

Where the continuous system of automatic train control is installed and is practically an adjunct to a complete system of automatic signals, any failure of the train control apparatus will not seriously delay or affect the train movement as the train control apparatus can be cut out and the movement taken care of with the automatic signals until the terminal is reached where the train control apparatus can again be put in working condition. Without the automatic signals the failure of train control apparatus would naturally affect the movement of this train, as well as all other trains, as it would have to proceed at slow speed until it arrived at a terminal point.

Roanoke, Va.

D. W. RICHARDS,
Signal Engineer, Norfolk & Western.

Efficacy of Cab Signals as Compared With Wayside Signals Can be Demonstrated Only After Many Years' Experience

I DO not believe any of us are as yet in a position to say just what we think about the elimination of wayside signals. We know there must be economy involved. We know that cab signals eliminate all the undesirable features now present in connection with wayside signals. Used in connection with automatic train control where proper speed restrictions are provided there seems to be sufficient safeguards thrown around the observances of the cab indication to insure against the difficulty of making checks. But the real demonstration of the efficacy of cab signals used in connection with automatic train control as compared with wayside signals is something which in my opinion will only be demonstrated after many years' experience.

Topeka, Kan.

THOS. S. STEVENS,
Signal Engineer System, Atchison, Topeka & Santa Fe.

Should Motor Car Operators Watch Signals More Carefully?

"When out on a motor car do you watch the automatic signals on your territory to determine the approach of trains? Are special indicators provided to inform motor car operators when trains are approaching?"

Why Require Enginemen Only to Be Governed by Signal Indications?—Motor Car Operators Can Obtain a Great Deal of Information from Signals

THE Chesapeake & Ohio does not use switch indicators or special indicators of any type to inform motor car operators of the approach of trains.

Having spent the greater part of the last 10 months on a motor car during the construction and inspection periods in connection with the recent 125-mile installation of automatic train control, I have made it a practice to watch the signal indications not only to see that the system is functioning correctly, but also to note the approach of trains. I always watch the signal indication of the signal the motor car is approaching for opposing train movements, and as the Chesapeake & Ohio uses a modified A.P.B. system on single track, the indication given by the absolute signal is of great value when expecting to meet opposing trains.

When passing a signal governing movements in the opposite direction to which the motor car is traveling, I watch the indication of this signal to see if there is a train following close in the rear.

In many instances by governing motor car movements by signal indication we are able to get into a passing

track or a siding and thus let the train pass us rather than having to take the motor car off the rails at a road crossing or on the right of way, when the line up received from the dispatcher indicated that a train was due for a meet with the motor car. Since enginemen are required to operate by signal indication, why should not motor car operators be governed accordingly in addition to operating by the motor car rules?

Richmond, Va.

GEORGE A. WASHBURN,
General Signal Inspector, Chesapeake & Ohio.

Track Forces on the M-K-T Highly Appreciate the Protection Afforded by Automatic Block Signals—Spacing of Signals Is Such That Special Indicators Are Deemed Unnecessary

WHEN out on a motor car in automatic signal territory we are guided almost exclusively by the automatic signals, and we find that trackmen, bridgemen, linemen and inspectors also watch the signal indications very carefully and are governed by them. We have single track territory on this line that is obscured by curves, cuts and timber, and before the signals were installed track forces were required to do a great deal of flagging to get to and from their work. Since the signals were installed they travel safely on motor cars without delay.

We find that various classes of employees who are required to operate motor cars highly appreciate the automatic signals and are interested enough to ask questions relative to the distance that various signals control, this so they will have a clear understanding of the signal indications displayed. We rarely ever have a motor car, hand car, or push car hit by a train in automatic signal territory.

Automatic signals are not installed for the purpose of protecting motor cars and, therefore, we have not gone into the practice of providing special indicators for the use of motor cars only. In fact, signals on this line are so spaced that the installation of such indicators is not necessary.

It is gratifying to feel that the automatic signals are a help to motor car operators and that they take a live interest in the automatic signals.

Denison, Tex.

J. A. JOHNSON,
Signal Engineer, Missouri-Kansas-Texas.

Switch Indicators Convey Useful Information to Train Crews and Motor Car Operators

WE observe the block signals and switch indicators. The switch indicator is mounted on a concrete post at each switch location and is operated in connection with the signal circuits. The indicators serve train crews by informing them of approaching trains. We generally consult the train dispatcher for a line up before we start out and are governed accordingly.

Plattsburg, N. Y.

WM. F. COOK,
Assistant Supervisor of Signals, Delaware & Hudson.

Observance of Signals Desirable as a Check on Their Operation and as a Personal Safety Precaution

AT all times when a maintainer is on the road with his motor car he should watch the wayside signals for two reasons; first to see and check that his signals are functioning properly, and secondly to know of the approach of trains. The value of watching signals as a warning as to the approach of trains is dependent upon whether or not the motor car is running against the current of traffic. When running on single track or on track where the current of traffic is reversible

he should watch the signal indications as a safety precaution. In all cases he should have a copy of the current time table with him and be thoroughly familiar with the movements of all scheduled trains and wherever possible get a train line up from the train dispatcher. Indications to warn the motor car operator of the approach of trains are apt to cause him to put too much reliance on the indicator and slack up on his alertness or watchfulness for approaching trains, motor or hand cars.

Russell, Ky.
 J. D. KEILEY,
 Supervisor of Maintenance, Chesapeake & Ohio.

Motor Car Operators Observe Signals on Big Four

WHEN operating motor cars on the Big Four, automatic signal indications are observed closely, especially on curves or in bad weather, in order to get all protection possible on the approach of trains. We try to get a line up on train movements from the dispatcher when it is possible to do so.

We do not have any special protective apparatus such as indicators.

Cincinnati, Ohio.
 A. M. GILBERT,
 General Signal Inspector, Big Four.

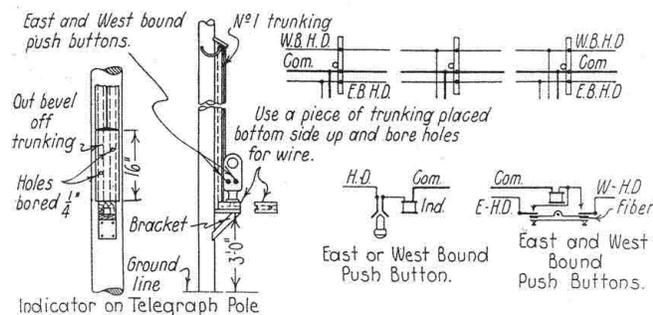
Indicators Not Used on the Wabash

THE Wabash does not furnish any special indicators for the information of signalmen and maintainers operating motor cars in automatic block signal territory. Our signal forces observe the rule of watching the order signals and also obtain information where necessary from telegraph offices relative to the location of trains. In this way they protect themselves against any trouble.

Decatur, Ill.
 H. J. FOALE,
 Signal Engineer, Wabash.

Roadway Maintenance Forces Prefer to Work on Single Track Protected with Automatic Signals Rather Than on Double Track—Special Indicators Provided in Some Territories

IT does not require a very long time after automatic signals are installed on single track before sectionmen, bridgemen, telegraph linemen, and of course signalmen, operate their motor cars entirely on signal indication, and these men would rather work on single track than on double track after signals are installed.



Method of mounting and control wiring of old switch indicators employed to provide roadway forces with signal information

Where there are curves between signal locations and the distance is quite long, we provide indicators between these signals, and in some cases where the distance is great we provide two indicators between signals, which are installed and connected in accordance with the accompanying sketch.

These indicators are old switch indicators removed from territory where we have discontinued the use of switch indicators. They are operated on the open circuit plan and require no battery except when the button on the indicator is pushed, which is just for an instant.

St. Paul, Minn.
 C. A. CHRISTOFFERSON,
 Signal Engineer, Northern Pacific.

Semaphore Signals Convey Dependable Information to Motor Car Operators

THE Union Switch & Signal Company's Style-B signals are used on this road. They are an advantage to motor car operators while approaching or after passing them. If a train is running late I depend a great deal on signal indications. The semaphore style of signal has an advantage over the color-light signal in that you can look back when you have passed a signal and see if it is in the clear position. I have only two bad curves on my district and they are protected with indicators which are a great help to me.

Roseburg, Ore.
 JOHN B. SEUFERT,
 Signal Maintainer, Southern Pacific.

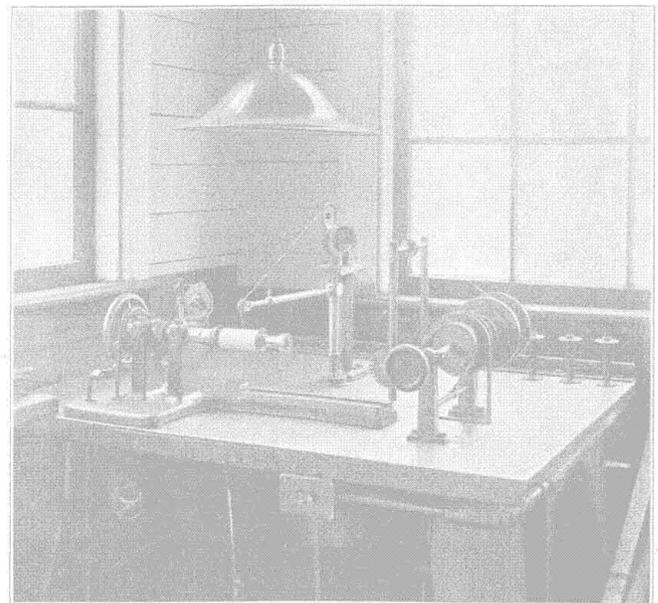
Is It Economical to Rewind Coils for Signal Work?

"Do you rewind your own relay and slot coils? What kind of a coil winding machine do you use?"

Erie Signal Shop at Meadville, Pa., Uses a Home-Made Coil Winding Machine with Mechanical Guide Arm

IT has been my experience that it is more economical to wind coils for relays, slots, electric locks, pole changers, indication mechanisms, and transformers in our signal repair shop than it is to purchase ready wound coils. This is chiefly because the old coil wire and other material can be used over again. As a rule a small stock of coils is made up for immediate delivery in case of emergency. In some cases special coils have to be made up for particular instruments on short notice. New magnet wire is used in repairing some coils. About 1,000 to 1,300 coils are rewound annually at a saving which is estimated to be about 70 per cent of the cost of manufactured coils.

Our coil winding machine is home made and has



Coil winder in Erie signal shop at Meadville, Pa.