

C.T.C. INDICATION CODE

"In your coded C.T.C. systems, do you have automatic recall of indication code on transmission of each control code? Why?"

Yes--For Three Reasons

By J. R. DePRIEST

Superintendent Communications & Signals, Seaboard Air Line, Norfolk, Va.

IN the coded C.T.C. systems used on the Seaboard, the automatic recall feature is utilized. This feature provides for an indication code to be transmitted from the field location following each control code received by that particular field station, even though the control function does not change. By utilizing this feature:

(1) The operator of the control machine is furnished with up-to-date information each time a control code is sent to a particular field station.

(2) If an indication code is interrupted due to line or other trouble and does not reach the control machine, the operator can quickly check field conditions without wait-

ing for another change in field condition to transmit an indication code.

(3) In the event of equipment trouble that has caused one station to continuously transmit an indication code or cause "pumping action", a control code can be transmitted to each field station after the thermal relay has stopped the "pumping action", to determine which station caused the "pumping action". After transmitting a control code to a field station, a short interval of time is allowed to determine if an indication code is returned by the recall action of the control code. Of course, one of the stations will not respond, due to the thermal relay having opened the transmitting circuit of the field LCS unit. Therefore, the trouble experienced was caused by equipment at the particular field station where no indication response was obtained.

BOOTLEG RISERS AND BONDS

"What is your practice with reference to the installation of bootleg risers and bonds for track-circuit connections where rails are laid flush with street paving in urban areas? Please furnish sketch if practicable."

Concrete Block With Cover Plate Flush With Street

By E. S. WILLIAMS

Signal Supervisor
Louisville & Nashville, Evansville, Ind.

IN Evansville, Ind., we have an installation of highway crossing protection signals at 10 crossings on a single-track line, which runs down the center of streets through the city. The majority of track is flush with the street paving, thus requiring special bootleg risers for track-circuit connections. These risers are concealed below street level, unaffected by vehicular traffic, and can be inspected readily at any time.

Each riser consists of a 16-in. by 10-in. by 10-in. precast concrete block with a 3-in. hole in it, and a steel top cover plate 1-in. by 10-in. by 10-in., attached to the block by

three anchor bolts and nuts. The Number 9 underground track wires are brought up through the hole in the block, and soldered to the center of a 30-in. Cadweld bond, both ends of which are attached to the rail with a No. 2187C single-mold ratchet clamp. Replacements can be made at any time by removal of the cover plate.

The parkway cover plate is bolted in place on top of the riser block flush with the street paving, this plate being drilled with three $\frac{5}{8}$ -in. holes on $7\frac{1}{2}$ -in. triangular centers. Each hole is counter-sunk $1\frac{1}{2}$ in. wide by $\frac{5}{8}$ in. deep, this having been done with a bottoming-drill bit. The plate is held firmly to the top of the block by three $\frac{1}{2}$ -in. by 10-in. anchor bolts sunk in the block when cast, and three $\frac{1}{2}$ -in. nuts tightened flush with or slightly be-

To Be Answered In a Later Issue

(1) Where printing telegraph equipment must be located in small offices where men are busy at other work, such as in retarder control and yard communication towers, what practices can be employed to minimize annoyance caused by the noise of the printing telegraph equipment when in operation?

(2) What telephone facilities do you provide in crossing watchmen's towers and houses, so they may be advised of the approach of trains, and so they may warn ahead of a defect which may be noticed on a passing train, and the train stopped at an appropriate spot for inspection?

(3) What are the basic principles and functions of multi-unit, tetrode, pentode, diode, variable-mu, triode, and multi-electrode vacuum tubes?

(4) What kind of paint and how many coats have you found to be most effective in protecting and keeping dust down on concrete floors in battery rooms? How often should such floors be painted?

(5) In the maintenance of track circuits, what is the best way you have found to check drive-in plug-type rail-head signal bonds for tightness, broken strands, etc.?

(6) How do you mark dwarf signals, to enable their being better seen by trainmen climbing on and off cars during darkness, and thus minimizing chances of personal injury?

(7) In extremely cold climates, can small electric heaters be installed and effectively used in electric switch machines to prevent frost trouble? If so, what type of heaters do you recommend, what is their rating, and how are they supplied with power?

If you have a question you would like to have answered, or, if you would like to answer any of the above questions, your comments will be welcomed. Address: "What's the Answer?" Department, Railway Signaling and Communications, 79 West Monroe Street, Chicago 3, Ill.

low the top of the plate with a socket wrench, so as not to protrude above the plate and interfere with automobile or truck tires.

The hole in the block through which the cable enters is filled with sand before the cover plate is installed. Five feet of track wire and any surplus length of the 30-in. bootleg bond is coiled in the 3-in. hole in the concrete block under the plate. These risers are installed flush against the base of the rail approximately 1¼ in. from the ball of the rail, and have proved quite satisfactory to date.

Use Avoided

By B. F. McGOWAN
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Minneapolis, Minn.

ON our railroad, we have no bootleg risers for track-circuit connections where rails are laid flush with street pavement. In practically all in-

stances, our track department welds the rails where joints would come within the roadway area.

In one instance, to avoid the installation of insulated joints and bootleg risers within the concreted area of a street crossing in Waukesha, Wis., we installed instead a so-called "trap" circuit, as shown in the accompanying track layout and

circuit plan. The concreted area of the crossing contained no track circuit, nor was it bonded. By special circuiting, including directional-stick relays, we were able to provide adequate protection at this particular crossing. Another reason for not bonding it was the presence of an inter-urban electric railway line on this street.

VEGETATION ALONG POLE-LINE ROUTES

"How do you minimize the growth of vines or other vegetation along signal or communication pole-line routes, and prevent same from climbing the poles, guy wires, etc?"

Divert Direction of Growth

By C. B. CARGILE
Superintendent Communications & Signals
Florida East Coast, St. Augustine, Fla.

DUE to the semi-tropical climate, vegetation along our lines has a comparatively fast growth, and the

right of way has to be cut over by the section forces several times each year. It has been found that the best way to keep vines, which have a rapid growth, from climbing up poles and guy wires, is not to cut them off to the ground from where they would quickly renew their growth and climb up again, but to lay several feet of their growing ends away from the poles from where they will continue their climbing on some other object.

Chemical Killers

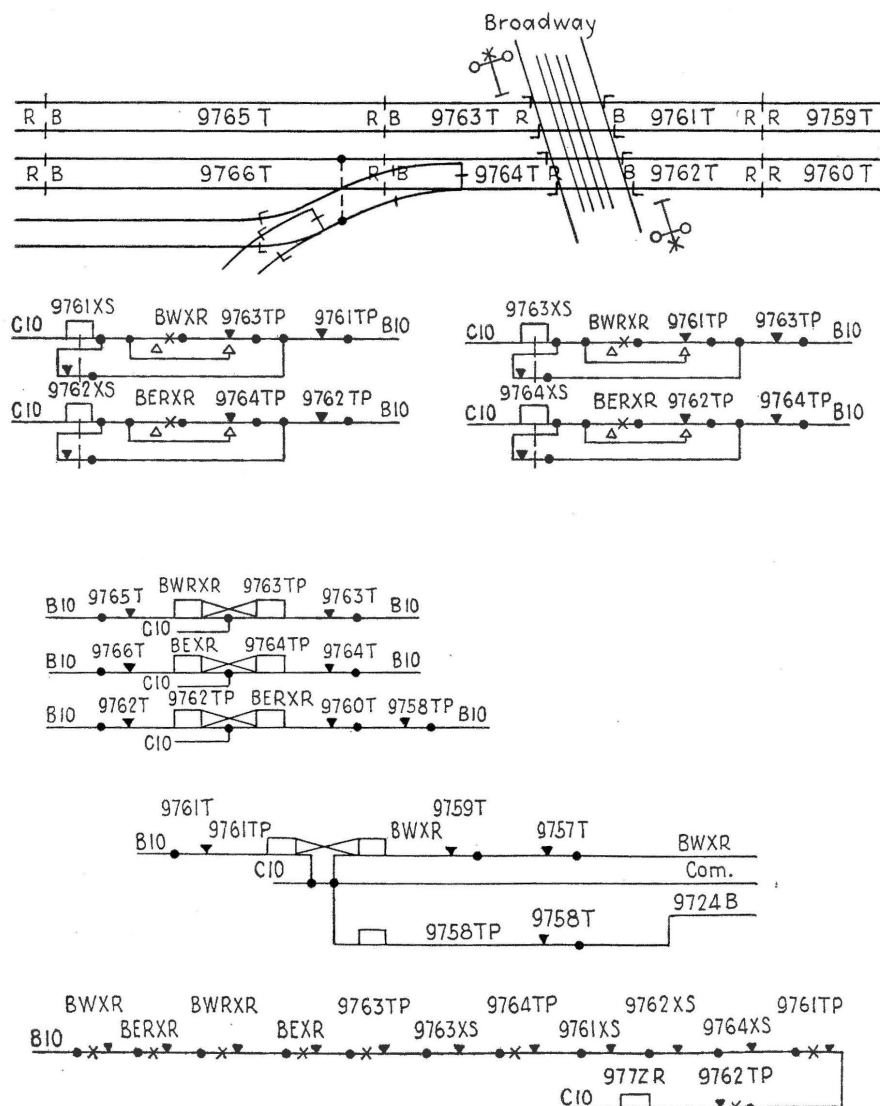
By H. L. SMITH
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Dow Chemical Company, Midland, Mich.

DURING the last five years, much progress has been made in vegetation control on transmission, railroad, highway, telephone and telegraph rights-of-way. The products that have been used to control broad-leaf weeds, vines, brambles and woody vegetation are the esters of 2,4-D and 2,4,5-T. This year, we have a product called Esteron Brush Killer, new, more effective low-volatile esters of 2,4-D, which contains 2 lb. of 2,4-D and 2 lb. of 2,4,5-T acid equivalent per gallon. It may be applied during the growing season as a foliage spray, using water as a carrier, with on-track equipment, as shown in Fig. 1, or with off-track power equipment, as shown in Fig. 2. A knapsack sprayer may be used for applying the spray on a small-scale basis, as shown in Fig. 3. Care must be taken when spraying in areas of 2,4-D and 2,4,5-T with respect to susceptible crops.

To employ the brush killer for foliage application:

(1) With on or off-track power equipment, use 3 to 4 qt. in 100 gal. of

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"Trap" circuit arrangement on the Soo Line at Waukesha, Wis.