RPM CHICAGOLAND

RPM Chicagoland

2016 RPM Conference in Lisle, IL

23rd Annual "Naperville" Meet

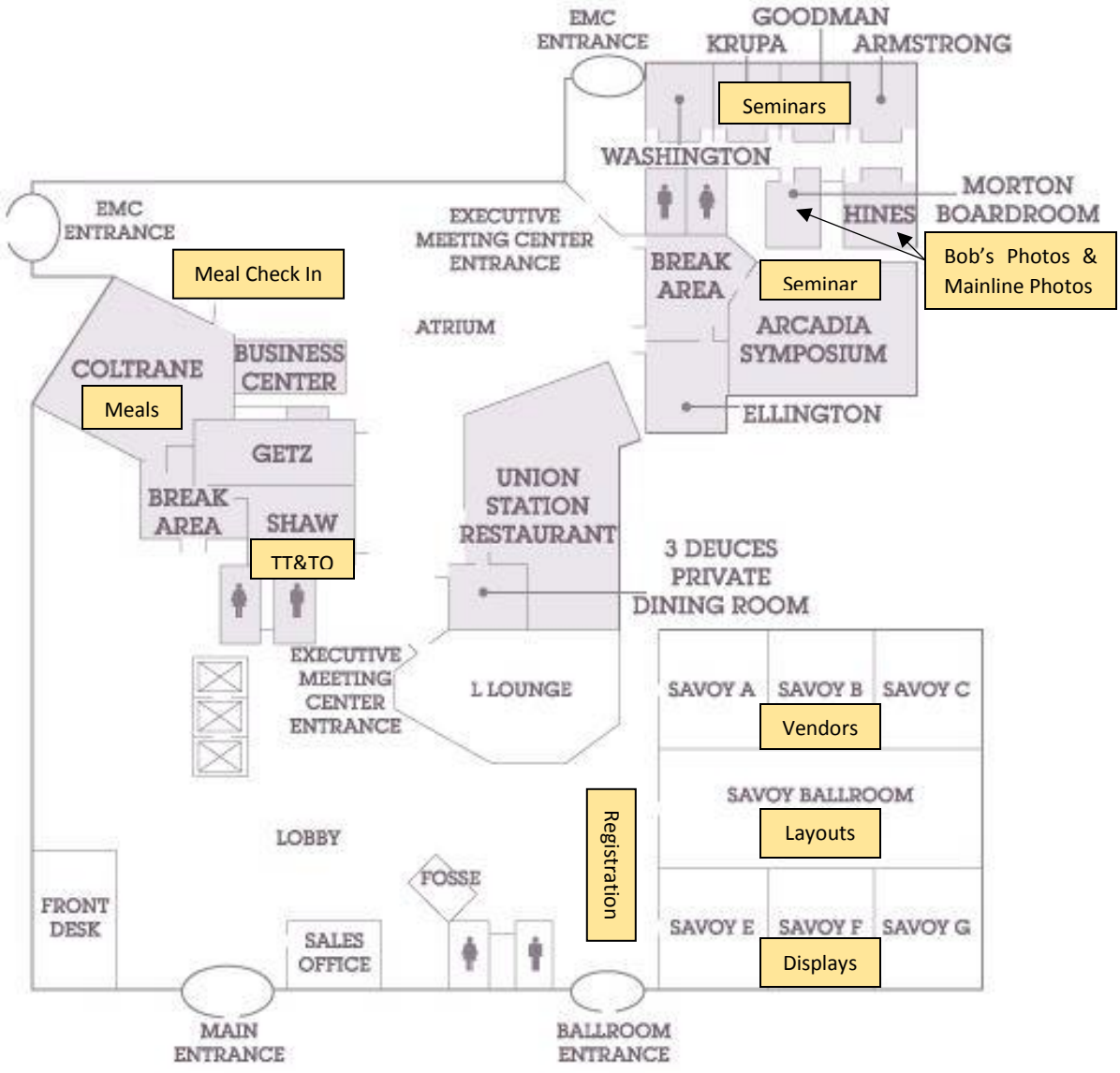
October 20-22, 2016

2016 Attendee Program

Sponsored By:

Special Thanks: Tom Madden
Ted Cullota

Hotel Map



Don't forget these other great RPM events!

"Prototype Rails 2017" Cocoa Beach FL RPM, January 5-7, 2017. http://www.prototyperails.com

St. Louis RPM, Collinsville, IL, June 23-24, 2017. http://icg.home.mindspring.com/rpm/stlrpm.htm

23rd Annual RPM Conference

October 20-22 Final Schedule

Thursday

Thursday, October 20	TIME	WASHINGTON Seminar Room		KRUPA Seminar Room		GOODMAN Seminar Room		ARMSTRONG Seminar Room		ARCADIA Tiered Classroom	SHAW TT&TO Operations
	11:00 AM	**Kick Off Luncheon** (Ticket Required) *COLTRANE ROOM*									
	11:30 AM	"My Affair with the E"									
	12:00 PM	Philip Weibler									
	12:30 PM										
	1:00 PM	Reefer Patterns	31	Modeling Track	22	Gen.Am Reefers	15	Airbrushing 101	9	Kettle Creek	6	**27 -TT&TO Training (Class Room)**
	1:30 PM	James Dick		Kevin Kayser		Roger Hinman		Alan Houtz		Pierre Oliver		Harold Krewer
	2:00 PM											
	2:30 PM	Waybills	29	PanPastels	12	IC Boxcars	17	Flat Cars & Loads	20	Granger RR'ing	3	3 Sessions:
	3:00 PM	Tony Thompson		Rob Manley		Brad Hanner		Mont Switzer		Tony Koester		-Introduction
	3:30 PM											-Basic Orders
	4:00 PM	Mod'l Timetable	28	Low Vision Mdlng	11	WAG/B&O/B&S-A	30	GN Boxcars	23	Set Up Banquet	0	-Dispatcher/Tower
	4:30 PM	Robert Hanmer		Jeremy Dummler		Mike Schleigh		Tyrone Johnsen				
	5:00 PM											
	5:30 PM	**Banquet Dinner** (Ticket Required) *COLTRANE ROOM*									
	6:00 PM	50 Years of Railfanning and "Geezerfest"									
	6:30 PM	Mike Schafer & Craig Willet									
	7:00 PM										
	7:30 PM	PFE Interactive	25	Airbrushing	10	Tower Bay Grain	33	Passenger Cars	36	Casting/Molds	13	**TT&TO Live Action (Layout Operating Sessions - Sign Up at Class Room)**
	8:00 PM	Dick Harley		Bill Welch		Perry Sugarman		John Greene		A. Gjermundson		
	8:30 PM											
	9:00 PM											

KEY:

Layouts	Tips and Techniques	Freight Car Research	Modeling	Extra Fare Meals
Passenger	Prototype RR Ops & Industries	DCC & Sound	Layout Ops & TT&TO	Open Rooms

23rd Annual RPM Conference

October 20-22 Final Schedule

Friday

Friday, October 21

	WASHINGTON	KRUPA	GOODMAN	ARMSTRONG	ARCADIA	SHAW
9:00 AM	28 Mod'l Timetable Robert Hanmer	36 Passenger Cars John Greene	25 PFE Interactive Dick Harley	31 Reefer Patterns James Dick	17 IC Boxcars Brad Hanner	
9:30 AM						
10:00 AM						
10:30 AM	14 CB&Q Hoppers Jerry Hamsmith	5 B&OCT Henry Freeman	26 Maumee TT&TO Bill Darnaby	37 DCC/Sound #1 Matt Herman	15 Gen.Am Reefers Roger Hinman	
11:00 AM						
11:30 AM	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	
12:00 PM						
12:30 PM						
1:00 PM	24 Soo Line Boxcars Ken Soroos	1 Argentine Indust'l Chuck Hitchcock	32 Pickles Dave Leider	19 TTX Autoracks Jim Panza	13 Casting/Molds A. Gjermundson	**27-TT&TO Training (Class Room)** Harold Krewer
1:30 PM						
2:00 PM						
2:30 PM	33 Tower Bay Grain Perry Sugarman	4 Redlands Loop Keith Jordan	35 PAX Oddities v3 Jim Singer	23 GN Boxcars Tyrone Johnsen	8 Product'n Casting Tom Madden	3 Sessions: -Introduction -Basic Orders -Dispatcher/Tower
3:00 PM						
3:30 PM						
4:00 PM	2 New Layout Clark Propst	18 Beer Reefers Charles Hostetler	30 WAG/B&O/B&S-A Mike Schleigh	34 ATSF Chicago James Brown	Set-Up FOTFC	
4:30 PM						
5:00 PM						
5:30 PM	**Friends of the Freight Car Dinner** (Ticket Required) ***COLTRANE ROOM*** Railroad Research Panel Discussion Tony Thompson & Steve Hile (Moderators) Nick Fry, Ted Anderson, Roger Hinman & Kyle Wyatt					
6:00 PM						
6:30 PM						
7:00 PM						
7:30 PM						**TT&TO Live Action (Layout Operating Sessions - Sign Up at Class Room)**
8:00 PM	**Presentation Rooms Open Late for Impromptu Slide Shows** Bring your computer, bring your slide projector: all four rooms will be available for attendees					
8:30 PM						
9:00 PM						

KEY:								
	Layouts		Tips and Techniques		Freight Car Research		Modeling	Extra Fare Meals
	Passenger		Prototype RR Ops & Industries		DCC & Sound		Layout Ops & TT&TO	Open Rooms

23rd Annual RPM Conference

October 20-22 Final Schedule

Saturday

Saturday, October 22

	WASHINGTON	KRUPA	GOODMAN	ARMSTRONG	ARCADIA	SHAW
9:00 AM	2 New Layout Clark Propst	4 Redlands Loop Keith Jordan	32 Pickles Dave Leider	10 Airbrushing Bill Welch	38 DCC/Sound #2 Matt Herman	
9:30 AM						
10:00 AM						
10:30 AM	14 CB&Q Hoppers Jerry Hamsmith	1 Argentine Indust'l Chuck Hitchcock	35 PAX Oddities v3 Jim Singer	9 Airbrushing 101 Alan Houtz	29 Waybills Tony Thompson	
11:00 AM						
11:30 AM	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	Lunch Break Provided	
12:00 PM						
12:30 PM						
1:00 PM	7 Eric Hansmann Wheeling Frt. Ter.	5 B&OCT Henry Freeman	26 Maumee TT&TO Bill Darnaby	24 Soo Line Boxcars Ken Soroos	8 Product'n Casting Tom Madden	
1:30 PM						
2:00 PM						
2:30 PM	20 Flat Cars & Loads Mont Switzer	11 Low Vision Mdlng Jeremy Dummler	34 ATSF Chicago James Brown	19 TTX Autoracks Jim Panza	3 Granger RR'ing Tony Koester	
3:00 PM						
3:30 PM						
4:00 PM	18 Beer Reefers Charles Hostetler		12 PanPastels Rob Manley	22 Modeling Track Kevin Kayser	6 Kettle Creek Pierre Oliver	
4:30 PM						
5:00 PM						
5:30 PM	**Des Plaines Hobbies RPM After Party**					
6:00 PM	1524 Lee Street					
6:30 PM	Des Plaines, IL 60016					
7:00 PM	(Bring your badge for after-hours admittance)					

KEY:						
	Layouts		Tips and Techniques		Freight Car Research		Modeling		Extra Fare Meals
	Passenger		Prototype RR Ops & Industries		DCC & Sound		Layout Ops & TT&TO		Open Rooms

Welcome

This year marks the 23rd gathering of the "Naperville" event. Wow!

When I offered to take over the show last year, the engineer in me said, hey, it hasn't been in Naperville for a few years. We don't want to call it the "Lisle" show, since we may be forced to move again at some point. So, what if we re-billed the show as the "Chicagoland" conference and that way the locale listing is more generic? So that's how we got to RPM Chicagoland. But as Clark Propst says, "It will always be Naperville to me!"

No matter what you feel comfortable calling it, we wanted to bring back some of that original "Naperville" feel this year. We wanted to rejuvenate the event that has been the premiere RPM Conference in the country. We wanted to honor the roots of the Sunshine event and the excitement of new resin freight cars. We wanted to find ways to provide more value for your registration dollars, even if we couldn't lower the price considerably. (Chicago area hotel space being what it is…) We wanted to continue the excellent slate of presentations, while adding new topics. And we knew that at the end of the day, this event is a supposed to be *fun*.

I've called in every favor I could (and a few I wasn't even owed!) to try to hit those goals.

We've been able to bring back the Mini-Kit this year through the generosity of Fox Valley Models, Resin Car Works, Tom Madden Castings, Microscale/Speedwitch, Accurail, and Micro-Trains. The kit is available in both HO and N scale to the first 250 registrants.

We've added a new Time Table & Train Order seminar track this year featuring class room sessions from an expert in prototype railroad operations, Harold Krewer. And while we had to back off the live operating sessions on the HO Mod-U-Trak layout due to construction time constraints, we've been able to assemble a 100+ foot long TT&TO Training Layout for live, hands on scenarios. This training layout is coming together through the generosity of Iowa Scaled Engineering, Kato, and Digitrax.

We've been able to add to the three meals by bringing back crowd favorite Philip Weibler for the kickoff luncheon presentation, introducing Mike Schafer and Craig Willet for the audio & visual Banquet presentation, and including a great panel of railroad archivists lead by moderators Steve Hile and Tony Thompson for the annual Friends of the Freight Car Dinner.

And the slate of presentations continues as well! We've added a fifth presentation room this year since the support of the speakers was so outstanding, we needed more room in the schedule. It's a good problem to have, and we trust that the breadth and depth of the clinic topics will be of interest to all involved.

Speaking of presentations, this printed program is meant to be your guide for the event, and a store of data to remember what you've learned here. The following sections explain in greater detail the topics of each of the seminars in order to help you plan your schedule. Following that, several presenters have shared their handouts ahead of time so that we could print and bind them right here in this program. We've also included information about the Mini-Kit, a Baltimore & Ohio M-15k, so that even if you didn't register in time to receive one of the kits, you can track down components and build one to show off here next year!

If you have any questions or comments throughout the event, please find me or one of the other "hosts" in a red name badge. Besides our team of Katie Skibbe (Registration), Matt Gaudynski (Vendors & Support), and Harz (Presentations & Hospitality), all of the members of HO Mod-U-Trak and N Modutrak layouts have host badges as well and would be happy to help point you in the right direction or answer questions.

If there are any complaints, you can save those for me. I apologize ahead of time for any glitches that occur. But hopefully anything that does go wrong won't ruin your overall enjoyment of the event.

All the best,

Mike Skibbe

RPM CHICAGOLAND

DES PLAINES HOBBIES

THE RPM AFTER PARTY

Saturday, October 22
5:00–8:00 PM
25 Minutes from Lisle

Food
Drink
$$ Specials $$

1524 Lee Street
Des Plaines, IL
60018

Wear your RPM name badge for admittance!

Contents

EXTRA ACTIVITIES!

Live Fire Airbrush Event

Don't forget to sign up for a spot at the "Live Fire" Airbrush clinic, Saturday beginning at 1:00 PM in the display room. The sign up sheet will be available at the registration desk throughout the event, and there are 4 seats available per time slot. Be sure to catch Bill Welch's clinic as an introduction to the Live Fire event.

TT&TO Live Operations Training

The second sign up opportunity is for the TT&TO live operations training sessions, which will be held both Thursday and Friday evenings in the display room. Sign up will be available in the Shaw room, during Harolld Krewer's TT&TO training sessions. We're building a 100'+ long layout just for operators to learn TT&TO operations. The layout is a shortened version of Bill Navigato's Chicago, Peoria & Southern HO layout, and will be using CP&S timetables and forms for the live sessions.

Mini-Kit Built Examples

Finally, be sure to stop by the Resin Car Works table in the vendor room. Frank Hodina will be available to discuss the steps needed to finish this year's Mini-Kit, and finished and in progress models will be on display at the Mini-Kit table next to him. Frank will be happy to discuss

2016 Mini-Kit

B&O M-15k Early Wagon Top Rebuilds

B&O M-15k 370577 was captured in Lumberton, NC on 9-9-1951. Photo is courtesy Bob's Photos and will be available in large format from Bob at the 2016 RPM Chicagoland event. See him in the Mortan Room to purchase a copy.

In the tradition of the Sunshine Models Mini-Kits that were available to early bird registered attendees, we had an idea to bring back a conversion kit for RPM Chicagoland. Past kits consisted of a set of decals, or small package of resin parts that would be used to convert an existing plastic model into a new prototype freight car.

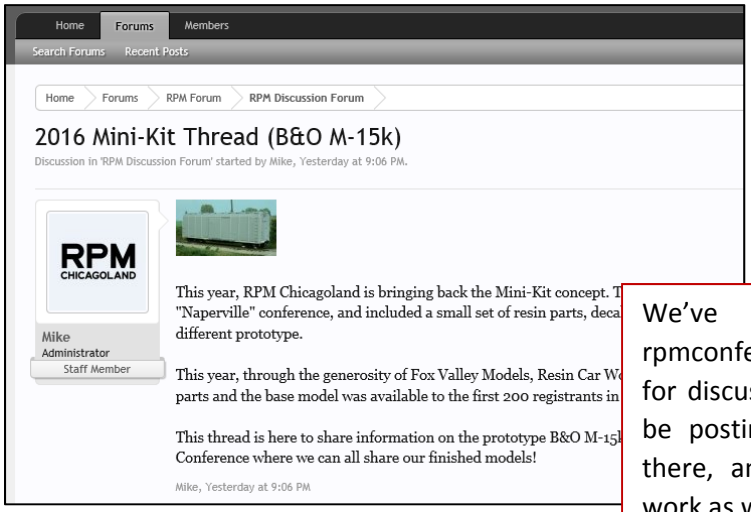
When we started exploring ideas for a prototype, Matt Gaudynski of Fox Valley Models made the generous offer to donate undecorated B&O M-53 wagontop kits from his line. The hunt was on for a conversion, and that lead to the early B&O M-15k wagontops. These cars were rebuilds of earlier double sheathed B&O boxcars. And the addition of a wider steel body caused an exposed, notched side sill to be a distinctive feature of the cars. Frank Hodina from Resin Car Works built an initial test model, and confirmed that the conversion would be a doable project. He worked with Tom Madden to develop the resin end sills and other conversion parts, and has documented the styrene conversion on the side sill. Ted Culotta at Speedwitch came to the rescue with impeccable artwork, printed by MicroScale, and Accurail (HO) and Micro-Trains Line (N) provided fish belly underframes.

While we set out to create a simple set of conversion parts, the generosity of these individuals and companies has allowed the Mini-Kit concept to turn into a full blown kit complete with the car body, conversion parts, decals, trucks and couplers!

B&O M-15e 174775 built in 1922 in Lot 9227. Builders photo from AC&F via Westerfield's AC&F Photo Collection Disc, courtesy Eric

The following pages document the HO and N scale conversions, so that even if you didn't sign up early enough to get the kit of your choice, you can follow along and gather the parts needed to complete these distinctive conversions. Heck, we even know that there are S and O Scale B&O M-53's out there, so we hope someone will convert a car in a larger scale for display at next year's event!

So get out those tools, follow along with other builds on the forum at www.rpmconference.com, and we'll see you back in 2017 with your finished models.



We've added a forum to rpmconference.com and created a thread for discussion of this year's Mini-Kit. We'll be posting progress of our model builds there, and encourage you to share your work as well.

www.rpmconference.com/forum

RPM CHICAGOLAND

2016 Conference Mini-Kit

B&O M-15k Rebuilds

B&O 371031 - Bob Charles Collection, NMRA/Kalmbach Memorial Library

This is a special kit for us made possible by the efforts and generosity of several manufacturers and individuals. Fox Valley Models donated the basic car, Accurail donated the underframes, Tom Madden designed, cast and donated the resin parts, Mike Skibbe donated the Evergreen styrene strips, and Ted Culotta shared his artwork so that MicroScale could donate the decal printing. This provides an almost complete kit. Frank Hodina developed the concept model and the instructions to complete the model. Ken Soroos formatted this information sheet.

B&O M-15k Wagontop Box Cars

Like all railroads during the depression the B&O needed new cars to replace aging wood boxcars, but there was little cash available to do so. Ways to economize needed to be found while still meeting the increasing demand for equipment. The brilliant folks at B&O's Mount Clare Shops meet this challenge by developing the "Wagontop" design which reduced the amount of steel and parts required for construction of the

B&O 370853 - George Sisk photo, Charles Winters Collection

car body while maintaining structural strength. The design also created a "tighter" car relative to the weather, having no roof and side seems. To create new cars the B&O knocked the old wood bodies from M-15 class boxcars and constructed new wagontop bodies on the salvaged cast steel underframes. The first on the M-15k class was rebuilt in 1936 with the remainder being completed in 1937. A total of 1250 M-15k class cars were built.

B&O 371015 - June 1937, Toledo, OH, The Sirman Collection

Unlike new M-53 wagontop boxcars the M-15k class had an indentation along the side sill that was typical of rebuilt boxcars of this period. This indentation occurred as the frames of the older cars were narrower than the new steel body. Various styles of side sill supports were used to connect the salvaged frame to the new car's body ribs. The cars were originally equipped with Andrews trucks which were reused. During shopping some cars did receive newer style "Bettendorf" type trucks. Doors were the typical B&O flat steel type. Some cars later in their service life did receive Youngstown type doors. An additional spotting feature of these cars is the extended end sill which is a "left-over" from the original M-15 class that these cars were rebuilt from.

These cars could carry any of B&O's paint schemes during their service life, from the 1920-1937 "simple scheme" consisting of just a spelled out Baltimore & Ohio along with reporting initials and numbers to the Large B&O with the "Linking Thirteen Great States" herald. Cars were letter in two series, 370000 to 370989 and 371000 to 371249. Many of these cars lasted into the mid-fifties with 1156 of the original 1250 still being is service in 1955. But the age of the underframe, the "forty year rule", was starting to take its toll on the class. By 1956 only 375 were in revenue service and by 1960 the number was down to 18.

Construction

Before you start construction, it's recommended that that you familiarize yourself with the additional information and photos that pertain to this kit on the Resin Car Works website, www.resincarworks.com. Especially helpful are a series of prototype drawings that show the placement of the various car parts.

First, give the resin parts a good cleaning with Dawn detergent and a toothbrush to remove any mold releasing agents. A light sanding of joints also helps parts to bond.

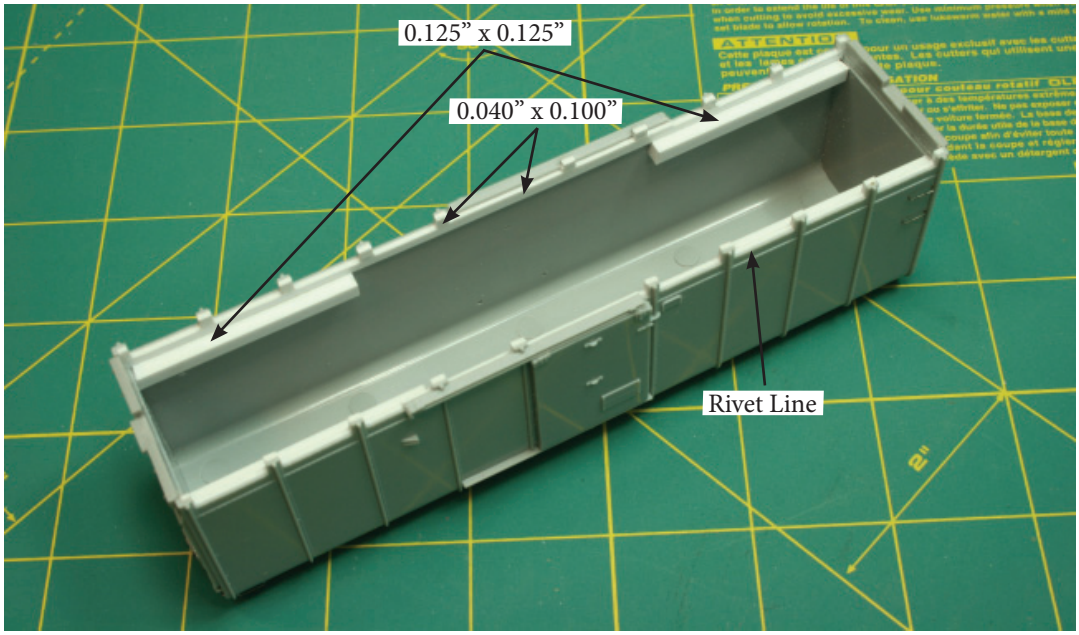
The cast parts are best attached with ACC. When the term "cement" is used in these instructions, it refers to ACC. ACC is a strong adhesive which dries quickly. It can easily attach a part where it is not supposed to be. It will glue skin, so be careful. Place a few drops on a plate of glass and use a wire or pin to transfer small amounts of ACC to the area to be joined. Always wear safety glasses. ACC debonder is a useful tool for removing smudges of ACC from surfaces where it shouldn't be. Place a drop on the offending spot and wipe up.

GOO or other such products are not recommended for construction except in small quantities, as they will soften the casting material.

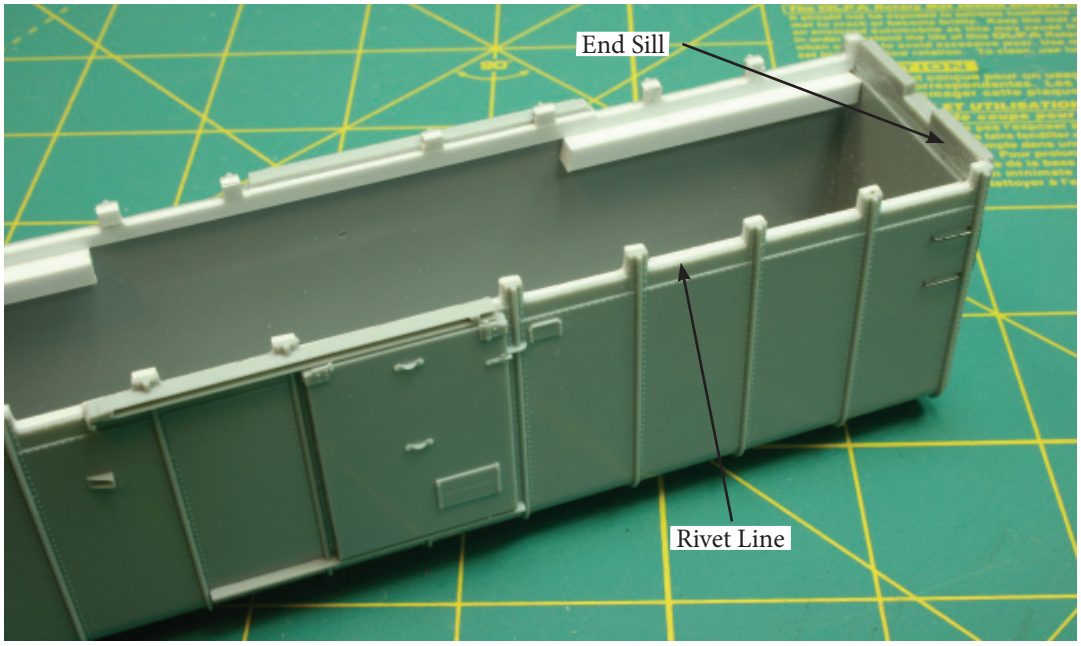
When a measurement is given, it's in prototype feet and inches.

When the word "scrap" is used, it refers to an item that the modeler is to supply.

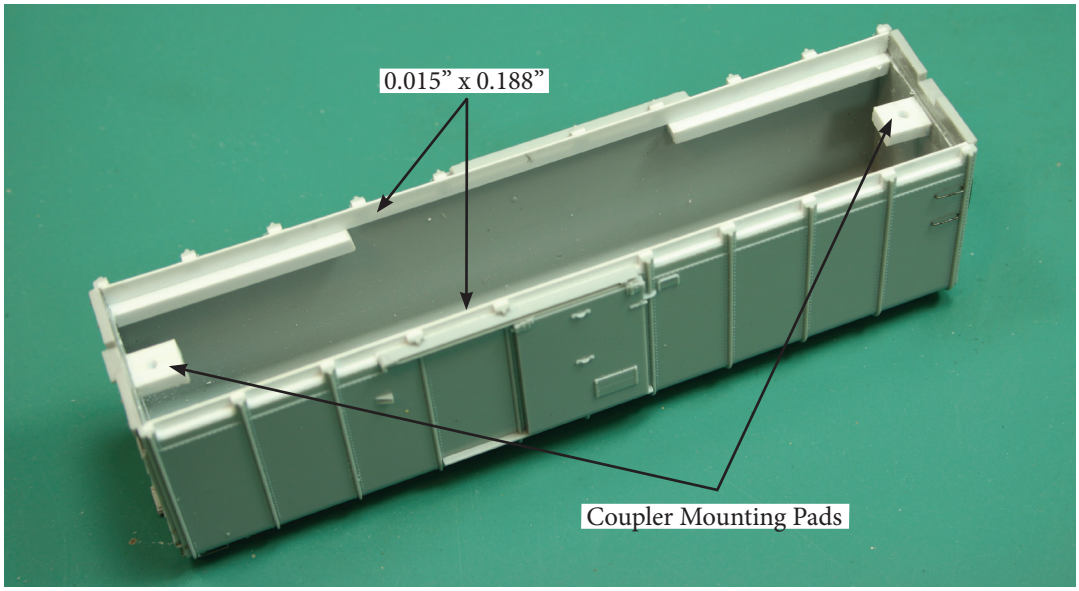
Step 1. Cement 0.040” x 0.100” styrene to the inside of the body. Align these strips with the bottom of the floor stops. Also add small pieces of 0.040” x 0.100” strip behind the side ribs as shown. Cement new floor stops from 0.125” x 0.125” stock above the 0.040” x 0.100” pieces.



Step 2. File the body to just below the rivet line and to the side braces as shown. Install the end sills.

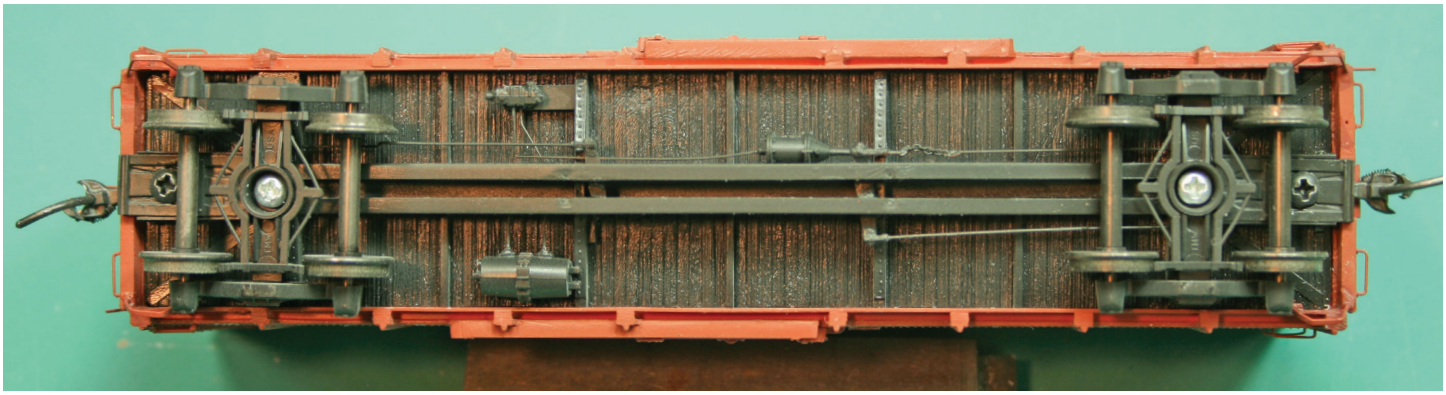


Step 3. The side sills are completed with the installation of the 0.015” x 0.188” styrene pieces. The bottom of the body has been “evened-up” so that it’s flat. Pads have been attached to the body at the coupler pockets so that the underframe can be painted separately and attached when done.



Step 4. The frame is shown above ready for detailing. The Accurail frame is a little short. Use pieces of the 0.040" x 0.100" styrene cemented to the ends as spacers as shown. These were then sanded down until the underframe fit the body. The existing pads for the coupler pockets are not removed, but are filed flat and smooth before attaching the resin coupler pockets.

Step 5. Complete the underframe as shown below by adding the brake system reservoir, triple valve and cylinder in the locations indicated. Holes will have to be drilled in the center sill halves if piping is to be added between the reservoir and the triple valve. If wanted, add brake rigging according to standard practices.



B&O M-15k rebuilt box car no. 370853 returned to service in September 1954 rolls across a rural grade crossing on Frank Hodina's C&IW railroad. *Frank Hodina photo*.

N Mini-Kit Info Sheets

RPM Chicagoland supports all scales, and in acknowledgement of the great group of N scale modelers who have been participating in the show for the past 10 years, we are offering the Mini-Kit in a second scale option this year. We will investigate other scale options in the future. Here is Keith Kohlmann who has completed the test model in N and will walk through the conversion in 1:160 scale.

B&O Class M-15k Wagon Top Boxcars
by: Keith M. Kohlmann

In late 1936 and 1937, the Baltimore & Ohio Railroad rebuilt 1,240 single door boxcars from several sub-classes of wooden double-sheath boxcars that had been built around 1915. The rebuilt boxcars were designated Class M-15k and numbered in two groups: 370000-370989 and 371000-371249.

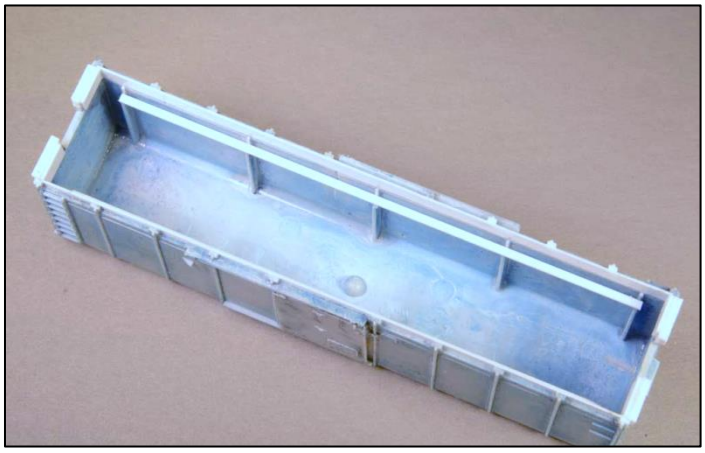
The cars received B&O's distinctive "wagon top" steel-sheathed car bodies. This unique design featured rolled sheets of steel that wrapped around the sides and top of the car, eliminating the leak-prone joints between the sides and roof. The sheets were riveted to raised ribs giving the rounded rooftop the outline of an old covered wagon's canvas bonnet stretched over curved bows. B&O used this method to build a variety of boxcars, covered hoppers, and cabooses during the late 1930's and early 1940's.

The all-steel wagon top bodies replaced the obsolete wooden sides. The narrow all-steel fishbelly center sill underframes were reused. But this meant that recessed areas were visible between the ribs where the narrow underframe met the wider side sheets of the wagon top body. These gaps between the ribs along the underframe gave the Class M-15k cars a unique appearance. The Class M-53 wagon top boxcars that were built new the following year by the B&O did not have the recessed side sills.

The original Andrews-style trucks were refurbished and reused. The cars were changed to AB brake systems during rebuilding. In the mid-1950s, nearly all of the remaining M-15k boxcars received new underframes and trucks to replace the original 40-year-old components. Youngstown doors and new door guides replaced the original flat doors during repairs or rebuilding. It is unlikely that any of the M-15k boxcars were repainted in the 1955 lettering plan. After rebuilding, the M-15k boxcars looked much like the cars in the M-53 classes.

The easiest way to build a model of these cars is to essentially do what the B&O shops did: Place a new wagon top shell over a fishbelly underframe taken from an old double-sheath boxcar. In N scale, this can be best accomplished using a flat door version of the wagon top boxcar shell from Fox Valley Models and a Micro-Trains underframe. Both components, along with decals, are provided in this year's N scale Mini-Kit at RPM Chicagoland.

To begin, lightly scribe a line 3/64" up from the bottom of a Fox Valley Models wagon top boxcar shell. Use a new #11 knife blade and some small files to remove the lower 3/64" between the ribs of the car. Carve away the plastic first, then file up to the line for the greatest accuracy.



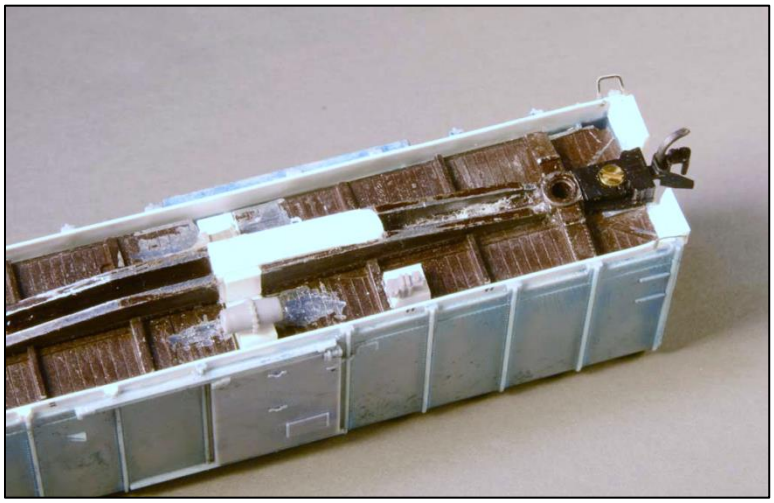
Glue a strip of .020" x .100" styrene behind the lower side sill of the car to form a backing for the recessed spaces.

Use a rotary tool to grind away the K-style brake details from a Micro-Trains 40' fishbelly single sheath boxcar underframe.

Then work carefully with a mill file to remove 1/16" of metal from each end.

The underframe will need to be extended 3/16" in order to get the truck centers properly spaced. Cut the underframe in half at the center. The metal center sills are separate pieces, and they will become loose when the frame is cut in half. Use superglue to keep the parts together.

Cut a piece of .030" brass .550" x .700". This will add enough weight to bring the car up to the NMRA recommended weight of .8 ounces. Glue the brass across the gap between the two halves of the underframe. Adjust the total length of the underframe to be three inches. Test fit the underframe inside the shell before moving on to the next steps.



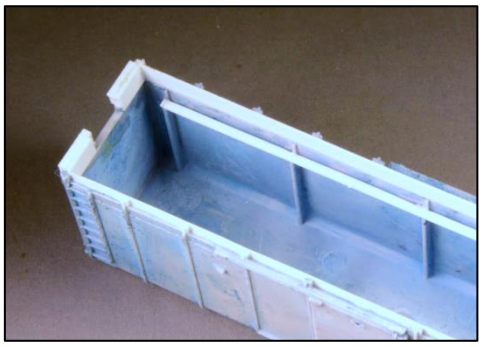
Use styrene strips to make a filler piece between the halves of the underframe. It doesn't need to be fancy because not much of it will show. Glue the center sills and the spacer in place with superglue.

Glue a Precision Scale Co. #6707 AB brake system under the car. Place the parts on small pieces of .080" thick styrene so the parts will be at the correct height.

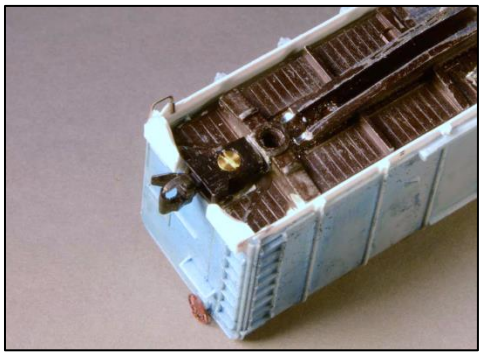
If you want to be fancy, add brake rod details made from .010" phosphor bronze wire.

Mount #1025 Micro-Trains couplers to the underframe. Use the inside coupler mounting holes. Tap the holes for 00-90 flat head screws. Be sure to countersink the coupler boxes so the screw heads don't stick out and rub against the axles. The ends of the coupler boxes will need to be trimmed in order to fit in this tight space. Be careful not to cut into the coupler draft gear that surrounds the springs.

Part of the unique look of the wagon top boxcars was the way they rode very low. The body side sills covered the tops of the truck side frames. Glue two strips of .020" x .040" styrene along the inside ribs of the car. This will place the underframe at the correct depth inside the shell.



Place FVM-3301 low profile wheelsets into Micro-Trains #1051 Andrews Trucks without couplers, and test fit the whole assembly inside the shell. You will need to cut notches into each end of the shell to create clearance for the coupler box. Test fit the installation of the trucks and underframe with a coupler height gauge.



Build up new end sills from strip styrene. The end sills are .060" x .080" Glue two pieces of .020" x .080" inside each end to serve as backing for pieces of .060" x .060" that will stick out on each side of the coupler gap.

Trim the end sills to make room for the coupler pockets. Glue the underframe in the final position with CA. Make sure that the car is level.

Bend new stirrups from .010" dia. phosphor bronze wire, or use BMLA's photoetched Freight Car Stirrups #402. Drill small holes in the end sill and the lower side corner of the car. Bend the end tabs "backwards" to fit the holes, and glue the stirrups in place with the angled portion of the stirrups facing the ends of the car.

Check to make sure the truck sideframes can rotate freely without coming in contact with the ends of

the car or the stirrups. Trim away any plastic on the sideframes that gets in the way.

Place pairs of Archer rivet decals between the ribs along the underframe. Refer to the prototype photos for placement.

This car had several lettering variations. Prototype photos can be found in many quality publications, on-line or from the B&O Historical Society. The FVM website also shows many lettering variations.

Use the decals provided with the kit, or chose a set of decals or dry transfers that will match the pre-1955 lettering scheme you prefer. There are many sets from which you may chose. I used CDS transfers set #N-357 B&O Wagontop Boxcars for this example as the Mini-Kit Decals were not yet available. I applied the transfers to clear decal paper first, then I put them on the car.

Weather the car lightly with an airbrush. Direct the weathering colors in such a way that they provide some contrast between the sides of the car and the darker recessed areas of the underframe to make this spotting feature stand out.

A friend gave me a copy of a railfan movie showing a CNW S-2 switcher moving blocks of B&O wagon top boxcars to the Nash automobile plant. These M-19k and M-53 boxcars were carrying tires from Ohio to the Rambler production lines in Kenosha. This classic scene inspired me to group my cars in a similar manner for operations.

Seminars Descriptions

Layouts

1 - Argentine Industrial District Layout

Chuck Hitchcock

Noted author and modeler Chuck Hitchcock returns to the conference this year and will discuss the concept, design and operation of the Argentine Industrial District Railway (AIDRY) based on the 1960 operations of the Santa Fe. Design elements or switching zones were based on different segments of the Santa Fe in Kansas City and the area's west bottom industrial area. Two man crews do not handle way bills but instead perform their work with the use of switch lists and CLIC charts. (Car Location Inventory Control). This document provides maps and instructors to the crews. Sample books will be available for inspection. The railroad operates under rule 105 which simply states that crews are responsible for being able to stop in one half the distance to other trains, open switches, etc. and speed is limited to 20 MPH.

2 - Designing and Building My New Layout

Clark Propst

Clark Propst took a meandering journey through prototype and freelance territory when he moved homes and had to focus on building a new layout. He will cover how one focuses in on a railroad, prototype, time period, and locale while describing how he ended up focusing on Story City.

3 - Modeling Granger Railroading

Tony Koester

Model Railroad Planning editor and transition era Nickel Plate Road modeler Tony Koester will provide an overview on granger railroading. He will review terrain, crops, related industries, small towns, operational considerations, and even coal railroading in the Midwest.

4 - The Redlands Loop: Modeling a Santa Fe Southern California Branchline

Keith Jordan

Keith will show how he arrived at the idea of modeling the Santa Fe's Redlands Loop, a citrus-oriented branchline in Southern California. Keith will explore the prototype and show you how he developed the current concept, remodeled the empty basement to accommodate it, created new and unusual benchwork, and the plan that will surprise all.

5 - Thinking outside the box: Designing the B&O Chicago Terminal RR

Henry Freeman

Henry Freeman is VP for Operations for the B&O Railroad Historical Society. He has been a clinician at NMRA National and Regional Conventions, Prototype Modeler meets and B&ORHS conventions. His articles have appeared in Model Railroader, Model Railroad Planning and the Operations SIG's Dispatcher Office, as well as B&ORHS publications. Henry is a retired newspaper and digital publisher and editor. His newsrooms won numerous national awards, including a Pulitzer Prize, and he was the founding Sports Editor of USA Today.

How do you model an urban railroad that served 500 industries with 60 switch crews a day in a 500 square foot space? This clinic includes the process of compressing elements of the 1956 prototype, the creative solutions to maximizing the available space for the HO-scale design and a look at the prototype research.

6 - "Up on Kettle Creek"

Pierre Oliver

Don't get into an argument with Pierre on whether or not you've built more resin freight cars than he… you'll lose! But this year Pierre is focusing on the construction of the Kettle Creek steel trestle for his current layout depicting the Wabash Railroad in Southern Ontario.

7 - Wheeling Freight Terminal

Eric Hansmann

Venture back to 1926 as Eric discusses his chosen era and the operations of the Wheeling Freight Terminal in this update on his home layout. (One time, Saturday only)

Tips and Techniques

8 - Advanced Production Level Resin Casting Techniques

Tom Madden

Tom Madden does production level resin castings for many of your favorite resin manufacturers, including the resin components for this year's RPM Mini-Kit. This year he will share his tips and techniques to move beyond personal castings and into the realm of production level techniques that produce high quality castings in large quantities. There is a lack of production capacity in the industry, and who knows… you might get inspired to change that!

9 - Airbrush 101 & Airbrush Weathering

Alan Houtz of Iwata

Alan Houtz of Iwata has been a fixture the past couple of years with his 20 student training classes. This year the "live fire" event will be led by Bill Welch in the vendor area, while Alan will return to a classic seminar format. Catch this session to learn the basics of airbrushing as well as some tips and techniques to combine airbrush weathering with other mediums.

10 - Airbrushing and Live Fire Events

Bill Welch

Bill Welch will be offering a clinic on airbrushes. This informative seminar is coordinated with Alan Houtz's Airbrushing 101 seminar, so there will not be overlapping information.

"Internal Mix Double Action Airbrushes 101 & Airbrushing Acrylics with Them" will be a traditional type clinic with the lights lowered and visuals presented. The first half will be an explanation of Internal Mix Double Action Airbrushes, an explanation of why they may be the best choice for spraying Acrylic paint and a survey of six airbrushes.

Bill will also mention three good quality inexpensive Chinese "ABEST" airbrushes for those on a budget. Accessories like compressors, hoses, and Quick Disconnects will be addressed.

The second half of this will be about how to be successful Airbrushing Acrylics. A Downloadable Handout with links to various resources will be provided covering both halves.

Also, after the seminar sessions, Bill will have four "Live Fire" airbrush stations set up in the display room where you can sign up for a slot on Saturday, starting at 1:00 PM, to get live instruction from experienced airbrush experts. Look for the sign-up sheet at the registration table.

11 - Building High Quality Models with Less Than Perfect Vision

Jeremy Dummler

Jeremy Dummler has written several articles for the NMRA Magazine on this subject, and plans to present a visual presentation on what works for him and what others are doing, including tools, tips, and skills to aid modelers as parts and details get smaller and smaller.

12 - New Lessons Learned with PanPastel Weathering

Rob Manley

Everyone's favorite PanPastel rep and longtime HO Mod-U-Trak member Rob Manley presents an update to the PanPastel techniques that have been developed over the past few years. These are new and familiar techniques "guaranteed to amaze and amuse your friends!"

13 - Resin Casting and Mold Making Basics

Aaron Gjermundson

A continuation on Aaron's 2015 presentation, this year will focus on mold making. Details on preparation of patterns and set up of a two part mold for pouring one piece carbodies will be demonstrated in detail.

Freight Car Research

14 - CB&Q Early HT-10 Triple Hoppers

Jerry Hamsmith & Ed Rethwisch

The CB&Q built 2,500 70-ton offset side triple hoppers between 1948 and 1961 to the 1935 AAR standard. Jerry and Ed team up to discuss the prototype and describe how to build accurate models of these cars.

15 - General American Build Refrigerator Cars (1922-1954)

Roger Hinman

Roger Hinman is a retired engineering manager who has authored many railroad and modeling articles, including the Merchants Despatch book. This year he will cover the refrigerator cars built by General American for external customers and for its own leasing fleet. A brief history of the company with be included as well as data showing how rapidly this company grew and how it cleverly managed growth through the depression years.

16 - Pennsy X37/X37a Boxcars: Prototype and Models

Stephen and Stevie Funaro

Regretfully, the Funaro's had a last minute issue and were unable to make it to this year's event. Look for their X37 and X37a automobile boxcar kits, and several other new releases at Bob's Photos in the Mortan Room.

17 - Representing the Transition Era Illinois Central Boxcar Fleet (Part I)

Brad Hanner

This clinic is aimed at the non-IC modeler. We'll examine the railroad's all-purpose boxcar fleet between 1945 and 1955 and review the most common cars found on the roster. In addition to examining the ebbs and flows of cars' series and types in this ten-year period, this clinic will provide a guide to modeling specific cars.

18 - Shipping Beer by Rail: Beer Reefer Fleets

Charles Hostetler

A conversation on the yahoo groups led to an idea to have someone cover the real beer reefer fleets… beyond the cutesy reefers that have been offered and into the nuts and bolts of how beer traveled by rail. Turns out Charles Hostetler was already in motion on the topic, and he's going to present basic information on the shippers, the consignees, and the ICC statistics that defined the commodity flow. Looks for information on what was shipped where, and what the various beer car fleets looked like.

19 - Trailer Train/TTX Autorack Fleet History

Jim Panza

Jim's series of Trailer Train related presentations are a fixture at the event, and this year he will focus on the autorack fleet from its inception through the modern day, concentrating on equipment types and how the fleet is distributed.

Modeling

20 - Favorite Freight Cars: Flat Cars and Flat Car Loads

Mont Switzer

Prolific author Mont Switzer will continue his 10 year series of Favorite Freight Cars by covering flat car loads and the flat cars that carry them. The clinic includes a discussion of the prototype loads and cars as well as instructions on how to model them to layout quality standards in HO Scale.

21 - How to complete your HO & N Scale Mini-Kit of the B&O M-15k

Frank Hodina & Keith Kohlmann

Frank Hodina of Resin Car Works lead the development of the B&O M-15k Mini-Kit following a generous offer by Fox Valley Models to donate wagon top boxcars. Frank will discuss some history of the M-15k, and then offer tips on how to complete the kit at his Resin Car Works booth in the vendor room. Keith Kohlmann from the N scale Modutrak group will be available to talk about the N scale version.

22 - Modeling Track and Its Supporting Elements

Kevin Kayser

This clinic will focus on realistically modeling track with an emphasis on enhancing commercially available products. Kevin will discuss how to paint and model ties and rail, use details from Proto87 Stores and Details West, and how to ballast to bring it all together. Finally, he will cover where to place lineside elements such as switch stands, line poles and signals.

23 - Modeling Great Northern Boxcars

Tyrone Johnsen

This presentation covers the significant numbered box car groups, their time periods, and the available models available today. The material also illustrates a methodology of analyzing a railroad's car fleet as a function of time which is useful to the operational mined model railroader.

24 - The Soo Line, Its Signature Boxcars and their Models, 1948-1980

Ken Soroos

Ken is the author of the Soo Line Society's book on Soo Line Freight Cars, and will be presenting on their signature boxcars and their models. Using Official Railway Equipment Registers from 1948 - 1980, Ken has identified the most common boxcars in eight different time intervals. Builder's and in-service photos are shown along with photos of available models to represent them.

25 - What more do you want to know about PFE reefer modeling?

Dick Harley

Having just finished up the PFE Painting and Lettering book that is being published by the SPH&TS, Dick Harley is coordinating an interactive seminar this year. He's counting on YOU to bring your questions about modeling these reefers. There is a ton of information out there, and he can help lead you to the right answers for better modeling. Feel free to email your questions ahead of time to dick.harley4up@verizon.net, or just bring them with to the clinic to play "Try to Stump the Expert!"

Time Table & Train Order/Prototype Operations

The Time Table and Train Order (TT&TO) track is an expanded concept for this year's RPM conference. We felt there was a need to cover TT&TO operations beyond articles and presentations, and really cover the topic with classroom sessions followed by live operating sessions. The HO Mod-U-Trak layout will be prepped for operations and attendees who graduate from the afternoon TT&TO classes will be able to sign up for the operating sessions in the evening. Classes will be held in the Shaw Room, with operating sessions in the model room.

26 - TT&TO on the Maumee Route

Bill Darnaby

Well known author and Maumee Route builder Bill Darnaby will present this year on how TT&TO operations are used on his home layout. Bill has a devoted group of operators who practice this art form, and this seminar will enhance the TT&TO classroom sessions while also being of interest to those who aren't planning to devote the time in the classroom this year.

27 - TT&TO Training Sessions and Live Operating Sessions

Harold Krewer

Harold Krewer is a retired railroader (past operating rules instructor and new-hire trainer at Amtrak), the current Superintendent of Operations at Illinois Railway Museum and a regular dispatcher on several of Chicagoland's TT&TO layouts. He's well qualified to teach TT&TO and will be coordinating the classroom and operating session at this year's conference. Look for three separate classroom sessions on both Thursday and Friday afternoons.

The first session will introduce TT&TO and explain how it differs from TWC, CTC and other forms of movement authority. It will focus on the concepts of authority, protection, and other components. The second session will cover the most common orders encountered: "Hard" meets, right-over, run lates, and more. Finally, a third session will be dispatcher-centric and cover the proper procedures for dictating, copying and reading back orders.

The Shaw Room will be Harold's domain, and all ye who enter there will be initiated into the TT&TO Union. (No dues, bring coffee!)

28 - Modeling from the Employee Timetable

Robert Hanmer

Blueprints and photos of prototypes long gone help the prototype modeler build models of cars and places. Another resource useful for modeling a prototype is the employee timetable. This clinic looks my use of employee timetables to recreate Great Northern and Duluth, Missabe & Iron Range railways operations in 1958. The design of the railroad as well as the ongoing re-creation of timetable and train order operation based on the timetable will be discussed. Problems and "gotchas" from bringing the timetable to life are also included.

29 - Operating with Prototypical Waybills

Tony Thompson

Noted author and historian Tony Thompson will be discussing the operations on two layouts with prototypical waybills. Trains on the two layouts are moved in different ways, but Tony's clinic concentrates on car movements and the use of prototype-format waybills to route cars.

Prototype Railroad Operations

30 - More Tales of WAG/B&O/B&S-A

Mike Schleigh

A return to the charming railroad scenes of the old Buffalo & Susquehanna-built properties.

31 - Nationwide Reefer Patterns

James Dick

James Dick has analyzed the AAR nationwide two-year data and will be presenting on the movement of reefer traffic across the North American rail network. There will be a focus on crop harvests and the reefer movement that followed.

32 - The Pickle Industry from a Railroad Perspective

David Leider

David Leider is the president of the Soo Line Historical and Technical Society and author of three books and numerous articles. He became interested in the pickle industry many years ago and tried to find information about how to model it, but there was nothing other than a few plans of cars and some salting stations. How the cars were used, when, how and by whom was a mystery. David will put all the pieces together and show how any steam or transition era layout can incorporate a salting station or pickle plant and the inbound and outbound loads associated with it.

33 - Working the Tower Bay Grain Elevators on the Lake Superior Terminal & Transfer

Perry Sugerrman

Perry Sugerman will present on the LST&T's Tower Bay Grain Elevator complex including prototype shots and how the complex is modeled and operated on Dan Holbrook's railroad.

Passenger

34 - ATSF Chicago Operations – Dearborn Station and 21st Street Coach Yard

James Brown

James Brown is the author of the recently released book titled "The Illinois Division of the Santa Fe Railway. He will cover operations at Dearborn Station and the ATSF 21st Street Coach Yard in this presentation of material gathered for the book.

35 - Berries, Guardsmen, Sausages, and Teenagers.

Jim Singer

No, it's not a bad "four guys walked into a bar" joke. This year's dive into the annuls of passenger train oddities will cover notes from C&NW Chicago Passenger Interchanges and Consists from the Late 50's and early 60's. Many Chicago area railroads are included in the presentation… More of the good stuff modeler's think never happens!

36 - Building Passenger Cars and Pullmans using BCW and Branchline Parts

John Greene

John Greene of Bethlehem Car Works will discuss the tips, techniques, and available parts that can be used to build accurate passenger cars, including Pullman heavyweights, using parts from BCW, Branchline, and more.

DCC & Sound

37 & 38 - LokSound DCC/Sound Products and New Full Throttle Features

Matt Herman of ESU

Learn all about DCC and Sound from Matt Herman of ESU/LokSound. Matt will be talking about the state of the art in sound decoders, how to get the most from your sound equipped models, and also demonstrate the features of the new Full Throttle sound from LokSound.

Handouts

RPM Chicagoland offers to print presentation handouts in this attendee program. Those handouts that were available in time for printing are included here for your convenience. We hope that this program will be a welcome addition to your reference library and that this information will be useful as your modeling continues. This is intended to be a reference manual, and as such, you won't offend anyone by taking notes directly within these pages!

Please be sure to thank the presenters for all the time spent in gathering this information.

Included Handouts:

Attachment A

Baltimore and Ohio Chicago Terminal Railroad Co.

The B&OCT was a separate company from the Baltimore & Ohio, with all stock held by the B&O. It is controlled today by CSX and is the only place among 21st Century railroads where the B&O's Capitol Dome logo is still displayed.

With roots dating to 1867, the Chicago Terminal Transfer Railroad Co. was in receivership in 1910 when the B&O acquired it and reorganized it into the B&OCT.

The B&OCT's primary function was to collect and distribute freight in the Chicago area, which included freight traveling to or from the B&O's main line into Chicago or between connecting carriers. The B&OCT provided a route into downtown Chicago for B&O, Pere Marquette, Soo Line and Chicago Great Western passenger trains and freight houses.

As one of Chicago's three major switching lines, the B&OCT reached its peak in the 1920's when it operated 78 route miles and 365 track-miles plus 42 miles of trackage rights. It interchanged with 34 railroads at 54 points, calling 90 crews or more to handle up to 3,500 cars a day, with roughly half of those cars handled for the B&O. The balance was traffic handled in intermediate switch runs between other carriers, or traffic moving between B&OCT-served sidings and connections other than the B&O.

Barr Yard was the largest B&OCT freight yard, followed by Robey Yard, which was located downtown just to the east of Western Avenue Junction. This yard was used to service industrial sidings and interchange and is now the site of the Union Pacific's downtown Global 1 Yard. The Altenheim Branch industries were serviced out of Homan Yard and included Sears, Roebuck and Company's national distribution center.

Grand Central Station (1890-1969) included a train shed that was one of the largest in the world when it was constructed. Grand Central was the smallest and grandest of Chicago's six downtown stations. Inbound passenger trains usually backed 3.7 miles into Grand Central from the wye at Western Ave. Junction.

Henry Freeman, VP/Operations for the Baltimore & Ohio Railroad Historical Society, is building a 1,000 square foot layout that models about seven miles of the B&OCT in 1956 centering on the Robey Switching District and Grand Central Station.

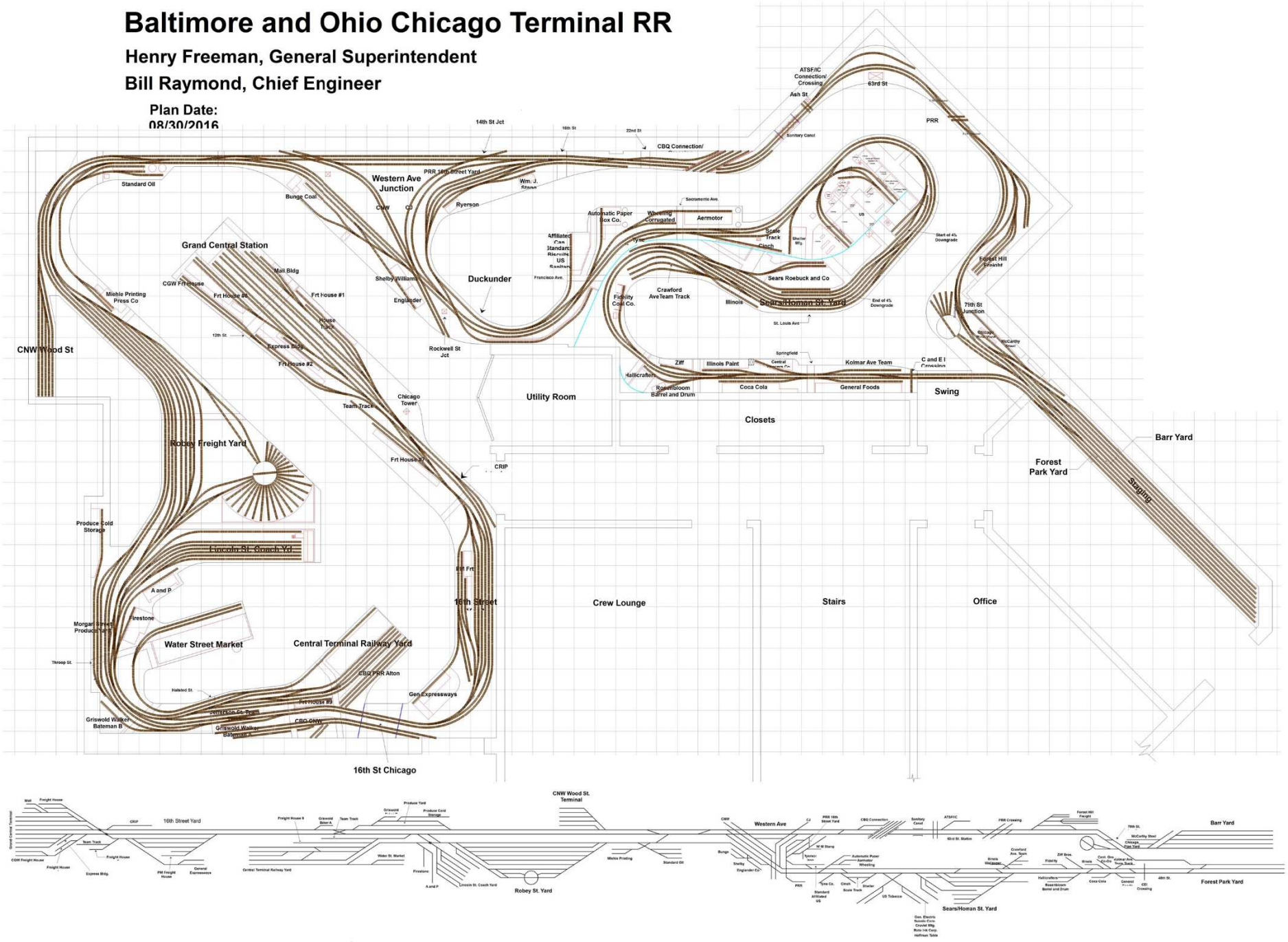
Source: Baltimore & Ohio Railroad by Kirk Reynolds and Dave Oroszi

Baltimore and Ohio Chicago Terminal RR

Henry Freeman, General Superintendent

Bill Raymond, Chief Engineer

Plan Date:
08/30/2016



Attachment A

Attachment B

Low Vision Modeling:

Workshop, Tools, and Skills for building quality models with less than perfect vision

By: Jeremy Dummler

Presented at RPM Chicagoland. October, 2016

What is "Low Vision"

* Low Vision is a term that is used to describe a visual impairment that is not correctable to 20/20 vision.
* A model seen by a person with 20/20 vision at 6 feet would need to be at 3 feet for a person with 20/40 vision, at 18 inches for someone with 20/80 vision, and right in front of their nose for someone with 20/200 if they could see the model or detail at all.

If you are having trouble seeing, please see your physician.

Choices In Scale

* Scale of a model makes a difference. Some of the smaller scales may be discarded by a modeler simply because they can't see the trains.
* A modeler unconcerned with detail may still choose these smaller scales for other reasons.

Workshop

* Finding a comfortable height for working helps with seeing the models.
* Ergonomic posture is important for everyone. Having to bend over a model can lead to less time spent at the workbench.
* Comfort is priority 1 in selecting a workbench, and setting the height. My preference is 32" from the floor.
* The right height requires experimenting.
* My workbench is built from a NORDEN gateleg table purchased at Ikea with casters added to all of the legs, allowing me to move the workshop around.

Lighting

* Multiple light sources should be experimented with to find the right fit for each modeler, or specific task.
* The better the light, the easier it is to see what you are doing on a model.
* My lights are two Lampat model 01 LED desk lamps.

Magnification

* Magnification solutions can be worn, mounted, or a combination of the two.
* Trial and error is necessary to find the right solution.
* My current preference is the Beileshi headband magnification system because of the multiple options for magnification power.

Work Surface

* The color of the work surface affects the amount of light reflected and the ease of seeing small parts that may be on the surface.
* Having multiple options available can be important, from day to day, or project to project, the preferred surface may change.
* A wide variety of self-healing matts are available at craft stores, local big-box stores, and online.

Tool tip: Drill Press Work

When working at the drill press, add as much light to the subject as possible. Eliminate reflection from the drill press table as well as visual clutter by using a simple piece of paper under the subject being drilled.

Useful Tools

* A whole host of "third-hand" tools, vises, and cradles are available for use.
* Tweezers are a must. High quality jewelers tweezers are my preference, but I do own some with a built-in magnification option.
* Glue applicators are also a great way to make sure you're aiming right with the glue and only getting a little bit where you intend.
* Digital tools, like tape measures and calipers, make reading measurements easy.
* Combination tools, like a single screwdriver with multiple heads, makes visually finding them on the workbench easier.

Workshop Organization

* Finding your tools and supplies can be hard, and in a cluttered workspace, can be nearly impossible.
* Organization bins, sorting boxes, and other bins make keeping the workshop tidy possible.
* Used optometry trays are available online. These hold up to 2 cars, and make finding and storing in-progress projects much easier.

Operating Model Trains

* Height, light, and magnification are also considerations in operating our models.
* Cell phone cameras can be used to get a better view of car numbers and couplers as we move freight cars around a layout.

For more information, find my blog at: yosemitevalleyrailroad.wordpress.com

Attachment C

General America
Owned Refrigerator Cars

1929	RPTG	Qty of Rfgr Cars	Pct
	GARE Frgt	661	8.53%
	GARE Psgr	350	4.52%
	QREX	2148	27.72%
	URTC	4590	59.23%
	TOTAL	**7749**	**100.00%**

1931	RPTG	Qty of Rfgr Cars	Pct
	GARE Frgt	198	1.46%
	GARE Psgr	204	1.50%
	GPEX	161	1.18%
	QREX	1151	8.46%
	SRLX	6600	48.50%
	URTC	5294	38.90%
	TOTAL	**13608**	**100.00%**

1943	RPTG	Qty of Rfgr Cars	Pct
	GARX Frgt	2853	18.98%
	GARX Psgr	69	0.46%
	GPEX	208	1.38%
	SRLX	5050	33.59%
	URTX	6854	45.59%
	TOTAL	**15034**	**100.00%**

1953	RPTG	Qty of Rfgr Cars	Pct
	GARX Frgt	1480	14.29%
	GPEX	238	2.30%
	SRLX	4064	39.23%
	URTX	4578	44.19%
	TOTAL	**10360**	**0.00%**

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Attachment D

Shipping Beer by Rail

Railroad Prototype Modelers Conference
Chicagoland 2016

Charles Hostetler

Part 1: The Commodity

Overview

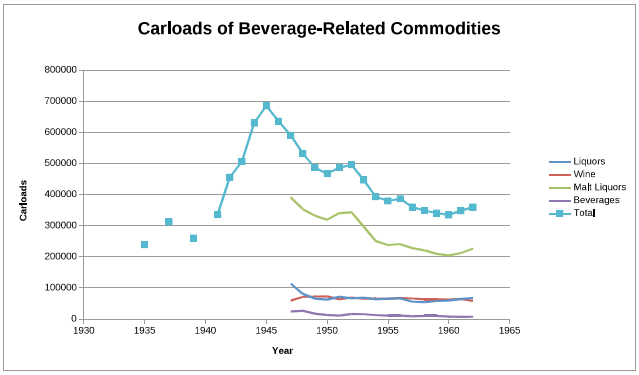
- In the carload waybill data, malt liquors dominate the beverage-related commodity classes
- In the 1940s and 1950s, roughly 300,000 carloads of malt liquor were shipped per year (approximately 1 carload of malt liquor for every 200 carload shipped by rail)
- Typical pattern of explosive growth in rail shipments during WWII, a bump for the Korean War, and a tailoff during the mid- to late-1950s

ICC Commodity Class 749: Liquors, Malt

- Includes:
  - Ale
  - Beer
  - Porter
  - Stout
- Does Not Include:
  - Brandy
  - Gin
  - Liquors
  - Rum
  - Whisky
  - Champaigne
  - Wine
  - Near Beer
  - Root Beer...

Attachment D

Malt Liquor Rail Shipments in Context



Part 2: The National Commodity Flow

Overview

- Classic example of a few to many commodity flow
- Shippers are a small number of national breweries; consignees are a large number of regional distributors, state agencies, and military depots
- East-west grain of traffic flow with significant flow to southeast and south central US
- No significant Canadian shippers
- No significant maritime exports
- No real seasonality
- Weight distribution is very tight; targeted to consignees needs rather than freight car capacity

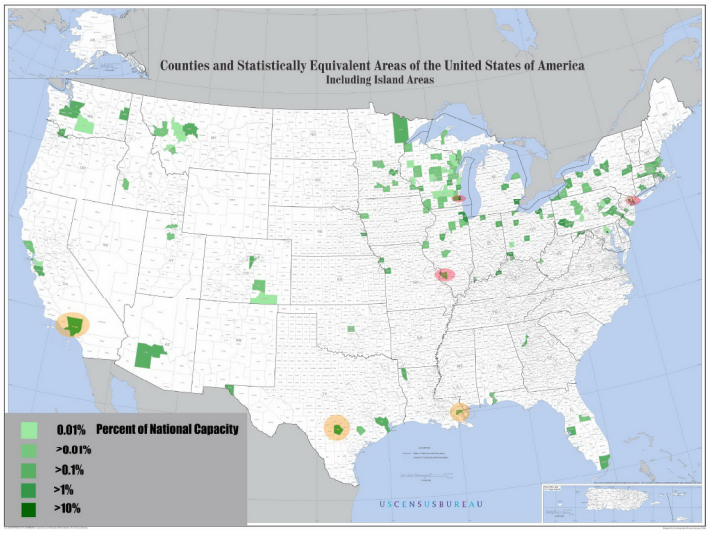
1950s Trends

- Still many regional and local breweries; but these aren't rail shippers
- The largest 15 brewers had concentrated over 50% of the market share
- Growing emergence of national brands by:
  - increasing canning lines and bottling house capacities
  - mergers and acquisitions

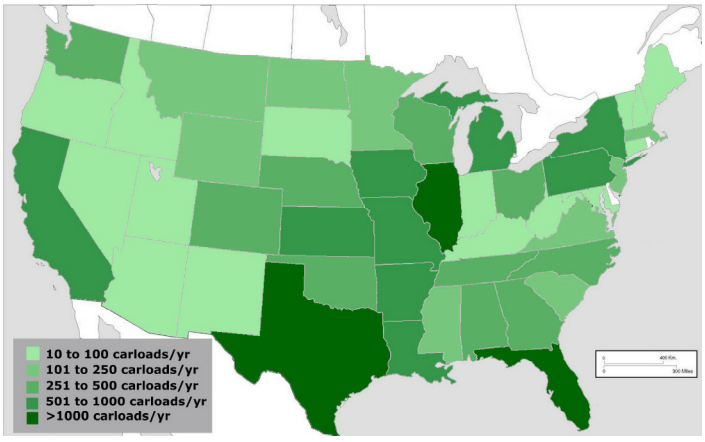
Attachment D

The Major Brewers

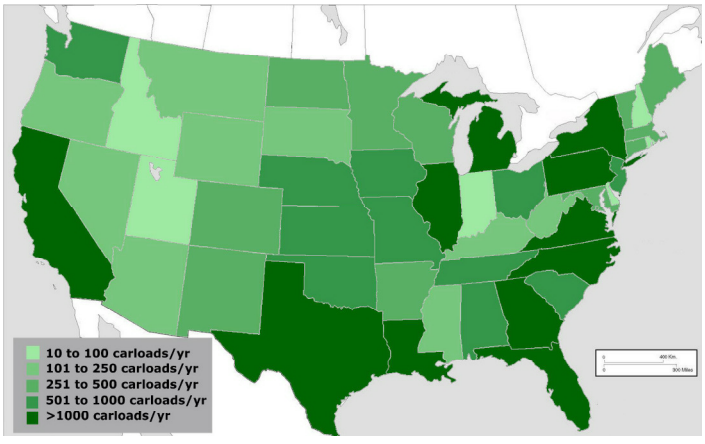
Anheuser-Busch	7.18	St. Louis Mo
Schlitz	7.07	Milwaukee Wisc
Falstaff	5.04	St. Louis Mo
Ballantine	4.68	Newark NJ
Hamm	3.96	St. Paul Minn
Carling	3.70	Cleveland O
Schaefer	3.45	Brooklyn NY
Pabst	3.17	Milwaukee Wisc
Stroh	3.03	Detroit Mich
Miller	2.61	Milwaukee Wisc
Coors	1.35	Golden Colo
Genesee	0.94	Rochester NY
Heileman	0.45	La Crosse Wisc
Total	46.63	



Carload Shipments from Missouri

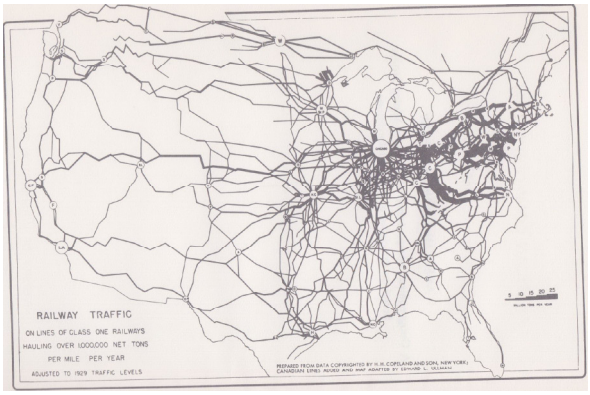


Carload Shipments from Wisconsin



Attachment D

Part 3: Localization



Overview

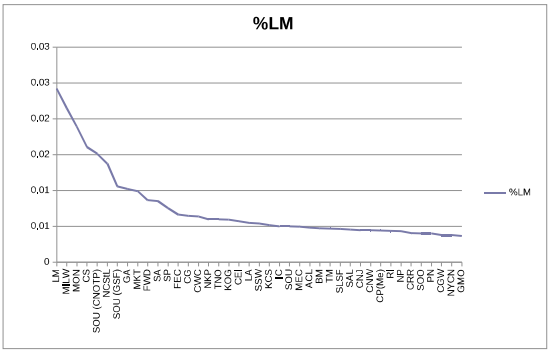
- Large variations in the pattern of this commodity flow can establish a sense of place
- I used a combination of ICC 1% Carload Waybill Statistics, ICC Freight Commodity Statistics, USACE Waterborne Commerce data, and some waybills decoded from the 1957 ICC Public Use File to generate my traffic profile
- My own layout depicts the Port of Milwaukee in September and October, 1957

The Inspiration that Set My Locale

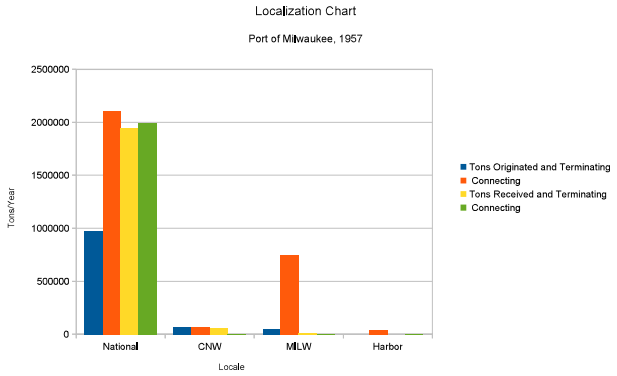
National Frequency

Year	Carloads	1/n
1947	391,914	188
1948	353,165	203
1949	332,290	181
1950	319,135	208
1951	340,522	207
1952	343,653	194
1953	297,275	225
1954	250,673	238
1955	237,930	278
1956	240,978	279
1957	228,388	274
1958	221,138	246
1959	209,903	269
1960	204,236	271

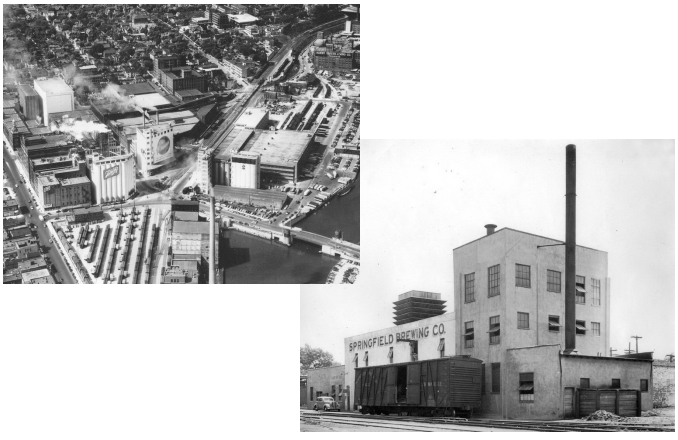
Class 1 Carrier Leading Frequencies (1957)



Localization



Part 4: The Freight Cars



Overview

- About 80 percent of the shipments were in “R” cars (includes RB)
- The remainder were in “X” cars
- In the late 1950s between 5 and 10% of shipments were piggyback
- DSDX cars showed up a lot (70% of the time) on shipments originating from Milwaukee, so I chose these cars as the focus of this project

Attachment D

Type of Car By Year

Year	Box	Reefer	Flat	Special	Tank
1949	23.2%	76.8%	0.0%	0.0%	0.0%
1950	18.2%	81.8%	0.0%	0.0%	0.0%
1951	18.8%	81.2%	0.0%	0.0%	0.0%
1952	13.5%	86.4%	0.0%	0.1%	0.0%
1953	16.8%	83.2%	0.0%	0.0%	0.0%
1954	18.7%	81.0%	0.2%	0.0%	0.0%
1955	16.3%	79.6%	3.5%	0.0%	0.5%
1956	19.0%	73.9%	7.0%	0.1%	0.0%
1957	16.3%	70.6%	13.0%	0.0%	0.0%
1958	16.6%	72.9%	10.5%	0.0%	0.0%
1959	17.8%	73.3%	8.8%	0.1%	0.0%
1960	22.7%	68.1%	9.1%	0.1%	0.0%
Total	18.2%	77.9%	3.8%	0.0%	0.0%

DSDX 200 -799 (350 RS)

DSDX 800 - 1999 (232 RB)

DSDX 4000 - 4600 (600 RB)

Attachment E

Shipping Autos by Rail – Part 1

Going from here...

TTX Collection

…to here.

Chicagoland RPM
October 2016
Jim Panza©

Shipping Autos by Rail – Part 1

Why Part 1?

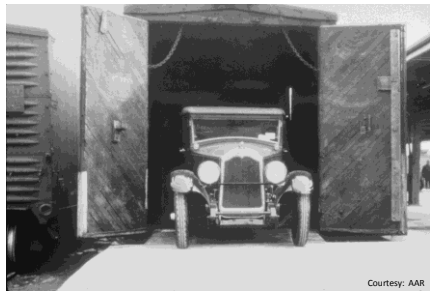
(Gray Car – Not Yellow)

Topics

- History – Shipments in Boxcars and TOFC.
- Early auto racks.
- TTX 85-ft. and 87-ft. flatcars with racks.
- TTX 89-ft. flatcars with racks.
- TTX 89-ft. 4-in. flatcars.
- Wide body racks: Low-level & Standard level Flush Deck Cars
- TTX Wide-Body Conversion Programs.

Shipping Autos by Rail

In the beginning…



Courtesy: AAR

Shipping Autos by Rail

Boxcars

Photos Courtesy: AAR

Loading automobiles in boxcars was cumbersome despite the invention of racks…

Shipping Autos by Rail

…and the use of devices such as skates.

All Photos Courtesy: AAR

Shipping Autos by Rail

Here comes the competition...

Courtesy: AAR

By 1959, railroads were down to hauling only 8% of the vehicles shipped.

Attachment E

Shipping Autos by Rail

First movement of vehicles on Trailer Train equipment was the piggybacking of auto carriers.

Courtesy: AAR

If you can't beat them, join them?

Shipping Autos by Rail

TTX Collection

Flatcars were 85-ft piggyback flats (F85A through F85F).

- Athearn F85B is ideal (prototype shown above).

Shipping Autos by Rail

TTX 200217 – Class F87

Jim Kinkaid Collection

- Low-level 87-ft. flatcars built by Pullman-Standard.
- Deck height 2-ft. 7½-in. for F87 vs. 3-ft. 5½-in. on F85 class flatcars.

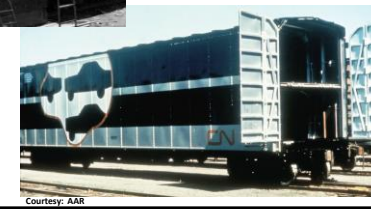
Shipping Autos by Rail

Pinterest: prova275.tumblr.com

CN Auto Boxcars - 1957

- 75-ft. length.
- Bi-level configuration.
- Fully enclosed.
- Ahead of its time.

Some transferred to Auto-Train and then Amtrak.



Courtesy: AAR

Shipping Autos by Rail

SLSF and Evans early auto rack designs.

Courtesy Thelibrary.org

Courtesy of trainweb.org

Shipping Autos by Rail

SLSF 3000 – First Tri-Level

- Preserved at the Museum of Transportation at St. Louis, MO

Courtesy : Thelibrary.org

Attachment E

TTX 85-Ft. Cars Equipped with Auto Racks

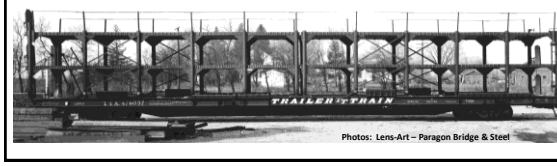
TTX 473444: Class F85B with Frisco-built bi-level auto rack.

SLSF Photo – TTX Collection

- Car initial is TTX.
- Note TOFC bridge plates used on A-deck.
- Post gussets not to be confused with any other rack design.
- Ladder and sill step near center of car.
- Rack is cushioned, riding on rollers.

TTX 85-Ft. Cars Equipped with Auto Racks

- Developed in 1960.
- TTX Board decided rack ownership to be separate from car body ownership (05/1960).
- Form D Car Contract approved by TTX owners covering racks and other special equipment on TTX cars (11/1960).
- 471 cars equipped with racks by 11/1960.



Photos: Lens-Art – Paragon Bridge & Steel

TTX 85-Ft. Cars Equipped with Auto Racks

Unidentified Class F85A (ACF) with Paragon tri-level rack.

Lens-Art – Paragon Bridge & Steel

- Note the A-deck covers the partial wood car floor.
- Cushioning devices for rack mounted to side sill of car.
- Tie-bar at BL corner of car.

TTX 85-Ft. Cars Equipped with Auto Racks

TTX 474636 Class F85B (Pullman-Standard) with bi-level rack built by Paragon Bridge & Steel.

Lens-Art – Paragon Bridge & Steel

- Note the wide bridge plates and ladders at diagonal opposite corners.
- Athearn F85B piggyback flatcar is good starting point.

TTX 85-Ft. Cars Equipped with Auto Racks

TTX 100416 Class F85C (Bethlehem Steel) with bi-level rack built by Paragon Bridge & Steel.

Courtesy Mainline Photos

- Raleigh, NC late 1960/early 1961.
- At the end of 1963, there were 1,933 85-ft. cars equipped with autoracks.

TTX 85-Ft. Cars Equipped with Auto Racks

RTTX 101393 Class F85C (BSC) with Paragon tri-level rack.

TTX Collection

- Car built in February 1962.
- Early car body paint to match rack.
- Added car initials to define car type/service in 1963.
- Beginning in 1964, racks on 85-ft. cars were removed.

Attachment E

TTX Flatcars for Auto Rack Service

Car Initials for TTX flatcars in auto rack service up to 89-ft. in length:

- BTTX: Bi-Level Auto Rack Car
- ETTX: Elevating Tri-Level Auto Rack Car
- KTTX: Hinged End [B-Deck] Tri-Level Auto Rack Car
- RTTX: Fixed [Deck] Tri-Level Auto Rack Car

Source: Trailer Train Company "Equipment Brochure" May 01, 1970.

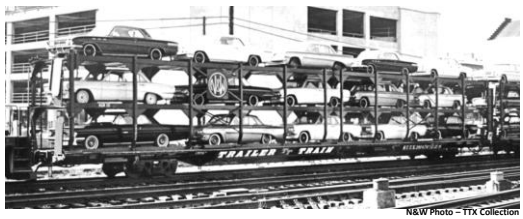
N&W Photo – TTX Collection

TTX Flatcars for Auto Rack Service

Type	1960	1963	1966	1968
85-ft. Std. Level	804	1933	626	281
87-ft Low Level		452	209	129
89-ft. Std. Level (Std. Draft Gear)		415	417	406
89-ft. Std. Level (Hyd. Draft Gear)		465	4229	3210
89-ft. Low Level (Std. Draft Gear)		2306	2354	1689
89-ft Low Level (Hyd. Draft Gear)		314	4953	4318
89-ft 4-in. Std. Level (Hyd. Draft Gear)				831
89-ft 4-in. Low Level (Hyd. Draft Gear)				4464
Total Auto Racks	804	5885	12788	15328

TTX 87-Ft. Low-Level Cars with Friction Draft Gears

RTTX 200474 - Class F87 (Pullman-Standard) with Paragon Para Pack rack.



N&W Photo – TTX Collection

- Auto manufacturers wanted increased length to haul more and larger vehicles.
- Reduced deck height (2-ft. 7½-in. for F87 vs. 3-ft. 5½-in. for standard-level flatcars)

TTX 89-Ft. Low-Level Cars with Friction Draft Gears

RTTX 550641 - Class F89B (ACF) built March 1963 with rack.


Courtesy: Mainline Photos May 1978

- Auto manufacturers wanted increased length to haul more vehicles (again).
- Reduced deck height (2-ft. 7½-in. vs. 3-ft. 5½-in. for standard-level flatcars)

TTX 89-Ft. Low-Level Cars with Friction Draft Gears

RTTX - Class F89C (Pullman-Standard) with Dana-built rack.

TTX Collection

TTX 89-Ft. Low-Level Cars with Friction Draft Gears

ETTX 501619 – F89C 89-ft. Pullman-Standard low-level flatcar built with elevating rack.


Courtesy: Jim Boyd – NKPH&TS website

- Did not have large acceptance.
- Research shows 584 cars in 1964, all gone by 1973.

Attachment E

TTX 89-Ft. Low-Level Cars with EOCC

End-of-Car Cushioning: 10-in. travel hydraulic cushioning became the standard (Freight Master Type F).

Pullman-Standard Photo - TTX Collection

TTX Collection

- Low-level flatcars required draft pocket above surface of the deck.
- Ramps were applied so that vehicles would clear the draft pocket.

TTX 89-Ft. Low-Level Cars with EOCC

KTTX 907125 - F89CH, Pullman-Standard low-level flatcar built October 1966.

Lens-Art – Paragon Bridge & Steel

The F89CH became the most common car body to be equipped with tri-level auto racks (over 4,300) built between 1963 and 1967.

TTX 89-Ft. Low-Level Cars with EOCC

KTTX 907105 - F89CH (P-S) car body built October 1966.

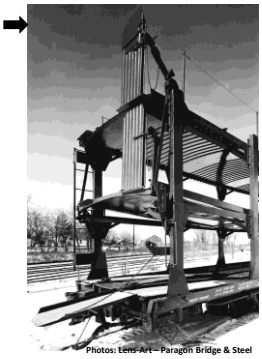
TTX Collection

Whitehead & Kales Lo-Tri-Pak rack.

- Note the large deck springs used to lift the hinged deck section at the end of the B-deck.
- A locking handle is moved to the unlocked position allowing the hinged deck to push upward by the springs.

TTX 89-Ft. Low-Level Cars with EOCC

KTTX – Hinged Deck Tri-Level Rack built by Paragon with hinged deck in raised position. ➡



KTTX – Hinged Deck Tri-Level Rack hinged deck in raised position on right side but disconnected at rear.

Photos: Lens-Art – Paragon Bridge & Steel

TTX 89-Ft. Low-Level Cars with EOCC

RTTX 903025 - F89CH (P-S) – car built December 1965

Jim Sands Photo 1966 - Courtesy : www.Oguagerr.com

Whitehead & Kales Lo-Tri-Pak rack.

- B-deck is not hinged and A-deck does not have ramps.

TTX 89-Ft. Low-Level Cars with EOCC

RTTX - F89CH with fixed decked tri-level auto racks.

Lens-Art – Paragon Bridge & Steel

- WM Paragon-built.
- Note rack post construction.
- Fall 1966

Union Pacific Photo – TTX Collection

- UP Whitehead & Kales-built.
- Note rack post and safety cable construction.

Attachment E

TTX 89-Ft. Low-Level Cars with EOCC

KTTX - F89CH with hinged-deck tri-level auto racks.

Tubular Steel Rack Post

- KTTX 907125 (Paragon) is an early rack using steel tube for posts.
- Rack built in 4th Quarter 1966 (Car built October 1966).

Photos: Lens-Art – Paragon Bridge & Steel

TTX 89-Ft. Standard-Level Cars with EOCC

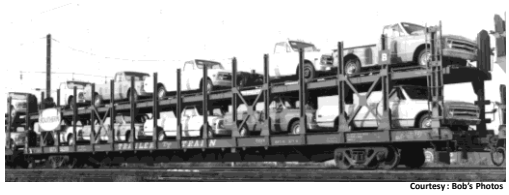
BTTX 913320 - F89FH (Bethlehem Steel) built February 1966, equipped with Whitehead & Kales bi-level rack.

Courtesy: Bob's Photos

- The F89FH became the most common car body to be equipped with bi-level auto racks during the 1960s.
- Note the side sill reinforcements at the post locations.
- Side posts are H- or I-beam except at cross-brace locations.

TTX 89-Ft. Standard-Level Cars with EOCC

BTTX 912918 - F89FH (Bethlehem Steel) built with Whitehead & Kales bi-level rack.



Courtesy: Bob's Photos

- The rack posts on this W&K bi-level rack are formed channels vs. the H- or I-beam shaped channels on BTTX 913320.
- Car built November 1965.

TTX 89-Ft. Standard-Level Cars with EOCC

RTTX 912315 - F89FH (Bethlehem Steel) built March 1965 with Whitehead & Kales fixed-deck tri-level rack.

PC westbound Richmond, IN July 1970

- Note car behind RTTX 912315 is a TTKX low-level flatcar.
- RTTX 912315 is a prototype version of Athearn F89FH model with tri-level fixed deck rack

The change to 89-Ft. 4-In. flatcars.

In July 1967, Ford Motor requested 89-ft. 4-in. low-level flatcars (measured over end sills) to be able to ship 15 1968 Galaxy models per car.

Courtesy: Mainline Photos

TTKX 909592, class F89CMH (P-S) built November 1963, with PRR hinged-deck tri-level rack.

- Existing flatcars lengthened to 89-ft. 4-in over end sills by adding 2" angle or tube at the end sills.

The change to 89-Ft. 4-In. flatcars.

Donald A. Pope Richmond, IN Oct. 1973

TTKX 810332, class ALH10 built October 1970, with MP hinged-deck tri-level rack.

- Car initial TTKX indicates 89-ft. 4-in. hinged-deck tri-level rack.
- Car initial TTRX indicates 89-ft. 4-in. fixed-deck tri-level rack.

Attachment E

89-Ft. 4-In. Low-Level Flatcar Underframes.

Pullman-Standard Photo – TTX Collection

ACF Photo – TTX Collection

Pullman-Standard

- Box-type center sill consisting of two webs, center sill bottom cover plate and the floor sheet acting as top cover plate.
- Transition with reinforcement plates.
- A much needed model!

ACF Industries

- Split center sill consisting of two webs each with narrow bottom cover plates and center sill separators between webs.
- End "wish bone" transition section.
- Used by ExactRail on their Vert-A-Pac.

Side Screens & Bridge Plates

BN Eola, IL Jan 21, 1994

TTBX 910861, class F89FH built May 1964, with BN bi-level Portec rack.

- Second rack applied 08/19/1977 (note side sill reinforcements do not line up with rack posts).
- Debate as early as 1967 regarding new racks applied to existing cars.
- Note protective side screening and no bridge plates...

Side Screens & Bridge Plates

Courtesy: AAR

ATSF 89261 with test application of fiber cloth side screening.

UP Westbound Rochelle, IL Sept. 2000

CN bi-level racks with metal screening.

- Metal screening was later prohibited.

Side Screens & Bridge Plates

CR Altoona PA August 1981 - Jim Panza

Courtesy: AAR

TTKX 908776, class PLH10 built October 1968, B&M tri-level rack with Galvanized Side Screening.

- Protective screening began to be applied in 1971.

TTKX 801532, class PLH10 built November 1970, with Southern tri-level rack with Fiberglass Side Screening.

- Fiberglass screening was later prohibited.

Side Screens & Bridge Plates

TTX Collection

TTX Collection

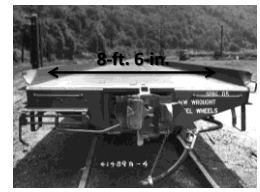
Railroads began using portable bridge plates by January 1968.

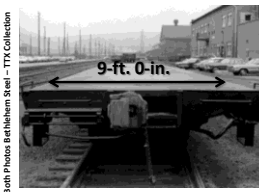
- Bridge plates were removed from auto racks.
- Vehicles were permitted by the FRA to extend 4-in. beyond the striker.

Donald A. Pope

Flush Deck Standard Level 89-Ft. 4-In. flatcars.

On April 30, 1968, Ford Motor advised railroads that they wanted "wide-body" racks as standard.





Both Photos Bethlehem Steel – TTX Collection

At July 1968 BOD meeting, TTX standardized on the 89-Ft. 4-In., standard-level flush-deck flatcar design for intermodal, auto rack (standard-level) and special-equipped fleets.

Attachment E

Flush Deck Standard Level 89-Ft. 4-In. flatcars.

Lens-Art –Portec Paragon Division

TTBX 961785, class BSH11 built February 1969, with PC Bi-level rack.

- BSH11 is most common of the standard-level, flush-deck car classes equipped with racks.
- Portec had acquired Paragon by this time – note decal.
- Tubular Steel rack posts had become standard.

Flush Deck Standard Level 89-Ft. 4-In. flatcars.

Lens-Art – Paragon Bridge & Steel

TTRX 962089, class BSH11 built July 1969, with Southern Railway tri-level rack.

- No bridge plates.
- No side screening.
- Note lowered top railing for shipment.

Vert-A-Pac and Stac-Pac

- TTVX 801979, class PLH10V, with Missouri Pacific Railroad Vert-A-Pac built by Whitehead & Kales.
- 1971 (64), 1973 (208) last used 1978 (135).
- ExactRail is on ACF-built flatcar (ALH11V).

IHB La Grange Park, IL Oct 1973

SP Photo – TTX Collection

Vert-A-Pac and Stac-Pac

Donald A. Pope Indianapolis, IN. 1974

TTSX 803087, class PLH10, with Milwaukee Road & SP containers.

- Containers built by Whitehead & Kales.
- 1971 start but TTSX not used until 1975 and converted in 1977.
- Containers survived – Tinley Park, IL along ex- Rock Island mainline (west of Oak Park Avenue station).

Jim Panza

Enclosed Tri-Level Auto Racks

Courtesy: AAR

ETTX 850009, class PLH21, with ATSF tri-level rack built by Portec that bought Paragon in the 1970s.

- Note side sill hides the trucks of the early PLH21 car design.
- Rack has tri-fold end doors, side screening with ventilation holes.

Enclosed Tri-Level Auto Racks

BNSF Naperville IL Oct 1998

ETTX 850892, class PLH21A, with CR tri-level rack built by Whitehead & Kales in August 1975.

- Note holes in side sill at trucks PLH21 car design.
- Rack has radial end doors.
- Became NS rack with CR break-up.
- Car deracked in 2003, rebuilt with ILS and new rack applied.

Attachment E

Enclosed Tri-Level Auto Racks

NS Eastbound Cresson, PA 08/16/2007

ETTX 852630, class PLH21D built May 1978
- Rack built May 1993 by Thrall, certified 03/24/2006.
- Note Galvanized ladder treads.
- Prototype for Walthers Tri-Level Enclosed Auto Rack.
- Class PLH21B and PLH21C similar with outside leg of sill steps secured to face of side sills through brackets.

Enclosed Tri-Level Auto Racks

CSXT Dolton, IL 01/26/2002

ETTX 701236, class BLH21C, with CR tri-level rack built by Thrall.
- ALH21 and PLH21B,C, & D similar.
- Side sill coved to allow truck inspection and maintenance.
- Rack built 3/20/1989, certified 07/06/1998 (Rack owned by NS).
- Car equipped with Swing Motion Trucks (Note transom ends) at time of certification.

Enclosed Tri-Level Auto Racks
Wide Body Program

Flush-deck side sill hung on gussets welded to existing side sill.

Enclosed Tri-Level Auto Racks
Wide Body Program

- Width of car increased to 9-ft. 9⅜-in. over side sills.
- Length increased to 90-ft. 0-in. over strikers.
- Post pads – thickness varied to meet dimensional requirements for application of new rack.

Enclosed Tri-Level Auto Racks

BNSF Eola, IL 08/25/2007

ETTX 901410, class F89CHW, with CN tri-level rack built by Portec 06/04/1985.
- Car body converted from F89CH raised-sill car in May 1985.
- Rack has RAVE end doors.
- Orange Dot indicates deck clearance ≥ 61½-in. (Blue square would indicate deck clearance <61½-in).

Enclosed Tri-Level Auto Racks
Wide Body Program

NS Eastbound Cresson, PA 08/16/2007

ETTX 909704, class PLH11W, with CSX tri-level rack built by Thrall 08/29/1989.
- Car purchased secondhand from NS 07/01/1989 and went through wide-body program at Hamburg Div., N. Augusta, SC
- Car built 02/01/1974 will be retired by 02/01/2024 as low-level wide-body cars have 50-year life.

Attachment E

Enclosed Tri-Level Auto Racks

Johnstown America – TTX Collection

GTTX 710417, class JLH18, low-level flatcar built by Johnstown America.

- Tapered deck at ends eliminating requirement for ramps.
- Deck height 2-ft 7½-in.
- Note post pads similar to low-level wide-body cars.
- First deliveries November 1994.
- GLH18 (Greenbrier) NLH18 (NSC) and RLH18 (Trinity) similar.
- First TTX car type designed specifically for auto racks.

Enclosed Tri-Level Auto Racks

BNSF Willow Springs, IL

ETTX 710793 class JLH18, with TTX tri-level rack built by Trinity (Thrall).

- 309 TTX-owned Tri-Level Racks
- Rack has SealSafe Radial Door (No slots in end door).
- Note dust guards between side screens.
- Side Screens with reduced holes and diameter.

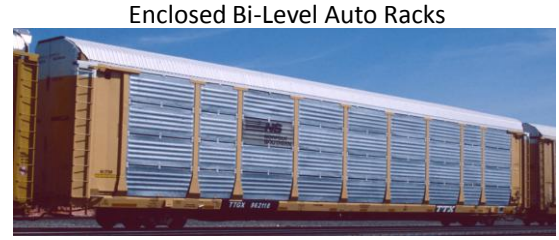
Enclosed Bi-Level Auto Racks

BNSF Eola, IL 08/25/2007

TTGX 961800, class BSH11, with CSXT bi-level rack built by Thrall 05/29/1984.

- RAVE end doors.
- Rack was painted in January 2007 and subsequently wrecked in 2009, deracked in 2010.
- Note the rack posts are bent inward at the bottom.

Enclosed Bi-Level Auto Racks



BNSF Eola, IL Sept. 2006

TTGX initial first used 1977.
TTGX 962118, class BSH11 built 06/01/1969.

- NS bi-level rack built 05/10/1990 by Thrall, painted Feb. 2006.
- Radial doors with slot for clearing B-deck bridge plate extension.
- Prototype for Walthers and Intermountain bi-level rack cars.
- Reflectors became mandatory in 2005.

Enclosed Bi-Level Auto Racks

IHB La Grange Park, IL Feb. 2004

TTGX 942004, class PSH20, with CR bi-level rack.

- Rack built 02/05/1993 by Thrall, now owned by NS.
- Radial doors with slot for clearing B-deck bridge plate extension.
- Easily modeled by replacing Bethlehem Steel style jacking pads with Pullman-Standard design on Walthers & Intermountain cars.

Enclosed Bi-Level Auto Racks

BNSF Eola, IL 07/14/2015

TTGX 963188, class BSH11 built July 1, 1970, BNSF bi-level rack.

- Rack built 01/05/1990 by Greenville Steel Car (GSC).
- GSC had purchased rack design from Portec (formerly Paragon).
- Rack was rebuilt and the car body received Increased Life Status (65-Year Life – note R1 stenciled on side sill) in January 2014 making it acceptable in interchange service until July 2035.

Attachment E

Enclosed Bi-Level Auto Racks
Wide Body Program

From this…

CR Altoona, PA August 1994

TTGX 151857, class 89FMHW built 09-65 as F89F, rebuilt 07/1989
- Replaced channel side sill with flush-deck side sill.
- Converted to End-of Car Cushioning.
- Thrall rack applied 07/25/1989.

…to this.

GTW Blue Island, IL May 1992

Enclosed Bi-Level Auto Racks
Mid-Level Flat Car – Designed for Auto Rack Service

Johnstown America – TTX Collection

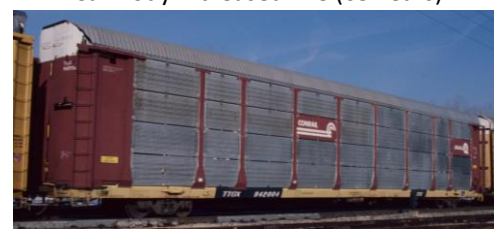
TTGX 985314, class JSH80 built by Johnstown America 5/12/1998.
- In order to open up clearance on A-deck, the deck height was lowered to 39½" vs. 41½" for standard-level flatcars.
- Width over side sill increased so rack posts are straight.

Changes to car body requirements beginning in 1992:
- Car equipped with Premium Trucks (Swing Motion or standard 3-piece with Koni Yaw Dampers).
- EOCC units must meet AAR Spec. 921-D (50,000 lbs. preload, gas return).

Enclosed Bi-Level Auto Racks
Mid-Level Flat Car

TTGX 996319, class GSH80.
- Rack built 01/20/2000 by Thrall Car.
- Sealsafe Radial Door
- Dust guards between side screen panels.
- Side screens reconfigured holes.
- Side posts are straight without bend at bottom.

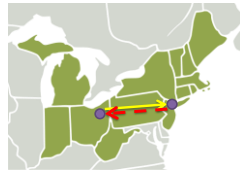
Car Body Increased Life (65 Years)



TTGX 942004, class PSH20, built 02/01/1974 with 40-year life.
- Car body rebuilt in 1993 extended life to 50 years.
- Rack built 02/05/1993 (original open rack removed).
- With 50-year life, car would be retired in 2024.
- NS rebuilt & certified rack in 2015, TTX performed ILS so car body is good until 2039.

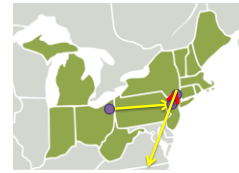
Auto Rack distribution prior to Reload

PC Leetsdale, PA 1971



- Auto racks assigned individually by railroad to shipper-specific automotive production plants.
- Once unloaded at destination, auto racks reverse-routed back to origin.
- Empty/Load mileage was 100%, long transit times, large fleet required.
- TV-9M moving empties from N. Bergen for Goodman Yard (Lordstown, Ohio) via connection with ED-3 at Conway, PA.

Auto Rack distribution with Reload



- What if instead of moving empty back to Lordstown, the cars were loaded at the GM Plant at Terrytown, NY to be reloaded from North Bergen?
- Then, it could be loaded for Atlanta, GA.
- Now, let's say the GM Plant at Atlanta has a surplus of cars to load but the GM plant in Arlington, TX needs cars.
- The excess empties at Atlanta could be moved to Arlington, TX.
- From Arlington, TX, the cars are loaded for Kansas City, MO…

Attachment E

Reload History

Category	1979	2016
No. of Railroads*	8	10
No. of Shippers	1	17
Loading Locations	9	100+
Unloading Locations	16	150+
Rack Types in Reload	Tri-Levels	ABL, BL, TL & AMAX
Geographic Areas	U.S.	U.S., Canada, Mexico

- Reload managed by TTX Company (TTX Reload) effective July 1995 and moved to TTX offices.
- Various computerize programs have been used to manage the fleet, each more efficient than its predecessor.

Reload Overview

- Reload gathers input from:
  - Shippers: Forecast of Loadings
  - Railroads:
    - Car Movement Records
    - Waybills
    - Equipment Characteristics

Reload Overview

- Reload analysis process:
  - Demand by Loading Location
  - Flow of Empties enroute to Loading Points
  - Flow of Loads enroute to Unloading Points
  - Use tools to match supply with demand

Reload Overview

- Auto racks are combined into one common pool.
  - Acceptance by OEM's and cost to equip auto racks with chock type tie-downs allows for universal vehicle securement.
- Shared by participating OEM's and distributed by a collection of railroads.
- Centralized distribution of a shared fleet of 50,000+ auto racks.
- Smaller fleet required to move a great quantity of vehicles.

Shipping Autos by Rail – Part 2

- Other rack types on TTX cars (CTTX, TTNX, TTQX, TTSX, TTUX, TTVX [2nd])
- Autos shipped in Containers (Auto-Stack)
- Articulated Bi-Level (Thrall)
- Union Pacific Auto-Flex
- National Steel Car auto rack
- Gunderson Multi-Max
- Auto Rack Certification and Paint Schemes
- Tie-Down Methods
- AAR Handling of Auto Industry Traffic
- More rack types including one-of-a-kind experiments

Shipping Autos by Rail

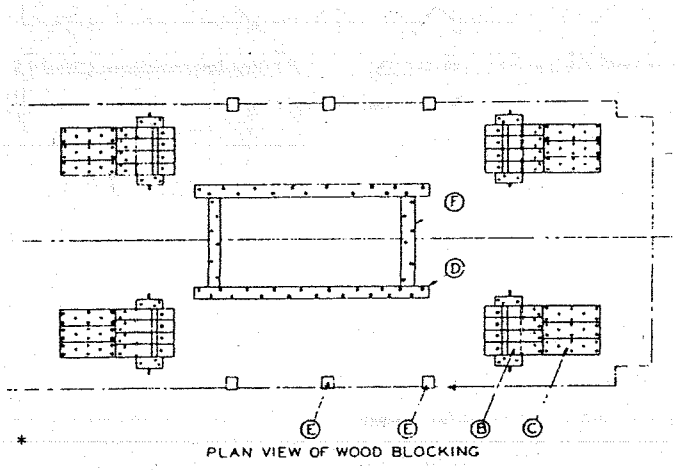
- Questions?
- Comments?
- Email: JDPanza@comcast.net

Association of American Railroads

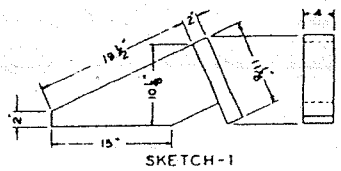
RULES GOVERNING

THE

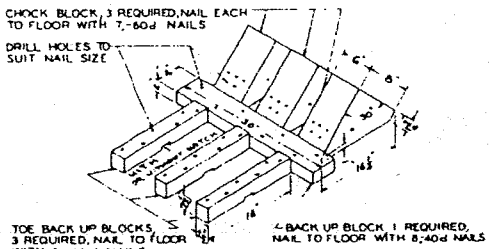
Loading of Commodities On Open Top Cars and Trailers



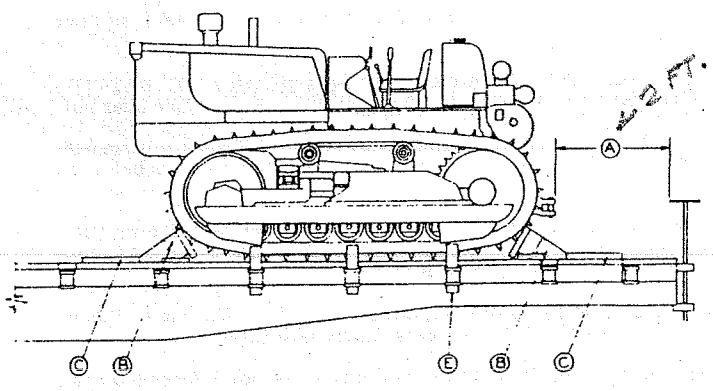
PLAN VIEW OF WOOD BLOCKING

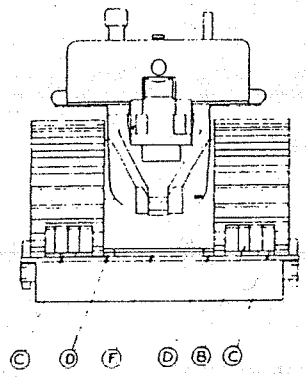


SKETCH-1



SKETCH-2
FOUR ASSEMBLIES REQUIRED PER TRACTOR





Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2, Sec. 1.
B	4 ea. unit.	Each to consist of four blocks, Sketch 1, or equivalent, secured to car floor with double ¾ in. x .035 in. bands. Bands to pass over top of blocks nailed securely to car floor and place two 2 in. x 4 in. x 10 in. pieces, one on each side, nailed to floor with three 40-D nails. Blocks must be toe-nailed together and to car floor with 20-D nails. Locate, as shown, against each end of crawler treads and secure each Item "B" with eight 60-D, twelve 40-D and four 20-D nails. Substitute if desired, block assembly per Sketch 2.
C	As required.	2 in. x pieces totaling full width of Items "B" x 24 in. long and secure to floor with twenty-four 30-D nails. Not required when block assembly per Sketch 2 is used.
D	2 ea. unit.	Each to consist of two pieces of 2 in. x 4 in., length to suit. Locate, as shown, against inside of crawler treads and secure lower piece to floor with 30-D nails spaced 10 inches apart and top piece to one below in like manner. Not required when Item "E" is used.
E	As required.	Side stakes long enough to extend 8 inches above floor. Locate minimum of three stakes on each side of unit, suitably spaced, as shown. Fill space between Items "E" and crawlers with suitable nailed fillers. Not required when Items "F" and "D" are used.
F	2 ea. unit.	Each to consist of two pieces of 2 in. x 4 in., length sufficient to fill space between Items "D". Locate, as shown, suitably spaced between Items "D", and secure lower piece to floor with 30-D nails spaced 10 inches apart and top piece to one below in like manner. Not required when Item "E" is used.

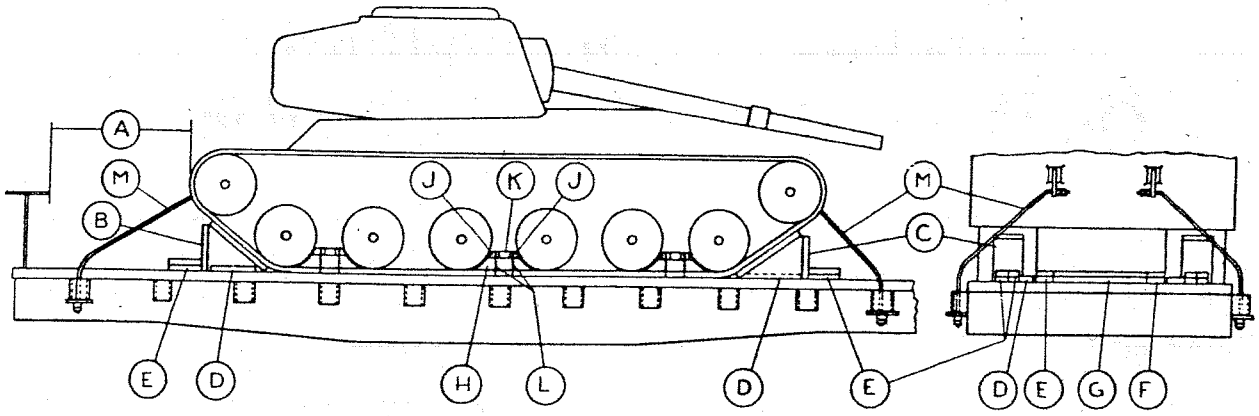
Where wedge shaped wheel or crawler blocking is used, such blocking may be chamfered at ends, provided suitable back-up blocks are used.

Detached parts, boxed material, etc., must be located as far from car sides and ends as practicable and secured to prevent displacement.

If so equipped, mechanical brakes must be tightly set and levers wired.

See General Rules 4, 5, 9, 10, 14, 15 and 19-A for further details.

TANKS AND SIMILAR UNITS, OVER 60,000 TO 100,000 LBS., INCLUSIVE—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2, Sec. 1.
B	2	Blocks, pattern 31. Locate one against each rear crawler tread.
C	2	Blocks, pattern 30. Locate one against each front crawler tread.
D	2 ea. Item "B" and "C".	2 in. x 4 in. x 20 in. Locate one on inside of each Item "B" and "C", and secure each to floor with six 20-D nails.
E	2 ea. Item "B" and "C".	Each to consist of two pieces of 2 in. x 4 in. x 12 in. Locate against ends of Items "B" and "C". Secure lower piece to floor with four 20-D nails and top piece to one below in like manner.
F	2 ea. unit.	Each to consist of two pieces of 2 in. x 4 in. x 14 ft. Locate on floor against inside of each crawler tread and secure lower piece to floor with twelve 30-D nails and top piece to one below in like manner.
G	3 ea. unit.	Each to consist of two pieces of 2 in. x 4 in., long enough to fill space between Items "F". Locate one near center and one near each end of Items "F". Secure lower piece to floor with four 30-D nails and top piece to one below in like manner.
H	6	Each to consist of two pieces of 6 in. x 6 in., length to suit, cut to fit contour of bogie wheels. Locate one piece between inside and outside wheels of each bogie assembly.
J	6	Each to consist of two pieces of 4 in. x 4 in., length to suit. Locate against bogie wheels on top of Items "H".
K	6	Each to consist of two pieces of 4 in. x 4 in., long enough to fill space between Items "H". Toe-nail each to Items "H" with two 20-D nails.
L	12	Each to consist of two strands No. 8 gage black annealed wire. Pass under crawler tread and around Items "H" and "J". Substitute, if desired, at each location, one ¾ in. x .035 in. high tension band. Use staples or nails bent over to retain bands or wires in position.
M	4	1¼ in. dia. rods. Attach to lifting or towing lugs and pass through stake pockets and ½ in. x 4 in. x 10 in. plates on each side of car. Substitute, if desired, ⅝ in. steel cable, doubled.

*When necessary to extend floor for the application of Items "D" to units loaded on car floor, use method shown in gure 1-C, Sec. 1.

For loads superimposed above car floor, use method illustrated in Figure 81.

Turret gun should be in straightforward position, and turret lock handwheel and elevating mechanism handwheel ust be wired to prevent rotating.

When unit is not equipped with built-in gun brace, apply two ¾ in. high tension bands, securing gun barrel to unit at ch side.

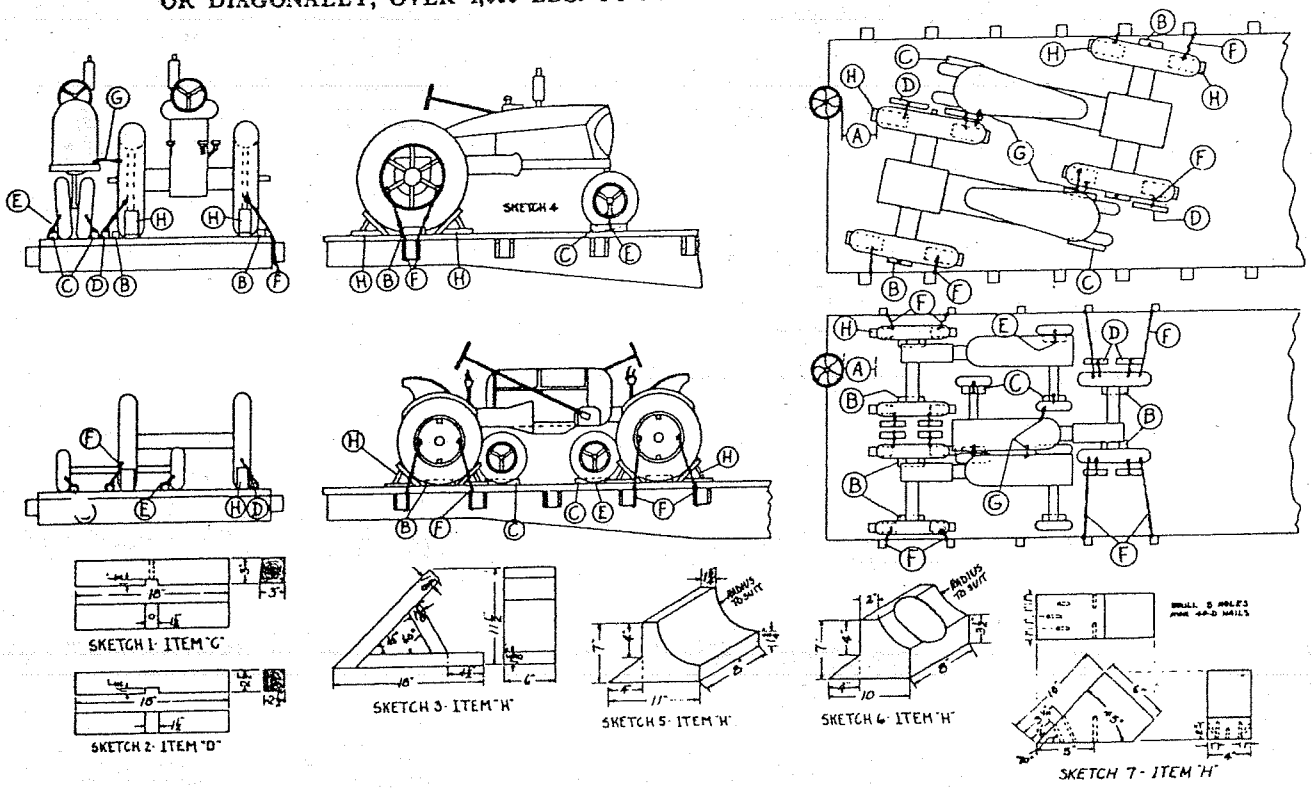
When tie-down rods are found slightly loose in transit, they need not be tightened.

"NOTICE"

*This figure, when applicable, may be used for the loading of vehicles being shipped under the provisions of ICC Special rmit No. 3498 during a National Emergency providing the gross weight per vehicle does not exceed 100,000 pounds. For nicles having a gross weight exceeding 100,000 pounds each, use Figure 81, Sec. 6.

See General Rules 3, 4, 5, 7, 9, 14, 15 and 19-A for further details.

TRACTORS (WITH OR WITHOUT PNEUMATIC TIRES), BOTH ROW-CROP AND CONVENTIONAL, LENGTHWISE OR DIAGONALLY, OVER 4,000 LBS. TO AND INCLUDING 7,000 LBS.—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2, Sec. 1.
B	1 ea. rear wheel	Blocks, 3 in. x 3 in. x 12 in., hardwood, beveled at top to prevent chafing. Locate both either inside or outside of each rear wheel and nail each to floor with four 50-D nails.
C	1 ea. front wheel.	Blocks, per Sketch 1, beveled at top to prevent chafing. Locate both blocks either outside or inside of each front wheel and nail each to floor with six 50-D nails. On machines having dual front wheels, nail blocks to floor against outside of wheels. Size of notch not to exceed ½ in. deep nor 1½ in. long. When Item "E" is attached to front end of machine and to stake pocket block, 3 in. x 3 in. x 12 in., without notch, secured to floor with four 50-D nails, may be substituted for Item "C".
D	2 ea. inside rear wheel.	Blocks, per Sketch 2 or tie-down plates Pattern 32. Size of notch not to exceed ½ in. deep nor 1½ in. long. Secure Sketch 2 blocks to floor with six 50-D nails and Pattern 32 plates with ten 10-D nails.
E	Four wheel tractors, 2; Row-Crop tractors, 1.	Each to consist of six strands, No. 9 ga. black annealed wire. Pass three wires through holes in plates or spokes of wheels, or through holes in frame near front of machine, and through stake pocket or Item "C". Overlap ends of wires and twist taut.
F	2 ea. rear wheel.	Each to consist of six strands, No. 9 ga. black annealed wire. Pass three wires through holes in plate, or around spokes, of outside wheels and preferably through two stake pockets. When two stake pockets are not available, attach wires to one stake pocket, per Sketch 4, or to blocks, Items "D". When space between rear wheels of side by side machines will not permit application of both Items "D" side by side, one Item "D" may be used provided three wires, Items "F", are passed through side by side wheels and around Items "D". Overlap ends of wires and twist taut.
G	2 ea. pr. of machines.	Each to consist of six strands, No. 9 ga. black annealed wire. Pass three wires around frame, spokes, or through holes in plate of wheels, or through a suitable bracket attached to each side by side machine with at least one ½ in. dia. bolt, so as to tie machines together at front and rear in the most effective manner. Overlap ends of wires and twist taut.
H	2 ea. rear wheel.	Blocks, per Sketches, 3, 5, 6 or 7. Locate against tread and nail each to floor with five 40-D or seven 30-D nails. When more than two tractors are loaded side by side, across car, apply blocks only to wheels of tractors nearest sides of car.

Vertical holes, slightly smaller than the diameter of nails, must be drilled through blocks, Items "B", "C" and "D".

Detached parts, boxed material, etc., must be loaded as far from car sides and ends as practicable and secured to prevent displacement.

Tractor tires must be inflated as uniformly as possible to a minimum of 18 lbs. for two-ply and 27 lbs. for tires of four-ply or more.

Brakes must be tightly set.

See General Rules 4, 5, 9, 14, 15, 19-A and 19-B for further details.

U.S.N.X. 12001

CAPY 140000 L 42-6
LD LMT 125100 BLT 5 42
LT WT 74900 W 2-55

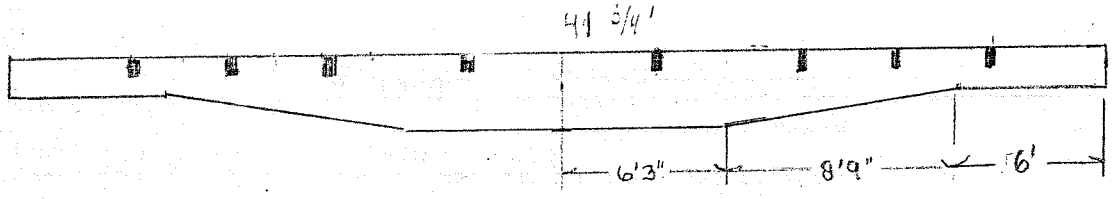
U.S. NAVY 5/54 DECK GUN
B25 POST PAIO
CHAD BOAS, MODEL MAKER
30 NORTH 30TH ST.
LAFAYETTE, IN 47904

7

CENTRAL VALLEY N.P. 40' FLAT CAR "FLAT KIT"
IS THE "CORE KIT FOR THIS FREIGHT CAR PROJECT
BUILD THE KIT PER THE INSTRUCTIONS!

END SILLS: BUILD THEM UP WITH .040 x .060 STYRENE STRIP STOCK BETWEEN COUPLER POCKETS AND POLING POCKETS.

FLOOR: .020 STYRENE SHEET 42'6" x 10'6" - PANELS: 3'6" WIDE

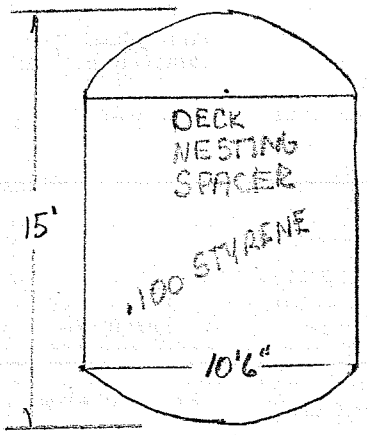


.015 STYRENE SIDE SILL OVERLAY
ADD .030 x 040 COVE ALONG BOTTOM OF OVERLAY - .040 SIDE DOWN

STAKE POCKETS: .040 x .060 STYRE STRIP STOCK

PAINT SCALECOAT II
FLAT CAR - SP DARK GRAY
DECK GUN - MoPac LIGHT GRAY

LETTERING: MICROSCALE 87-941 ROMAN



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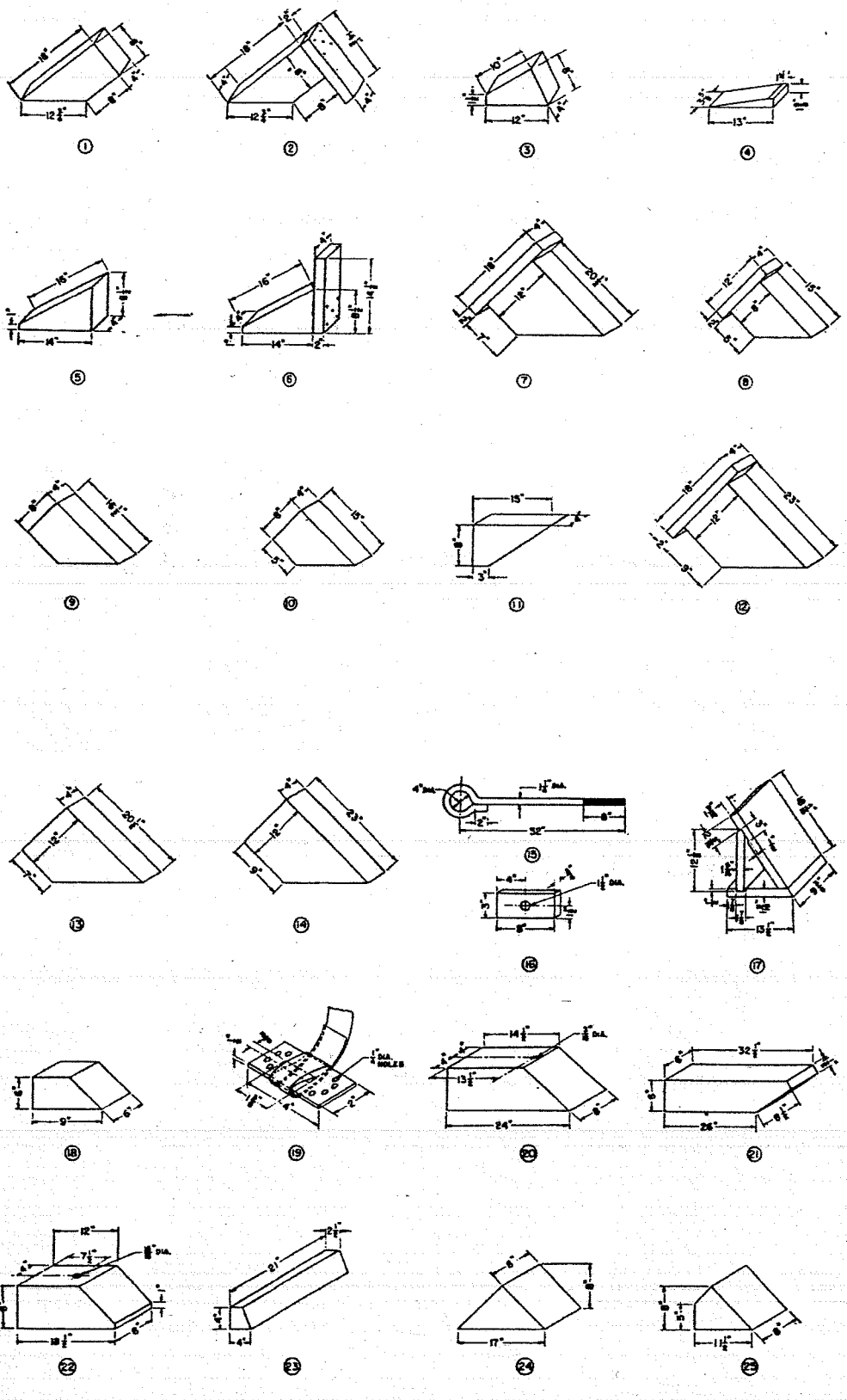
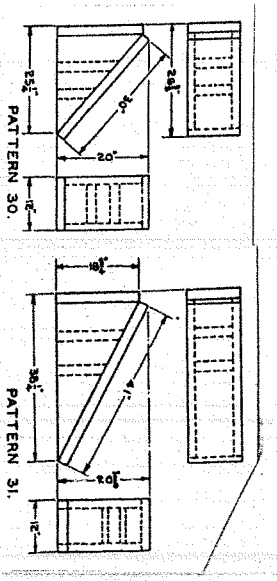
PLACARDS

Part 1—Section No. 3

BLOCKING PATTERNS

ROAD GRADING AND ROAD MAKING MACHINERY





Modeling Track and Its Supporting Elements

Kevin F. Kayser

Realistic Track (Part I)

Recommended Track Suppliers:
Micro Engineering (flex track, turnouts, rail and details)
Peco (flex track and turnouts)
Central Valley (tie strips, turnout details)
Fast Tracks (turnout jigs/curve radii)

Ballast (Use natural rock only):
Arizona Rock & Mineral
Scenic Express

Track Details:
Proto 87 Stores (details for every aspect of track detailing, N Scale too)
Details West Red Label (details for every aspect of track detailing)
Monster Modelworks (tie plates)

References:
Various Authors, *How to Build Realistic Reliable Track*, Kalmbach Publishing c. 2009
Cougill, Mike, *Detailing Track*, OST Publications, c. 2010
Cougill, Mike & Marshall, Trevor, *Track, Then & Now*, OST Publications, c. 2013
Soeborg, Pelle, "How to Model Realistic Track & Roadbed", *Model Railroader*, April 2016, Kalmbach Publishing, c. '16

Realistic Right-of-Way (Part II)

Standard Track Clearances From center line of tangent track			
Abutments	8'	Signal (high)	8'-6"
Battery Box	10'-4"	Signal (low between tracks)	3'
Bridge Clearance (height)	23'	Signal Masts	10'-6"
Building Eave (min.)	8'	Station Awning Post	10'-6"
Crossing Gate Post (min.)	9'	Switch Stand (high)	9'-3"
Derail (measured from point of tangency=15')	50'	Switch Stand (low)	6'-9"
Mail Cranes	6'-6"	Telephone Box	12'
Mainline Track Center	15'	Telephone Poles	25'
Mileposts	17'-6"	Telltales	8'-6"
Relay Bungalow	10'-6"	Ties and Lumber	10'
Retaining Walls	10'	Tunnels	9'
Section Houses	17'	Wires Over Tracks (height)	27'

Courtesy of: Paul Dolkos, *MR*, November 2007; American Railway Engineering and MofW Association's *Manual for Railway Engineering* (www.arema.org); CSXT, *Standard Specifications for Private Sidetracks*, June 1, 2007

References:
Dolkos, Paul, "Detailing the Right-of-Way", *Model Railroader*, November 2007, Kalmbach Publishing c. 2007
Google & Bing Maps

Attachment H

Great Northern Box Cars - 17 May 2016 - T. A. Johnsen

40' Double Sheathed Wood with Truss Rods: Models: Funaro (resin kit), Westerfield (resin kit).

40' USRA DS Wood Sides, 23494-24993: Models: Accurail (plastic), Ertl (plastic, out of production), Westerfield.
USRA Double Sheathed Box Car; Mainline Modeler; Mar/Apr 1080, pp 82-90, proto info, plans, model const. *USRA Freight Cars: An Experimentation in Standardization*; J. Lane; Mainline Modeler, Jan/Feb 1980, pp 39-47, proto info, photos. *U.S.R.A. Double-Sheathed Box Cars*; P. Wider; RP CYC 16, pp 3-12 & 27 & 50-53, proto info, photos, drawings, model info.
USRA DS Clones, 24994-25993 & 30000-30599, 7-8 ends: Models: Westerfield.
Great Northern Box Cars, Series 30000 & 31000; S.Ehnbom; Great Northern Railway Historical Society Reference Sheet No. 42, proto info, diagrams, photos, model info.

40' Single Sheathed Wood Sides, 31000-31499: Models: Sunshine (resin, oop).
Great Northern Box Cars, Series 30000 & 31000; S.Ehnbom; Great Northern Railway Historical Society Reference Sheet No. 42, proto info, diagrams, photos, model info.

50' SS Wood Sides, 39000-40099: Models: Westerfield, Walthers (plastic, similar).
GN 50-Foot Automobile Box Car Series 39000-40099 (first), 41525-41999 (renumbered) and 42000-43999; S. Ehnbom, GNRHS Ref Sht 107, proto info, diagrams, photos, model info. *GN 50 ft. Automobile Box Cars Series 38900, 39000 and, 39340*; S. Ehnbom, GNRHS Ref Sht 74, proto info, diagrams, photos, model info. *The 50-foot Box Car, 1894-1932*; R. Hendrickson; Railmodel Journal, Jul 1995, pp 16-22, proto info, photos. *Great Northern 50-Foot Box Car from Westerfield's HO kit*; J. Nehrich; Railmodel Journal, Jul 1995, p 23, model photo. *Great Northern's early 50-foot boxcars*; J. Kinkaid; Model Railroad Craftsman, Jan 2016, pp 72-77, proto info, photos, drawing.

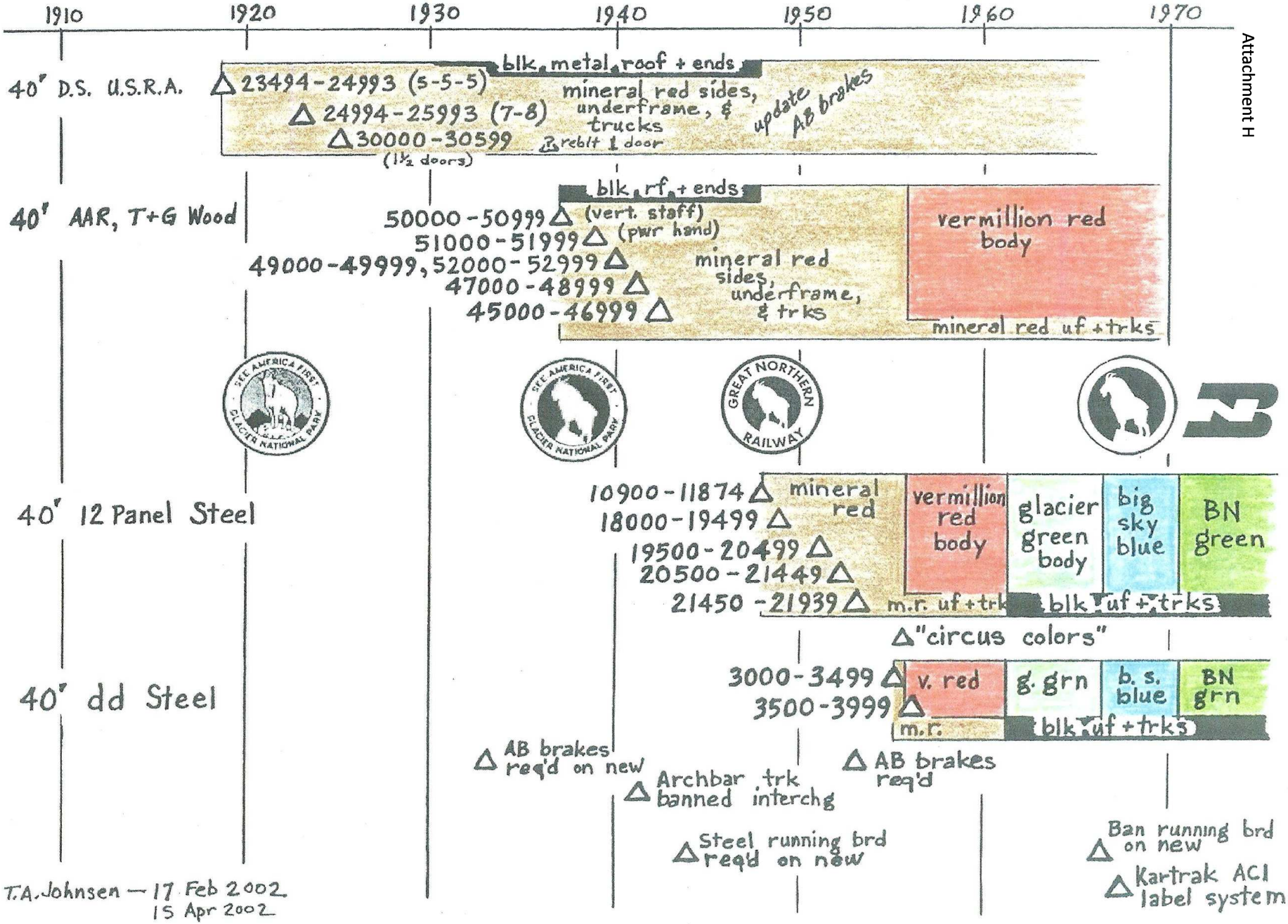
40' DS Tongue in Groove Sides, 45000-52999: Models: Sunshine (oop), Athearn (plastic, similar).
Great Northern Wood-Side Boxcars from Athearn and Sunshine Kits; M. Lofton, Railmodel Journal, Feb 1994, pp29-33, proto info, photos, models. *Essential Freight Cars: 2 Great Northern's double-sheathed boxcars*; T. Culotta; Railroad Model Craftsman, May 2003, pp 65-68, proto info, model info & photos. *Great Northern Double Sheathed Boxcar, Mainstay of the Fleet*; M. Switzer; Mainline Modeler, Jan 1990, pp74-77, Athearn model improvement. *Great Northern Caboose Cars*; J. Porzig; GNRHS Ref Sht 206, boxcar series 50000 diagram & photo. *Mid-Century Composite Box Cars*; P. Wider; RP CYC 23, pp 1-30, proto info & diagrams & photos.

40' Plywood Sides, Series 10000, 10500, 44025, 44400: Models: Intermountain (plastic), Sunshine (oop).
Great Northern Plywood Boxcars, Series 10000 & 10500; S. Ehnbom & D. Amdahl; GNRHS Ref Sht 37, proto info, diagrams, plan, photos, modeling info. *Great Northern Plywood Box Cars, Series 44025*; J. Westley; GNRHS Ref Sht 171, proto info, diagrams, photos, model info. *Great Northern Forty-Foot Automobile Car*: J. Westley, GNRHS Ref Sht 201, proto info, diagram, photo, model info. *Emergency Composite Box Cars*; p. Wider; RP CYC 19, pp 31-48, proto info & diagrams & photos, model photos. *The Great Northern's Plywood boxcars*; S. Ehnbom; Model Railroad Craftsman, Jun 2014, pp 62-69, proto info, photos, drawings, model info.

40' Steel 12 Panel, 10900-11874, 18000-21939: Models: Intermountain (early shorter), CB&T (taller, plastic).
Great Northern 40 ft. Steel Boxcars: Series 18000, 18500, 19500, 20500 and 21450; S. Ehmbon, GNRHS Ref Sht 61, proto info, diagrams, photos, model info. *Great Northern Postwar Box Cars*; J. Kinkaid; Mainline Modeler, Dec 2001, pp 25-31, proto info, plans, photos. *Great Northern Steel Box Car*; S. Ehnbom; Mainline Modeler; Nov 2001, pp 48-51, proto info, photos. *Great Northern Postwar Box Cars*; S. Ehnbom & S. Townsend; Mainline Modeler, Sep 1985, pp26-29, proto info, photos, model info. *Great Northern Box Car Modeling*; S. Ehnbom & S. Townsend, Mainline Modeler, Sep 1985, pp 35-39, model info.

40' Steel, Double Doors, Series 3000, 3500, & 4000: Models: Accurail (similar).
Great Northern 40 ft. Double Door General Service Box Cars, Series 3000, 3500 and 4000; S. Ehnbom; GNRHS Ref Sht 66, proto info, diagrams, photos, model info. *GN 1950's Box Cars*; S. Ehnbom; Mainline Modeler, Jun 1986, pp72-77, proto info, photos, model info. *Build a 3500 Class GN Double Door Box Car*; E. Sutorik, Northwest Prototype Modeler, pp 8-13, proto photo, modeling info.

Simplified Timeline of Great Northern 40′ Box Cars



T.A. Johnsen — 17 Feb 2002
15 Apr 2002

Attachment H

Attachment I

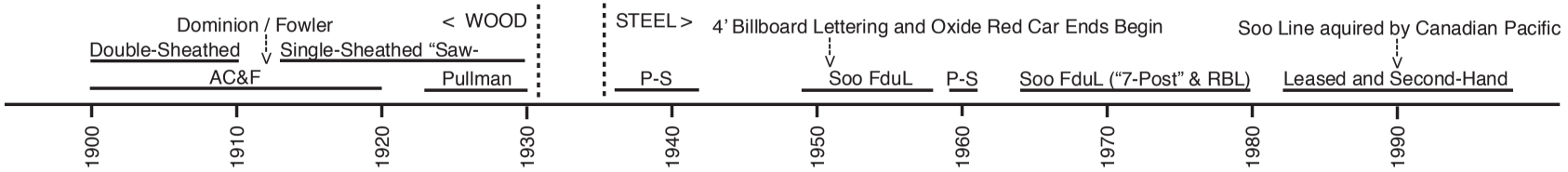
THE SIX MOST NUMEROUS SERIES OF SOO LINE BOXCARS AND RBLS BY PERCENT OF ALL SOO BOXCARS AND RBLS IN SELECTED ORERS BETWEEN 1948 AND 1980

Rank	October 1948	October 1954	January 1959	January 1962	January 1965	January 1971	October 1975	October 1980
1	1920-1923 (2) H&B, AC&F, Pullman 40' "Sawtooth" 23% [2,150]	1920-1923 (2) H&B, AC&F, Pullman 40' "Sawtooth" 23%	1949-1957 (8) Soo FduL 40' AAR 6' Door 31% [2,500]	1949-1957 (8) Soo FduL 40' AAR 6' Door 28%	1949-1957 (8) Soo FduL 40' AAR 6' Door 30%	1949-1957 (8) Soo FduL 40' AAR 6' Door 32%	1949-1957 (8) Soo FduL 40' AAR 6' Door 35%	1964-1979 (11) Soo FduL 50' "7-Post" 46% [2,333]
2	1913-1915 (1) AC&F 40' "Sawtooth" 22% [2,450]	1949-(1957) (8) Soo FduL 40' AAR 6' Door 21% [(2,500)]	1928-1930 (4) S-S, Pullman 40' "Sawtooth" 12%	1928-1930 (4) S-S, Pullman 40' "Sawtooth" 11%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 10%	1964-(1979) (11) Soo FduL 50' "7-Post" 18% [(2,333)]	1964-(1979) (11) Soo FduL 50' "7-Post" 31% [(2,333)]	1949-1957 (8) Soo FduL 40' AAR 6' Door 27%
3	1928-1930 (4) S-S, Pullman 40' "Sawtooth" 11% [1,000]	1928-1930 (4) S-S, Pullman 40' "Sawtooth" 11%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 10%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 10%	1928-1930 (4) S-S, Pullman 40' "Sawtooth" 10%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 7%	1950-1957 (9) Soo FduL 50' AAR (Dbl 6' Drs) 5%	1966-1973* (12) Soo FduL 50' RBL 5%
4	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 10% [900]	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 10%	1936 (5) Pullman-Standard 40' 1932 ARA 7%	1936 (5) Pullman-Standard 40' 1932 ARA 7%	1936 (5) Pullman-Standard 40' 1932 ARA 7%	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 6%	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 4%	1950-1957 (9) Soo FduL 50' AAR (Dbl 6' Drs) 4%
5	1936 (5) Pullman-Standard 40' 1932 ARA 7% [600]	1936 (5) Pullman-Standard 40' 1932 ARA 7%	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 7%	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 7%	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 6%	1936 (5) Pullman-Standard 40' 1932 ARA 6%	1966-1973* (12) Soo FduL 50' RBL 4% [245]	1976* (13) Soo FduL 50' RBL (Flat Roof) 2% [100]
6	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 7% [600]	1940-42 (7) Pullman-Standard 50' 1937 AAR Modified 7%	mid-1950s (10) Leased Rebuilds 6% [500]	1926 (3) Pullman 40' "Sawtooth" 5% [500]	1950-1957 (9) Soo FduL 50' AAR (Dbl 6' Drs) 4% [350]	1950-1957 (9) Soo FduL 50' AAR (Dbl 6' Drs) 4%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 3%	1940-1941 (6) Pullman-Standard 40' 1937 AAR Modified 1.5%

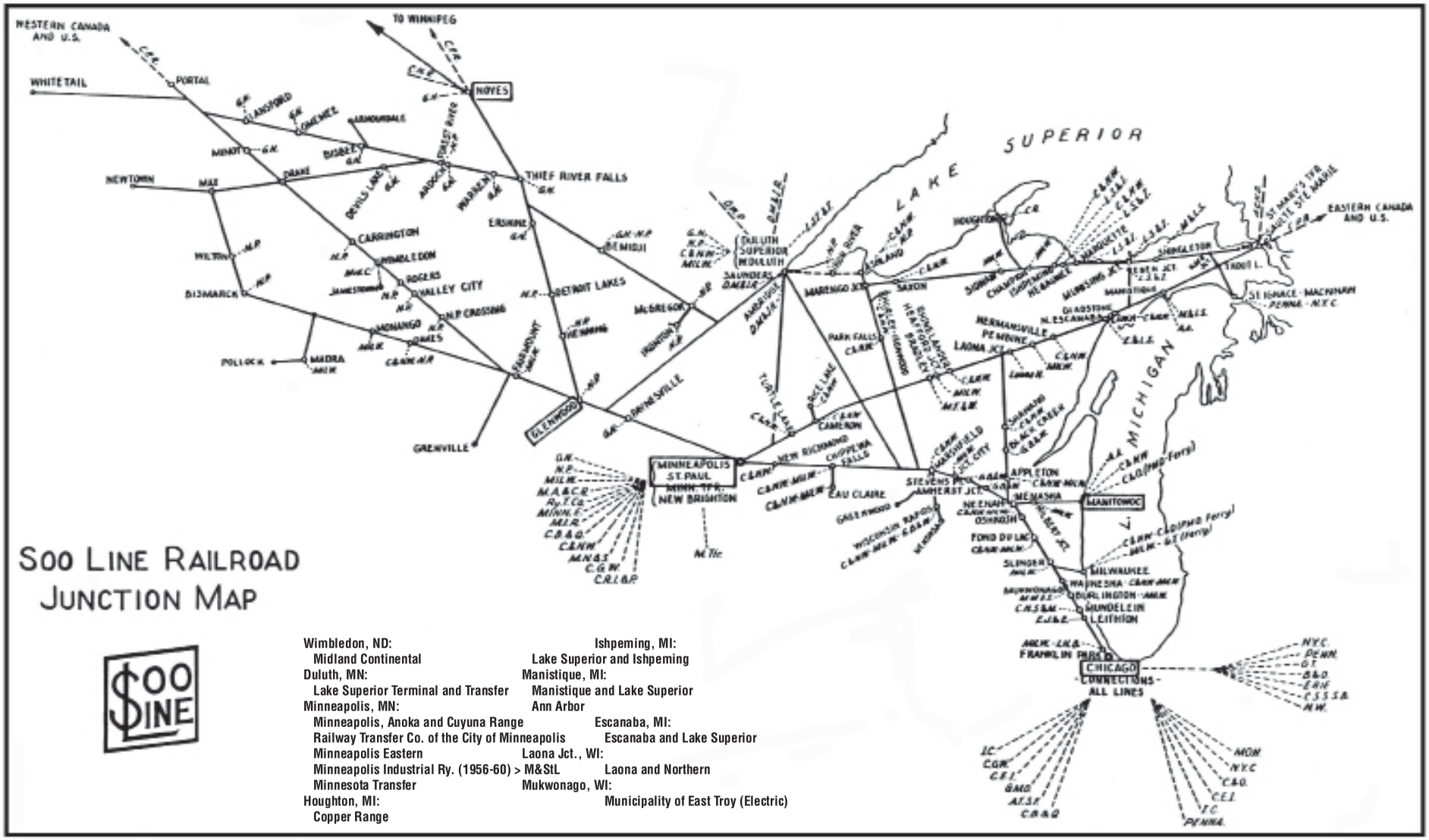
AC&F = American Car and Foundry, H&B = Haskell and Barker, S-S = Siems-Stembel (1924-30, St. Paul, MN), Soo FduL = Soo Line Railroad built/assembled at Fond du Lac, WI

Yr(s) Blt	Builder(s)	General Description	Notes	Models Produced [HO unless noted (O)]
(1) 1913-1915	AC&F	40' "Sawtooth"	5' wood doors, wood ends, deep fishbelly underframe	Chooch (O)
(2) 1920-1923	H&B, AC&F, Pullman	40' "Sawtooth"	5' wood doors, wood ends, shallower fishbelly underframe	Storzek, Speedwitch
(3) 1926	Pullman	40' "Sawtooth"	6' wood doors, 7/7 Murphy steel ends, radial roof	Sunshine, Chooch (O)
(4) 1928-1930	S-S, Pullman	40' "Sawtooth"	6' Youngstown steel doors, 4/4 early Dreadnaught ends, radial roof	Sunshine, Hodina/Gjermundson/SLHTS, Chooch (O)
(5) 1936	Pullman-Standard	40' 1932 ARA (Intermediate)	6' Youngstown steel doors, 4/4 early Dreadnaught ends, 9'-2" IW	Sunshine, Atlas
(6) 1940-1941	Pullman-Standard	40' 1937 AAR Modified	6' Youngstown steel doors, square-corner 5/5 Dreadnaught ends, 10'-5" IH	Athearn, Sunshine mini-kit, RCW kit and mini-kit (new)
(7) 1940-1942	Pullman-Standard	50' 1937 AAR Modified	6' double Youngstown steel doors, square-corner 5/5 Dreadnaught ends, " IH	RCW kit (upcoming)
(8) 1949-1957	Soo FduL	40' Postwar AAR	6' Youngstown steel doors, R/3/4 interim improved Dreadnaught ends, 10'-6" IH	Front Range, Accurail, Branchline BP, Intrmntn
(9) 1950-1957	Soo FduL	50' Postwar AAR	6' double Youngstown steel doors, R/3/4 interim improved Dreadnaught ends, " "	Accurail kitbash
(10) mid-1950s	Various	40' Leased Rebuilds	Steel Rebuilds from wood-sheathed cars with 6' functional door openings	Sunshine(?), F&C(?), Westerfield(?), Tichy(?)
(11) 1964-1979	Soo FduL	50' "7-Post"	Yngstwn stl sides, R/3/4 Drdnght ends, diagonal-panel, X-panel, or P-S roofs	Accurail/SLHTS, Fox Valley
(12) 1966-1973	Soo FduL	50' RBL	PC&F stl sides, R/3/4 Drdnght ends, Stanray diagonal-panel or X-panel roofs	None
(13) 1976	Soo FduL	50' RBL (flat roof)	14' Youngstown plug doors, 4/4 Drdnght ends, flat Stanray X-panel roofs	None

Soo Line Box Car and RBL Timeline



Naperville/Lisle RPM 2016; Ken Soroos, kensoroos@charter.net; Soo Line Historical and Technical Society, sooline.org



Wimbledon, ND:
Midland Continental
Duluth, MN:
Lake Superior Terminal and Transfer
Minneapolis, MN:
Minneapolis, Anoka and Cuyuna Range
Railway Transfer Co. of the City of Minneapolis
Minneapolis Eastern
Minneapolis Industrial Ry. (1956-60) > M&StL
Minnesota Transfer
Houghton, MI:
Copper Range
Ishpeming, MI:
Lake Superior and Ishpeming
Manistique, MI:
Manistique and Lake Superior
Ann Arbor
Escanaba, MI:
Escanaba and Lake Superior
Laona Jct., WI:
Laona and Northern
Mukwonago, WI:
Municipality of East Troy (Electric)

Much of the information on this data sheet is inspired by and expanded from Bob Sterner's article "*The 1950s-Era Soo/WC Boxcar Fleet: Common Prototypes and their Models*" in the Fall 2011 issue (Volume 33, No. 4) of ***the* SOO**, quarterly publication of the Soo Line Historical and Technical Society. Bob's 13-page article contains more information and charts, as well as prototype and model photos of the transition era equipment covered in this presentation. This issue of ***the* SOO** is still available through the SLHTS website at sooline.org. ***Ken Soroos*** (kensoroos@charter.net)

Timetable and Train Order: Enlightenment in Three Acts

INTRODUCTION:

These three coordinated classroom sessions are intended you give you a general overview of what Timetable and Train Order (TT&TO) operation is, what it is NOT and help you to understand the underlying logic so you may understand the process better as you learn and grow in your knowledge.

It is *not* intended to be a rules class, nor will we be delving into every possible scenario and use of a train order. Nor is it a be-all-and-end-all tutorial that will make you an "expert" in a few hours…indeed, many professional railroaders worked with this system day-in and day-out for DECADES and still did not come close to mastering all the intricacies and nuances!

Hopefully if you stick with us through the entire afternoon we'll send you out of here armed with enough information to successfully participate in a TT&TO operating session, which is where the REAL learning takes place!

While many procedures we'll discuss were fairly consistent across the industry, not all railroads used the same rules or rule numbers and/or applied these rules differently. We may touch on some of these differences in the course of the afternoon, but we'll try to keep it general and as always the standard disclaimer applies: YOUR PROTOTYPE MAY VARY!

Don't get hung up on rule numbers, learning to recite the rulebook is not the point of this class! Our intent is to give you background information that will enable you to properly interpret and apply your favorite prototype's rules and procedures.

For the sake of consistency, all citation of rules today will be taken from the 1967 Edition of the *Consolidated Code of Operating Rules* (CCOR). This rulebook was used by several large Midwestern and Western railroads and is the very same rulebook the Chicago-area RailGroup used as a template for their *Condensed Code of Operating Rules*, which has proven popular with many TT&TO modelers. *Info on how to obtain a copy of the Condensed Code appears in the "Online Resources" section at the end of this handout.*

ACT ONE: THE BASICS

What makes TT&TO unique?

Timetable and Train Order operation is VERY different from virtually all the methods of train operation in use since the 1980s, like Track Warrant Control (TWC), Direct Traffic Control (DTC) or Centralized Traffic Control (CTC). The two most striking differences are:

- The decision-making involved in moving trains under modern procedures is almost entirely *centralized* in the Dispatcher's office, whereas in TT&TO operation much of the actual decision making is *de-centralized* to employees in the field (train crews).

  Today the Dispatcher is akin to an air traffic controller, with absolute control over all movements. Under TT&TO, the Dispatcher is not so much a controller as a facilitator, intervening only as needed to keep the railroad fluid and moving efficiently.

  This is one part of what makes TT&TO appealing to certain modelers, as it engages each participant more fully in the process instead of just doing what you're told.

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- In modern systems, it is necessary for the Dispatcher to have a VERY good handle on where all the trains ARE in order to make good (and safe) decisions. **In TT&TO, the decisions are based not on where trains ARE, but on where they are NOT!** We'll explain this a bit further in discussion, but suffice it to say that under TT&TO if you know where a train will NOT be, then you can go there yourself.

WHY would anyone cook up such a convoluted method for running trains? It all boils down to one word: **COMMUNICATION**.

Back in the days when TT&TO was first invented in the 19th Century, communications were at best poor. The rudimentary telegraph lines used to transmit orders were highly susceptible to weather and damage and getting ANY information to and from a central office wasn't always possible, let alone communicating directly with trains in real time like today.

The TT&TO system allowed for a certain level of decision-making to be done by personnel in the field (such as whether to advance to the next station or stay put), even when communication with the Dispatcher was lost. Combined with specific rules in place in the event of "wire failure," this allowed the railroad to continue operating, albeit not as efficiently as when the dispatcher was fully engaged in the operation.

It's All About Authority and Protection:

The most important concepts to remember when studying or discussing ANY method of operation are:

- Granting of **AUTHORITY**
- Establishment of **PROTECTION**

Just about every operating rule or procedure can be distilled down to one, the other or a combination of both.

The most common methods of main track operation can be broken down as follows:

- **Unsignaled (Dark) Territory:** Both authority and protection are derived from written documents (rulebook, timetable schedule/clearance, train order, track warrant, etc.)
- **Automatic Block System (ABS) Territory:** Authority and (primary) protection are still derived from written documents, but an additional layer of protection against other trains and hazards is provided by the ABS signals, which *react* to changes in the condition of the signal block.
- **Centralized Traffic Control (CTC) Territory:** Since CTC allows the train dispatcher to be *proactive* and manipulate the signal system to directly control the movement of trains, CTC provides *both* authority and protection.

The major documents used in Timetable and Train Order operation provide components of BOTH authority and protection:

- The **Timetable** establishes schedules, which are "windows" or "slots" within which trains have the *authority* to proceed on the main track, subject to the restrictions of class and direction imposed by that schedule. As other trains are required to respect these schedules (with limitations, see next page), they also provide *protection* for that train from being run into by other trains.

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Timetable schedules have a definite, built-in "pecking order" of class and direction, which determines which trains must yield to others when their schedules intersect or conflict. Scheduled trains need not concern themselves with so-called "inferior" schedules (trains of lesser class or extras, who must stay clear of them) but must themselves stay clear of any schedules that are "superior" to them.

Think of it like playing cards: First Class is like Aces, Second Class Kings, Third Class Queens and so on. The direction specified in the Timetable as "superior" is like a trump suit and acts as a tiebreaker.

If you have a better "hand" than the other guy, you play on! If, however, his "hand" beats yours, you wait for him.

As long as we're talking about timetable schedules, about those times listed in the schedule column: It may seem intuitive to think that time represents when that train should pass that station, but not necessarily so!

Remember TT&TO is about where trains are NOT…and what that schedule represents is not so much that No. 21 will pass Springfield at 6:26 AM, but that ***No. 21 absolutely will NOT pass Springfield BEFORE 6:26 AM*…meaning other (inferior) trains can advance toward Springfield or work on the main track based on that premise.** If No. 21 is late, the other trains may be delayed waiting for him, but the margin of safety is preserved.

This is why in TT&TO we generally don't get terribly upset if a train runs late but the rules are VERY specific about trains NEVER leaving a station ahead of schedule!

We should clarify that last statement about it being okay to run late…that's true, but only to a point: At some point that "window" for movement a schedule provides has to close so other, lesser trains can stop waiting and get on with their business. U.S. railroads generally agreed that that point comes when the schedule becomes 12 hours old.

Once a scheduled train becomes 12 hours late, it loses both the *authority* and the *protection* of its schedule (because the schedule is no longer valid) and the Dispatcher must make other arrangements (such as assigning the train a different schedule or issuing orders so it may proceed as an extra train).

Incidentally, experience over the years (read: many train wrecks) has taught us a train trying to advance against a superior schedule should not be allowed to cut things TOO close and use every last moment of time to reach the safe haven of a siding. All rulebooks require an inferior train to arrive at a siding AND be in the clear with a minimum amount of time to spare, generally no less than FIVE (5) minutes for a scheduled freight and often TEN (10) minutes in the case of a passenger train.

- **Train Orders** are used by the Dispatcher to vary from or modify the Timetable schedule, i.e., to take *authority* away from a train (or trains) in favor of others. They are also used to *authorize* the operation of extra trains, which do not appear in the Timetable and otherwise would have no standing whatsoever. Train Orders also *protect* trains from getting into unsafe situations (think slow orders) and they *protect* extras from running into each other, since otherwise they would have no knowledge of each other's whereabouts!

  Depending on your era and prototype, there are TWO types of train orders you may need to be familiar with: Form 19s and Form 31s.

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Generally, Form 19s were used to deliver "helping" orders that give the addressed train *additional authority or protection*, while Form 31s were used to *restrict or take away a train's previously-granted authority*. The very same train order, addressed to two (or more) trains and worded identically, could be a Form 19 for one train and a Form 31 for the other, depending on whether the order is giving to or taking authority from that train.

An order on a Form 19 could be "hooped up" to a train on the fly, but because of their restrictive nature, a "31" order required the train be stopped and crew signatures obtained to confirm delivery before it could be acted upon. The use of Form 31 began to diminish after WWII and was largely discontinued by the 1960s.

We'll look at some of the most commonly-used train orders in Act 2.

As a matter of safety, whenever a train order is issued to two or more parties (orders can also be addressed to Operators as well as trains), they are dictated simultaneously using exactly the same wording to all offices involved. Each office must then repeat the order back verbatim before the order can be made "complete," i.e., effective. That insures that everyone involved gets exactly the same instructions. The specifics of this dictation and repetition process will be covered in Act 3.

Most intermediate stations on a subdivision that are set up to deliver train orders will have some kind of signal to tell approaching trains whether they are receiving orders or may proceed. The style of signal (and the specific information it conveys) can vary widely according to the railroad and rulebook in use.

A good Dispatcher will always try to deliver a restrictive order to a train well in advance of the point where the order must be acted on. Sometimes restricting a train at the point an order is delivered can't be avoided, but when that happens most rulebooks require special precautions be taken, like this extra verbiage (in italics):

NO 97 ENG 201A MEET EXTRA 205 NORTH AT PRAIRIE CENTER
THIS ORDER TO NO 97 AT PRAIRIE CENTER

This tells Extra 205 North that No. 97 will not arrive in Prairie Center expecting to meet them and may not be in position to do so…they may have even overrun the passing siding trying to get stopped, so Extra 205 North must approach Prairie Center expecting to find 97's flagman, possibly swinging them down to avoid a collision.

Lastly, remember a train order remains in effect until it is fulfilled (the instructions therein are completed), superseded (the instructions are changed) or annulled (cancelled).

- The **Clearance Card** is used by the Dispatcher to inform a particular train or equipment they are *authorized* to proceed. This may be by assuming a timetable schedule or by the *authority* granted (or restricted) in the accompanying train orders.

  The clearance card also acts as *protection* because it lists all the orders that train should have received, serving as a cross-check to insure no orders were overlooked.

- The **Train Register** is basically a "sign-in sheet", a record of the trains that arrive, depart or pass a particular location. Train crews use the register as a measure of *protection*, making sure which trains (if any) with a better "hand" than theirs (superior) are still out on the railroad ahead of them so they may act accordingly.

  Many of these locations are terminals and junctions where trains stop anyway, so having the crews physically check the register isn't a big deal.

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At certain locations (such as an intermediate point where only some trains begin or end their runs), trains that otherwise would not stop are often permitted to conduct their register business "by ticket," meaning the Conductor fills out a standardized form with the pertinent information on it and drops it off to the Operator as the train passes. The operator then enters the information in the register.

If the passing train needs to know the status of other trains, the operator will fill out a similar form listing trains that have (or have not) passed and hoop that up to the passing train.

(What all this means in a model railroad environment is if trains are allowed to register "by ticket" at a location, you don't have to physically stop your train to review the register and sign it!)

- The **Flagman** doesn't really authorize anything, but he is a key portion of a train's *protection*, allowing it to safely do things like stop on the main track to perform switching or take coal and water without being run into by another train.

  It's always good to keep in mind while operating under TT&TO that *if need be*, a train can go almost anywhere or do most anything (even hold the main track against a superior train!) as long as they are *protected* by flagmen. This might not earn you any points with the Superintendent, but it's perfectly legal!

One of the most important tenets of authority and protection in railroad rules (if not THE most important) is that **ANY movement must always be protected before it can be authorized!**

This manifests itself in many ways in TT&TO, from establishing flag protection before fouling a main track to the order in which train orders are dictated and made "complete" (orders are ALWAYS given first to any trains being restricted). Failure of a dispatcher to follow this protocol can lead to a "lapse of authority", commonly known as "lapping them up," a very serious offense.

Another important thing to keep in mind with TT&TO operation is train crews generally do not need to pay as strict attention to other trains moving in the SAME direction, only trains coming at them in the OPPOSITE direction.

While many rulebooks say a train must clear the schedule of a superior train approaching from behind, some railroads reserved that courtesy only for First Class trains and only required the inferior train to let other superior trains pass as soon as practical, unless specifically directed to do so by train order.

Remember, unless a train was having mechanical problems or had to stop frequently for switching work, crews would make every effort to NOT be overtaken by another train, as that would allow the other train's crew to "run around" them and stand ahead of them on the call board for the next run. The paycheck is a great motivator!

Protection against other trains moving in the same direction is provided either by block signals, by dropping lit fusees behind your train if moving slowly or by deploying your flagman to the rear whenever your train is stopped.

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ACT TWO: OPERATION WITH TIMETABLE AND TRAIN ORDERS

In this session we'll discuss the most common types of train orders used, when they might be appropriate and how to act on them. Remember that in many cases, two or more of these examples may be (and often are) combined into a single order.

- **The "Hard Meet" (Form S-A):**

  NO 98 ENG 2916 MEET EXTRA 1012 SOUTH AT NEW HOLLAND

  Probably the most straightforward order one can issue or receive. Train A will meet Train B at this place. No ambiguity here…*or is there?* Which train takes the siding?

  Actually, it's pretty simple. Go back to our earlier discussion about class and direction and who has the "better hand": Whichever train of the two is superior, i.e., has the better hand, gets to hold the main and the other takes siding. In the example above, No. 98, as a Third Class scheduled train, has right by class over the lowly Extra 1012 South and so holds the main at New Holland.

  Let's suppose for whatever reason the Dispatcher instead wanted No. 98 to go into the siding, maybe because Extra 1012 South is too long for the siding or has a dimensional load in its train that cannot go through the siding. The DS (as is his prerogative) can override class and direction by specifying the superior train take siding in the order:

  NO 98 ENG 2916 TAKE SIDING AND MEET EXTRA 1012 SOUTH AT NEW HOLLAND

  Under normal circumstances, there would be no need for the DS to tell Extra 1012 South to take siding, as it would anyway according to the rules.

  The reason this type of order is often referred to as a "Hard Meet" is because the Dispatcher has fixed the meeting point and there is no leeway permitted for either train to advance beyond the meeting point until the other train is met.

- **The "Right Over" (Form S-C):**

  EXTRA 1012 SOUTH HAS RIGHT OVER NO 98 ENG 2916 PEKIN JCT TO NEW HOLLAND

  In this type of order, the Dispatcher has taken away the "right" No. 98 had (by virtue of being a scheduled train) over Extra 1012 South and given it instead to the Extra. This has the effect of "turning the tables" and requiring No. 98 to yield to the Extra between those two points.

  Because this order is taking away ***authority*** No. 98 would have otherwise had by virtue of its schedule, some roads would have required No. 98 be stopped and this order be signed for on a Form 31.

  Because Extra 1012 South has no schedule in the timetable AND there are no passing sidings between Pekin Jct. and New Holland, the only way No. 98 can comply with this order is to not enter the section of railroad between New Holland and Pekin Jct. before Extra 1012 South is met. As for Extra 1012 South, he can use his newly-bestowed ***authority*** to proceed as far as New Holland safe in the knowledge that No. 98 will not be appearing around the next curve, as the order also gives the Extra ***protection*** from encountering him.

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So No. 98 sits at New Holland until Extra 1012 South arrives and meets it, how is that any different than the previous example, the "hard meet?"

It's different in one VERY important way: The "right over" order guarantees the Extra will get at least as far as New Holland against No. 98, but should Extra 1012 South have a good run to New Holland and find it still has time to legally proceed beyond there against No. 98's schedule, it may do so!

The "right over" is favored in situations where the dispatcher isn't sure exactly how far one train may be able to proceed against a superior train. By issuing the right-over, the DS can insure the inferior train at least some measure of advancement, but leaves them the "wiggle room" to proceed farther if circumstances permit. This is especially handy in situations where open train order offices are few and far between and changing the location of a "hard meet" could be problematical.

A variation of the "right-over" is sometimes used when two opposing extra trains need to be protected against running into each other, but a "hard meet" might be impractical. This variation is known as the "right-over and wait":

EXTRA 1012 SOUTH HAS RIGHT OVER EXTRA 205 NORTH SPRINGFIELD TO VENICE AND WAIT AT
FARMERSVILLE UNTIL 1015 AM
LITCHFIELD UNTIL 1045 AM
LIVINGSTON UNTIL 1110 AM
FOR EXTRA 205 NORTH

What the DS has done here is twofold: He has established the pecking order between two extra trains (making the southbound train superior by right) and also created a schedule for Extra 1012 South, not for its benefit as much as for Extra 205 North. Extra 205 North can proceed north out of Venice knowing that Extra 1012 South will NOT pass those towns (all of them potential meeting points) before those times and can plan to move and work against Extra 1012 South accordingly.

Additionally, that last line of the order (FOR EXTRA 205 NORTH) means once Extra 205 North has been met, that ersatz schedule no longer applies and Extra 1012 South can proceed without further regard for those times.

Another variation on the "right-over" order (Form D-R) is used in multiple-track territory to permit trains to run "against the current of traffic" (think wrong way on a one-way street). We'll touch on this later.

- **The Time or "Run-Late" Order (Form E):**

NO 1 RUN 40 MINS LATE PEORIA TO SPRINGFIELD or…

NO 1 RUN 1 HOUR 20 MINS LATE PEORIA TO SPRINGFIELD AND RUN 40 MINS LATE SPRINGFIELD TO VENICE

This order seems pretty self-explanatory…the named train MUST run late by NO LESS THAN the amount specified in the order between the named points and may indeed run even later depending on the situation.

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Once again, this order is not for the benefit of the named train but for that of every other train on the subdivision. All the trains of lesser stature will also get copies of this order, and they can now utilize this extra time to move or work against No. 1's schedule.

An interesting twist to time orders is once a train is ordered to run a certain amount late over a territory, that amount CANNOT be reduced in subsequent orders, e.g., Once a train is told to run 1 hour late, the Dispatcher cannot issue a new order telling it to only run 30 minutes late. This is done to preserve safety and *protect* any train that might be working on the original order but for whatever circumstance did not get the subsequent order.

A variation on the Time Order is the "Wait Order" (Form S-E), which instructs a train to wait at a specified point until a specified time (or for a specific train or trains to arrive), like this:

NO 34 WAIT AT SJ JCT UNTIL 1101 AM FOR EXTRA GM&O 805A SOUTH

EXTRA 1012 SOUTH WAIT AT PEKIN JCT FOR EXTRA 205 NORTH

This type of order is often used to have a train wait at the end of double-track for an opposing train to clear a single-track section of the railroad. This is vastly preferable to establishing a "meet" as it allows the train coming off the single track to proceed onto the double track without delay if the other train has not arrived at the waiting point.

- **"Running" Orders (Forms F and G):**

  These two forms of orders grant *authority*, either for more than one train to operate as "sections" of the same schedule (Form F) or for a train to operate as an "extra," i.e., a train without a schedule in the timetable (Form G).

  ENGS 500A and 554 RUN AS FIRST AND SECOND 18 VENICE TO PEORIA

  ENG 2924 RUN EXTRA PEORIA TO LITCHFIELD

  If a schedule is running in sections, *unless the Dispatcher gives specific orders to do otherwise*, all other trains must treat all the sections of a schedule as if it were a single, unbroken train, meaning you cannot, for example, run to the next town between the passage of First 18 and the passage of Second 18.

  Note that unlike current-day Track Warrants, running authority is NOT granted in incremental portions, i.e., from town-to-town or meeting point-to-meeting point. The running order grants authority for the entire trip over the subdivision or territory. If the train's movement needs to be restricted or protected en route, then additional orders are issued to cover that.

  Because of this, it is EXTREMELY important that the Dispatcher issue all the orders to *protect* this train before issuing the order with the *authority* to operate (Remember: Always *protect* before you *authorize*!). To do otherwise is a classic example of "Lappin' them up."

- **Annulments! (Forms K, L and M):**

  According to the wordsmiths, when something is "annulled" it is completely obliterated, as if it never existed. Why not just say "cancelled?" The choice of such a "big" word was deliberate: It reinforced to employees that they were to put those previous instructions completely out of their minds and act out their duties as if they had never seen them.

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On the railroad, a train's schedule or a train order can be annulled, either in whole or in part:

NO 97 OF SEPT 18 IS ANNULLED PEORIA TO LITCHFIELD

Or…

ORDER NO 12 IS ANNULLED

Or…

THAT PORTION OF ORDER NO 5 READING NO 98 TAKE SIDING AT NEW HOLLAND IS ANNULLED

Once a schedule or train order instruction has been annulled, it cannot be reinstated.

While annulling orders are given to trains, they are also frequently addressed to Operators (so they know not to deliver any more copies of the annulled order.)

- **Superseding part of an order (Form P):**

  Sometimes even the best Dispatcher's plans go awry and orders need to be changed, but annulling and reissuing an order, especially one that combines multiple instructions, isn't always possible. A superseding order does exactly what you'd think: Changes all or part of a previous train order instruction.

  No 98 MEET EXTRA 1012 SOUTH AT PRAIRIE CENTER INSTEAD OF NEW HOLLAND

  One of the most common uses for a superseding order is to change a meeting point.

  The key to a superseding order is the use of the phrase "instead of," followed by the pertinent information. This is to insure the crew understands exactly what information is being replaced. Otherwise the crew may have two (or more) conflicting instructions in its orders and not know which one to follow.

- **The "Register Check" (Form V):**

  As mentioned in the first session, the train register is used as a type of "sign-in sheet", so other trains may verify whether or not any trains they must yield to (superior) are still out on the portion of railroad ahead of them.

  There are sometimes places along the railroad where a train may begin or end its run that are NOT register stations, or where not all trains are required to register. How does a train at that location know what trains they must look out for?

  In these cases the Dispatcher will issue a train order that provides the necessary information *that would have been on the register if one existed!*

  ALL SUPERIOR TRAINS DUE AT RIDGELY AT OR BEFORE 930 AM HAVE ARRIVED

  Or…

  ALL SUPERIOR TRAINS DUE AT RIDGELY AT OR BEFORE 930 AM HAVE ARRIVED EXCEPT NO 34

  This "register check" order is essential to the ***protection*** of the train it's given to. Without it, they could easily find themselves in the way of a superior train not expecting to find it there.

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Many roads did not allow a crew to blindly accept a register entry as proof that an extra train had arrived. Why? Think about it…the same locomotive may have made multiple trips into or out of that terminal on the same day. Which "Extra 402 West" is the one we're looking for?

Most rules provide that whenever the register is to be used to verify the arrival of an extra train, a train order must be issued containing wording like this:

EXTRA 205 NORTH WILL REGISTER AT RIDGELY ON ORDER NO 7
EXTRA ITC 1602 SOUTH MAY CHECK REGISTER AT RIDGELY FOR EXTRA 205 NORTH ON ORDER NO 7

The crew of Extra 205 North will note on the register they are running on Order No. 7, thus assuring the crew of Extra ITC 1602 South the correct Extra 205 has passed.

A note about Double Track operations…

Double-track (or multiple-track) mainlines, where trains use specified tracks to move in each direction (think one-way streets), have some special considerations in TT&TO operations.

Because each track normally only hosts traffic in one direction (no opposing traffic) and block signals are typically in service to keep following trains properly spaced out, enough *protection* is afforded that some procedures vital to single-track operations are relaxed or even eliminated, such as the display of white classification signals for extras.

Perhaps the biggest variation in TT&TO procedures is many roads permitted a clearance card to be used to *authorize* an extra train to proceed "with the current of traffic," i.e., the proper direction on the proper track, without an actual train order telling it to "run extra."

Some railroads (e.g., AT&SF, Milwaukee Road, Soo Line) would number these clearances in sequence with the train orders (since they were taking the place of a train order in granting movement authority). Other roads (e.g., Illinois Central, Rock Island), not so much.

The other major wrinkle in multiple-track operations comes when the Dispatcher needs to run a train on a main track that is designated for traffic moving in the opposite direction, officially known as "against the current of traffic" but also known in railroad slang as "wrong main," "against the grain," "run crooked" or "wrongbound."

When a train needs to move against the current of traffic, the Dispatcher must first *protect* the train against the other trains moving in the correct direction on that track. This is done by first making sure the territory is clear of other trains, then our "traffic cop" writes a ticket to run the wrong way on a one-way street, using a variation of the "right-over" order, Form D-R:

NO 34 ENG 372 HAS RIGHT OVER OPPOSING TRAINS ON SOUTHWARD TRACK BETWEEN PEKIN JCT AND PEORIA

Besides addressing this order to No. 34 and any southward trains intending to leave Peoria, if the endpoints of this movement are at interlockings, copies of this order would also be addressed to the Tower Operators so they would know to route No. 34 onto the southward track and (as further *protection*) to not admit any more southward trains to the territory until No. 34 shows up at Peoria.

Some roads (PRR for one, also Santa Fe) would go a step farther, skipping the copies for the trains and just issue the Form D-R to the Tower Operators and let them move the trains strictly on interlocking signal indication.

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ACT THREE: TRAIN ORDERS, THEIR CARE AND FEEDING!

Okay, you've made it THIS far…you must actually be interested in this stuff! Why not go "all-in" and learn how to create and handle train orders instead of just following them?

In TT&TO operation, the roles of Dispatcher and Operator can be among the most interesting (and, dare I say, rewarding) positions in a session: These individuals fill very time-honored roles in making the railroad go, and unlike the folks who turn the throttle knobs, everything you work with (pens, paper, phones) is full-size…no scaling down here!

While the Dispatcher is responsible for deciding what instructions to issue and composing the orders, much of what the DS does is based on the information relayed to him by the Operators along the line and he relies on those same Operators to get his instructions into the hands of the people that will act on them. The relationship between the Dispatcher and Operator is not only a symbiotic one, but also one of teacher and student, as virtually all Dispatchers would be drawn from the Operator ranks. Even today in our scaled-down model world, the absolute best way to learn TT&TO dispatching is to work as an Operator with an experienced Dispatcher.

Much of what we're discussing in this last session doesn't appear in most prototype rulebooks, per se, but in a supplemental book of instructions for Train Dispatchers and Operators. If you should have or acquire a copy of the RailGroup's *Condensed Code of Operating Rules*, it includes a section for Dispatchers taken from a 1967 book of instructions published by the Chicago & North Western.

Tools of the Trade:

- **Train Sheet** – Officially named the "Record Of Train Movements," the Train Sheet is where the Dispatcher keeps track of the trains on his territory and their progress (or lack thereof). As reports from the lineside operators (or as is often the case for us, the train crews themselves acting in the role of Operators) come into the DS, he enters the times for the passage of each train at each station on the Train Sheet (literally writing them "On Sheet," which is where many believe the shorthand telegraph term "OS" comes from.)

  An experienced Dispatcher can, by comparing the schedule times of trains to the actual times reported, size up if he should intervene in the proceedings taking place in the field by issuing train orders, or whether previous interventions were successful.

- **Train Order Book** – This book is the permanent record of not only the train orders issued, but of virtually all the actions and instructions of the Dispatcher. Depending on the railroad, they may be specially formatted with columns for specific information or be a simple as a plain ledger book.

  Besides any train orders issued, the train order book is often also used to record the clearances issued and the "turnover", a written summary of the events going on and the orders in effect at shift change.

  Both the outgoing Dispatcher (who writes the turnover) and the incoming Dispatcher (who must read it out loud to the outgoing Dispatcher to confirm he understands everything) sign the turnover as confirmation that everything is true and correct. This is a measure of *protection* taken prior to the transfer of *authority* from one Dispatcher to another.

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- **BLACK and RED pens** – Why two colors? Because information related to ***authority*** (like train orders and OS times) are written in BLACK ink, but items dealing with ***protection*** are often written in RED ink.

  Red ink is also used to mark the train sheet when a train has completed its run or to show the limits of MofW activity. In the train order book red is used to mark when orders are no longer in effect. Some railroads (e.g., Milwaukee Road) insisted the end-of-shift turnover be written in red ink to differentiate it from instructions issued to trains or operators in the field.

  Tower Operators (mostly on eastern roads) were often required to use red ink to make log entries of when blocking devices (a form of ***protection***) were applied to or removed from the machine because of men or equipment working within the interlocking limits.

Composing and Dictating a Train Order:

Okay, the Dispatcher has decided he needs to issue the following train order:

NO 17 ENG 552 TAKE SIDING AND MEET EXTRA 210A NORTH AT LIVINGSTON

Now what?

First, it must be determined which trains or individuals (remember, orders can also be addressed to Operators) will get the order and, in the case of trains, what office(s) will be delivering the order to the train(s). If your road uses both Form 19s and Form 31s you will need to decide which trains will be addressed on each form.

You determine that you will give this order on a Form 31 to No. 17 (since it takes authority away from No. 17) at Litchfield and on a Form 19 to Extra 210A North at Venice Yard.

The dictation of the train order begins with calling each office that will copy the order and advising them of your intent, starting first with the office(s) where train(s) will be restricted. This conversation, like most involving train orders, follows a very specific structure:

Dispatcher: **"Litchfield, 31 South, Copy 3*, Venice, 19 North, Copy 3*"**

Springfield: **"Litchfield, SD south, ready."**

Venice: **"Venice, ND north, ready."**

**On the prototype, the standard complement of orders was three copies: One for the Engineer, one for the Conductor and one as an office file copy. On model railroads we generally only make one copy for each train and skip the office file copy, so you might SAY "Copy 3" for authentic effect but in reality you're probably only making one copy)*

The response from each office includes a confirmation that the train order signal (if there is one) has been set to STOP in the required direction ("SD" is telegraph shorthand for "stop displayed") and they have the forms and carbons ready to copy the order. Should the affected train arrive before the orders are ready, they would as a matter of course stop to await their orders. Venice does not have a train order signal as all trains must get a clearance there anyway, so their response is "ND", for "(Signal) Not Displayed."

Once the train order signal is displayed, it cannot UNDER ANY CIRCUMSTANCES be cleared until the order(s) on hand have been delivered to the affected train(s). If another train going in that direction should show up before that happens, a clearance card must be given to that train showing NO orders. This not only gives him the ***authority*** to pass the train order board without picking up orders, it also tells the crew the board was not intended for them.

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Train orders are numbered sequentially each day beginning at midnight. Since you have already written 7 orders, this one will be number 8. Now we're ready to dictate the order!

"This will be Order number 8, E-I-G-H-T, September 17, 1958, to Number 17, O-N-E, S-E-V-E-N, at Litchfield, L-I-T-C-H-F-I-E-L-D and to the Extra 210A, T-W-O, O-N-E, N-A-U-G-H-T, letter A, North, N-O-R-T-H, at Venice, V-E-N-I-C-E, period."

(The word "period" in this case does NOT mean to insert punctuation – which is verboten in train orders – but that the addresses are finished and the DS is waiting for an affirmative response from each office before continuing with the body of the order)

"Body of the order reads: Number 17, O-N-E, S-E-V-E-N, Engine 552, F-I-V-E, F-I-V-E, T-W-O, take siding and meet Extra 210A, T-W-O, O-N-E, N-A-U-G-H-T, letter A, North, N-O-R-T-H, at Livingston, L-I-V-I-N-G-S-T-O-N. Signed JFC."

Although you have already composed the order in your mind, it is only written into the Train Order Book at the same time it is dictated to the other offices. This practice serves two purposes: it helps insure the order as written in the book is identical to what is dictated to the field offices and it forces the Dispatcher to pace the dictation so the Operator(s) may keep up.

As you noted during the dictation exercise, names, numbers* and directions are spelled out letter-by-letter. This is an important part of the dictation as it also serves the dual purposes of insuring accuracy and pacing the rate of dictation to allow the people copying to keep up.

**While many prototype rulebooks required numbers be spelled out (1012, O-N-E, N-A-U-G-H-T, O-N-E, T-W-O), by the 1967 Edition of the Consolidated Code (on which RailGroup's Condensed Code is based) this requirement was modified to only require numbers be pronounced digit-by-digit ("1012, one, naught, one, two").*

Repeat? Complete!

The next step is to have each office repeat the order back to you to insure they copied it correctly, beginning with the office delivering the restricting order to No. 17 (Litchfield). As the Operator reads back the order, you follow along in the Train Order Book, underlining each word and number as it is repeated correctly. The underlining is repeated for each office repeating the order…I hope when you wrote that order in the book you left some room between lines of text!

If the office repeating the order is copying on a Form 19, once the order is correctly repeated you may make the order "complete", giving the current time and your initials. This information is written at the bottom of the order and in the train order book.

A "31" order cannot be made complete (and, depending on the rulebook, may not even be repeated back*) until the restricted train has arrived and the crew signed for the order. The proper procedure in this case is for the Operator to give a "X" response and his initials and the current time*. The "X" response is an acknowledgement by the Operator at Litchfield to treat this as a holding order for No. 17, pending the obtaining of signatures.

**Again, many model railroad operators vary from the rulebook, allowing a "31" order to be repeated back immediately and, if correct, receiving an "X" response from the Dispatcher. The 1967 Consolidated Code (and by extension, the RailGroup's Condensed Code) eliminated Form 31 orders completely, although some modelers still employ them as a matter of preference.*

With all this emphasis on accuracy, it should come as no surprise that if anyone makes a mistake in the dictation or copying of a train order, the order must be marked VOID in the train order book, everyone must destroy all copies of the order and the process starts ALL over from the top…including a new order number. Sorry, no do-overs!

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Got a Clearance, Clarence?

Once all the orders for a particular train are complete and ready to deliver, a clearance card is made up by the Operator, listing all the orders being delivered.

Before delivery can take place, the Operator contacts the Dispatcher (in this case, the Operator initiates the process, not the Dispatcher) and reads off the orders listed on the clearance. Unlike a train order, it is generally not necessary to spell out the names and numbers on a clearance, although the OK time may be pronounced for accuracy's sake:

Litchfield: "Litchfield, 'Spatcher?"

Dispatcher: "Litchfield." *(Note the DS does NOT respond with "Go Ahead")*

Litchfield: "I'd like to clear Number Seventeen on ONE order, number seven."

The Dispatcher checks the train order book to make sure ALL the applicable orders are being delivered and records this clearance information in the appropriate place, either on a page set aside in the train order book or in a separate book dedicated to recording clearances.

Dispatcher: "Litchfield, you can make that clearance OK at 1:23, one-two-three in the PM, Dispatcher JFC."

The order and its accompanying clearance can now be delivered to No. 17.

Keeping Track:

As the shift progresses, trains will complete their runs and train orders will be fulfilled, superseded or annulled. That means a LOT of written records will become functionally irrelevant to the situation at hand. The Dispatcher must always know at a glance which orders and instructions are still valid and which are not. As mentioned earlier, the standard for marking trains that have completed their runs or orders no longer in effect is with a RED pen.

On the Train Sheet, columns for trains that have completed their runs are marked by drawing a red diagonal line through the header info (train number, crew) at the top of the column.

In the Train Order Book, an order no longer in effect is marked by the Dispatcher on duty at the time (not necessarily the one who wrote the order) by writing his initials across the body of the order and circling them in red ink. Once all the orders on a page of the book are no longer in effect, a diagonal line is drawn in red across the page. If there are NO more active orders on ANY previous pages in the book, then a second diagonal line is drawn, making an "X" across the page.

Another interesting quirk in how dispatchers keep records is unless a station name is contained in the body of a train order, it is rarely, if ever, written out in full in any of the records…instead, the one-or-two-letter telegraph code (usually listed in the station column of the timetable) is almost always used as a form of shorthand. Never mind the telegraph was retired years ago in favor of the block line phone…some habits just die hard!

Giving (and Getting) a Good Handoff:

One of the most important things a Dispatcher does in a tour of duty is prepare the "turnover," a status report of the railroad at shift change, for your relief. It is EXTREMELY important that the turnover contain ALL information the incoming Dispatcher would need to know to run the railroad safely and efficiently.

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The format of a turnover can vary by railroad and even from office to office, but every turnover has, at minimum, these four sections in this order:

- **The time and date** the shift change is taking place and the **names** of both the incoming and outgoing dispatchers;
- The **train orders** in effect at shift change, listed in numerical (which should also be chronological) order;
- **The last-known location and status of each train moving in the SUPERIOR direction.** If possible, the trains are listed with the one farthest into its run first, then in geographic order across the territory;
- **The last-known location and status of each train moving in the INFERIOR direction.** Again, list the trains in geographic order of their progression if you can.

I would further submit that you should also add any other pertinent info that might affect the next guy's planning, like:

"VN has 35 north cars to move, plans to call an extra sometime after 5:00 PM. Has Engs 2200A-B-C on hand for power," or:

"*No. 33 will be approx. 90 mins late departing P tonight account being held per Supt. for hot cars off TP&W."*

***ANY QUESTIONS*? GEE, I SURE HOPE SO!** We covered an awful lot of ground this afternoon and did it in rather general terms. Whether you are thinking of implementing TT&TO operation on your own railroad or learning it in order to participate with others, I hope we were able to give you enough insight to learn and appreciate the particular practices specific to the prototype, era and locale being modeled.

Recommended Reading:

- **Timetable & Train Order Operation: A novice's guide to highballing with flimsies,** by Will Tajibnapis. *Model Railroader* magazine, August 1999, Pages 81-85.
  (Nice, concise summary of moving a train under TT&TO rules.)
- **19 East, Copy Three: The Art and Practice of Timetable & Train Order Operations for the Railroad Historian and Modeler,** by David Sprau and Steve King. Published by the Operations Special Interest Group, 2013. Currently out of print.
  (This book is a compilation of TT&TO articles written by Sprau and King for the OPSIG's quarterly magazine The Dispatcher's Office*. Considered by many as THE definitive resource for modelers wishing to learn or implement TT&TO operations.)*
- **Of Rule 93, Form S-C and the Bow and Arrow Country: Dispatching On the Rock Island in the 1970s,** by Edward J. Brunner. *Trains* magazine, July 1980, Pages 44-50C.
  (An excellent insight into the thought processes that went into train order dispatching. This was THE article that was made train order operation "click" for me.)
- **South End Desk: Katy remains wedded to the tradition of Charles Minot,** by Fred Frailey. *Trains* magazine, September 1986, Pages 24-34.
  (Yet another excellent insight piece that follows a single shift on a MKT dispatcher's desk. Plenty of situations and solutions presented, along with a sidebar on a train order conundrum and how it could have been avoided!)

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Lastly, a note about Peter Josserand's Rights Of Trains*: While many will tell you reading this tome is absolutely mandatory to understand Timetable and Train Order operations, I find it a bit esoteric for even the moderately knowledgeable and may only serve to further confuse the beginner. My personal recommendation is to hold off on reading this book until you are at least moderately comfortable with the basics of TT&TO.*

Other Online Resources:

First, if you haven't already, **do a web search for your particular prototype**. I have found several private and historical society sites where rulebooks, timetables and other operating documents were viewable and/or downloadable for private, non-commercial use.

The current edition of the *Condensed Code of Operating Rules* (a "distilled" version of the 1967 Consolidated Code specifically for model railroads) can be purchased at:
http://www.railgroupchicago.org/CCOR.html

Digital copies of various Rulebooks, Timetables and Train Dispatcher Manuals are available in the Files section of the Dispatching group on Yahoo!
You'll need to join the group to access the files:
http://finance.groups.yahoo.com/group/Dispatching/

The Operations Road Show group in Michigan offers a downloadable pocket tutorial on operating with TT&TO and the file to print and create your own paper "flagmen". Check out their website at:
http://www.railsonwheels.com/ors/opershow.shtml

The text of a 1999 clinic on Timetable & Train Order operation by Robert J. Amsler, Jr. can be found on the Gateway Division NMRA web site:
http://www.gatewaynmra.org/tto.htm
This presentation focuses on Missouri Pacific practices of the 1940s, which used the Uniform Code of Operating Rules.

Simmons-Boardman Publishing offers a wide variety of rail-related publications, including highly-technical manuals on air brakes, locomotives, freight cars and such. Much of their library is geared toward modern-day railroading,
Of particular interest to serious TT&TO modelers, though, is *Rights Of Trains* by Peter Josserand:
http://www.transalert.com/bookstore/Rail/

(Disclaimer: I have no personal or financial connection to any of these commercial endeavors. You might also find some of these publications available through Amazon.com or GoogleBooks.

Lastly, if you have specific questions, feel free to e-mail me at hkrits@hotmail.com and I'll try to help. Be sure to put "RPM Meet" in the subject line so I know it's not spam!

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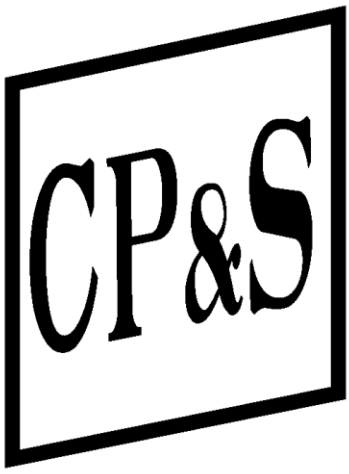
Attachment J

CHICAGO, PEORIA & SOUTHERN
RAILROAD COMPANY



PEORIA DIVISION

TIME TABLE

No.43

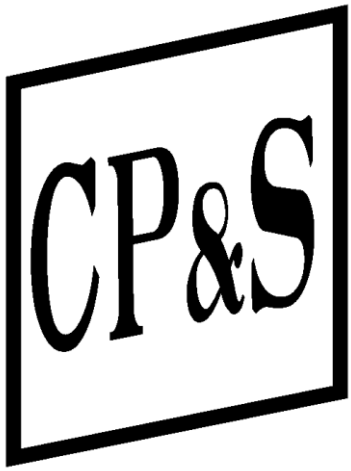
EFFECTIVE 12:01 A.M.,
Sunday, April 4, 1958

For the government and information
of employes only

J. NAVIGATO, Superintendent
W. A. NAVIGATO, Asst. Supt.
M.R. SCHAFER, General Manager
T. SCHNEPF, Division Engineer
H. J. KREWER, Chief Dispatcher
F. SOOP, Gen. Passenger Agent

WHITE RIVER PRINTING & STATIONERY Co., LEE, Ill.

CHICAGO, PEORIA & SOUTHERN
RAILROAD COMPANY



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F. SOOP, Gen. Passenger Agent

WHITE RIVER PRINTING & STATIONERY Co., LEE, Ill.

Attachment 9

SOUTHWARD – FIRST AND SECOND SUBDIVISIONS – PEORIA DIVISION

3rd CLASS				2nd CLASS		1st CLASS			Distance from Chicago	TIME TABLE No. 43 Sunday, April 4, 1958	6(A)	Siding Capacity
45	33	97		21		17	11	1				
Freight	Freight	Freight		Fast Freight		Prairie Marksman	Passenger	Mail				
Daily	Daily	Daily		Daily		Daily	Ex. Sun.	Ex. Sun.				
	5:31PM	9:07AM		5:16AM		12:28PM		2:45AM	150.9	NORTH JCT.	JY	Yard
										0.6		
L 9:30PM	A 5:35 L 6:55	A 9:10 L10:25		A 5:20 L 5:45		A 12:30 L 12:40		A 2:48 L 3:18	151.5	PEORIA	BCF WRTY	Yard
										7.7		
.....	.....	.....		.....		.....		.....	159.2	NORTH PEKIN	PY	
										3.1		
.....	.....	.....		.....		.....		.....	162.3	COURT ST.	JX(M)Y	
										0.2		
9:43	7:07	10:38		5:56		s 12:52		A 3:30 L 3:40	162.5	PEKIN	PY	Yard
										0.6		
9:46	7:13	10:41		5:58		12:54		3:42	163.1	PEKIN JCT.	CJRY	
										10.3		
.....	.....	.....		.....		.....		s 3:49	173.4	GREEN VALLEY	P	
										19.3		
9:56	7:23	10:51		6:07		f 1:01		A 3:53[2] L 4:01	192.7	NEW HOLLAND	PWX	26
										3.6		
10:00	7:27	10:55		6:10		1:03		4:04	196.3	SJ JCT.	JPR	
										4.0		
.....	.....	.....		.....		fs 1:04		s 4:09	200.3	MIDDLETON	P	
										7.7		
10:08	7:34	11:02		6:16		f 1:07		s 4:14	208.0	PRAIRIE CENTER	P	26
										12.7		
10:15	7:41	11:09		6:22		1:11		4:17	220.7	RIDGELY	JPR	
										1.8		
.....	.....	.....		.....		.....		.....	222.5	WABASH TOWER	PX(M)Y	
										0.6		
A 10:19 L 10:40	A 7:45 L 8:35	A11:13 L11:45		6:26[98]		A 1:15 L 1:20	L 8:30AM	A 4:20 L 4:55	223.1	SPRINGFIELD	BCFWRY	Yard
										7.4		
10:49	8:44	11:54		6:34		1:27	8:37	5:02	230.5	DECATUR JCT.	JPR	
										5.3		
10:55	8:50	12:10[18]		6:39		fs 1:31	s 8:44	s 5:09	235.8	FARMERSVILLE	P	32
										19.6		
A11:05 L11:45PM	A 9:00[12] L 9:30	A12:20 L12:40PM		6:50		s 1:39	A 8:50 L 9:02AM	s 5:21[98]	255.1	LITCHFIELD	BCFW JRX(M)Y	Yard
										25.8		
	9:40			6:58[34]		fs 1:46		s 5:29	281.2	LIVINGSTON	P	37
										15.6		
	9:49			7:06		f 1:53		s 5:41	296.8	EDWARDSVILLE	P	
										14.7		
	A10:00PM			A 7:15AM		1:59		s 5:49	311.5	VENICE	BCF WRTY	Yard
										6.1		
BETWEEN VENICE AND ST. LOUIS (Union Station) BE GOVERNED BY T.R.R.A. RULES AND TIMETABLE.												
						A 2:10PM		A 6:00AM	317.6	ST. LOUIS, Mo.	BCFWTY	Yard
45	33	97		21		17	11	1		(166.7)		

NORTHWARD TRAINS ARE SUPERIOR TO SOUTHWARD TRAINS OF THE SAME CLASS

1. SPEED RESTRICTIONS (Miles Per Hour)

	Psgr.	Frt.
MAXIMUM SPEED:	**59**	**40**
Illinois River Drawbridge:	15	10
IC Crossing, New Holland:	20	20
MP 208.5 and MP 224.0:	40	30
Within City Limits, Edwardsville, all trains:		20
Ore trains, loaded or empty:		25
Engines without cars, or caboose only:		25
Handling cars ahead of Engine:		20
Handling wreck train, derricks, spreader/ditchers, pile drivers or dead locomotives:		20
Turnouts, when diverging:	15	10
Passing Sidings:	15	10
Other than Main or Sidings:	10	10
Within Engine facilities:		5

2. DOUBLE TRACK (Rules 251-254)

Double Track in service between **Peoria and Pekin Jct.** Trains will keep to the right unless otherwise instructed.

Extra trains operating wholly within this territory may be authorized by numbered Clearance Form A in lieu of train order.

Movement against the current of traffic may be made on interlocking signal indication or verbal permission of Train Dispatcher.

3. YARD LIMITS (Rule 93)

Yard Limits are in effect:

- Between **North Jct. and Peoria**
- Between **North Pekin and Pekin Jct.**
- Between **Wabash Tower and Springfield**
- At **Litchfield** (Swanson Yard to CCC&StL/CB&Q crossings)
- At **Venice**

Within Yard Limits, trains or engines may occupy main track(s) in either direction without further authority or flag protection, clearing schedules of all First Class trains.

Trains other than First Class must operate fully under control and prepared to stop, not to exceed 15 MPH, unless track is known to be clear by block signal indication.

Attachment J

PEORIA DIVISION – FIRST AND SECOND SUBDIVISIONS – NORTHWARD

Office Hours 6(A)	TIME TABLE No. 43 Sunday, April 4, 1958	Telegraph Calls	Distance from St. Louis	1st CLASS			2nd CLASS		3rd CLASS			
				2	18	12		22	98	34	46	
				Mail	Prairie Marksman	Passenger		Fast Freight	Freight	Freight	Freight	
				Ex. Sun.	Daily	Ex. Sun.		Daily	Daily	Daily	Daily	
DN	NORTH JCT.	NJ	166.7	5:13AM	1:13PM			10:09PM	8:34AM	11:24AM		
	0.6											
DN	PEORIA	P	166.1	L 5:10 A 4:40	L 1:10 A 1:00			L10:05 A 9:40	L 8:30 A 7:20	L11:20 A 9:48	A 7:15PM	
	7.7											
	NORTH PEKIN		158.4	.....	.....			.....	.....	.....	.....	
	3.1											
	COURT ST.	SF	155.3	.....	.....			.....	.....	.....	.....	
	0.2											
D	PEKIN	PK	155.1	L 4:27 A 4:17	s 12:48			9:27	7:04	9:34	6:54	
	0.6											
DN	PEKIN JCT.	IM	154.5	4:15	12:46			9:25	7:02	9:31	6:52	
	10.3											
	GREEN VALLEY		144.2	s 4:11	.....			.....	.....	.....	.....	
	19.3											
DN	NEW HOLLAND	HL	124.9	L 4:04[1] A 3:59	f 12:39			9:16	6:52	9:21	6:42	
	3.6											
	SJ JCT.		121.3	3:57	12:37			9:13	6:48	9:17	6:38	
	4.0											
D	MIDDLETON	MD	117.3	s 3:54	fs12:36			.....	.....	.....	.....	
	7.7											
DN	PRAIRIE CENTER	AR	109.6	s 3:48	f 12:33			9:07	6:41	9:10	6:31	
	12.7											
	RIDGELY		96.9	3:42	12:29			9:02	6:34	9:03	6:24	
	1.8											
	WABASH TOWER	WX	95.1	.....	.....			.....	.....	.....	.....	
	0.6											
DN	SPRINGFIELD	SG	94.5	L 3:35 A 3:05	L12:25 A12:20	A 9:35PM		8:58	L 6:30[21] A 5:54	L 8:59 A 8:09	L 6:20 A 5:50	
	7.4											
	DECATUR JCT.		87.1	2:58	12:12	9:28		8:50	5:45	8:00	5:40	
	5.3											
D	FARMERSVILLE	F	81.8	s 2:53	fs12:07[97]	s 9:24		8:45	5:39	7:54	5:34	
	19.6											
DN	LITCHFIELD	LH	62.5	s 2:48	s12:01PM	L 9:15[33] A 9:05 PM		8:35	L 5:30[1] A 5:10AM	L 7:45 A 7:12	L 5:25 A 4:38PM	
	26.1											
N	LIVINGSTON	VG	36.4	s 2:41	fs11:54			8:26		7:00[21]		
	15.6											
D	EDWARDSVILLE	ED	20.8	s 2:30	f 11:47			8:18		6:39		
	14.7											
DN	VENICE	VN	6.1	s 2:22	11:40			L 8:10PM		L 6:30AM		
	6.1											
	BETWEEN ST. LOUIS (Union Station) AND VENICE BE GOVERNED BY T.R.R.A. RULES AND TIMETABLE											
DN	ST. LOUIS, Mo.	UD	0.0	L 2:15AM	L11:30AM							
	(166.7)			2	18	12		22	98	34	46	

NORTHWARD TRAINS ARE SUPERIOR TO SOUTHWARD TRAINS OF THE SAME CLASS

4. CLEARANCE FORM A

Unless otherwise provided, trains will obtain Clearance Form A at their originating station and as follows:

PEORIA: All Southward trains.

PEKIN JCT.: Foreign-road trains entering CP&S.

SJ JCT.: Northward GM&O trains will obtain CP&S clearance at Bloomington.

RIDGELY: Southward ITC trains will obtain CP&S clearance at East Peoria, Mackinaw Jct. or Decatur.

DECATUR JCT.: Northward B&O trains will obtain CP&S clearance at Decatur.

LITCHFIELD: Foreign-road trains entering CP&S and trains from Memphis Division not terminating.

VENICE: All Northward trains.

Mine runs may depart turnaround points without clearance when office closed.

5. REGISTER STATIONS

Register stations are **Peoria, Pekin Jct., SJ Jct., Ridgely, Springfield, Decatur Jct., Litchfield and Venice**.

First Class trains and Passenger Extras may register by ticket at Venice. All trains may register by ticket at Pekin Jct. and Litchfield.

At Litchfield, trains arriving at or departing from Swanson Yard may conduct register check and transmit register info to operator at depot via telephone.

CP&S trains will not register at SJ Jct., Ridgely or Decatur Jct. unless directed to do so by Train Dispatcher.

6. EXPLANATION OF SYMBOLS – Rule 6(A)

B – Bulletin Board
C – Standard Clock
D – Day train order office
F – Fuel station
J – Junction
N – Night train order office
P – Telephone
R – Register station
T – Turning facility (turntable or wye)
W – Water
X(A) – Railroad Crossing, Automatic Interlocking
X(M) – Railroad Crossing, Manual Interlocking
Y – Yard Limits

SYMBOLS FOUND IN SCHEDULE COLUMNS:

A – Arrival time.
L – Leaving time.
s – Scheduled passenger stop.
f – Conditional (flag) stop.
fs – Conditional (flag) stop, Sunday only.

SIDING CAPACITIES listed in timetable are based on 40-foot cars and include allowance for three (3) unit diesel consist and caboose.

7. RAILROAD CROSSINGS AT GRADE

Court St. – ATSF and P&E: Manual Interlocking.

Pekin Jct. – C&IM: Manual Interlocking.

New Holland – IC: Swinging gate, normal position against IC. Trains must approach prepared to stop.

Wabash Tower – Wabash: Manual Interlocking.

Litchfield – CCC&StL and CB&Q: Manual Interlocking.

8. EQUIPMENT INSTRUCTIONS

LOCOMOTIVES:

Enginemen on steam locomotives must ensure sufficient water supply is available at all times. Water level in tender must not be allowed to drop below half full.
Widows and families of Enginemen who allow water supply to become depleted resulting in boiler explosion will be held responsible for cost of repairs.

2900-series locomotives (Class P-1, 2-10-2 type) are restricted to operation only on main tracks, passing sidings and terminal trackage at Peoria, Springfield, Litchfield and Venice.

Six-axle diesel locomotives are PROHIBITED on ALL industry and business tracks except mine tracks.

ALL locomotives are PROHIBITED from operating under tipple at coal mines and over live rails of scale tracks.

Dead locomotives handled in regular trains must be placed immediately behind road power and watched closely for any defects or problems.

Diesel locomotives must not be operated or towed through water standing more than three (3) inches over head of rail.

HELPER SERVICE:

To reduce possibility of jackknifing, helper locomotives must not be placed more than thirty (30) cars from head end.

Wood-bodied cabooses in number series 1-100 must not be entrained ahead of rear-end helper locomotives. When rear-end helper is required, it must be placed ahead of these cars.

ROLLING STOCK:

Occupied passenger equipment must not be operated on industry spurs or mine tracks without advance permission of Chief Engineer's office.

Cranes, derricks, spreader/ditchers, pile drivers and scale test cars handled in regular trains must be entrained immediately ahead of caboose and must be set up with boom, wings or other moveable appliances in trailing position.

9. LOCATION INSTRUCTIONS

PASSENGER STATIONS: Trains and engines may not pass on intervening track(s) between station and passenger train making station stop. When two passenger trains meet or pass at a station stop, the first priority shall be to complete the meet or pass so as to avoid delay to either train. Station work shall be handled in turn accordingly.

PEORIA AND VENICE YARDS: Arriving freight trains and transfers will stop at phone box located at "head-in" switch for yarding instructions. Train may then proceed on hand or lantern signal from switchtender.

ILLINOIS RIVER DRAWBRIDGE: If home signal cannot be displayed for movement over bridge, train may proceed on hand signal from bridgetender using white flag by day or yellow light by night. Speed must not exceed 5 MPH.

PRAIRIE CENTER: Southward trains doubling Ridgely Hill must provide flag protection against following trains, regardless of whether rear portion of train is on main track or siding. Caboose must remain with rear portion of train.

SPRINGFIELD: Trains setting out to or picking up from yard will arrive and depart from siding unless otherwise instructed.

LITCHFIELD: Schedule times for First and Second Class trains apply at Litchfield passenger station. Schedule times for all other trains apply at Swanson Yard.

OPERATING ON THE CP&S:

BEFORE DEPARTURE:

(30-45 scale minutes before the scheduled departure time)

- **Get an ETA from the Dispatcher or Yardmaster** (Peoria, Springfield, Litchfield and Venice) or find your train in staging (B&O, C&IM, ITC or Venice transfers).
- **You will need a throttle and the CORRECT waybill pack** for your train. These may be provided by the Dispatcher, Yardmaster or you may need to locate them yourself in staging. *Verify ALL your waybills and cars match up!*
- You may need to assign your throttle to your locomotives. The loco card(s) will tell you the correct address to enter. **Remember to ASK FOR HELP if you are unsure!**
- **Next, give the Dispatcher your "markup":** Your name, train, numbers of ALL locos in consist (lead loco first), total cars in train and caboose number.

MAKE SURE YOU HAVE A CLEARANCE CARD (and Train Orders if applicable) YOUR WAYBILL PACK AND WORK MESSAGE BEFORE YOU DEPART!!! NO EXCEPTIONS!!!

Take the time to review your paperwork and the timetable schedule so you know what trains to expect to meet and what work (if any) you and your train will perform en route.

WHILE "ON DUTY":

If you are a scheduled train, mind your schedule! It's perfectly okay to run late, but remember you must **NEVER** leave a station ahead of your scheduled departure time. Other trains are operating on the premise that you will not pass that point ahead of schedule.

Be sure to report your progress to the Dispatcher by "OSing" your train at each OPEN station (the symbols in the Timetable tell you whether a station is open) using the radios, but remember: *Trains didn't have radios in 1958!*

- When you "OS" you are temporarily in the role of the station operator, who is not aboard your train. Call in using the name of the station, e.g., "OS Prairie Center".
- You should "OS" when you arrive at a station and again when you depart. If you don't stop at that station, report your train "by" at the time your caboose passes the station.

SLOW DOWN!!! Don't be in a rush to get over the railroad. *Enjoy the trip!* The goal is not to see how many trains we can run, but how well we can run the trains we have.

Keep in mind industry cars set out by road freights are NOT spotted, they are left for the local or a switcher to deliver to the customer.

Make sure you leave all Main Track switches lined for the Main Track after use!!

WHEN IT'S TIME TO "TIE UP":

- **On arrival at your endpoint** (Peoria, Springfield, Litchfield, Venice or staging), follow the instructions of the Yardmaster regarding the yarding of your train and what to do with the throttle and waybills. If your train ends in staging, place the waybill pack (turned backwards) in the pocket for the correct track and return the throttle to the crew lounge.
- **Let the crew caller know your job is completed** so you can be called in turn for your next assignment.