EDITORIAL COMMENT

Special Aspects for Detectors

As a general rule, the number of signal aspects used on a railroad should be kept to an absolute minimum in order to eliminate confusion on the part of enginemen, and, furthermore, the use of special aspects, which may be encountered infrequently, should be avoided. Keeping these basic principles in mind, signal engineers have serious problems to meet in conveying information to enginemen concerning hazards detected by special equipment such as rock slide fences, or detectors for checking dragging equipment, bridge alinement, water level in streams, and fire in tunnels or on wooden trestles. These devices can be arranged to affect the regular control circuits of existing interlocking and automatic block signals. As a general rule it is neither necessary nor desirable for an engineman to know why a signal displays a stop aspect, but this rule cannot be applied with reference to signals controlled by special detectors, because in such instance it is desirable that an engineman know why his train is stopped, so that action can be taken accordingly. For example, when a dragging equipment detector is operated, the train must be inspected. When a rock slide fence operates, the train should stop and then proceed with caution to the location where the track must be inspected, in addition to removing any obstructions.

Location of Hazard Known

Referring first to signals controlled by rock slide fences, bridge and fire detectors. By placing a special marker plate on the masts of such signals, the enginemen know that, when displaying the most restrictive aspect, these signals may be indicating that a special protective device has been operated. The use of such markers and rules in connection therewith were thoroughly explained in previous articles as, for example, in the March issue, and it would seem that such arrangements are satisfactory without the use of additional operative signal units or aspects. Thus, with reference to the use of these types of detectors to indicate the existence of a hazard at a particular location, the use of markers seems to solve the special aspect problem.

The problem is not, however, so readily solved with reference to signals used in connection with dragging equipment detectors. On the Pennsylvania, where dragging equipment detectors are used in cab signaling territory, the detectors are located a train length, plus an allowance for braking, totaling about 9,000 ft., in approach to the home signal of an interlocking. If defective equipment on a train operates the detector, the home signal aspect is changed to "approach" if it had been at "clear," and the aspect of the cab signal is changed from "clear" to "caution slow speed." This unusual combination informs an engineman that something is wrong with the train and that he should stop it as soon as proper handling will permit. In non-cab signal territory, the detectors are located about 7,000 ft. in approach to the distant signal for an interlocking, and, if operated, the home signal displays "stop" and the distant signal "caution." On arrival at the home signal the towerman informs the engineman why the signal is displaying stop and then the train is inspected.

Special Aspect Used

On the Missouri Pacific, where cab signaling is not in service, dragging equipment detectors are used in the approach to ends of double track leading to single track over important bridges, a special point being that the interlocking signals are controlled remotely. In order to inform the engineman at once of the circumstances involved, the Missouri Pacific provides a special control arrangement which causes the regular interlocking home signal aspect to change from green to yellow, if it had been displaying green, and also to cause an auxiliary red light unit below the main signal to flash. When this aspect is displayed, the route through the interlocking is complete, and equipment is dragging on the train. Under these circumstances sufficient space is available to bring the train to a stop as soon as practicable by use of a service application of the brakes rather than using the emergency application, which might cause the train to buckle. An important added advantage of this arrangement is that the detectors can be located closer to the interlocking or bridge to be protected, thus affording additional protection. By thus shortening the control, complications in other track layouts or interlocking may, in some instances, be avoided. Granting that this arrangement requires the use of a special new aspect, the advantages seem to offset the objections.