

# FLIMZIE

***The Newsletter of the Rock River Valley Division  
Midwest Region, National Model Railroad Association***



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The Rock River Valley Division, RRVD, is a local division of the Midwest Region of the National Model Railroad Association, NMRA. The RRVD serves NMRA members in areas of Green and Rock Counties of Wisconsin, and Boone, Jo Davies, Lee, Ogle, Stephenson, Whiteside, Carol, DeKalb and Winnebago counties in Illinois. The RRVD holds monthly meets typically the first Sunday afternoon of each month, September through May, in Rockford at the at the Lutheran Church of the Good Shepherd, 1829 North Rockton Avenue, Rockford, IL. The meets start at 1:00 PM. They consist of various clinics on model railroading, model contests, drawings for door prizes for NMRA members.

## **Mark your Calendar**

### **2022 MadCity Model Railroad Show and Sale**

The **MadCity Model Railroad Show and Sale** will take place **Saturday February 19 – 20, 2022**. It will be held at the Alliant Energy Center, Exhibition Hall, Madison, WI. You can receive updated show information on the website, <https://www.nmra-scwd.org/events.html>

### **Rock River Valley Train Show**

#### **DATE CORRECTION**

The RRVD will hold the Rock River Valley Train Show **March 26 & 27, 2022**. The show will be held at **Harlem High School**, 9229 N Alpine Rd, Machesney Park, IL. The times are 10:am-5pm on the Saturday the **26<sup>th</sup>** and 10:00am-3:00pm Sunday the **27<sup>th</sup>**. For more detailed information see our website, <https://www.rrvd-nmra.com>.

### **Indy Junction 2022**

#### **Three Regions Convention**

The Three Regions Convention **INDY JUNCTION 2022** will take place **May 18-22, 2022**. The show will be held at the Marriott East hotel complex in Indianapolis, Indiana. You can receive updated convention information on the webpage <https://www.indyjunction2022.org/> or the Facebook page <https://www.facebook.com/indyjunction2022>

### **Gateway 2022**

#### **NMRA National Convention and National Show**

The **Gateway 2022** MNRA National Convention and National Show will take place Sunday, **August 7, 2022 thru Saturday, August 13, 2022**. The Convention will be held at Marriott Grand, St Louis 800 Washington Ave, St Louis, MO Saint Louis, MO. The train show will be at the Collinsville, IL Gateway Convention Center. The website is [https://www.eventsquid.com/event.cfm?preview&event\\_id=13724](https://www.eventsquid.com/event.cfm?preview&event_id=13724)

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## **Office Vacancies**

After many years of dedicated service to the RRVD, Don Brindle has resigned his positions of Registrar, RRVD Archivist, Publisher of the *Midwest Railroad Events* booklet, and the Audio/Visual Technician for the RRVD meets. Ken Mosny has stepped forward to take the jobs of Registrar and Audio/Visual Tech. We also need someone to take over the Company Store and the Social Media positions. Contact Ken Mosny, RRVD Superintendent to offer your time and service for any of these positions.

## **Flimzie Deadlines**

The Flimzie will now be published once per month on the first of the month. It will be placed on the RRVD website for anyone that wants to read it.

The content for the Flimzie comes from you, our readers. Please submit your articles, pictures and editorial comments to the Editor, Ken Peterson, [poplarken53@gmail.com](mailto:poplarken53@gmail.com), no later than 10 days before the 1<sup>st</sup> of the month, i.e., Nov 21, 2021, for a December 1<sup>st</sup> publication.

## **Message From the Superintendent**

By Ken Mosny

First off, congratulations to Gary Loiselle for attaining Master Model Railroader #681. He has been working hard to earn it. Shake his hand when you see him. If you haven't considered working on NMRA Achievement Program Awards, I encourage you to consider it. When you ask him, Gary will tell you how easy (or, um, hard) some of them can be. I'm thinking he will mention the easy service to the hobby awards like Association Volunteer (Hey, help us out!), Association Official (Be on the Midwest Region Board of Directors as Division Superintendent!) or Model Railroad Author (Present Clinics and write for the Flimzie!). If you have running layout, Model Railroad Engineer-Electrical (Easy-peasy) and Model Railroad Engineer-Civil (The hard part for most of us is scratch building the

trackwork) are on the list and are especially suitable if you plan your layout with the requirements in mind. If you like to operate, try Chief Dispatcher. Scenery building is high on the list for many of us and featured often in the MR press, so my guess is that Master Builder-Scenery, Structures, and Prototype Models are quite popular. If you are like me, the ones that require you to build rolling equipment, Master Builder-Cars and Master Builder-Motive Power, could be right up your alley. Check them out at <https://www.nmra.org/categories>. Gary Loiselle is the RRVD Achievement Program Chairperson to talk to get started.

Second, we have a new Flimzie editor, Ken Peterson. Ken has been active as an RRVD director in the past and always is exhibiting N scale at shows, his latest being Cherryvale Mall. Thank him for stepping up to the plate as Flimzie editor when you see him.

We have set the date for our next train show for March 26 and 27, 2022 at a new location, Harlem High School. We have been at Harlem before in the distant past with success, and Belvidere was not available because they did not want to allow their facility to be used for non-school events. Remember that this is our only fund raiser that keeps the RRVD financially solvent, and we need everyone's help to make it a success. The Rock River Valley Train Show (yep, we have a new name) will be a larger show this time. We have increased the floor area of the show from about 30,000 square feet to 45,000 square feet now filling two gymnasiums. We are holding the line on the \$5.00 adult admission, which we have had for many years despite increased costs. Children under 12 are still free, and there is free parking. This makes the Rock River Valley Train Show one of the lowest cost large train shows in the region for the individual or family to attend. Where else can parents and kids spend the day in a safe and fun place for \$10.00? It will have operating train layouts of all sizes, vendors of new and used model railroad supplies, and demonstrations of model railroad activities and skills. Lunch and refreshments will be provided by the Harlem Fan club - so you can support them, too. Our Rock River Valley Train Show has been on hold for two years, but it will be roaring back soon.

We are looking for volunteers who can fill a huge hole. James DeVoe was a powerhouse for organizing community events for us and we

need people who can continue his legacy. Four events come to mind: District One train show in cooperation with the Rockford Police Department, Nicholas Conservatory Christmas Train Show, Katies Cup Train Show, and Discovery Center events. James did all of these, but many hands can make light work so it may take four or five people to replace him. With COVID restrictions on the wane, we are getting inquiries about starting these events up again. Can you help? Contact any board member.

On one last note, this will be my last Superintendent's message. As of November 14, I will be passing the gavel to Marty Hendrickx. I am assuming the duties of RRVD registrar from Don Brindle to be responsible for all of the bookkeeping and communications with our events requiring registration, ie. train show vendor and displayers, convention attendees, etc. This is a busy job, and I cannot do it and superintendent together. I thank everyone who has assisted me as superintendent these past three years.

Ken Mosny

## **The Layout Design Column**

By Ken Peterson

I have been fascinated with model railroad layout design since I was a boy. My father and grandfather taught me drafting techniques and provided me with drafting tools when I was a young boy. A few years ago, I discovered the Layout Design Special Interest Group, LDSIG. Its motto is "only make new mistakes". The point is that through sharing and teaching design techniques to new and old model railroaders we can help people keep from making design mistakes that have already been made by others. Let's face it, we all make mistakes. With the cost of lumber, track, turnouts, roadbed, wire, etc. as high as it is today, it is important to catch any design mistakes before you start building your layout. Sometimes mistakes by a newbie causes him or her to get so frustrated that they don't finish the layout or yet worse give up model railroading. That is a shame because this hobby offers so many ways to enjoy the hobby.

Currently the LDSIG is sponsoring the *Ten turnout (or fewer) Design Challenge*. I would like to share a few design techniques I used to design the Honey Creek Industrial Switching Layout (ISL) for this challenge. After designing the layout, I built the Honey Creek ISL to display and operate at our Cherryvale Mall Railroad Show.

When I was a design engineer, I developed various checklists the customer filled out to help him focus on the design and performance of the equipment we were supplying for him. We were a custom design build firm. The checklists helped me design the best equipment for him. I will describe some of the MR layout design checklists I use to meet my layout design objectives.

### **1. CONCEPTUAL PHASE**

The first step in the layout design process is always conceptual. This involves developing the theme, or the look, feel, experience, or the real story you want tell with your model railroad (MR).

- Where are you going to put the railroad? Basement, garage, bedroom, attic?
- How much space is available for the layout **and** operating aisles?
- How big should the aisles be? Keep in mind how big around some of us have grown to be.
- How much time can you devote to this? Is it one year, two year or ten-year project?
- How much money do you have to spend on the project? Your expenses can be spread out over the time you have allowed to build the layout. They will be grouped with the different phases of construction you are working on.
- Will you be building this by yourself or with a crew?
- How long do you anticipate you will be living in the current location? If you expect to move, you may need to use construction techniques that allow easy removal of the railroad and movement to the next location.
- What construction skills and tools do you have right now? What tools will you need to buy?

- What aspect of model railroading are you interested in now? Operations, railfanning, building realistic scenery, building structures, scratch-building locomotives or rolling stock?
- Are you interested modelling in a specific prototype, or create your own railroad from examples of prototypes? In other words, do you want to model a specific railroad during a specific point in time, or a “what if” railroad built from point A to point B in a region of the country?
- When is your railroad to operate? For example, early 1900’s, 1950’s, or 1990’s. (Knowing this can keep you from buying locomotives and rolling stock that do not fit your railroad’s operating period).
- Do you enjoy performing historical research to learn about the time period you are modelling?
- What kind of railroad is it to be? A small branch line, or a long main line railroad? Do you want a line-haul freight company carrying many kinds of freight in different types of cars, a single commodity type of railroad (coal, grain, oil, etc.), or passenger trains?
- Do you want to include marine operations?
- Do you want to have a yard to perform classification of freight cars, make up trains, or break down trains?
- Do you want to drop and pick cars from industries?
- Do you want to build structures from kits, kit-bash kits or scratch build them?
- What are the key industries you want on your MR?
- How do you want to operate the layout?

Think through these questions and write down the answers. Create a folder/scrap book of pictures, sketches, doodles, maps, scenes, written ideas, written goals, etc. Summarize the information, and then prioritize it onto two sheets, one, labelled “Givens” and “Druthers”. The “Givens” are items that you must have or can’t be changed, such as your space is a 12ft x 14ft bedroom. Druthers are things you want but may have to give up if you can’t make it work. An example might be, you want to run 89ft automotive parts boxcars, but the largest radius curves you can fit in the space are too small for them to operate reliably.

## 2. STRUCTURAL PHASE

This involves creating a framework for your design. The art of compromise and selective compression is used now. We always want more track and structures than can realistically fit in the space allocated for the build.

Draw to scale the space available for the layout. Include all obstacles: walls, windows, doors, closets, exposed piping, ceiling obstructions, electrical panels, furnaces, water heaters, water softeners, stairs, etc.

Now establish modelling standards.

- What is the minimum radius of the mainline? Of the sidings? Spurs? Match the minimum curve radius to fit the length of the cars being used. See the NMRA recommended practices.
- What size turnouts (frog #) are required for operation and or appearance? Match the turnout size to the radius of curves you are using.
- What code track?
- What type of control system and wiring?

## 3. SKETCHING

- Starting with track schematics, draw sketches of small areas. Sketch only what you must have. Use staging for the rest.
- Pick only that which conveys the “concept” you developed in the first phase. Start with one scene fed by staging. Develop the smallest scene to tell the story, then expand it to fill the space, time, and money constraints. Or if it too large to fit, use selective compression to reduce the size while keeping the basic concept.
- Provide passing sidings as required on single track main lines to allow the passing of trains. Length of trains determines length of passing siding. Draw these sketches to scale.

- Provide runarounds for switching facing point spurs. NOTE runarounds can be much shorter than passing sidings and passing sidings can be used as runarounds.
- Provide staging at both ends of point-to-point layouts and staging at opposite end of an end-of-line terminal layout.
- Include interchange tracks where possible/practical.

Draw to scale small sections of complicated track that include turnouts, crossovers, crossings, yard ladders etc. Put them together to create signature track arrangements. Place them in the layout space. Move them around and connect them together to create a concept sketch. Make different concept sketches for the same area. At this point you may find out the concept sketches do not fit the space you have available. This happens more times than not because we always want a layout larger than we have space for.

Sometimes you must go back and re-evaluate your givens and draw them and make more compromises. If possible, go to the person in power and try to negotiate for more space.

At this point you should draw the structures you want to use to scale. Remember that structures can be kit-bashed or scratch-built to fit odd spaces.

Draw to scale the largest locomotive you will run. Draw the various types of cars to scale. Assemble them into a typical length train.

#### **4. FINAL DRAWING PHASE**

After choosing the best concept sketch, start converting each sketch to scale. Draw all the turnouts to scale. Draw the curves to the final radius. Insert transitions between the tangents and curves in you are using them. Place all spurs and sidings to the proper track spacing. Insert the structures. Add roads and scenic features. Don't forget to include parking lots for the depots and industries. Verify the aisle widths. Based on myself and others I have seen in our division I recommend 28" as an absolute minimum and 36" or 48" as a standard.

These are very basic design concepts. In future columns I will expand on these ideas.

#### **HOW I APPLIED THESE CONCEPTS**

I will go through the design steps to show you what my thought processes were as the design build progressed.

The Honey Creek ISL is an N-scale layout that will be designed to travel to train shows and display MR operations. So, the construction must be light enough for me to carry by myself and fit in my Dodge Caravan. It will require two show tables (30" x 96") to be set up on for display and operation. The track elevation above the tabletop should be 12" to 18" high. I planned on spending about a month on its construction. I want to focus on the ease of construction and not spending too much time on it. Buying structure kits, using existing rolling stock and locomotives, and DC control power will keep the cost down. I always have ample scenery building supplies on hand. This layout will be small and not require any special construction skills or special tools. The layout is small enough to be stored on shelf brackets in my basement or placed under my permanent layout. The place and time of this layout is small town in North Dakota in the late 1950's and early 1960's. It will represent the many farming communities that were formed around the railroad. I have Milwaukee Road locomotives and rolling stock that fit that era and location. I do not have time to research a prototype town to model, so it will be a freelance design. The primary commodity shipped from these communities was grain. LP gas was used to supply heat and power to the grain elevators, homes and businesses. Farm implements, equipment repair parts, tools, fencing materials, etc. were commonly shipped in by rail to dealers. Typically, long spurs had several grain elevators built on them. Have a tethered handheld DC controller that I plan to use to control the train. It will allow me to follow along the train while switching.

I have built several portable layouts to take to train shows. Those were built of foam core. They were very light weight and easy to build. I wanted to try a different construction technique. My daughter asked me to replace her bi-fold hollow core closet doors for her. I was told to get rid of the old doors. Wow! A nominal 12" x 6'-8"

ridged flat surface. Perfect for a model railroad platform. I got four for free. I am part Norwegian. We can throw usable stuff away. One will be used for this layout, one for a papermill layout, and the last two for a small town in central Wisconsin, to scale per the 1929 Sanborn map.

For the structural phase I measured the door and found it to be 11-5/8" x 79". I made a scale sketch of the door to begin my layout sketches. I have AUTOCAD LT 2000 I use to do all my design work. I used a version of AUTOCAD in my job as a design engineer for over thirty years. I am very comfortable using it. I also used different types of drafting boards and tools for design drawings for years prior. I have no experience with model railroad CAD drafting programs. I use PECO Code 55 medium Unifrog turnouts and flex track for my recent layouts. I pulled a right hand and left hand scale turnout drawing from my library and inserted them into the layout sketch. I made nominal sized boxes of each of the structures I plan on using and put those into the sketch. From pictures and maps of railroads and towns of the upper Plains it was easy to see that most track is straight. The mainline was drawn from one end of the space to the other centered front to back. I offset that 1.25" for a passing siding/runaround track. Then I did several other offsets for spurs off the mainline and the passing siding.

Many years ago, I worked for a Design-Build company that built slip formed concrete grain elevators, so I had to have one of those on this layout. I chose to use the Walthers kit. When I opened the kit box to get accurate dimensions of the model, I discovered they made a mistake and put two sets of the grain bins the box. My elevator just doubled in size. That is great. The concrete elevator would go on a stand-alone spur. The length of the spur was determined by how many cars I wanted to service the elevator with. Four cars per drop or pickup is what I decided to use. So, the spur was made nine cars long (40ft box cars were used to haul grain during this period). The locomotive would shove four or five cars through the loading house to the end of the spur. Then the elevator cable car puller or track mobile would pull the cars through as each car was filled. This structure will have to be kit bashed to fit between the spur and the backdrop. Many pictures of the granger towns show several wooden or corrugated iron clad wooden elevators along a single spur. On the

opposite side of the mainline I put a spur with two iron clad wooden elevators and a smaller one consisting of a leg, two steel bins and a warehouse. On one end of the passing siding is an LPG retailer. On the opposite end of the passing siding is a farm implement dealer. Finally, I created a manufacture that will provide jobs for the farmers to supplement their farming incomes. This will be Empire Levels. This structure will have to be kit bashed to fit between the spur and the backdrop.

With the sketch done, I just had to connect the straight track to the turnouts with curves, convert the centerlines to two rail track, measure and mark the clearance locations around the turnouts. In N-scale this is 2" from the end of the turnout on the frog end. This indicates how close a car or locomotive can be spotted to the turnout without having a moving car or locomotive on the other route hitting the stationary car. When I create the scenery and detail the track, I use a whiteout pen to color the tie that indicated that clearance point. I insert the scale drawings of the industries in the proper locations. I draw in the roads, parking areas and finally add some trees. A few freight cars and a locomotive are placed on the track to give a perspective car size to spur size to structure size. The structures are all labelled. The staging/fiddle track modules are shown attached in place on both ends of the layout.

This layout consists of (7) turnouts and provides up to (18) car spots for switching.

Construction began with installing a 1 x 2 box frame all around the bottom of the door to provide clearance under the layout for wiring. I mounted a 3/16" thick plywood backdrop board. Then I painted the entire base dark brown. This is the color I use as my base coat under all my scenery.

Next the track plan was transferred to the base. I use cork roadbed only under the main line and passing siding. The cork is painted gray before the track is laid.

The turnouts are located and held down temporarily with vary small track nails. The rest of the track is cut and pieced together from the turnouts. The spurs are all laid from the turnout on the cork roadbed

with a small grade down to the top of the base. All the rest of the track is temporarily held in place the small track nails. All joints are soldered together. I soldered and dropped two pairs of feeders, one from the mainline and one from the passing siding. I use WAGO snap connectors to tie the N feeders and the lead to the power control together, and another for the S feeders and lead. Next, I do a quick track cleaning of flux residue and oxidation, wire the leads to the power control and run a locomotive and a few cars.

The following are pictures of the finished layout at the Cherryvale Mall train show.





## Fixing Atlas Turnouts

By Ken Mosny

I recently purchased six used but like new Atlas #4 Customline Turnouts at a swap meet at a very good price (I'm thinking \$3.00 each). My layout is all hand laid trackage, but I bought these for a hidden staging yard. I knew some electrical reliability issues would need to be fixed, the but these are common to all commercial turnouts so I was willing to address these issues and knew how to fix them. I was surprised to find out most of my steam locomotives would not operate through them. This prompted to devise a plan to fix them and tell you how I did it. The issues I will deal with in this article are of two types: mechanical, and electrical. Keep in mind that the electrical fixes below can apply to other brands of turnouts, too, so read on.

First, let's look the mechanical issues. I use code 88 wheels on my locomotive tenders and lead trucks that I have built and have had no problems with trackwork built to the NMRA standards. However, the Atlas #4 Customline turnouts have the gauge way too wide through the point area and wide flangeways at the frog. The problem is that if track gauge is just a little wider, maybe only 0.005" to 0.010" wider than the NMRA maximum, the narrow code 88 wheels fall between the rails of the Atlas turnouts at the points and just before the frog. There is also a lot of wheel drop in the frog because the flangeways are much wider than the maximum standard. The wide gauge doesn't seem to affect code 110 wheels because they can tolerate very wide out of gauge track. If you never intend to use code 88 wheels, you don't need to fix the wide gauge issues of these turnouts.

**Photo 1** shows an NMRA track gauge at the points and **photo 2** shows one just ahead of the frog. In both places the gauge is well over the maximum. It turns out this can be fixed. The curved stock rail is only held in position by the molded spikes on the outside of the rail and the gauge can be narrowed by forcing the rail to the center. In **photo 3**, I have inserted a piece of styrene inside a molded spike to force the rail in gauge. Rather than just forcing the rail over, I have found it better to bend a "kink" in the curved stock rail where it is notched to receive the point. **Photo 4** shows a stock rail of the left turnout that has been bent, the stock rail of the right turnout has not been altered for comparison. To bend the curved stock rail, grasp the rail in the jaws of a pair of wide fat nose pliers and twist as in **photo 5**. Bending the rail this way makes the rails up to the points parallel to each other and corrects the gauge at the points. The stock rail gauge at the point rail pivots is also too wide. The only way I have found to fix this is by careful brute force. Hold the turnout on a flat surface and using a tool like your flat nose pliers, carefully force the rail over constantly checking the gauge until it just meets the maximum. A word of caution, forcing the rail can break the electrical connection between the point pivot plates and the stock rail so you may have to fix that as described later.

All this fussing with the curved stock rail narrowed the gauge in the middle of the diverging moving point rail below the minimum because this rail is not curved, so work the diverging moving point rail into a

curve by holding the points in the thrown position and pushing on the rail with your fingers to bend it into a curve while checking the gauge. It will bend easily so keep checking the gauge between the stock rail and moving point rail. Now, the diverging point rail will also flow more smoothly than if it is straight. See **photo 6**. While you are at it, file a chamfer on the inside tips of the point rails to keep the wheels from picking the points. The gauge is still probably wide at the pivot end of the diverging point rail. Bend the moving point rail at the pivot with flat nose pliers to narrow the gauge as shown in **photo 7**, and *carefully* bend the fixed-point rail to narrow the gauge, too as in **photo 8**. If you bend the fixed-point rail too severely, you will break the welded electrical connection between the point pivot plate and the rail.

The frog of Atlas turnouts has a very wide flangeway which allows the wheels to drop a lot as they go through, especially code 88 wheels. This is an easy fix. Use some ACC to glue a 0.020" thick piece of styrene strip in the bottom of the flangeway to reduce the depth of the flangeway to 0.030". See **photo 9**. After gluing in the styrene, fine tune the depth with a knife edge file if you must. If all your equipment has RP-25 flanges, you will be OK. If you have some deeper flange wheels, you probably will just have to live with the dropping wheels. Also, supporting the wheel on the flange as it goes through the frog will cause it to momentarily lose rail contact which will somewhat thwart the effort of powering the frog

Now to fix the electrical issues. Most commercial turnouts have some or all these issues, so these can apply to any brand. I never rely on the turnout points or pivots to conduct power to the point rails and/or frog like commercial turnouts do. I like to use switch contacts and wires. This eliminates corrosion, dirt, ballast glue, paint or whatever from causing point electrical failure. The other issue is an unpowered frog. I will describe how to fix both of these on the Atlas turnout.

Powering the frog is easy. The frog is diecast and has two holes next to it. The holes are just the right size to tap for a 1-72 screw. Run a tap through one of the holes and screw a wire to the frog as in **photo 10**. Now you can power the frog using your favorite method, a frog juicer, switch machine contacts, caboose ground throw

contacts, slide switch ground throw or whatever. If you don't like to see the screw from the top, it can be inserted from the bottom.

The Atlas turnouts rely on the points being powered by touching the stock rails and through the eyelet rivets at the pivots. Both of these connections often fail. The best way to fix this is to bypass the pivot eyelet rivet with a flexible wire. It is not very aesthetically pleasing to solder the wires on top, but my turnouts will be used for hidden staging so that is the way I did it. It also is possible to solder the wires to the bottom by gouging clearance for the wires in the roadbed. You also use bare wire, keep the wires short and close to the rail to make them less visible, especially if you paint the rail.

First, clean all the metal to be soldered with a fiberglass scratch brush even if the turnouts are new. When soldering to the moving point rail, slip a thin piece of cardboard like business or file card stock between the rail and the plastic ties. This will help prevent melting the ties. Cut and strip 28–30-gauge stranded wire (I use scraps of computer ribbon cable) 1.50" long. Make sure the soldering iron with a small chisel tip is hot. I use a Weller WLC100 40 watt soldering station at setting 5 with an ST3 chisel tip. The steel weight in the photo is holding the point rail steady. Hold the wire against the rail. Flux the joint with a water-soluble acid flux like ruby fluid using an artist's brush. Clean the soldering tip by wiping it on a wet sponge and tin the tip with a small bit of 60/40 solder. Quickly touch the tip to the wire/flux/rail. As soon as the flux boils away, the solder will flow from the tip to the joint. When this happens, remove the soldering tip and hold the wire for the few seconds it takes for the solder to solidify. The joint will be smooth and shiny. When you have soldered all of the wires, scrub the joints with a toothbrush and household ammonia to neutralize the acid. Rinse the turnout in hot water to remove the residues. See **photos 11 and 12**.

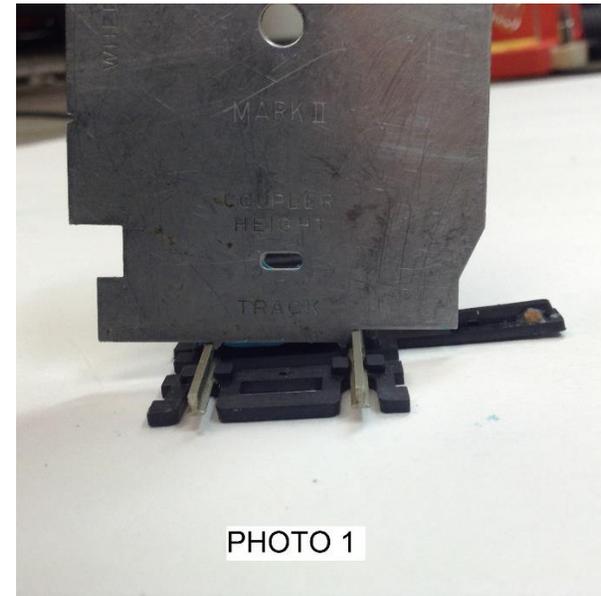
The last issue to address is the electrical continuity between the stock rails and point rails. The point rail assemblies are powered by the thin metal pivot plates that anchor the eyelet rivets. These plates are spot welded to the stock rails and the fixed point rails to power the point rail assemblies. You can see these welds by closely examining the pivot plate from the bottom of the turnout. The welds are the small dents in the pivot plate. It is likely that the bending of

the rails broke some of these spot welds so they will have to be soldered. First, use an ohmmeter to see if there really is a broken weld. Check the continuity between a stock rail and the corresponding fixed-point rail. See **photo 13**. Even if there is continuity, the weld can still be broken and just touching. Connect the ohmmeter leads to the rails with clips and gently wiggle the rails to see if the continuity is stable. If the meter reading is not stable, or shows an open, press on the weld dents from the bottom of the turnout with a probe to determine the offending weld. See **photo 14**. The broken weld will become electrically stable and continuous when you press on it.

Once a broken weld is located, use a small burr in a Dremel tool to gouge out the plastic tie near the weld to find the edge of the pivot plate. Use a slow speed with the Dremel tool. The goal here is to cut the plastic and not melt it. Clean up the cut fuzz with a hobby knife. See **photo 15**. Flux the edge of the pivot plate. Place the turnout bottom up on a steel block which will act as a heat sink to lessen the danger of melting the plastic ties. Using a fine soldering tip like a Weller ST7 .031" diameter tip and a hot 40-watt iron, clean the tip on a wet sponge, tin it with a blob of solder and touch the tip to the edge of the pivot plate and rail. After the flux boils off, the solder will flow onto the joint tinning the pivot plate and rail leaving a bridge of solder over the two. The solder probably will not flow out nicely. For the solder to flow like that would do a lot of melting of the plastic ties. Just make sure that the solder has actually tinned the metal and is not sitting on top of the metal. Clean up with ammonia and water as before. **Photo 16** shows a finished joint from the bottom and **photo 17** from the top. You can see that the ties are not melted. You can do it if you are careful.

This may sound like a lot of work to fix these turnouts, but the work goes fast once you have done one and set up to do few at a time. If I didn't already have these Atlas turnouts, I would have bought turnouts that didn't have all the gauge issues, but like many of us, I tend to soldier on to use what I have regardless. If you only use code 110 wheels, the wide gauge of these turnouts should not be a problem, but you still may want to fix the wheel drop in the frog. It is still a good idea to solder wire around the point rail eyelet pivot,

especially if the turnout will end up in a difficult to maintain location like a tunnel or hidden staging yard.



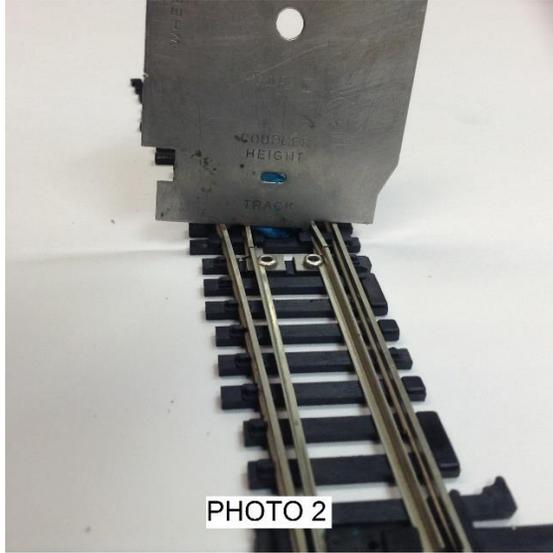


PHOTO 2

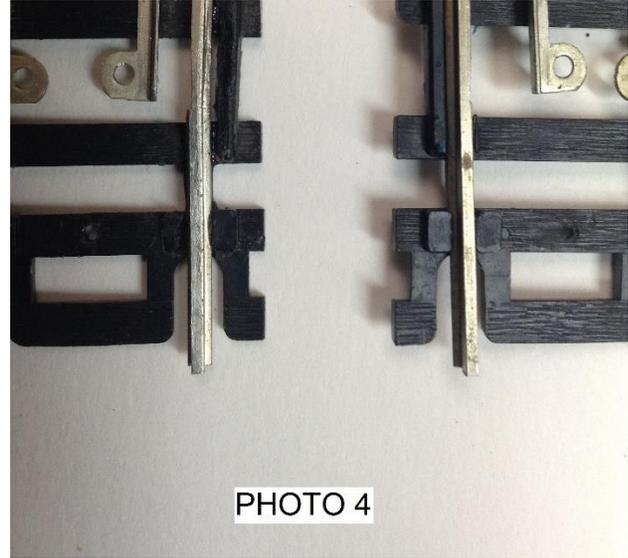


PHOTO 4

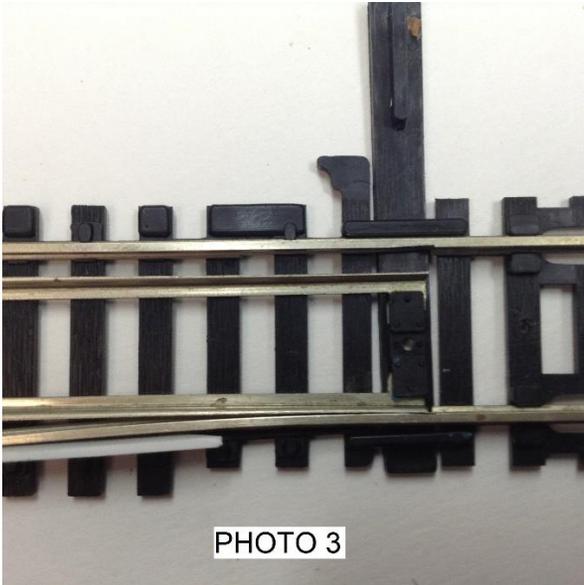


PHOTO 3

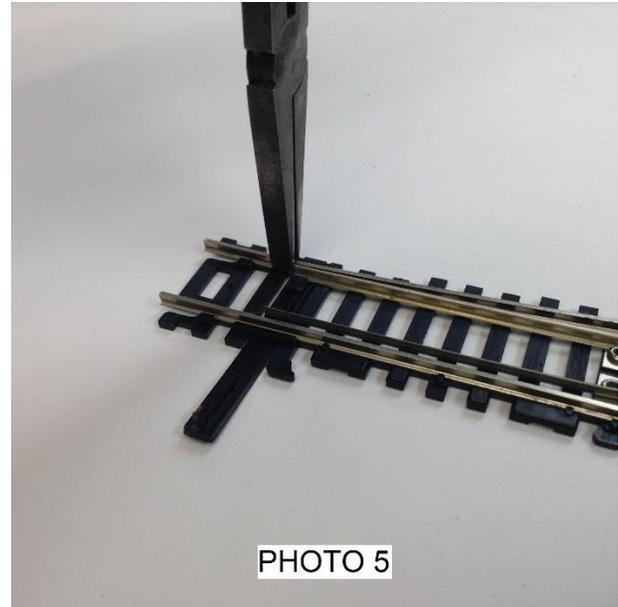


PHOTO 5

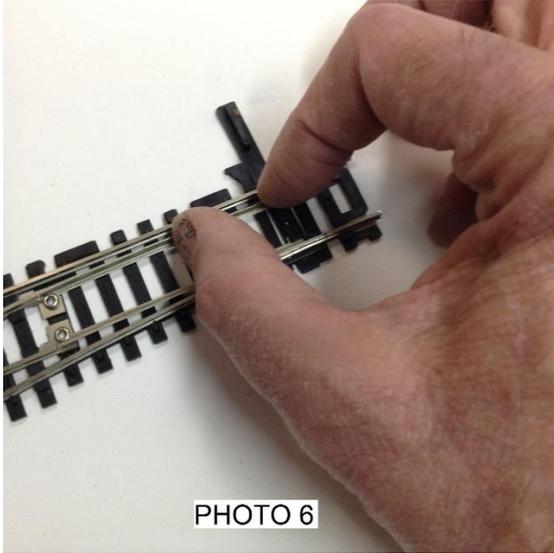


PHOTO 6

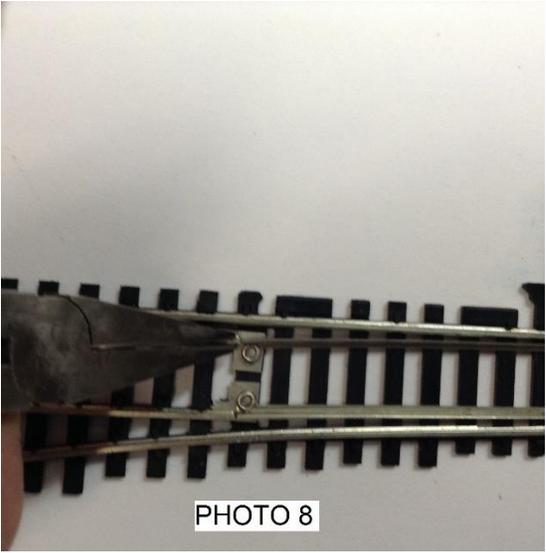


PHOTO 8

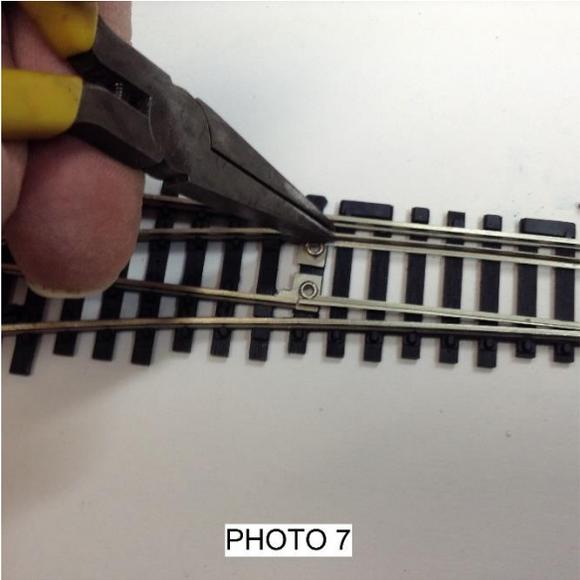


PHOTO 7

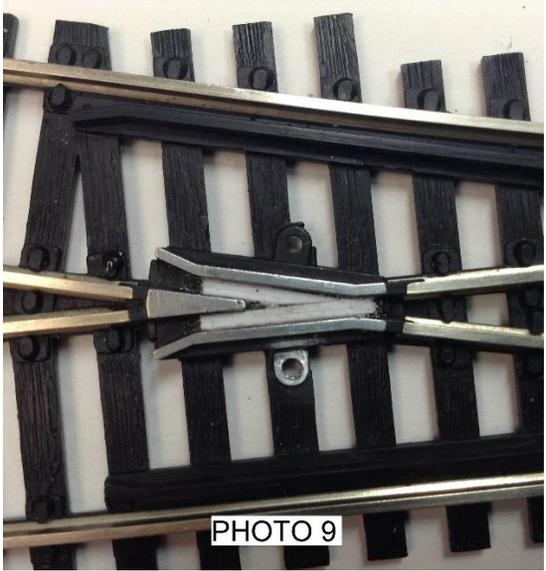


PHOTO 9

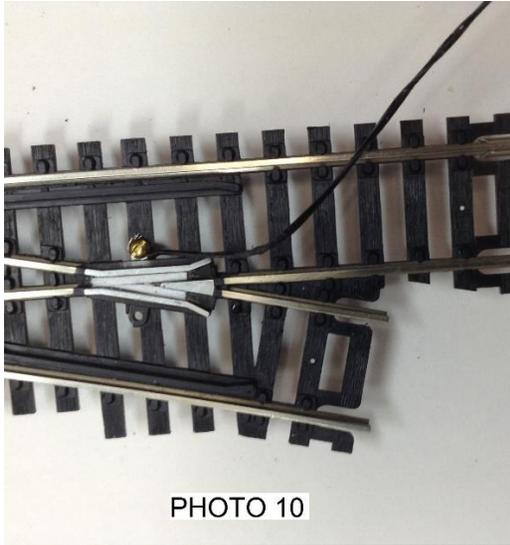


PHOTO 10

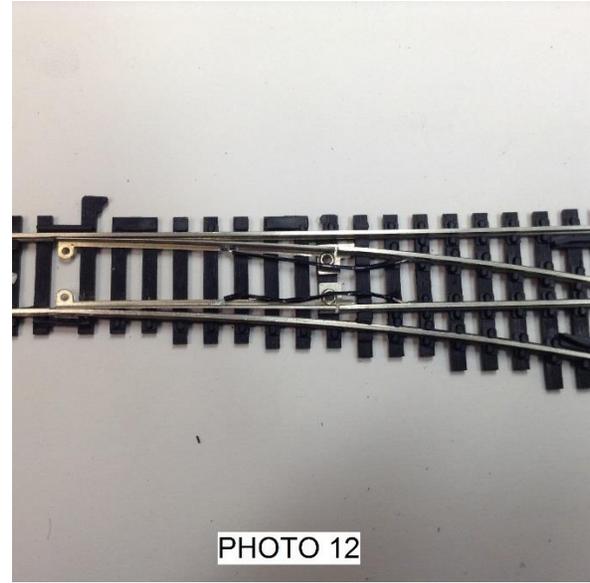


PHOTO 12



PHOTO 11

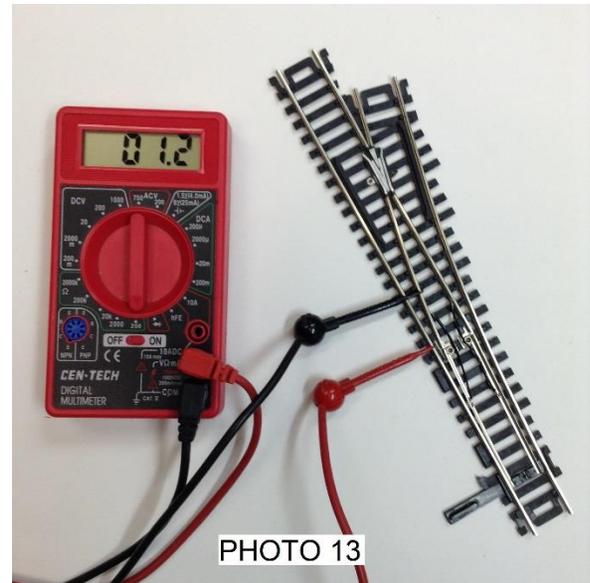


PHOTO 13

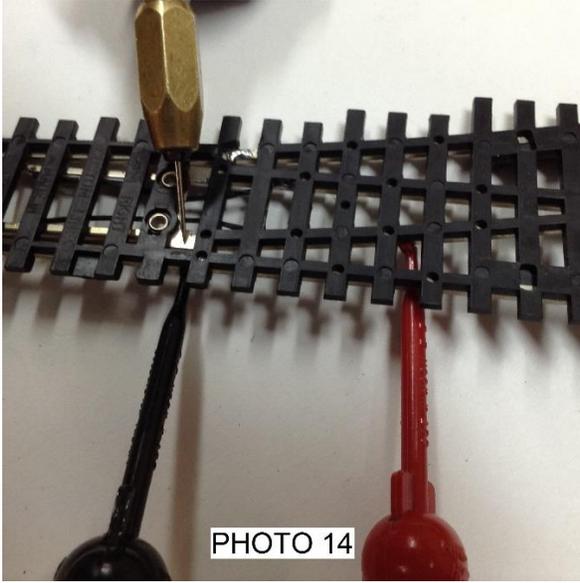


PHOTO 14

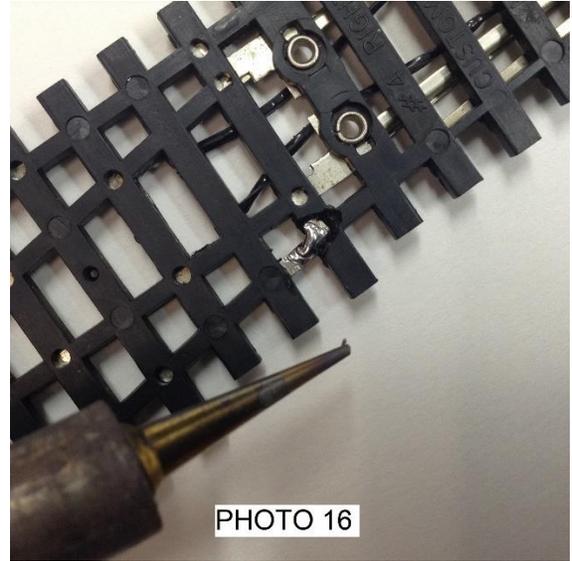


PHOTO 16

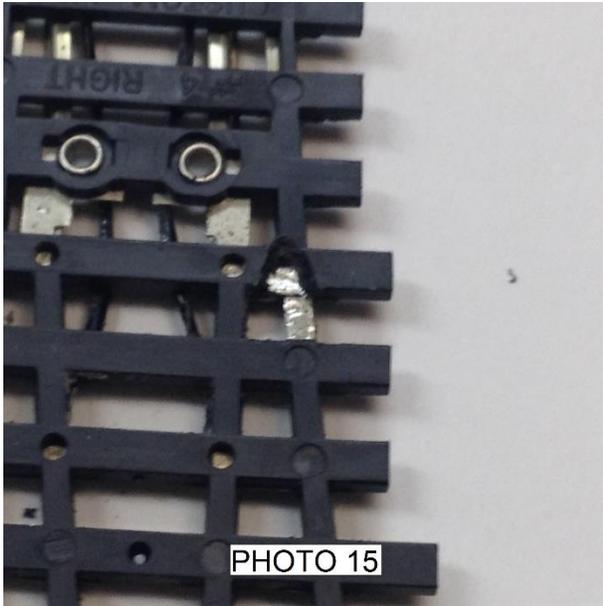


PHOTO 15

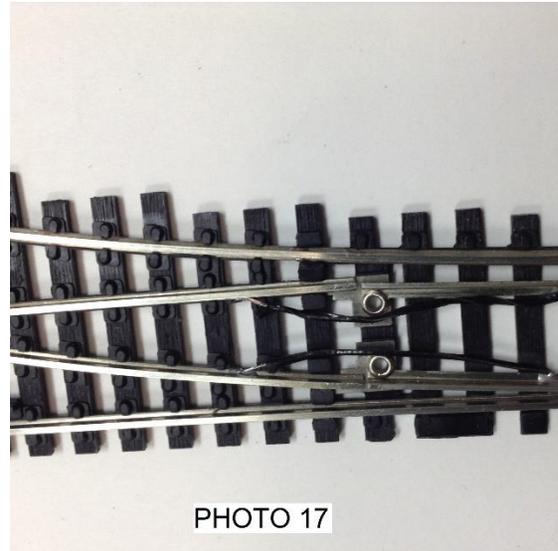


PHOTO 17