

View looking east over the crossover layout east of signal bridge Number 775B

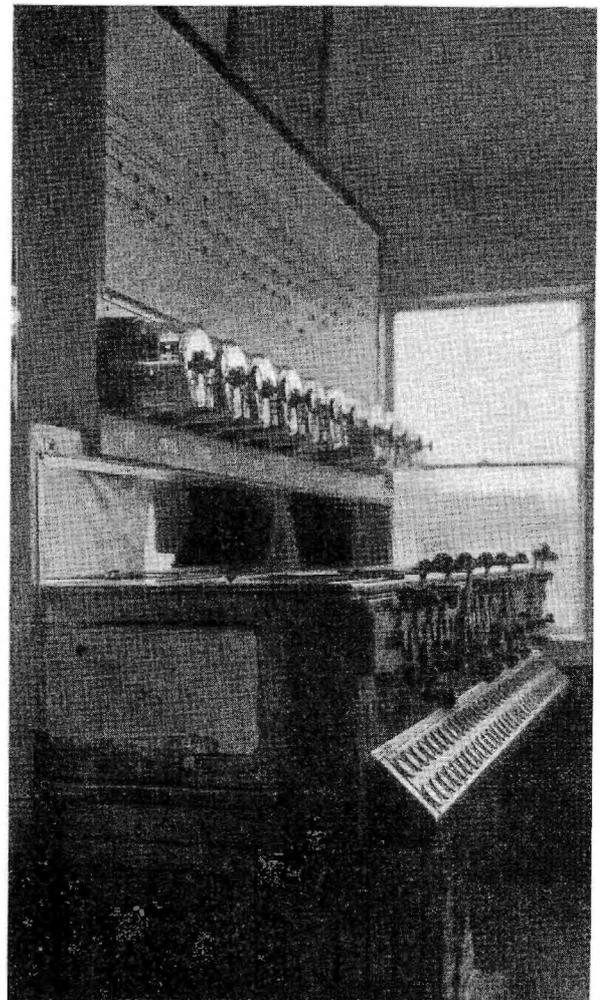
Electric Interlocking on the New Haven

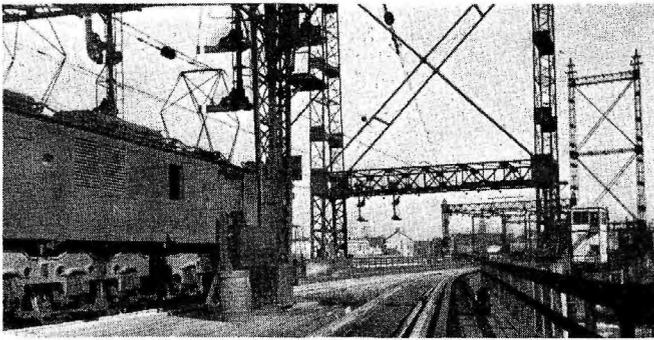
New Haven consolidates the control of switches, signals and drawbridge protection through Bridgeport, Conn., thus combining three mechanical interlockings into one electric plant.

At Bridgeport, Conn., the New York, New Haven & Hartford formerly had three mechanical interlockings. Through this city there are four main tracks on an elevated steel structure; Track 5, used as a station track, is also on the elevation. The freight yards and connections to docks and various industries west of the station are on the ground level, Track 5 and Track 6 descending from the elevation to ground level near signal bridge 775B.

The single switches and series of crossovers with slip switches and movable-point frogs between signal bridges 775 and 777 were formerly operated by a mechanical plant including 36 working levers, known as interlocking station No. 58. The platforms of the passenger station layout are located east of the area mentioned above, and between signal bridges 777 and 33L, and in this area the main line of the Berkshire branch connects with station track No. 5. This junction switch was

Interlocking machine and illuminated diagram in the station No. 60 now controls what was formerly operated by three plants





View of signal 33L looking east toward signal station No. 60

formerly, and still is, operated by a hand-throw stand, which is pipe-connected to and operates dwarf signals controlling train movements towards the switch. Track 6, on the other side, is a stub station track used by certain local trains. The single switches No. 16 and No. 12, the derails on the six tracks, and the signals in the area from signal bridge 33L to the drawbridge, as well as certain locks on the west half of the draw span, were operated from a mechanical interlocking machine with 20 working levers, the tower being located on the fixed bridge span on the west side of the Pequonnock river. This plant was formerly known as interlocking station No. 60. East of the bridge there was another mechanical plant with 8 working levers, which operated the derails on the two westbound main tracks, the signals and two bridge locks at the east end of the lift span. This plant was formerly known as interlocking station No. 61. Thus, these three mechanical interlockings, with a total of 64 working levers, were all located within an area of less than half a mile.

The plants were so close together that it was highly desirable to have the control concentrated in one tower so that the operation throughout could be co-ordinated, this being especially true when occasions arose to open the draw span for river traffic. In order to accomplish the results desired, the three old mechanical plants were removed and one electric plant, now known as interlocking station No. 60, with 27 working levers, was installed to control and operate the switches, signals

and derails throughout the entire area.

The interlocking is the Union Type-F system. The new switch machines are the Model M-2 or M-10, all the switches and derails west of the river being upon iron bridge work. Where the Model-2 is used, the Type-F controller is placed upon equalizing bars supported by girders of adjacent tracks to reduce vibration. They are equipped for operation on 110 volts alternating current. The standard arrangement of lock rods and also point detectors are used. The signals throughout are of the a-c. semaphore type, operating in the upper left-hand quadrant, and are equipped with high-power electric lamps providing a very long range. The locations of these interlocking signals were not changed, but the control system was revised to control all the signals from the new interlocking machine. The existing tower on the fixed span west of the draw was enlarged to accommodate the electric machine and additional equipment for the control of the operation of the lift spans. As a part of the improvement, asbestos shingle siding was applied to the exterior of the frame building.

The present interlocking machine is the Union Model-14 with three-position signal levers. Fourteen levers control 39 signals, 11 levers control 19 switches, 10 derails and 8 movable-point frogs, and 2 levers control bridge-locking devices. The new plant includes complete electric approach, detector and route locking, with sectional-release route locking. The track circuits, inde-

pendently of the electric switch locking, also control the power to the switch machines.

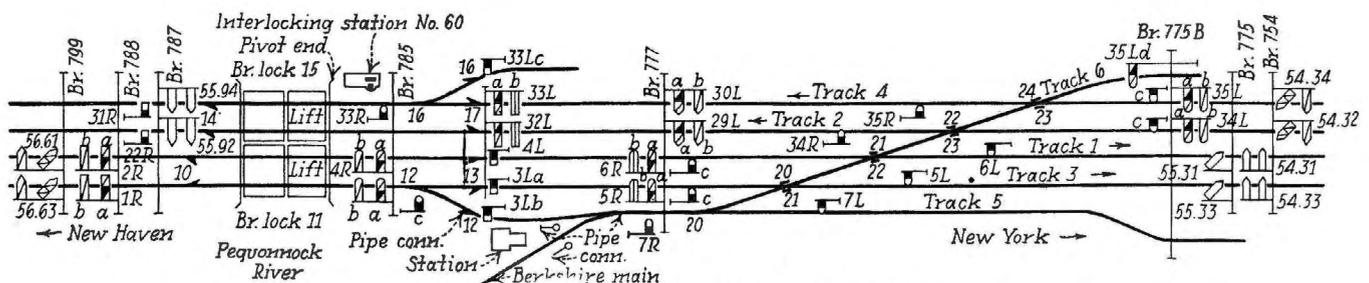
A-c. Power Used

Electric propulsion is used for the operation of main-line trains through this territory, this being a part of the New Haven's electrification between New York and New Haven, where 11,000-volts, 25-cycle propulsion is used. The signal system is supplied by duplicate 11,000-volts, 60-cycle distribution circuits, duplicate transformers and auto-power transfer switches are located where required. Impedance bonds are used to provide double-rail track circuits and cross bonding is provided as required. The track relays are of the centrifugal frequency type, operating on 60 cycles. The semaphore signals and the switch machines operate on 110-volts, 60-cycle alternating current. Some of the local relays in the tower are of the direct-current type, the circuits being fed on direct current supplied through rectifiers from the a-c. sources.

New Wires and Cables

When installing the electric plant, practically an entirely new system of insulated wires and cables were installed, using Okonite throughout. The main wiring distribution is in aerial cable, using stranded messenger strung on the catenary structure masts or to the bridge girders. New instrument cases and wiring were installed at the various signal bridge and switch layouts, and, of course, new cables were run to all the new switch machines, these cables being carried on messengers attached to the bridge structures under the level of the ties.

Since the new plant was placed in service, the operation of the drawbridges and the interlocking has been very satisfactory, mainly because the operations are co-ordinated under the control of one man, which is especially desirable when operating the bridge for river traffic. Incidentally, the change permitted the transfer of six men to other duties.



Track and signal plan of entire plant now controlled from signal station No. 60