Reports of Three Interim Inspections

THE Interstate Commerce Commission has made public copies of letters written by E. H. De Groot, Jr., director of its Bureau of Signals and Train Control Devices, to officers of the Southern, the Illinois Central and the Chicago, Burlington & Quincy, offering criticisms and comments as the result of the preliminary inspections by the Commission's representatives of the installations of automatic train control devices on these lines.

Report on Burlington Train Control

IN compliance with a request of the carrier of December 1, 1924, and in accordance with the Commission's press notice of June 9, 1924, their engineers have now completed a preliminary inspection of the installation of the intermittent magnetic train-stop device of the Sprague Safety Control and Signal Corporation on the 20.7 mile double track section of line between Creston, Ia., and Corning. As a result of this inspection, criticisms and comments were offered, which in substance were as follows:

1. It is our understanding that an arrangement for checking the displacement or removal of a track magnet, similar to that provided at the distant signal for eastward home signal S-394.4, will be installed for each main track magnet. (See the specifications and requirements of Paragraph 3, Design and Construction.)

2. It is our understanding that the track magnets at signals N-407.7 and S-406.0 are to be removed and installed at the exit ends of their respective sidings, and that track magnets will be installed at all other locations where protection should be afforded in connection with movements onto main tracks.

3. Where not so located, the ground reset switches should be installed where they cannot be operated while locomotives are moving. (See the specifications and requirements of Paragraph 6, Design and Construction.)

4. It is suggested that the interval between stop-indication points and home signals be given careful consideration with a view to making sure that safe braking distance is provided for trains at high speed. This is especially important in the absence of overlap. (See the specifications and requirements of Paragraph 3, General Requirements.)

5. Cut-out cocks should be sealed.

6. If the oil reservoir is to be maintained separately from the brake-valve head, as now installed, it is essential that the integrity of the connecting pipe be insured, because excessive leakage might, and breakage of this pipe, or its connection, would result in a false-clear failure at a stop-indication point. (See the specifications and requirements Paragraph 14, Design and Construction.)

7. The beginning and end of automatic train control territory should be plainly indicated.

8. As the magnetic receiver is the heart of the system in that it must respond to track impulses at all speeds up to the maximum possible, the equipment company has a standard of adjustment which it is essential shall be insured through the maintenance of such adjustment either by the equipment company or by the railroad acting under its instructions, and this receiver should be maintained in a sealed condition. (See the specifications and requirements of Paragraph 14, Design and Construction.)

9. All crossovers between main tracks, or between main tracks and sidings, should be so arranged that when in use, maximum signal and train control protection will be afforded to main track traffic.

Report on C. N. O. & T. P. Installation

IN compliance with a request of December 10, 1924, and in accordance with the Commission's press notice of June 9, 1924, their engineers have completed the preliminary inspection of the installation of the intermittent induction auto-manual train stop device of the General Railway Signal Company on the 35.5 mile double track section between Ludlow, Ky., and Williamstown, on the southwestern district of the C. N. O. & T. P. As a result of this inspection, criticisms and comments were offered, which are given in abstract below:

1. The track inductor as located and fastened makes displacement or removal unlikely, and it is therefore believed that the employment of detectors is not required on this installation.

2. As a clear operation of the device depends upon the inductor winding being closed, a cross in the wires leading to the inductor winding would result in a false clear condition of the inductor. It is, therefore, vital that the installation and maintenance of the track inductor circuit shall be such as to protect the integrity of this circuit. (See the Commission's specifications and requirements, Paragraph 3. Design and Construction.)

3. The track inductor winding is closed for clear operation when the polarized track relay is picked up and the signal in the clear position. Should a signal fail in the clear position with a train in the block the stop inductor at the failing signal would constitute the only protection afforded a following train and the degree of protection would vary with the location of the train occupying the block,

It is suggested that this be given careful consideration with a view of possibly securing increased protection. The Commission's requirement is as follows:

> "An automatic train-stop device shall be effective when the signal admitting the train to the block indicates stop, and so far as possible when that signal fails to indicate existing danger conditions."

4. The track inductors are located at the signals, and the stop operation for an occupied block is provided at the next signal in the rear of that at the entrance to such block. This requires an engineman to forestall at a caution signal in order to enter the caution block, and should this block be too long and an engineman not be alert while running therein the train could approach the stop signal at such speed as to overrun this signal. This observation is not directed at the blocks observed, but is offered on account of its basal importance. (See the specifications and requirements are as Paragraph 3, General Requirements.)

5. Track inductors should be provided at braking distance from the signals governing entrance to train control territory. (See Paragraph 3, General Requirements.)

6. It is suggested that the type of fouling protection employed at sidings and crossover switches be considered with a view of possibly securing increased protection.

7. It is suggested that the small actuator piston which operates the rotary valve to service position be checked to make sure that its area is sufficient to care for extreme rotary valve frictional resistance. (See paragraph 7, Design and Construction.)

8. During the inspection the results which would follow certain possible crosses in the locomotive wiring were discussed, and since such crosses could result in false clear operations, it is obvious that the integrity of these circuits must be protected. (See the specifications and requirements, Paragraph 3, Design and Construction.)

Report on Illinois Central

IN compliance with the request of the Illinois Central of December 10, 1924, and in accordance with the Commission's press notice of June 9, 1924, their representatives have completed a preliminary inspection of the installation of the two-speed continuous induction device of the Union Switch and Signal Company on the 22.0 mile double track section of main line between Champaign, Ill., and Tuscola. As a result of this inspection, criticisms and comments were offered, which in abstract follow:

1. It is suggested that the cut-in feature at the beginning of train control territory in this installation be considered carefully with a view to possibly securing increased protection, for while the wayside and cab signals are intended to appraise the engineman of a failure of the device automatically to cut-in, this method involves reliance upon the human element. (See the specifications and requirements Paragraph 3, Design and Construction.)

2. It is understood that difficulty has been experienced as a result of the presence of foreign current at a location outside of equipped territory; this foreign current cutting into service the train control device after it has been electrically cut out.

Since foreign alternating current, if present in the track rails

of equipped territory, might cause false clear failures of the train control device, it is, of course, essential that effective means shall be provided to prevent this should such condition develop. (See the specifications and requirements, Paragraph 3, Design and Construction.)

3. The sign indicating the beginning of train control territory at Tuscola is located at the southmost roadside signal of the installation. This results in no B point being provided for such signal, and it is, therefore, suggested that this sign be removed to the first signal north of its present location. At Champaign the general situation apparently is such as not to require any change. (See Paragraph 3, General Requirements.)

4. It is suggested that the type of fouling protection employed at sidings and crossovers be considered with a view to possibly securing increased protection.

5. No provision has been made in this installation for having enginemen acknowledge at succeeding stop-signals.

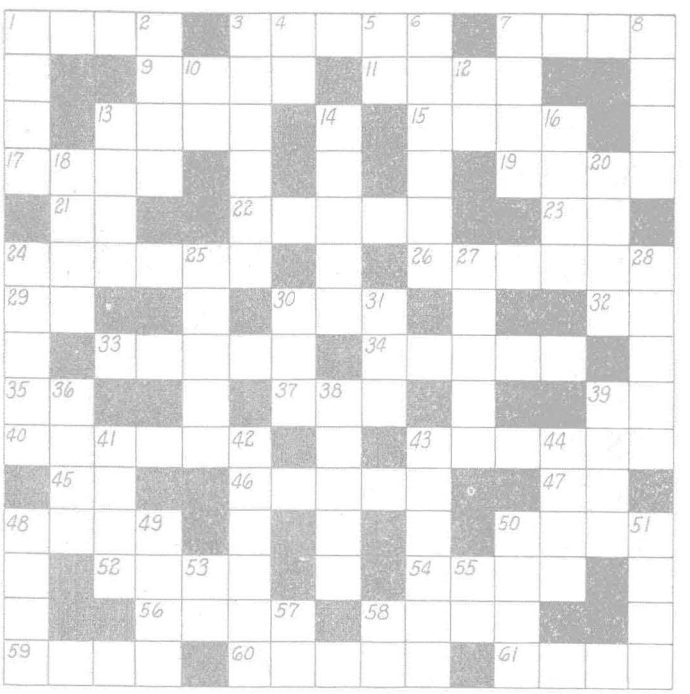
6. The records of difficulty encountered in service with this installation disclose two matters which require attention: (1) pipes becoming clogged with scale and dirt; and (2) valves being rendered inoperative through freezing.

The first condition is explained as having resulted from failure properly to prepare and blow out the pipes with steam or air before they were applied, and it is understood that this will be guarded against in the future.

While the second condition is reported as having developed in only a few cases on two of the locomotives, the freezing occurred at the pilot valve, at the application valve, at the brake pipe equalizing discharge valve, and at the magnet valve—and any one of these valves would, if frozen in normal position, constitute a potential source of serious failure. Effective means will have to be applied for preventing an accumulation of moisture in these valves sufficient to effect the sealing closed of their ports through freezing, and we have been assured both by our representatives and those of the train control company that this will be done. (See the specifications and requirements, Paragraph 14, Design and Construction.)

Sudden Ravings

ACCORDING to the verbal reports that came dribbling into the Coliseum, in March, it seems the last cross word puzzle was too easy. Now go ahead and laugh this one off.



HORIZONTAL

1. A work that is not identified with signaling.
3. The thing on which certain "old timers" hammered out their earlier experience.
7. The kind of a circuit used but little by you birds.
9. An insect that can ignore Rule 99.
11. What inexperience can make out of signaling.
13. A "bone of contention" in train control.
15. One thing a signal engineer tries to give *good* to an engineman.
17. What the gang does all day when a big interlocking plant goes into service.
19. The antithesis of 7 horizontal which does not quite apply to signal circuits.
21. East Indies (abv.).
22. Convulsive chilly stiffness.
23. A prefix meaning in, into or upon.
24. The biggest bulk the farmer cuts up and cans each Fall.
26. A sign for giving notice or conveying information.
29. Initials of a great southern railroad.
30. Another way to get an increase in salary.
32. The origin of our letter "W."
33. About the only time any of you birds ever get close to this word was when you were married.
34. The chronic ailment of the signal fraternity.
35. Descriptive initials of one type of power interlocking.
37. The work done when you move something one centimeter and push it with one dyne.
39. One kind of current which is becoming more and more useful in signaling.
40. Same as 12 horizontal in the February nightmare.
43. The act of putting on a signal blade.
45. Initials of a southern state.
46. A state of mind that eventually pays dividends.
47. Initials of another southern state.
48. One way to remove snow.
50. The kind you used to buy was spelled differently but some day you will be spread out on one of these.
52. An ancient loose outer garment.
54. First name of a Swede who once worked for me.
56. What the real estate man sells a sucker from the signal department.
58. A girl's name.
59. One of the things you have in your chest.
60. Something used in making your lunch basket.
61. To stain or blemish.

VERTICAL

1. The aftermath of forgetting something.
2. What a fly gets when it lands on Carl Henze's head.
3. To want something "awful bad."
4. Initials of an important railroad in the northwest.
5. What too many folks use for the beginning of a sentence.
6. Something that should be either normal or reversed.
7. Plural of a suffix which denotes that something is full of *something*.
8. A kind of liz not found on lounges.
10. First person singular of the verb "to be" and in addition to this it is indicative mood and present tense.
12. Nickname of a man.
13. To muddy up the spring when the gang gets its drinking water.
14. Enclosures which should contain most of us at times.
16. The beginning of a question often asked by the "old man" regarding status of work.
18. Something a good boss always keeps in his hand.
20. A sloth which differs from its human cousin by having only two toes and staying south of Panama.
24. Don't do this on the job.
25. Two words: preceding the word "work."
27. Two words: preceding the words "why not."
28. If you carry it you take good care of it until 12:05 P. M.
30. First person plural and similar to is.
31. Something used almost exclusively nowadays for dry lading.
36. Something we do with pipe, poles and trunking when unloaded from a car.
38. The first thing a Signal Engineer does when getting a report of a false clear failure.
39. Top or highest point.
41. Something that helps 48 horizontal along.
42. Combining form.
43. Keep your work out of this and keep it out of your board bill.
44. An indigo plant.
48. To come within each other's presence like a signal section convention.
49. Something they used to take away from you on the Dubuque bridge.
50. Some person's opinions are so cut.
51. Entranced.
53. A short but energetic verb.
55. Mister (abv.).
57. Steamship (abv.).
58. A point on the compass.

Correct solution in May issue of *Railway Signaling*

—W. H. F.