

# Are Switch Lamps Needed?

*"Are switch lamps essential in automatic block signal territory?"*

## A. C. L. Eliminated Switch Lamps in 1914

C. J. Kelloway

Superintendent of Signals, Atlantic Coast Line, Wilmington, N. C.

Switch lights are of no value in automatic signal territory, and in some cases they even constitute a hazard. Our reasons for this opinion are: (1) Switches in main track are so connected that the automatic signals governing movements over them will assume the most restrictive indication when the switches are not set for safe movement of trains. (2) A switch could, for various reasons, be unsafe, and still the switch light could indicate that the switch is properly set. (3) A switch light could be mistaken for a clear signal, when the automatic signal light is out. (4) Switch lights serve no practical purpose in switching movements, as the engineman is governed by the signals of the train crew.

The elimination of switch lamps in automatic block signal territory on the Atlantic Coast Line was approved and accomplished in November, 1914, and an interesting fact is that there has not been a complaint or criticism from a trainman or an operating officer, nor has there been a request for reinstallation of a switch lamp since they were removed. At the present time, there are approximately 1,000 switches in automatic block signal territory on this railroad, and we estimate a saving of \$20,000 a year on these by reason of the absence of the switch lamps.

## Not Used, Except When There Is Considerable Switching at Night

W. J. Eck

Assistant to Vice-President, Southern, Washington, D. C.

Our experience and belief is that switch lights are not necessary in automatic block signal territory on any trailing-point switches, nor on facing-point switches that are located within 500 ft. in advance of the signal, unless there is considerable switching at night over the switch. On main-line movements the indication of the signal is a much better indication of the position of the switch points, than is the switch light. The Southern has not used switch lights in automatic block territory for about 20 years, except where desirable to facilitate switching, and the practice has been found entirely satisfactory. This practice is covered by the following rule: "Unless otherwise provided, in automatic signal territory, lights will not be maintained on trailing-point switches, nor on facing-point switches which are not more than 500 ft. beyond the signal."

## Considers Switch Lamps Not Essential

F. B. Wiegand

Signal Engineer, New York Central, Cleveland, Ohio

Automatic block signals are installed to facilitate train movements. To do this they must convey all information necessary for the purpose, such as: block clear, switches properly set, stop at next signal, stop at second signal, pass next signal at restricted speed, proceed at slow speed, and so forth. Switch lamps repeat intermittently only one of the many indications given by the block signals. The other indications so given are not intermittently repeated throughout the block—and there is no

reason why they should be. Therefore, in my opinion switch lamps in automatic block territory are not needed.

## Eliminated Nearly All Main-Line Switch Lamps

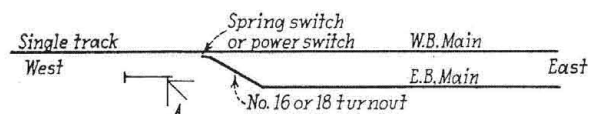
W. H. Stilwell

Signal Engineer, Louisville & Nashville, Louisville, Ky.

As I understand the question, it should pertain to lamps on main-line switches only. The Louisville & Nashville, on May 1, 1930, discontinued the use of switch lamps as follows: (a) On double main-track trailing-point switches where automatic block signals are in service. (b) On all main-track switches where automatic-block signals are in service, provided the switch is located within 250 ft. of the protecting signal. (c) On all main-track switches in territory where automatic train control or train stop of the continuous type, with locomotive cab signals, is in service. This, of course, has resulted in the elimination of nearly all the main-line switch lamps in our automatic-signal territory. The practice has worked out very satisfactorily and substantial savings have been effected. This is a practical demonstration of what can be done in this regard.

## Signal or Rule?

*"What indication should be given by signal A (see diagram) to an eastbound train running from the single track through the turnout to the eastward main of the double track. That is, should the regular high-speed indi-*



*cation be given, dependence being placed upon operating rules for the proper restriction of speed through the crossing? Or must a Caution indication be displayed, in order to insure proper operation through the turnout?"*

## Signaling to Conform With Interlocking Rules

R. A. Sheets

Signal and Electrical Engineer, Chicago & North Western, Chicago

If the junction between single track and double track is equipped with a power-operated switch, it is my opinion that interlocking rules would apply, and that the signaling would necessarily conform with interlocking practice. In such a case, signal A would be a standard interlocking home signal with one high arm, and a call-on arm or a dwarf signal. The high arm would govern train movements to the eastbound main of the double track and the low-speed arm probably would govern movements to either the eastbound or the westbound main, depending upon the position of the switch. Assuming that this is route signaling, and not speed signaling, I cannot see, in this instance, any necessity of trying to convey by signal indication the information that the high arm governs over the turnout to the eastbound main. The high arm should indicate primarily that the main-track route was properly set up, and that the block was clear. Any speed restriction that would be required by reason of the turnout should be a matter of time-card instruction applying at that particular interlocking plant.

Assuming that the junction was equipped with a spring switch with the switch set normally for movements from the single track to the eastward main, and that the switch would be trailed through by trains operating from the westward main to the single track, I cannot see that signal A, when clear, should indicate anything except

that the switch is properly set for an eastward train movement, and that the block is clear. In such an instance, signal *A* could only be classed as an automatic block signal and would give only the same information that is given by any automatic block signal. Any speed restriction that might be required by reason of the turnout would have to be a time-card matter. With a spring switch and trains operating against it in the facing direction, it is presumed that, unless some special locking device is employed, there would necessarily be a speed restriction, and at best the only information that I believe could with propriety be added to the signal indication, would be some sort of an indicator or marker on the signal to designate that the signal protected train movements over a spring switch.

## Two-Arm Signal If Switch Is Power-Operated

L. S. Werthmuller

Assistant Engineer, Missouri Pacific, St. Louis, Mo

If the switch were power-operated, I would say that signal *A* should be a two-arm signal. If the switch were spring-operated, the point, of course, should normally be lined for the eastbound main. As to the indication, signal *A* should indicate Proceed when the switch is lined for the eastbound main. If the switch points are not fitting properly or are open for the westbound main, the signal should indicate Stop. A caution indication would not be proper unless such an indication was displayed as the result of a signal indicating Stop on the double track. A caution indication displayed solely on account of the turnout would not be justified, because it would compel the train to proceed at a speed not to exceed one-half the maximum authorized at the point involved (not exceeding 30 m.p.h.), prepared to stop at the next signal.

There are rules, other than automatic-block-signal rules, which govern the movement of trains through the turnout, and I do not think the signal system should be used to impose this restriction. You can readily see that at no time would signal *A* indicate "Proceed" if caution was displayed when the line-up is for the eastbound main.

## Medium-Speed Indication

B. W. Molis

Signal Engineer, Denver & Rio Grande Western, Denver, Colo.

In order to forewarn an approaching train regarding the conditions referred to in the question, the aspect shown in Fig. A, Rule 283, of the Standard Code, should be used. The indication of this aspect is: "Proceed at not exceeding medium speed" (medium speed having been defined in m.p.h.). The top unit of this signal is fixed. If the conditions do not warrant speed-signaling protection, suitable preliminary roadway fixed signs should be used.

## Signal Indication Should Be Consistent With Operating Rule

Charles W. Bell

Engineer, Union Switch & Signal Co., Swissvale, Pa.

The question infers, and it is logical to expect, that an operating rule governs the speed of train movements through the turnout from the single track to the eastward main. In instances wherein not only the rules but also the signal aspects operate to govern specific train

movements, it is desirable that there exist between the two the greatest possible consistency. In the case in question, the operating rule will restrict train movements to "slow speed," and the signal aspect, to be consistent, should do likewise. Common practice dictates that signal *A* should be equipped with an additional arm, placed below the existing arm, and arranged to display a "caution" or "slow-speed" aspect for movements through the turnout. It seems that in this particular case, a working top arm has no real value, and therefore this arm should be an inoperative one; the "slow-speed" aspect being used to govern those few movements against the current of traffic on the westward main which will from time to time be made.

## No High-Speed Indication Through Turnout

Oscar E. Miller

A high-speed indication should never be given through a turnout. The proper signal for this movement is a clear medium signal, whose indication is: "Proceed at not exceeding medium speed." (See Fig. 23, American



Signal indication proposed for the given conditions

Railway Signaling Principles and Practices, Chapter Two, Symbols, Aspects and Indications). Furthermore, the engineman should be warned that this condition exists before he arrives at the switch. Therefore, it is necessary that he be given an indication at the approach signal which notifies him that the switch is set for the turnout. This can best be done by displaying an approach medium signal indicating: "Approach next signal at not exceeding medium speed."

A. H. Rice, signal engineer of the Delaware & Hudson, states that where the turnout is long enough to permit trains to run through it at normal speed, a restricted indication should be displayed at signal *A* for the movement in question.

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## Signaling in Great Britain

(Continued from page 36)

and Repton and Willington, on the main line between Derby and Birmingham.

On the LMS the "speed signal" has made its first appearance in England. These, also, are search-light signals, assembled in groups of three, one above the other. The top unit controls "high-speed" movements, the center one, "medium speed," and the lower, "low speed." Thus enginemen are informed not only the condition of the line ahead, but at what speed and upon which route they are to travel. The new signals have been installed for a distance of 2½ miles at Mirfield, Yorkshire, where a widening scheme is being carried out.

Two other schemes deserve mention. At King's Cross an all-electric 232-lever interlocking has supplanted two mechanical plants, and 144 new electric signals—63 of which will be of the color-light type—will take the place of the semaphore signals. The other scheme, now completed, is the substitution of color-light signals for semaphores on the L. N. E. R. suburban line between Finsbury Park and Highgate. Most of these signals are entirely automatic, and it has been possible to abolish four signal towers, at the same time increasing the capacity of the line.