

# New Single Track Signals on the Lake Shore

## Describing the Recently Completed Installation Which Is the First of Its Kind on the Road

The Lake Shore & Michigan Southern put in service at seven o'clock on the morning of Saturday, November 23, 1912, automatic block signals on the single track between White Pigeon, Mich., and the interlocking plant at Elkhart, Ind., a distance of about 20 miles. The signals operate in three positions in the upper quadrant, and they comprise the first single track automatic block signaling which has been done by the Lake Shore.

The automatic signals between stations and at all entrance ends of passing sidings are of the permissive type with pointed-

expecting to find a train, an open switch, a broken rail, or some other obstruction in the block, except when train is proceeding under protection of flag from last absolute signal, as provided in rule 510-A.

(Rule 510.) A home semaphore arm having a square end is called an "absolute arm," and when in the "stop" position it indicates that the stop must be made at or before reaching the signal, and that it must not be passed while in the "stop" position without authority to do so either by special order, caution or clearance card.

(Rule 510-A.) On single track the stop must be made not less than 300 feet before reaching the absolute block signal, so as to clear the passing siding. If unable to communicate with dispatcher by telephone (where operator is not on duty) to secure

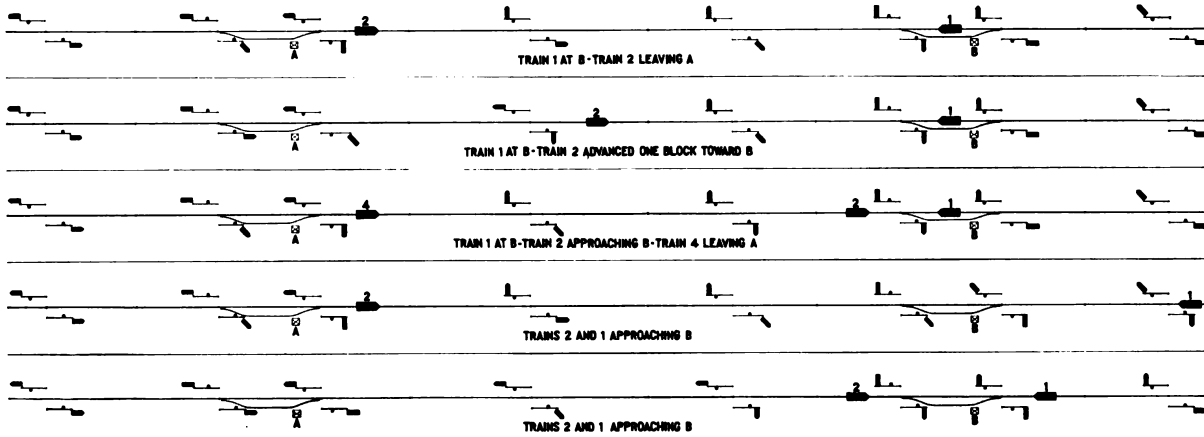


Diagram Showing the Operation of the Single Track Automatic Block Signals.

end blades, and at night a red marker light diagonally seven feet below the light indicating the position of the semaphore arm. The block signal located just beyond the leaving end of each passing siding is of the absolute type, with a square-end blade, and a night displays a marker light vertically 13 ft. below the signal light.

The signal arrangements shown in the diagram are typical of the layouts at the meeting points within the installation. These meeting points are three in number, Morehous, Bristol and Vistula. The train order signals formerly in use at Bristol and Vistula were taken out of service. Orders for eastbound trains, i. e., proceeding toward White Pigeon, are indicated at these stations by the absolute block signals just beyond the east ends of the passing sidings. Orders for the westbound movements are indicated by upper quadrant train order signals, which are located about 200 feet west of the station, and at the right of the main track. The handling of trains is facilitated by the location of a telephone at each absolute block signal. Each telephone is connected to the dispatcher's circuit so that communication with him may be had from all of the absolute signals—with the single exception of the eastbound signal at the east end of the siding at Bristol, which is a continuously open telegraph office.

The first westbound signal on the new installation is located about 250 feet east of the White Pigeon station, and the last eastbound signal is located just west of the Grand Rapids branch "Y" connecting switch at West Pigeon.

The diagram shows the operation of the new system under five typical conditions.

The following automatic block signal rules cover this installation:

(Rule 509.) When any permissive signal on double track indicates "Stop," trains or engines must stop at or before reaching the signal, and after having stopped, may proceed with caution expecting to find a train, an open switch, a broken rail, or some other obstruction in the block.

(Rule 509-A.) When any permissive signal on single track indicates "Stop," trains or engines must stop at or before reaching the signal, and after having stopped, may proceed with caution,

authority to pass the signal, the train or engine may proceed under protection of flag to next block signal in proceed or caution position.

## NORTHERN PACIFIC'S NEW FORM FOR REPORTING SIGNAL PERFORMANCES.

The Northern Pacific's new form for reporting the performances of automatic block signals is reproduced on page 427. This form is the result of a thorough study of methods of keeping track of signal performances by C. A. Christofferson, signal engineer of the road. The form is on a sheet 8 in. x 13 in. in size.

It is noticeable that the word "failure" is not used, and that there is, therefore, no chance for any classification which calls every train stop a failure no matter what might have been its cause until the signal department is able to clear itself by proving that it wasn't a failure. The term "train stops" is used instead of the objectionable expression "failures," and the train stops are classified under different headings, the first being those creditable to the signal system and the second those chargeable to the track, the motive power, the store and signal departments, and those due to uncontrollable causes. The order in which these causes are listed is such that those which are chargeable to the signal department are in position to be most easily seen, so that comparisons of their number with those chargeable to the other causes listed is a simple matter.

The signals are put in to safeguard the movements of trains. It is, of course, expected that there will be some failures of the apparatus under certain conditions, and when the signals do fail, it is, of course, up to the maintainer to get the signal in working order as quickly as possible.

In making out the report the number of the signal is placed in column 2. If a signal has failed to clear and is found in that condition before a train has been stopped, a zero mark or cross is put in the proper cause column opposite the signal num-