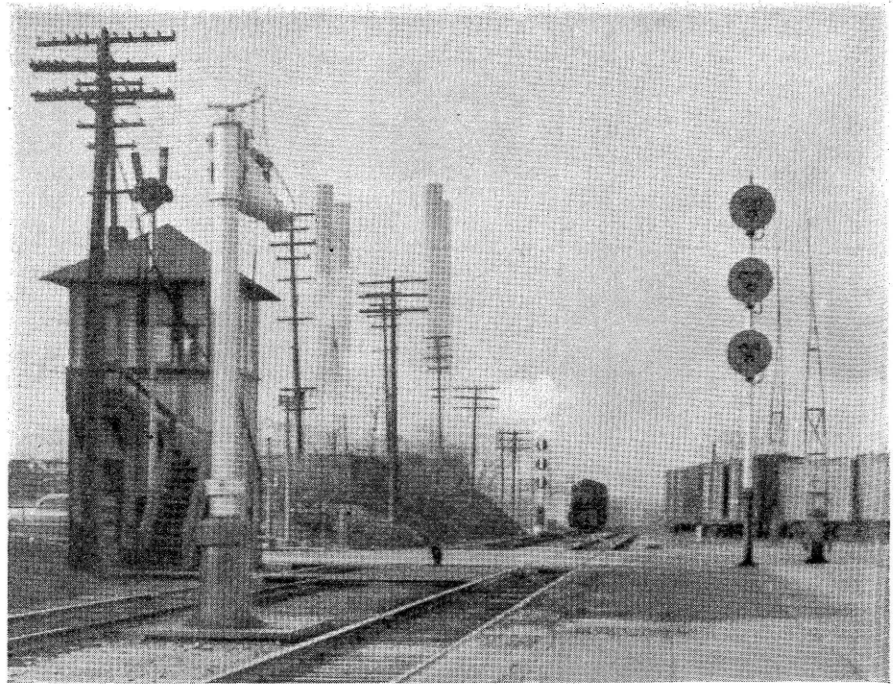


# Signaling Eliminates Platform Maintenance



Looking west from station platform—  
crossover and signal 4R in foreground

ON SEPTEMBER 25, 1936, the Grand Trunk Western placed in service a small interlocking installation at Lansing, Mich., on the Chicago division. At this location, the main station building and a concrete platform are situated on the north side of a double-track line. On the basis of savings to be effected by the retirement of a wood platform extending from this concrete platform to the eastward track, a power-operated facing-point crossover was installed, which is protected by four interlocked signals operating in conjunction with existing facilities.

With the installation of this facing-point crossover, eastbound passenger trains may be brought over onto the westward track for station stops. Discontinuing the wood planking has eliminated maintenance and snow removal charges necessary with the platform previously in service for east-

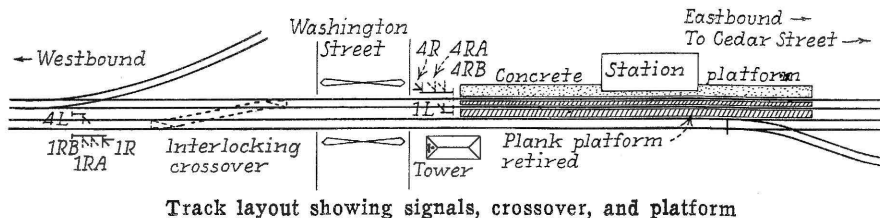
**Facing-point crossover protected by interlocked signals on Grand Trunk double-track line at Lansing, Mich., provides for station stops of eastbound passenger trains on westward track**

bound traffic. Four regular eastbound passenger trains use the crossover daily to get to the station platform. The closest scheduled moves are about 15 min. apart. Return to the eastward track is accomplished over a crossover which was already in service at an existing interlocking, just east of the station. No delay was introduced into train operation because previously it had been impracticable to load and unload two trains at the station at one time. Formerly, when a train was loading, other trains were

“held out” due to the risk and inconvenience involved to passengers. Approximately 20 switching movements are made over the new crossover daily, due to the fact that yards, which are used for local freight, are located west of the installation. Considerable traffic is involved on account of several large automobile factories in Lansing. The crossover also is used to take care of passing movements in which special trains are involved.

### Signaling Facilities

The control machine for the crossover and associated signals is located in a tower at Washington avenue, a heavily traveled city street just west of the station. This tower at one time housed a mechanical interlocking machine, controlling interlocking facilities provided for a crossing of the railroad and a street car line on Washington avenue. When the street car line was discontinued in 1934, the mechanical machine was removed and the tower used as a block office and control point for highway crossing gates protecting Washington avenue. The control machine for the new installation is a specially constructed General Railway Signal Company table interlocker, equipped with three



levers, one lever controlling the cross-over, and two levers controlling eight signals. The switch lever is of the crank type mounted at the bottom of the machine and operates to two positions, normal and reverse, being controlled through intermediate locking positions by an electric lock and a thumb latch. The signal levers are mounted on the upper portion of the face of the machine. An indication lamp to repeat a proceed aspect of a signal is mounted in the face of each signal lever. A diagram of the track layout is provided on the wall above the machine for the use of the operator. An ammeter on a panel above the machine indicates the operating load at all times.

No mechanical locking is provided between the switch lever and the signal levers, all locking being accomplished electrically. Bands on the signal levers, closed in the R or L positions, are used to select between R and L signals, the aspect displayed being dependent upon track occupancy, the position of the cross-over as checked by neutral switch indicating relays, and the position of traffic locking relays controlled by circuits extending from Washington avenue to Cedar street, an adjacent interlocking plant just east of the station. Signal indication and approach locking, with clockwork time release, is provided in the control of the switch lock, for the normal and reverse positions of the switch lever, by the use of normally energized stick relays re-

peating the normal positions of the home, distant, and dwarf signals.

Two home signals, each equipped with three Union Switch & Signal Company Type TR color-light signal units, were installed to protect traffic moving in the normal direction on the respective tracks. The top arm of each of these signals is a three-position unit, displaying red, yellow, or green. The lower two arms of each signal, although equipped for three aspects, operate only to two positions, each displaying either red or yellow. On both home signals, the top arm is used to govern straight track movements, the track being unoccupied. The second or middle arm is used to control medium speed movements over the crossover reversed, and the third or bottom arm is used as a "calling-on." Two dwarf signals, of the searchlight type, displaying either red or yellow aspects, were installed to control trailing movements over the switches. Approach time locking is provided on high signals as well as dwarf signals, for movements in the normal direction and for reverse movements, by the use of clockwork time releases, set for two minutes. The switch points are operated by two General Railway Signal Company Model 4 110-volt electric switch mechanisms.

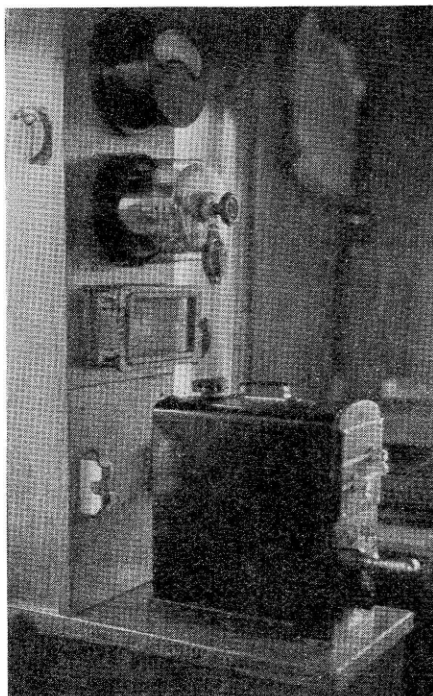
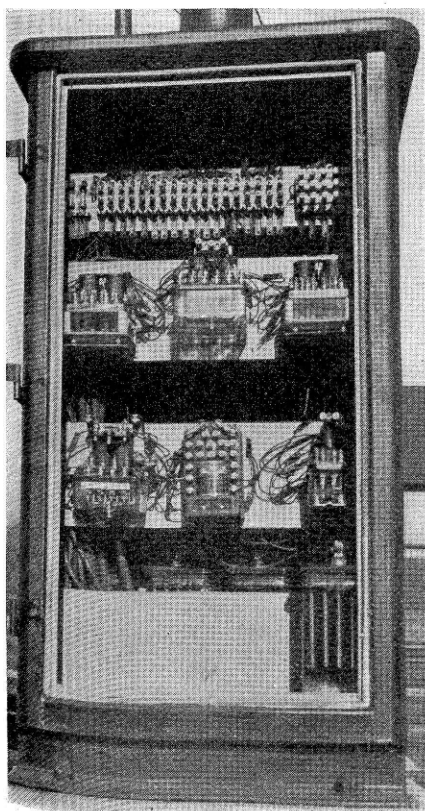
**Power, Relay, and Wiring**

Power for the operation of the plant is obtained from 57 Exide KXHS7 storage cells in the basement of the Washington Avenue tower. These cells are on floating charge from a Union RT-21 rectifier unit connected to the mains of the municipi-

pal lighting company. Relays were housed at two different locations, 7 relays at the eastbound home signal, and 24 relays in the Washington Avenue tower basement. The relays are either G.R.S. Type K, or of the Union DN-11 type, and are wall-mounted. No polar relays were used, neutral relays being provided for switch indication. Double-rail d-c. track circuits, fed by three 500-a.h. Edison M-500 primary cells in multiple, with 4-ohm track relays, were installed. All outside wiring is in parkway cable, two 10-conductor cables extending from the tower to the near end of the crossover. These cables contain all switch and signal control wires. One 10-conductor and one 7-conductor cable connect with the two 10-conductor cables at the switch nearest the tower and extend to the eastbound home signal location.

The interlocking just east of the station, at Cedar street, is a G.R.S. all-electric plant controlling the interlocking facilities for a crossing of the Grand Trunk with the New York Central and the Michigan Central. The crossover used for returning eastbound trains from the station to the eastward track is part of the Cedar Street plant. Traffic locking circuits are provided for the westward track between Washington Avenue tower and Cedar Street tower, push-button release facilities being provided.

The installation was made by one of the signal department construction gangs, composed of five men. An interesting feature of the installation was the moving of a water pipe, which formerly was between the main tracks, to a point north of the westward track in order that eastbound trains might take water while at the station.



Left—instruments at signal 1R  
Center and below—control machine in Washington St. tower

