

Editorial Comment

Signaling of Main Tracks Through Yards

WHEN making installations of automatic signals on complete divisions, some roads prefer to skip the signaling of the sections of the main line through large yards for the reason that most train movements are slow and if signals are installed, switching movements would be so frequent as to stop too many through trains. Such territories are usually considered as within yard limits and trains are operated and protected accordingly. On the other hand many roads prefer to provide signals through the yards, on the ground that main-line trains are operated at high speeds through such sections and adequate signaling must be provided to protect all main-line switches leading to yards or industrial tracks from which movements are frequently made. As a result a considerable number of signals are sometimes required to arrange the blocks so as to permit main-line trains to keep moving up to the point actually occupied and also to permit switching for the maximum amount of time without stopping main line trains. With highly competitive schedules for through passenger and freight traffic, an engineman on a train running late is forced to take chances when within these sometimes extensive "yard limits," and unless proper signaling is provided, accidents are likely to occur as is only too evident from the accident reports.

Reporting False Clear Indications

ONE of the most important objectives of signal maintenance is to prevent false clear signal indications and when such condition exists, to locate the trouble as quickly as possible, determine the cause and correct the defect. During the last few years the efficiency of signal maintenance has increased to such a degree of perfection that false-clear failures are rare, most roads having from 2,000,000 to 15,000,000 or more signal operations per false-clear failure.

To illustrate, on the St. Louis-San Francisco, with 884 miles of road equipped with automatic block semaphore signals false-clear failures occur as infrequently as about once in eight to twelve million signal operations. On this road signal operations are calculated on the number of through trains dispatched. Therefore, the total figure for signal operations represents only complete movements of a signal blade from 0 to 90 deg. and eliminates duplicate operations caused by switching and the testing of switches or other equipment.

In case of a false-clear failure, the signal supervisor makes a complete investigation and interviews the engine and train crews of the trains which were in the vicinity of the signal at the time the false indication was noted. In some cases the signal department has been unable to locate any false-clear indication. The matter of locating train crews for questioning, often requires several days or a week's time on the part of the supervisor. Quite often the train or engine crews are not certain which signal they saw falsely clear and on further questioning become decidedly indefinite, which in a few cases resulted in the conclusion that some one was "kidding" the signal forces.

For the purpose of impressing all concerned with the seriousness of false signal indications and of determining the exact conditions at once on the ground, a new

rule has been placed in the book of rules for the operating department reading as follows:

"Should an improper 'proceed' indication be observed, it must be regarded as a 'stop' signal and a flagman left at the signal to notify following trains until relieved by a signal department employee, or by instructions from the trainmaster."

In view of the fact that the number of actual clear failures never exceeds three or four a year for the system, the observance of this new rule will not interfere with train operation by requiring the one trainman to stay at the signal noted. This trainman will afford protection against following trains and will be on hand to assist in explaining conditions for the benefit of those trying to duplicate the circumstances that resulted in a false-clear. The problem can thus be settled at once to the satisfaction of the signal and the operating departments.

A Separate Pole Line for Signal Circuits?

RATHER than construct a separate pole line for signal line control circuits, many roads have preferred to place one or more crossarms on the existing communication pole line. Numerous other roads, however, have for years followed an established practice of constructing a separate pole line for signal line control circuits in order to eliminate any chance of interference from broken wires, crosses with other circuits or grounds, which are likely to occur where signal control wires are placed on pole lines used jointly with communication circuits.

Evidently there are advantages for each type of construction. If the existing communication pole line is in good condition and there is plenty of room for another crossarm without providing new and higher poles at all the road crossings it would appear to be the logical thing merely to add an arm for the signal control wires instead of constructing a separate line. However, all circumstances should be considered in each case before arriving at such a conclusion. On a proposed installation of d-c. signaling with no line circuit over 10 volts, it was estimated by the commercial telegraph company that if an extra crossarm was to be applied for the signal wires, the line would first have to be repaired at a cost of \$600 per mile. On another road the telegraph company declared that a Class-C pole line would be adequate for its needs but that a Class-A construction would be necessary if the signal crossarm was to be added and the signal department would then be charged for the difference in the costs of the two types of construction. Regardless of whether the pole line is rebuilt at the time the signal arm is added, the signal department at least must pay the expense of any new poles required at road crossings to secure proper clearance. The cost of additional guying and anchors, plus overhead to cover engineering, supervision and inspection of construction, is usually entered on the bill.

Taking all of these conditions into consideration more and more of the roads are building their own signal pole lines and are securing this advantage at a cost of from \$275 to \$300 a mile over the joint arrangement in some cases. With 25 ft. Class-C poles, creosoted full length, set 40 to the mile, several roads have recently constructed pole lines for single-track signaling