



THE
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RESOURCE

NEWS, REVIEWS, INFORMATION TO USE

Vol. 2 No. 1
September/October
2014

SCALE

Alton Boxcar

Twin City Lines

Glass Cutting for Modeling

Converting 3 Rail Locomotives

Eastern Pennsylvania 0 Scale Show

The Canadian Pacific Vermillion Division

And much more...

Bill Of Lading

Published Bi Monthly

The Model Railroad Resource LLC
Plymouth, Wisconsin

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Vol 2 #1

Welcome to the online O Scale Resource magazine. The magazine is presented in an easy to use format. The blue bar above the magazine has commands for previewing all the pages, advancing the pages forwards or back, searching to go to a specific page, enlarging pages, printing pages, enlarging the view to full screen, and downloading a copy to your computer.

Front Cover Photo

A Canadian Pacific passenger train rolls through the mountains on a fall day. The location is the Vermillion passing tracks on Herb Stroh's layout

Rear Cover Photo

A PCC car arrives at Lake Harriet as the sun sets.

- 2 Table of Contents
- 3 Editorial Comment
- 4 News and Reviews
- 9 Twin City Lines
We visit with Forrest Johnson to see his traction layout
- 21 Eastern Pennsylvania O Scale Show
A short look at the August 2014 show
- 25 Converting 3 Rail Locomotives
See what can be done and get some idea on how to do it
- 35 Alton Boxcar
Drawings and photos of an interesting prototype
- 49 The Canadian Pacific Vermillion Division
Herb Stroh's layout in Calgary Canada
- 60 Getting Glassy
Glass Cutting for Modeling
- 67 O Scale Shows & Meets
- 68 The O Scale Resource Classifieds

Advertisers Index

Allegheny Scale Models	Pg 48	Korber Models	Pg 7
Altoona Model Works	Pg 7	Mullet River Model Works	Pg 48
BTS	Pg 66	O Scale Directory	Pg 6
Clover House	Pg 7	O Scale Kings	Pg 7
Crow River Models	Pg 24	P & D Hobby Shop	Pg 6
Delta Models	Pg 7	Rich Yoder Models	Pg 48
Des Plains Hobby	Pg 24	San Juan Car Company	Pg 48
Downtown Deco	Pg 7	SMR Trains	Pg 48
East Gary Car Co.	Pg 7	Stevenson Preservation Lines	Pg 6
Harbor Belt Lines	Pg 6	Sunset Third Rail	Pg 8
Indianapolis O Scale National	Pg 20	Weaver Models	Pg 7

Editorial Comment



Well loyal readers, this is the one year anniversary of *The O Scale Resource*. This issue will be the start of volume two. We thank all of you for reading the magazine, and for the nice comments we get from all over the world. The magazine is fun for Dan and I to write, and Amy is enjoying reviewing the articles. In addition, we are getting submissions from you, the modeler, and they are making interesting articles. Feel free to send in photos and information about what you are doing. If you are intimidated by writing, don't fret, I am full of hot air and can write an article for you. Just tell us what you are doing. So, thanks again to all of you for reading the magazine.

In this issue, we take a break from history but don't worry we will get back to more history articles in future issues. Many people have told me they like the articles, and I have a few in the works – they just did not fit in this issue. We received an article by Dale Olson about Herb Stroh's layout in Calgary, Canada. There are many photos of this layout, and we wanted to get as many as possible into the article. Herb had some help with this layout, much like John Houlihan did with his layout in the July/August 2014 issue of *The O Scale Resource*. You can get a lot done and have some fun with your friends doing your layout this way. Dan has another good techniques article. This time, Dan shows how he cuts real glass for his windows. Real glass is intimidating to some people, and you will make a lot of scrap, but the results are worth it. To help show how Dan does it, he made a video. Look for the link in the article. On the same subject of techniques, we are going to start a short series on converting 3 rail locomotives for two rail operation. In the March/April 2014 issue of *The O Scale Resource*, we took a look at converting three rail cars to operate on two rail track. There are many good models made to scale dimensions for the three rail market, and with a little work, you can convert them to two rail operation. I met Fred Oakland recently, and he has converted a number of three rail locomotives. I asked Fred if he would be willing to do an article, and he had one ready to go. However, Fred's article was for a specific locomotive and I thought maybe we should do a generic article first, so that is what we did. Dan and I went to photograph some of Fred's models. Then, Fred and I worked up an article that looks at what's involved, and how to plan your project. Starting with our next issue, we will look at specific models in more depth. At the same time I met Fred Oakland, I met another nearby modeler, Forrest Johnson. Forrest is from the Minneapolis area originally, and now lives south west of Milwaukee. He was an HO scale modeler interested in traction, and like so many of us, modeled the railroads he was familiar with growing up. Well, his friends gave him an O Scale model and Forrest took the bait. He made a traction layout based on the lines he remembered back in the Minneapolis area. Take a look at the Twin City Lines article. Forrest has some good ideas on creating memories, and capturing the feel of a line in a small space. Lastly, I did an article on an interesting boxcar. The car is a Chicago and Alton automobile boxcar located at the Illinois Railway Museum. I started some CAD drawings in 1995 of the car, and went back recently to finish the underframe details. The article has a link to a pdf file of the drawing you can download.

So, this starts our second year. Enjoy the magazine and be sure to stop at a show some time. See you next issue.

Glenn Guerra



NEWS AND REVIEWS

The Lake States Railway Historical Association has received a grant to catalogue their Rock Island drawing collection. They received the collection a few months ago, and were able to secure some private funding to catalogue it. The collection is estimated in excess of 20,000 original ink on linen drawings. The drawings are of locomotives, cars, and buildings. Full time help will be hired to expedite the cataloguing.

The LSRHA has already catalogued and made available over 25,000 drawings from the C&NW and CStPM&O. See their website <http://www.lsrha.org/> for other assets.

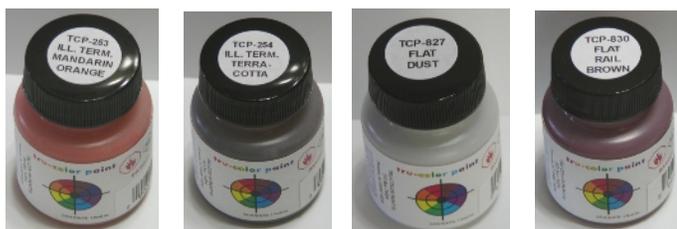
Bill Basden from Delta Models dropped us a line to let us know that he has many new detail parts available.

Delta Models has just released 13 new parts to its Resin passenger car parts line. These parts are for both Streamline and Pullman Heavyweight type cars, in brass or plastic.

We have many things in the works in the coming months ahead, for both brass and plastic cars, including interior kits for the Atlas CZ cars, decent under body parts for many of the GGD cars, and Pullman seating for both parlor and coaches.

See their web site for details

<http://www.deltamodelsusa.com/>



Rick Galazzo from [Tru-Color Paint](#) dropped us a note with some new colors that are being added to their line:

TCP-253 Illinois Terminal Mandarin Orange (the first color specifically made for traction equipment!)

TCP-254 Illinois Terminal Terracotta (the roof color)

TCP-827 Flat, Brushable Dust

TCP-828 Flat, Brushable Imitation Aluminum

TCP-829 Flat, Brushable Sand

TCP-830 Flat, Brushable Rail Brown

In September, 2014 we will release two Atlantic Coast Line colors:

TCP-263 Atlantic Coast Line Royal Purple

TCP-264 Atlantic Coast Line Caboose Orange

We are also pleased to announce that in December, 2014, we will have the following:

TCP-265 CSX Y2K Blue

TCP-266 CSX Y2K Gray

TCP-267 CSX T2K Yellow

Mike O'Connell at Chooch has redone his website and added more O Scale items. There are a number of pre-painted resin loads for open cars, as well as, tunnel port holes and flexible rock retaining walls. Take a look at <http://www.choochenterprises.com/>



I talked to Joe Hayter at [Weaver Models](#) and he tells me that the O Scale Osgood Bradley passenger cars will be released very soon. They are in the final stages of production.

The [O Scale National Convention](#) is coming up in September at Indianapolis, Indiana. This year at the show, Dan and I will be there. While you are at the show stop by and see us. In addition to the show, [O Scale Kings](#) will be holding their annual meeting. If you are interested in what they have to offer, be sure to attend the meeting.



For over 25 years, Don's favorite pastime was to show all his wonderful films at the annual O Scale West Convention in Santa Clara. Friday nights were a great treat for all the convention attendees. The railroad community will miss Don's smile and tremendous loyalty to his passion of the steel rail.

Our thanks to Mike O'Connell for the information about Don.



Well known railroad enthusiast and film maker, Don Olsen, died August 8, 2014. He died peacefully in his sleep at age 90.

At age 20, around the time of World War II, he was hired as a fireman on the Southern Pacific Railroad in the Dunsuir, California mountain region. He fired all the big steam locomotives and learned so much about his passion for trains and all the people behind them.

Don was extremely knowledgeable in railroad history. He was involved in the earliest planning stages of the California Railroad Museum in Sacramento. Much of his film collection is in the Museum's Historical Library collection. Don's additional railroad drawings and research memorabilia is also in the Western Railroad Museum in Rio Vista, California. He had a tremendous interest in trolley and electric interurban railroads.

In his lifelong engineering career with the Continental Can Co. in San Jose, California, he specialized in air pollution safety and technical aspects of the whole printing process.

In the late 1960's, Don started Ultra Scale Models, which was a pioneer in resin O scale freight cars for model railroading. With patterns made by the renowned Bill Clouser, he increased the super detail quality of miniatures in the model railroading hobby. As a long time railroad cinematographer, Don took his love of train films and created Catenary Productions. Also using footage from other well-known train filmmakers, Don used his skills to create some of the most interesting DVD films on American railroad history.



After the Strasburg O Scale Show, I visited with [Dave Vaughn of Nickel Plate Models](#) and he showed me this car. The basic flat car is a Red Caboose model that was custom decorated for Nickel Plate Models. Chuck Conway scratch built rub rails, fifth wheel support and ramps. Chuck was able to install the components without disturbing the original paint job on the car. The semi trailer is a model of a Freuhauf Aero Star trailer that was popular with the Nickel Plate and other railroads in the 1950's. Nickel Plate Models had a run of these trailers made in resin by Smokey Mountain Models. Ron Gribler assembled the trailer, and decaled it with custom decals from Nickel Plate Models. Dave has some of the flat cars and semi trailers left. If you would like one contact him.





Bill Wade at [BTS](http://www.btsrr.com/) told me that they will have their Dodson Farm Creamery ready in O Scale shortly. The HO scale model is shown above. Bill said the HO models are in production, and the O Scale model will follow soon. Looks like another nice kit from Bill.

To go along with the Dodson Farm Creamery, BTS has a loading platform for your train to pick up milk cans. The Dodson Farm Milk Platform is ready to go now.

In addition, Bill has added more kits to the McCabe Rail Facility complex of buildings. They are as follows:

- McCabe Flatcar
- McCabe Machine Shop
- McCabe Shop Water Tank
- McCabe Car Shop

Lastly, they have some car kits of older prototypes available:

- PRR XA Boxcar
- B&O M-2 Radial Roof Boxcar

See the website for more details
<http://www.btsrr.com/>





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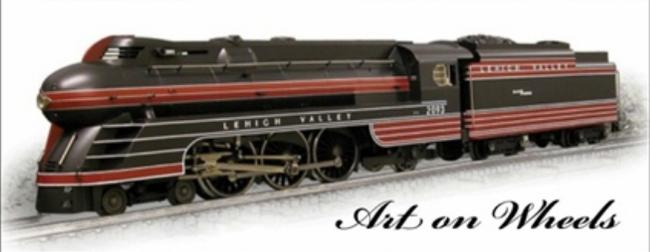
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By Glenn Guerra Photos by Dan Dawdy

Forrest Johnson hails from the Minneapolis area. When he was growing up, his dad took him to see the remnants of some of the electric railroads in the area. The system had been cut back like almost all electric lines. One of the lines was the Twin City Rapid Transit which still had street car lines. This system was put together from separate lines in Minneapolis and St. Paul. The lines were consolidated in 1890 and became the Twin City Rapid Transit Company. Following the consolidation, the lines expanded out of town like so many street car lines did. Electrification greatly expedited this expansion. Another feature of the line was making their own cars. Due to the harsh winters in the area, the company felt that the commercially available cars were not suitable so they made their own. The cars were so successful that it spawned a separate car building facility that



Forrest Johnson standing by the loop at the end of the Twin City Line where it transferred passengers to the Anoka line. Behind Forrest is a scene that depicts the city lines in Minneapolis.

sold cars to many other systems. This was not the only system in the area though. The Minneapolis Anoka and Cuyuna Range railroad had an interurban line that ran from downtown Minneapolis to Anoka, Minnesota. The line started with McKen cars in 1913 as the Minneapolis and Northern. In 1914, they went into bankruptcy and the McKen cars were repossessed. In 1915, the line was reorganized and became the Minneapolis Anoka and Cuyuna Range railroad. It operated with borrowed steam equipment until the line could be electrified. In 1939, passenger service was discontinued. Some freight continued to be hauled, but service was not reliable. The Northern Pump company purchased the line in 1943 to assure freight service survived to the defense plant they were operating. The railroad was cut back to three miles long. There was a meeting at 30th Avenue and Grand where the Twin City Line cars meet the Minneapolis Anoka and Cuyuna Range cars. This allowed the employees of the defense plant, who rode for free, to get to work. After WWII the passenger traffic was closed, and the line went to freight only. The freight was interchanged with the SOO Line railroad near St.



On one section of the Twin City Line, the right of way was down an alley behind the homes. This was a distinguishing feature the Forrest wanted to model.



This section of the layout models the Twin City Line alley track behind people's homes. Note that Forrest has modeled the garages and other features at the back of people's yards. This is a nice touch, taking a prototype feature and incorporating it into your layout. It gives the model some connection to the prototype. Note how narrow the shelf is, and what can be done in a small space.



Anthony Parkway. Freight consisted of supplies for the defense plant, as well as, sand for the city filtration plant and supplies for the water works. The traction company is gone, but the line still exists to handle freight. Forrest saw the remains of this line soon after the passenger service discontinued. He also remembers riding some of the Twin City street car lines.

After Forrest finished school, he started working and left the Minneapolis area, but not the memories. He became a charter member of what today is the Minnesota Street Car Museum. When Forrest moved to Big Bend, Wisconsin, where he lives now, he became active in the East Troy Electric Railway Museum in East Troy, Wisconsin. His heart never left Minneapolis, and he started

The station at Lake Harriet was a destination for summer outings to the lake. Forrest wanted to incorporate this into the layout. You can see that the ground drops away behind the depot, and it is built on a hill side.



The Lake Harriet station on Forrest's layout. Note how the ground drops away from the building like the prototype. The whole scene is only about four feet long. The depot is modeled large, and the only thing modeled is the area around the depot. This gives the proper illusion and feel of the prototype area in a small space. The essential features of the prototype are modeled tying the model to the prototype location.



The Twin City car is going around the loop on the Lake Harriet line, while the PCC car waits on the main line.

collecting photos and other information about the lines he remembered. Forrest was also a model railroader and built an HO scale traction layout based on what he remembered of the Minneapolis lines. The model was loosely based on Minneapolis with some other traction thrown in. Next came logging. Forrest was a park ranger by trade, and spent time in northern Wisconsin on holidays. This led to some interest in the 3' gauge logging operations in Wisconsin, so an HO_{N3} logging extension was built on the traction layout. Next came other trolley modeling friends and someone gave Forrest an O Scale model. Does

this sound familiar? How many of you came to O Scale by a similar means?

So, the O Scale Twin City Line was conceived. Forrest started planning and looking at the available space. He could not part with the HO layout and the discussion over available space ensued. When talks were finalized, and space allotted, a track plan was developed. Since space was tight, it was decided that some of the distinguishing features of the line would be all there was room for. Forrest decided to model the Twin City Line and the Minneapolis Anoka and Cuyuna Range together during the WWII years. The layout is interesting in that it creates scenes and not continuous operation. For example, the Anoka line is only about 12 feet long and connected to nothing else. Where the Anoka line went under the SOO line is where the freight interchange was. Forrest modeled this bridge complex with the highway and the Anoka line passing under the SOO Line. The SOO Line is about 4' long and there for visual only. An interesting concept. This interchange was a prominent feature on the Anoka line and worth modeling. Another feature Forrest modeled was the interchange of passengers between the Twin city Line and the Anoka line. The prototype location had a wye at the end of the Twin City Line. Forrest put a loop where the Twin City Line ended, and has a stub spur where the Twin City cars meet the Anoka cars. By doing this, Forrest did not need to wye the Twin City cars for operating his layout. The passengers left one car and walked across the street to the other car to continue the journey. Since there was room for only a narrow shelf, the industries on the Anoka line are not modeled, but the switches into them are there. At the end of the line, by the defense plant, the cars stopped by a guard house where the workers went into the plant. Forrest modeled this entrance. This gives the location of the defense plant on the layout even though there is no room to model the buildings. The Twin City Line part of the layout is a dog bone with a loop at each end. The tracks in between the loops are a double track line like the prototype. The Twin City Line cars did not have



Number 1345 is one of the home built Twin City Line cars. This model is a limited production kit produced by Dave Waddington, These were etched brass kits. The basic body was built by Dick Stoner and Forrest finished it.



The city section of the layout has lots of features that bring it to life. Note the abandon track next to the bus.



This closer shot of the city street shows the activity. I like the cab with the open trunk, and the delivery man with the hand truck. These types of details add life to a scene. The people are not just there, they are doing something.



The Twin City Line car rumbles down the street in town. You can almost hear the cars and people. The street car goes by with the compressor chugging and the traction motor gears growling. As it passes, the din of the city takes over again.



As we leave downtown on the Twin City Line and head for the country, we pass this gas station. Note the activity again with the hood open on the car and the kids talking. These are good details. I also like the dirty car with no shine. There is a lot of modeling in a small space.



We are at the end of the Twin City Line, and need to transfer across the street to the Anoka line car to continue our journey. Above the truck on the highway is the old HO Scale layout that Forrest built



Once on the Anoka Line, we parallel the highway and pass under the SOO Line. We need to wait for the snow plow to clear. The SOO Line is modeled as only the overpass. It was a prominent feature of the Anoka Line, and Forrest wanted to have it in his layout. Not all tracks need to have running trains on them, and this is a good example.



This model of the Minneapolis Anoka and Cuyuna Range snow plow is a resin kit made by KND Enterprises. Forrest built the model.



Forrest's model of the Minneapolis Anoka and Cuyuna Range freight motor. The prototype was made in 1913 by General Electric and was a gas electric. The Anoka Line purchased it secondhand, and made it into straight electric. When the overhead wire was taken down, the unit was converted back to diesel electric. It was saved, and is now in the museum in Minneapolis. Forrest acquired this model from someone, and modified it to resemble the prototype.

reversible seats and only operated in one direction. The line also went out of town in other directions and had loops or wye tracks on those lines as well. There are a lot of lakes around the Minneapolis area, and these were popular in the summer. The Twin City Line built lines to some of these lakes and fancy stations to go with them. One of them was at Lake Harriet. Forrest wanted to include this in his layout. Another feature of the lines to the lakes was a stone arch bridge called the William Berry bridge, and Forrest wanted to have one of these on the layout. On the way through the suburbs, the line ran through the alley between the streets. Many cities have an alley between blocks and the backs of the houses face these alleys. Forrest modeled this section on his

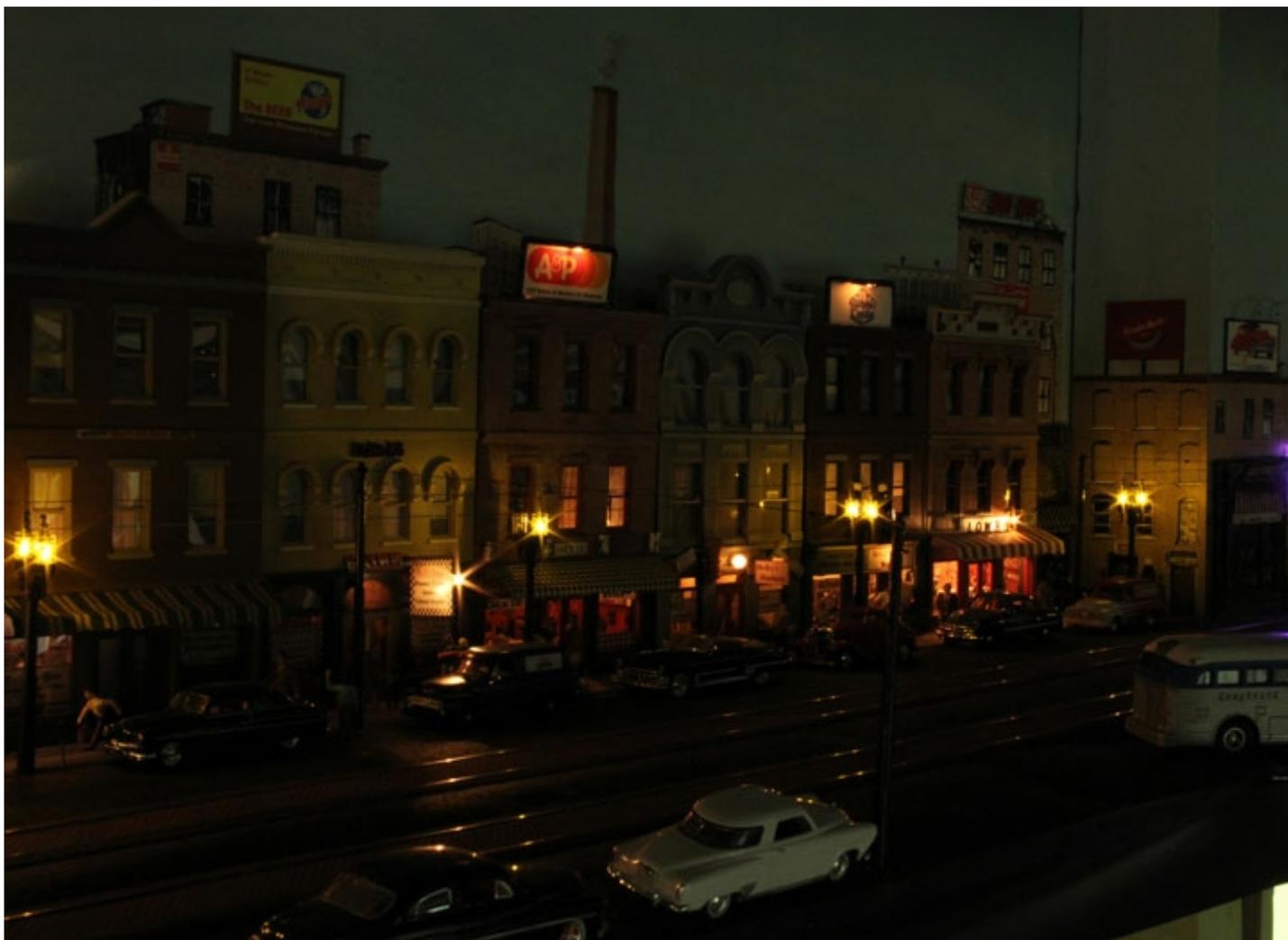


At the end of our run, we stop at the defense plant gate. The workers are coming out past the guard tower after a day's work. This section of the line has catenary type of overhead wire. As soon as our train is loaded, we will head back. Our car was made by the Twin City Line car building subsidiary.

layout. How often do people model the backs of buildings? Lastly, there is a commercial district area that serves as some of the street running in Minneapolis. As you can see from the photos, the layout is not very large, but the tight radius curves of electric railways make it possible. One last thing I noticed was the overhead wire. There is some difference in how the overhead is constructed on electric railways, and this is part of the model as much as the equipment is. On the Anoka Line, I noticed the use of both single wire and catenary. I asked about this, and Forrest told me that north of the SOO Line interchange they used the catenary and south of there, single trolley wire was used. The single trolley wire is suspended from support wire strung between poles on opposite sides of the track, and not from extension arms on a single pole. Next, let's move on to the equipment.



By the time we get back to Minneapolis, it's dark out and the city lights are on. Modeling your layout for a night scene like this adds some interest, and can be fun to do.



These photos shows how convincing night scenes are when photographed on your layout. The camera will show you things your eye will not catch. Look at the shadows the lights cast, and the shine on the rails. These kinds of things show up in model photography, as well as, prototype photography.



Evening descends on Lake Harriet as a Twin City Line PCC car stops to pick up passengers bound for Minneapolis.

As we mentioned before, the Twin City Line had a subsidiary that made cars. These cars were unique and Forrest was able to get some limited production kits. A modeler from the east coast named Dave Waddington made a brass etching kit for the cars. Another modeler in the Minneapolis area by the name of Dick Stoner assembled almost all of them. Fred was able to get two of these cars. Since the Anoka Line used Twin City cars during the era Forrest modeled, he had one car for each line. He finished out the Twin City car in the cream and green scheme and the Anoka car is finished in the blue and white.

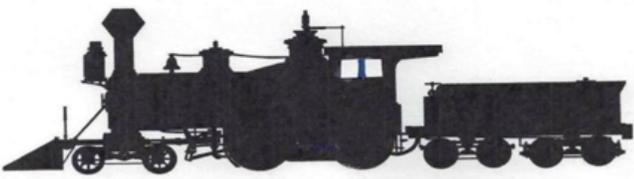
The other car on the Twin City Line is a Corgi PCC car. The Anoka Line had a freight motor which was a stock freight motor. The car was in a wreck, and one end was rebuilt flat. Forrest found a model of the stock configuration of the freight motor and painted it up in the blue and white scheme. The Anoka snow plow was a rare find. This was a very limited run kit produced by KND Enterprises. Forrest heard about the kit through some friends, and was able to get one. If you read the magazine regularly, you know that I am always encouraging people to get involved socially in the hobby. There is a lot going on below the surface and you need to be in the pool, so to speak, to see it.



The next morning finds Twin City Lines car 1345 heading out to the suburbs to meet the Anoka Line car for the defense plant workers to get to work.

In a prior paragraph, we touched on the overhead wire. I was impressed with how taut it was and asked Forrest how he did it. Many people are intimidated by this. Forrest said it was not hard. He used brass poles mounted firmly in the bench work. The next step was to install the cross hanger wire. Use a wood block that sits on your track for a gauge to get the correct and consistent height. Next come the hangers. Many people use the brass castings and that is what Forrest did. Again, use a gauge mounted on the track to make sure you locate the hanger in the correct spot. On curves, the wire needs to be held over the track a smaller intervals. These wires are called pull offs. Some study of the photos, or a trip to a trolley museum, will show you how it is done. Next, the trolley wire was strung. Forrest pulls it taut at each hanger as he goes, soldering it to the hanger. On the prototype lines, the trolley pole had a wheel, or a shoe, for the electric collection. Forrest uses wheels because that is what his prototype had, and he has them working and rolling. I asked about maintenance on the wire. He said he only needs to clean it about twice a year. The cars with a shoe will polish the wire the rest of the time.

The control is DC using an Aristo Craft wireless cab. There are not any sound decoders for traction yet, and most traction models stick with straight DC control as opposed to DCC. Forrest said he like the wireless cab and not needing to plug in around the layout. There are no blocks on the layout, and to keep a car from running, you just bring down the pole like the real cars did. Many of the buildings have lighting, and when the room lights are turned down low, the layout really lights up. The structures are mostly modified kit buildings. Forrest wanted to model the theme more than the specific buildings. Track is Atlas flex track. The switches are the Atlas #4 switches, and these work well for traction lines. In the city tracks, Forrest used foam brick material made for city streets. The layout is built on a plywood shelf with homasote sub bed. The whole layout took a little over two years to construct. Forrest said he had help from Fred Oakland on some of the paint jobs on his cars. This is a nice layout, and shows what can be done in small spaces with traction models. Thanks for the tour Forrest.



2014 National "O" Scale Convention

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Eastern Pennsylvania O Scale Show Strasburg, Pennsylvania August 9, 2014

By Glenn Guerra

The Eastern Pennsylvania O Scale Show had their summer show on Saturday August 9, 2014 in Strasburg, Pennsylvania. This is a one day show that happens three times each year at the Strasburg fire house. I went to the show, and once again, had a good time. There are a lot of O Scale modelers nearby, and the show is always well attended. One of the things to look forward to is the amount of used equipment that is available. Another feature of the summer show is the lunch after the show. At 2:00 PM people start packing up and there is a catered meal. This year we had chicken, ribs, corn on the cob, homemade pasta salad, homemade deserts, and more. I got to talking to people at the meal and forgot to take a photo of us eating. As I said, it's always fun to go to this show.



The main trading room is the meeting room at the fire house. After the show, we all sat down for a nice meal



Part of the trading area in the garage of the fire house.

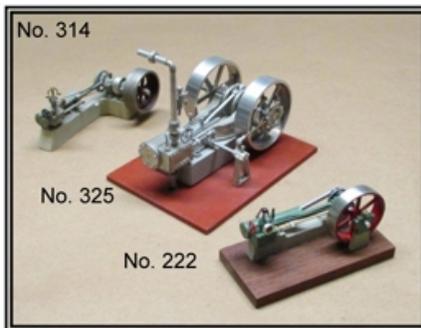




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Converting 3 Rail Locomotives



This model of a Pennsylvania L-5 electric was never offered as a 2 rail model. The prototype was based on the DD-1 which was a two unit locomotive. This locomotive attempted to make a ridged frame version and it did not work. A rare prototype and a rare model that was only produced as a 3 rail model. Fred used Alvin Stauffer's Pennsylvania Railroad locomotive diagrams for dimensional data verification before buying this model.

By Glenn Guerra

With help from Fred Oakland

Photos by Dan Dawdy

There are many good models made that are available to the 3 rail market. Since these models have good detail and scale proportions, they make good candidates for conversion to 2 rail operation. Many models are offered in 3 rail and 2 rail at the same time. If you missed out on getting one of the 2 rail models, you can get a 3 rail version and convert it. In the March/April issue of *The O Scale Resource*, we talked a little about converting cars. In this issue, I wanted to cover converting locomotives. On the surface, this sounds simple; and for the most part it is, but you need to plan ahead before you start. Recently, I was visiting Fred Oakland in Mukwonago, Wisconsin and saw some of the many conversions he has done. I have been wanting to do this article for quite some time, and Fred turned out to be the right guy. Fred likes to model and convert models, and he is interested in traction, as well as, steam railroading. As I mentioned, Fred likes to model. For the most part, he focuses on heavy electrics and locomotives that were technically interesting prototypes. Some of these models were not available in 2 rail. This is what makes Fred the guy to help with this article. Fred has converted electric, steam and diesel models, and modified them for specific prototypes. I asked Fred if he would do an



This model of the Amtrak turbo train was made by MTH and was only offered as a 3 rail model. If you are modeling the modern era, these types of models will be of interest to you. The model is well detailed and makes a good looking 2 rail model. The model came with the MTH Proto Sound 3 control system which greatly simplified the wiring in this conversion.

article for us on converting a model, and he already had one ready to go. I looked over the article and it was very good, but it was for a specific model. As we were talking, I started thinking that maybe what we should do was a generic article first, and then follow up with specific prototypes. Fred was willing to work on that, so we will start here with an article on how to assess the model and your project, then how to layout the steps to get your job done.

The first question I asked Fred was, where do you start? This is his answer. “The initial step is to understand why one wants to pursue a conversion project. In other words, why bother? In many respects, this is a valid question. With the offerings of scale proportioned 3 rail locomotives that are not available in 2 rail, the effort to convert a unique locomotive becomes very compelling. Secondly, the offering of DDC in the newer MTH locomotives greatly reduces the issues of rewiring for 2 rail operation. In addition, we are blessed with O scale parts suppliers such as Northwest Short Line and Precision Scale and skilled conversion services such as Baldwin Forge and Machine. That aside, sometimes one pursues the conversion effort to prove to one’s self that it can be accomplished. In most cases, the conversion effort is for all of the above.” So, if you have any desire for a model that is not available in 2 rail, are looking for a unique challenge, or can only find the 3 rail version of the model you want, you will find some value in reading on.

Now that you have made up our mind that a certain model appeals to you, the next step is to have a better understanding of what you need to do. You need to evaluate the model a little. I asked Fred what you should be looking for while the model is still on the store shelf. Fred told me that evaluation is key to making a sound purchase, and formulating a plan that will guide your efforts. Here are some of the points Fred considers:

- Do the model dimensions match the prototype?

Fred told me that before committing to a model purchase, conduct research into the prototype to determine overall dimensions, type and diameter of wheels and unique aspects of the prototype such as pilots, pantograph styles, piping and so on. There are numerous sources like books, historical societies, online forums, and so on for this information. As best one can, compare the prototype information to the model of interest. This can help avoid a costly purchase where the model greatly differs dimensionally from the prototype.



This model of the Milwaukee Road streamline version of the bi polar electric locomotives was made by Lionel as a 3 rail model. This version has never been offered in any 2 rail models. Fred said that this particular model was very well detailed. The interior of this model had a lot of equipment in it, and Fred said that it took some planing to get all the new wiring in the model.

- Are scale wheels available or a service available to convert and quarter wheel sets?
Study the wheels. Converting steam locomotive drivers or quill drivers found on heavy electrics may require skilled services to machine, insulate and install scale tires. If you are not comfortable doing that type of work, look for a service that can do the work for you. If you can examine the model prior to purchase, examine the gear drive, especially looking for wheels where the driven gears are integral (sintered) as part of the wheel. This combination sintered gear/wheel, when converting to 2 rail, requires a separate gear to be fabricated that exactly matches the one found on the 3 rail model. Gears of this type with low production quantity can be expensive to have manufactured. For some diesel models, there are replacement wheels and gears that drop in relatively easy.
- Is the model missing prototype components such as pilots, air tanks or piping?
Some of these components can be purchased. Make a list of what you think you will need, and see what is available. The cost of these items will add to the overall cost of the finished model. If the components are not available, think of how you will make them or modify available components.
- Does the model have oversize components in need of replacement such as pantographs?
Many 3 rail models are very well detailed, but some of the components are built more robust. The pantographs are a good example. Fred usually replaces them with scale pantographs.



The Reading G3 heavy pacific was made by a company called SGL Lines and sold in 2 rail, as well as, 3 rail. Apparently the 3 rail versions did not sell well, and they were dumped by a builder called Korea Brass. Fred was able to get one of the 3 rail versions. Models like this which are all brass construction compare favorably to early Max Gray and US Hobbies imports. They are well proportioned and provide a good starting point for super detailing your favorite model. Fred used US Hobbies drivers when he converted this model.

- Is there access to the wheels to install electrical pickup for two rail operation?
 On 3 rail models, the two outside rails are the same polarity and the wheels are not insulated. The center rail is for the other side of the electrical pickup. All the outside rail electric goes through the wheels into the frame. When you convert to 2 rail, you will need to insulate one side of the wheels, and you need to have electrical pick up to the other rail. This is commonly done with wipers on the insulated wheels. You need to consider how and where these wipers will be installed on your model.
- Does the drive mechanism allow replacement of wheel sets?
 This is a big concern. Most modern models have wheel sets that are removable by removing cover plates and so on. Some models have the axle installed in a hole and the wheels are pressed on. The only way to remove the wheels is to press them off of the axle. A quick look at the model will tell you if there is a cover plate for retaining the axles.
- Is the lettering correct or are decals needed?
 In many cases, the conversion can be made without painting the model. However, you may need to repaint or want another paint scheme. Take this into account.



Lionel made the Amtrak Acela train in 3 rail only. Fred said this model would rival any model for a museum, and he was very impressed with it. Fred said that the model was made very well and it reminded him of a watch. The disc brake on the prototype is on the outside of the wheel. Fred used brass castings that he made patterns for to simulate the disc brakes. The brakes greatly added to the appearance of the wheels.

Answering the above questions will help detail a plan of action. Make a list with answers to all the above questions and you will be well on your way.

Lastly, before purchasing the model, it is not a bad idea to consider what the conversion cost will be. Fred likes to make a list of parts and services needed from the preceding points, and then checks availability and price. Use the list you made from the points you considered before buying the model. From this, you can determine parts and services needed and get some idea of the cost. Add this cost to the base price of the model, and you will now have some idea what your new model will cost. Besides cost, there are a few other things to consider. Suppliers sometimes have a long lead time, and if you need custom services, they will take some time. Consider this in your plans. Another thing Fred told me to consider was that the models from the same manufacturer are not all the same. Each production run changes things, so don't assume that because you have done one of their models that the next one will be the same.

If you have never done a conversion, here is a sequence of work that Fred said was typical of what you will do. You can use this sequence as a guide to the tasks, and then determine the parts and services required.

- Document the model as assembled and take pictures from all angles. Disassemble the model slowly taking care to take pictures of the sub-assemblies, or make drawings.
- Don't lose the parts. You will not be happy when you lose that special screw for holding something. Use small containers to store the parts.
- Carefully remove the electronics from the main chassis of the locomotive and mark the connections. Current MTH electronics can be reused for DCC control.



Weaver made the Chicago and Northwestern “yellow jackets” in 2 rail and 3 rail. The C&NW had two of these that were streamlined for the Rochester 400. They finished their days hauling race track specials to the horse race track at Arlington Heights, Illinois. Fred was not able to get a 2 rail version, so he purchased a 3 rail version and converted it. On this model, Fred put new tires on the existing wheel centers. Another thing Fred noticed was the diameter of the tender wheels was too large on the model. When he put the correct diameter wheels in the tender trucks, it lowered the tender, and the striping on the tender lined up with the locomotive.

- Measure and verify with prototype plans to determine correct size and type of wheels.
- Order, where possible, the correct scale wheels for the model.
- Insulated (on one side) wheel sets for pilot trucks, trailing trucks, and tender trucks can be obtained from suppliers such as Northwest Shortline. Note the overall length, diameter and shape of the ends of the axle.
- Insulated (on one side) wheel sets for diesels and some electrics are available from suppliers or on eBay or at swap meets. In the case of certain electrics with quill drive or locomotives with spoked wheels, you will need to insulate one of the wheels on each axle. If the wheel centers are correct and scale dimensions, you may be able to machine them by removing the flange and installing new tires.
- Steam locomotive drivers and heavy electric locomotives with side rods require that they are quartered correctly. If you are not comfortable doing this, there are professional services to remove, modify and re-quarter drivers with side rods. It is best to provide the frame, wheel sets, and rods as a unit for conversion.



This New Haven EF-3 is an MTH product. When the model was made for 3 rail, it needed to go around very tight curves. The pilot was mounted to the lead truck and the lead truck had a large swing. Fred made a frame extension for the powered axles to match the prototype. The pilot is now mounted to the frame extension and the lead truck is mounted to the frame extension as the prototype would be. These are some of the things you need to look at when laying out your project.

- Prior to removing the wheel sets, determine the best approach for electrical pickup. In some cases, phosphor bronze wipers can be fitted between wheel sets; and where adequate space exists, plunger pickups can be used. In either case, some modification of the frame is required for mounting. Remember that one side of your electrical pickup will travel through the truck frame to the main frame, or direct to the main frame on a steam locomotive. All the insulated wheels need to be on the same side for a steam locomotive. On a diesel locomotive, the trucks on a 3 rail model do not need to be electrically separate from the metal frame of the model. However, on your 2 rail model they do need to be separate. Most diesel models pick up one rail on a truck and pick up the other rail on the other truck. A better arrangement is to pick up both rails on each truck by installing pickups for the insulated wheels on that truck. Think this through, coming up with an arrangement that will give you the most amount of electrical pick up. This will give you the smoothest operation.
- The next step requires the use of “custom” tools to remove the wheels from the axles. This amounts to a small arbor press, which is essential to press on and off axles squarely, wheel support plates and pressing wheel cups which hold wheels perpendicular to axles. An investment in these tools facilitates conversion efforts. If you are using the existing axles with just new wheels, you will need to match the hole in the wheel for a correct fit on the axle. A good rule of thumb here is to make sure the axle is .001” larger in diameter than the hole in the wheel. For insulated wheels, you need to compensate for the thickness of the insulation.



The Chicago Burlington and Quincy Zephyr is a Sunset 3rd Rail model. This model was offered in 2 rail as well as 3 rail. The model was designed to operate on 3 rail track and, as a result, the skirting on the front truck had to be flared out for the truck to swivel. Fred removed the skirt and made one that matched the prototype better. Fred did some weathering on this model to tone down the difference between the original paint and his new paint. Another thing Fred did on this model was to remove the power drive that was in the rear car. By removing this, he was able to put an interior in the rear car.

- Again, custom tools and a NMRA track gauge are used to press on the wheels. Note the orientation of insulated wheels so they are mounted in the correct location. As the wheels are mounted, one at a time, use a continuity tester to verify that the insulated wheels are not shorting out to the frame, then mount the wipers. In this case, verify that one has continuity, **only** between the insulated wheel tires and the electrical pickups.
- Mount the frame and wheel assembly to the body and check height between the top of the rail and a documented prototype reference point such as the bottom edge of the body or top of a front platform. In many cases, the body mounting pads can be modified. In some cases, such as a die cast steam locomotive where height adjustment cannot be made, skirting can be added or removed to achieve a realistic appearance.
- At this point, you need to start looking at the pilot and coupler mounts. The coupler mount may take some fabrication. A coupler height gauge is used to locate the couplers. Brass shim stock is encouraged to be used to make a coupler mounting pad and screws used to attach the pad to the body. It is also encouraged to use plastic couplers as it reduces electrical short problems.
- Before you make any parts, make a sketch of what you need. Fred showed me sketches he made for his conversions. These sketches don't need to be works of art, just something to help you remember what the dimensions of the parts should be.



The Pennsylvania FF-1 or Big Liz is an MTH locomotive. These were only made as 3 rail models. Fred added a pilot and pantographs when he converted the model. If you are a Pennsy fan, these electrics will be desirable. On this model, Fred removed the original pantographs and replaced them with more scale looking ones.

- The pilot on 3 rail models usually has a large hole to clear the coupler swing, and is mounted to the truck for swing, or just does not exist on the model. This will need to be changed for your conversion. Where the pilot is essentially nonexistent due to the large 3 rail coupler, one can build up a pilot using parts from a source such as Precision Scale or scratch build what is needed out of brass. In cases where the prototype pilots did not swing with the trucks, the pilot is removed from the pilot truck and mounted to the body. You will most likely need to make the pilot taller to fill in the gap to the frame or to get it closer to the rail. Determine what will work best, and add what material you need. Then, determine how the pilot will mount. It may need to be removable for servicing the locomotive. Another thing to consider is matching the paint on the model. If you do not modify the body of the model, you will not need to paint it, just the pilot. By making the joint between the existing body and the pilot at some feature of the model like an anticlimber, line of rivets, or start of a curve, the hard break visually will make it easier to match the paint. Any slight variation will only accent the feature, making it stand out more.
- Next comes the electric. At this point, decide which way you will power the locomotive: DC or DCC. The choice will directly affect how the lights are powered and activated. In the case of locomotives that can be powered from an overhead catenary, consider using a switch to allow overhead or 2 rail operations. Many 3 rail models have proprietary control systems in them that you will probably want to remove for 2 rail operation. Before you grab the circuit boards and rip them out, get your paper and pencil out again. Make a new wiring sketch. Fred said to look at the power collection from the trucks. This needs to go to your decoder if you are using one. The next thing Fred looks at is the lighting. This is where your paper and pencil is going to come in handy. Start adding the lighting to your wiring sketch. With DCC, you can control the lighting with various CV settings. With straight DC, you will need some diodes in your circuits so the headlight will come on in the direction the model is going. On many of the models Fred has done, he drew up a small circuit board and mounted all of the lighting to it to make the inside of the model neat and tidy. Next, you need to reassemble the model and test it. Remember, Fred said you would be doing this a lot. Once you are satisfied that the model runs like you want, you can do the finish details.



The Chicago and Northwestern class E-4 Hudson was one of the largest Hudsons made. They hauled express and secondary through trains on the Chicago to Council Bluffs main line. They were too big for the rest of the system. This MTH model came in 2 rail and 3 rail versions. Fred converted a 3 rail model. The model sits up a little high, and the one piece diecast boiler, as well as the way the frame is made, necessitated leaving that alone. Fred added to the bottom of the pilot and improved the looks considerably. The lead truck was rebuilt to a longer wheel base. The trailing truck had the core holes in the frame drilled out and the brake cylinder was removed. A cast brake cylinder from Precision Scale was added. Lastly, the tender was lowered so the striping would line up better.

This may seem intimidating, but if you are willing to give it a go you, will greatly expand the types of models that are available to you. Fred has documented the work he has done, and we will be getting into more detailed explanations of specific models in the future. In the next issue, we will do a detailed conversion of a New Haven EP-3 electric locomotive by MTH. If you have a specific model you are interested in, drop a note to me, Glenn, at *The O Scale Resource*, and I will see if Fred has done one.

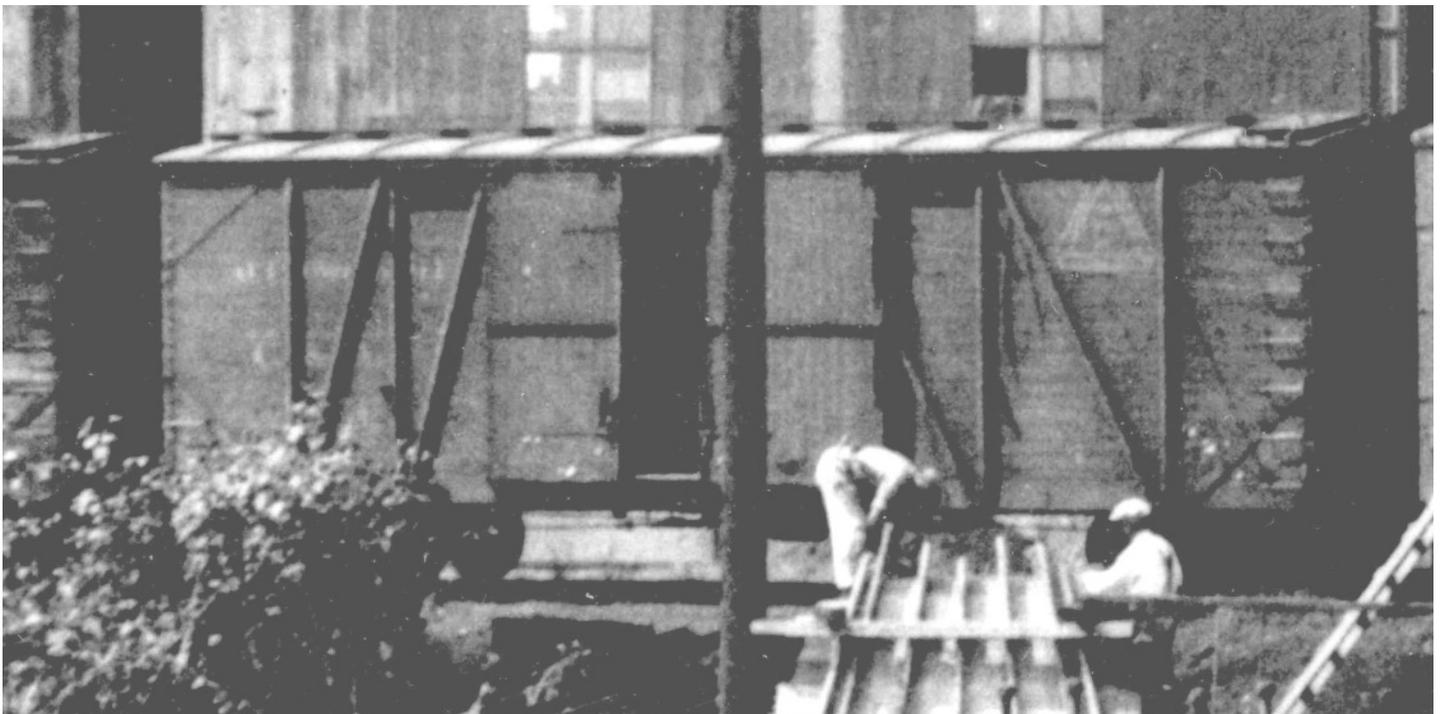
Chicago and Alton



Automobile Boxcar

By Glenn Guerra

The Illinois Railway Museum has a very large freight car collection. One of the cars in the collection is a Chicago and Alton automobile boxcar. The car is used for storage, and is parked behind building #4. In 1994, I photographed the car, and also made some CAD drawings at that time. The drawings were not complete as I was missing the underframe, so I went back recently and finished the drawings. The car is interesting and not much is known about it. According to Bob Kutella who heads up the freight car department at the museum, the car was built in 1924 for the Chicago and Alton Railroad by the Pullman Company. Pullman purchased the Haskell and Barker Car Company in Michigan City, Indiana in 1922.



This close up, from a photo taken in Bloomington, Illinois at the Chicago and Alton shops, shows one of the cars in this series.

We have not been able to find a Pullman lot number for these cars, and it's possible they were ordered from Haskell and Barker just prior to the Pullman takeover and the order was finished under Pullman control. Haskell and Barker records do not exist for this timeframe, so it was not possible to determine if there was a Haskell and Barker lot number for these cars. The cars were numbered in the 39,000 to 39,250 number series. Jack Mullen looked up the cars in the 1925 Official Railway Equipment Register for me, and the cars had the following dimensions:

Interior Length 40' 6", Interior Width 9' 2", Interior Height 9' 8".
Doors 10'0 wide, 9' 1 3/4" high.
3600 cu. ft, 80,000 lb capy.
Exterior Length 42' 1 1/2", Width At Eaves 10' 0 7/8"
Height At Eaves 13' 3 5/8", Height At Running Boards 14' 1 3/4", Height Overall 14' 7".

The Illinois Railway Museum acquired the car in 1981 from the Chicago and Illinois Midland railroad. The C&IM acquired the car from the Chicago and Alton. When the Illinois Railway Museum acquired the car, it was used for maintenance of way and was numbered X-81.

Jack also found, and sent me, the following information. In the April 1942 ORER, dimensions are the same, except fractions are dropped or rounded up. The description is "Automobile, stag. doors, stl. underframe". There are 246 cars remaining. The AAR designation has changed from XA to XAB. The XAB designation is for auto cars with less than 10' interior height. I think that designation was added in the late '20s or early '30s, when there were a lot of revisions made to the car type codes. I'd half expected that the cars would have been changed to single 6' door and reclassified XM, as a lot of railroads did with undersized auto cars. Evidently, the Alton didn't modify the cars, at least not by 1942.

By 1942, the C & A had become the Alton Railroad Co., under B&O control. The ORER still says cars are marked "Chicago and Alton", "C. & A.", and reporting marks are still C&A. The car whole car fleet has been reduced to 2822 cars, from 13,806 in 1925.

As I was looking at the car and doing the drawings, I noticed that from outwards appearances, the car looks like a USRA single sheath design that was modified with an extra door, but that is not the case. The car is wider and taller than the USRA single sheath design. The center sills, side sills, and some angles, are the only standard structural shapes used in the car construction. The remainder of the car is pressed shapes that are riveted together. The investment in tooling to produce these pressed shapes would lead me to believe that this was the builder's standard car construction at the time this car was built. This would be an advantage to the modeler since other cars can be built from these components once you have fabricated them as patterns. It's an interesting car and if you decide to do one, be sure and send us some photos.

This is the rest of the photo from the preceding page, and shows a string of automobile boxcars at the Chicago and Alton shops in Bloomington, Illinois. The two single sheath cars are from the same number series as the car at the Illinois Railway Museum.





Ray Burhmaster took a photo of a Chicago and Alton train in Chicago. The subject of the train was the locomotive pulling the train. This is an enlargement of that photo showing the Chicago and Alton boxcar in the train. You can't read the dimensional data, but you can see where it goes on the car. Use the date from the Official Railway Equipment Register data at these locations.



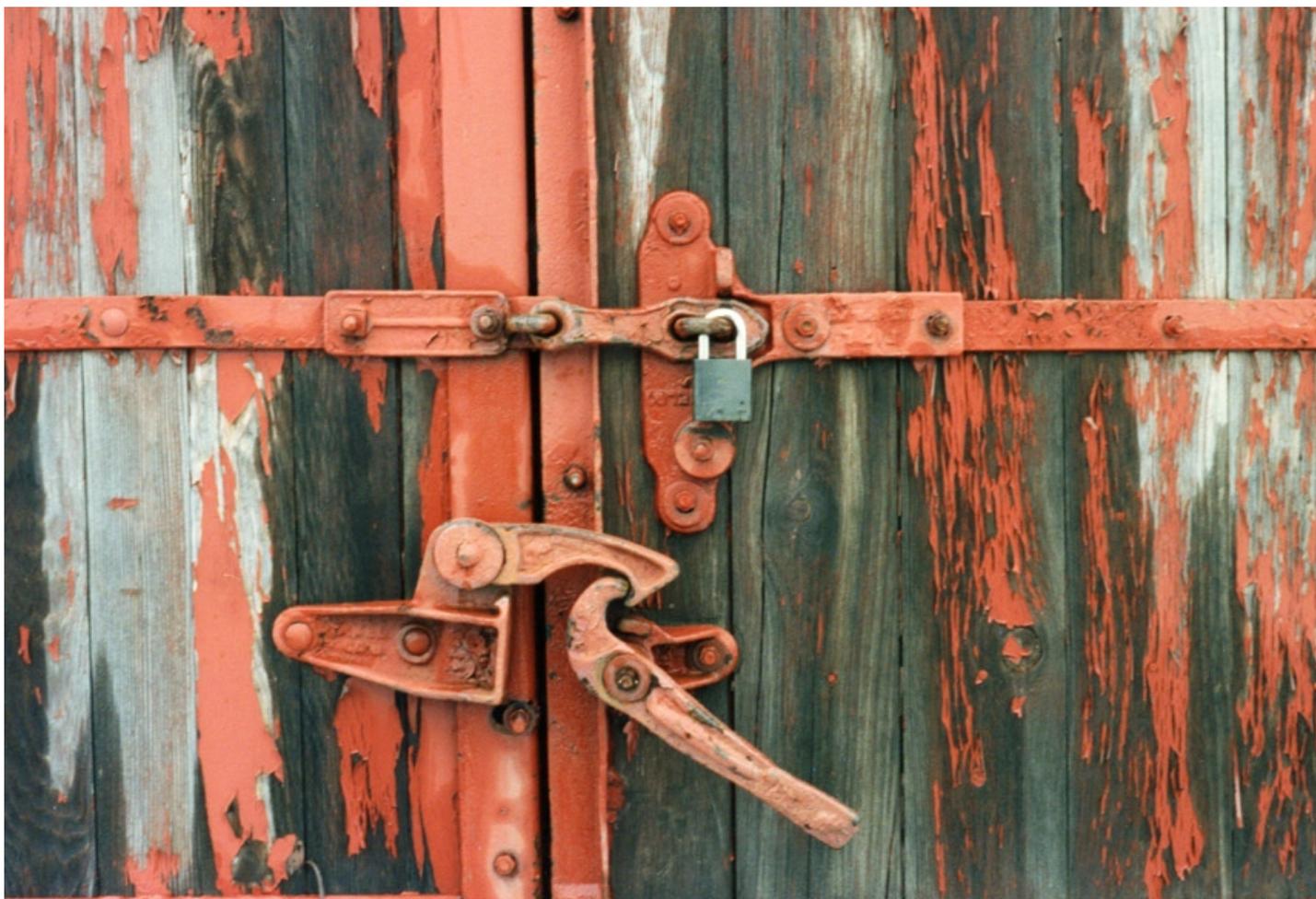
The car as it appears today at the Illinois Railway Museum. Currently, the car is being used for storage. The rest of the photos are close ups of different parts of the car so you to see the details.









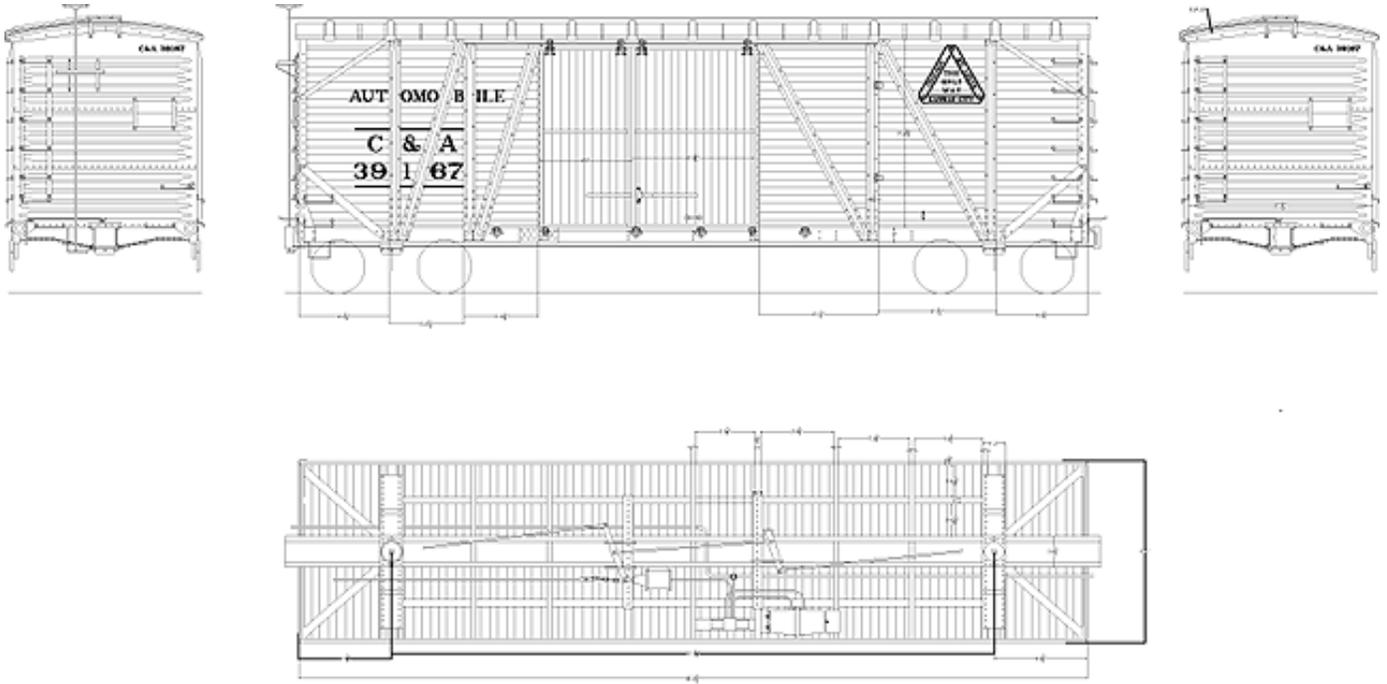












*The dimensions on the drawing are the actual dimensions of the car. To convert to O Scale, convert the dimensions to inches and divide by 48. That will give you the size in O Scale.
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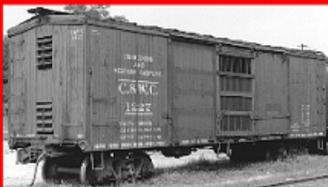
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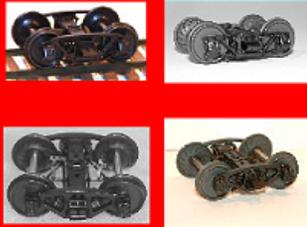
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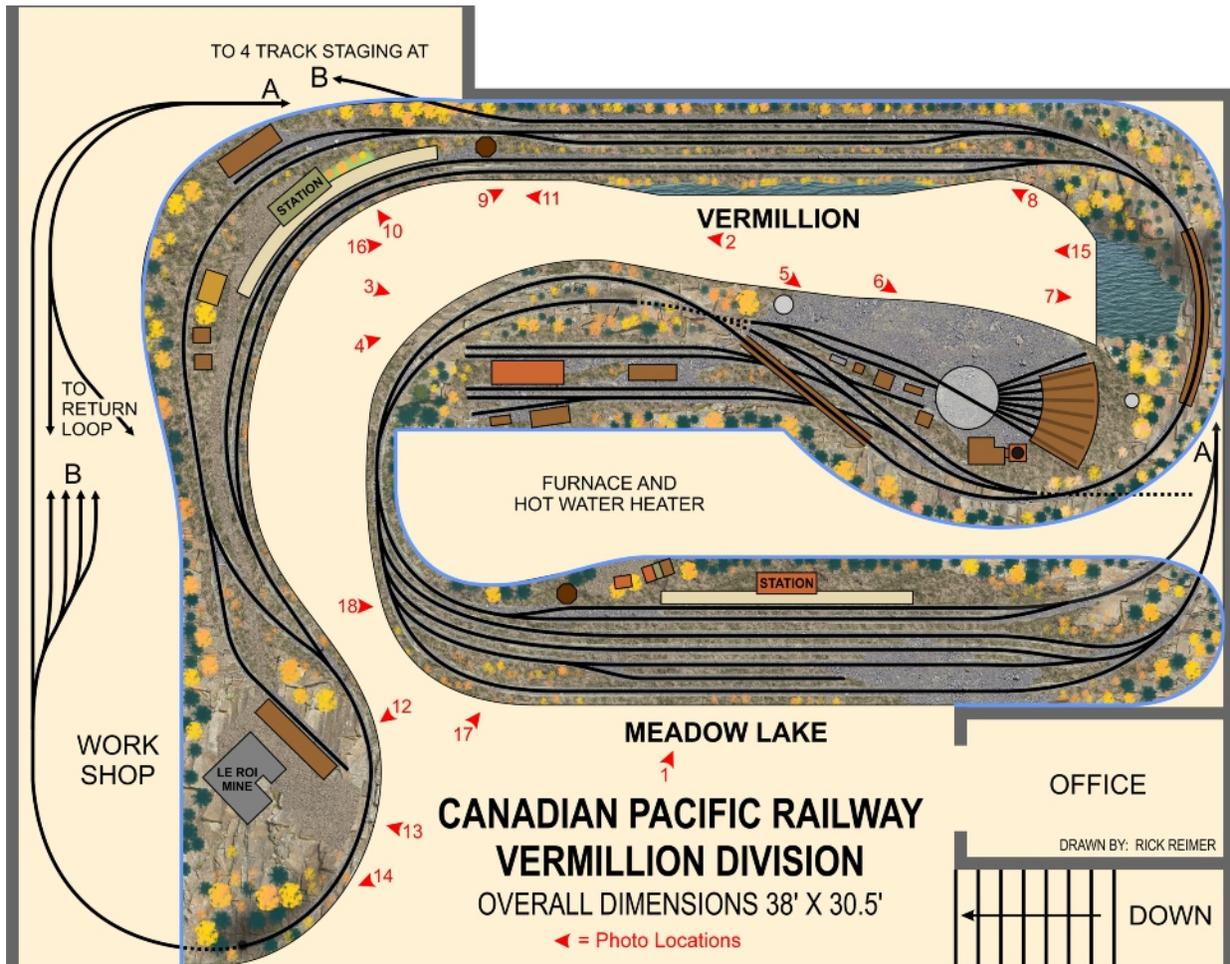


The Canadian Pacific Vermillion Division Herb Stroh's layout in Calgary Canada

By Dale Olson

Indian Summer has come to the high mountains of western Canada. The days are getting shorter, crisp early mornings find a skim of ice at the edge of ponds and lakes, the first dusting of snow has turned the mountain peaks white, and squirrels are busy gathering nuts for the coming winter. Daylight reveals a landscape spotted with vibrant hues of yellow, ochre, and red. A train appears in the valley – a train of solid tuscan and gold glory, pulled by a similarly decorated Hudson. West bound train #11, the Kootenay Express is slowing down for a station stop at the division point of Meadow Lake somewhere in the southern interior of British Columbia. This little vignette of the mid 1950's is a figment of our imagination, created in "O" scale in the basement of Herb Stroh's Calgary home. Constructed over a period of about twelve years by an enthusiastic group of local "O" scale modelers, it shows what can be done when a group is drawn together in a directed effort to build the best layout they can. Herb is both layout owner and director of this group.

Herb moved into his current home in 1988. It came equipped with a 1200 sq. ft. basement, which would be ideal for Herb's dream of a large Canadian Pacific inspired layout – once the two existing bedrooms were torn out. Construction started with the demolition of these two bedrooms. With his newly bare basement, Herb began bench work. After about two years, perhaps half the bench work was finished and track had been laid in Meadow Lake, LeRoi mine area and much of the hidden track. Visible track was hand spiked code 125 steel rail on hand cut ties, hidden track was Atlas flex track. Scenery was underway in Meadow Lake and the LeRoi mine area.



This layout plan is by Rick Reimer who was one of the regular helpers during the layout construction.

At about this time, Herb realized the scope of the project was more than one man could accomplish by himself. Herb collared a few friends for some help and then started trolling the local hobby shops for other likely prospects, eventually ending up with a solid core of about 10 modelers which was augmented from time to time by another 5 or 6 volunteers. Pace of construction picked up as the group met every Tuesday evening in Herb's basement for work sessions. For the benefit of those of us without a life, Herb hosted work parties on Saturday afternoons as well. Any given work session might find bench work, track laying, backdrop painting, rock casting, tree making, wiring, or any other modeling endeavor in process.



Herb Stroh standing by Vermillion on his layout. The painted backdrop gives the scene unlimited depth.



After leaving Meadow Lake, we travel around the corner and start gaining elevation on the main line. In the foreground, the track is dipping down into town. The lush vegetation and hard rock is typical of the area and is well modeled on Herb's layout.



Photo 4

A freight drifts down grade towards Meadow Lake while a local switch job handles work in town. The lead into town ducks under the main through a short tunnel. No need to put a bridge here – the hard rock will support the main line.

Supervising this effort was Herb, who had the master plan hidden from view in the deep recesses of his mind. He always managed to reveal just enough to keep us all interested. Herb's power of organization amazed – he always had a list of jobs to be tackled, and most important, had all the required supplies and tools at hand. 26 years later, while not quite finished (is any layout ever finished?), Herb enjoys one of the top Canadian Pacific "O" scale layouts to be seen anywhere.



Photo 5

In town, the main line crosses over the yard tracks as it climbs into the mountains. The engine terminal services the engines taken off the trains at Meadow Lake yard.

Nothing was really static on Herb's layout. Always willing to try new techniques in scenery construction, Herb was not averse to tearing out some recently constructed scenic element if a new and better technique was discovered. Most of the trees on the layout have been replaced three or four times as Rick Reimer developed new tree making techniques.



Photo 6

The Meadow Lake engine terminal is well stocked with locomotives that Herb has built.



A freight train drifts down grade into Meadow Lake. This is high mountain railroading, and the enclosed cabs on the locomotives are welcome in the winters. We are high in the mountain and the vegetation is getting thinner.



After our climb into the mountains on the single track over the trestle, we come to a valley and the station of Vermillion. At Vermillion, there are some passing tracks and a branch line takes off. There are two freight trains waiting for us, and they will start down grade into Meadow Lake as soon as we pass.

Photo 8



Our train is pulling past the Vermillion passing tracks and past two freight trains waiting to proceed down grade after we pass.

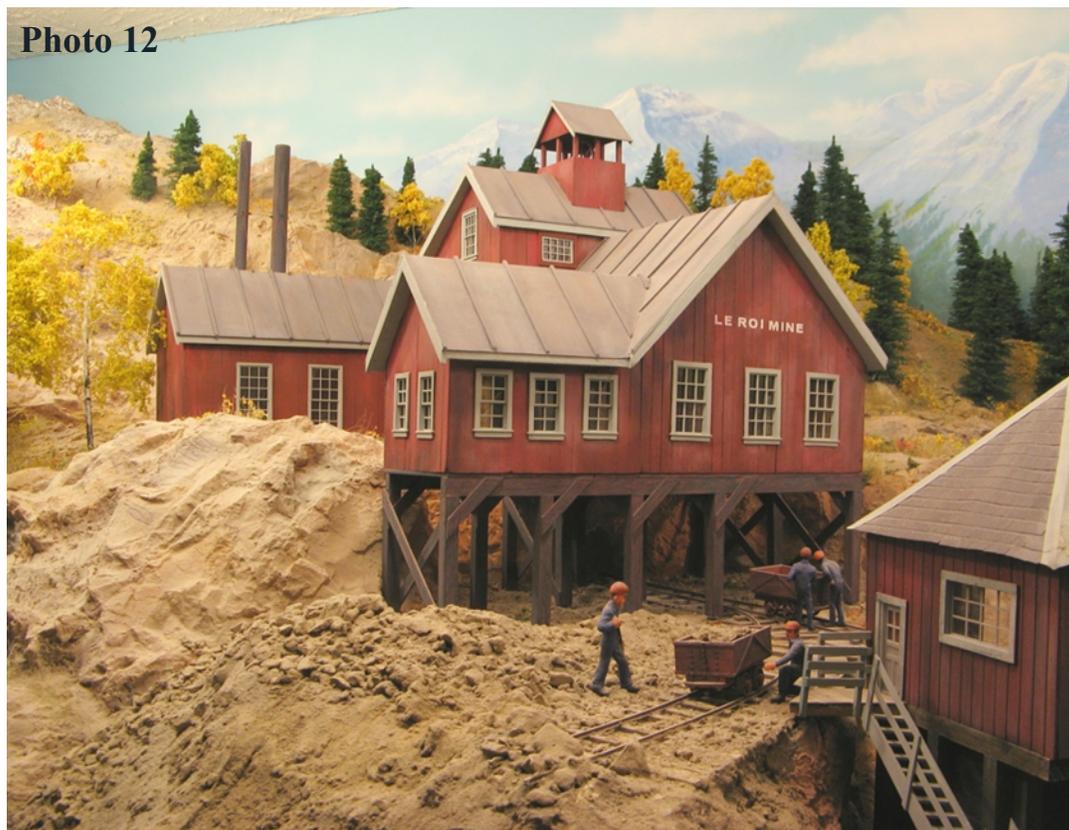
Vermillion is a resort town, as well as, a location for passing sidings. The depot at Vermillion has a park next to it for people waiting for their train. Soon our train will be back in the mountains on single track again.





Our train is pulling into Vermillion and will unload some tourists so they can take in some of the mountain scenery before the snow starts. The resort bus is waiting to take us to our lodging.

Photo 12



High in the mountains is the LeRoi mine. We are getting up near the tree line in the mountains.



Photo 13

Once leaving Vermillion, we climb into the mountains again and pass the mine at LeRoi. The stock train is heading down towards Vermillion and is bringing the livestock down from the high elevations before the snow starts.

Now for the nuts and bolts: All visible track is hand laid code 125 steel rail on spruce ties cut on Herb's table saw. Hidden tack (reverse loops and staging yard is Atlas flex track. Rail height at Meadow Lake yard is 52" above the floor. Bench work is heavy – 2x4 framing with 3/4" plywood. Areas of the layout are 5 to 6 feet deep, and the bench work had to support us during construction. Most of the area under the layout is closed in with drywall and painted. The fascia is wood paneling. The valance is framed and may someday be finished with paneling. Track planning is a single loop with a hidden staging yard. Originally, two mainline cabs and two control panels provided train control. This has been superseded by an NCE DCC system. The two control panels still provide switch motor control. Lighting is provided by spiral compact daylight fluorescents behind the valance.

Another view of the stock train rounding the corner at LeRoi mine. We are up in the mountain, and the right of way is clinging to the side of the hill.



Photo 14



Photo 15

In this view of the layout we see the engine terminal for Meadow Lake on the left, and on the right are the passing tracks at Vermillion.



Photo 16

In this view of Herb's layout, we see the track from Meadow Lake on the right as it climbs into the mountain. The engine terminal at Meadow Lake is just around the corner and out of sight. As the train climbs into the mountain, it crosses the wood trestle and comes into the passing tracks at Vermillion which are on the left.

Photo 17



After passing the mine at LeRoi, we headed into a staging yard and took the loop around, coming out at Vermilion passing to head back down to Meadow Lake. We arrive at Meadow Lake to see another passenger train waiting for us to clear so they can head out.

Major construction was finished by 2000. All that was remaining unfinished was some work in the roundhouse area. As the pace of construction slowed, attendance at weekly work sessions slacked. We met several times to just play with our trains, but having never given thought to developing an operating scheme for the layout, enthusiasm waned and eventually, the flame died. Sad perhaps – but all of us have gained immeasurably from the experience. Each of us became a much improved modeler by the end due to the mistakes we had made and the success we had experienced. Each brought a unique set of talents to the project and absorbed other talents in the process. We learned where our talents lie and what might best be left to others, and lifelong friends have been made.

Following is a list of those modelers involved on a regular basis:

- Herb Stroh – Layout owner and task master. Herb is an accomplished locomotive scratch builder.
- Tony Brunner – Locomotive detailer & painter. Tony helped in many capacities.
- Eric Courtney – Owner, “Miniatures By Eric”, and our source for brass detail parts such as CPR switch stands.
- Ken Harron – Kept busy working on all sorts of projects, helped where needed.
- Al Hough – Along with Doug Vannan & Del Stager, part of the original construction crew.
- Bill Kerr – Deceased, best known as an On2 modeler and second owner of Selkirk Scenery Company, Bill did much of the construction on the original throttle system.
- Peter Loomis – One of the stalwarts of the track laying crew.
- Dale Olson – Track Crew, electrical crew, construction crew. Wired control panels and block buss wiring.



The yard at Meadow Lake is starting to fill up with trains waiting for the single track sections in the mountains to clear.

- Rick Reimer – Original owner of Selkirk Scenery Company and resident artist. Responsible for the stone work on the Roundhouse and painting of all backdrops. Also rock carving and teaching us how to build trees. Rick was the artistic director of the build.
- Jim Ryckman – Scratch built the beautiful coaling tower in the engine service facility. Helped with scenery realization.
- Del Stager - Member of the first construction crew.
- Doug Van Nan – Designer of the track plan.
- Andy Wild – Youngest member of the group and an “O” scale virgin when he first came aboard

All was not “nose to the grindstone” in Herb’s basement. Once the basic track work was finished and wired, spontaneous operating sessions could break out at any time (the excuse was usually to test a newly built switch or a new section of track). And every evening ended with a coffee break, complete with a baked goodie of some sort. This gave an opportunity to relax and discuss what progress we had made, any problems encountered, and planning for the next session – or just shooting the breeze. This social interaction was an important part of the evening, and helped cement the group.

The why of the layout? I believe it was meant to be a stage to show off Herb’s scratch built locomotives and passenger equipment. The dream was to build a layout reflecting mountain mainline railroading – heavy, long trains battling stiff grades, crack first class passenger trains struggling to maintain tight schedules. This is not a railway for running peddler or local freights! The main job of this layout is to give those mainline locos some room to run. Herb named his layout “The Vermillion Division of the CPR”, and decreed that it is located somewhere in the southern interior of British Columbia. This is mountain railroading at its best! Herb likes to say it is the CPR mainline, I envision it as the so-called southern main line, also known as the Kettle Valley Line, which ran west from Lethbridge, Alberta and joined the more northerly located main line at Hope, British Columbia . Whatever you see it as – enjoy the spectacle of Canadian Pacific trains crossing three mountain ranges in a struggle to find the Pacific Coast. Sit back and enjoy the show!

GETTING GLASSY

GLASS CUTTING FOR MODELING

By Dan Dawdy

Glass, we all know what it is. My first experience with glass was when I was five years old and my friend David pushed a glass storm door through my arm. Yes, glass is sharp, and I still have the scar to prove it. My next glass experience was not so traumatic. In the early 1970's, I received a K-Tel Bottle Cutter Kit for my birthday. The perfect toy for a young boy. It had an open cutting wheel, a candle and some emery paper to "smooth" the drinking surface. You scored the bottle, Four Roses Bourbon bottles if I remember my Dad's tastes, over the cutting wheel. Then, you rotated the score line over a candle, after which you rubbed an ice cube over the hot score line and then tapped the bottle on a hard surface. What could possibly go wrong? Well, I survived childhood, as most of us did from that era, without all the precautions and safety awareness we seem to need today.



Now, let's race ahead a few years, quite a few years, to the present. I never gave much thought to model windows in buildings. I just used thin clear styrene sheets cut to fit and called it a day. Then I started working on locomotives and brass cars – modifying, rebuilding and painting them. Styrene windows just did not cut it. It did not look like, well, glass. Nothing reflects like real glass. Nothing looks like broken glass better than, you guessed it, broken glass. So I bought some "scale window glass" from [Clover House](#).

It's basically microscope cover glass but larger at 2.3" x 0.9". The thickness runs about .006". Did I say it's easy to break when you don't want it to break? Along the way I picked up a few cutters, more precisely called glass scribes, as that is what they really do. After a few mishaps, slivers and some bad language, I got the hang of it. It's not that hard and the cost of supplies allows for many practice sessions for less than the cost of another kit.

Below are some examples of items I have used glass in. Some of these are referenced in this article.



Because the inside was flat and the windows were going to be dirty I was able to cheat and use square cut glass for the round windows.



You can see the reflection from the windows in the cabooses above. You can't get that effect from plastic. This cabooses was easy as all cuts were rectangle.



Because there was no room for an interior and since it works the coal mines I dirtied up the windows for this unit.



Sometimes we can cheat and not have to cut curves. You can see some of the straight angles I was able to use in the cab of this Alco S2. This unit is begging for an interior which is in the works.



This NJ International Alco RS-1 was a bit easier to cut the windshield for than the Atlas RS-1 shown in the video. Remember to leave room for the railings and wipers to pop though the shell. It's a mess if you forget.



RS-1 at right shows an open window ahead of the engineer. Makes a nice effect.

To begin, we need (of course) glass sheets. I used the glass by Clover House or, although smaller in size, you can use generic microscope cover glass [like these](#).

A good scribe and maybe a few different types. I normally use a tungsten carbide tip scribe such the the [General Tools model 88](#). You can find these at Clover House, and many craft stores. You don't want something any larger as the glass is just to delicate. I have not had a problem using a tungsten carbide scribe. Some people will use only diamond scribes. Whichever you prefer is fine.

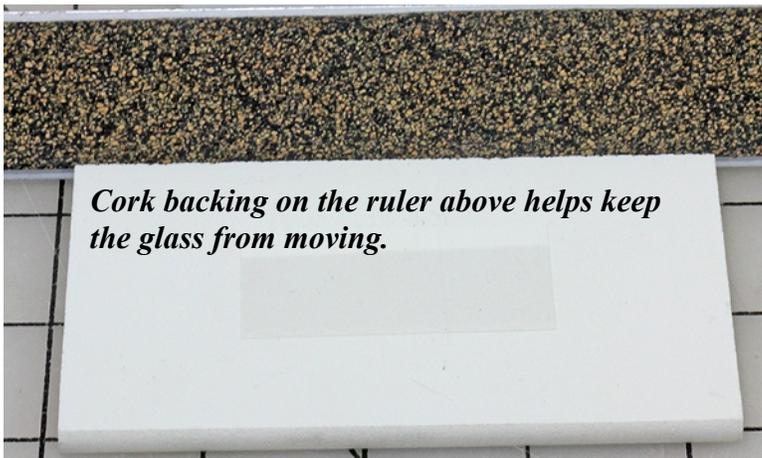
A marker (like a very fine Sharpie) that's easy to wipe off with alcohol.

A hard flat surface to scribe on. I said hard, not wood or anything that will give even the least amount. A small piece of plate glass works well as will a scrap piece of Formica.

I good metal ruler. One tip I learned from my wife, Amy, is to add a cork material to the bottom of the ruler. This will be a big help in holding the ruler on the glass being cut, and stop it from moving around the cutting surface.

Safety glasses are a must. One small slip and you can shoot a microscopic piece of glass almost anywhere. You will also notice some very small shards of glass on your cutting surface. These will find their way into your finger at some point. A little common sense goes a long way here.

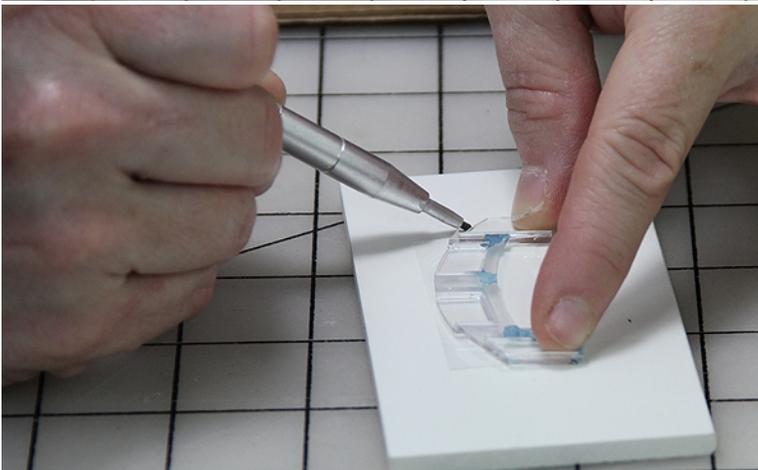
It's hard to describe the process without seeing it, and it's hard to photograph it because of the very light scribe lines. So, I have created a video extra for this article. [You may watch it here](#). There



Cork backing on the ruler above helps keep the glass from moving.



are four segments, Scoring Straight Lines, Scoring Curved Lines, Scoring Round Circles and Cutting Glass For Window Castings.



Let's start with something easy. Try scribing a glass sheet in half. Here is where the practice comes in. Press too hard and you crack the glass, press too light and when you snap the glass it will break. You just have to get a feel for it. I don't wear gloves as I can't feel what I am doing. Don't worry about waste, the glass is cheap. Just get a feel as you take one stroke across a straight edge. We are looking for the perfect score. To do that takes firm, even pressure perpendicular to the glass. Once that is done you should be able to pick up the glass and lightly bend it on the score line. I promise you, after a few tries, it will work. Luckily, most of our windows are square or rectangle so it makes cutting easier.

Now, we'll try a curve. Trying to freehand a curve is not really an option; therefore, we need some sort of template. In the video I used the Atlas RS-1 windshield plastic casting for my template. If I had not had that, I would have used thin styrene (i.e. .010"). You need something heavy enough for the scribe to follow without shifting, but light enough that the tip of the scribe is not pushed out because of the thickness of the styrene.

With styrene, you can easily shape and fine tune the template before scribing.

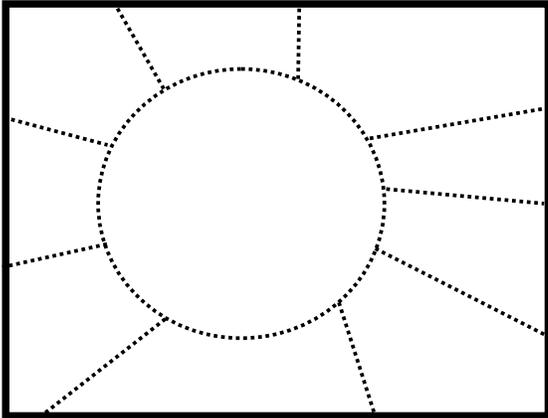
In the video, I simply placed the Atlas plastic window casting on a sheet of glass and followed the contour of the top. Next, I went back and trimmed the sides to fit with a simple straight cut. Once that was completed, the bottom contour was cut. It did take a few times to get this cut, but again, it's just practice, practice and more practice.



The Atlas window casting was harder to use as a template since the top of the roof was also the top of the window. As a result, there could be no "fudging" of the cut. In some pictures here, you will see that there was extra room for some windows cutouts, so rather than trying to be exact, I used more straight cuts as in the Gilmaur Alco S2. The NJ International Alco RS-1 also had room above the window so the cut did not have to be perfect. The degree of accuracy will all depend on how easy it is to see inside the finished unit.

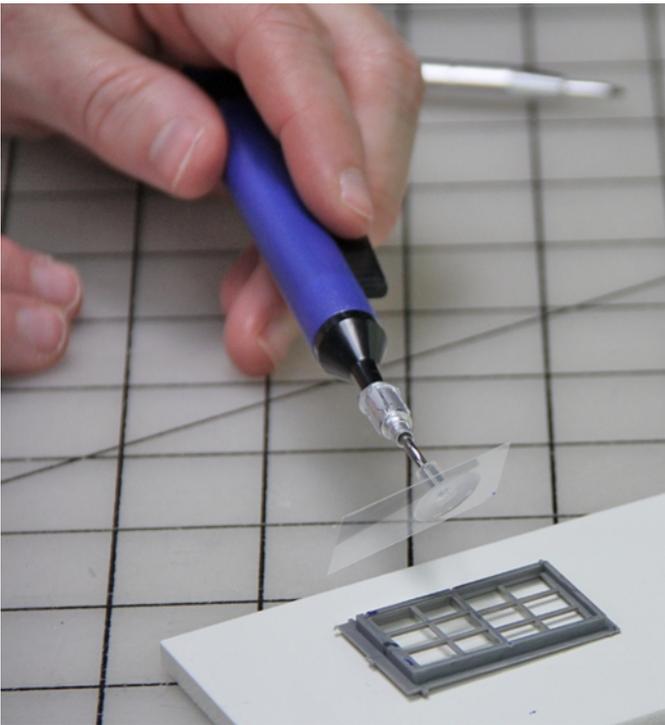
Headlights – what to do about round circles of glass? It's not as hard as you may think. Last time ([July/August issue of *The O Scale Resource*](#)) we talked about MV Lenses and they have their uses. But, depending of the type of headlight or class light, you may need a piece of clear glass in front

the headlight and, of course, for round windows. Let me start out by saying that I did cheat on the RD&S No. 35 caboose. Because I knew I was going to “dirty up” the windows, and the inside of the caboose was flat, I simply used a square cut piece of glass. If I have a headlight casting, that is not an option, so let’s cut some circles.



Using the Helix combo circle template Amy bought me at a craft store, I look for the closest match to the hole. Once I have that, I cut a piece of glass close to the edges of the hole. I don’t want to waste a whole sheet of glass, and as you will see, it’s easier to finish off the hole if there is not as much extra glass around it.

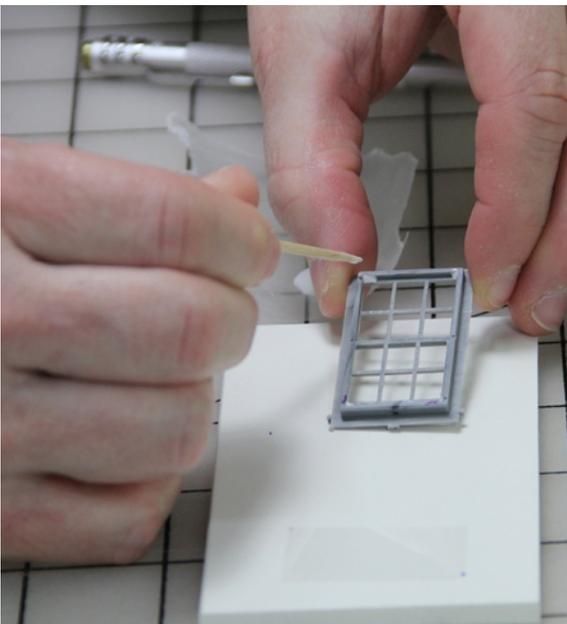
I scribe the hole, making sure I can see the scribe line all around the circle. Now, and you can do this part freehand, I scribe lines from the edge of the circle straight out to the end of the glass (similar to the rays on a child’s drawing of the sun). When you do this, you will see the glass start breaking and following the scribed circle. I will guarantee you that you will not get this on your first try as as shown in the video, but once you get the hang of it, you will be cutting circles like a pro.



The easiest cuts are straight, so using glass for window castings such as Grandt Line are very easy. In the video, I don’t even take the time to measure, I simply use a marker to make a point on the glass at the edge of the casting and cut the horizontal side. I then repeat the process flipping the casting for the vertical. I use a little alcohol to clean off the ink and I’m finished. Of course, you may want to measure or use a caliper to make things exact, and that’s fine too.

There are many type of glues that we can use. First off, don’t use any ACC type of glue because they will fog the glass. I use Pacer Technology Formula 560 Canopy Glue. It dries clear, and more important, it never fully sets up. Having the glue stay somewhat flexible is important. It makes it easier to remove the glass if broken, and you will break a finished piece, I can guarantee that. It also aids in adding a little extra cushion against rough handling. There are other choices out there, so don’t be afraid to experiment, but I’m happy with the Pacer brand.

There are many way to glue glass, but here is that I do. I’ll put some glue on a piece of wax paper, and then using a toothpick, I’ll lightly dab glue on the corners of the item and then lay the glass sheet over. This works if you have left a



sizable amount of glass around the opening you are filling. You can let the glue set up for a few minutes so it becomes tacky, and then drop the glass on top. Even though the glue dries clear, you will still see distortion on the glass if a blob dries and is visible. A better way is to lay the glass where you want it, take the toothpick and add dabs of glue on the corners of the glass and onto the unit. This way, it won't go under the glass, but will make a flexible bond between the unit and the overlapping glass. There will be some things you need to think about as your gluing in your glass. One thing is, are there any holes, maybe for a handrail stanchion that is now behind the glass? As you reassemble the model you push the handrail through the hole and hear that little tinkle of glass, that tells you that you just screwed up. Been there, did that with the NJ RS-1. You can see where the handrail goes into the cab, and I did not cut the glass that exact. With the Pacer glue, it was easy to pop out the rest of the glass and glue so I could make a replacement.



There will also be solder globs in the way in many brass units which will have to be filed smooth so that the glass lies flat.

One tool I found to help place the glass is the Badger Hobby Pal Vacuum Pickup Tool. It comes with straight and angled adapters, along with a few different sizes of suction cups allowing you gently pick up the glass and lay it where you want it.

In closing, just remember to be careful (it may be thin, but it's still glass), and with a little practice, you too can become a glass cutting pro!

STRESSED OUT OVER BRAKE RIGGING?

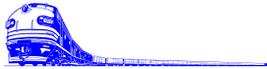
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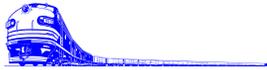
O SCALE SHOWS & MEETS

The O Scale Resource Magazine will now be providing a free listing of upcoming events. This small, text only listing will include the Event, Date, Location, Type of Event, and Contact Information. [Click here](#) to go to the sign up form. This form will take your information, and we will publish it in our next issue. If it is an annual event, you will need to submit your information every year.

Gadsden Pacific Division Toy Train Museum - Toy Train Show
November 14th and 15th, 2014
January 9th and 10th, 2015
Tucson Expo Center - 3750 E Irvington Road
Tucson Arizona
Email: TrainShow@gpdToyTrainMuseum.com
Web Address: www.gpdToyTrainMuseum.com



2014 National 'O' Scale Convention
September 19th thru 20th, 2014
Wyndham Indianapolis-West
2 Rail, 3 Rail, Proto48, On3, On30 Convention
Email: oscaleindy@att.net
Web Address: www.indyoscalenational.com



The Southern New England "O" Scale Train Show
October 4th, 2014
Chestnut Street United Methodist Church, 161 Chestnut Street
Gardner, MA.
Dealers, Displays, 2 rail, P:48..
Email: sneshowchair@snemrr.org
Web Address: www.snemrr.org



The 2014 Southwest O Scale Meet
Oct 24th and 25th, 2014
Fort Worth Academy, 7301 Dorch Branch Road
Fort Worth TX 76132
Email: swoscalemeet@gmail.com
Web Address: www.oscalesw.com/



Cleveland 2-Rail O Scale Train Meet
[November 1st, 2014](#)
Lakeland Community College 7700 Clocktower Dr.
Kirtland, Ohio 44094
9:00AM-2:00PM
Email: j1d464@yahoo.com
Web Address: www.cleveshows.com



Chicago March Meet
March 13, 14 & 15, 2015
Weston Lombard Hotel
Lombard, Illinois
9:00 AM-2:00 PM each day
Email : info@marchmeet.net
Web Address: marchmeet.net



Eastern Pennsylvania O Scale Show
November 15th, 2014
Strasburg Fire Department
Strasburg, Pennsylvania
Email: jdunn8888@hotmail.com
Web Address: www.scaletworail.com



O Scale West
February 5-7, 2015
Hyatt Regency
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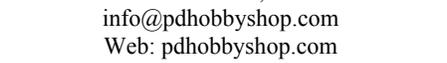


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SHOWS & MEETS

Chicago "O" Scale Meet
 March 14-16, 2015 Lombard, Illinois
www.marchmeet.net
 Ph. 630-745-7600

2014 National O Scale Convention
 Indianapolis, Indiana
Sept. 19-20 2014
www.indyoscalenational.com

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