TEEN ASSOCIATION OF MODEL RAILROADING

HOTBOX

"the Un-Magazine of Model Railroading"
July 1983 No. 189

INSIDE-

The Secrets of Layout Wiring

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:

REGULAR: (under 21 years of age) $10.00

ASSOCIATE: (21 years of age and up) $9.50

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: Dee Gilbert
Box 132
Harrison, AR
72602-0132

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

HOTBOX Editor: Mark Kaszniak
4818 W. George Street
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.

EXTRA BOARD

All the news that fits, we print:

MEMBERSHIP

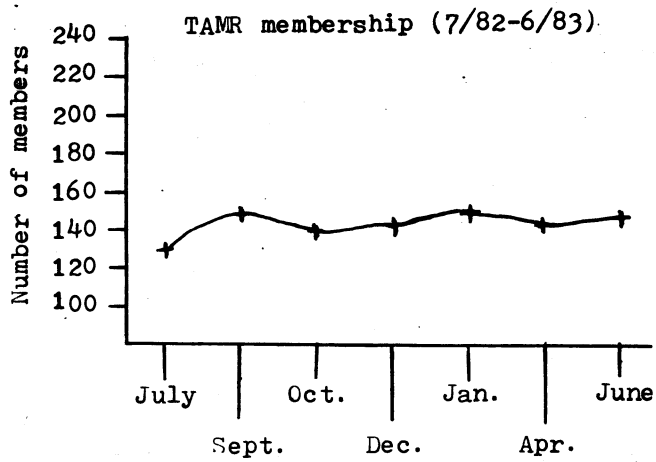
By Dee Gilbert

Total TAMR Membership (6-15-83): 146

Breakdown as follows:

Region	No.	Perctg.
Canadian	7	5.0%
Central	44	30.0%
International	5	3.4%
Northeastern	50	34.2%
Southern	17	11.6%
Western	23	15.8%

Below is a graph which shows TAMR membership over the past year. As you can see, we've remained fairly constant, but have achieved little growth.



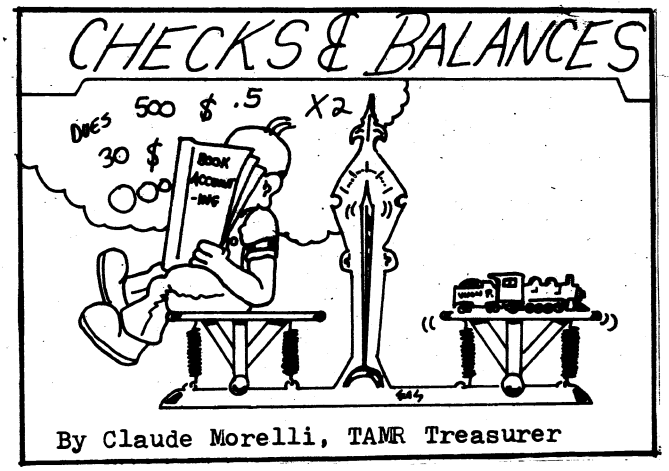
For those of you who might be interested in the breakdown of the TAMR membership by age group, the following was obtained from the 1983 Directory:

Age group	Percentage
12 and under	1.1%
13 to 14	10.5%
15 to 16	29.5%
17 to 18	20.5%
19 to 20	15.8%
21 and up	22.6%

Directories were issued with the June HOTBOX, if you did not get a copy or your listing is incorrect, please contact the Secretary. Also to save you the trouble of counting, here are the states that have the most TAMR members in descinding order:

State	No. of members
IL	14
PA	13
CA	12
NY	11
MI	8
MD	7
OH, VA	6
MA, TX	5
CO, FL, MN	4

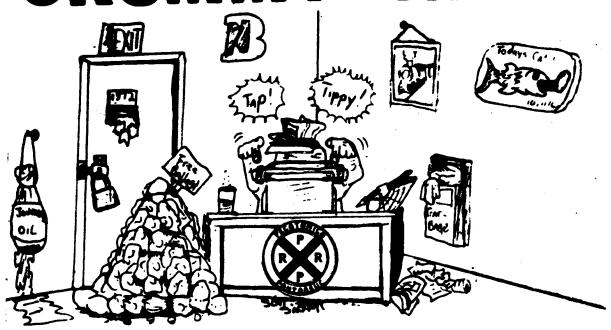
In order to increase our membership, the TAMR is sponsoring a membership drive. I urge <u>all</u> members to participate. Application blanks and names of those who have written to Lone Eagle Payne are available from Chris Brindamour (10 Meadowland Drive, North Kingstown, RI 02852). Further details can be found in this issue's Crummy News. Here is your chance to help the TAMR and get something a little extra in return.



By Claude Morelli, TAMR Treasurer

I'd like to explain why this issue of the HOTBOX is a little late. The costs of printing and mailing the 1983 Directory caused a temporary cash flow problem for the TAMR. Our current membership level is barely enough to meet our expenses. I would like to stress that these shortfalls would <u>not</u> occur if we had a broader membership base. Thus I urge you to help out with our membership drive.

CRUMMY NEWS



BY MARK KASZNIAK, EDITOR

MEMBERSHIP DRIVE

Many of those who returned the reader survey distributed with the May HOTBOX indicated that the single most important problem facing the TAMR was its small membership. I tend to agree with this assessment. A glance at the membership figures on page 2 clearly tells the story. Furthermore, the graph of TAMR membership over the past year shows little growth. Obviously, the way to solve our problem is to attract new members to the TAMR. How will this benefit you? Well, let's take the HOTBOX for example. If our membership stabilizes around 200 members, you will be receiving either eight page HOTBOXes with photos on the cover every month or twelve page HOTBOXes with no photos. If the membership should jump to 300 members, a sixteen page HOTBOX with photos would become the norm. I could continue, but you get the idea--the more members, the better your benefits. Of course, the HOTBOX is only one benefit in the TAMR. Think also of the advantages to your region, possible new committees, more conventions and increased SIG activities.

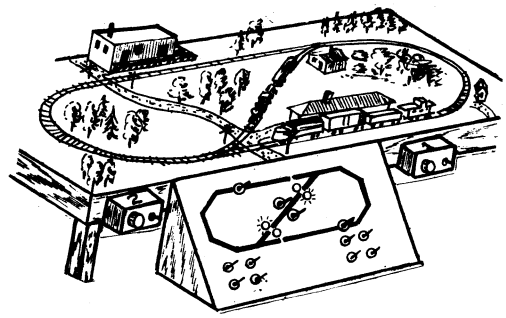
Getting the word out about the TAMR has always been the work of a handful of members with a lot of help from the advertisements on our behalf carried in the commerical model magazines. Chris Brindamour partially changed this when he set up the TAMR's promotion department. He has a network of members working to promote the TAMR at various shows and hobby shops. Still despite all the promotion department's efforts, it just isn't enough. Now we are providing a chance for all TAMR members to help out promoting the TAMR. To encourage your support, we are offering incentives to those who recruit new members. For example, if you recruit five (5) new members, we will present you with either a TAMR button or name badge. If you recruit ten (10) new members, we will automatically extend your membership by one year. Of course, there has to be at catch and in this case it is a time limit. You have only six months--August through January--to get those members signed up. Please note that this contest applies only to regular members recruited. This is to prevent some members from signing up relatives in order to get a free membership. While we would appreciate the financial support, we doubt whether they would remain members after the first year. We are looking to attract teen modelers and railfans who will remain with us when they discover the benefits that we offer.

How can you participate? Well, we have developed three ways. First, you can ask for TAMR promotional booklets and pass them out at railroad shows and hobby shops. This is technically the easiest, but most inexact method. Second, we'll provide you with a list of 40 names of prospective TAMR members who have written us in the past, but never joined, plus 40 application blanks. Then your job will be to write to these people and convince them to join by explaining the benefits of a TAMR membership and why you like the TAMR. We will provide you with a sheet of suggestions for composing such a letter and will try to send a list of prospective members from your own state or region. The reason why we provide 40 names as it will cost you approximately $10 in postage and envelopes to write these people. Thus if you recruit 25% of those you write to, you have effectively paid a year's dues while increasing your benefits. Of course, if you have a means of saving on postage or supplies, it can cost you less than $10 to reach those possible members. The advantage to this method is that all these people have expressed an interest in the TAMR in the past and it will be your powers of persuasion to get them to join. On the other hand, we offer no guarantees that ten of those forty will actually join so you might be out the costs of postage and supplies plus a year's membership in the TAMR. Still you could get a free name badge or button plus reaping the benefits of a larger TAMR membership. The third option is that we provide you with twenty names of possible members plus some promotional booklets. You write to the twenty (about $5 in postage and supplies) and distribute the booklets at shows and hobby shops.

The choice is up to you. Just be sure to write your name on all application blanks so our Secretary can record the number of people you recruit. As an added bonus, the TAMR will award a special grand prize to the member who recruits the most members. If there is a tie, a drawing will be held to determine the winner. Here is your chance to help the TAMR while helping yourself. If this contest proves successful, we might hold another in the future. However, your chances of winning that one will be smaller as more members will be participating. So get in on the ground floor and make the TAMR better while getting a free membership to boot!

By the HOTBOX Staff

Dual Cab Control



Artwork by Atze Douma

Model railroading loses some of its character if you can't run trains without a minimum of fuss. In this respect, your layout should work just as well with one, two or more operators. A problem many modelers face is not knowing how to wire their railroads properly. For it is the control system, along with the trackwork, that determines how well your model railroad operates. Here we are going to cover the dual cab control system which will allow you to run two trains independently on your pike.

A BAD APPROACH

One of the most common mistakes modelers make when designing a control system is to think in terms of powering the track rather than the trains. It is important to remember that when it comes to electrical wiring, the track merely serves as a conductor of electricity to your motive power. If you forget this basic concept, it is very easy to start thinking about dividing your trackplan into sections, each controlled by a separate power pack. Thus you'll have one pack for the yard, another for the mainline and maybe still another for a switching district. With this arrangement, you will be able to run trains on different parts of the layout, but if two trains get in the same area, they will have to run at the same speed in the same direction. If you decide to add reversing switches to these sections so you can run trains in either direction, you will constantly be flipping switches just to get one train over your pike. Trying to run two trains with this system will probably cause a nervous breakdown.

THE RIGHT WAY

So how should you think about train control? Think in terms of the trains rather than the track. So if you want to operate two trains on your layout at the same time in any direction you desire, two power packs and a means of keeping a power pack linked with a particular train will be needed. The dual cab control system provides the linking method.

Now the first thing that must be done is to divide the layout into "blocks." A "block" is simply a stretch of track that can be electrically isolated from the rest of the layout. This is done by cutting gaps in the rail and filling them with cement or inserting plastic insulated rail joiners. Where do you put these gaps? The rule is simple: provide enough gaps so that there is at least one of them between any two trains at all times. The easiest way to show this is with an example. Suppose your railroad has a trackplan like that shown in figure 1. It consists of a loop-type mainline with a passing track, small three track yard, switching district and an interchange track (upper left hand corner of plan). The cross-ticks (—|—) show where the gaps should be made and a number identifies each block. Why were they put where they were? This is where you must start thinking about how the railroad is going to be operated. If we want to be able to run two trains at the same time, what kinds of trains can we have? Well, a passenger train can be circling the mainline while a switcher works the yard, interchange track or switching district. Or we can have one train serving the interchange track while another serves the switching district. The important thing to remember when deciding on where the gaps should go is to never allow two trains to get in the same block. If there is a tendency for this to happen, the offending block should be subdivided into two or more smaller blocks.

Once the blocks have been established, a space for your control panel should be located. If we continue to use the layout in figure 1 as our basis, a good spot would be in front of block two.

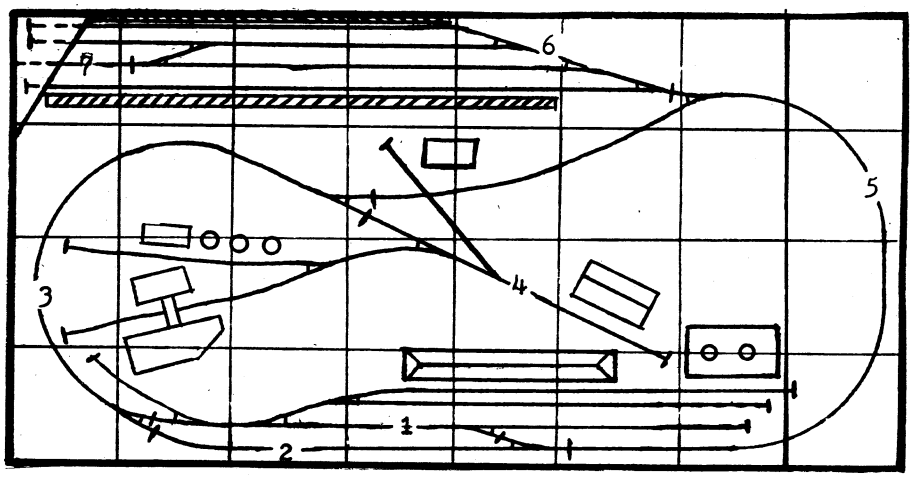


Figure 1: Establishing blocks

Such a location will provide easy access to the yard where a great deal of action takes place. Now we can string the feeder wires from each block to the control panel. We recommend that you gap both rails when establishing block boundaries as certain types of trackage and power packs can not be used when only one rail is gapped. Feeder wires should be soldered right to the rails of each block. Solder is used because it provides a good electrical connection to the rail. This is important because rail joiners and dust cause electrical pick-up problems for your motive power resulting in jerky operation. We don't want to compound this problem by providing a bad connection between the rail and its feeder wire too. The technique for soldering a wire to a rail is as follows: First, clean the part of the rail you want to attach the wire to with a track cleaner or typewriter eraser. This will remove an oxidation which will prevent the solder from adhering properly. Then flow a little solder to the rail (use rosin core solder). This is known as "tinning." Next, strip the insulation away from the end of the feeder wire and "tin" it also. Finally, hold the tinned part of the wire to the tinned part of the rail (use a needle nose pliers) and apply the soldering gun to the rail. The two tinned areas should melt together. When this happens, remove the soldering gun, allow the joint to cool a moment and then let go of the wire. Use a file to remove any solder that gets on the top of the rail. Always solder to the outside of the rail and if you use flex-track with plastic ties, make sure a track guage is one the rails near where you are soldering to make sure the track stays in guage.

Wire size is also important when you are wiring your layout. For distances up to eight feet from the control panel, you should use 24 or 25 AWG wire, longer runs require 18 or 20 AWG wire. The heavier wire is needed to prevent voltage drop. If you ever ran a train around an oval with a single pair of feeder wires, you probably noticed that it slowed down on the side of the oval farthest from the power pack. The resistance in the rails and rail joiners caused a voltage drop. To prevent this, we use heavier wire on longer runs from the control panel.

After all the feeder wires are attached to the rails, it is time to connect them up to the control panel. This is the place where it is very easy to make a mistake, so take your time and go slowly. Wire up one block at a time and check to see that it works before going on to the next.

The basis for dual cab control is that every block on your layout is controlled by a double pole, double throw toggle switch (DPDT switch, for short) on your control panel. Figure 2 shows the connections on the bottom of the switch and where each of the wires should go.

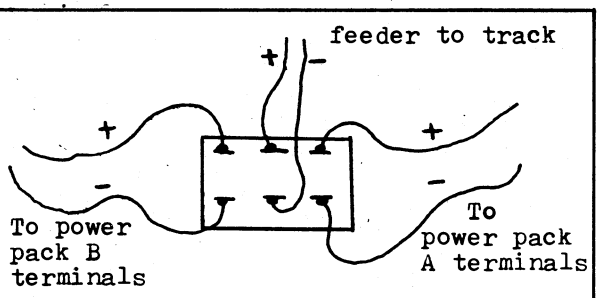


Figure 2: DPDT switch wiring

Please note that all positive terminal connections should go to one side of the switch while all negative terminal connections should go to the other. This is because the DPDT switch is actually two single pole switches thrown by the same lever. Thus the positive and negative terminals never come in contact with one another inside the switch itself.

(continued page 7)

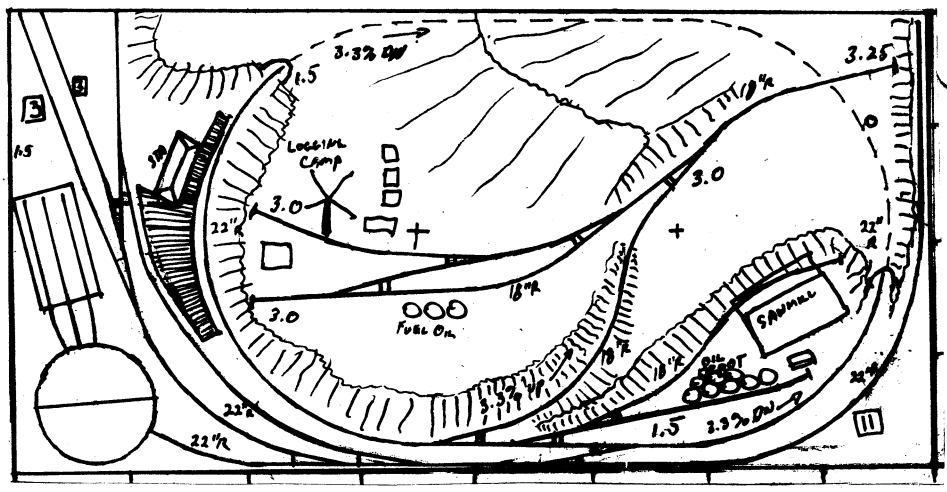
[3] denotes car capacity of track

3.0 denotes elevation

18"R denotes radius

#4 switch

#6 switch



GRANITE GORGE & WESTERN

Bruce Ford of Brooks, Aberta wrote some time ago to see if I could develop a trackplan for his Granite Gorge & Western RR. He had previously tried to develop his own trackplan, but couldn't seem to fit all his requirements into the plan. Basically, the railroad had to fit in a 4x8 foot space. The scale is HO and minimum radius curves should be 22 inches. Grades were to be a maximum of 3 to 3½ percent while minimum switch size was #6. Bruce plans on modeling a modern road including CN; CP and VIA Rail with equal emphasis on mainline, switching and scenery. The main industries on the layout are to deal with logging, coal and oil. He also wanted to include a three stall roundhouse, turntable and small yard capable of handling about 25 cars.

The railroad I developed concentrates on the oil and logging industries. As the space available is only 4x8 feet, I thought it would be best to develop a single central point for operations on the mainline (in this case the yard and passenger station) while running a branch to the oil and logging concerns. This is typical of operations on the CN and CP in Canada.

In the designing process a few compromises had to be taken with the specifications. On the branches and one case in the yard, I was forced to use #4 switches and 18 inch radius curves. However, since operations in these places will be conducted a reduced speeds, no liabilities should result.

The best way to operate this layout is as if the station and yard are a division point on a much larger system, or even a shortline serving a large class I railroad. Thus the job of the local is to serve the industries on the branchline. Empties are delivered from the yard to the industries and loads are brought back. Switching is also done between "paired" industries such as the logging camp and the sawmill. The loads are then blocked into sets for the mainline freights to pick up. In a similar fashion, mainline freights drop off empties for delivery on the brachline. The large tunnel serves as a waiting area for mainline freights to convince the operator they are off on another part of the system. Passenger trains make stops at the station. If you treat the end of the switching lead as another branchline and put a tunnel at its very end, you may want to run a doodlebug between there and the station. This way transfers can be made between the branchline and mainline passenger trains.

If space is available, a removable section (perhaps a TEEN TRAK module?) can easily be fitted to the switching lead or the runaround lead so you can actually model that second town and include some additional industries, such as coal mines. Scenery for the railroad should be hilly or even mountainous. This allows you to create vignettes for the various areas of interest--the yard and station, logging camp and sawmill areas. The right effect will create a town carved out of the wilderness to handle raw materials gathered in the area. Thus not only will you have some interesting operations, but beautiful scenery too.

TRAIN ORDERS

TRAIN ORDERS is a letters column in the TAMR HOTBOX where you can express your views on the TAMR, its publications and its officers. All letters for this column should be sent to the Editor of the TAMR HOTBOX.

Reader Survey

Here is a sampling of the responses received from the reader survey enclosed with the May HOTBOX.

MOST IMPORTANT PROBLEM FACING TAMR

Declining membership...Apathy...lack of member participation...need for more promotion...lack of money...high member turnover rate...lack of officer policy...small HOTBOX size.

SUGGESTED CONVENTION ACTIVITIES

Clinics...railfanning...modular layouts ...RAIL BARON competition...member layout tours...modeling contests... member slide show...prototype tours... pass contest...information booth... workshops for common modeling problems.

HOTBOX ARTICLE SUGGESTIONS

More RR Architect...a cheap 44-ton center-cab switcher conversion... layout wiring...scenery construction ...plans for a modern passenger station ...more prototype features...brachline and mainline operations...more HELPERS ...weathering cars and structures... Kadee coupler conversions...car and locomotive plans...detailing techniques...DC power supply with a variable pulse...methods for storing your layout...applying the prototype to your modeling.

WHY I JOINED THE TAMR

Get help with problems...help others with problems...meet teens with similar interests...to become more involved with model railroading...tired of being a lone wolf modeler...like trains and enjoy being in clubs... to learn more about model railroading ...share modeling ideas...to find out what it was like...fellowship...find out what other modelers were doing.

(Editor's Note: I welcome further discussion on any of the above. If you feel that something has been missed and would like to add your two cents worth, feel free to write. If you can provide an article on any of the subjects listed above in "HOTBOX Article Suggestions", the member who wrote in and I would be most appreciative.)

Dual Cab Control (cont'd from page 5)

Perhaps the best way to arrange the DPDT block switches on your control panel is like those shown in the drawing at the beginning of this article. Developing your control panel in this manner makes it easy to remember which block a particular DPDT switch controls. Furthermore, if you mount your power packs on either side of the panel as shown, the direction that the DPDT switches are thrown will also indicate to which power pack a block is assigned. The control panel can be easily made from a piece of hardboard and tape. If you mount it to the layout, be sure to use hinges in order to make it easily accessible. Place the hinges on the bottom of the panel rather than the top as this will allow the panel to swing down for adjustments instead of you having to prop it up.

To ease your wiring chores (remember each DPDT switch has six connections), we suggest you first mount all the DPDT switches on the panel. Then wire all the positive terminals for power pack A, then the negative ones and move on to power pack B connections saving the feeder wires from the blocks for last. To save wire and avoid a bunch of wires to your power pack's terminals, use a heavy wire (18 AWG) and proceed in the "leap-frog" fashion shown in figure 3.

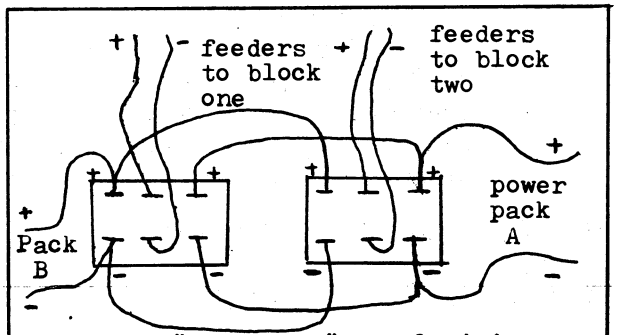


Figure 3: "Leap-frog" panel wiring

When connecting feeder wires, do so a block at a time. Make sure the block works with both power packs by flipping the DPDT switch for one, then the other. When you connect up the next block, be sure you can run between blocks with both DPDT switches flipped towards the same power pack. If not, you have a reversed connection somewhere. Got back and check your wiring. Try interchanging the feeder wires first, then move on to the power pack connections on the DPDT switch. Provided you haven't accidentally introduced a reversing section, you should soon locate the trouble. If you use the "leap-frog" method, the problem is usually reversed feeder wires.

In the next issue, we'll explain how to wire return loops, wyes and turntables. Then we'll cover switch machines and diode matrixes. After that, a system for running more than two trains we call "local cab priority."

ON THE POINT: Having a problem wiring your layout? Don't end up like this poor sap. Instead read thoroughly the article on dual cab control wiring that starts on page 4 and learn the secrets of proper layout wiring. Incidentally, the drawing is by Scott Sackett and we are pleased to welcome back an old contributor. Although some of his drawings have been used as column heads, we discovered this is the first drawing of his that made the cover. Figured it was about time he got the recognition he so richly deserves. Be forewarned, we'll be featuring more material from the pen of Mr. Sackett in the near future.

MARKERS:

ARRIVING NEXT ISSUE:
Stephan Garland debates the question of slow speed operation using prototypic examples to back up his case. Our "Techniques You Should Know" series continues with wiring for reverse loops, wyes and turntables plus we'll have some more product reviews. You'll find all this in the sizzlin' hot August issue of the "Un-Magazine of Model Railroading."

Reminder - The number that appears after your name on your address label is the last issue of the HOTBOX you are entitled to under your current subscription. A renewal notice will be enclosed with that issue to facilitate your renewal. Please renew promptly to help the TAMR save money for additional renewal reminders and to avoid missing any issues of the HOTBOX.

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