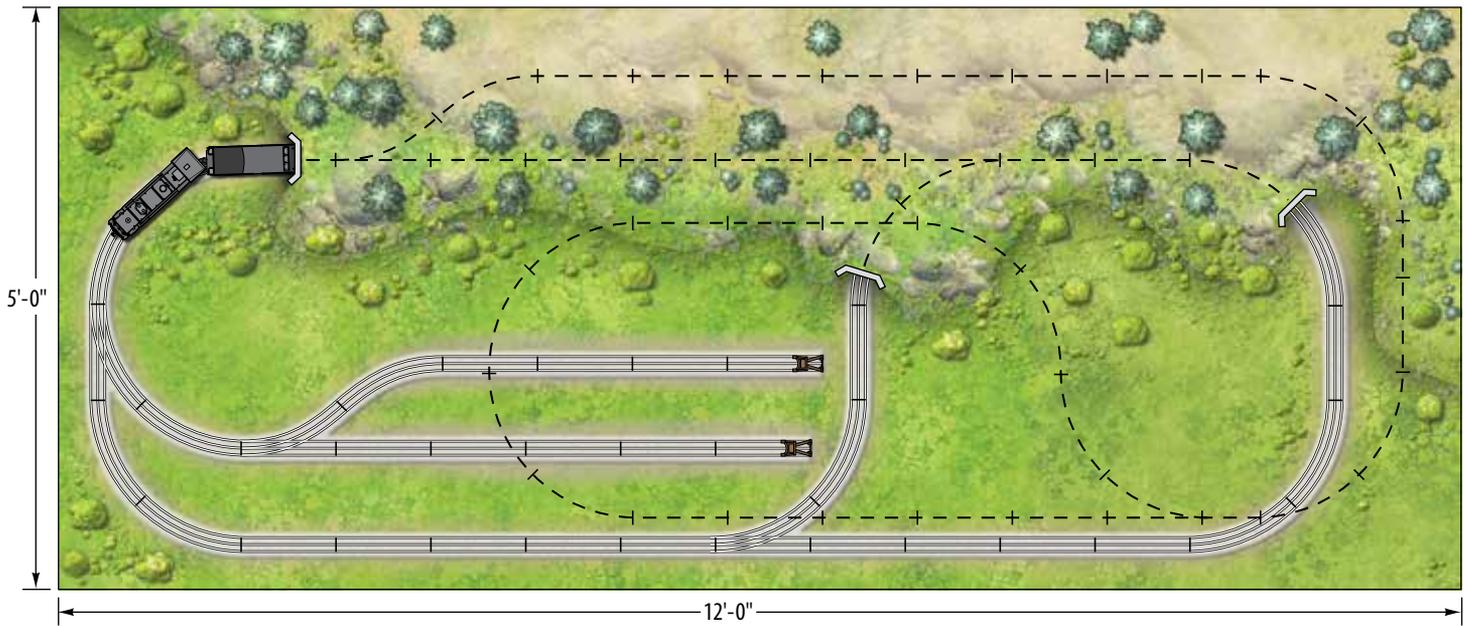


Bottom 41x48

BUILD LIONEL'S

disappearing **LAYOUT**

O and S gauge for the operator and collector



THE CASE OF THE disappearing LAYOUT

A TRICKY 5 X 12-FOOT PLAN FOR O GAUGE SECTIONAL TRACK

by **Peter H. Riddle** • illustrations by Kellie Jaeger



HERE'S A COMPACT 5 x 12-foot O gauge track plan with an air of mystery that will fascinate visitors to your layout. It's ideal for the modeler who wants plenty of layout space for buildings, accessories, and scenery, yet is content with having a modest amount of visible track. Thanks to a clever secret, it also gives your trains a good long run.

Updating a classic display

Almost 60 years ago, Lionel introduced Magne-Traction, which allows trains to climb relatively steep grades. To publicize this innovation and demonstrate its advantages to the public, Lionel's display department created the no. D-27 "Disappearing Layout."

[The story behind this brilliant display, in which it seemed as if a train would vanish completely after entering a tunnel instead of coming out the opposite end, appears in the November 2001 issue of *Classic Toy Trains*. – Editor]

My "Disappearing Railroad" is an updated version of that amazing display

from 1950. On the surface it looks like a relatively simple track plan with a loop for continuous running, a reversing loop, and two sidings for storing cars or spotting accessories. A hillside provides scenic interest and hides some of the track, and there is plenty of space in front for town or city development.

Anyone watching a train run on this layout can easily predict where it will emerge after entering the tunnel at the upper left. However, the mountain conceals a secret that also creates the illusion of travel to distant points.

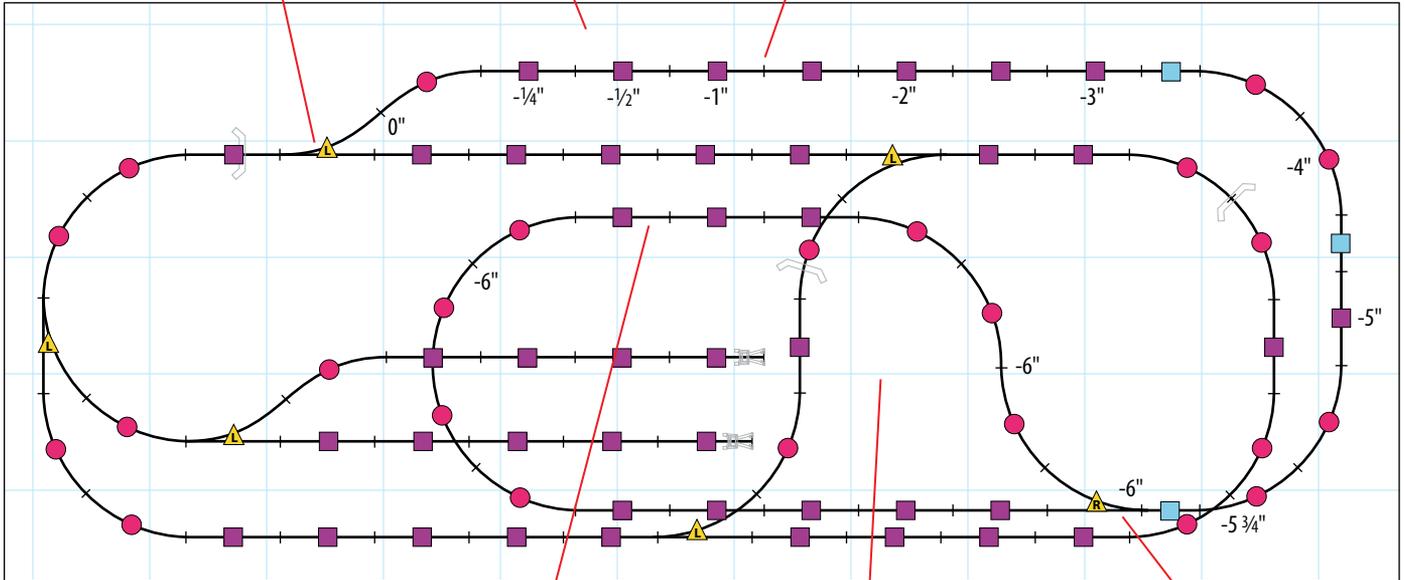
A fifth left-hand switch, located just inside the tunnel entrance, branches off from the main line and begins to descend beneath the layout, where it

This plan is an update of an amazing Lionel display from 1950. Operated normally, it has a loop for continuous running, a reversing loop, and two sidings for storing cars or spotting accessories. But this layout also harbors a secret. Follow the numbered steps to uncover the clever trick.

Step 1: Switch hidden inside tunnel entrance branches off and begins to descend beneath the layout

Sloping hillside provides rural scenery and conceals some of the track

Step 2: Track descends at a rate of 1/2-inch every 10 inches



TRACK COMPONENTS

Quantity	Description/Number
44	■ straight
3	■ half-straight
24	● 0-31 curve
5	▲ 0-22 left-hand switch
1	▲ 0-22 right-hand switch

Step 4: Train can stop in reverse loop or climb the grade and emerge unexpectedly from the same tunnel portal

Open space for town or city scene

Step 3: Switch leads into hidden reverse loop

passes through a right-hand switch into another reverse loop. You can stop a train there, as if it has gone to parts unknown, or let it climb the hill again and come out of the same tunnel portal, as if completing a round trip.

The track descends at the same rate as would be provided by a Lionel graduated trestle set, a 1/2-inch in every 10 inches, which is also the length of a normal section of straight track. Most modern locomotives have traction tires or are heavy and powerful enough to manage this relatively steep grade, even without Magne-Traction.

Building the layout

The numbers on the track plan indicate the depth of the track below the layout surface measured in inches. The tabletop is labeled "0." Note that there

is an intermediate step of a 1/4-inch at both ends of the grade. This gradual transition is necessary to prevent overhanging locomotive pilots from touching the rails at the bottom of the grade as well as pilot wheels lifting and derailling at the top of the climb.

The lower-level reversing loop may be made as large as you like; you're limited by only the amount of space available. The larger the loop, the longer the train will stay hidden. Be sure you use remote-controlled non-derailing switches to guard against derailments on the hidden track.

Note that there are three fractional sections of straight track, which provide proper clearance for the descending line. Track manufacturers make short sections in various lengths, and the ones you choose will depend on the brand of track you use. A good choice would be 5 inches long, a size available to match Lionel FasTrack and MTH RealTrax. Comparable Atlas O sections measure 5 1/2 inches. [Information about the

many available types of O gauge track can be found in the author's book *Trackwork for Toy Trains*. Order by calling 1-800-533-6644, or via the Internet at kalmbach.com. – Ed.]

Using O-31 curves, this design fits easily into a 5 x 12-foot space. If you opt for larger diameter curves, you will need to allow additional space. You may want to consider building this layout in portable modules, which will enable you to take it to train shows and other public gatherings.

The hidden track concept can be incorporated into larger layouts as well, such as a club pike or a youth group project. The possibilities are limited by only your imagination. **CTT**



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THE SECRET BEHIND LIONEL'S GREATEST DISPLAY

BUILD LIONEL'S disappearing LAYOUT

by Roger Carp

Pretend you're in a hardware store in December of 1950. In front of you is a new Lionel display set up by the proprietor. You watch the steam engine pull its load of 13 gondolas around the back of the layout. The train enters the tunnel and vanishes into the darkness.

"It should emerge in just a second," you think.

But it doesn't!

You wait and stare as the mountain swallows more of the gondolas while the rails on the other side of the tunnel remain empty. Suddenly, with only a few cars outside the tunnel, the locomotive and tender burst out of the far end.

"What's going on?" you ask. "There's no way a train that long could fit in a

tunnel that short. Is this some kind of trick? It must be magic!"

You're right – the magic of Magne-Traction.

Display with magnetic appeal

Had Lionel's engineers been a bit more playful in 1949, they might have called their innovation "Magic-Traction" instead of Magne-Traction. For there was something truly magical about the way the locomotives introduced in 1949 and 1950 could climb steeper grades and hug tighter curves than before.

The secret, as explained in the October 2000 *Classic Toy Trains*, involved Alnico magnets installed on drive wheels made of powder metal. But the effect was what counted, and Magne-Traction

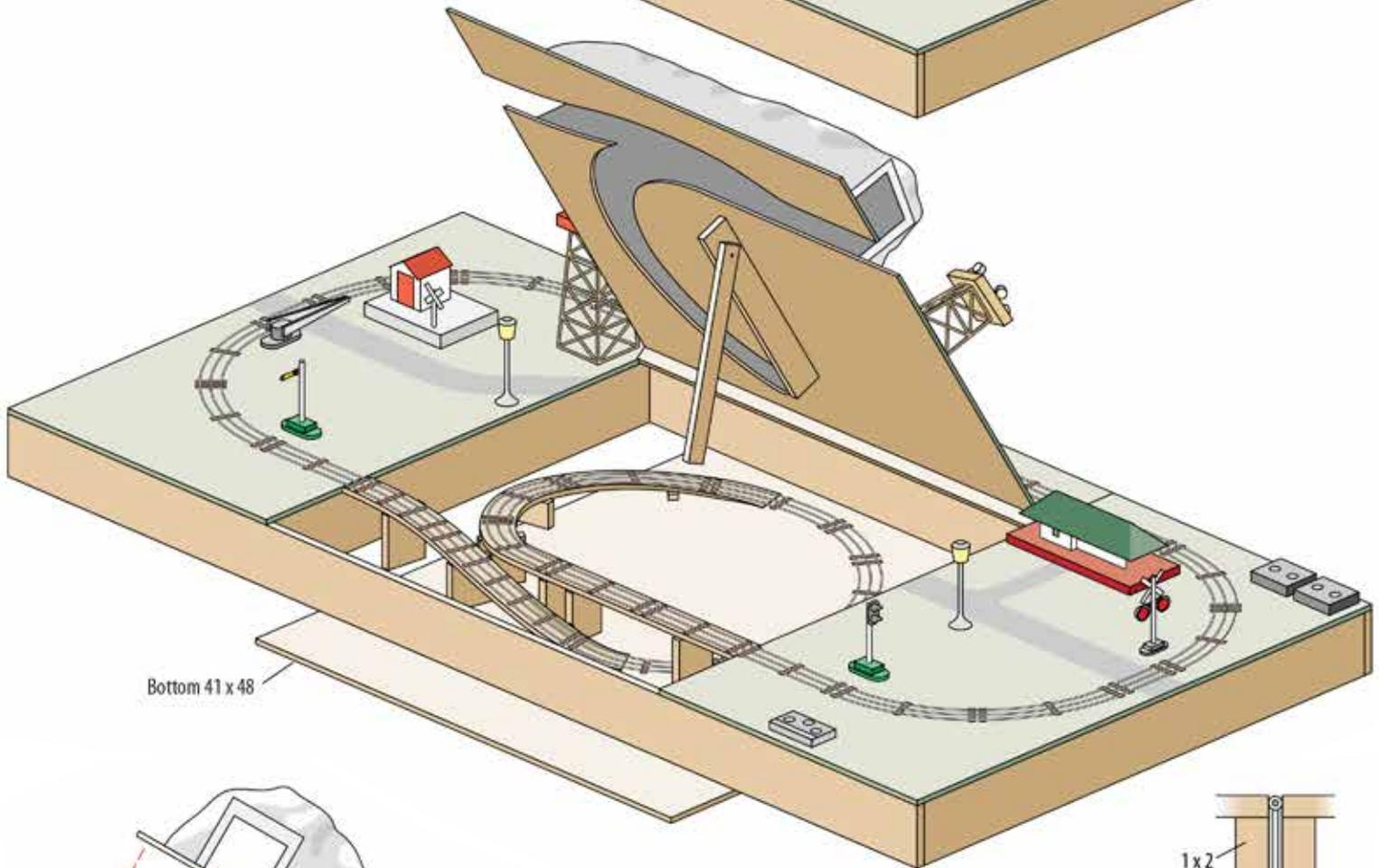
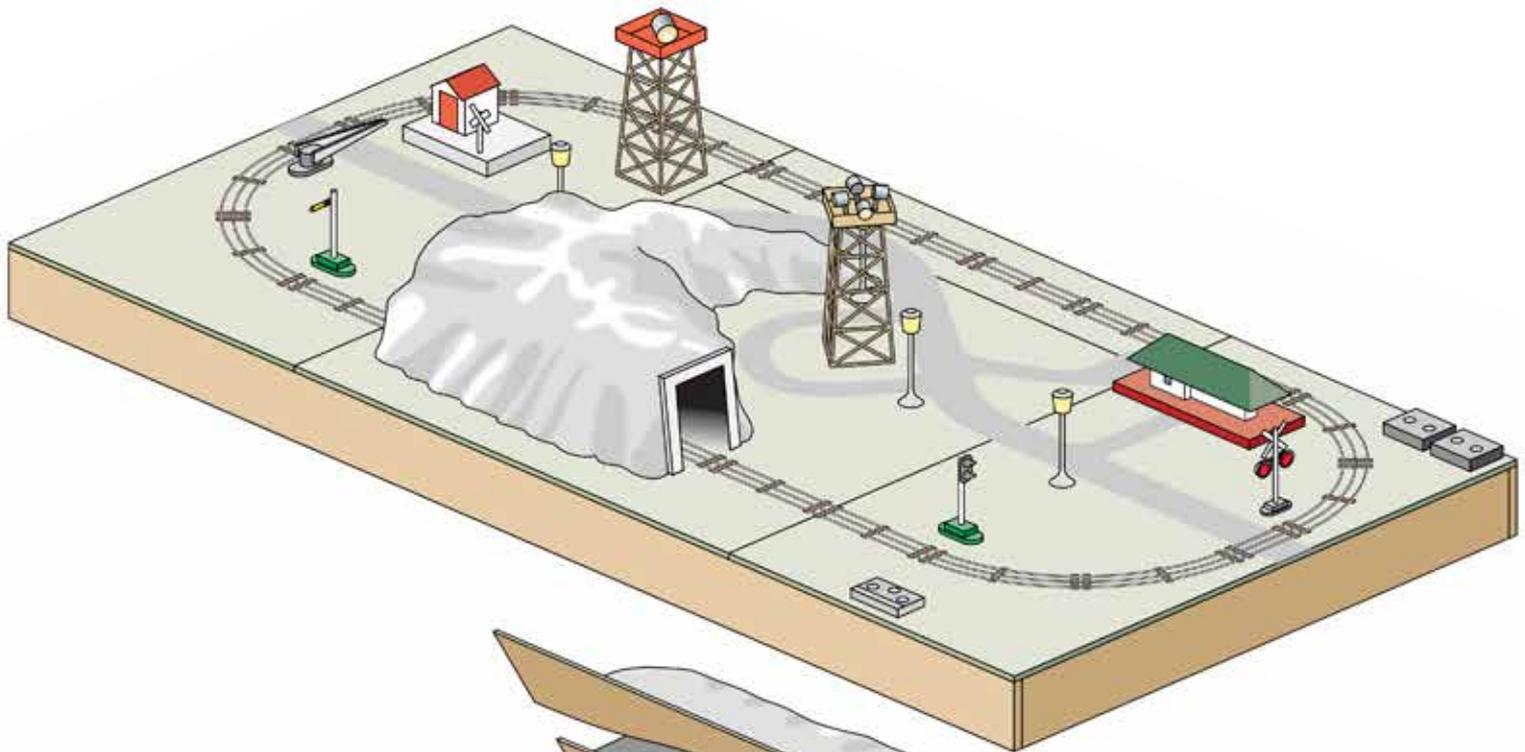
A tight helix of track hidden in a compartment beneath the tunnel makes it possible for a train to descend and cross under itself before climbing out. Magne-Traction enabled the locomotive to cling to the rails and ascend the steep grade.

amazed kids and adults.

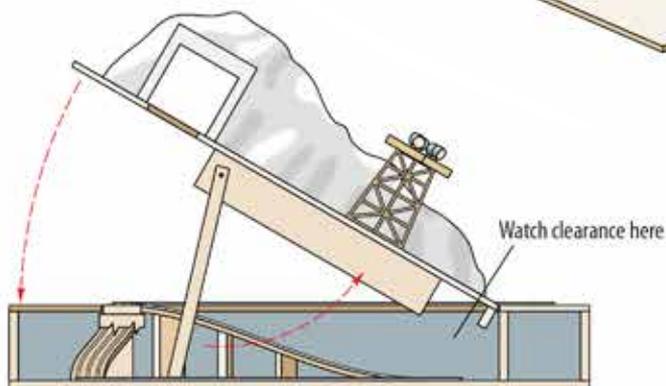
Cleverly publicizing this revolutionary feature was critical to persuading consumers that they needed to buy the revamped Lionel steam and diesel engines, which outwardly looked no different. Magazine advertisements and catalog illustrations were a beginning, but something more memorable was required.

Among the handful of Lionel employees who immediately grasped the significance of Magne-Traction was William Bonanno. He had recently returned to the company as a supervisor in its display department and heard his brother, Lionel's chief engineer, describe Magne-Traction's benefits.

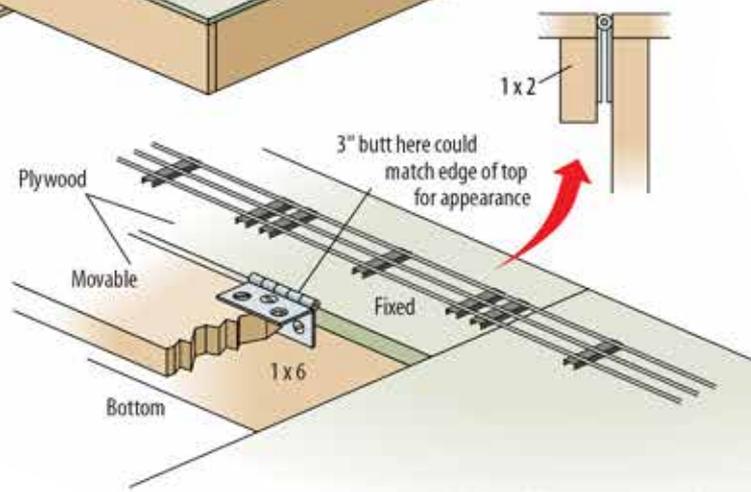
Bill understood the scientific principles at work yet recognized that dry



Bottom 41 x 48



Watch clearance here



1 x 2

3" butt here could match edge of top for appearance

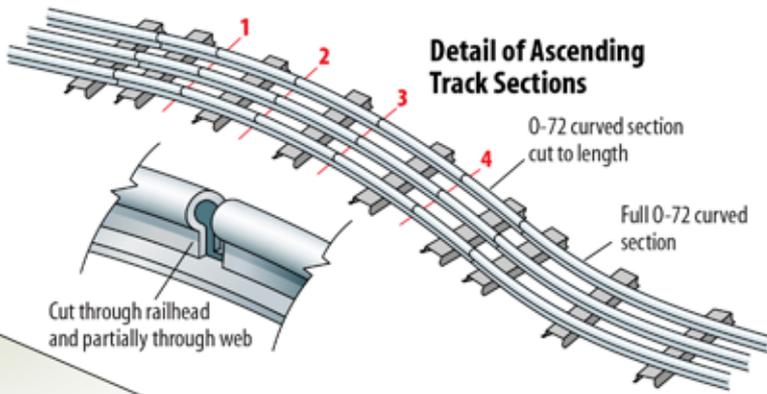
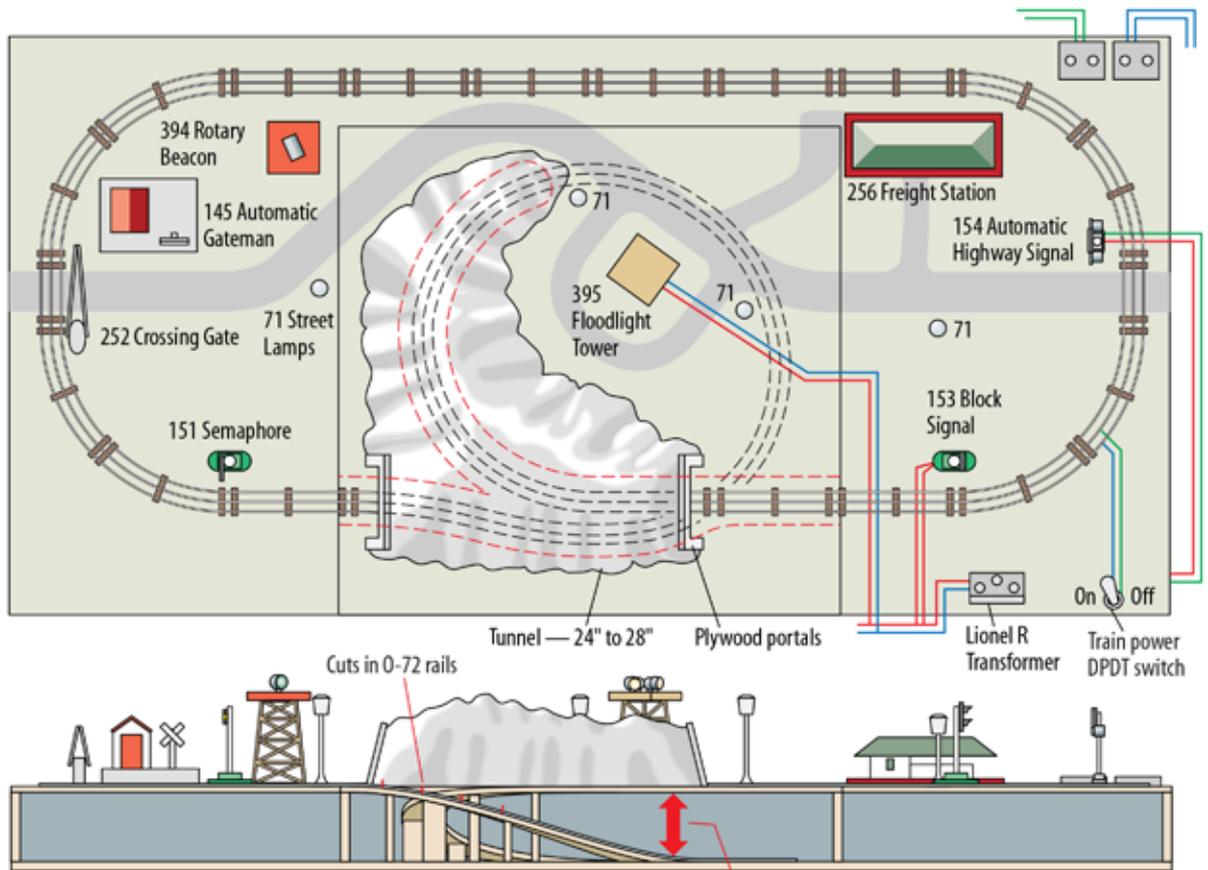
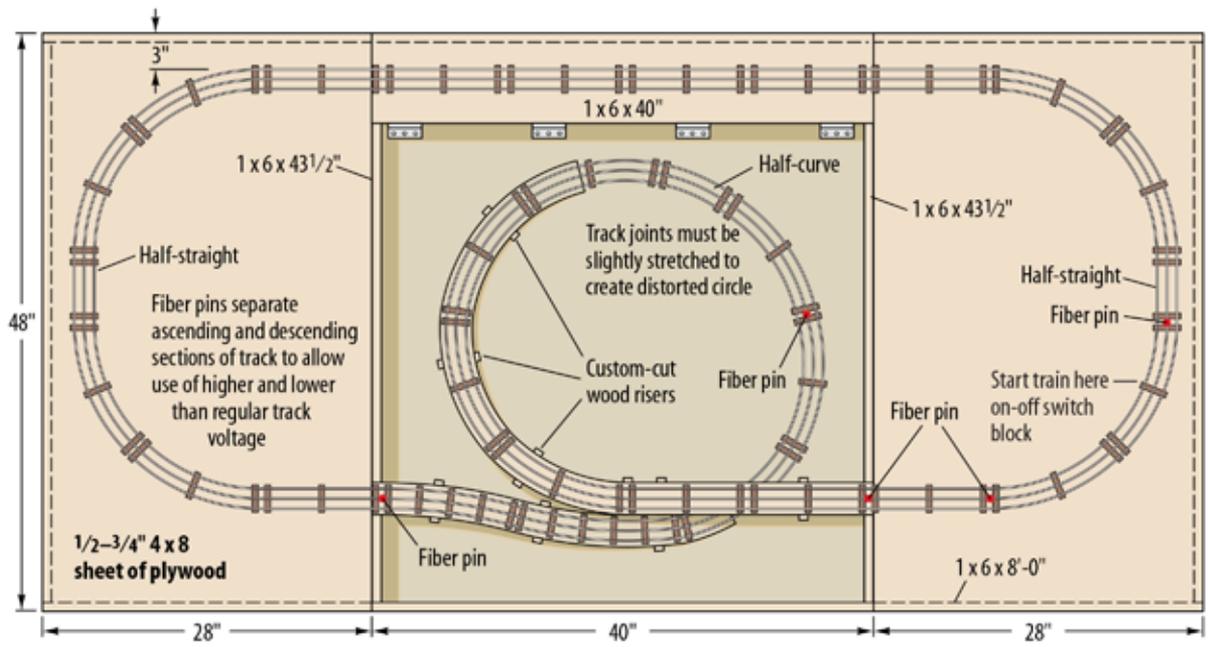
Plywood

Movable

Fixed

1 x 6

Bottom



0 Gauge Track Required

- 10 10" straights
- 2 Half-straights
- 15 Full curves
- 1 Half-curve
- 2 0-72 full curves

Accessories and Transformer

- 71 Lamp Post (4)
- 145 Automatic Gateman
- 151 Semaphore
- 153 Automatic Block Signal
- 154 Automatic Highway Signal
- 252 Crossing Gate
- 256 Freight Station
- 394 Rotary Beacon
- 395 Floodlight Tower
- R Transformer



The colors used to paint the tunnel on this original D-27 seem as vibrant now as they did when the display was shipped from Lionel's factory more than half a century ago.

information couldn't dazzle the public. What would capture everyone's attention was the performance of the trains. Bill designed a deceptively simple layout with a "special effect" that depended on the grip of Magne-Traction.

The result was the D-27 display. Known among collectors as the "Disappearing Train Layout," it was a hit more than 50 years ago and has never lost its capacity to amaze onlookers.

At first glance, there's nothing terribly eye-catching about this layout. According to the flyer sent to authorized Lionel dealers early in 1950, the layout measures 41/2 feet wide and 8 feet long and has a 6-inch-high base. On top is an oval of O gauge track visible at all times except when it passes through a short mountain tunnel. Highways and grassy "plains" fill the interior, which, as pictured in the flyer, is dotted with a few accessories.

The operating accessories shown are inexpensive and not always the most up to date. In fact, by the time Lionel issued "Instructions for Installing and Operating No. D-27 Display" in August, it had substituted new items for three of those indicated in the flyer.

The automatic gateman at one end was a no. 145 instead of a no. 45, and the crossing gate was a no. 252 and not a no. 152 because Lionel had dropped both of

the older accessories from its line. For the same reason, a no. 256 freight station occupied a prominent site instead of a no. 156 station platform.

Elsewhere, the accessories remained the same. Four no. 71 lampposts bordered the road traversing the layout. Adding interest to the center were a no. 394 rotary beacon and no. 395 floodlight tower. Two smaller items – a no. 153 automatic block signal and no. 154 automatic highway signal – filled out one side. A no. 151 semaphore now appeared on the opposite end, though the flyer for dealers made no mention of it.

These changes should not come as surprises for two reasons. First, Lionel was revising its accessories as the 1940s ended. Older items, especially those made of sheet metal and Bakelite, were replaced by models fabricated from injection-molded plastics. Second, which accessories a dealer installed was ultimately up to him because, as the flyer clearly emphasizes, "DISPLAY INCLUDES – everything as shown, except the accessories."

In other words, the items shown were suggestions. A dealer paying the \$80 price tag received the display, complete with track and wiring. Also included was what Lionel initially labeled a no. 6035 engine and tender plus 14 gondolas.



Lionel prepared this flyer for authorized dealers in early 1950. By the time Lionel workers were building D-27 layouts to ship, the accessories and other components had been changed.

Again the instruction sheet dated 8-50 provides a more accurate listing. The equipment supplied turned out to be two no. 2035 locomotives (one was a spare), a no. 6001T tender, and 13 gondolas (three loaded with barrels and ten empty cars).

"MAKE NO CHANGES OR SUBSTITUTIONS IN THE MAKE-UP OF THE TRAIN," Lionel warned. It took the further step of developing special versions of the no. 1002 gondola for this display. Painted red, silver, or yellow, these cars had Scout trucks but were produced with typical magnetic couplers (which dealers usually smashed together so the train wouldn't come apart). No caboose was included with this train, probably due to the tight clearance in the helix.

Of course, it wasn't the flashing accessories or the colorful gondolas that made this Lionel display unique – it was the demonstration of Magne-Traction. As soon as the train enters the tunnel it barrels downward along a steep, winding path. Why doesn't the plucky steamer derail? Magne-Traction enables it to cling to the tight curves until the track dives to the bottom of a compartment hidden within the hill.

Then, as more of the gondolas disappear within the tunnel, the engine and tender begin climbing out of the darkness. They pass under the rear of the train and ascend until the track is level with the tabletop. Finally, as the last cars plunge into the tunnel, the locomotive exits the second portal and resumes its journey around the layout.

Your turn to amaze

Fifty years ago or last week – the illusion never fails to elicit oohs and ahs. Adults and youngsters feel compelled to offer their opinions on what has happened, just as they do when a magician pulls a rabbit out of a top hat or saws a woman in half.

The Disappearing Train Layout remains a thrilling attraction, and we're glad to uncover its secrets for you. Better yet, we hope you'll build your own replica of this legendary display. **CTT**

Thanks to Richard Kughn and the staff of Carail, former Lionel employee Lee Price, and Greg Stout for contributing to this article.