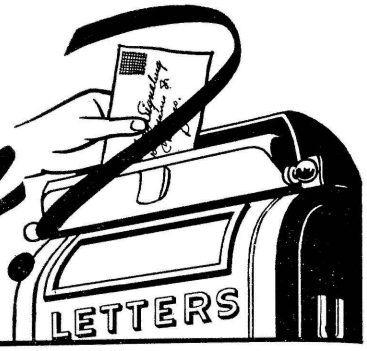
# What's the Answer




## Testing Switches

*"When making a test of an interlocked power-operated switch, using a ¼-in. gage between the point and the stock rail, should the switch be operated by hand or by power? If power is used, how do you prevent unnecessary damage to lock rods and plungers?"*

### Hand Operation

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All tests on power-operated machines, when using the ¼-in. gage between the switch point and stock rail, should, in my opinion, be made by hand. In favor of this statement I offer the following reasons: It is well to assume at all times when making such tests that ideal mechanical conditions do not exist, and we can expect to find at any time one or more of several faults, such as, movement of the stock rail, off-center lock rod adjustment, seized clutch, etc., all of which, if power were used, would place undue strain on switch connections and machine parts. With only a ¼-in. obstruction, this might allow the machine to lock up, shearing the edges of the lock rods, and in some cases, might result in buckling the throw bar.

However, when testing clutch slipping values, it is necessary to use power, and in order to guard against damage along these lines, a much larger obstruction than ¼ in. should be used, and the switch point brought up tight against the obstruction before cutting in the power, thus minimizing the effects of the shock if the clutch under test should have a tendency to seize.

### To Be Answered in a Later Issue

*(1) On large interlockings with complicated track layouts, and using dwarf signals of the searchlight type, what practices are followed to reduce the hazards which might be caused by lamp failures?*

*(2) At what voltage should thermal relays be tested, and what is the effect of variations of voltage in the timing operation?*

*(3) In your opinion, does "ionization" occur as a factor in improving the shunting of a track circuit by a train? (See page 279 of the May issue.)*

*(4) What success have you had in using pipe-pushers to install pipe conduit through railroad embankments or under the pavements of streets or highways?*

**If you have a question you would like to have someone answer, or if you can answer any of the questions above, please write to the editor.**

## Drafting Boards

*"As compared with wooden drafting boards, what are the advantages of the more modern boards using working surfaces made of linoleum or composition material, thus requiring drawing sheets and tracings to be held by gummed paper strips?*

### Hard Surface Covering

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Some of the disadvantages of the soft wood drafting boards, which we used for many years, were that the surfaces were gradually worn and "chewed" by thumb tacks. Especially when working with large-sized sheets, difficulty was encountered in holding the tracing cloth in place because the holes would be gradually enlarged as the work progressed. Quite frequently holes were made in tracing cloth if the center point of compass or bow pen was pressed into one of these holes in the drawing board.

We have had no experience with the modern types of drafting boards made with working surfaces of linoleum or plastic material. We have, however, modernized our old wooden boards by placing a sheet of ¼-in. Masonite on the top of each board. The Masonite sheet stays in place by force of gravity, although it could be glued if necessary.

This material provides a smooth, hard, working surface. One slight disadvantage is that the material is too hard to take the center point of a compass when drawing circles, but this trouble can be overcome by using a piece of heavy drafting paper under a drawing or by covering the entire board with drawing paper. With some types of work, the lighter background afforded by the paper is an advantage.

The use of thumb tacks would, of course, ruin the working surface. The