

Speed-Signaling in England*

Searchlight signals installed on the London-Midland Scottish
Three- four- and five-aspect signals are used

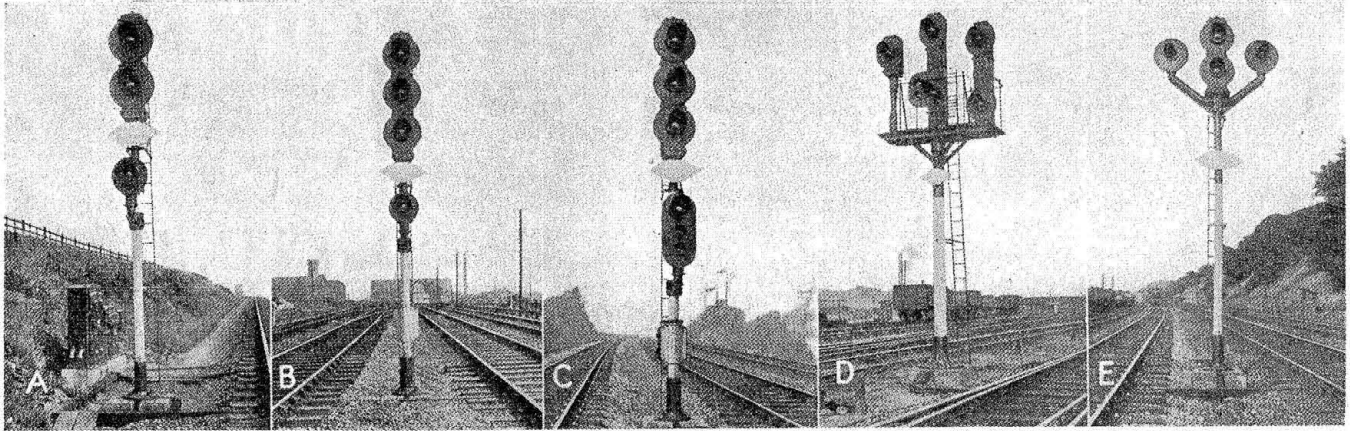


Fig. 3—Typical signals in the new installation

AN INSTALLATION of color-light signaling which constitutes one of the most important developments in British railway signaling was brought into service last summer. This searchlight color-light system is now in operation at Mirfield, between Heaton Lodge Junction and Thornhill L. and N. W. Junction—a distance of $2\frac{3}{4}$ miles—on the London-Midland-Scottish main line northeast of Huddersfield.

The new signaling installation was not intended primarily as a means of economizing in the number of cabins, although this feature was carefully considered, having regard to the work to be performed. On the other hand, with its complicated junction operation and increased traffic movement following the laying of additional tracks, it was regarded as a favorable location for the application of the principles of speed signaling.

From Heaton Lodge Junction to Thornhill and N. W. Junction, i. e., throughout the color-light area, all the tracks have been track circuited. In view of the multiplicity of junctions, block signaling has been retained between cabins, the standard L. M. S. "Class-C" type being employed. This interlocks with the relative signal levers, but in this instance is free of track circuit control, as the latter is continuous and itself exercises a direct control on the various signals. The signals are controlled from the respective signal cabins.

The opportunity has been taken to introduce "speed" signals in the numerous instances where trains can be diverted on to alternative tracks following the same alinement as the main track. This is in contradistinction to "route signaling," the aim being not so much to indicate to the driver the route he is to take, as to show the relative speed at which he is to travel over it, and this latter indication is given by the relative position of the "proceed" aspect on the signal mast.

Multi-Aspect Signaling

Three-, four- and five-aspect signals are employed in this installation, their use depending upon the spacing

of the signal ahead and the braking distance required. Each signal, other than those at junctions, normally displays two red lights—one 12 ft. and the other 8 ft. above rail level. The upper light is a multiple-aspect color-light signal of the searchlight type, capable of displaying a red, yellow or green light; the lower light is the marker (See Fig. 1 and 3A). The lower light indicates to an engineman that he is in a multiple-aspect signaling area; this light can also be used as a low-speed signal. These marker lights are placed vertically below the top light, except in the case of automatic signals, where they are placed 10 in. to the left of the vertical, giving a staggered effect. Except when used in connection with junction "speed" signals, the marker light is extinguished when the color-light signal above it is changed to green, but, when the latter is changed to yellow, the marker light remains lighted.

This appears to be an eminently logical and satisfactory arrangement, because the extinguishing of the marker when the main signal shows green obviates the possibility of an engineman interpreting green/red for "home off, distant on" as in mechanical practice. Also, observation shows that the use of the red in conjunction with yellow is very valuable in helping an engineman correctly to distinguish the latter, while the two in combination are most arresting as a cautionary signal. Moreover, wherever a signal may be situated and whatever its type, so long as it is showing green alone the driver knows he has a clear road, without any qualifications.

Junction Speed Signals

At a junction the arrangement of signal aspects is as follows: Where permissible speeds over alternative routes vary by 20 or more miles per hour, the aspects are given by vertical instead of horizontal displacement, as in Fig. 1, 3B and 3C. Normally three red lights are displayed vertically on each junction signal mast. The top light is for the high-speed route; the center light is for the medium-speed route; and the bottom light is for the low-speed route. High speed is the highest per-

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