

T-TRAK, “Trams, Trolleys, Trains, Two Tracks and Table Top”

By Lee & Jim FitzGerald

Looking for a simple to build, easy to set up, plus great scenery possibilities, in a modular N Scale system? T-Trak may be just the thing. The modules are easy to transport, since they are about the size of a business letter page.

A whole layout could fit in most cars for a train show, depending on the scenery. A full operating layout could be set up in a short time on a folding table, no module legs are needed. Four corners plus 6 straight modules fill a 30" x 6' table and 4 corners plus 10 straight modules provide a lot of modeling on a 30" x 8' table.

An open center layout for modelers inside, can expand to any size to accommodate as many modules as are built.

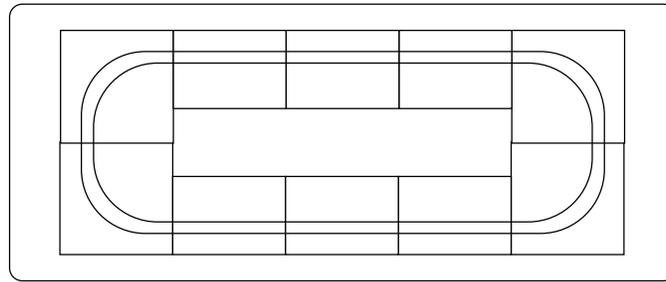
For a club, if everyone brought one of these modules to a regular meeting, they could be quickly set up for running trains. New equipment could be tested (shown off). Then the layout would easily be torn down again.

One or two club members can quickly set up a display layout at a service club meeting, hospital, children's ward, retirement village, nursing home, scouts, youth groups - endless opportunities.

At home, besides regular layouts of any size, they are ideal for shelf type layouts along with some special units for inside corners, yards and return loops. They are a nice way to display your trains in an artistic setting or for photo backdrops.

We saw a bare board idea of this in Japan, August of 2000. Within a year, about 70 modules were built. Lee built 3 modules to introduce at the St. Louis, MO. July convention and then took them to Japan for the JAM convention. She named the size T-TRAK and gave it the identifying slogan: “Trams, Trolleys, Trains, Two Tracks and Table Top”.

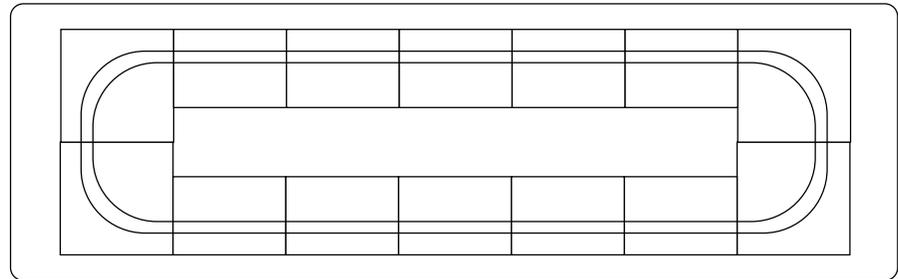
Because some items used in Japan modules are not available here, design changes have been made for simplicity and availability of materials. In the



T-TRAK layout on a 30" x 6' table.

Straight Module
8-1/4" x 12-1/8"

Corner Module
12-1/4" square



T-TRAK layout on a 30" x 8' table.

interest of standards, they are fully compatible with the Japanese modules. The bases are simple to build. Many people have enough scraps in their workshop to build several T-TRAK modules. The track is Kato Unitrack® with a built-in road base and positive locking rail joiners. These are all that is

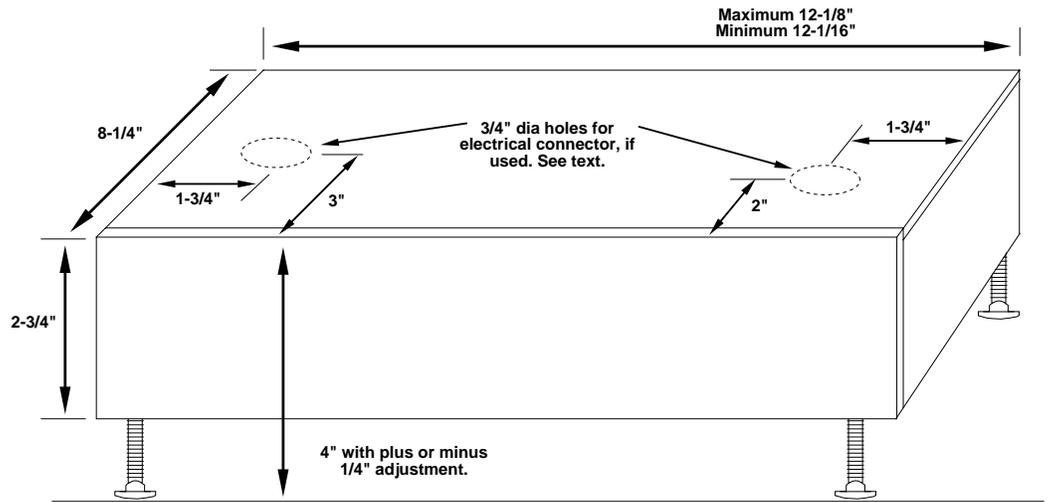
needed to hold the modules together firmly. No bolts or C clamps. Wiring is “Plug and Play” by using the Unitrack® electrical feeder track section on some modules.

Plans for further operations, switching and more are on the drawing board.



Here are Lee's three T-TRAK modules as they were displayed at the Saint Louis NMRA Train Show in July 2001. On the left is a Japanese scene, in the center is a European street scene with a subway below. On the right is a carnival scene with a battery powered “Merry Go Round”.

T-TRAK Modules
Base Box, top view
 Made from 1/4" plywood
 with an open back and
 bottom. The top could also
 be Masonite® or 1/8"
 plywood.



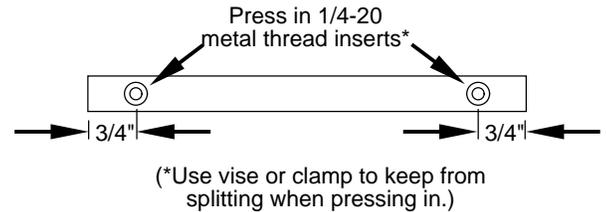
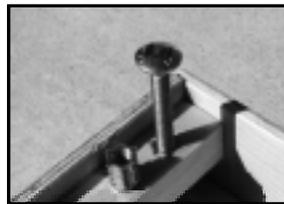
Skyboards are optional and can have straight tops or curved "Cloud" design. Heights in the 8" to 9" range work, but depend on your scenery height.

T-TRAK Construction

The T-TRAK bases are a simple construction project, since they are only 8-1/4" x 12-1/8" in size. Some 1/4" plywood and some 3/4" thick boards or molding available at home centers takes care of the wood parts. The overall height is 4" with a plus or minus 1/4" adjustment. The bases are glued together and held with small nails while the glue sets up.

Kato Unitrack® is used for the two mainlines. The locking rail joiners hold the modules together on a table top. No clamps are needed and the track power is furnished through track sections with a feeder wire. At least one of your modules should have track power feeders. The track sections without the feeder wire are less expensive.

The combination of a 9-3/4" long straight (20-000) and a 2- 7/16" (20-040 or 041) straight is used for each of the two main tracks. These will hang over about 1/32" at each end. This allows the joiners to fully engage. If the base is too long or the ends not square, there could be trouble keeping the modules together.



I have used 1/4-20 carriage bolts for the adjustment and a drive-in metal thread insert. I wanted the levelers to be able to retract behind the 2-3/4" high front and ends for transporting.

Construction Tips

Thread inserts. You will need to drill holes all the way through the 3/4" square pieces for the thread inserts. The ones I used call for an 11/32" drill. To keep the wood from splitting, I hold it in a vise while driving the insert flush with the top. A "C" clamp could be used for this. Install the inserts before starting the base assembly.

Because of the small surface areas in places, fully coat mating surfaces with glue and use yellow carpenters glue, or better yet, use Tite-Bond II® glue, which is stronger and resists moisture far better.

Assembly Tips

I first glue the 7/16" x 5/8" pieces to the bottom side of the top, flush with the front and flush with the back. They are shorter than the length of the top, so use scraps of plywood to center the pieces. I use three 7/8" steel brads and start them ahead of time. Then when I have things positioned just right, the nails can be driven on in.

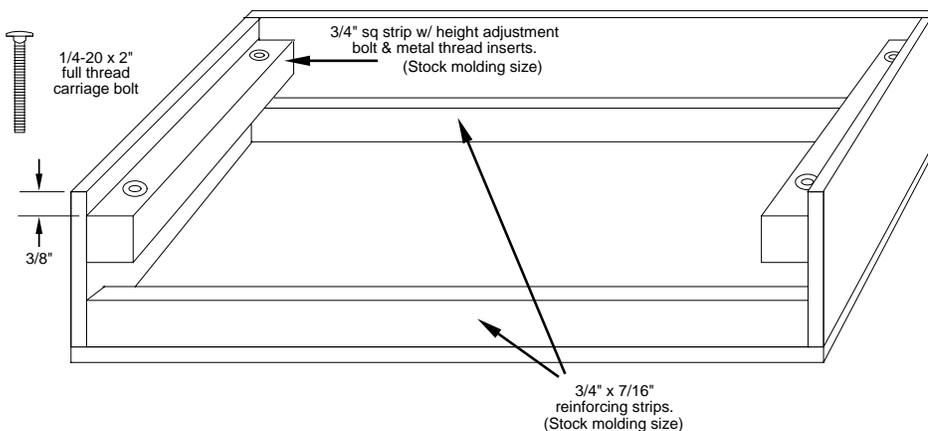
The 3/4" square pieces are similarly glued and nailed to the end pieces spaced 3/8" from the bottom. This lets the carriage bolts be fully screwed in for compact storage.

With this done, I let the glue fully set before going to the next step. Now mount the front to the top with glue and nails. The front is a 1/4" wider than the ends, so it is mounted flush with the top. This hides the raw edge of the plywood top.

Next locate where the nails need to be on the end pieces so that they go into the ends of the top glue strips. Start nails in the front so they go into the ends of the 3/4" square pieces. Now coat both surfaces with glue and get the ends in place and drive in the brads. I like to then lay the unit on its top and add a bead of glue inside where the top and ends meet.

When the glue is dry, sand the edges and corners and you are ready to mount the track.

Bottom view, T-TRAK base box.



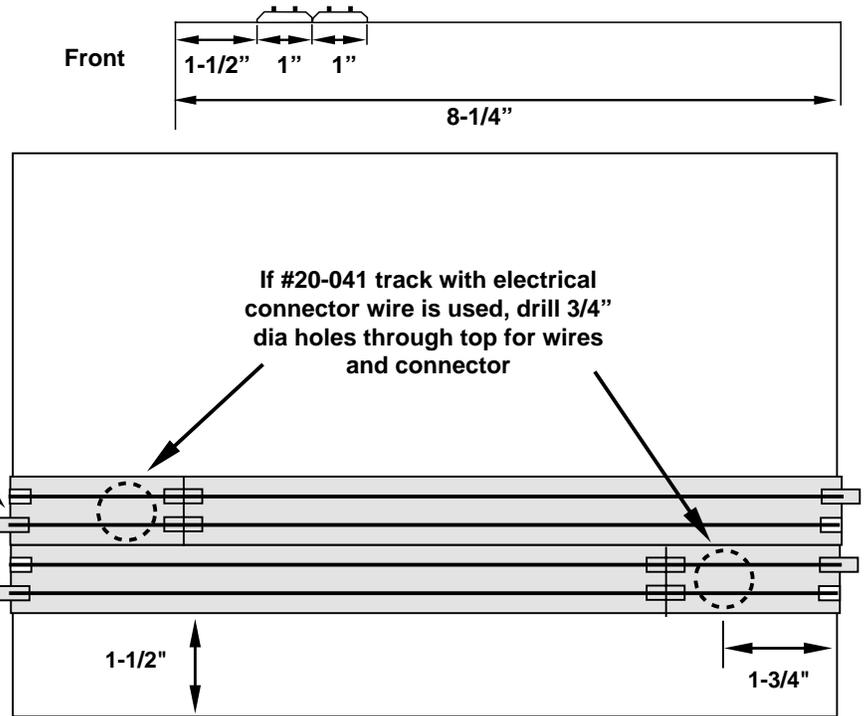
T-TRACK Unitrack® locations.
 2 ea #20-000 9-3/4" straight
 2 ea #20-041 feeder track
 or #20-040 straight 2-7/16"

Note: If flextrack is used, use
 1" track centers and the front
 track centered 2" from front.

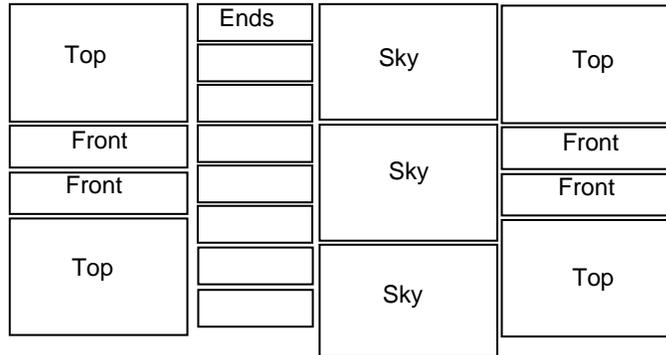
Note: Track base is 1" wide and goes tight against the next track. Glue in place with contact cement.

Track extends beyond ends at least 1/32"

At least one of your modules should have track power feeders. The 20-040 track sections without the feeder wire are less expensive.



Plywood pieces for 4 Modules from a 2'x4' sheet of 1/4" Ply



1/4 Plywood
 Top, 4 ea 8-" x 12-1/8"
 Front 4 ea 2-3/4" x 12-1/8"
 Ends 8 ea 2-1/2" x 7-3/4"
 Skyboards 3 ea 7-7/8" x 12-1/8"

About Plywood

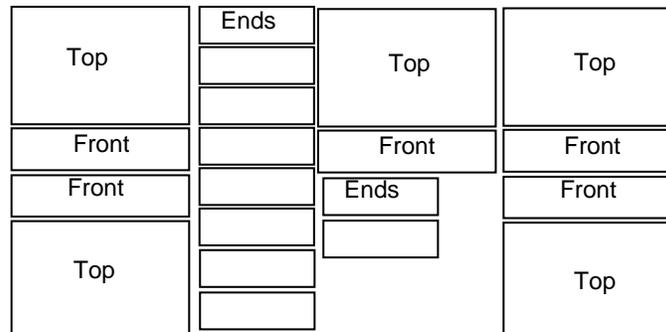
A word about 1/4" plywood. Grade A-C Fir or Pine plywood is fine for this project. They have three more or less equal thickness plys. 1/4" paneling usually has a thick center core and very thin veneers of hardwood. They are great in full sheets and fastened to a wall. Used in small size pieces they tend to warp because of the thick core.

Most desirable is the 5 ply Baltic Birch plywood. This has few voids and resists warping. It is more expensive and more difficult to locate. It is "Cabinet Grade" plywood and often is a special order item. There are some other types of plywood that may work for you. Look at them carefully for the thickness of the center core and for any large voids.

Molding stock or rip from 1 x 4" stock.
 Per module, 2 ea 3/4" x 3/4" x 8" long
 Per module, 2 ea 7/16" x 3/4" x 11-5/8" long

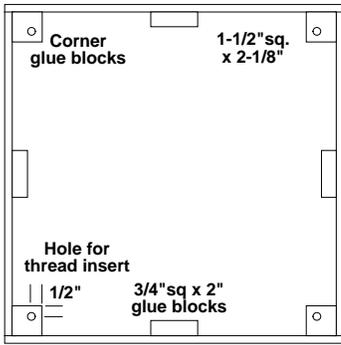
Hardware for each module
 4 ea 1/4-20 carriage bolts, 2" long
 4 ea 1/4-20 metal thread press-in inserts

Plywood pieces for 5 Modules from a 2'x4' sheet of 1/4" Ply

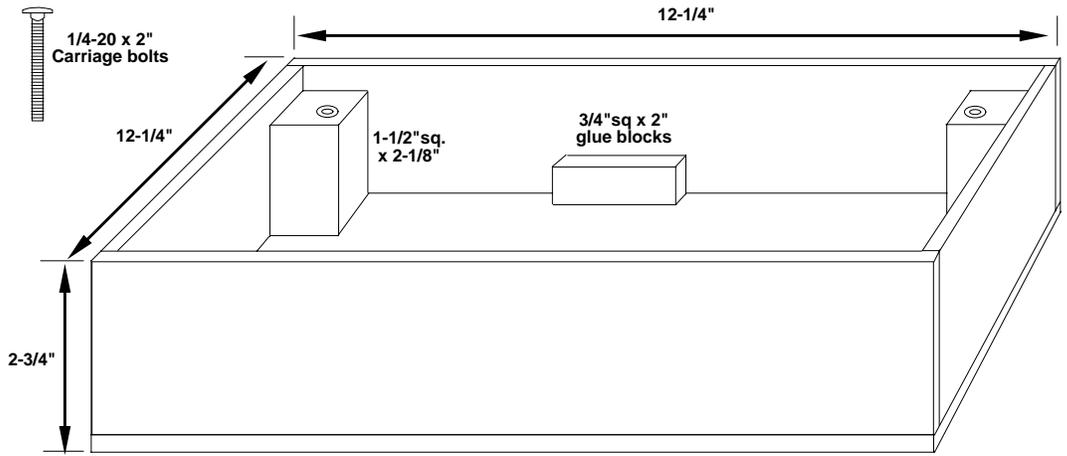


1/4 Plywood
 Top, 5 ea 8-" x 12-1/8"
 Front 5 ea 2-3/4" x 12-1/8"
 Ends 10 ea 2-1/2" x 7-3/4"

T-TRAK Corner Base Box
Made from 1/4" plywood.



T-TRAK Drawing #4
Oct. 2001, JWF



T-TRAK Corner Modules

The corner modules are a simple box 2-3/4" deep and 12-1/4" square. This is slightly larger than the straight long dimension to accommodate the curve track combinations. You need 4 of the new Unitrack® 20-170,

8-1/2" radius curve sections. For the outside track, a 1-3/4" straight is added at each end. It comes from the assortment pack #20-091. Also from that pack you use one of the 1-1/8" pieces between the two curve sections on the inner track.

Track can be glued down with contact cement. While the cement is still wet, position the track just right and add weights until the cement dries. Track sections do have a place at each end where nails can be used to secure the track after the glue dries.

Corner Module Construction Tips

To easily fit the Kato Unitrack #20-170 curved track to the corners, they need to be slightly larger than the long dimension of the straight modules. 12-1/4" seems to work well. The extra 1/8" means less forcing the track to fit with just a 1/32" overhang.

Start by cutting the tops 12-1/4" square and then two pieces 2- 1/2" wide and 12-1/4" long. Cut another two 2-1/2" wide for the other sides. Subtract the thickness of the two long pieces from 12-1/4". This gives a length of about 11-3/4", depending on the plywood thickness.

You will need four 2" lengths of 3/4" square wood for glue blocks and four lengths of 2x2 (1-1/2" square) stock, 2-1/8" long. I had some scraps from slimmer legs that was 1-1/4" square and I used that. You could trim to that size if you wish.

Drill a hole through the length of the corner glue blocks to take the type of metal thread insert that you choose. I needed an 11/32" drill for mine. Locate the hole 1/2" from the two open surfaces. Insert the threads and use clamps in both directions to keep the glue block from splitting. Do this before assembly.

Glue and nail to either end of the short sides, keeping the surfaces even with the ends of the

sides. The top end of the glue block should be flush with the top of the side. The metal thread insert will be toward the bottom, but shy of it by about 3/8"

Glue and nail the 3/4" sq glue blocks in the top center of all four sides. As before, fully coat the glue surfaces and pre- start the small nails to ease assembly. Let the glue set up.

Now assemble the sides and then glue and nail the top in place, centering it all around.

When the glue is set, sand the edges and break the sharp corners for a good appearance. It is good to seal all surfaces of the assembled base with primer or sealer. This will reduce warping by reducing moisture absorption.

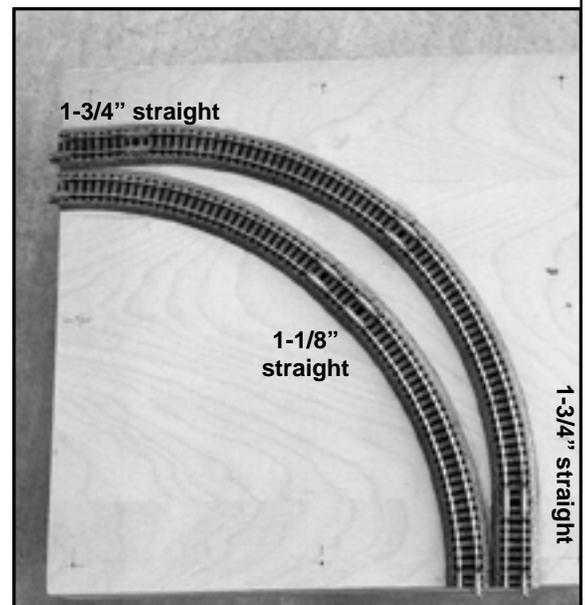
Laying track on corner modules.

While Kato Unitrack® is suggested, flextrack can be used for the corner modules. Kato makes an adapter track to flextrack, #20-045. You will need to shim up the flextrack with cork roadbed to match the height of the Unitrack.

The new Unitrack® 8-1/2" radius curved track #20-170 works out quite well for the corner mod-

ules. For the outside track you add a 45.5mm (1-3/4") straight piece at each end. There are two of these pieces in the #20-091 track assortment. From the same assortment you use one of the 29mm (1-1/8") pieces. This goes in the center between the other two curved track sections and is for the inner track. Have the ends of the track extend about 1/32".

Glue the outer track in place first, locating it 1-1/2" in from the front edges of the module. I use latex based contact cement and put the wet track in place with weights to hold it in position. The wood will absorb the moisture in the glue and it will set up in a few hours. If you try to use the cement as a contact cement, there will be great difficulty in positioning the track just right for the contact. Doing it wet, you have time to adjust the track position.



We will continue working with ideas for T-TRAK, and for fully operational layouts with sidings and yards.

If you have some ideas, send them along. If you would like future Datasheets, send an e-mail message to be put on the list or send a long SASE.

T-TRAK, 1150 Wine Country Place, Templeton, CA 93465
e-mail: ntrak@tcsn.net

Lee & Jim FitzGerald