HOTBOX

"the Un-Magazine of Model Railroading"
No. 180 October 1982

INSIDE

New Traction Column
Northwoods "400"
MSC Report
plus
Much More

HOTBOX

OFFICIAL PUBLICATION • Texas Association of Model Railroading

Issued every month with an additional special mailing of a Directory of Membership during the summer

Annual dues for the TAMR are as follows:

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SUSTAINING: (both Regular & Associate) $15.00

Please address all membership applications, renewals, address changes and complaints of non-receipt of the TAMR HOTBOX to the TAMR Secretary.

TAMR Secretary for Membership: Dee Gilbert
Box 132
Harrison, AR 72601

All other HOTBOX business, except where specifically noted, is handled by the Editor. Please address all comments to the Editor.

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4818 W. George St.
Chicago, IL 60641

DEADLINES: The TAMR HOTBOX welcomes articles, photographs and artwork pertaining to model and/or prototype railroad subjects. All material for publication must be submitted 30 days before the month of publication. The TAMR HOTBOX assumes that all material is submitted for the mutual benefit and enjoyment of the hobby by the membership and thus no payment will be made upon publication.

MSC REPORT

Please address all comments and questions on this column to Dee Gilbert, MSC Chairman, Box 132, Harrison, AR 72601.

Despite the recession, business must be booming on the model rails as I have had a flurry of requests about double-heading locomotives as of late. Seems that many members are concerned about the possible harms in running mismatched (in terms of speed) locos in double and triple-headed combinations.

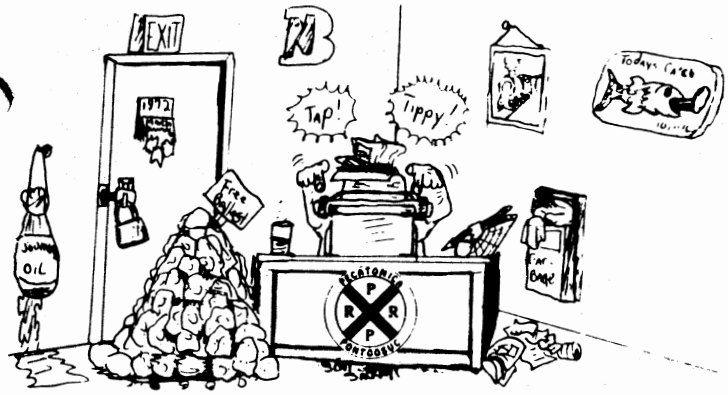
I am finding that some locos are light enough--particularly in N scale--that they draw a peak current just at the point of maximum traction in relation to the load being pulled and then experience a current drop as the wheels slip. Plus those locos equipped with traction tires tend to have current surges which ARE harmful and heat producing in the motor as the rubber tires tend to "hop and skip" thus each time the tire grabs the rail, it really pulls the motor down.

If you have an ammeter on your layout, put two or three locos on your track, not coupled to each other or other cars, and watch your meter. Record your readings for future reference and then couple two of the units together. Note if their is an increase in the current draw. If so, then the motors are using more current due to a mismatch in the speeds of the two locomotives. Next try out other combinations.

Generally speaking, the locomotives are safe to operate only if the increase in current does not exceed the maximum allowable current for any one locomotive when the current increase is added to the normal current draw (with no double-heading) of that locomotive. For example, one loco draws say half an amp without a load and one amp at maximum load. Another draws half an amp at no load and three quarters of an amp at maximum load. When coupled together, a speed mismatch causes the current to increase from one amp (remember that both units are on the track now) to one and a quarter amps. Thus we now have a quarter amp increase due to speed mismatch alone. Adding this quarter amp to the normal current draw of the locos gives us a running amperage of three quarters of an amp which is the maximum load of one of the locomotives. Adding cars to this double-headed combination will cause a further increase in current and we then might be exceeding the possible safe limits of the one locomotive. A further current increase of an 1/8th of an amp might be tolerated by this loco combination, but it is not always best to assume this if you do not know the maximum safe current draw as opposed to the maximum current draw at wheel slippage.

Now for a few helpful double-heading rules. Never double-head a loco with traction tires along with one that doesn't have them. Traction tires always win out and the extra strain on the bearings and gears of the other unit will increase wear. Some locos go faster in one direction than another, bear this in mind when you are double-heading. Motors that heat up quickly and run hot shouldn't be run with those that don't. Write if you have further questions.

CRUMMY NEWS



BY MARK KASZNIAK, EDITOR

GREAT TRUTHS, Part 1

One doesn't have to be in this hobby very long before the realization sets in that there are certain guidelines that must be followed if you are going to build and operate a model railroad successfully. These principles which have been handed down from generation to generation have been found to be sound after much experimentation. I like to call them the great "truths" of model railroading. Since they are normally found scattered throughout the multitude of self-help books that are available to modelers, I thought it would be nice to collect them in one place for easy reference. Thus I am graciously offering my column space as their depository.

Since there are many more great "truths" than can possibily fit into a single column, I have labeled this part one. If response is good and you prove to be a worthy audience, I may print more at a later date. Until then, I pray you heed the advice given below, your modeling will be all the better for it.

I. This one makes the top of almost everyone's list so I include it here first due to sheer popularity. Simply stated it reads: "Don't use brass track!" Now everyone repeat this one hundred times to make sure that you have it correct. Remember if some unscrupulous hobby dealer tries to sell (or even give away) brass track, please run--do not walk, pass Go or collect $200--to the nearest exit. Why is brass so bad, you ask. Well, brass has this nasty habit of oxidizing when left in any kind of normal environment such as plain, ordinary, everyday, unheathful air. Oxidation, in turn, prevents good electrical contact which is something you are going to need if you plan on operating electric trains. Case closed.

II. Power packs included with most train sets will not give good slow speed operation. It is a proven fact that the minimum speed most of these packs can give is about 120 scale miles per hour. This is obviously a throw back to the days when speed was something to be marvelled at (pre Wright brothers days I think). Unfortunately, model trains moving at these speeds tend to make even veteran airplane pilots dizzy. Since we take great pains to create a realistic setting for our trains to run through, we really should operate them at speeds far below the sound barrier. So buy a better pack for better performance. Save the old pack though, it can be used for auxiliary wiring, such as powering switch machines or lighting buildings.

III. Don't use sectional track for a permanent layout. You may just adore the clickety-clack of the trains on the rails and think that sectional track is just what you need to reproduce it, but don't kid yourself. Why do you think all the real railroads are putting in welded rail? That's right, decreased maintenance costs. Now aside with the obvious electrical continuity problems posed by sectional track--the more connections, the greater likelyhood of a short--there will be mechanical problems as well. So do yourself a favor, use flex-track. It is easy to work with, will form any curve you desire and helps operation heaps.

Would truly like to go on with this listing, but I find that I am almost to the end of my allotted space. Whether or not I continue depends on you. The majority will rule in this case so send in those cards and letters. The address is, as always, on page two of this issue

Route of the

By; Jim Kobrinetz

NORTHWOODS "400"

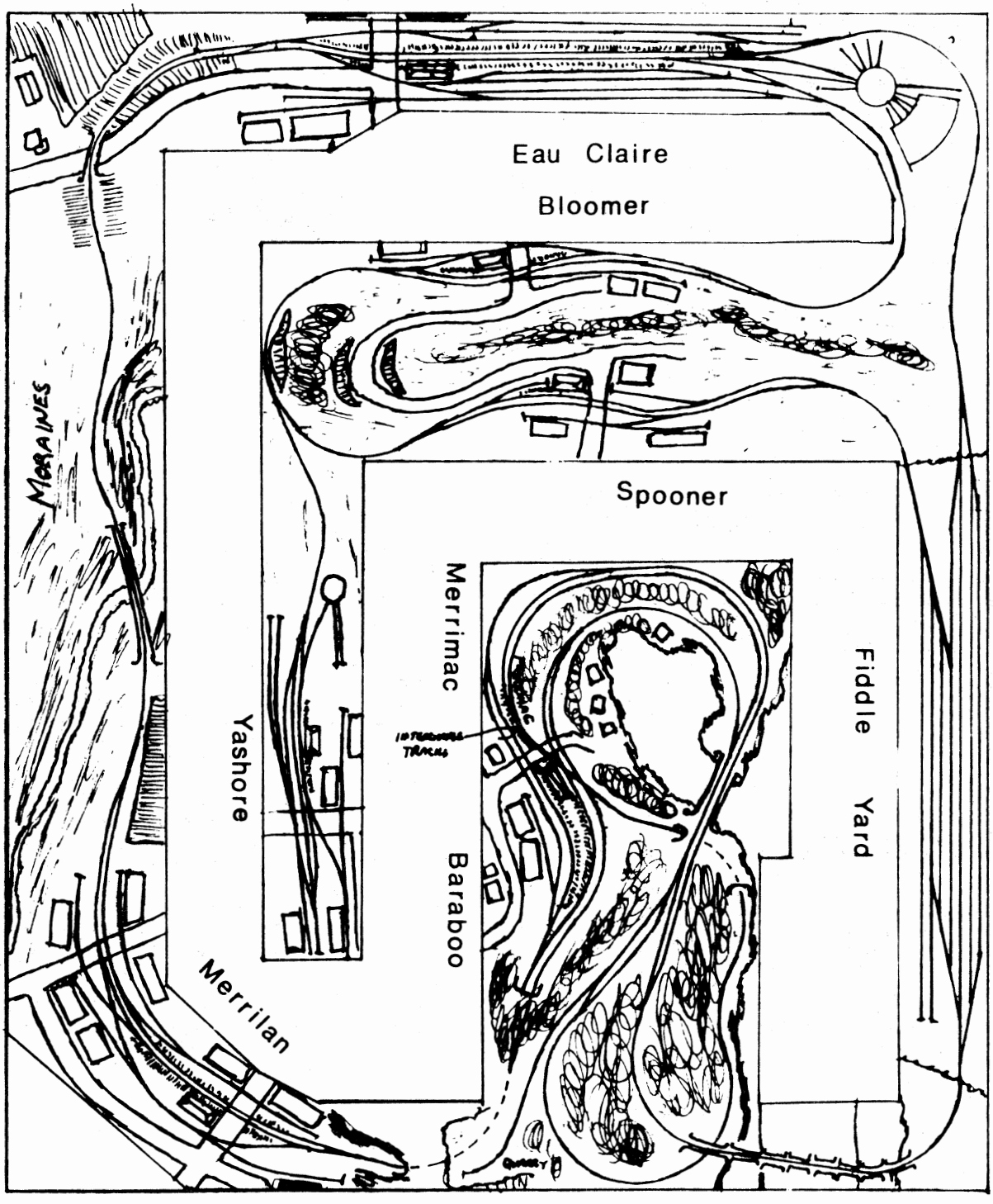
Having lived near the Chicago & Northwestern Rwy. for many years and being greatly influenced thereby, it was inevitable that I would rush out--without delay--to purchase Jim Scribbins' new book, The 400 Story. It was also inevitable, as with any new book, that I would be inspired to design a trackplan based upon it. So, I present to you: "The Route of the Northwoods '400'." This trackplan, rather than being based on a specific route of one of the "400" fleet, is based upon particularily scenic bits of several routes. The towns are all real, save one. Marking out the towns will give an idea of the projected route (basically a combination of the original Twin Cities 400 and Dakota 400). The only fictional town is that of Yashore, whose name is based upon the heavy accents of many of the Swedish descended people living in northern Wisconsin, to wit: "Yah, shore, yew betchYA, hey."

The typical mainline routing is as follows: fiddle yard, Merrimac, Baraboo, Merrilan, Eau Claire, fiddle yard. This is the basic route (or its reverse) traversed by the "Northwoods 400" and mainline freights. The interchange at Merrimac/Baraboo is with the Milwauke Road and/or Soo Line. At Eau Claire, the Duluth branch comes off. The "400" either has an across the platform transfer or physically transfers coaches to the "Lake Superior 400" (most or all of which is made up in the Eau Claire coach yards). Locomotives on all trains are changed here as it is a division point. Cars for Duluth are cut out of freight and lesser passenger trains to be sent on their merry way north via Bloomer and Spooner. Once a day, a local leaves Eau Claire to work Bloomer and Yashore and returns.

At Merrimac, there are summer cottages. Next, before Baraboo, is a quarry from whence the C&NW mines its famous "pink lady" granite for ballast (i.e. Baraboo quartzite for the geologists among us). At Baraboo itself there are several industries, an interchange and a platform on one of the sidings for loading/unloading circus cars. At Merrilan (as well as Bloomer, Spooner and Yashore) there is a random mix of industries, but mainly concentrating on typical mid-western industrial concerns such as grain elevators, feed mills, farmers' co-ops and the like. Eau Claire is mostly made up of yard, but there is room for several medium-sized industries.

Still the main theme of this layout is scenery. It is supposed to give the impression (especially in the area marked "Moraines") of rolling, predominatly grass covered hills. The area around the lakes and rivers should consist of rolling tree-covered hills. The Moraine section was deliberately designed to be very wide, the track being close to the table edge, so as to convey a feeling of emptiness to the viewer.

As for the most suitable motive power for this type of layout, a steam era pike would use two Pacifics for the "400's," a couple of Mikados and three or four R-1 ten-wheelers (4-6-0's) for the freights. For the "Lake Superior 400," an Atlantic might be in order. When replacement time rolls around, the first to go would be the Pacifics for E units (two E's for each Pacific). Meanwhile, the Atlantic would be replaced with an R-1. Next to go would be the Mikados, replaced by F units (2 to 3 F's for each Mikado) and finally, the R-1's would be replaced by RS3's and GP7's. By this time, the F units might also be replaced with baby Trainmasters (H16-66's).



Drawing by author

Scale: 1/4" = 1"

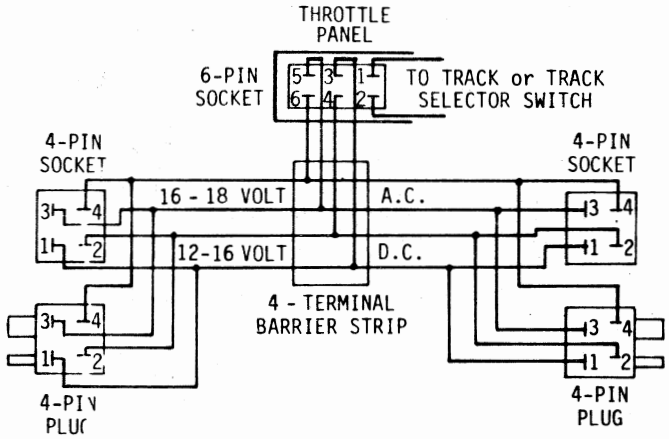
Min. Mainline Radius: 28"
Min. Mainline Switch: #4

TEEN TRAK MODULAR RAILWAY SYSTEM

ELECTRICAL SYSTEM: Part Two - Power Distribution and Control

The modular electrical system supplies both 16-18 Volt AC and 12 - 16 Volt DC power to all modules. Please refer to "The Modular Concept: 5 - Modular Power Distribution" for the discussion of the basic ideas. The TEEN TRAK wiring uses the same type connectors for the module interfaces and throttle connections; however, these are connected to the track and across the interfaces directly, eliminating the patch cords. Again, TEEN TRAK leads the way and the original system is being upgraded!

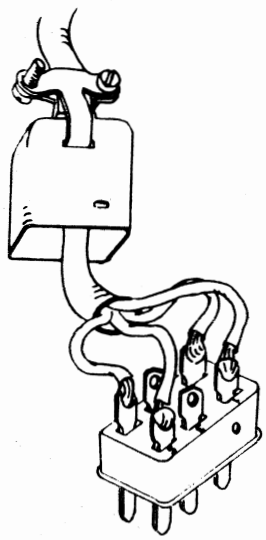
LOW VOLTAGE POWER LINES: There are four wires across each module to supply power throughout the system for throttles, turnout machines, accessories, etc. The power comes from a master power supply through 4-conductor connectors at the interface, then run across the module to a 4-terminal barrier strip and continued to the 4-conductor connectors at other interfaces on the module. The connectors used are Cinch-Jones 300 series connectors or compatible equivalents which can be found at Radio - Shack and other electronics shops. The total number of connectors you will need will vary with the number of interfaces on your module. Use the chart at the end of this article to identify the various connectors and to calculate what you'll need for your module.



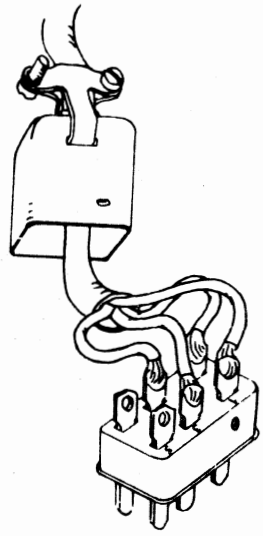
Be very careful to attach the wires to the proper terminals on the connectors and the barrier strip. All connectors have the terminal numbers molded into the plastic on the back next to each terminal. Solder wires carefully so the terminals don't short together. And remember to slide the connector top case onto the wires BEFORE soldering and connecting to the terminal strip! Leave at least 18" / 500mm tails on the wires at the interface for reaching to the next module. Use wire tiedowns to mount the wires to the underside of the module. It's best to mount each set of wires separately to avoid confusion. You can use additional terminal strips near the interfaces to help keep everything neat. It really helps if a problem comes up later.

THROTTLE PANEL: Each module must have at least one throttle panel. Wires from the terminal strip are connected to the 6-conductor socket. This socket provides both AC and DC in-out for throttles. The power out to the track goes from pins 1 and 2 of the 6-conductor socket directly to the track, or to a selector switch. We'll get to that in a moment. The throttle panel wiring is shown in the drawing for power distribution given above. Note very carefully the interconnections and the connector pin numbers at each point. The nice thing about terminal strips is that, if you do mix something up, it's easy to unscrew the wire and relocate it to the right place!

THROTTLE WIRING: You'll want to purchase or build a hand controller for use with your module. There are a lot of different kinds around with a wide variety of features. But no matter what you pick, you'll need to wire it to a 6-pin plug to use it with your module. Look at the directions with the throttle and see whether your controller uses AC or DC input. Then wire it according to one of these two drawings:



For ALTERNATING CURRENT (AC) input, wire pins 1 and 2 for output to track. Wire pins 5 and 6 for AC input. Pins 3 and 4 are not used.



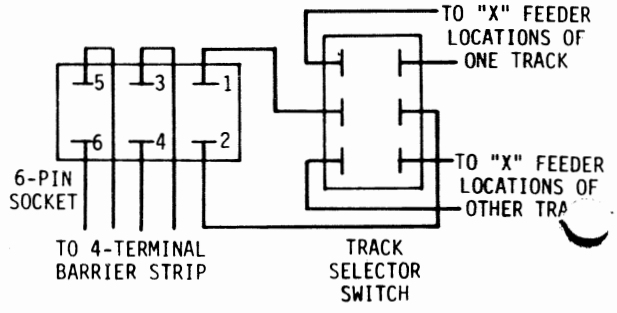
For DIRECT CURRENT (DC) input, wire pins 1 and 2 for output to track. Wire pins 3 and 4 for DC input. Pins 5 and 6 are not used.

One hint: If the controller can use either AC or DC, you'll usually get better control if you wire it for AC input.

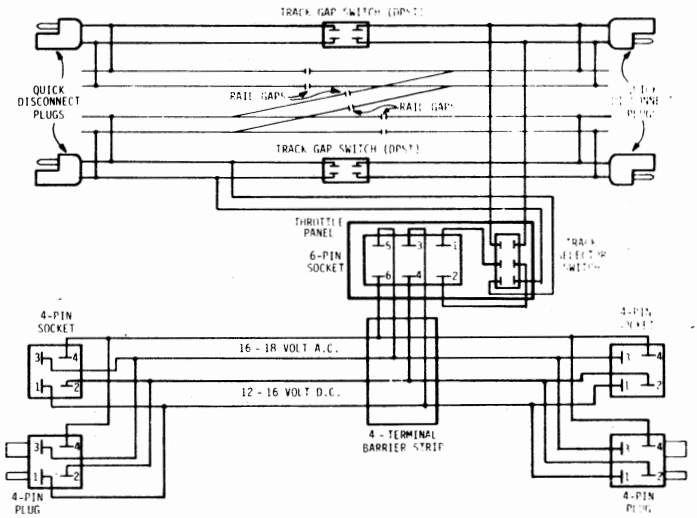
THROTTLE TO TRACK WIRING: Getting power to the track from your controller is simple enough. But, because of the track gaps in each through track, we have to decide which part of the track gets direct control. To give you the best operational possibilities, wire the throttle output to the section with the most operation on it. That might be hard to decide at times - and sometimes it's going to be a completely arbitrary choice. But all track plans will break down into one of the 4 arrangements shown in the last TEEN TRAK article. Go back to those drawings and note that there are two types of indications for track feeders shown: a dot (O) and a cross (X). The throttle outputs should be connected to the X feeder spots.

SINGLE TRACK AND SINGLE-TO-DOUBLE TRACK MODULES: On these modules, run wires from the throttle output terminals, pins 1 and 2 of the 6 - pin socket, directly to the rails at the "X" feeder connect on locations. Now you will have control of a locomotive in that track section up to the rail gap. To control the entire track, throw the track gap switch to connect the two track sections together.

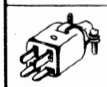
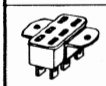
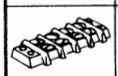
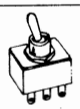
DOUBLE TRACK MODULES: For these modules ONLY, you'll need to be able to select which of the two tracks you want to control. So you need a switch between the throttle and the track. Use a DPDT switch - a large slide switch or a toggle rated at at least 5 Amperes at 16 Volts DC. Mount this switch in the throttle panel next to the 6-pin socket. Wire the switch so that the button or handle points toward the same side of the module as the track to be controlled. Connect the switch to the throttle socket and the tracks like this:



This completes all the module wiring. Here is a complete drawing of the entire electrical system for a 2-track module. It shows all the track, power distribution and control wiring. Use this drawing to check your wiring and to help you put together all the smaller detailed drawings into a unified idea.



ELECTRICAL COMPONENTS CHART

	CONNECTOR	USE	NUMBER NEEDED	Cinch-Jones	Beau	Calectro	Radio Shack
	Quick Disconnect Plug	Track Interface Connection	1 per through track per interface				270-026
	4 - pin Socket	Interface Power Connection	1 per interface	S-304-CCT	S-3304-CCT	F3-256	274-205
	4 - pin Plug	Interface Power Connection	1 per interface	P-304-CCT	P-3304-CCT	F3-244	274-204
	6 - pin Socket	Throttle Panel	1 per module minimum	S-306-CCT	S-3306-CCT	F3-266	274-209
	6 - pin Plug	Hand Controller Plug	1 per controller	P-306-CCT	P-3306-CCT	F3-246	274-207
	4-Terminal Barrier Strip	Connect Low Voltage Power Lines to Throttle Panel	1 per module minimum	Many different manufacturers make these. Get 5 Amperes at 16 Volts D.C. rating or higher.			
	Double Pole, Double Throw Switch	Throttle Track Control Selection	1 per throttle panel on double track modules				
	Double Pole, Single Throw Switch	Track Gap Switch	1 per through track				

It's in the electrical system that most modelers seem to have trouble. The secret is to take your time. Be sure you understand what you're doing and why. Be sure your wiring and soldering is neat and clean. Mount all components and connectors securely to protect them from damage. There's nothing in the system that is difficult or complicated. Just take things step-by-step and you'll have no problems. It's important to TEEN TRAK that you do understand everything. If something isn't absolutely clear, please let us know. No matter how dumb you may think your question is, it won't half as stupid as you'll feel if your module doesn't work when you bring it to a meet! So please let us know NOW by writing the HOTBOX or me directly.

Paul Ingraham 3304 Maybelle Way, No. 1 Oakland, CA 94619

Toonerville Trolley

By "Motorman" Harry

Are you a modeler who needs more in building and operating trains than seeing your trains chase their caboose around the layout? If so, you're in for a nice surprize. Did you ever consider modeling a trolley line? The best thing about such a line is that it packs more model railroading into your limited space. Those winding sharp curves, steep grades, singing wires and bouncing cars are a literal godsend to modelers faced with space problems.

So if your space is small and funds are limited, you can begin with a single lap line around a group of city blocks. For reliable operation initially, wire the system in the normal two-wire fashion using the wire only for show. As your time and money permit, you can add a spur to a recreational park (or baseball field) or maybe the cemetary.

After you've expanded and gotten to the point where the traction "bug" has bitten hard, you can try powering your trains directly from the overhead wire. In future installments of this column, I will discuss such things as operation, trackwork and wiring as they pertain to trolley modeling.

Until then, drop by your local hobby shop and take a gander at the traction models that he has for sale. Think hard on the benefits that traction modeling has to offer. So remember, next time you are considering some modeling, think traction and trolleys!

TAMR Membership Report:

Total TAMR Membership (10-1-82): 140

Breakdown as follows:

Region	No.	%
Canadian	5	3.6
Central	50	35.7
International	3	2.1
Northeastern	38	27.2
Southern	24	17.1
Western	20	14.3

By Dee Gilbert

ON THE POINT: To kick off our new traction column, we present another drawing by "Motorman" Harry Loew. This time he takes pen into hand to show you his interpretation of Toronto's new streetcars, the CLRV's (Canadian Light Rail Vehicle). Most of the new cars are being manufactured for the Toronto Transit Lines (TTL) by the firm of Hawker Siddeley Canada, Ltd. Eventually they will replace the PCC cars currently on the system.

MARKERS:

ARRIVING NEXT ISSUE: Jim Kobrinetz officially kicks off the Layout Planning Service (LPS) with a trackplan he designed for one of our members. Jeff Pollum shows you how to create forests with lichen and how you can save money if you do the processing yourself. All this, plus our usual array of columns will be forthcoming in the November issue of "the Un-Magazine of Model Railroading."

ADDRESS LABEL: Please check it now to make sure that we have it correct. If not, dash a letter off the Dee Gilbert right away with any corrections. Also notice the number at the top right of your label, that is the issue number of your last HOTBOX on your current subscription. A renewal notice will be included inside that HOTBOX to facilitiate your renewal. We urge all members to renew as soon as possible so as not to avoid missing any issues. So renew right away, it costs us more to send you additional renewal remainders--money that could be better spent on other benefits.

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