

WHAT'S THE ANSWER?



Efficiency Tests

"Should the signal maintainer be called out when surprise tests of trainmen are made? If not, should the operating department officer be permitted to open relay cases or signal mechanisms in order to put the signal in the Stop or Caution position? What should be done to clear the signal maintainer of responsibility for such signal indications?"

Trainmaster is Accompanied by Assistant Signal Supervisor

By J. F. McConahay

Signal Supervisor, Chicago, Milwaukee, St. Paul and Pacific, Milwaukee, Wis.

It is our opinion and the practice on this railroad not to require the signal maintainer to make or assist in any surprise tests of other employees. Surprise tests are made by the trainmaster who is accompanied by the assistant signal supervisor, who places the signals at Stop, as we do not allow any officer or employee of other departments to be in possession of a signal key. When surprise tests are made, the chief dispatcher is advised in advance as to the location, and therefore the signal maintainer is not called for signals which are at Stop due to this test being made.

Trainmasters Handle Surprise Tests— Instructions Issued by Signal Department

By C. A. Christofferson

Signal Engineer, Northern Pacific, St. Paul, Minn.

We have never permitted a signal maintainer to go with a trainmaster when making surprise tests, as the signal maintainer would have to be paid for considerable overtime, since these surprise tests are always made at night. But we have been in the habit of using our section signal supervisors to go with the trainmasters on this work. However, we are now making a big force reduction, cutting out half of our section signal supervisors and dividing up the territory among those that remain. Naturally the section signal supervisors will have a very long territory, and this change was made with the understanding that they would not be called upon to assist in making

To Be Answered in a Later Issue

(1) *What control features can be incorporated to insure that a call-on signal will clear for only a specified route? Under what operating conditions should call-on signals be used?*

(2) *Recognizing that the failure of a normally energized a-c. power-off relay to release, results in the failure of automatic signals—including highway crossing signals—to function properly, what means is suggested to correct the condition?*

(3) *What is the proper definition of centralized traffic control as distinguished from remote control?*

(4) *Are any special qualifications required in a maintainer of code-controlled signals and switches in centralized traffic control territory? Is it practicable to allot the maintenance duties in such a way that the maintenance of the coding equipment for an entire division may be handled by one man who is expertly qualified for this type of work, leaving the ordinary duties to the regular maintainer?*

(5) *Does the use of precision-base lamps in light signals altogether eliminate re-focusing the signal when replacing lamps? Is the extra cost of such lamps warranted in all cases?*

(6) *What can be done to improve track-circuit operation in tunnels and snow-sheds where the ballast conditions are very unsatisfactory? How should a gauntlet track be track-circuited under such conditions?*

(7) *For what types of interlocking plants is the installation of all-electric locking, instead of mechanical locking, feasible? What consideration should govern a decision between these two types of locking?*

(8) *What precautions must be observed in operating transformers in parallel?*

the surprise tests, and that such work would be done entirely by the trainmaster with whatever assistance the superintendent could furnish him.

We do not permit anyone outside of the signal department to have keys to our mechanism cases or relay boxes. All our trainmasters will be furnished with shunt wires to shunt out the track for these signals. When the train-

master desires to make surprise tests, he should, before going out, tell the train dispatcher that he will be making surprise tests at certain specified signals, and he should advise the dispatcher not to call the maintainer when he receives notice from the enginemen about being stopped at those signals. Otherwise the signal maintainer will be called out and hunt for trouble all night and not be able to find anything wrong.

Our method of shunting out signals for surprise tests in train-control territory is illustrated below. For signal

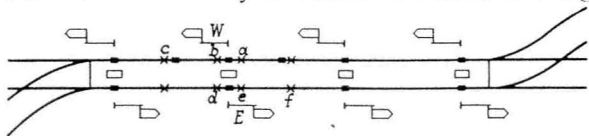


Illustration included in instructions to trainmasters

W, first apply connection to the two main-line rails where indicated by two X marks at "a." Second—While this connection is still on, apply second connection where indicated by two X marks at "b." Third—Remove the connection at "a." Fourth—Apply where indicated by two X marks at "c." Fifth—Remove connection at "b."

For signal *E*, apply connections at "d," "e" and "f" in similar rotation.

Either the Signal Maintainer or the Signal Supervisor Should Accompany Transportation Inspector When Signal or Relay Cases Are to be Opened

By C. A. Dunham

Superintendent of Signals, Great Northern, St. Paul, Minn.

On the Great Northern, surprise tests are made by transportation inspectors or trainmasters, and when these tests involve block signals and interlockings, necessitating the opening of relay cases and signal mechanisms, the signal maintainer or the signal supervisor is a party to the work. Our transportation inspectors, trainmasters and other officers in the operating department would not open the signal cases or disturb the signal controls or wiring, for which reason the signal maintainer or signal supervisor is present when work of this kind is necessary.

Each Assistant Superintendent Makes About 20 Efficiency Tests Per Month, Accompanied By the Signal Supervisor

By I. A. Uhr

Signal Engineer, St. Louis-San Francisco, Springfield, Mo.

Each assistant superintendent on this road makes about 20 efficiency tests per month, and reports his findings on a blank form of the type illustrated. He is accompanied by the signal supervisor when such tests affect signals of which the latter is in charge. The signal supervisor handles everything in connection with the signals and assists the assistant superintendent in observing the performance of the trainmen and enginemen.

Signal maintainers should not be called to assist in conducting efficiency tests, because when such a test is conducted, there must be two observers—one at the head and the other at the rear of the train—if the test is to be complete; and I consider it more advisable to have supervisory employees make such observations.

No one should be permitted to have keys to instrument and mechanism cases, excepting those who are responsible for and thoroughly understand the operation of all

the apparatus. I have known of mistakes being made, in this connection, which might have produced serious results. If an operating officer wants a signal placed in any abnormal position, he should call upon the signal supervisor.

When a train is delayed on account of an efficiency test, the assistant superintendent arranges for that delay to be shown on the train performance report as due to an efficiency test, and also makes arrangements so that signal maintainers will not be called out unnecessarily.

EFFICIENCY TEST

Division..... Date..... Time.....
Test Made.....
Location.....
Train Number..... Conductor.....
Engine Number..... Engineer.....
Observance of Test.....

By whom made.....
Title.....

- A Handling of 31 orders by train crew.
- B Red Lantern or flag (except unattended).
- C Double track automatic single at stop.
- D Single track automatic signal at stop.
- E Approach signal.
- F Light out or improperly displayed.
(Except train order signal at night office).
- G Stop at an unusual place.
- H Lighted fusee.
- I Yellow flag or yellow light protecting slow track.
- J Train on siding with headlight displayed.
- K Train on siding with markers improperly displayed.
- L Protection of rear of passenger train at a station.
- M Protection of rear of passenger train at an unusual location.
- N One torpedo.
- O Two torpedoes.
- P Hand signal at interlocking plants.
- Q Other tests.

Copy of tests affecting automatic, interlocking and train order signals will be sent Signal Engineer.

Signal Supervisor will accompany Assistant Superintendent when making tests affecting automatic signals.

Superintendent will furnish Asst. General Manager statement showing number of each kind of test, total number of tests and total per cent of efficiency, also per cent of last month's tests for comparison.

Unless preferred, it will not be necessary to make all the various tests each month, but omissions in any one month should be covered in the following month. Any evidence of a tendency to not properly observe at a test should be followed by frequent repetition of same until results are thoroughly satisfactory.

Answer Depends Entirely Upon Nature of Tests

By W. J. McElfresh

Signal Maintainer, Boston & Maine, Hoosick Falls, N. Y.

In my opinion this would depend entirely upon the nature of the tests to be made. If the signal is to be put in the Stop or Caution position, an ordinary track shunt is sufficient and in this case it would not be necessary to call the maintainer. However, if a test is to be made that involves a temporary derangement of circuits—such as a signal displayed for the wrong route—the maintainer should be called out, as few if any operating department officers have sufficient knowledge of signal apparatus and circuits to enable them safely to make a test of this kind. Furthermore, they are likely to leave some part of the

apparatus in a condition that will result in failures later on. It is not advisable for anyone to have access to signal cases, excepting those directly connected with signal work. To protect the maintainer, the officer making the surprise tests should send a message, immediately after the tests have been made, to the superintendent, the signal supervisor and the maintainer, stating that the test was made, and giving the number of the signal, the aspect shown, the time, and the number of the train that was tested.

Suggests that Signal Inspector, Maintenance Foreman, or Supervisor Co-operate with Operating Officer in Conducting Efficiency Tests

By J. H. Oppelt

Signal Engineer, New York, Chicago & St. Louis, Cleveland, Ohio

The term, "surprise test," does not seem to cover the situation as well as "efficiency test," which more clearly defines the purpose for which the test is conducted.

Under no circumstances should an operating department officer be allowed to open instrument cases or signal mechanisms or in any way to disconnect any apparatus pertaining to the operation of signals. The signal department is held responsible for the operation of signals and a responsible member of that department should be the person to do what is necessary to bring about conditions or signal indications desired by the operating officers making the test.

It is not desirable to have the maintainer handle the matter unless he had been thoroughly instructed by his superior as to exactly what is to be done. Efficiency tests are more often made at night and in isolated locations and extend over such a period of time that the maintainer's services would mean payment for his time at punitive rates.

The average railroad makes tests not oftener than every thirty days and there is no reason why the operating department cannot arrange on short notice, or have a standing arrangement with the signal department, to furnish the services of a designated responsible member to handle the test. An inspector, maintenance foreman, supervisor or other responsible employee should be the one to act with the operating officer.

Maintainer Can Assist in Surprise Tests Without Serious Interference with Other Duties

By W. L. Connors

Signal Engineer, Buffalo, Rochester and Pittsburgh, Rochester, N. Y.

Numerous surprise tests of enginemen can be made without access to signal relay or mechanism cases. Where access to these cases is necessary, it seems advisable to have the maintainer present. Ordinarily, in conducting surprise tests it is desired to check the performance at both ends of the train, at the front end to see that the stop is made before passing the signal, and at the rear to see that proper flag protection is provided. Where this is done and the maintainer's other duties will permit, he can check one end of the train while the operating officer checks the other. If the maintainer's presence is not required while the test is being made, he can go about his work in that vicinity, returning to restore the signals to normal when the test is completed.

To serve the purpose intended, surprise tests are necessarily conducted at locations well distributed over the division, and will not occur frequently on any one maintainer's section. We have found that, with proper co-operation between the operating and signal departments, the maintainers can assist in making surprise tests without serious interference with their other duties.

Signal Maintainer Should be Present When Signal Mechanisms or Relay Cases Are Opened

By J. R. Coles

Signal Engineer, Western Pacific, Oakland, Cal.

In my opinion, operating department officers should not be permitted to open relay cases or signal mechanisms. If it is necessary for such cases to be opened, the signal maintainer should be on hand and should make the necessary connections under the direction of the officer making such tests, and should not be held responsible for any stop indications given. Before making surprise tests, when the signal maintainer is not on hand, the dispatcher should be notified, so that the maintainer will not be called out unnecessarily.

Maintainer Should at Least be Notified of Proposed Test

By A. M. Gilbert

General Signal Inspector, Cleveland, Cincinnati, Chicago, & St. Louis, Cincinnati, Ohio

A representative of the signal department should accompany anyone making surprise tests of enginemen, where signal apparatus is involved. The maintainer should either assist in making the tests or should be notified when and where they are to be made to prevent unnecessary work on his part and, in many cases, to save the expense of a call. It is not good practice for the man making the test to change or tamper with the apparatus for which the maintainer is responsible. Delays and sometimes accidents result in making tests of this nature, when made by someone not properly qualified.

The A-C. D-C. Track Circuit

"What progress has been made with the special a-c/d-c. track circuit in which alternating current is transmitted through the rails and is rectified at the relay end to energize a d-c. relay? Are the shunting characteristics of such a track circuit satisfactory? Is such a track circuit reliable in operation? What are its advantages and limitations?"

Experience with This Type of Track Circuit Entirely Satisfactory

By C. E. Stryker

Manager, Industrial Division, Fansteel Products Company, Inc., North Chicago, Ill.

Several hundred units of this type have been in service for three or more years. To the best of our knowledge little or no trouble has been experienced in their use. The