

crew must precede the move to the crossing and follow instructions outlined in the control box. If signal cannot be cleared after expiration of time stated in such instructions, trains may proceed, protecting against conflicting movements."

No change in methods of affording protection should be required, regardless of which road operates the automatic interlocking, if proper precautions are taken to safeguard the movement of the rail detector car.

CTC Locking

In centralized traffic control territory, do you use approach or time locking? If you use approach locking, do you apply it throughout the territory or only at specific locations, such as passing tracks near important towns, interlockings, or on heavy grades? Do you make use of coded track circuits in these approach locking locations? Please explain your particular practice, giving advantages of its use.

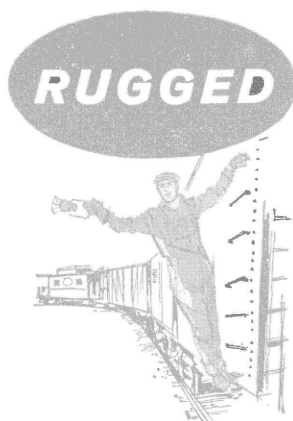
Time Locking

By B. L. McNEILL, JR.
Assistant to Signal Engineer
Western Pacific
San Francisco, Cal.

The Western Pacific has standardized on the use of time locking at controlled sidings, except for two which lie within the approach limits of interlockings. This decision was based on two major factors: (1) relatively few instances that approach locking would be of advantage; and (2) cost of line wire facilities.

In areas of through train movements, wherein the train dispatcher has only to calculate running times and set meeting points, there is little advantage in providing approach locking. However, in those areas in which trains are subject to delay, such as at interlockings, the use of approach locking can be justified.

On the WP, neutral track circuits are used within approach locking limits, except in areas where coded track circuits are superior. Coded track approaches are installed in several instances wherein four aspects must be displayed by the approach signals, and ballast resistance varies over wide limits. Our experience has been that coded track circuits are superior under these conditions. Longer track circuits, and the consequent reduction in maintenance costs, possible with coded track circuits, must be compared with the generally lower installation costs of



NEW improved lantern battery

Designed specially for rough, tough yard use... more than meets specifications of railroads and U. S. Bureau of Standards. Positive contacts... heavier springs... special label which discourages pilferage. Your men will get more hours of reliable light... and you'll save dollars on replacements!

NEW NYLON flashlight

New nylon case takes the roughest of handling... resists all common chemicals... is practically unaffected by extremes of heat or cold. Spare lamp holder, removable end cap with ring hanger, replaceable switch. No exposed metal parts.

NEW heavy-duty flashlight batteries

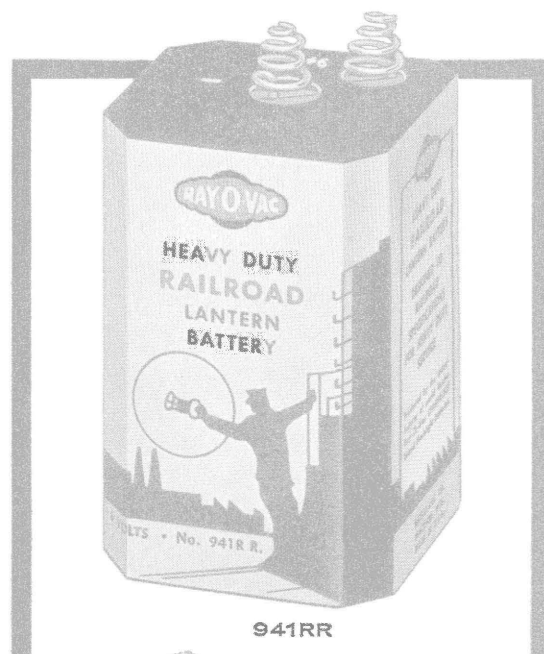
Laboratory reports prove you get more hours of useable bright light... from batteries with Ray-O-Vac's patented sealed-in-steel construction—top, bottom, and sides!

Guaranteed against corrosion damage to flashlights. Fresh when you get it... stays fresh in your stockroom. It's not dated!



by **RAY-O-VAC**

**new developments
designed for long, hard
railroad use!**



**RAY-O-VAC COMPANY
MADISON 10, WISCONSIN**

Division Offices: 212 East Washington Avenue, Madison 10, Wisconsin • 1388 Madison Avenue, Memphis 4, Tennessee • 461 Market Street, San Francisco 5, California • 1775 Broadway, New York 19, New York • Ray-O-Vac Canada, Ltd., Winnipeg



Forecast for Management

"...communication and signaling lines need not be crowded in '56..."

A hard look into the future of railroad communication and signaling finds the significance of increasing line construction costs unmistakably clear. Additional wire circuits to relieve crowded conditions will be difficult to get on today's type of budgeting. There's a remedy we would like to tell you about in dollars and cents detail. Traffic on each existing line in your system can be multiplied several times *without* outside construction. Let North field engineers demonstrate how this can be accomplished at a low cost hitherto unheard of, with

NORTH CARRIER

Ask for bulletin RC-551 — AF-554

INDUSTRIAL DIVISION

NORTH ELECTRIC COMPANY

571 South Market Street, Galion, Ohio



neutral track circuits; and less flexible operation with line wire control. Our feeling is that the use of approach, or time locking, and the use of coded, or neutral track circuits, must be decided separately for each area or location.

Approach Release of Time Locking

By W. N. HARTMAN

General Superintendent
Signals & Communications
Chesapeake & Ohio
Richmond, Va.

Practice on the C&O is to install approach release of time locking on signals in traffic controlled territory. With signals spaced to provide braking distance for 160-car trains at speeds up to 55 mph, time settings are usually over 5 min. When the approach is unoccupied, we do not believe it is desirable to impose this delay in changing a route.

On some of our lighter traffic, single-track CTC we have used the HDR which controls the leaving signals at a siding, as the approach release for the entering signal. This has saved the cost of installing a double-wire approach circuit between the home and distant signals. The HDR is de-energized when the leaving signal at the next siding is cleared; this in effect gives us time locking when the route is lined. We do, however, have the flexibility of approach release for testing and checking the operation of switches and signals. This practice has proven entirely satisfactory from an operating standpoint. In the territories where we have coded track circuits, these have been used in the same manner as noncoded tracks for approach locking release.

Radio Antennas

How often do you inspect wayside radio station antennas? Do you provide ladders on steel masts and pole steps on wood pole antenna supports? What do you look for when inspecting antennas?

Not Inspected On Routine Basis

By H. C. MACOMBER

Superintendent Communications
Missouri Pacific
St. Louis, Mo.

The Missouri Pacific's antennae are fastened to the top of the antenna supporting structures by means of clamping to 10 ft. pieces of pipe; also copper co-axial cable is used for the transmission line. A routine inspection of an antenna