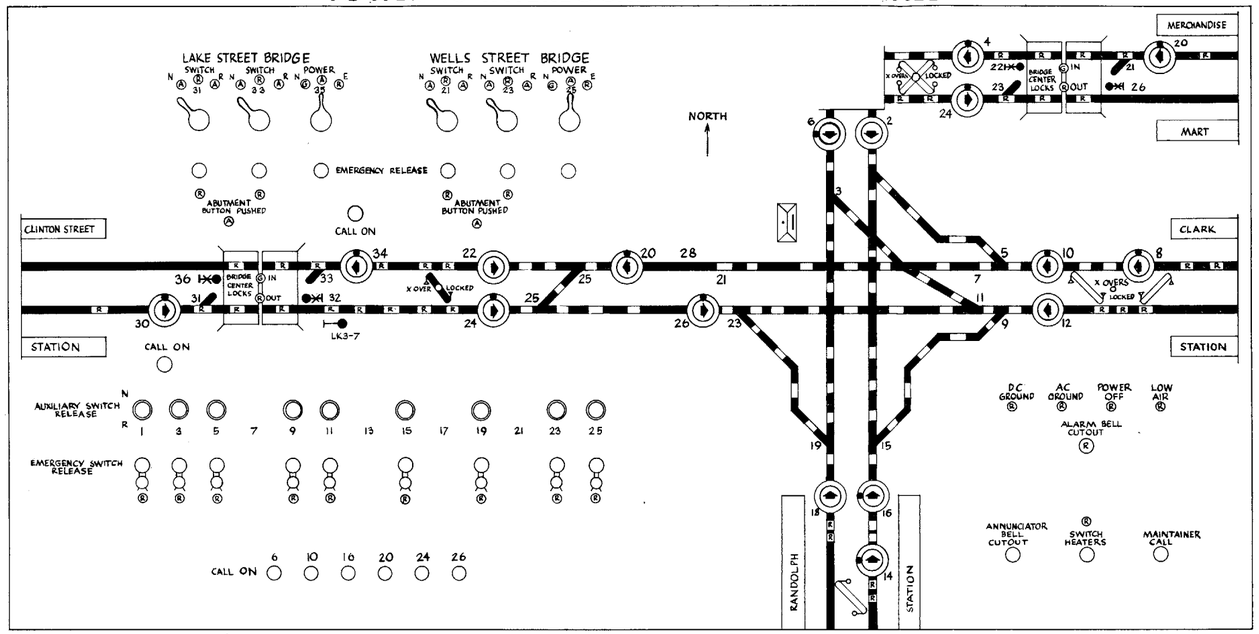
TOWER 18 INTERLOCKING CONTROL PANEL



DESCRIPTION OF CONTROL PANEL

The interlocking control panel contains the items listed below (see diagram):

TRACK DIAGRAM

The track diagram shows the location of all switches and signals in the interlocking.

Steady white lights illuminate an entire track section between signals to indicate a route lined up and locked; they illuminate in a short track segment adjacent to a route button to indicate as follows.

(1) When a white segment illuminates adjacent to a route button whose face is dark, it indicates that the button can be depressed to complete an available route.

(2) When a white segment illuminates adjacent to a route button whose face is red, it indicates that a route button has been depressed to complete the route which was initiated at the button with the red face.

Steady red lights in the track line indicate track occupancy or track circuit failure and go out when the circuit is cleared. Flashing red lights in a small track segment at a switch indicate that the switch is positioning.

ROUTE BUTTONS

Push-pull type buttons are located in the track diagram in positions corresponding to the positions of interlocking signals at track side. The number adjacent to the button is the number of the corresponding signal.

Route buttons are, in some cases, used singly to clear individual signals and, in other cases, are used in pairs to establish an entire route involving several signals and switches. Under normal circumstances, this eliminates the necessity for clearing each signal and positioning each track switch individually.

When a button is depressed, a red light in the face of the button illuminates. The light flashes red when the trip position and the signal indication do not correspond. The light changes to white when the corresponding signal clears.

When a button is pulled, it cancels a portion of a route and restores the associated signal to a stop indication.

Certain route buttons have a white dot on their upper face, indicating that they have a "fleeting" feature. When the white dot is in the center position, a train operating through a route will cause each signal behind it to display a stop indication and the signals will continue to display the stop indication until the route buttons involved are again depressed. When a button is depressed, then turned so that the white dot is at the head of the arrow on the button, a train operating through a route will also cause each signal behind it to display the stop indication; however, as soon as the train clears the route, the signals will clear, allowing a following train to use the same route without the necessity of re-depressing the route buttons. This feature continues operating until the button is turned so that the dot is again in the center position.

The use of route buttons to establish routes is explained on Page 7 , under "Procedure for Establishing Routes."

AUXILIARY SWITCH OPERATION LEVERS

There is an individual control lever on the panel for each switch and crossover in the interlocking.

Each lever has three positions; center, normal (N) and reverse (R). All switch levers are normally left in center position. However, when it is necessary that a switch be operated by lever, the switch is moved by moving the lever to the desired position (provided there is no route established which causes the switch to be locked). When a switch has been operated by switch lever, the lever must be returned to center position to restore panel control routing.

See the Manipulation Chart for the proper method of aligning routes when using the Auxiliary Switch Operation Levers.

EMERGENCY SWITCH RELEASE BUTTONS

Emergency switch release buttons, located beneath their associated switch control levers, permit operation of the switches from the control panel in the event of track circuit failure.

Each button has a seal which must be broken before the button can be operated. A red indication light, located below each button, illuminates when the button is operated.

CALL-ON BUTTONS

A call-on aspect has been provided for signals 6, 10, 16, 20, 24, 26, 30 and 34.

The call-on button for each of these signals is a push-type button. The buttons for bridge signals 30 and 34 are located adjacent to route buttons 30 and 34 on the track diagram. The other call-on buttons are located on the lower left-hand side of the panel.

If a route has been properly established and a train is stopped in approach to one of the above mentioned signals and the signal does not clear, the call-on button must be depressed. This causes a white light in the face of the route button to flash. When the call-on signal is acknowledged by operation of the track trip manual release on the signal, the light will become steady. When the train clears the signal, the light will go out.

ANNUNCIATOR BELL CUT-OUT

As trains approach the interlocking, a single stroke bell sounds. This bell can be cut out by depressing the "Annunciator Bell Cut-Out" button. The bell sound is restored by pulling out the button.

SWITCH HEATERS BUTTON AND LIGHT

This is a push-pull type button with an associated red light above it. The button is pushed to turn on the heaters and pulled to turn them off. The red light comes "on" when the heaters are turned "on" and goes "off" when the heaters are turned "off."

POWER OFF, GROUND DETECTOR AND LOW AIR LIGHTS AND ALARM BELL CUT-OUT

There are four red lights designated "D.C. Ground," "A.C. Ground," "Power Off" and "Low Air." In the event of a ground in the power system, a failure of a power source or a decrease in system air pressure below the minimum needed to operate switches, the appropriate red light will flash and an alarm bell will ring. Depressing the "Alarm Bell Cut-Out" button shuts off the bell and causes the light to become steady. The light remains on until the power source has been restored, the ground has been corrected or the air pressure has been restored to normal.

Whenever any of these lights comes "on," the Power Supervisor must be notified immediately.

MAINTAINER CALL

A push-type button is provided which, when depressed, operates a whistle. Whistle signals are as per Rule 131.

PANEL LIGHTS SWITCH

A dial-type switch is provided on the back of the panel to vary the panel lights setting from bright to dim.

CROSSOVERS LOCKED LIGHTS

There are several electrically-locked, hand-throw crossovers shown on the panel diagram. These crossovers are not operated from the control panel, but their operation affects moves through the interlocking plant. For this reason, these crossovers have an associated opal light designated "XOVER LOCKED." This light is "on" when the associated crossovers are locked in the normal position. The light goes "off" when the padlock on the hand-throw lever is removed. When a light is "off" trains cannot be routed by signal indication through the area affected by the crossovers.

BRIDGE CENTER LOCKS LIGHTS

There is a green light labelled "In" and a red light labelled "Out" on the panel at both the Wells St. bridge and the Lake St. bridge. These are the Bridge Center Locks lights. When the green light is "on," it indicates that the bridge center locks are in (locked). When the red light is "on," it indicates that the bridge center locks are out (unlocked).

Information about operation of the bridges is contained in the folder "Operation of Lake St. and Wells St. Bridges from Tower 18."

BRIDGE SWITCH AND POWER LEVERS AND EMERGENCY RELEASE BUTTONS

There are two switch levers and a power lever for each of the bridges. Each of the levers has an associated Emergency Release button beneath it. There is a red light associated with each switch lever emergency release button.

Information about the use of these levers and buttons is contained in the folder "Operation of Lake St. and Wells St. Bridges from Tower 18."

ABUTMENT BUTTON PUSHED LIGHT

There is one amber light for each bridge labelled "Abutment Button Pushed." The light comes "on" when the Abutment Push Button at the bridge has been pushed.

Information about the use of the Abutment Push Button is contained in the folder "Operation of Lake St. and Wells St. Bridges from Tower 18."

CONTROL PANEL OPERATION

Following are the procedures for routing trains through the interlocking. Not included are the procedures for operating the Lake St. and Wells St. bridges. This information is in a separate folder "Operation of Lake St. and Wells St. Bridges from Tower 18."

PROCEDURE FOR ESTABLISHING ROUTES

NOTE: Route buttons 4, 8, 14, 20 (at Merchandise Mart), 24 (approach to Wells St. bridge, northbound), 30 and 34 are only used individually to clear their associated signals. These are not points from which entire routes can be established, but are used to move trains to such a point or to control trains in approach to a bridge.

1. Depress the route button at the point at which the train is beginning its move through the interlocking (including interlocked crossover 25). (Possible starting points are signals 2, 6, 10, 12, 16, 18, 20 on Lake Route, westbound, 22, 24 on Lake Route, eastbound and 26.) The red light in the face of the depressed button will illuminate.

   Each available point to which the train can be routed will be indicated by the illumination of white lights in advance of that route button.

2. From the available points, choose the point to which you wish to move the train and depress that route button.

   The white track segment lights will go out at all points except the point selected and the involved switches will begin positioning (indicated by a flashing red track segment light at the switches). A white track segment light will then illuminate adjacent to the route button at the beginning of the route. When the selected route has been established, steady white lights will appear in the track line between the beginning of the route and its end point. A white light will appear in the face of the involved route buttons as each signal clears.

   NOTE: For all moves through crossover 25, a call-on signal must be given after the train is in the circuit in advance of the signal.

   The train is now lined up for a route and will automatically cancel each portion of the route as it passes.

   Note 1: If the same route is to be used by a following train, the towerman can use the "fleeting" feature by depressing, then turning the route button at the beginning of the route so that the white dot is at the head of the arrow. This prevents the first train from cancelling the route. The button is left in this position until the last train which will use this route approaches. The button is then returned to center position and automatic cancellation is restored.

Note 2: Signals 2, 12, 18 and 22 must be manually cancelled after use.

Note 3: Under certain conditions, a switch can be locked even though there is no obvious reason for it. When this is true and a request is made for a route requiring the switch in the opposite position, a light will flash in the indicating section of the switch and a light will also flash in the face of the route button which is causing the switch to remain locked. When this occurs and the switch is in the wrong position for the desired route, the Towerman must

1. Cancel (pull-out) the route button which has the flashing light in its face and wait 20 seconds.
2. Depress the route buttons for the desired move.

If the locked switch indication is still received after performing steps 1 and 2 above, the towerman can only establish the route by using the procedure outlined in the section "Emergency Switch Operation."

PROCEDURE FOR MANUALLY CANCELLING A ROUTE

If a route is established and then is not used, the towerman must manually cancel the route before a new route can be established. This is done by pulling out the route button for each signal involved in the route.

EMERGENCY SWITCH OPERATION

When the switches in a circuit are locked as a result of track circuit failure (indicated when a red light appears on the track diagram and there is no train in the circuit), the switches can be moved by operation of the auxiliary switch levers and emergency switch release buttons.

The following procedure must be used:

1. Be sure that all signals associated with the switch are at danger.
2. Place the auxiliary switch lever in the position to which the track switch is to be moved.
3. Break the seal on the appropriate emergency switch release button and remove the cap.
4. Push the button in and hold it until the red light below the button comes on, indicating that emergency control is in effect (about 2 seconds). (If the light does not come on, recheck step 1, then make another attempt.)
5. Pull the button out and hold it until a flashing red track segment light appears at the switch on the track diagram, indicating that the switch is positioning (about 30 seconds). When the switch has positioned, the flashing red light goes out and a steady light appears.
6. Return the auxiliary switch lever to the center position.
7. If other switches must be positioned, repeat steps 1 through 6 for each switch.
8. After all switches for the desired route have positioned, depress the route buttons.
9. Depress the call-on button for the signal at the beginning of the route.
   NOTE: The train must be in the circuit in approach to the signal before the call-on button is depressed.
10. Repeat the above procedure for each change of switch position until the track circuit failure is corrected.
11. Notify Signal Maintainer to renew any seal that has been broken.

OPERATION OF SWITCH MACHINES BY HAND CRANK

If the switches cannot be moved by operation of the control panel, it will be necessary to operate the switch machines by hand crank.

There are several different types of switch machines in the interlocking plant. Instructions for hand cranking the various types of switch machines are contained in the folder "Hand Cranking Interlocking Switch Machines."

CHICAGO TRANSIT AUTHORITY
TRAINING AND ACCIDENT PREVENTION DEPARTMENT
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