

What's the Answer?

If You Have a Question That You Would Like to Have Someone Answer, Or If You Can Answer Any of the Questions Shown Below, Please Write to the Editor.

Removal of Switch Indicators

"What logical reasoning can be advanced for the removal of switch indicators in single-track or multiple-track automatic block signal territory? Approximately what savings can be thus effected?"

No Logical Reason for Removal

F. H. Bagley

Signal Engineer, Seaboard Air Line,
Norfolk, Va.

On single-track railroad, where there is a switch leading into a long spur-track, where it is possible for a locomotive and cars to enter and clear the main track, and where automatic signals are not in sight from the switch, the switch indicator is necessary.

On double-track territory, where crossover movements are made, usually on telephone information from the dispatcher, switch indicators are necessary. On some roads, where indicators are not a part of the system, a time interval, governed by rule, is used.

I can see no logical reason for the removal of switch indicators, after they are once installed. There may be a slight saving where a separate battery is installed for switch indicators, but it would be very slight, when compared with the cost of maintaining all the signals.

Saving Approximately \$25

E. T. Ambach

Assistant Signal Engineer, Baltimore & Ohio,
Cincinnati, Ohio

The most logical reason that can be advanced for the removal of switch indicators in single-track, or multiple-track automatic block signal territory, is the observance or non-observance and the integrity of the indication given. On our first installations some trainmen had the idea that switch in-

To Be Answered in a Later Issue

- (1) *What type of fouling circuit do you use for turnouts where conditions are adverse to proper shunting?*
- (2) *What electrical tests can be used to assist in locating broken rail?*
- (3) *Do you use a standard plan for maintainers' tool houses? If so please furnish construction plan and details.*
- (4) *How do you keep the commutators on signal and switch machine motors clean and how do you prevent frost trouble on such commutators?*

dicators were installed for the sole purpose of eliminating the flagging rule. In bad weather when covered with ice and snow and needed most, they were not visible and, therefore, valueless.

The approximate annual saving is \$25 per indicator. It would be more economical to install a dwarf signal at the clearance point of a siding to give the true block indication and avoid the necessity of two switch indicators, giving indications for both directions on single track.

Switch Indicators in Yards Are Objectionable

W. H. Stilwell

Signal Engineer, Louisville & Nashville,
Louisville, Ky.

On most railroads the rules require that enginemen and trainmen of trains entering upon main tracks must protect their trains as required by the rules, regardless of the indication displayed by any switch indicator that may be located at the switch. Immediately this seems to nullify any argument in favor of switch indicators. Furthermore, under these circumstances, the presence of the switch

indicator seems almost to invite disregard of the rule.

In spite of the rules, instructions, and examinations which are intended to post trainmen on the operation of indicators and the observance of their aspects, it is a fact that a great many do not understand their operation, and many more do not observe them or in any way depend upon them, even for information. In yards and terminals it frequently occurs that indicators display "stop" for hours at a time, and the safe movement of trains onto the main track can be accomplished only by strict adherence to the rules.

From the safety standpoint, the use of indicators in yards is objectionable. Trainmen sometimes fall over them at night. A complaint from the safety department is the most effective argument for removal.

We have no definite costs on the maintenance of an indicator, but estimate the annual cost on this road at approximately \$16. This, however, does not mean that the removal of the indicator will result in that saving, for pole lines, cable attachments, etc. must still be kept up, and probably the actual saving which can be shown will not exceed \$8 to \$10 annually.

Some Indicators Removed

R. D. Moore

Signal Engineer, Southern Pacific,
San Francisco, Cal.

We have been removing switch indicators from locations where conditions have changed, due to the falling-off of traffic, etc., and where, in our opinion, the continued use of the indicators is no longer justified. This is done mainly to avoid the expenditure for the purchase of new materials for installations elsewhere where they are needed. At the same time, some savings, though comparatively small, result from the removal of apparatus that is not serving any necessary purpose.

An Unnecessary Expense

E. G. Stradling

Superintendent of Telegraph & Signals, Chicago, Indianapolis & Louisville, Lafayette, Ind.

With our earlier installation of automatic block signals, we installed switch indicators at outlying switches between sidings. However, after having these in service for several years and realizing that they were seldom, if ever, used by the train crews, we made a study of the subject and found that these switches were used only by local freight trains. The train crews would set out cars but leave their train on the main track, thus holding the block. Therefore, there was no need of securing any information from the switch indicator.

The signal department took up the matter with the operating department and, after a careful investigation, it was decided that the switch indicators were not of any value and, therefore, an unnecessary expense. Consequently, they were taken out and have been out for a good many years. With our recent installations of automatic block signals, we have not given any consideration to installing switch indicators.

With the switch indicators in service it was necessary for the maintainer to make a regular inspection and test, which consumed a certain amount of time. Also from time to time the indicators had to be put through the shop for repairs. Each indicator required a considerable amount of extra line wire which necessarily entailed additional maintenance expense.

On the C.I. & L., we have come to the conclusion that the use of the switch indicator did not justify the expense of the installation and maintenance.

Use of Marker Lamps*

"What is the modern thought with reference to the use of marker lamps on automatic signals, either for semaphores or light signals? Have any roads, previously using marker lamps, eliminated them?"

Markers Retained at Interlocking Plants

R. A. Sheets

Signal & Electrical Engineer, Chicago & North Western, Chicago

Answering the last question first, marker lights formerly required on upper-quadrant semaphore signals on the C.&N.W. were discontinued in 1925. At that time a total of approximately 1,600 marker lights were discontinued. These lights had previously been maintained on semaphore type signals of the upper-quadrant type and they were used to designate a "stop-and-proceed" block signal from a "stop-and-stay" block signal. This designation was effected by the location of the marker light with reference to the signal light. The daytime designation had to be effected by the location of a marker casting. As the light was effective only at night, and due to the consideration that the designation of the signal was only necessary in case the signal was in the "stop" position, it was decided that this designation could be made at night after the stop was made, by the location of the marker casting the same as in the daytime, especially in view of the powerful electric headlights being used.

The marker lights on single-arm signals displayed a lunar white light. The marker lights were retained only on "stop-and-stay" signals of the upper-quadrant semaphore type in centralized-traffic-control districts and at interlocking plants. These were later changed to red lights to conform to the same general night aspect as would be displayed by a two-arm signal.

The only obvious advantage in the display of a marker light would be for the designation of the rules governing when the stop indication is displayed, and since this designation can readily be made after the stop is made, by the location of the marker casting or the shape or painting of the signal blade, the only other reason remaining would be that of providing extra safety by reason of the extra

*For more discussion on this question, see page 568 of the November, 1934, issue.

light being used. To provide this extra safety with the colorlight type signals, a change-over relay was used to change the indication from the normally-burning lamp to a reserve light or to a more restrictive indication (yellow), except on the interlocking home signals where the marker lights are still retained the same as on the upper-quadrant semaphore signals, used at interlocking plants.



Testing Ground Rods

"How do you make a test to determine the resistance to ground of a ground rod?"

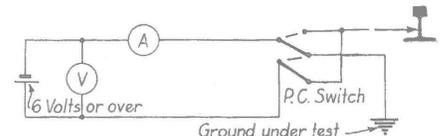
Three Methods Suggested

B. F. Dickinson

Engineer, Telegraph & Signals, Pennsylvania, Pittsburgh, Pa.

We use several schemes in testing ground rods, one of which is the "direct-reading single-test" method in which we use a regular ground testing instrument; another is the "three-point" method. Both of these arrangements are shown in the A.A.R. Signal Section Drawing 1377-B.

A third scheme which we have been using for some time with generally



Resistance of ground equals average reading of voltmeter divided by average reading of ammeter.

satisfactory results, known as a short method, is indicated on the accompanying diagram. After the readings are taken, with the pole-changer in both positions, they are averaged, and the resistance is obtained by the use of Ohm's law.

Meggers More Accurate

D. M. Noell

Signal Supervisor, Canadian Pacific, Toronto, Ont.

WE TEST all of our grounds with a megger earth tester which has a scale from zero to 150 ohms. In making a test we use two auxiliary ground rods 5 ft. long equipped with ground-wire connectors and a special megger lead cable. One of the leads is 50 ft. and one 25 ft. long. The megger is set up at the ground rod to be tested and

(Continued on page 166)