

Moving freight and making names

Once you've run a few trains on your layout, you may find yourself asking, "Is this all there is?" Though part of the allure of model railroading is watching your trains travel through towns and scenic landscapes, this limited level of participation gets old quickly. However, if you find yourself occasionally stopping a train to switch out a car or two at an industry, you're ready to

start one of the more enjoyable aspects of the hobby – operation.

The motive behind the construction and operation of all prototype railroads is to make money, a purpose directly linked to the trains a railroad runs and how it conducts its day-to-day business. Though most model railroads don't actually turn a profit, adopting the idea of operating trains with a purpose will

make your layout more interactive and realistic.

There are many ways to add prototype operating practices to a model railroad, so it's best to get started with something basic, like freight car routing.

Follow along as we look at several steps you can take to simulate serving the online customers on your layout.

Step 1 Mapping your railroad

Whether you've chosen to model a stretch of real railroad or have freelanced your own line, you'll need to know how it fits into the outside world before you can start moving freight. Making your own system map is the first step. All you need is a detailed road map that shows railroad grades or a railroad atlas.

For my layout, set along the Naugatuck River Valley in Connecticut, I used a highlighter to mark on my atlas the location of the main line and its north and east branches. This project is especially important if you haven't modeled a specific place because it will give a frame of reference for your railroad's connections with other lines.

Next pick names for your towns. If you're modeling real places with landmarks that people will recognize, go

ahead and use the actual town name. However, if your locations aren't that specific, you may want to consider creating new towns on your map.

As an example, there are four towns on my layout, the focal point of which is Waterbury, Conn. Because it's the key to my whole railroad, I've modeled certain city features faithfully enough that it looks like Waterbury. The other three towns, however, are generic New England communities.

I could have named these for real places on the Naugatuck line too, but instead made up names for the other towns (which I think is a lot more fun), basing them on features of the Naugatuck Valley. For instance, following a New England practice of using the same name over in a given region, I set my town of Beacon between the Beacon Falls and Beacon Hill Creek.

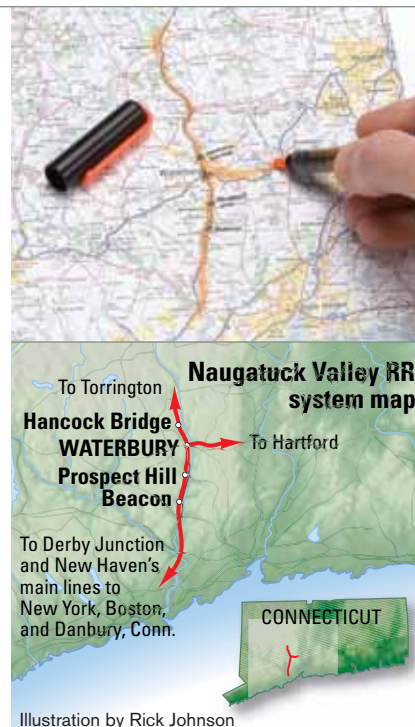


Illustration by Rick Johnson

Step 2 Industrial Analysis

The **second step** is to perform an industry analysis of your layout, determining the products your on-line customers make, the materials they use, and how often they receive supplies or ship finished goods. By making a chart like the one shown below, you can figure out the shipping and receiving requirements for each industry on your layout.

On-line Industry List				
Town	Beacon			
Industry	Inbound/outbound	Car type	Material	Frequency
Hanson Piano Co.	inbound	boxcar	hardwoods	1/week
	inbound	boxcar	frame castings	1 every other week
	inbound	boxcar	wire	1 every other week
	inbound	boxcar	crating lumber	1/week
	outbound	boxcar	pianos	1-2/week
	outbound	gondola	scrap wood	1 every other week (gen stays until filled)
Connecticut Trim Co.	inbound	boxcar	hardwoods	1 every other week
	inbound	boxcar	softwoods	1/week
	outbound	boxcar	milled trim and moldings	1-2/week
	outbound	boxcar	sawdust	1/week (car stays until filled)
Johnson Textiles	inbound	boxcar	raw wool or cotton	1-2/week
	inbound	tank car	dyes and chemicals	1 every other week
	inbound	boxcar	cardboard shipping cartons	1-2/week
	outbound	boxcar	cloth	1-4/week

Many industries are self-explanatory, such as a coal dealer – loads come in and empties go out. All you'll need to do is determine the frequency. Others, however, take some research to model delivery and shipping cycles.

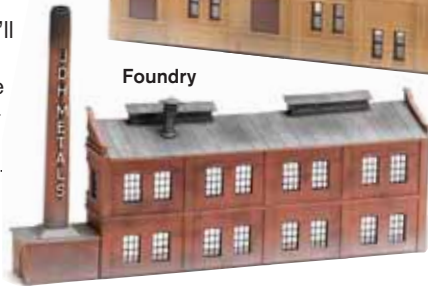
For the car requirements of more complex industries, let common sense be your guide to get you up and running. Later, when you've had time to complete some research, you can update your analysis to match the prototype.

One other important consideration is that most industries don't use all the material they receive, so don't forget to include carloads of waste products on your list. The piano factory on my layout ships out carloads of scrap wood and sawdust from time to time.

Piano factory



Foundry



Fuel dealer

Produce warehouse



Step 3 Starting with switch lists

Now that you know the location and requirements of your industries, your railroad can start serving them. A method that works particularly well with small railroads is a switch list.

A switch list is a nearly universal form used by railroaders to plan and record car movements. Though some are more elaborate than others, all have the same basic information, including spaces for car identification and destination. I made mine (right) on my computer using Microsoft Word. You can download a generic version of my form at www.modelrailroader.com.

To make up a train using a switch list, start by looking at your industry analysis sheet to determine which businesses will receive cars this trip. Proceed down the list town by town, selecting car models to meet each

industry's requirements, filling out the switch list as you go.

There are a number of ways to handle cars waiting to be picked up at industries. The easiest is to walk around to each industry on the layout and add those cars to your switch list, marking "P" for pickup in the remarks column. When you've finished the list, assemble the train and give the list to the crew.

As you get into the habit of using switch lists, you'll find you can take shortcuts, such as using abbreviations for town and industry names.



Switch list					FORM 146-S
TRAIN 23 COND. DATE 02/17/98 TIME 4:00 PM					
No.	Car Initials	Car Number	Car Type	Destination	Remarks
1	NH	35143	X	P/HANSON P.	
2	CP	100197	X	P/CONN. TRIM	
3	NH	31728	X	P/JOHNSON TEXT	
4	BAEV	75280	R	PH/JANBY COLO ST	
5	DEH	5792	H	PH/GRIVNO COAL	
6	NH	61021	G	HB/JDA MFRALG	
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Step by Step

Step 4 Car cards and waybills

Working with switch lists is fun, but filling out the paperwork for every train can get tedious. Car cards and waybills offer an interesting, flexible solution, and after filling out the forms once, the system can run itself forever.

With a car-card-and-waybill system, every freight car on the layout gets its own card, listing its reporting marks, type, and usually what to do with the car when it's empty. When the car is assigned a load, it's then given a waybill, which is attached to the car card. The waybill lists the destination, lading, and routing information for the car. Since the car card follows its car around the layout, a train crew can look at the waybill at any given time to see how they should handle the car.

There are several manufacturers of car cards, or you can buy computer software to make your own. For my layout, I used the car routing system (no. 82916) from Micro-Mark. (This same set is also offered by Doc's Caboose.) It comes with paper car cards and special, four-cycle waybills.

A four-cycle waybill actually has four waybills printed on it, each with a number. When filled out and assigned to a freight car, that car is then routed to four different locations on or off the layout (Off-layout destinations are represented by storage tracks called staging

yards.) After the car arrives at a destination, the waybill is cycled (flipped over), revealing a new destination for the car.

The process is repeated until the car ends up at its starting point, where you can either send it through the cycle again or swap its waybill with a different one. This way your train crews don't see the same car showing up in the same place session after session.

Micro-Mark's car routing set is very easy to use and comes with a short instruction book to help you fill out the paperwork and get things rolling. You can also use switch lists *with* the card card system to help crews keep track of their work, though the four-cycle waybills now determine movements.



Car card and waybill

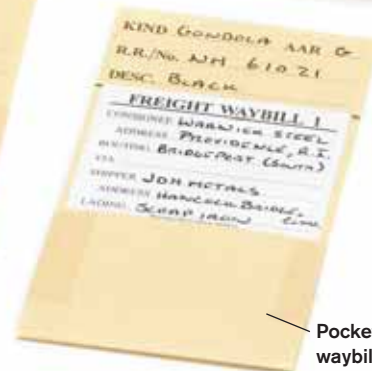
Car card



4-cycle waybill



Pocket for waybill

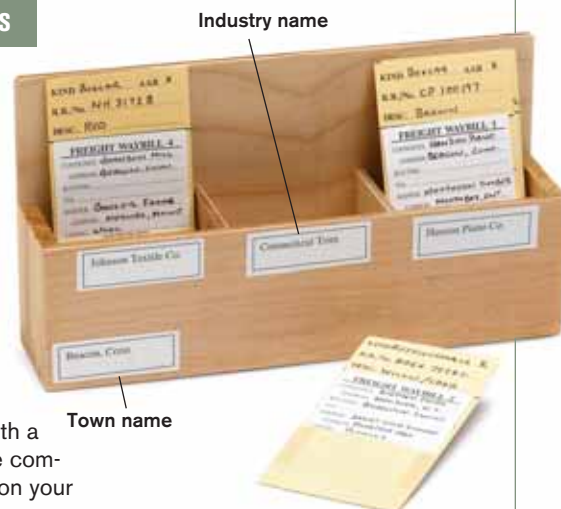


Step by Step

Step 5 Boxes and shelves

When you drop off a car at an industry, you'll need a place to put the paperwork (its car card and waybill). That's where bill boxes come in handy. Though I've made my own in the past, the waybill kit from Micro-Mark includes some nice boxes. These three-slot card boxes are made from thin plywood and sealed with a clear finish. You'll need one compartment for each industry on your layout. As shown above, you can make labels for the boxes on your computer, cementing them in place with a glue stick.

Train crews have a tendency to sort their car cards on layout surfaces. To solve this problem, you can make sorting shelves. Mine are made from 1/4" hardboard and joined together with carpenter's glue, as shown at right. The overall size is



4" x 12". Once the glue dries, fasten the shelves to the layout next to your bill boxes. On my layout, I placed one at each town and two at the yard in Waterbury.



Shelf provides a place to sort car cards



Shelf made from 1/4" hardboard

» Want to learn more?

I've just scratched the surface of ways you can operate your model railroad more realistically. For detailed information, check out the following sources:

- The Gateway Division of the National Model Railroad Association has posted some very good articles about operation on the Internet. Visit the group's Web site at www.gatewaynmra.org/operate.htm
- Tony Koester's book *Realistic Model Railroad Operation* (Kalmbach) offers a detailed look at

model railroad operation. It includes a great quick-start guide to get beginners up and running.

• *Starting operation* is a downloadable PDF from Information Station at www.modelrailroader.com. This includes 40 pages of articles from *Model Railroader* magazine covering a host of different operating ideas.

I've used most of these sources at one time or another, and collectively they'll give you a great start in a fun part of the hobby. — D.P.