

W h a t ' s t h e A n s w e r ?

Release of Locking

Some railroads use "two-track-circuit" release of locking at the ends of passing tracks in CTC territory, i.e., a train must occupy the OS switch detector track circuit, then occupy the next track circuit, before locking is released. Do you use this type of circuit? Please give reasons for use or non-use, as well as advantages of your particular practice.

Two-Track-Circuit Release

By J. M. RICE

Assistant Signal Engineer
Atchison, Topeka & Santa Fe
Topeka, Kan.

A two-track-circuit release of time or approach locking is used on the Santa Fe. Time locking, restored by occupancy of the detector section and a receding section, or by an automatically controlled time element

relay after the signals are at Stop and the HR relay has released, is generally used. Two-section releasing protects against possibility of an unsafe condition being set up by a momentary shunt or intermittent track circuit failure. Such irregular track circuit outages could occur due to certain types of vehicles crossing the track, or maintenance forces inadvertently shunting the track circuit with uninsulated equipment. The possibility of two adjacent track circuits being out simultaneously in such manner is very remote. In territories where short equipment is operated at high speed, quick releasing track relays and slow-acting repeater relays are used to insure proper functioning with the two-track-circuit release.

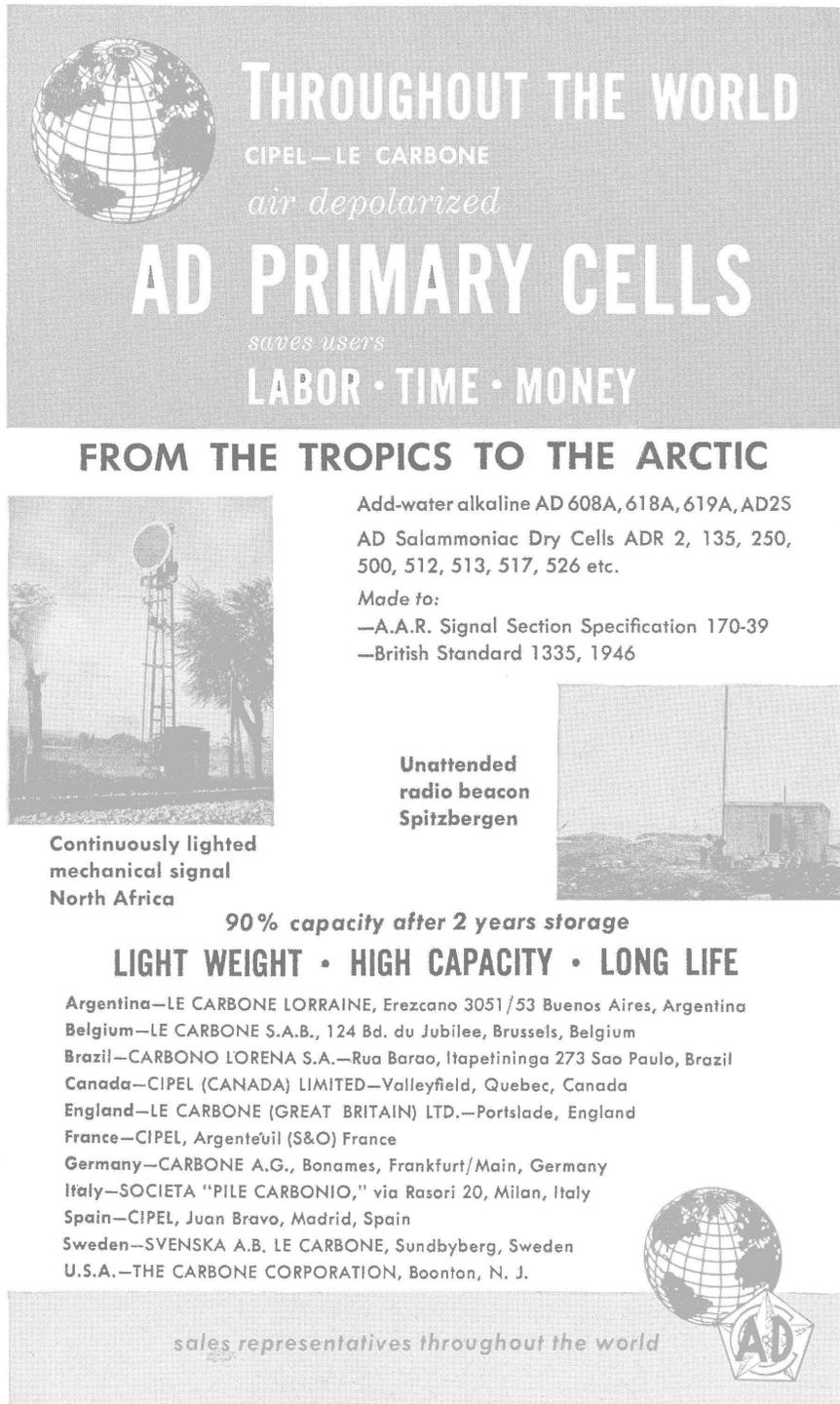
Minimizes Dangers

By W. G. LEWIS

Supervisor of Signals
Virginian
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Once a route has been set up and a signal cleared over it for a train movement, all switches in the route are, of course, locked in position. Operation of a train over this route will automatically release the electric locking after the rear of the train has passed from the OS detector track circuit. Lock circuits can be arranged for release (1) in a single track circuit whereby it is only necessary for the train to pass over the OS track circuit, shunt the track relay, then move off the circuit allowing the track relay to pick up again; or (2) "two track circuit release" which requires that the OS track circuit and the next track circuit ahead must be occupied simultaneously, then the OS track circuit become unoccupied again, before the electric locking will be released for operation of power switches preparatory to establishment of other routes.

As shunting followed by unshunting of the OS detector track circuit is the only pre-requisite to the release of electric locking where the single track circuit system of release is in use, any one of the several things that can cause a track relay to drop momentarily and then pick up again, can also, inadvertently, cause the locking to be released. And this can happen while a train is approaching at such location and rate of speed as to make it impos-



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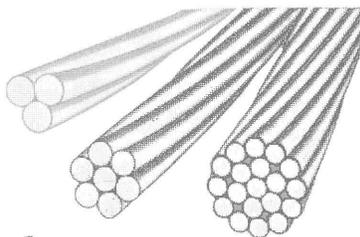
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sible to stop the train short of the governing signal. Section men working with track tools, signalmen working with their tools and test equipment, defective insulation, defective bonding and open wires can cause locking to be released as described above. The "two track circuit release" is to be preferred because the above mentioned dangers are minimized.

Use Two Circuits, In OS Section

By R. E. TESTERMAN
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Communications & Signals
St. Louis-San Francisco
Springfield, Mo.

The use of "two-track circuit" release of locking reduces the possibility of undesired release of such locking due to momentary loss of shunt or momentary drop of detector track circuit due to loose connection, broken bond wire, etc. We favor the use of this type of release at remote switch locations where such failures would give false indications to the control operator as to the location of trains.

At ends of passing tracks in CTC territory, we use two track circuits in the "OS" section, placing insulated joints in the main line just in the rear of the frog. One track circuit feeds from these joints to the main line leaving signal, where it is jumpered to the clearance point of turnout and then feeds through the turnout to a joint located in the stock rail just back of the heel of the switch point. This arrangement provides for two track circuit release for movements through the turnout as well as on main line.

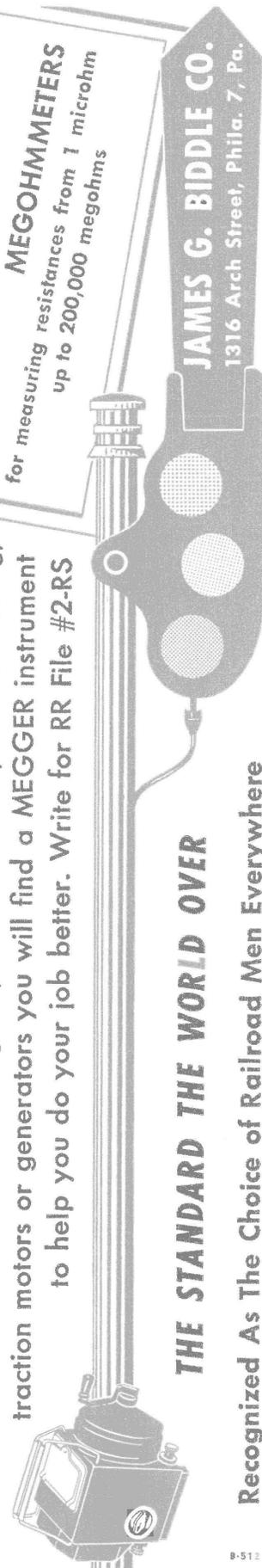
Advantage to Two- Track-Circuit Release

By V. J. DOUGHERTY
Leading Signalman
Southern Pacific
Tucson, Ariz.

The practice of releasing approach locking through the back contacts of the detector track and the track in advance lessens the possibility of an undesired release of the approach locking; as would be the case in a momentary failure of the detector track, where it alone is used to effect the release. The probability of both track circuits failing simultaneously is rather remote, except in the case of insulation break-down in the dividing joints. This then, resolves itself into a maintenance problem, and with any reasonable degree of ob-

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servation and periodic tests should offer no difficulty. The inherent weakness of this type of circuiting would seem to be the strongest argument against the practice of pre-conditioning. The gain in time is negligible when weighed against the potential danger it might cause.

Proper instruction of the control machine operator will also lessen the possibility of any undesired condition being set up. An experienced, capable operator, upon receipt of an OS indication, will not attempt to operate a switch until his indication lights indicate that the train has cleared the approach and detector

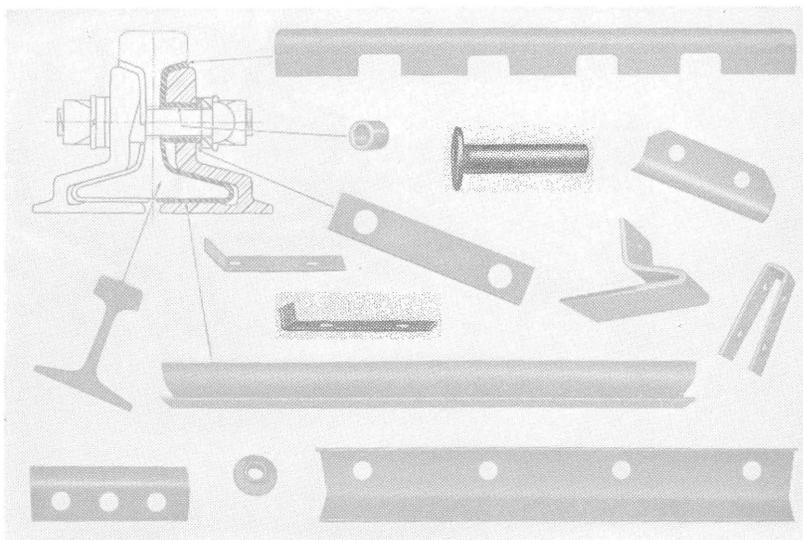
sections and is in the advance section. This, of course, would not apply where pre-conditioning of switches is provided.

Aligning Searchlight Signal

What methods do you use for properly aligning searchlight signals?

Use a Target

By O. W. DEWITT
Superintendent of Construction
General Railway Signal Company
Rochester, N. Y.



One of the most successful methods we have used in territory signaled with SA compound lens, 5-watt lamp searchlight signals, is aligning the signal by means of a target. This target should consist of a 2-ft. diameter disk of $\frac{3}{4}$ " plywood painted white on one side. A black cross is then painted on the white background, consisting of a 2-in. vertical stripe and a 2-in. horizontal stripe intersecting at the center of the disk and running from edge to edge.

The target is then mounted on a $\frac{3}{4}$ " by 2" staff, long enough to place the target at a level of the locomotive engineer's eyes as he rides in the locomotive. The bottom end of the staff would rest on a cross-tie.

To use this target, a man would be stationed at a location at which it had been previously determined the engineer should be able to see the signal. He would hold the target upright, cross side facing toward the signal to be aligned. Through the use of the sighting device built into the signal case, locate the hair line cross exactly on the cross of the target. Set and securely fasten the adjusting screws and after this has been done, take a final look through the sighting device to make sure tightening the adjustment screws has not changed the alignment. A target of this type can be seen several thousand feet under normal weather conditions.

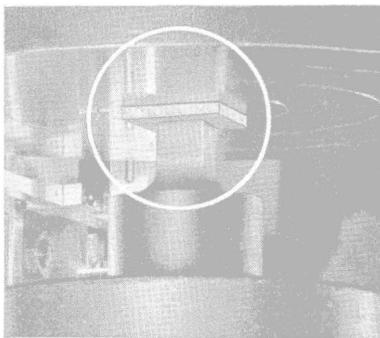
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Training Program

Do you have a training program for signal department employees?

On a Voluntary Basis

By V. O. SMELTZER
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Atchison, Topeka & Santa Fe
Topeka, Kan.

Training programs in the Santa Fe signal department are on a voluntary basis. The men are encouraged to improve their position and knowledge through study of correspondence school courses and through classes conducted by signal department personnel. Such classes are organized on construction gangs when the men express a desire for such training. Classes are conducted after working hours usually one night each week. Attendance is not compulsory, however, a surprising number of men avail themselves of these opportunities.

Usually the foreman of the gang is directly in charge of the classes under the guidance and with the