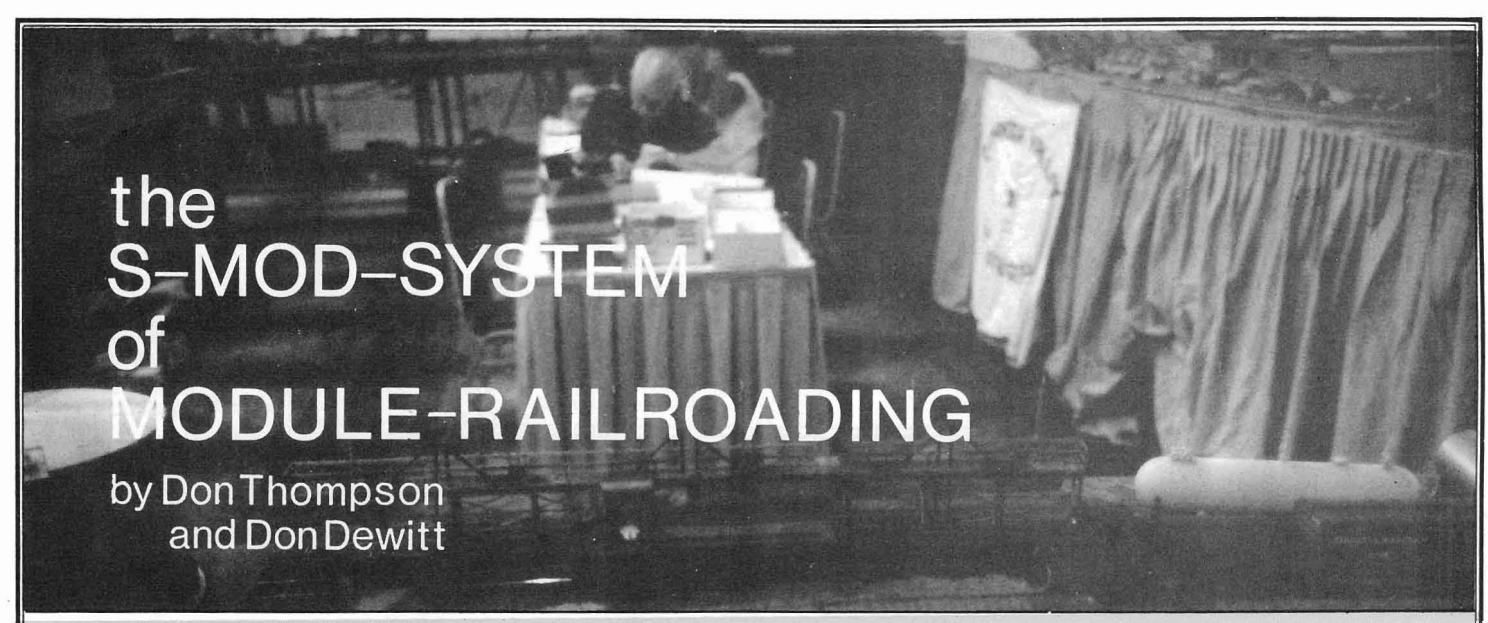


the S-MOD-SYSTEM of MODULE-RAILROADING

by Don Thompson and Don Dewitt

The last installment in this series dealt with benchwork. We saw how the parts to this sectional module could be made to NASG Standards, therby making them compatible with hundreds of units now in existance. This time we are going to lay ties, place turnouts and install rail. The work is not difficult and only simple tools are required. Variations in rail height for all scale or mixed scale/hirail operation is discussed. To assist the modeler in getting started, alist of manufacturers and dealers follows this chapter.

Before we start, we have to decide what rail size, type of turnout and to what standards the track will be laid. The rail size and turnouts are dependent upon the type of equipment you are planning to operate. If you, (or your club), plan to operate both scale and hi-rail rolling stock, then code .125 rail is required, as are closed frog switches. American Flyer, or new Lionel, equipment require code .148 rail. Switches for different sized rail are available from Earl Eshelman, but at this writing, no flex track is available with solid rails and hand laying rail on ties must be done.

Gargraves trackage is suitable for tinplate operation, however it is not the purpose of these articles to build modules solely for that use. This is covered in another series on the Easyville Shortline RR and details for laying this product will be discussed in subsequent installments under that title.

Modules that are intended for use with scale model equipment are generally laid with code .100 rail. Flexible track is available from Tomalco and open frog switches from American Models, Darr and Earl Eshelman. Hi-rail and AF will not operate on this rail due to the increased flange depth. This will cause the wheels to foul at switches and rattle along on the tops of spikes.

The standards used for track gauge may seem confusing, as two recognized in S. One by the NMRA, which bases rail spacing on a pecentage of 0 Gauge and NASG, which is based on true 4'8 1/2" gauge. The confusion ends when the one attempts to obtain NMRA's check gage and learns that they have been unavailable for more than a decade. The NASG gage is currently available from the Association's Clearing House and, since more and more product is being made to this standard, this is the one to use. If a person wanted to build a module to accommodate wheelsets gauged to either standards, closed frog turnouts would be required.

Let's get started laying track!

The first step is to mark the roadbed where the track components will be located. This will be easier if all the sections are clamped together. If we look at the track plan, (Fig. 1), we find the center line between the two mainline tracks is 15" from the near edge of the module. This reference point runs the length of the three sections of the module. The simplest way to do this is to snap a chalk line.

The distance between the two mainline tracks is 2 3/4", (this the NASG Standard). In order to find the line where the edge of the ties will be located, you will have to know their length. Tomalco's flex-track is laid on scale 8' ties, (1 1/2"). Prototype ties are 8' 6" or 9'. The latter may be seen in hand laid trackwork. If you are using flexible track, (8' ties), snap a line 2 7/8" on each side of the center line. For 8' 6" ties, the line will be 2 31/32" and for 9' ties: 3 1/16".

There are eleven turnouts on this module, (3-#8, 6-#6, 1-#5 and 1-#4). By marking them on the roadbed before the ties are laid, it is easier to see where

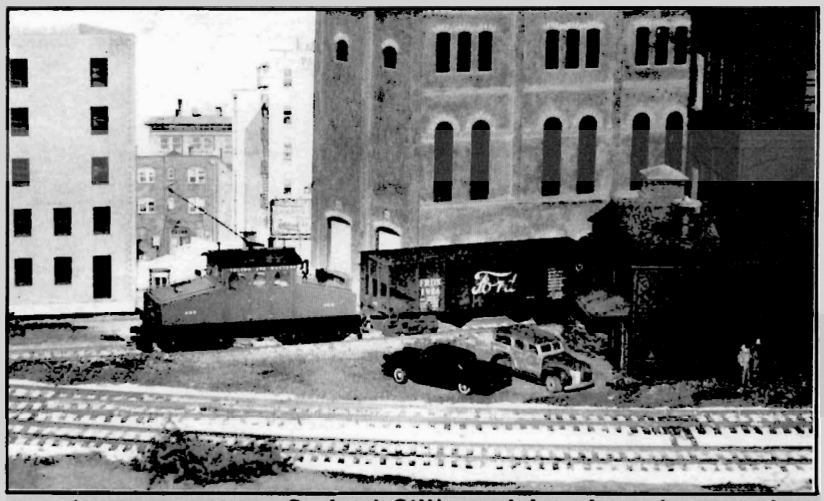


Vic Roseman's RDC, on Don Dewitt's terminal module.

you may run into any problems. Fig. 1 shows where the turnouts are located. The usual procedure is to mark where the point of the frog is located, but turnouts that require clearance for streets or bridge rails where the module sections join are measured from where the switch points begin.

The frog of a switch is the part where the rails cross in a sort of an elongated "X". There is a part where the rails are joined together to form a "V". This is the point of the frog. Measurements taken from the switch points to the frog point determine the switch number.

Crossover layout is from frog point to frog point, (diagonal measurement). Length is determined by the length of track needed **to join them together.** The easiest way to find the location of a switch is to lay the template packed with it over the intended spot on the **roadbed, then position the other switch** so that the connecting rails are lined up. The spot where **the frog or** switch point is marked and track laying **can proceed.**



A busy scene on Gaylord Gill's module, shown here at the NASG convention in Novi, Michigan. Bob Werre photo.

For hand laid switches where ties are not provided, the following chart shows the ties necessary for the layout. The table is for 8'6" ties. If you are using 8' ties, subtract 3/32" from each tie or add 3/32" for 9' ties.

FROG #	15'0"	9'0"	9'6	10'0"	10'6"	11'0"	11'6"	12'0"	12'6"	13'0"	13'6"	14'0"	14'6"	15'0"	15'6"	16'0"	16'6"
4	2	4	5	3	3	1	1	1	1	1	1	1	1	1	2	2	2
5	2	4	6	3	3	2	1	2	1	1	2	1	2	2	1	2	2
6	2	4	6	3	3	3	2	1	2	1	2	2	1	1	3	2	2
7	2	7	9	4	3	3	3	2	1	2	2	2	2	2	3	3	2
8	2	7	9	4	3	3	4	3	2	1	3	2	3	2	3	3	3

THE TIES ARE LISTED IN ORDER FROM THE SWITCH POINTS.

The next step is to mark the rest of the turnouts on the main line. The plan shows their location. Remember that switch points should be at least 3" from the edge of the module section. When you feel that the turnouts are in proper position, work can begin on the ties. We will begin with the #8 crossover on section A.

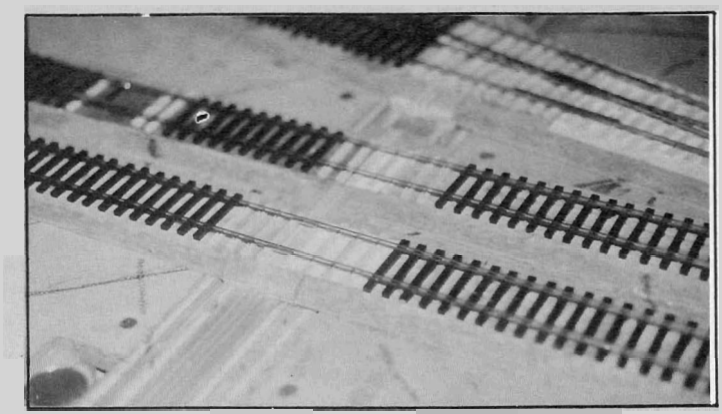
If you are going to lay the **module** in code .100, American Models switches **contain a** template for locating the ties. This can be **glued** directly to the roadbed, (ballast will hide the template later). Other brand turnouts require a tie laying jig or some form of locating system.

A tie jig is not difficult to build. It can be constructed from a 1 X 4 X 18" pine board. Saw grooves in the board about 1/16" deep and slightly wider than the ties, (1/8" or so). The grooves are spaced on 5/16" on centers. This will result in ties spaced every 20 scale inches, which is prototypical.

Another method for those who do not have a saw, is to glue 5/32 X 1/16" spacers to the same pine board, 5/16" apart. (Use a tie to check the spacing. It should fit loosely between the spacers. A similar jig can be made for sidings with 24" tie spaces are found, just make the spacers 3/8" wide.

Now place the ties on the jig begining with the two 15' switch stand ties. Then, using the bill **of ties, drop in each length** until all are **in place.** For a cross **over,** it is not necessary to reverse the order of the ties. (For a right **hand switch, start the 15' ties on the** right. For left hand switches, start on the left. Simple, isn't it.

When all of the ties are in place, lay a 1/2" strip of masking tape over the center of ties and lift them off the jig. This will look like the backbone of a fish. We are now ready to glue them to the roadbed. Elmers, white glue, or a good carpenters glue is used. It can be applied to the ties or the

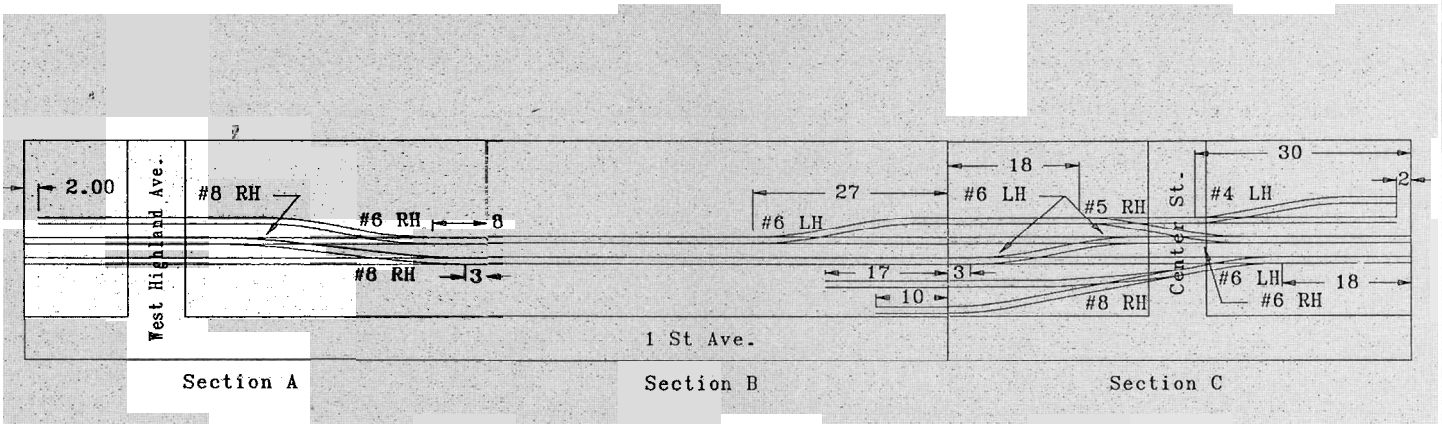


Typical joint showing wood ties and rail sections.

roadbed surface. Position the ties on the mainline and while the glue is still wet, lay the switch over the ties to check position. The switch points are uaually located on the first 15' tie and the frog points may be on either the first or second 13'6" **tie. A little shifting may be necessary.**

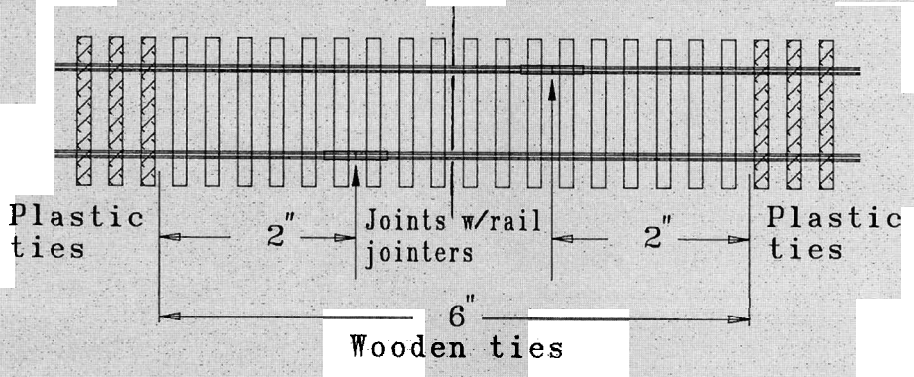
Repeat the process for the other leg of the crossover and glue it in place. Check to see that the ties are in proper place and proceed to the remaining switches. The tie jig or templates provided with the switches will make the job simple.

Please turn to the next page--



The three module sections joined together. All dimensions are in inches.

A drawing depicting the track joint between modules. The solid line is the end of the section.



If you are using your own track plan, pay attention to the requirement for spacing at the end of the module. 3" is required for switch points. An inch of stock rail will be left beyond the points to accommodate the 4" bridge rail.

With all of the switch ties in section A in place, we are ready to lay the ties for the main line and siding. The tie jig for the switches is also used to space the mainline ties. Just lay the ties in, tape them and position on the roadbed, gluing them as you did with the switches. The ties for the mainline run to the edge of the module. A 4" bridge segment of rail will later join the rails on each section.

If you are planning to use flex track, or rail laid on Ace ties, (Downs Model RR product), you may want to consider the following: on the ends of the module where the sections of the module meet others, you will have 2" of ties. Since both Ace and flexible track are plastic, it is best to install an additional 2" of wooden ties to securely anchor the track on the roadbed. This will mean replacing the ties on the last 2" of flex track but it is worth the bother as we have seen the rails ripped off plastic ties when the modules are moved. It is less likely to happen with wooden ties and a lot easier to repair if it does occur.

Once all the ties are in place, we can start installing the turnouts. Two tools will help. One is the NASG track gage and the other is a three point gage sold by Train Stuff. Start with the crossovers to be sure that they fit together, then attend to the sidings. Traditionally, turnouts are installed with the stock rails first, then the frog and points. Since all of the commercially available switches are preassembled, with straps soldered to either the top or bottom of the rails, the job appears to be much easier.

The job of installing switches demands care. Start by spiking the switch in a few places, then remove the straps. Sam Powell recommends prying the straps off with a screwdiver. Once this is done, you can finish spiking the switch in place. The best spikes for the job seem to be Rail Craft Small Spikes. Once you get the hang of inserting them without bending, they will look 100% better than any other spike.

Once the switches are installed, the track can be added. Hand laid track can be code .100, .125, .148, or .172. Ace plastic ties are available for .125 and .148 rail and are self gauging. Rail in various weights is available from most hobby shops, as are ties and spikes. Don't forget to pick up a package of rail joiners while you're there. Flex track is available from Tomalco and Hoquat Hobbies. The NASG and Train Stuff gages will be necessary tools for laying good track too.

With everything in gauge, your module will be ready for the switch throws and wiring in the next installment: Electrical.