

March 1994

Volume III, No.3

The Northern Virginia NTRAK Newsletter is produced for and by the members of Northern Virginia NTRAK. Submissions should be sent to the editor, Bernard Kempinski, 6056 Estates Drive, Alexandria, VA 22310 or by electronic mail to bkempins@ida.org.

### CLUB NEWS

#### DUES NOTICE

Club dues for 1994 are now due. The dues this year are \$30 for a full member and \$10 for associates. Please send your check to the treasurer as soon as possible so we can update our membership lists.

Full members have all rights and privileges in the club. Full members with a completed module also receive a 20% discount at Obies Trains. Associate members receive this newsletter and a 10% discount at Obies. Full (not associate) club members also receive a club card at Obies that when filled out is worth five dollars towards any purchase.

#### UPCOMING EVENTS

**Mar 3 BUSINESS MEETING**  
Promptly at 7:00PM at Obie's Shop. Warning! Absence or late attendance to business meetings could result in you being elected to a high office in Northern Va NTRAK!

**Mar 12 Dixie Division Mini-Convention** at the Oakdale-Emory United Methodist Church, 3425 Emory Church Road off Georgia Ave, Olney, MD. From 9AM-4PM. Admission \$3.00 or \$2.00 with contest entry. Six clinics will be offered including one by Brian Brendel on scenery techniques using extruded foam. Northern Virginia NTRAK is invited to set-up if you wish but it is not an official club set-up. Call Matt Schaeffer for details

**Mar 20 Regular club set-up.** Location to be determined.

**April 9-10 Greenberg Model Train and Doll House Show.** Lake Braddock High School. Contact Matt Schaeffer if

you wish to bring a module or present a seminar.

#### MODULE PROFILE:

There was no submission for this column this month. Everyone is invited to describe for this column their experience in building a module.

#### RUMOR BIN

by G. Andy Dancer

Charles Greenacre has stepped down from his position as layout coordinator due to other commitments (not the least of which is trying to finish his LeHarve module for the Orlando show). Anyone interested in filling in as layout coordinator please contact one of the club officers.

At Landmark Obie was designing a 14' yard for the front of the 14' bump out at VD Yard. I suspect it will be finished in a couple of days! He also has announced that he is changing the name of Van Dorn Yard to South Alexandria Yard so watch your lip.

Keith is now planning a flyover made of 2 each 4' corners to reduce the grade. Everyone will definitely want to watch this yard project as it grows, maybe to 35'.

#### CLIMAX YARD, Part IV

by Matt Schaefer

This series will be continued next month.

#### THE DIRECT CONNECTION

by Matt Schaefer

Last night I talked with Jim FitzGerald. No I wasn't dreaming or even napping at Foggy Bottom Tower. At the Landmark show John Cook and I were wondering how the rest of the world deals with the extra one inch you get from each reversed corner module so I asked Fitz about this discrepancy. See sketch showing the how we get the extra one inch. Jim floored me by

replying -he didn't remember reversing corners without using transition modules! The transition modules run all three tracks from the front to the back part of the modules the main objective being to line up the 24" ends of the modules. Jim was very anxious to check out the measurements himself! Maybe we will see more on this in his NTRAK Newsletter.

I see no advantage to the transition modules and a lot of disadvantages like hauling 2 additional special 4' modules. And if there ever was a 1" problem John Cook's 1" bridge modules (one inch) are alot easier to haul around! And in either case a backdrop like the Foggy Bottom scenery flat is needed to cover the 6' gap in the skyboards.

#### ANATOMY OF A 3 X 3 INSIDE CORNER

by Matt Schaefer

For each 3', 4', 6' etc corner module that you reverse you add 1' to the layout in each direction. The sketch shows how the layout gains an inch over the nominal one foot length increments use by modules.

There are several solutions. 1) There would be no extra 1" from inside corners if the yellow was set in an even 0.5 foot from the front (1.5" in from the back) of all corner modules instead of the odd 5.5". 2) NTRAK recommends using transition modules. 3) John Cook has one inch bridges in case we need them. 4) The offsets from two opposing inside corner modules cancel each other out. 5) You can do nothing, like I do, since there seems to be enough tolerance in the overall layout.

Instead of using 2 transition corners and a standard in addition to a 6' scenery flat to cover the gap I just modified and used a standard corner to cut weight and so it would look better as either as in inside or outside corner.

Starting with a standard 3 X 3 corner weighing 23# I cut 5" off of the back side so when reversed that side would match the fronts of adjacent modules that have a front 6" extension. See sketch.

Next I cut the plywood plains area out of the 1/2 plywood top leaving plywood only under the track. After cutting the back side off and top out I noticed how rigid the frame still was. So I did not hesitate to cut the cross bracing down to 1 X 2's or less as desired for low valleys in the scenery and to reduce weight. A three foot module does not need the cross bracing you might give a larger module.

A 1" X 2' was added as fascia where the back side had been cut off. A lot of modules are strong enough to walk on, even with 3/8 plywood tops and that is not my design intent or usage. The main stress points are where the legs connect and a 1 X 4 frame helps there but the rest of the frame can be cut down even on 4' and longer modules.

Weight with all track and wiring was 14#. Mountain scenery added no more than 6# for a total of 20#. Three standard 1.5 X 1.5" legs weigh 5#. At 20# or even 25# the basic 3 X 3 module is easy to handle and further weight reductions are of little significance...unless you are designing for backpacking or bike rallies.

I have a removable 6' X 14", 1/8" plywood removable "scenery flat" that weighs 6#. When the module is used as an inside corner this fills in and lines up with the adjacent backdrops. Instead of the standard sky blue wall on the back I attempt landscapes with shades of blues, greens and browns loosely blending the skylines and clouds.

The wiring is loosely fastened to the middle of the bottom so that the wires can be extended and connected on either end. To reverse the track wire connections from the front to the back rail and red to blue we have gay adapter plugs made up that connect male to male, etc. Alternatives are to use two plugs on the end of each connector wire as described in the NTRAK data sheets or connections can be routed through a 6 pole (one for each rail), double throw switch permanently mounted under the module.

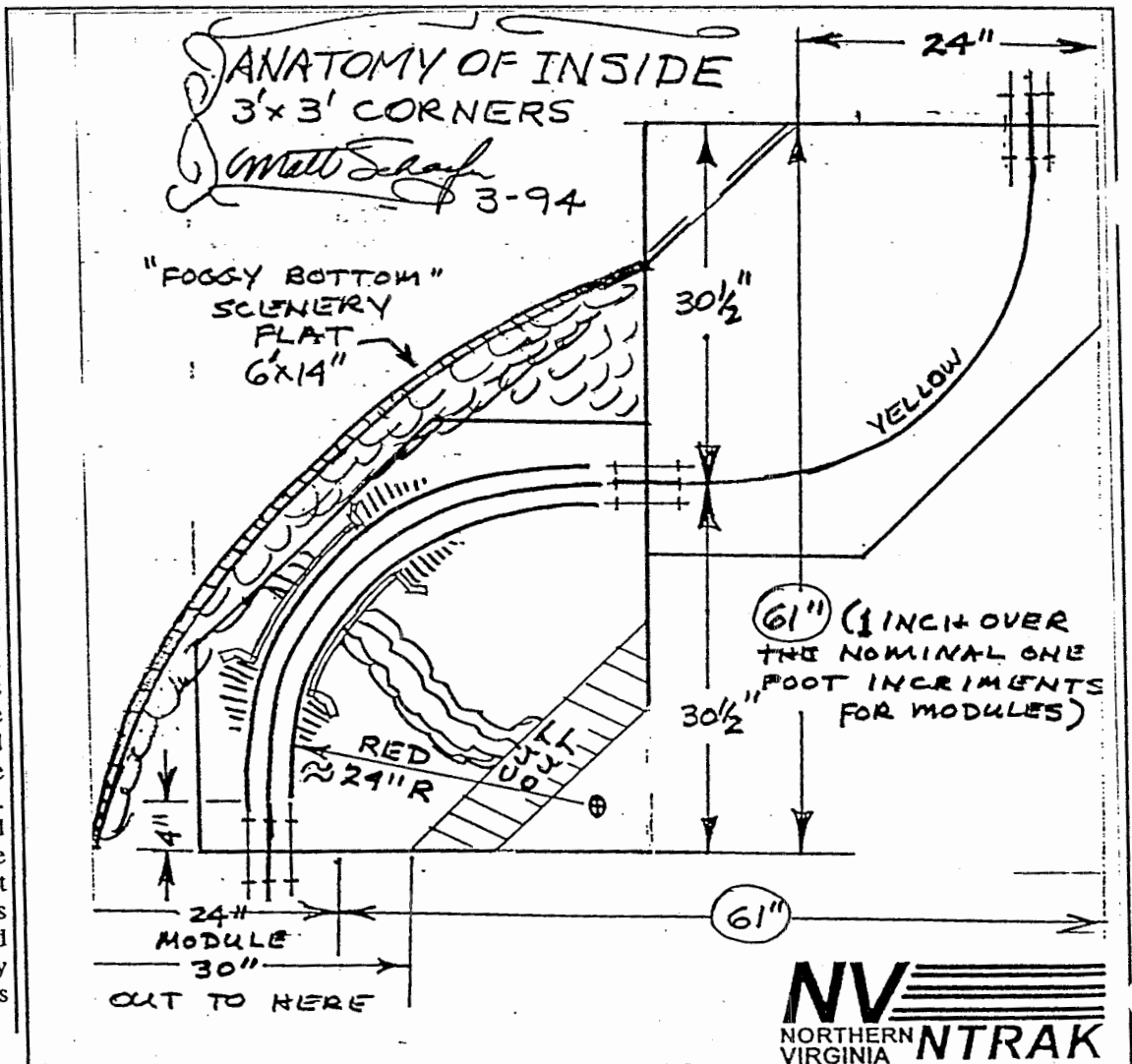
Theoretically the corners that are predominately reversed could have the yellow track 29.5" out from the back to compensate. Or all corner modules could have yellow out 30" from the back. But it really doesn't seem to make that much difference. All the corners work good and we've had 3 or 4, 3' corners back to back and have run

100+ car trains with no problems -caused by the corners. The radius of the blue - which carries the red line when reversed may be right at the 24" radius but we have other rougher sections of track to worry about! See the article on our Snake Division in the June 1993 issue of our newsletter.

Well there must be somebody maybe on another planet that has tried multiple reversed corners it would be interesting what they think about the situation. Being able to use any corner module as a reverse corner without transitions has many benefits.

#### MODULE TRANSPORTATION

Members have asked about using shelves in vans. It looks like a good idea but the way I built shelves to haul the New River didn't work. To store and install the shelf required 2 men and a boy and if the modules do not closely fit the space vertically, space is wasted.

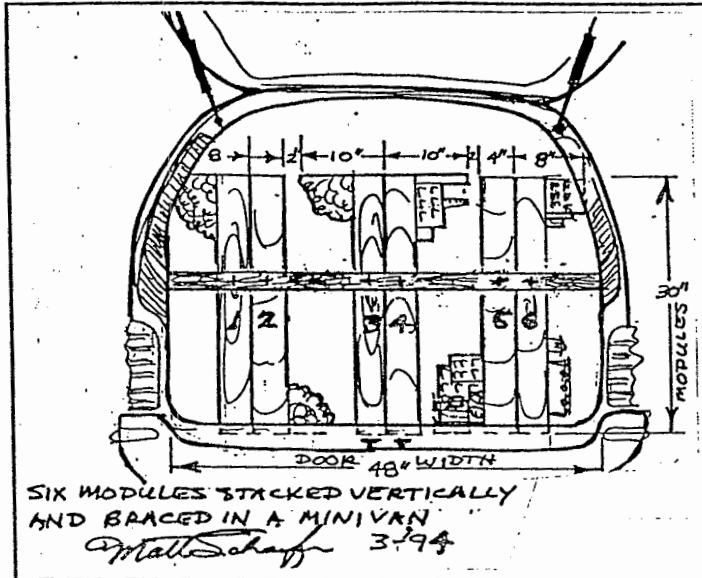


Also the crossmembers for each shelf take up 2" or more vertically. Although practical for smaller modules I ruled out bolting one module upside down on top of the other because of the total size and 115# total weight of the

**DESIGN OF MODULES** Some of us get the building fever and can't stop at just two or three modules. And I am not talking just yard modules. So as you design modules think about how

you can make them easy to transport as shown above. Maybe you and some friends will have a need to transport a load of modules together to Orlando or Atlanta! At the same time scenery can be built with inherent protection for the scenery, signals, tracks and buildings.

Scenery flats on the back side of the module also provides a foot so the module will stand edge in a



SIX MODULES STACKED VERTICALLY AND BRACED IN A MINIVAN

*Matt Schaefer 3-94*

New River. Earlier I had a box for the top of a midsize station wagon that worked well except a box 4' X 7' and 18" high was heavy to lift on top of a car and tool storage room. But it did good for years hauling the left side of the New River and other stuff to Greenboro, NC, Cherry Point, NJ and locally. The right half went inside the wagon.

**STACKING MODULES ON EDGE** When the modules are standing on edge both the New River modules and M&K and Foggy Bottom (and maybe Looney Jct) fit in a minivan. As mentioned in previous Newsletter articles the 4 X 8 bed of a pickup or long minivan can carry 6 or more, 7 foot long modules if the scenery is not more than 6" high. See sketch of loaded minivan. Stacking modules on edge is not traumatic for the larger modules if they are turned up on edge to go through doorways anyway. Use 1/4" ply luan over any van carpets to help in sliding the 7' modules in and out. A sheet of cardboard across the tops of modules will support 100's of boxes of Kato locomotives and stuff. A horizontal bracket can be used for stability and to protect track and scenery.

vehicle or to stand at rest as you are carrying it. A flat side on the front of modules like New River are discouraged and should be rounded off with scenery.

Do you get goose bumps from that lonesome whistle? ~~WHISTLE~~

### THE WRECK OF THE MONTH, (& YEAR)

by Matt Schaefer

On a warm lazy 18th of February I was having some minor troubles on the high line and was backing a cut of cars across the New River Bridge. Backing that wild stretch of track is not always reliable, and a car fell off the bridge. Not too bad, I remember the SRR (CNO&TP) lost one refer car off of "High Bridge" Ky. in the 40's and yes we went to see it. It landed on the river bank 150' below. The natives came in their john boats and had an ample 50 ton supply of oranges, a fortuitous event.

But as my car was falling Brians 98 car freight was about threeeee fourths past the spot the car was falling toward. The car happened to hit about the 80th car, throwing three cars on the ground on the river side and dumping the brake air. Now that was just bad

luck but the other tracks were not fouled, yet.

Everyone was watching this chain reaction unfold including Dave who was at the two blue throttles at the Foggy Bottom tower just east of New River. The TGV had already gone by and he had the Capitol Ltd approaching his tower. As Dave concentrated on the wreck and it's implications the Capitol Ltd hit the gap to the TGV block and went to hyper speed. When she hit the reversed corner curve a blur of blue and grey cars were plastered all over Foggy Bottom countryside. I didn't realize how fast those Atlas steamers can go! As Dave sez, "weee'rre back!"

IS NTRAK GREAT - OR WHAT? ~~WHISTLE~~

### PRACTICAL TRAIN OPERATIONS

by Matt Schaefer

I for one would like to see more car/train operations. Some operations are every simple, some we are already doing and have a practical purpose for just running trains, but all require a little planning. Below are several common prototype train operations we can practice right now with or without car routing IDs, waybills or train orders. Incidentally I typed waybills in the '50s upstairs in the freight house in Richmond, Va. on an old Underwood. In the yard offices I made up switch lists and typed and transmitted train consists on the old teletype using the holey yellow ticker tape. Those little yellow rolls were stuck everywhere and were the transmittable memory of the train consists.

**PICKING UP, SETTING OUT BLOCKS OF CARS** One easy way to get started into operations and running trains is to have one short train with extra pulling capacity stop and pick up a block of cars. After a run of a specified length of time a block of cars could be set off at a specified siding or yard. Tell the road crew, pull X cars off the head end, back to car number whatever. At Landmark Pete Matthews was conductor of such an operation. Tabs or other car ID's would not be necessary and you could use all Tropicana, all Peabody coal cars or other similar cars if you wanted easy ID. This is an easy way for members to 1) transfer large numbers of cars

around without any getting them mixed up, 2) they are easy for the owner to recollect 3) and it speed up set of a train by members combining their cars. All that is needed is the plan to pick up and set off the cars.

**CAR INTERCHANGES** It would be practical to set up cuts of cars on the flyover "T" yard or other set up yards and transfer them out to another yard or an interchange tracks along the mains to be picked up later by a through merchandise or the local peddler. See the sketch of typical transfer tracks between railroads. They often consist of two tracks, one to drop off one cut and the second track to hold the cut to be picked up. In Cincinnati the C&O used articulated mallets on transfers around town because of the steep grades getting up to some surrounding yards and speed wasn't important around town.

**SWAPPING HEAD END POWER** Solid passenger trains from Southern, ACL, SAL etc. all changed engines at Washington and were pulled through to NYC by PRR motors (electrics). If the PRR was blocked they could run around the problem on the B&O or Reading but the motors had to be replaced by other power. If the SRR line was blocked or hit by strikes you might see Florida perishables (refers) detoured over the CC&O (Clinchfield) and behind Challenger steam. Steam engines were replaced frequently because they needed "turning" or for a mountain division requiring different power. Steam and diesels were often leased to another a road because of a shortage of power or to test a new technology. So is realistic to swap out your head end power with another member because of

private cars on the Cardinal are sometimes dropped and picked up at The Greenbrier, White Sulfur Springs, WV. The station use to have a sizable yard just for private cars, a fiddle yar for passenger cars!

**CONNECTING TRAINS AND MIXED CONSISTS** In days past, sleepers were dropped off at Clifton Forge for a mixed train with a jeep to pull them up the 38 mile grade to the Homestead at Hot Springs, Va. A train connection from and to the NTRAK mountain line would offer opportunities for a shuttle or other connection with the main line trains like this. In Europe connecting trains wait at stations large and small connections with through trains. Also sleepers are set out to wait to be picked up for another through train. For longer waits the cars were plugged into the station steam (pre 80's) and electrical power.

**MIXED PASSENGER CONSISTS** Often the roads pooled their cars for run through service. Frequently one tuscan red PRR or a silver NYC car was mixed in with an otherwise solid C&O or CNO&TP (SRR) consist. When AMTRAK was starting we had the rainbow consists with a mixture of whatever Amtrak could get their hands on.

**FREIGHT REQUIRING SPECIAL OPERATIONS** Other trains and cars requiring

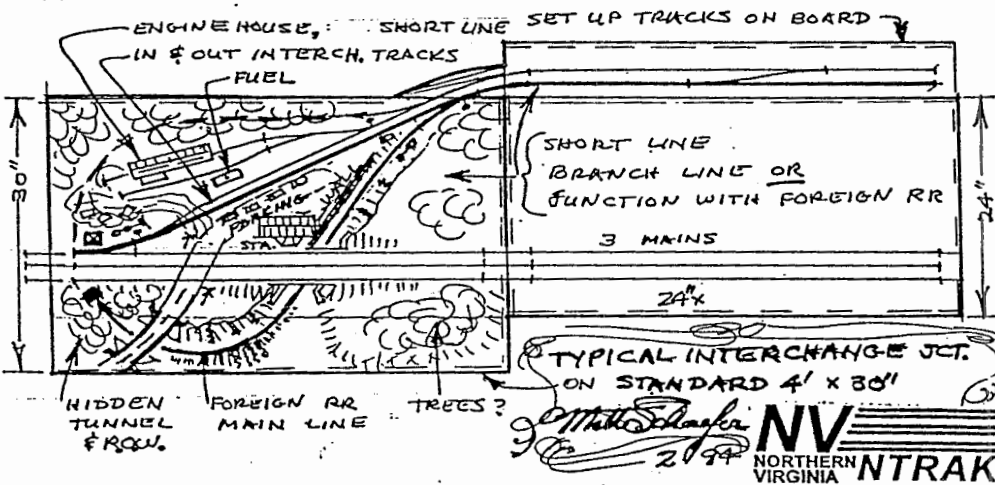
special operations were wreck trains, trains with oversized loads and track maintenance and clearance checking trains. Maintenance trains and crews require clearance to tie up tracks for maintenance. Passing trains require clearance from the track foreman and he may give permission to pass through the work area "using plenty of horn and bell".

**PLANNING YARDS AND SIDINGS** Next we need our Operations Dept. people to look at our sidings, passing tracks, uncoupler sections, blocks and local controls, blocks to protect open turnouts, etc. to determine what capabilities we have. New modules and old can add these features to enhance train operations.

**HELPERS ON GRADES** The Flyover "T", Looney Jct and any other flyovers often have a need for the extra power to get over their grades. Here is a requirement for a prototypical operation instead of the finger pusher, it just takes planing and adequate track blocks and couplers. But we don't even have to have a grade for this operation. We can proclaim there is a pusher district requiring extra power for a specified section or period of time. Grades also may require the pusher to return light with or without caoose to meet another train going upgrade. Note on eastern pusher grades there is often triple track for the extra traffic, just like NTRAK!

a power shortage or to evaluate an engine - but use sidings or engine facilities, not fingers.

**PASSENGER TRAIN SWITCHING** A common practice is to combine two trains coming from different areas for a long run as one train. One example is the combining of the Seattle and the Portland sections of the Empire Builder at Spokane, for the long run to Chicago. The locomotives are combined. Often all the coaches from both trains are put together and ahead of the dinner and all the sleepers behind the dinner requiring a lot of shuffling operations. Other switching operations can be as simple as adding a dinner (or two on long trains) for the day portion of the run. Sleepers or



Climax Yard is being designed with interchange tracks, an two long yard leads, a hidden staging area plus set up tracks and other features specifically for fancy train operations. Realistic train operation should influence your track planning!

**MARKERS AND SIGNALS**  
Markers lights or FREDs on passenger and freight trains and/or observation cars and cabooses identify that trains have all their consists. Trackside signals can give indications for turnouts to sidings and branch lines, indications for slowing and stopping blocks, and stops for train orders (directions). Automatic block control and signals to protect closely followed trains all have practical applications - and the more lights the more spark to the NTRAK show!

**WHO MANAGES THESE TRAIN OPERATIONS?** The person that signs up track for a certain time can plan and coordinate train operations at his option. Ed has already been doubling over cuts to make up his trains. For all of the above operations the use of paper waybills and clearances is optional. I think we have progressed to the point that the above operations would be practical,

realist and would heighten interest and realism.

### HOT TIPS ON RR INVESTING

by Matt Schaefer

There are other investments instead of buying 1994 equipment trusts for Kato and Atlas power. As you probably know CSX, KCSou and NS stocks were the darlings of the market. CSX ran up from \$66 to \$92 in the last 52 weeks plus it now yields 2% and is still a recommended buy. The KCSou ran from 27 to 51, the SouPac from 14 to 22! What's next, Florida East Coast RR with a PE now of only 6? When free enterprise resumes in Cuba there will be a big boom to all that participate like the FEC according to T. J. Herzfeld, the Caribbean fund manager. Consult you own investment advisor and tell him you heard it first in the NTRAK Newsletter or better yet get your FEC equipment from Obie's shop before the Japanese trade war!

Do your hackles raise up from those railroad station sounds, taxi! taxi! - Phil's do!

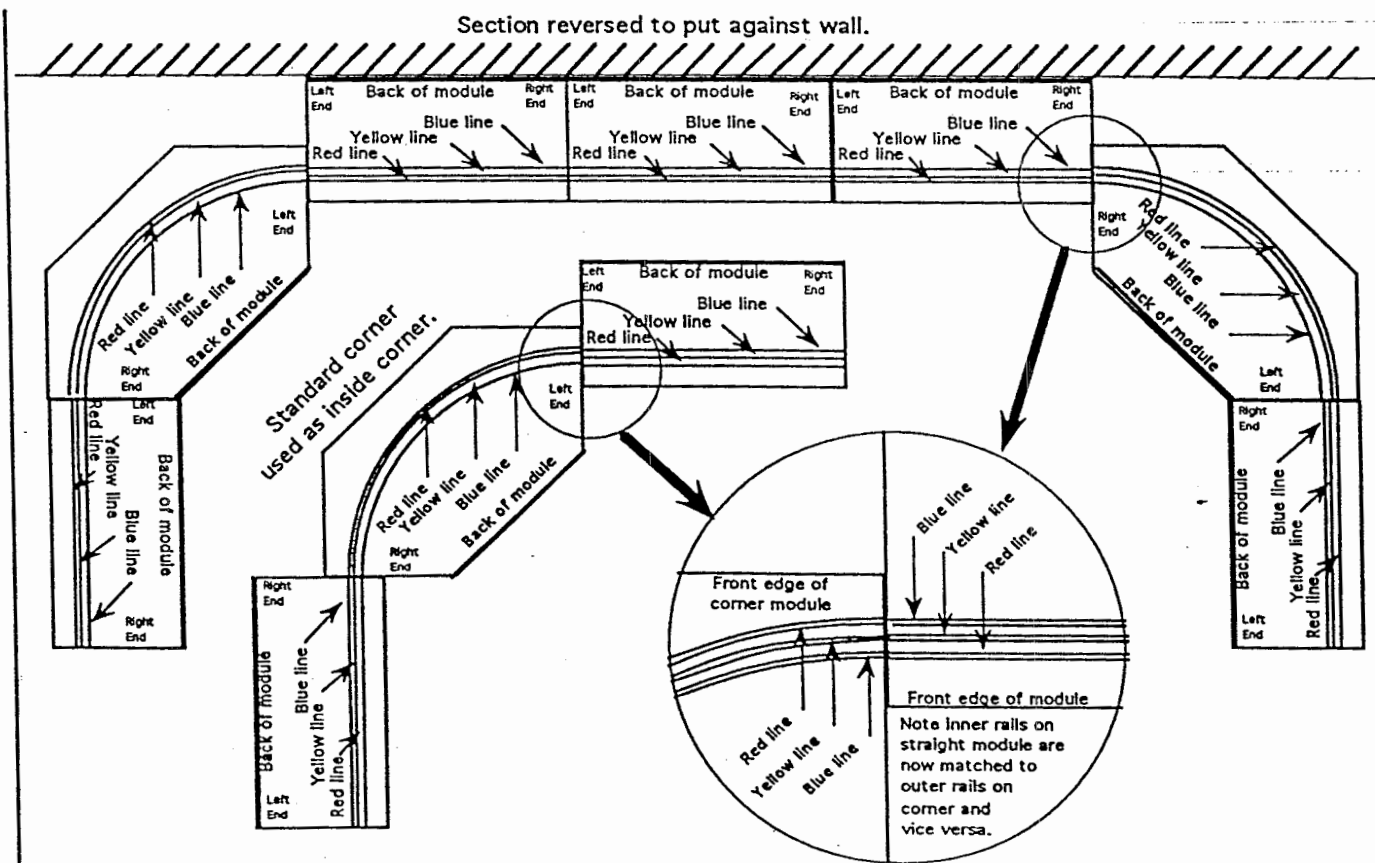
### REVERSING CONNECTORS

by John Cook

At the January business meeting I volunteered to construct a set of electrical connectors so that some of our standard NTRAK modules in a setup can be reversed. In this article, the construction of a set (of eight) module reversing connectors is described that will allow any standard NTRAK module to be reversed and installed in a set up. It is also possible to custom build a special reversible corner module with extra long connector wires and a six pole double throw switch (or three double pole double throw switches) that meets NTRAK standards except for the one inch size problem discussed later. I am preparing a follow-on article on the design of a reversible corner for a newsletter later in the year.

The figure below illustrates two situations where reversal of standard NTRAK modules could be desirable. In one case, one side of a layout is connected facing the center and is placed against a wall to save space. In the other example, a standard outside corner is used as an inside corner.

In these situations, the normal alignment of modules - left side to right side - does not occur. Right sides are



connected to right sides and left sides to left sides. As a result, the NTRAK standard male and female electrical connectors are now on the "wrong" ends of the reversed module(s). To connect two normal right ends together at one end and two normal left ends together at the other requires a set of specially wired connectors.

The middle of the three NTRAK standard mainline tracks (the yellow line) remains aligned across the boundary while each inner (red) track now aligns with an outer (blue) track across the boundary. In addition the inner rail of each main line track connects to an outer rail across the boundary. To handle this the connectors must reverse the electrical polarity.

There can be no useful alignment of the mountain (green) or additional branch (orange/brown) lines when modules are reversed. Consequently, connectors are required only for the 12 volt (white) power distribution line and the three mainline tracks (red/yellow/blue).

Additional standard electrical extension cords may also be required to provide 110 volt power to and across the whole reversed section.

Because the center of the yellow line is 5-1/2 inches from the front edge of a module (rather than 6 inches) each reversal results in one inch of excess length. This can be compensated for by inserting a spacer between modules on the opposite side of the setup or by the symmetrical use of reversed modules. In large setups a discrepancy of a few inches can be accommodated by force without a spacer. However, our club experience is that up to three inches can be accommodated in a 40 foot set up but more than about 1" per 3 modules will place undesirable stress on the ends of the modules when they are clamped.

Directions for a set of module reversing electrical connectors.

The eight electrical connectors are not all identical so careful wiring and correct color coding is necessary to ensure quick trouble-free connection during setup.

Three connectors are wired male to male with the wide pin of each connected to the narrow pin of the other to reverse the polarity. They should be color coded as follows:

one yellow - yellow  
two red - blue.

Three connectors are wired female to female with the wide slot of each connected to the narrow slot of the other to reverse the polarity. They should be color coded as follows:  
one yellow - yellow  
two red - blue.

The fourth male to male and the fourth female to female connector should not reverse polarity and are connected wide to wide and narrow to narrow. They are both color coded white - white. ~~\*\*\*\*~~

#### RAIL NEWS

Interesting Tidbits from Rec.Railroads on Internet

##### Problems with Accuflex Paint

(Author Unknown) A bit of Accu-Flex background. When Greg Konrad introduced the stuff at the 1991 Denver NMRA convention, (pre-introduced, actually), there was no brand name assigned, and no mention of Badger. He claimed that he had developed a water-based paint, completely non-toxic, that would produce extremely thin, totally opaque, very durable and adherent coatings. The key was extremely finely ground pigments, much finer than used in competing model paints. (Interestingly enough, this was also Floquil's big claim 50 years ago.)

I was puzzled and surprised when the paint appeared under the Badger

name. (Badger already had the Air-Opaque paint line.) This tells me one of three things happened:

1. This was a Badger undertaking?" along, but set up so a pre-productic failure would not mar the Badger brand name;

2. Konrad ran out of funds & Badger took it over;

3. Badger is only doing the marketing for Konrad.

My personal opinion is "3", with a dash of "2" thrown in. Badger doesn't seem to be shipping any Accu-Flex, despite the claim that the pH problem only affected a few batches of a few colors. Another poster says they're reformulating it to make it more "pH tolerant". Those full-page apology ads weren't cheap, and I suspect they feel they can't afford any more disasters. Especially if there's another supplier ready to move into the market niche Accu-Flex created.

ObAdvice: don't thin Accu-Flex with hot water. Don't ask how I know.

#### CONRAIL NEWSWIRE

**We Can Weather the Storm(s)**  
Cold, snow, ice, freezing rain and more greeted the New Year across the Conrail system and it looks like there's no end in sight. This weather is good news and bad news for Conrail. It's bad news because working conditions deteriorate rapidly for those who have to work outside to run trains, keep

#### OBIE'S CORNER

News and Gossip from the Hobby Industry

There are lots of new releases and stuff in the shop.

*NJN International* Maintenance Platforms and Switch Towers are in stock. These are nice kits.

*Walters* R.J. Frost Ice and Storage and Oil Refinery are in stock.

*PECO* switches and code 55 flex track have been restocked. Does anybody know what happened to the announce Peco double crossover announced for release last June? I haven't heard anything.

*Riverossi* 4-6-2 Pacifics with 5 pole motors in BO, ATSF, Penna, Cresent Limited. Finally some steam!

*Hallmark* brass Texan ATSF locomotive are available through special order Call 658-9520 on Saturdays.

*MDC* Assorted 826 with Chessie Boxcars are in stock.

*Lifelike* announced a 1200 series switcher available in the near future. Their second run GP-18 are due in May94. Roadnames include BO, CNW, Southern, Lehigh Valley, BN, NW, NYS&W, Boston and Maine and undec. Low and high hood and with and without dynamic brakes. Lots of kitbash options here.

*KATO* E8/9 due in mid-March. Roadnames include BO, UP, Amtrak, VIA, Penna, NYC and undec.

*Microtrains* couplers for GP-18s are on the way. AM1030 bulk packs are on order.

switches from icing and signals in working order. And it's bad news for dispatchers, yard personnel and many others. But it's great news for Conrail's bottom line when it comes to road salt.

Last year was a record year for road salt in the company's minerals group. Conrail trains carried 2.1 million tons of salt to customers throughout the system. At one point in time, the Albany Division was running 60-car unit trains for AKZO Salt to locations in Massachusetts, New York and New Jersey with trucks loading directly from rail cars to meet the extraordinary demand. In the end, Conrail's ability to meet AKZO's needs paid off. AKZO, because it could meet the demands of its customers, has gained new business for 1994, much of it to be transported by Conrail.

This year is already shaping up to be banner year for salt with weather problems throughout the Northeast and Midwest. And that's bad news...and good news.

**A New Lease on Life for Former Auto Terminal** Business expansion by a major supplier of building lumber products gave Conrail's former auto terminal property in Hagerstown, Md. a new lease on life. Lowe's Home Centers, Inc. is expanding its number of stores and opening "megastores" in a number of locations. To accommodate their new business, a new sidetrack and loading dock were constructed on the Hagerstown property. Lowe's leased an adjacent property where a 60,000 square-foot distribution center is under construction for the retailer. The track behind the new building will be lowered to accommodate boxcar deliveries. The first two carloads arrived last week. Expected revenues are \$2 million annually.

#### SANTA FE NEWS BULLETIN

**Military movements** Santa Fe is gearing up for a move of four unit trains of military equipment later this month from Ft. Carson, Colorado, to Ft. Irwin, California. The first train should begin loading on January 23. That same week Santa Fe will also be moving several unit trains of military equipment from Ft. Irwin to Ft. Hood, Texas.

**Boxcar movements** Boxcar loadings are picking up dramatically for most commodities. Wine and canned goods out of California are averaging 100 cars per day. Perishable

shipments out of California are averaging only 8 cars a day, but that figure is expected to reach 20 cars per day as orange shipments increase within the coming week. Frozen meat is averaging 10 cars per day.

Cotton loadings from west Texas continue to be very strong, averaging 40 carloads per day. Paper and forest product loadings are high, with about 45 cars of fiberboard and 15 cars of newsprint loaded each day.

**Covered hopper move-ments** Santa Fe anticipates grain loadings of 400 to 550 covered hoppers per day. The supply of covered hoppers for grain loading is still tight. Currently 120 cars are moving from west Texas to Wichita to meet demand there. Export loadings to the Gulf have dropped, as have loadings out of west Texas. Potash and cement loadings are down. Flour loadings are moderate.

#### WHAT ARE "DYNAMIC" BRAKES

Diesel-electric locomotives have motors attached to each axle. Normally power is supplied to the motors causing the wheels to pull the train. However, due to the magic of electromagnetics, if the wheels are turned by an external force (such as gravity pulling a train down a hill) the motors will run as dynamos, generating electricity. Since energy is conserved, this electric power has to come from somewhere, which in this case is the kinetic energy of the engine. In simple English, running the motors as dynamos will put a drag on the engine, which can be helpful when running a very heavy train down a long grade.

The amount of electric power generated is substantial, and it has to be used up somehow to cause a drag on the wheels. This is done by using a bank of resistors which convert the electricity to heat which is then radiated away. On some EMD locos these resistors appear as a bulging grille near the center of the roof although the SD50/60/70 series had enough hood room to put them behind the cab. CP Rail's SD40-2Fs are also without the bulge. Alco, GE, FM, and BLW locos with dynamics have extra grills somewhere on the loco, but no bulges like the EMD "blister". On older Alcos (like RS3's) and on the Baldwin DRS/AS types, these grills were in the short hoods.

Model shells are often offered with these external indications of dynamic brakes, although they of course have no function. A given prototype locomotive is usually available with dynamic brakes although some allow both options.

#### CLASSIFIED:

Wanted - Great Northern Cascade Railroad hiring operators for evening shift. Call (703) 360-2313, ask for Pete.

Wanted - SWF is looking for run arounds, turns, shifter work. Call (202) 123-love, ask for Cheri!