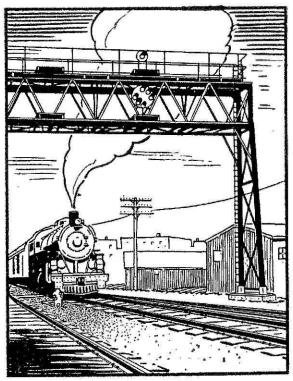
What's the ANSWER?

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

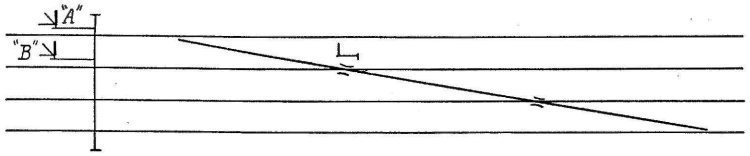
To Be Answered in a Later Issue



Contributions paid for in cash or by a subscription to Railway Signaling

(1) Where color-light type dwarf signals have been installed on a tilt in order for the engineman to see the indication being displayed, certain roads have had trouble with phantom indications, produced by the sun shining on the lens, regardless of the visor to keep away the sunlight. What, in your opinion, is the best procedure to follow out in correcting such a case as this?

(2) Should the clearing of advance signals A or B (either automatic or lever control) be permitted prior to lining of route or



the clearing of dwarf signal governing movements to the advance signal?

(3) At a crossover between two main tracks what arrangement of insulated rail joints and shunt-fouling connections can be used to insure that a light engine using the crossover will not permit signals to clear?

Railroad Grade Crossing Gates

"Where railroad grade crossings are protected by gates set against one line, with stop boards 200 ft. from the crossing, and home signals, controlled through the gates, are provided for the other line, what should be the maximum permissible speed for trains running the crossing?"

Unfavorable Physical Conditions

I. A. Uhr
Signal Engineer, St. Louis-San Francisco, Springfield, Mo.

I am assuming the gate is not approach locked, the physical conditions are unfavorable, and the view is obstructed by weather conditions. I would then propose a rule as follows:

"Approach the home signal prepared to stop. If signal is clear, then proceed over the crossing not to exceed maximum speed which track conditions will permit."

Under such an arrangement as provided for protection at a railway grade crossing, I do not believe that it would be advisable to state the miles per hour that a train could run over the crossing.

20 M. P. H.

H. H. Orr
Supt. Signals & Telegraph, C. & E. I., Danville, Ill.

My feeling is that under ordinary conditions the maximum speed for trains approaching the crossing on the superior line should be 20 m.p.h., effective sufficient distance from the home signal to permit the train to be brought to a full stop at the home signal if that signal indicates "stop." Additional protection, if justified, can be provided through a time element at the gate and through the use of distant signals on the superior line.

Depends upon Protection Provided

P. M. Gault
Signal Engineer, Missouri Pacific, St. Louis, Mo.

When a crossing is gated, and home signals, controlled through the gate, are provided for the line in whose favor the crossing is gated, the speed at which trains are permitted to run the crossing will depend on a number of things. If home signals merely in-

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dicate the position of the gate, trains should be required to approach the crossing at restricted speed, because the gate can be moved at any time to block the line which is normally clear.

There are a number of crossings protected by gates where home signals, distant signals, and approach locking have been provided, so that the gate cannot be moved, after a train is on the approach circuit to the distant signal, without operating a time element or release. An installation of this kind might be called a half automatic interlocking, because for one road it does all that an automatic plant would do. With an installation of this kind, the maximum permissible speed should be determined in the same manner as for an interlocking plant, either manual or automatic. If the signals are properly located, to my mind, no special restriction is required.

Switch Protection in Automatic Territory

"For the protection of facing-point main-line switches in automatic block territory, do you arrange the circuits in connection with the switch circuit controller to shunt the track and break the line control circuit, or only to shunt the track? Why?"

Special Relay

E. P. WEATHERBY
Signal Engineer, Texas & Pacific, Dallas, Tex.

Our standard for the protection of facing-point, main-line switches in automatic block signal territory, is to arrange our circuits so that the switch circuit controller shunts out the track circuits only. Where signals are used to operate trains by signal indications, without train orders, we break the line control circuit, in addition to shunting the track. To avoid carrying our line control circuits under the ground, we put in a special relay, controlled through the switch circuit controller, and break the line control circuits through the contacts of this relay.

Multiple Shunt Wires

W. J. ECK
Asst. to Vice-President, Southern Washington, D. C.

It is our practice to shunt the track for both facing and trailing point switches on double track. We use two wires to each rail and multiple contacts in the switch circuit controller and are of the opinion that the protection afforded is equal to that where line break control is used, as it obviates the possibility of grounding the line wires by lightning or otherwise, due to their proximity to the earth at such breaks.

On single track in APB territory, either the shunt or line break connections are used, depending upon the requirements of the signal circuit arrangements. Between passing tracks where stick or directional relays are used, we use line break. Where these relays are not used, such as between the absolute signals at the outgoing end of passing tracks in the vicinity of stations, etc., we use shunt protection.

Shunt Not Adequate for Facing-Point Movements

J. A. JOHNSON
Supt. Tel. & Sig., Missouri-Kansas-Texas, Denison, Tex.

We use a shunt on all of our switch circuit controllers, and, as an added safeguard, we break the line control circuits of facing-point signals through the contacts of the switch circuit controller.

We feel that a shunt only, for facing-point movements, is not adequate protection, for the reason that, if a shunt wire is broken or becomes defective from any cause, it then fails to shunt the track circuit, when a switch point is opened. In that event, with the signal controls broken through the contacts of the switch circuit controller, the line circuit would be open, causing the signal to display a proper "Stop" indication.

Depends on Type of Signaling

OTTO M. JENSEN
Office Engineer, C. M. St. P. & P., Milwaukee, Wis.

The standard practice on the Milwaukee for wiring of switch circuit controllers on facing-point switches in automatic block signal territory is as follows:

1. In d-c. track-circuit territory: Track shunts only.

2. (a) In a-c. track-circuit, steam-operated territory: Track shunt and selection of "H" control wire.

(b) In a-c. track-circuit, steam-operated, continuous cab signal territory: Track shunts and selection of loop circuit.

3. In a-c. electric-propulsion territory: Selection of "H" control wire —no shunts.

The method of shunt wiring consists of using multiple conductor No. 9 solid track cable to each rail. These conductors are so placed along one of the ties that inspection may readily be made. Results obtained from this type of construction, and maintenance over a period of years, has demonstrated that in d-c. track-circuit territory we have been justified in depending solely upon the shunts for protection and eliminating the selection of the "H" control wire in such territory.

In a-c. track-circuit, steam-operated, non-cab-signal territory we have found it necessary to continue selection of the "H" wire, since many of the track circuits are over 8,000 ft. in length, and it requires a very low resistance to fully shunt the track circuit under certain conditions. In cab-signal territory the selection of the loop circuit assures a positive check on the cab-signal control relay, and provides a means for reconnecting the loop circuit to rail in case a switch is thrown after the train has passed it.

In electric-propulsion territory, shunt wiring is not practicable, so that the selection of the "H" control wire is required on all switches.

Shunt and Break the Track Circuit

G. A. RODGER
Signal Engineer, Wabash, Decatur, Ill.

On the Wabash, the practice on our modern automatic signaling territory is to provide switch-position protection by not only shunting the track relay, but also by opening the track circuit, this result being effected by contacts in one switch circuit controller connected to the closed point.

On our latest automatic block signaling on single-track territory each set of head-block signals is located about 10 ft. from a passing track switch. With this arrangement it is very practicable to not only shunt the track relay with the switch circuit controller, but also to break the track connections to the relay through contacts in this controller. No extra insulated joint is required because the cable leads between the switch box and the instrument case are very short. In some instances, it is practicable to locate an intermediate signal or track cut location near an

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