What's the Answer?

Snow Shields

Is snow adherence to signal roundels a problem on your railroad? If so, how do you overcome it? If you use snow shields, do you leave them on the year around?

Permanent Sheet Metal Protectors

P. H. LINDEROTH, Signal Engineer, Chicago, Milwaukee, St. Paul & Pacific, Chicago, Ill.

In the Cascade Mountains some distance east of Seattle, Wash., it snows every day for about three months of the year and the flakes are about the size of a 25-cent-piece and heavy. It is necessary to operate a rotating snow plow ahead of each train in this territory. The signals are of the style "L" colorlight type and to overcome trouble from snow adherence and damage due to rotating plow plastering the signals, two types of protection devices are being used. One is a "V" type roof fastened to the background, the other is a rectangular cover completely surrounding all light units of the signal. They are permanently installed and serve the purpose for which intended. They are made out of ⅛-in. sheet metal fastened to the background. It would be an expensive operation to remove these devices at the end of the snow season.

Hotbox Detectors

How is the maintenance of hotbox detectors and associated equipment handled on your railroad?

RR Instructors Train Maintainers

F. L. CHATTEN, System Engineer-Communications and Signals, Pennsylvania, Philadelphia, Pa.

On the PRR hotbox detectors are now maintained by our signal and communications forces. A number of our employees were sent to instruction classes conducted by some manufacturers. The men who attended these classes were chosen because of their ability to instruct those who would actually maintain the detectors. In addition, these men can be called upon by the maintainer when the failures are of such a nature as to require a person with more technological training.

To insure proper maintenance the maintainer is provided with a spare part kit, an alignment device, a tool kit, portable oscilloscope, analyzer and a supply of spare parts. Maintainers examine the recording charts to detect irregularities, check batteries and charging rates, clean lenses on sensors, tighten bolts, adjust sensors for alignment, adjust gain, check fuses, lamps and tubes, as well as observe and report any track condition that might interfere with proper functioning of the detector. As conditions develop and are corrected, the information is circularized in order that all may benefit from the experience of others. At present we are maintaining in accordance with experience gained, awaiting specific instructions from the manufacturers, which are in preparation.

In addition to the above, the performance of each detector is watched to determine its efficiency in recording hotboxes, and where performance does not come up to the standard of others, the matter is gone into for correction.

Communications Dept. Maintains

DONALD L. WYLIE, Communications Engineer, Chicago, Milwaukee, St. Paul & Pacific, Chicago, Ill.

We have one Servo hotbox detector located at Duplainville, Wis., which was installed in 1959. Five more detectors have just been installed on our eastbound mainline between Minneapolis and Milwaukee, Wis., and were placed in operation on July 1.

Installation of these detectors was handled jointly by signal and by communications forces. Each craft handled that portion of the work normally falling within its work jurisdiction. All of our detectors are installed about six miles in advance of towers where operators read the chart recorders which are connected to the trackside location by wire lines. Each tower has radio for communication with trains.

The maintenance of these detectors and recorders is handled by electronic equipment maintainers of the communication department. The entire system is checked at two-week intervals and adjustments or tube renewals made as required. In addition to this the local signalman makes a daily check to insure that the rail-mounted transducers are in good order and that no physical damage has occurred to the track equipment. In the winter he has the additional duty of clearing the scanner area of snow.

Use Regular Signal Forces

J. F. NESS, Signal and Communications Assistant, Boston & Maine, Boston, Mass.

Hotbox detectors and associated equipment are maintained by our regular signal maintenance forces. Routine work, such as the checking of trackside equipment for loose connections, cleaning of sensor lens, battery checking and checking of all detector operating voltages, is done by the signal maintainer on the section where the detector is located. This man also takes care of the recorders on his territory, with regard to keeping the stylii clean and seeing that the proper amount of heat and tension exists on the stylii so that a very legible reading occurs on the recorder tapes. It is also his responsibility to maintain an adequate stock of recorder paper and spare tubes.

All track sensor heads are aligned at least once a year. This is done by the maintainer and the assistant supervisor.

All carrier associated with the transmittal of detector information is checked once a month and levels are readjusted if needed. This work is done under the jurisdiction of the signal engineer's office with the assistance of a signal department employee on the division where the detector is located, who has had special training on this type of equipment. In the event of trouble, this man is also used to take care of same.

A periodic tube replacement program is carried out based on past experience to minimize failures. All transistors are checked every six months. A complete stock of component parts is kept at a central point so that any defective unit may be replaced in a very short time. The defective unit is repaired by the signal department and is placed in stock.

The responsibility for proper maintenance and operation of these detectors falls under the office of the engineer of signals and communications.

Maintainer Changes Module

P. P. ASH, Superintendent Communications and Signals, Louisville & Nashville, Louisville, Ky.

The hotbox detector equipment is installed by our signal department, except blocking filters and way station filters when carrier is placed on an existing communication circuit. The maintenance is performed by the signal department on all facilities except that portion installed by the communication department.

If trouble exists in the detector equipment, it is the duty of the signal maintainer to correct it. If he isolates the trouble in a particular module and a change of tubes does not correct the trouble, he then inserts a spare unit and sends the faulty unit to a central point on his division. At this point the unit is checked and reconditioned and returned to the

(*Continued on page 36*)

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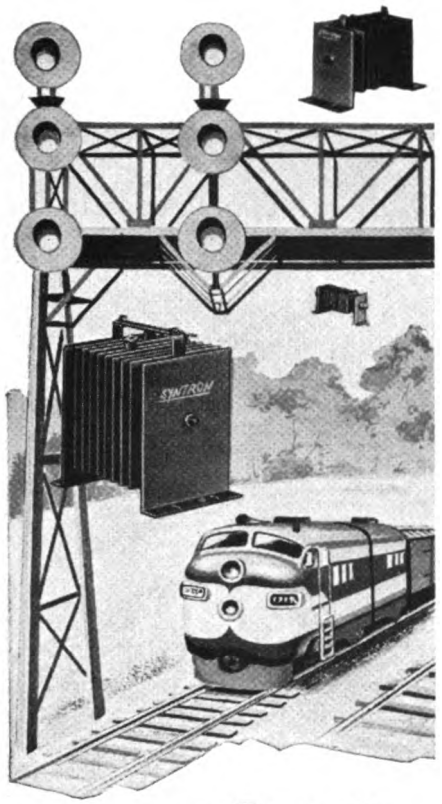
Reliable Performance



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WHAT'S THE ANSWER?

(*Continued from page 34*)

maintainer for a spare.

The maintainer is instructed to make periodic voltage readings and visual inspection of the physical layout in his program of preventive maintenance. A record is kept by the maintainer of all his voltage readings at each test point, and the physical measurements of the scanner adjustments, for the purpose of comparison when malfunction is evident.

Duplex Balancing

On duplex circuits, who does the balancing—operator, wire chief or maintainer? Why?

Carrier Obviates Balancing

R. F. POWNALL, Superintendent Electric Transmission and Communication, New York, New Haven & Hartford, New Haven, Conn.

All of our duplex circuits are carrier circuits and do not require the frequent balancing necessary on metallic duplex circuits, particularly those on open wire.

Switch Machines

Have you had any experience with an electric switch machine creeping away from its full throw position? In the event that an electric switch machine should creep after a signal over it had been cleared, what provision is made for restoring it to the full throw position?

No Creeping Trouble

H. J. MORELAND, Office Engineer, Delaware & Hudson, Albany, N.Y.

No, we have not had any experience with an electric switch machine creeping away from its full throw position.

In the event that a power-operated switch point would creep more than the allowable ¼ in. away from the stock rail after a signal over it had been cleared, the detector rod attached to the switch point would open contacts on the switch machine controller, which in turn would de-energize the normal or reverse switch correspondence relay. This in turn would de-energize the signal controls, the signal would assume the stop position, and the out of correspondence light on the switch control lever would indicate that the switch was out of correspondence with the lever. Also, with the normal and reverse switch correspondence relays de-energized, the signal in the stop position, and after the time had "run out" on the switch locking protection, the switch lock relay would be energized, put power on the switch machine motor, which would again move the switch to its full throw position.

Can You Answer These Questio

• Where AC track circuits are ployed in interlockings, what do employ to prevent the release o proach or time locking by the mo tary dropping of AC track relays to power interruptions or delib opening of AC disconnect switch

• Where slow orders and speed strictions are in effect for a perio time, do you temporarily rearrange cuits of signals governing moveme over trackage involved to display than Proceed indication?

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This operation would be repeated u the switch point stayed in its full thr position, or the operator of the plant versed the position of the switch. T change in the switch and signal indicati lights would indicate to the operator th the trouble existed.

If under the above conditions a tr should pass the stop signal involved, t lock relay could not be energized and t switch point would remain open.

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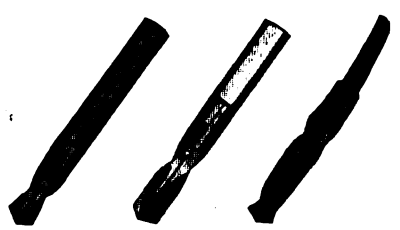

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