



EVOLUTION OF THE AUTOMATIC FLAG-

MAN

ON THE P. E. RAILWAY SYSTEM

Taken from Electric Railway Journal - (1917-18)

The Company, in doing its part to protect human life at grade crossings, installed at various highway crossings on the system approximately two hundred automatic flagmen. The average installation cost is from \$300.00 to \$350.00, making an investment out \$70,000.00 for this one item of improvement.

The first mechanical flagman was developed in the Company's own signal shop in 1910. This was a motor driven bell type. Later this device was taken over by an outside company and further developed for operation under type known as magnetic operation; a decided improvement.

During the year 1916, for a period of six months there were only one hundred and eighty-five failures detected. And during the same year for the twelve months period the cost of maintenance of one automatic flagman, including labor and material, was approximately \$6.00 per month. From the service given by these devices particularly on the four-track lines it is noticeable that the failures for twelve months are exceptionally few.

Further performance of the automatic flagman from January 1st, 1917, to July 1st, 1917 is as shown below:

Total failures for 6 months.....165
 Average number of failures per mo...27.5
 Total signals in use July 1, 1917... 201

Average failure per month per
signal.....0.136

Automatic flagmen are distributed
by divisions as follows:

Northern.....40
Southern.....80
Eastern.....31
Western..... 41

The percentage of failures has been reduced' from 0.165 failures per month for the year 1916, to 0.136 failures per signal per month for the first six months of 1917, thereby indicating operation of one signal 7.4 months be-fore having a single failure, while during' the year 1916, signal would operate 6.1 month without failure, thus showing a gain in efficiency of about 18%.

The control system for operation of flagmen consists of trolley brush contactors, and high tension walking beam relay apparatus. Contactor trouble is the cause of 25% of the failures detected. It is the intention to overcome these failures by the introduction of a track instrument or contactor to supplant the present over-head trolley contactor used.

The figures above given cover all trouble reports on automatic flagman, including semi-failures, such as bell not ringing but flagman operating, or lights out but gong and flagman operating, which latter failures will give danger indications to street traffic on approach of train. The true efficiency of the automatic flagman for its protection to vehicular traffic at grade crossings depends largely on the number of absolute failures, that in instances where the approaching train does not show any indication of danger to vehicular traffic on approach of a train.

For the first six months of the year 1917, the absolute failures per month were 0.0646 percent that is the signals w ill operate 15.4 months on an average without an absolute failure as against 8.4 months for the year 1916, making nearly 100 per cent improvement in performance.

The needed maintenance and frequent inspection of these signals is handled by the same organization maintaining switch signals. Daily inspection of these signals is made with gasoline motor inspection velocipedes to advantageously cover the ground.

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Electric Railway Journal circa 1917 (Thanks to Donald Duke for sending this in.)