

are involved, the stick relay scheme requires more points than are available on four-point track relays, making it necessary to use two more line relays as track repeaters.

While not much work is generally required in the maintenance of relays, a comparison of these schemes indicates that considerable more work is necessary in the renewal and inspection of the four neutral relays. The interlocking scheme requires the purchase of one interlocking relay per track, whereas the stick relay scheme requires four neutral relays per track. The former scheme, therefore, necessitates less expenditure for relays, relay housing and other material, as well as labor of installing.

Considering the desirable and undesirable features of each scheme, it is my opinion that the interlocking relay scheme is as reliable as the stick relay scheme; it is more economical, and can be arranged more readily to accommodate other circuits.

Prefers to Use a Stick Relay Circuit

By G. A. RODGER

Assistant Signal Engineer, Wabash, Decatur, Ill.

THERE is only one advantage of the interlocking relay control scheme, namely the lower original cost of installation. However, the disadvantages are that the interlocking feature may fail, causing a signal failure. In repairing relays in the shop, the large interlocking relay is the most expensive to repair, requiring more time for adjustment, and considerably more breakage of the porcelain tops is experienced than in the case of the standard size relay.

To reduce the number of failures caused by the interlocking feature of this relay, and to reduce the cost of relay repairs, the stick relay circuit should be used. Even though the first cost is slightly more for the stick relay circuit, the maintenance and upkeep is less and the reliability of its functioning is greater.

Detector Locking Should Not Have an Emergency Release

"When detector locking prevents operation of an interlocked power switch, owing to some circuit interruption or track circuit trouble, is it safe to permit of using any kind of an emergency release to nullify the detector locking? What steps should be taken to restore the leverman's control of the switch, at the same time fully safeguarding train movements?"

Any Circuit Trouble Should Be Corrected by Maintainer Immediately

By W. S. SIBILA

Special Staff Engineer, New York Central, Cleveland, Ohio

IN my opinion the use of an emergency release is unnecessary and should not be provided except perhaps at an isolated location where train movements are infrequent and considerable delay would occur before a signal maintainer could reach the location. At a busy terminal interlocking, a competent signal maintainer is constantly on duty and in the case of circuit interruption or track circuit trouble, he should make such temporary repairs as are necessary to correct the trouble before the leverman's control is restored, and during the time required by the signal maintainer to overcome the trouble, the switch should be operated by hand.

By rigid inspection and proper maintenance, circuit interruptions and track circuit trouble can be reduced to

a minimum and it would seem that to fully safeguard train movements, the circuit trouble should be taken care of before the leverman's control of the switch is restored.

Strict Discipline Must Be Maintained to Insure the Integrity of Detector Locking Circuits

By E. T. AMBACH

Assistant Signal Engineer, Baltimore & Ohio, Cincinnati, Ohio

NO release or device should be used to nullify the detector locking circuit. In answer to the second question I would recommend calling the maintainer at once and moving trains over the plant under a slow-speed or a hand signal, giving the engineman a form or order to advise him of the unsafe condition, in the same manner that a slow order is issued in case of a defective track or bridge.

Detector bars were introduced for the purpose of preventing a switch being thrown while the wheels or any part of a train were passing over it. The introduction of the larger sections and heavier rails with wider heads, together with a tolerance of one inch in wheel gage, one-inch sharp flange and one-inch chipped wheel for two-thirds of wheel perimeter, according to M.C.B. rules, makes the mechanical detector bar obsolete and unsafe.

The detector or switch locking circuit supersedes or entirely replaces the detector bar. If a maintainer had taken a detector bar out of service, in days past, he would have been severely reprimanded or dismissed from the service.

In view of the greater dependence being placed on the detector circuit, it seems that it should in turn call for like discipline in case of a failure to maintain the apparatus properly.

Possibility of Engineman Disregarding Stop Signals at Terminal Plants Makes It Hazardous to Use a Release

By D. W. FULLER

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

IF all signal levers governing movements over interlocked switches are provided with some form of time locking which will assure that the signal must be in the stop position for a pre-determined time before the lock on a switch lever can be released, it would appear that it would be a safe arrangement if circuits are designed properly to provide releases for interlocked switches in case of a failure to detector circuits.

Where interlocked switches can be released by the leverman, we are not assured that the arrangement is safe if operating rules are not adhered to, as there is a possibility of an engineman overrunning a stop signal in which event the switch can be thrown under a train. The safest procedure would be for the leverman to know that the train, desiring to use the route on which it is necessary to release the switch, is standing behind the signal, and that it will not proceed until a signal indication is given or is flagged over the route in accordance with operating rules.

On terminal plants, usually there are switches located some distance from the tower and the view is obstructed so that the leverman is unable to see that the train for which he is releasing the switch is at a standstill behind the signal governing movement over the route. If he was to go on the ground to determine the location of the train, the result no doubt would be a

