

relays, this is a remote possibility.

The accompanying circuit is suggested as being more desirable than either of the two circuits referred to. In this circuit, the signal can clear only after the route locking is effective.

### Discusses Time Feature

F. B. WIEGAND

Signal Engineer, New York Central,  
Cleveland, Ohio

The type of route locking which, when the signal lever controlling moves over the route involved is reversed, de-energizes the relay is usually used in connection with dwarf signals. The only disadvantage is the time feature and this can be overcome by operating the lever only for train movements. This disadvantage,

in my opinion, is offset by the simplicity in the circuit. It avoids the necessity of providing approach circuits. At large terminals even the approach circuit would not overcome the time feature as the trains are invariably standing on such circuits, and this would immediately on the clearing of the lever set up the time feature.

The type of route locking in which the relay is de-energized when the train enters the interlocking limits is usually employed in connection with home signals. This type of locking has the advantage of permitting tests to be conducted with no train on the approach circuit without tying up the route. With a train on the approach circuit this type of locking has the same time feature as the type which immediately de-energizes the relay when the lever is reversed. In my opinion, this disadvantage is negligible in both instances.

## Rectifiers in Flood Waters

*"What methods should be used in rehabilitating rectifiers that have been submerged in river flood waters?"*

### Complete Tests Should Be Made

A. G. MOORE

Advertising Manager, General Railway  
Signal Co., Rochester, N. Y.

The quickest and surest method in rehabilitating rectifiers that have been submerged in river flood waters is to return them to the manufacturer. By means of the proper testing equipment, personnel and repair materials, the manufacturer can readily determine the extent of damage and make such repairs as are necessary for satisfactory performance.

### Electrolytic Rectifiers Not Permanently Damaged

CARL G. HOWARD

Manager, Rectifier Division, Fansteel  
Metallurgical Corp., North  
Chicago, Ill.

Normally the electrolytic signal rectifier is not damaged by complete submersion in flood waters and can be put back into service immediately after the water recedes. Where the rectifier is in a battery well which is submerged in back water, there is insufficient agitation of the water to mix it with the electrolyte. In this

case it is necessary only to draw off the excess water in the top of the cell to lower the electrolyte level to the high line on the charger. If the oil is lost, a new coating of oil should be added.

Where rectifiers are in battery wells or signal cases surrounded by swift flowing water, there is a possibility of high contamination of the electrolyte. In such a case, the rectifier cell should be thoroughly cleaned and washed out and complete new electrolyte added. The cell cover and terminals should be carefully cleaned and dried.

Electrolyte is prepared from sulphuric acid of 1.175 to 1.250 specific gravity, adding one package of depolarizer salts and one bottle of oil which are available from the rectifier manufacturer. Emergency electrolyte can be prepared, however, by filling the cell with sulphuric acid and inserting one dozen ordinary carpet tacks or the equivalent in small iron nails, or even stirring the acid with

an iron rod long enough for some of the iron to be dissolved. Regular depolarizer salts and oil can be added later.

## Track Shunting Problems

*"Has the operation of light-weight trains introduced any new problems in track circuit shunting on your road?"*

### No New Problems

J. P. MULLER

Engineer Signals & Telegraph, Boston &  
Maine, Boston, Mass.

The operation of the "Flying Yankee" has not introduced any new problems relative to the shunting of our track circuits.

### Operation Is Satisfactory

W. F. ZANE

Signal Engineer, Chicago, Burlington &  
Quincy, Chicago

We have made numerous tests on the three-car Zephyr trains at high speed. These trains are articulated and a three-car train has only four pairs of two-wheel trucks; consequently, at high speed they are about as fast and as light a piece of equipment as normally passes over track circuits. All tests we have made have shown that the track relays function properly and that the armatures drop and stay down during the entire passage of the train over the track section. It is true that at high speeds these trains get into a track section farther before the relay drops than does a slower train. However, this is not a shunting matter but is a matter of the time interval required for the relay to become demagnetized sufficiently for the armature to drop. I would say that, insofar as our tests have shown to date, the shunting possibilities of these trains have been and are as they should be. Also, the effect of rust on the rails apparently does not change this shunting condition any more than it would with a train of standard equipment. This is probably due to the fact that the bulk of the weight is on the forward driving trucks, so that they possibly clean the rail while the following trucks assist considerably in shunting the track circuit. However, I believe that the train would properly shunt out the relays, even though the leading power trucks did not carry this surplus weight.

