Signal Department Employees Are Expected to Report all Irregular Signal Observance

ON the Canadian Pacific there is nothing in our operating rules which requires that signal supervisors or signal maintainers shall report any irregularity of observance of signals by enginemen. However, there is in effect an unwritten rule which I believe all our employees are acquainted with, including all of the supervisors, which is to the effect that should any signal department employee notice any irregular observance of signals, he is expected to make a report. If he fails to do so, he becomes a party to the non-observance of the signal and is really as guilty as the engineman.

Montreal, Que. E. S. TAYLOR,
Signal Engineer, Canadian Pacific, Eastern Lines.

Other Comments

L. A. Guthrie, acting signal engineer, Canadian National, Western Region, states that the practice of having supervisors and maintainers report irregular observance of signals on the part of enginemen is very strictly carried out on his road.

While there is no rule requiring signal department employees to report any irregularities in this respect on the Chicago Great Western, superintendents have issued instructions to supervisors and maintainers to make such reports when occasion demands, it is stated by G. O. Perkins, superintendent of telegraph and signals.

How to Locate Grounds

How do you locate grounds at an interlocker?

A Lamp or Voltmeter Recommended for Locating Grounds—Special Magneto-Operated Instruments Can Be Used Independently of Other Source of Power

ALL electric plants on which I have been employed have had a ground detector of some form mounted on the panel board. The most common of these and the one that is generally used is the lamp type. A lamp is connected to the blade of a S. P. D. T. switch, one position of which indicates a positive ground, the other a negative ground. I have used this ground detector as a means of locating a ground, by leaving a helper at the lamp with instructions to signal to me any change in the indication of same, while I traced out and disconnected at intervals the circuit that was grounded.

Occasionally a ground will be found in the control and common leads, but is more apt to be found in the mechanism of some signal, derail, or switch. Once in a while, a ground will occur in the control machine in the tower and sometimes in the panel board itself. I know of one plant where the ground detector indicated both positive and negative grounds, not "heavy," but sufficient to give a dim light on the ground detector.

I have used several different methods of locating grounds, among these being the finder coil and head phones. The latter method gives varying success, but is not accurate. A visible indication on a lamp, voltmeter or magneto instrument is better as a ground locating device, in my opinion. The voltmeter and test lamp are the instruments that are used mostly, as either of these are to be found at an electric plant and when used with the 110-volt tower battery are effective in locating grounds. The lamp and voltmeter have to be used in series with the grounded circuit, as shown on page 355 of the September issue of *Railway Signaling*.

Some manufacturers are producing a combination magneto with a voltmeter. This meter has two scales, one is calibrated for voltage readings, and the other for megohm readings. This device should be excellent for locating grounds in field coils, armatures and pole-changers. The magneto instruments have a decided advantage in that they furnish their own e. m. f. for testing purposes, and can be used independently of any other source of power. The magneto is used by disconnecting the circuit from the tower battery and connecting one lead of the magneto to the circuit and grounding the other lead.

Gibson City, Ill. CHAS. ROBISON,
Signal Maintainer, Illinois Central

Should Track Circuit Polarities Be Staggered?

"What benefit is derived by transposing the polarity of adjacent track circuits?"

Alternating the Polarity of Adjacent Track Circuits Reduces Possibility of False Clear Failures With Broken Down Insulated Joints

THE advantage in transposing the polarity of adjacent track circuits becomes apparent when abnormal conditions exist such as broken down insulated rail joints, broken rails, broken bond wires, or a combination of these. Many different combinations of conditions may exist, but the matter can be illustrated by using two sketches, one showing the same polarity and the other transposed polarity on adjacent track circuits.

Figure 1 illustrates two adjoining track circuits with transposed battery polarity, both relays being located adjacent to each other. The insulation in insulated rail joint *J* is broken down, and there are broken bond wires or broken rails at *X* and *Y*. A train occupies the track at *S*. The flow of current from battery *B* is indicated by the arrows, from which it may be noted that current flows through relay *R1* through the broken down insulated rail joint *J* and back to battery via ground. Since

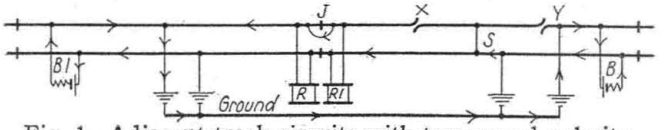

Fig. 1—Adjacent track circuits with transposed polarity

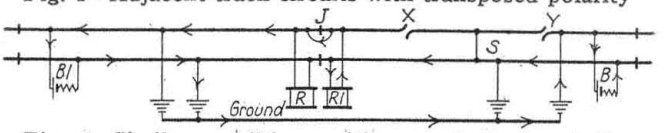

Fig. 2—Similar conditions with same battery polarity

the train first shunted out track relay *R1*, it is very doubtful whether there would be enough current to pick it up again when the train reached a point between broken bonds *X* and *Y*.

Figure 2 illustrates similar conditions, except that the battery polarity of both track circuits is the same. The current flow is again indicated by arrows. By tracing the circuit it is seen that relay *R1* is in series with both batteries *B* and *B1* and also with the ground. Therefore the current in *R1* will probably be sufficient to pick it up, resulting in a more unsafe condition than where the polarity is transposed.

Mansfield, Ohio. J. B. WEIGEL,
Engineer, Railroad Materials Division,
Ohio Brass Company.