

Detectors located between ends of ties, are controlled by magnetic devices on rail at right

# Hot-Box Detector Gets Results

... on the Boston & Maine

AN INSTALLATION of electronic hot-box detectors, which has been in service several months on the Boston & Maine, is proving to be increasingly effective, following minor modifications and adjustments which have to be made whenever a new type of device is placed in service.

These hot-box detectors, amplifier equipment and recording device on this project are the same design and manufacture as used on the Reading and on the Chesapeake & Ohio, explained in articles in the April and the July issues of *Railway Signaling & Communications*, therefore this information will not be repeated here. Rather, the following story deals with how, where and why the B&M installed its hot-box detectors.

## Where to Locate It

Having made the decision to make this test installation of hot-box detectors on the Boston & Maine, the next question was where to locate the equipment so that it would: (1) check the maximum number of trains; (2) check

for the direction of traffic and section on which hot boxes are most prevalent and; (3) be near an office

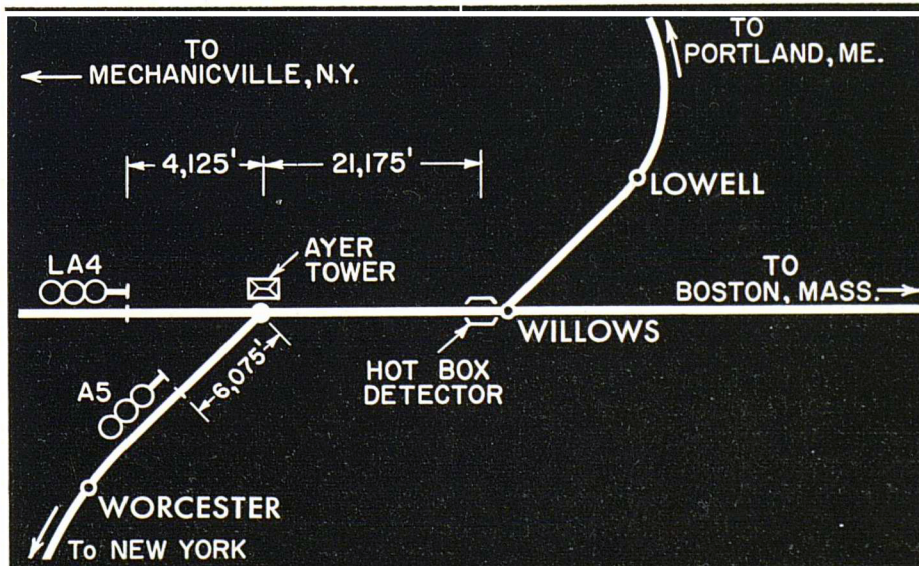
with a man on duty 24 hours, and a siding to set out cars having hot boxes.

Approximately 10 freight trains are operated daily over a section of 2 miles of double track between Willows, Mass., and Ayer, Mass., which is part of the double track main line between Boston, Mass., and Mechanicville, N.Y. A second main line from Portland, Maine, via Lowell, Mass., connects with the east-and-west line at Willows.

From Ayer, another main line extends south through Worcester, Mass., to connect with the New Haven on a through route to New York. Thus the Willows-Ayer section handles perhaps the maximum number of freight cars daily for any point on the B&M.

## To "See" the Most Boxes

A careful check of records indicated that, as applying for this ter-



ritory for the past several years, more hot boxes had occurred in westbound trains than in eastbound trains. Therefore, the new hot-box detector was located on the westward track. Willows is 34 miles west of Boston which is considered to be adequate mileage for a journal, which is going to heat, to get hot enough to be detected.

A train director, on duty 24 hours at Ayer, is available to watch the hot-box detector recorder when a westbound train is approaching.

### **Signals to Stop Trains**

This train director controls signals at Willows, at Ayer interlocking and also at locations west and south of the interlocking as indicated on layout sketch. When a train is approaching the detector at Willows, the train director holds either signal LA4 or A5 at stop, depending on routing of train, until the entire train has passed the detector. The train, as a result, receives an approach medium aspect

on the first signal west of the detector. If no hot box is detected, the train director clears the home signal and it and other signals in the approach display proceed aspects accordingly.

In such instances the trains are not required to stop. As a matter of fact, if the train is not too long, the more favorable aspects are displayed on the approach signal in plenty of time so that the train speed need not be reduced below normal. The device can detect hot boxes at freight train speeds up to 60 mph or more.

However, if a hot-box is detected, the home signal is held at Stop, and accordingly the engineer encounters wayside signals which display approach aspects warning him to stop his train short of the home signal. When the train has been stopped, the director informs a member of the train crew concerning the location of the car and bearing that is hot. A spur track is available to set the car on, if this is necessary.

On the first day that these detectors were in service, a hot box was detected, which had not been observed by train crews or other employees. When the train was stopped, and the lid opened, flame burst forth. During a 5-month period these detectors located 52 hot boxes, the majority of which gave no outward sign of their existence. Thus, the results have been highly satisfactory.

These hot box detectors, amplifier equipment and recorder were furnished by the Servo Corporation of America and were installed under the direction and jurisdiction of E. N. Fox, Engineer of Signals and Communications, Boston & Maine. A special feature of this project is that the detectors are 2 miles away from the office where the recorder is located, whereas, other previous installations of similar detectors are located at the office where the recorder is. Thus the B&M project indicates that the recorder could be located remote from the detectors.