

that would pass through this circuit.

If the series method is not feasible, the use of a push-button operated indicator connected as shown in the sketch will eliminate a continuous false clear indication of the signal. Should protection against the possibility of a push-button sticking closed (thereby making a false clear possible) be desired, a half-wave rectifier

placed in series in either connection to the indicator will solve the problem.

The normal operating current for the indicator flows through the indicator to common. By using the half-wave rectifier to permit only this current direction, the flow of current causing a false clear, which is in the opposite direction, will be prevented.

Approach Locking on Dwarf Signals

"At interlocking plants where electric locking is installed, is it your practice to approach lock the dwarf signals so that these signals cannot be taken away from an approaching train without operating the time release, i.e., does clearing the dwarf signal break down the stick relay controlling the lock circuits?"

Depends on Location

S. W. LAW

Signal Engineer, Northern Pacific,
St. Paul, Minn.

At standard interlocking plants on the Northern Pacific, dwarf signals display only two indications, stop, when the arm is horizontal with red light displayed, and proceed at slow speed prepared to stop, when the arm is cleared to the 45-deg. upper-quadrant position with a yellow light displayed. These slow-speed signals do not have approach locking or break down the stick relay controlling the electric lock circuits.

At automatic interlockings, or electrically-operated automatic switches at the ends of double track, low color-light dwarf signals are used. These slow-speed signals also operate in two positions. When a train on a route governed by one of these signals enters the approach track circuit, the signal is cleared, and the stick relay circuit de-energized so that the route cannot be changed until after the signal has assumed the stop position and the time-element relay run down.

Describes Circuits

C. ROBISON

Signal Wireman, Canadian Pacific,
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The circuit shown in Fig. 1 is used as indicating route stick locking on an interlocking in Canada. The original Saxby and Farmer mechanical signal levers have been equipped with tail lever circuit controllers, and Saco electric lever locks. With this equipment they are used to control search-

light signals. The lever locks as installed on these levers prevent the final movement of the latch handles in either the normal or reverse positions of the levers, until current energizes the lock coil. Fig. 1 shows the circuit for supplying this current

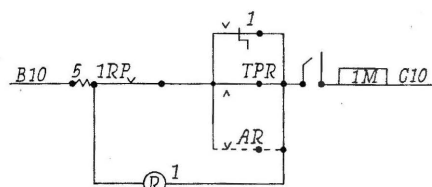


Fig. 1

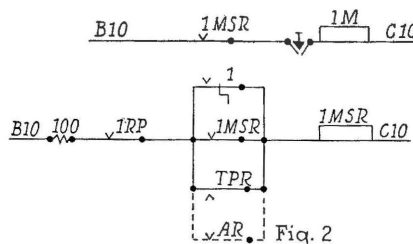


Fig. 2

Diagrams of circuits for approach locking

at the proper times. The time releases are of the clockwork type and are normally wound up. The signal control circuit is made through the normal contacts of the time release. The circuit as shown is used on the dwarf signals of this plant. The high signals use the same lock circuits, but with the addition of the circuit shown in dotted lines. As these signals are approach cleared, the route sticking feature of the circuit is not effective until the approach relay is de-energized. For indication locking, if the signal fails to return to normal, the

signal repeater relay will remain de-energized, and prevent the operation of the lock, which will not permit the latch handle to be dropped under any circumstances, until the seal is broken and the lock armature manipulated by the means provided for emergencies.

The circuit shown in Fig. 2 accomplishes the same as Fig. 1, except that no means is provided for the dropping of the latch handle in the reverse position, as this circuit is provided for the normal position of the lever only. It is understood that the Saco electric lever lock is so operated that it either prevents the initial movement of the lever latch, or the final movement of the same, in either the normal or reverse position of the lever. With other types of electric locks, it is only necessary to prevent the lever returning to the full normal position, as that is all that is really required in either case. Fig. 2 shows how a stick relay would be used to control the lock circuit.

Yes

W. L. DAYTON

Superintendent of Signals, Grand Trunk
Western, Detroit, Mich.

It is the practice of the Grand Trunk Western to approach lock the dwarf signals, as well as the high signals, by causing the dwarf signal lever to break down the stick circuit. The stick relay will energize only through the train accepting the signal and occupying the track, or through the operation of a time release.

A number of reasons have contributed toward this. Rail laying, new ballast, and other causes, frequently result in through movements on the reverse main at an interlocking plant. Furthermore, even though a reverse movement is a slow one, it has been found expedient to place a time interval between the restoration of a signal and the changing of a route against an approaching engine or train. This is equally important where there are no derails, as over-running a signal might cause a collision at the diamond.

No

G. H. CALEY

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Where electric locking is installed, it is not our practice to approach lock the dwarf signals so these signals cannot be taken away from an approaching train without operating the slow release.