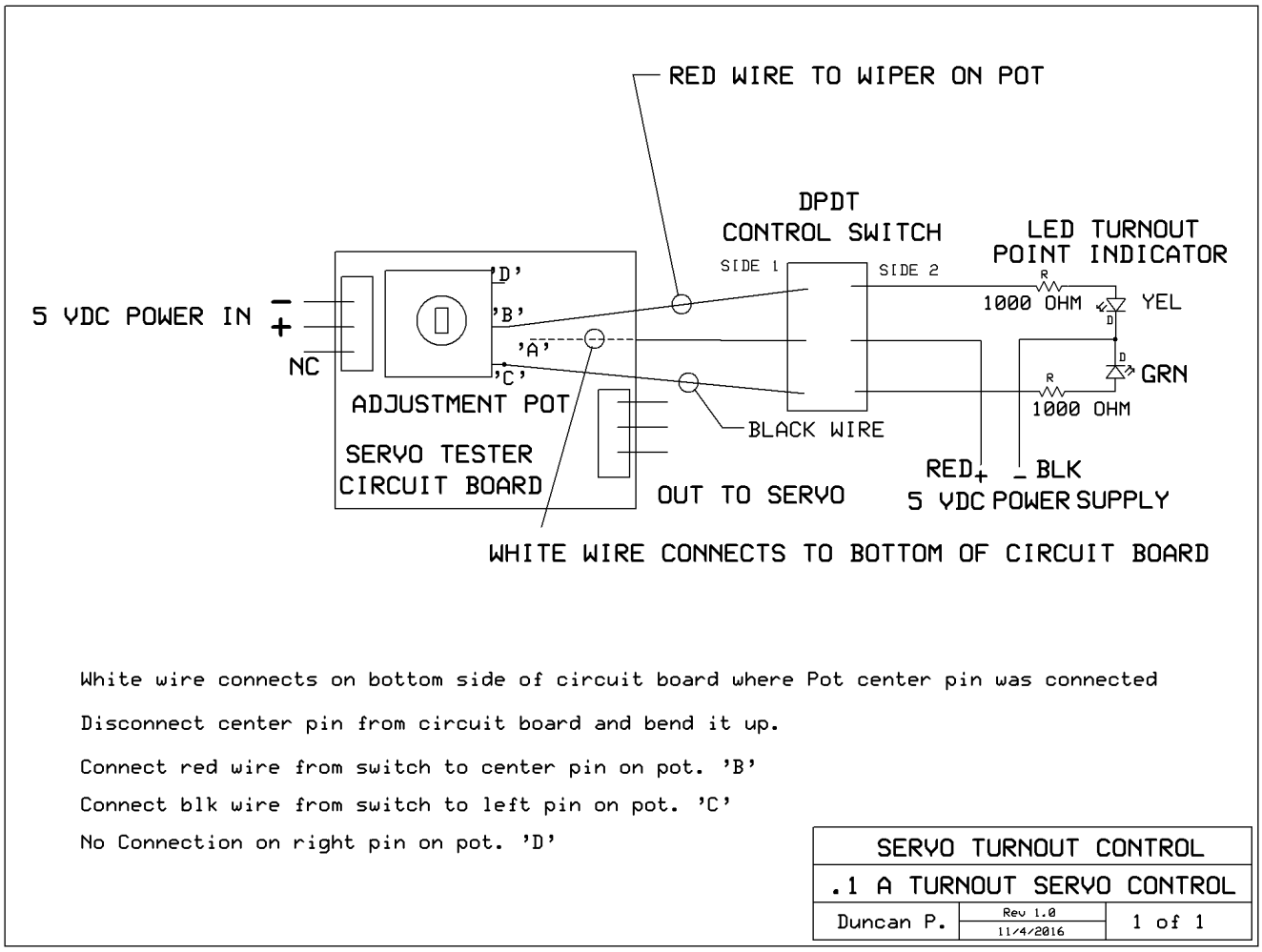
With the slide switch set to the red wire side, rotate the Pot until the turnout point is touching the outer rail with a slight pressure. Toggle the Control Switch back and forth several times observing the point pressure on both rails. Repeat the above procedure to fine tune the point pressure on both rails.

After completion of the installation a simple landscape cover of your choice can be placed over the servo to conceal it. See photos below.



Servo installed from the top, covered with a thin coat of Liquid Nails caulk to blend it into the surrounding landscape.

Brush used to conceal the Servo Motor



SCHEMATIC DIAGRAM

Parts list

Search on eBay, Amazon or your favorite internet retailer (look for lowest price)

1.	Servo	9G SG90 Micro Servo (3/5/10/20 Packs available)
2.	Servo Tester	3CH CCPM Servo Tester
3.	2 position DPDT slide switch	DPDT ON-ON Slide Switch
4.	Power Supply	AC 110V-220V DC 5V 10A 50W Power Supply
5.	Servo Extender cable, female to female,	JAMCO Electronics WH-3P-1007-22AWG- 12
6.	.025 Music Wire	K&S Precision Metals, Hobby Lobby or other hobby shop

A Handy CAR WEIGHT Calculator

By Henry Reeves

I have just created a functioning online calculator that uses the standard weight calculating formulas provided in the article by Roger Hensley located on the NMRA website at the following address: https://www.nmra.org/beginner/weight

I'm calling the calculator: Henry's NMRA Rolling Stock Car Scale Weight Calculator. You can find this calculator on one of my websites at:

https://showmyhobby.com/index.php/henrys-nmra-rolling-stock-car-scale-weight-calculator/.

It may be a useful tool to many members of the NMRA.

DON'T LET CURCUMSTANCES HOLD YOU BACK

By Jack D. Monette, MMR

You like trains and model railroading or you wouldn't be reading this. There is a certain fascination in watching a mile long train flashing past at a grade crossing. In the past I have spent many happy hours rail-fanning, photographing, or simply listening to and watching trains. Trains are in my blood; it goes back to the second grade when for a couple of years I lived with my grandparents way back in the hills of West Virginia. It was during the Second World War, and their house was less than a hundred feet from the Baltimore and Ohio tracks. Local switching was done right there in front of the house, and whenever the train crew was there, I was in the front yard cheering them on. We lived so far off the highway that we had to walk the tracks to get to our house. At the railroad crossing, there was a small station, and I would spend time visiting with the station agent. Thus started a lifelong romance with railroading.

The caboose track on Jack's railroad shows a mixture of railroads, and clearly displays a love of trains.

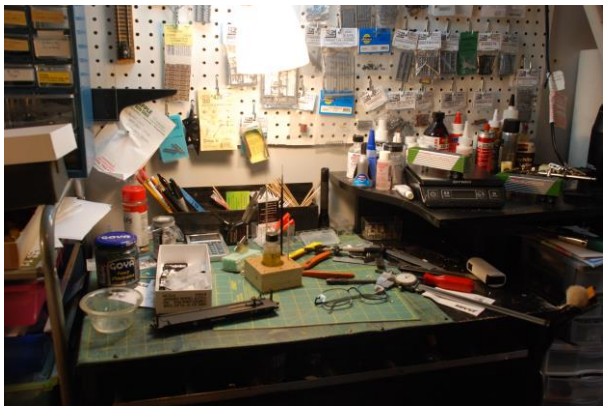
I won't bore you with the details of my teen year modeling experiences, (maybe later?) save to say I was active in high school with my best friend, the late Ed Malone. We had a large Lionel

layout in Ed's basement. We weren't happy that Lionel left couplers off of the rear of the cabooses, so together we figured out a way to add the missing couplers. We also built a long wood trestle which was on a curve. After high school came military service, college, marriage, and raising four children, all tasks which put model railroading pretty much on the back burner. In other words, ***circumstances*** prevented much modeling, but I never lost interest in the hobby. I say all this to challenge the reader to not let circumstances overwhelm you. Do what you can when you have the time and don't let your love of trains be squelched by conditions that may discourage you.

Let's look at some of the things that may prevent us from advancing in this great hobby.

1. **Ed Smith,** In the December issue of *The Brass Pounder* shared his experience of having to be a *lone wolf* modeler. He comes to the conclusion that perhaps he should have put forth a little more effort of finding other modelers to encourage and help him. In the Carolina Southern Division, there are literally dozens of highly skilled modelers who are more than willing to give help and encouragement where needed.

2. **I don't have room** for a layout! Really? When we bought our house we had three of our children still living at home. Previously I had a nice little layout, but now there was no room for it, and nowhere to store it. So I dismantled it and built a small switching layout over the washer and dryer in the laundry room. Today I have the two bedrooms vacated by our two sons and one daughter. One room is a three level pike with about 100 feet of main line. The other room is my shop. When the first room became available my son-in-law David Gibson and our own Tim Rumph sat in the emptyroom and came up with the basic plan of my railroad. Without them I probably would not have thought of a multi-level track plan.



Jack's workbench is the place where countless scratch-built projects were born during his journey to attaining his coveted MMR certification.

3. **I don't have time.** Every one of us has exactly twenty four hours each day. Most, if not all of us, find time to do what we really want to do. You may not have as much time as you would like, but if you really want to be a model railroader you can probably squeeze some time in somewhere.

4. **It's too expensive.** Yes model railroading is expensive, but it is what you make of it. If you don't have a lot of cash flow check out the train shows. Over the years I have found many bargains at these shows. Today everyone seems to think sound is important and I have no argument with that. However, sound adds a considerable amount to the price of a new

locomotive. While visiting Little Choo Choo in Spencer recently, I purchased a slightly used Alco alligator (RSD15) by Broadway limited, with beautiful sound, for about a third of the original price. This locomotive was there on consignment. Look for used freight and passenger cars. Buy kits (if you can find them) - they are usually cheaper than built up models. One good source of great kits is Tichy Train Group. Another good source is the White Elephant tables at NMRA events such as the RMU, Regional, and National conventions. Look around and you might be surprised at the bargains out there.

5. **I don't have the skills.** Skill is a relative thing. Skill must be developed. Model railroading is an art form. Sometimes we are forced to develop our skills. Almost two decades ago my good friend Paul, a highly skilled modeler, moved to Buffalo New York. Paul did all of my decaling for me. I was then put into a situation where I had to learn to decal properly or not have certain models I wanted. I bit the bullet and found that decaling isn't all that difficult. Don't let your lack of skill stop you from learning! Dig right in and try! If you need help ask. All MMRs are dedicated to helping our fellow modelers and we will help if you ask.

6. **Don't be intimated by advanced modelers.** This is an area that probably affects all of us to one degree or another. Remember this: It is your railroad, built to your standard and desires; no one has the right to criticize your work without your invitation. Sadly, I have seen the opposite too many times. You are you and don't let anyone intimidate you. Learn from others. Over the years I have gotten some very good ideas from "less skilled" modelers. When I go on layout tours or read about the great model railroads my reaction can go two ways; I am inspired by what I see, and challenged to do better on my railroad, or I can let what I see intimidate me to the point where I quit trying to become a better modeler. Usually I choose the high road and try harder.

A dilapidated coal mine on Jack's railroad blends skills and ideas from multiple sources.

7. **What scale should I choose?** While HO is the most popular, other scales have their appeal and all are worthy. I have told my friends over the years that if I had the money and room I would go to O scale. Why? Because it is easier to see and has the mass to be more convincing, in my mind anyway. Gil Brach, MMR, does a wonderful job in N scale. That won't work for me because of poor eyesight, but he is a master at building and detailing those tiny and superbly detailed cars and locomotives. G scale is massive and takes a lot of room; it is well suited for garden railways, but can make an impressive layout indoors as well. The point here is: There is no one acceptable scale, all are acceptable!

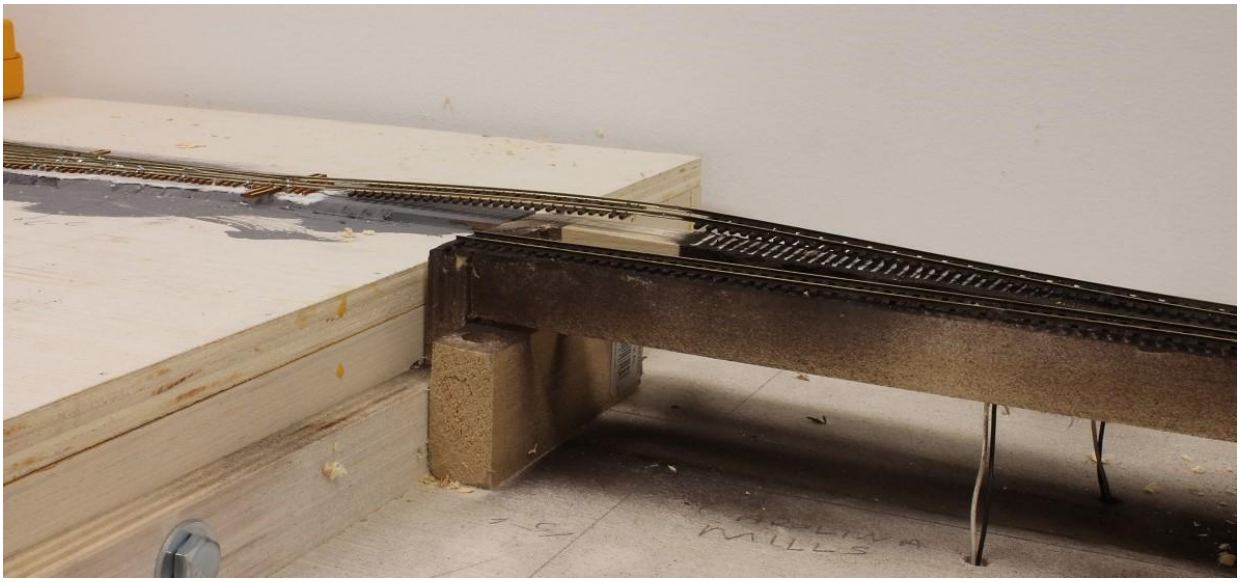
8. **Let me close with this.** Last night we had Tacos for supper. They consisted of Taco shells, ground beef with taco seasoning, lettuce, tomatoes, chopped Green olives, chopped onions, shredded taco cheese, and Pace salsa. Each of us used the ingredients to make our tacos the way we wanted. Now, let's think about model railroading as building a taco. There are multiple facets of building both.

    - Freelance or prototype.
    - Scale.
    - Time frame or anything goes.
    - Scenery or plywood central.
    - Ready to run or a mix of RTR and kit built or scratch built/kit bashed.
    - The list of ingredients is too long to go on, but I hope you get the picture. **IT'S YOUR RAILROAD!**

My Southern S-Line
A Cautionary Tale and a New Track Plan

By Tim Rumph

Happy New Year to everyone. Not much has gotten done in the last half of 2018, but it's time to start up again. First, a cautionary tale. Many of you will recognize this, the track at a joint in my sectional layout bulged up. Winter has come and the layout shrank.



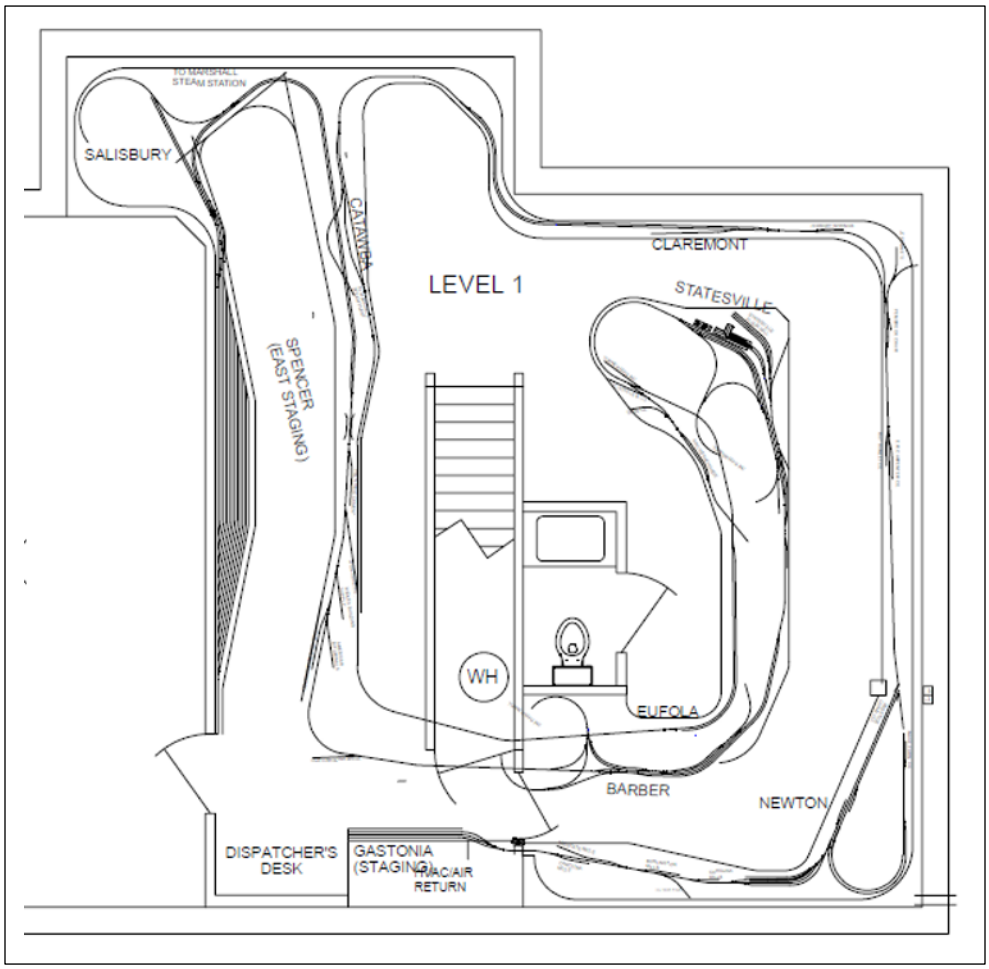
Shrinkage caused an upward bulge in the track as lumber dried out

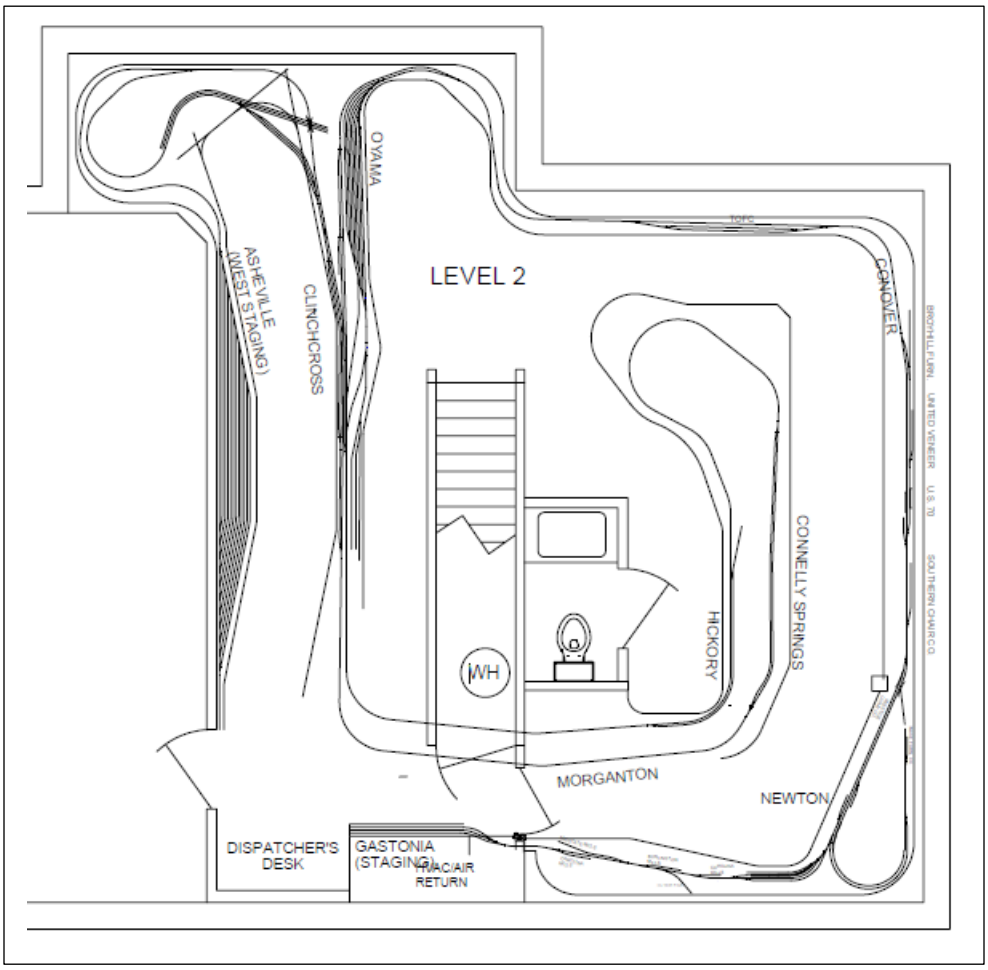
Note that this has nothing (or at least very little) to do with the temperature. The temperature in my basement is pretty constant all year 'round. The problem is humidity. When the temperatures go down and the furnace kicks in, the humidity drops. The drop in humidity makes the wood dry out, even high quality stuff like I use. When wood dries out, it shrinks.

What can prevent this? Making the layout from something that is not effected by humidity would work. When *Model Railroader* built their N-scale Clinchfield layout, they used aluminum channels welded together. This can get a tad expensive. I have in the past used galvanized steel studs for benchwork. This works fairly well, but it takes different construction methods than the more common wood for benchwork, and you need to be careful with the wiring where it goes through the steel, or it will, in time, cut through the insulation and cause short circuits.

Or do what I should have done. Cut the bridge section of track a little short so it has room to float and it doesn't get squished between the track on either side.

I've also made a few changes to my track plan. See below. Basically, I've turned the peninsula around. This has a couple of advantages. It opens up the area at the bottom of the stairs so it's not as cramped there. It also puts the bulge at the end of the peninsula in a more open area, so it can expand slightly and the aisleways around it aren't so cramped. The downside is that I'll now need to make a moveable bridge across the door that goes into the area where the water heater is and crews following their trains between Eufola and Catawba (or Oyama and Hickory on the upper level) will need to go around the stairs and bathroom. I think that it's a net plus.





Have a Happy New Year (wait, I said that already) and hope to see you at the RMU on January 19th.

MER 2018 CONVENTION LAYOUT TOUR #3

John King's Shenandoah Subdivision of The Baltimore and Ohio Railroad

By Ed Gumphrey

If you've been reading my past reviews of layout tours during the 2018 MER Convention, you won't be surprised by the fact that I chose another B&O layout to visit. Having just enjoyed a tour of Dean Ripple's B&O layout (see November 2018 edition), Alan Hardee, Tim Rumph, Dave

Thrams and I started navigating our way across Rockville to visit John King's Shenandoah Subdivision of the B&O. I don't use the term *navigate* lightly. Ongoing road construction changed the route, challenging my car's factory navigation system, resulting in a test of my skills at three point turns. Tim Rumph saved the day and took over navigation duties on his I phone and successfully guided us to John's house.

John's railroad is a point-to-point layout accurately representing B&O trackage from Harpers Ferry West Virginia to Strasburg Virginia. Set in October 1949, the railroad's east end consists of open staging. Although titled Brunswick, it doesn't attempt to replicate the 7 miles of complex trackage that was there at the time, but was the point of origin for trains destined for the Shenandoah Sub. Trains originating in Brunswick travel westward across the Potomac River, into Harpers Ferry, WV and then turn southward. Closely following the prototype, the line continues through Millville and Charles Town in West Virginia, then crosses into Virginia, proceeding on to Winchester and Strasburg Junction. John's railroad successfully emphasizes prototypical operations with industries and sidings serving the apple and limestone industries in the area.

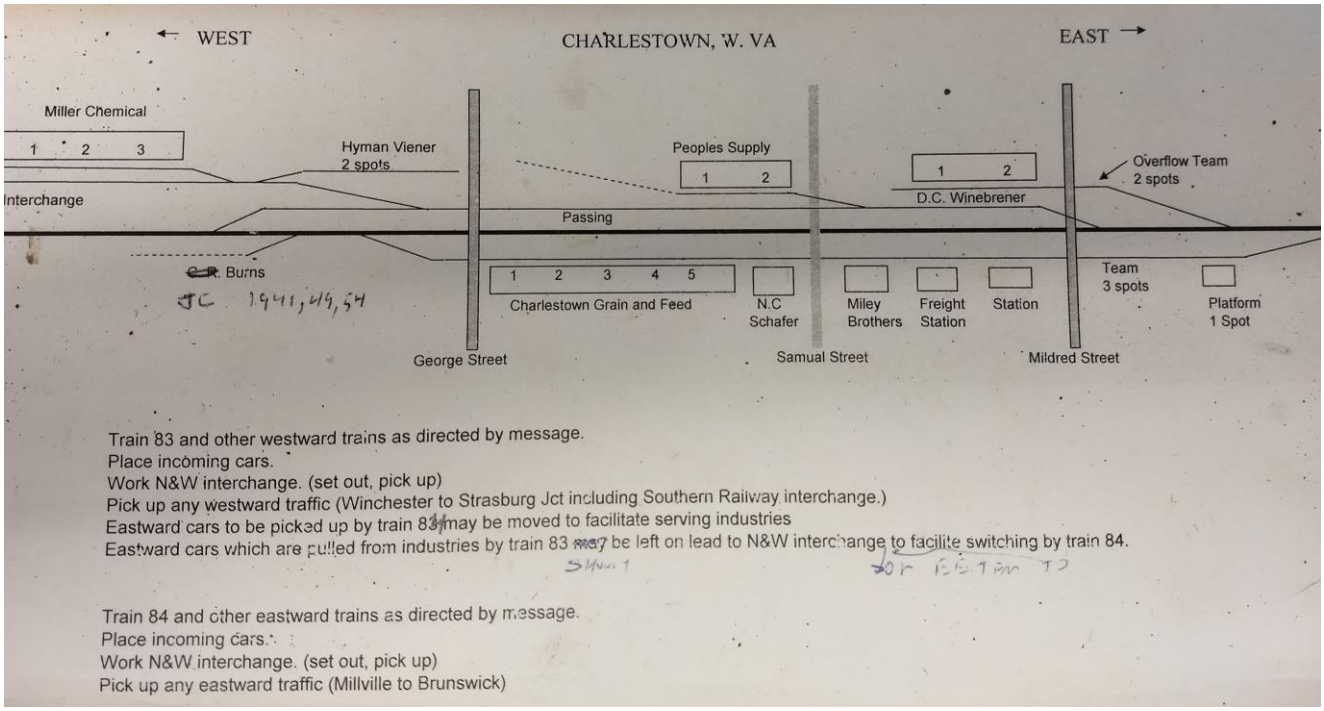
During our tour, there were four or five operators working trains on the layout, all of which were running flawlessly. The absence of scenery is not a deterrent to the feel of prototypical operation, thanks in large part to John's noteworthy mock-up structures. Backed up with period photographs of the industries along the route, they give a strong sense of how it was, and how the railroad will continue toward completion. As with my previous layout tour reviews, I'll let the pictures tell the rest of the story. The second picture is of John's incredibly accurate dispatcher's office. Featuring actual vintage furniture, clocks, relays, sound-powered phone systems, and morse telegraph keys, John also uses actual B&O forms that he obtained by the boxload over the years. Clearly, operation rules on this impressive railroad. All four of us CSD members left John's house impressed with his progress. Planting a thought for the 202 Convention that we will host, John King's Shenandoah Subdivision is proof positive that your railroad doesn't have to be "finished" to be a satisfying layout tour destination.

Two operators discuss car spotting on John King's Shenandoah Subdivision

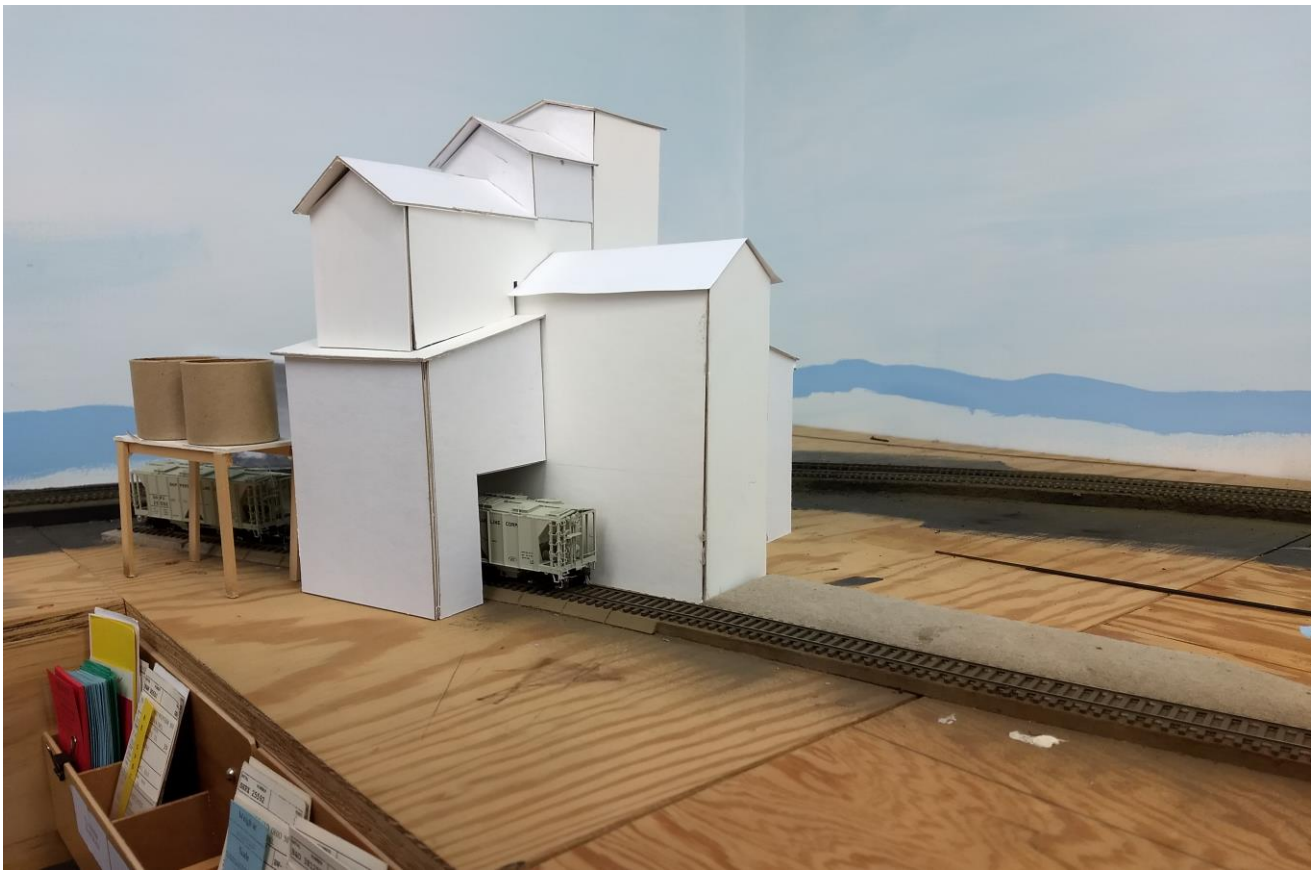
John King's incredible dispatcher's office is like visiting a museum.

An operator uncouples a cut of cars at Strasburg Junction at the west end of John's railroad.

Period photos combine with notes and mock-ups to give operators a sense of freight destinations.



Trackage diagrams are posted at various locations and include operating instructions. The pen-and-ink edits show the evolving refinement of operations on John's railroad, where prototypical accuracy rules the day.



John King's mock-up structures reflect prototype structures and hint at the completed scene.

A pair of John's impressive mock-ups of prototype structures.

B&O class E-27b 2-8-0 #2835 shows the white flags of an extra as it pulls a cut of cars on John King's Shenandoah Subdivision. The prototype for this brass model was built by Richmond Locomotive Works in 1909, eight years after Richmond joined seven other companies to form ALCO. The small consolidation survived into the 1950s.

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