Turnouts

Tips and techniques for modeling track that looks like the prototype.

By Michael L. Cougill

Turnouts sometimes get short changed in railroad modeling. In many ways it seems like they haven't quite outgrown their toy train roots. Most manufacturers still only give modelers a limited choice of frog numbers, most of them more suited to a tight industrial setting than a mainline. Of course modelers have always had the option of making their own frogs and points. This is the only way to get things for many situations where no manufactured components are available.

Since my layout is P48 and ready to lay turnouts aren't available, I handlaid my turnouts using American Switch &Signal frogs, points and guard rails along with many other track details from Right-O-Way Products. Like the rest of my track, I wanted a realistic appearance. I wasn't concerned with maximizing

passing track capacity on the layout, so I used high numbered frogs (No.10s). Using the No. 6 or 8 turnouts that conventional wisdom suggests might have given me one additional car length of capacity for my run-around track, but the trade-off in appearance wasn't worth it. Let me stress, as always, that each individual's choice of prototype, era, motive power, operating scheme and other preferences will have an impact on a layout's design and the many decisions involved. I'm only describing what my choices were, not laying down hard and fast rules for all time.

As in my companion e-book *Handlaying Track,* this volume will not cover all of the nuts and bolts details of how to model turnouts. What I'll do here is give an overview of the choices and techniques I used on the I&W. The nuts and bolts are coming; so stay tuned to the website.

Best regards,
Michael L. Cougill

Planning

When I switched scales, I discovered a few surprises were waiting for me. The first was how much room the track was going to eat up (a lot) and the second was how quickly it would do it.

Coming from HO, I was still prone to thinking in terms of HO dimensions. Track center lines are about two inches apart in HO. In O Scale they are 3-1/2 (14 scale feet) to four inches (16'). Wow! My 26" wide benchwork started shrinking fast. The second part to this was just how long a No. 10 turnout is. From the tip of the switchpoints to the point of the frog it is 19". A No. 10 crossover with tracks on 13 scale foot centers measures out at four actual feet long from switchpoint to switchpoint. That is one-sixth of the layout's total length!

While it may sound like I'm complaining, I'm not. I soon learned that I could turn these limitations into something good by rethinking my assumptions about the layout's design.

One of those was the idea that you have to stuff as much layout as possible into a given space. You see this played out all the time in the mainstream press with the emphasis on double-deck designs, helixes and other convoluted tactics, all designed to maximize the amount of run. I didn't want any of that. My whole objective with this layout was to do quality modeling based on a certain prototype and other criteria. So even though they took up a lot of space, I was firmly committed to the use of No. 10s for most of the turnouts. It's a decision I haven't regretted once.

On the right hand side of the layout, in an area I call Sycamore, Indiana, I clustered five turnouts (four No. 10s and one No. 7) in a space that's less than seven feet long overall (Photo below).

Overlapping them was the key to getting the track arrangement I wanted without taking up tons of space. The benchwork is only 26" wide, so you can see how much room even a simple track grouping needs. Notice the nice flowing lines the long turnouts give.

Speaking of flow, handlaying lets you break free of the rigid geometry of commercial turnouts. This view of the interchange yard shows how two No. 8 turnouts flow one into the other with a nice curving line throughout. I wound up laying the second one as a wye, rather than straight to enhance the flow of the track at this point. I was also able to tuck the points of the second turnout right up to the the frog of the first in order to save more space for the interchange tracks. You could do all of this using commercial turnouts, but there would be a lot more work involved to modify them to fit your situation. Handlaying just makes the whole process seamless. I still have a few more details to add to the track (and the cars, the scenery, this, and that and on and on).

Details

Ever since I have been in the hobby, I have wanted to have model track that looked as real as prototype track. I wanted the same color, texture and all the details that real track has. This quest was never satisfied until I switched to 1/4" scale and P48. After thirty plus years of trying, I finally have the track I wanted.

This brings us back to the point about each scale having its own advantages. In my mind, the distinct advantage of 1/4" scale is in the amount and quality of details one can include in a scene or model. Of course, S Scale modelers also have this advantage and, to an extent, so does HO. However, below a certain threshold individual detailing ceases to make sense in the smaller scales. Tieplates, for example, aren't worth the effort in scales smaller than S; while in O Scale, they are noticeably absent if not modeled (just one person's opinion). Also in O Scale, such details can be fully rendered instead of just bumps and blobs of material. Additionally, they are often functional as well, like the throw rods and rail braces I used from Right-O-Way.

These are about as prototypical as it gets. The switch rod is a length of 0.019" brass wire from Detail Associates connected to a Caboose Industries N Scale groundthrow. The N Scale throws have just enough extra travel to keep the right amount of pressure on the points without excessively bending the switch rods. The throw rods are connected the the individual points with Micro Engineering's micro spikes, which were placed loosely in the holes. This allows things to be disassembled for maintenance, a tip I learned from John Pautz.

Initially, I planned to use Tortoise switch motors, mounting them under the roadbed and using a stiff piece of spring wire for throwing the points. I did this on my last HO layout and it worked okay. However, I found that it was important to locate the spring wire properly. I had drilled the ROW throw bar in the middle where the cast on cylinder is located. In doing this, I accidentally created a short circuit path by bridging the two halves electrically with the spring wire. This was a lot of fun to find and debug. Mounting the Tortoise motors underneath the layout was also less than enjoyable. They required a lot of fiddling to throw the points to my satisfaction. It was time to step back and rethink things.

The only reason I was using electric switch machines was for the built-in contacts to change the frog's

polarity. One day while testing the new crossover, I ran the loco through fully expecting it to stop dead when it hit the unpowered frog. To my surprise, it didn't. In fact it continued right on through without so much as a hiccup. It seems that the Red Caboose Geep has all wheel pick-up and that the wheelbase is long enough to bridge the dead zone of the frogs without any problems. So why am I messing around with all these added layers of complication again? I also noticed that the Right-O-Way throwbars had a dimpled spot on the end of the cylinder casting that could be drilled out easily. I could solder or use CA to attach the 0.019" brass wire. Problem solved, and prototypical looking to boot.

I suppose that there might be a problem with stalling if I ran a short wheel based loco like an 0-4-0 or gas mechanical of some sort, but since I don't own either of those, I will continue with the current way of doing things. If I do get an engine that stalls on the dead frogs, I can just hook up the wire leads that I soldered onto the bottom of them in anticipation of using the switch motor's contacts. You might be able to see a blackened spot on the frog in the photo to the left. That's where the wire lead was soldered on and fed through a hole drilled underneath. I had to think this through and drill any holes before laying the rails because it is no fun to remove a frog or section of track once it is spiked in place.

If you have questions or insights about how to hand lay P48 track, I will do my best to respond to them. A good place to look for all kinds of P48 knowledge is the P48 Yahoo Group at:
http://groups.yahoo.com/group/p48_modeler/

Thanks for downloading the book and best wishes in your modeling.

Michael L. Cougill

This work is an excerpt from the upcoming book *Detailing Track* by Michael L. Cougill.

The Author
I've been a model railroader since childhood. Working in HO Scale for most of that time. I switched to P48 in 2005 and never looked back.

In 2006 I began writing the *Art of Finescale* column (now titled *The Art of Prototype Modeling*) for *O Scale Trains Magazine* and I became the magazine's Managing Editor in 2008.

In addition to editing, I've written *Pieces of the Puzzle,*which outlines the decision process behind the design choices of my own P48 Indiana & Whitewater Railroad.

I can be reached in the following ways:
E-mail (preferred): Cougill3@aol.com

Postal mail:
Mike Cougill
Cougill Studios
PO Box 1402
Richmond, IN 47375