

## Track Circuits at Highway Crossings\*

*"Has any effort been made on your railroad to so arrange the track circuits and controls at important highway or street crossing signals so that the warning will be given until the crossing is completely cleared for both traffic directions? If so, how has this been accomplished?"*

### Insulated Joints Spaced for Normal Traffic Direction

C. H. Tillett

Signal Engineer, Canadian National, Toronto, Ont.

The only effort we have made to have the highway warning signals operate, while a train is standing on the crossing, has been to space the insulated joints at crossings of highways, with double tracks, so that with the normal direction of the traffic the signal will not cease to operate until the rear of the train has cleared the crossing.

Admittedly, the practice of having a signal operate until the train has cleared the crossing is desirable, and it may reduce the number of side collisions of road vehicles with railway equipment at night. During daytime operation, it is almost inconceivable that highway crossing protection could be made more conspicuous than a train on the crossing.

\*For other answers on this same question see page 364 in the July issue.

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## Emergency C. T. C. Equipment\*

*"On the basis of a ten-mile section of C. T. C. installation, how many emergency field coding and storage relay units are necessary to provide proper protection in case of lightning or similar trouble?"*

### One Code-Storage Unit Ample

T. C. Seifert

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On the basis of a ten mile section of C. T. C., I would say that one field code-storage unit would be ample protection against any kind of trouble that might happen, lightning or otherwise.

A case of lightning damaging the code equipment is very remote, especially where the coder wires are in aerial cable. The messenger wire for this cable is grounded, possibly fifteen to twenty times between each coder station where code-equipment relays are housed. This provides a nearly perfect lightning protection. In this connection, we have lightning arresters in both sides of the line; also spark-gap arresters across the line to take care of any sudden surge of high-voltage current that may occur in the line.

I note in the question it states in part: "How many emergency field coding and storage relay units are necessary?" To this it may be worth while to mention that with a thirty-five station system each field code storage unit consists of a separate coding unit and storage unit combined in one case and can be used separately, and

care should be taken in shelving these units so that there will be sufficient room to replace one of the small storage units with the large code storage unit.

\*For further discussion on this subject see page 368 of the July issue.

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## Brine Drippings on Track Circuits

*"Brine drippings from refrigerator cars interfere with the operation of d-c. track circuits. What maintenance precautions can be taken to overcome or minimize this trouble?"*

### Precautions Outlined

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For the past few years we have experienced very little trouble with track circuits failing due to salt brine conditions. This has been brought about by improved ballast conditions, drainage of ballast, creosote-treated ties, annual oil-spraying of rails, the use of improved types of bonds, and improved track relays. It is also essential that track-circuit rails be entirely free from contact with ballast, including turnouts to fouling points, and that track, shunt, and fouling connections be kept free from ballast or ground connections.

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## Painting Galvanized Surfaces

*"Some railroads have had trouble with black paint peeling off of the galvanized backgrounds of color-light signals. What methods have you used to make such paint jobs more permanent?"*

### Washing and a Priming Paint Helps

C. H. Tillett

Signal Engineer, Canadian National, Toronto, Ont.

If the galvanized surface of a color-light signal background is first washed with a solution of blue vitriol and water, and then painted with a priming coat of flat grey paint, the tendency to peel is almost entirely eliminated.

## Observance of Signals

(Continued from page 403)

read "The Michigan system of football is popularly expressed by sports writers as a 'punt, pass and prayer' system, because it features very little carried out in very great detail."

And so I say, keep the signal indications as simple as possible, but carry out with greatest care the coaching of the engine and train crews in their proper observance in the most minute detail. As a parting thought—the Michigan football players are coached by men who grew up in a Michigan football atmosphere and who know proper execution of successful football. The signal supervisory forces of a railroad, who have grown up in a signaling atmosphere, might profitably be given a more important part in coaching enginemen and trainmen in the correct interpretation of signals and the execution of their indications.