

BASIC TURNOUT WIRING

by Stan Stokrocki

As otherwise perfectly-running locomotives begin to sputter and die, almost every model railroader learns the hard way that the points of a turnout do not make reliable electrical contacts. Many switch machines have contacts which can eliminate this problem, but if you are using hand throws or a machine without auxiliary contacts, another solution is required.

Radio Shack sells a subminiature lever switch (No. 275-016 at \$1.19) which neatly fills the bill. It can be mounted exactly as illustrated in the accompanying schematics, although a wire extending down from the throwbar of the turnout makes an under-table mounting very easy. An extension soldered to the switch's lever will even permit a vertical mounting.

Electrically, the principle is simple. When there is no pressure on the lever, the circuit between the normally-closed (NC) and common (C) lugs is completed. When the turnout is thrown in the opposite direction, the throwbar pushes on the lever, connecting the normally-open (NO) lug to common instead. Adjust the switch mounting so that the contacts click when the points are in the approximate center of their movement.

Both the American Models and the Shinohara turnouts are manufactured as continuous-rail turnouts, as seen in Figure A. They have no gaps in the closure rails, and the tie bar connecting the points need not be insulated. (Of course, the throwbar, which connects the

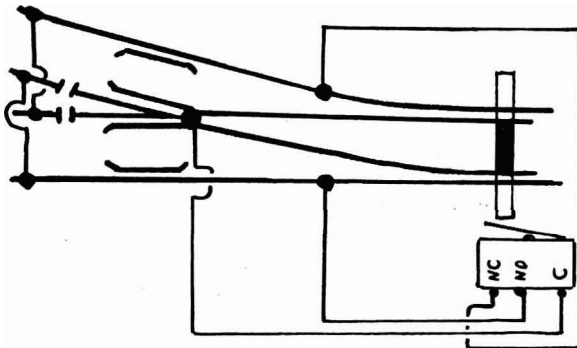
points to your switch throw, must not provide a current path between the right- and left-hand rails. The Shinohara turnout comes with a plastic throwbar already mounted.) Figure A shows how to wire the switch in this situation.

While I have found continuous-rail turnouts to work well, they do have two drawbacks. First, the open point is always opposite in polarity to its adjacent stock rail, creating the possibility of a short circuit should a wheel contact both. Second, if the turnout is constructed with a point clearance large enough to prevent shorts, the clearance can be visually excessive. Many people build gapped-frog turnouts to eliminate these problems (see Figure B).

In the gapped turnout, the lever switch is used only to power the frog. Each point is wired to its adjacent stock rail, eliminating the possibility of a short. Note however that the tie bar between the points must be insulated in order to prevent a short circuit. While the two popular brands of S scale turnouts are not constructed with gaps, they could be converted if you so desire. The exception is the American Models double-slip switch. Due to its construction, it should be treated as two overlapping gapped turnouts.

I'll leave the mechanics of lever-switch mounting to your ingenuity. Both Railroad Model Craftsman and Model Railroading have shown ways of mounting these switches. If you try this wiring method, throttle down your switcher and watch it crawl through your trackwork without hesitation. I think you'll agree that the results are worth it.

FIGURE A
CONTINUOUS-RAIL TURNOUT



OR

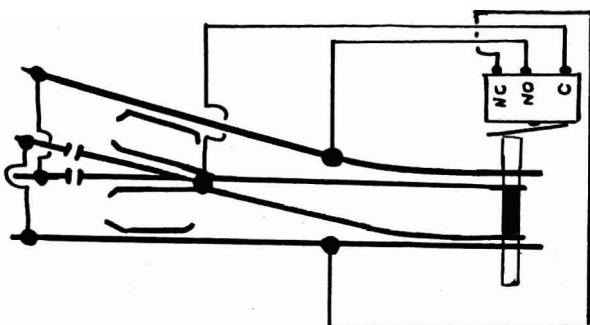
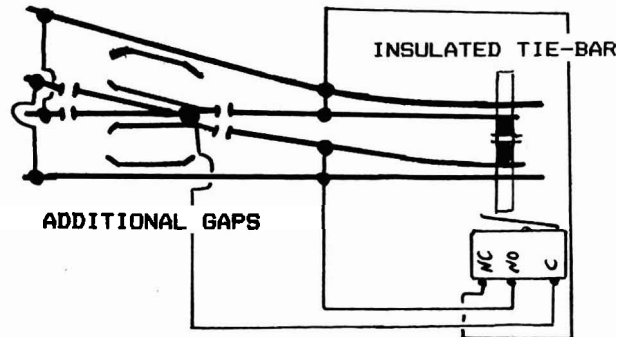
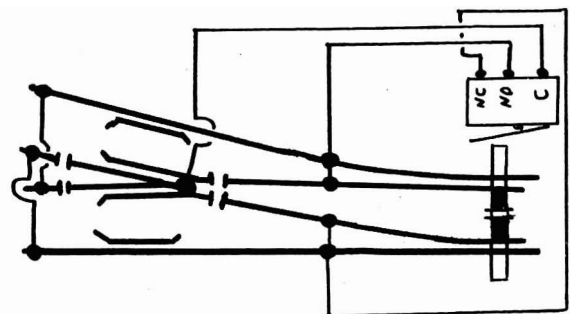


FIGURE B
GAPPED-FROG TURNOUT



OR



DRAWINGS BY STAN STOKROCKI