

## Records Gate Operations

IN order to check reliability and record the operation of automatic gates, as a matter of record in the event of accidents at important highway grade crossings, and to absolve the railroad from blame when complaints are received from municipalities regarding the length of time automatic gates are down, the Chicago, South Shore & South Bend, a 90-mile electrified passenger and freight railroad operating between Chicago and South Bend, Ind., has installed seven recorders to record gate positions at 13 grade crossings. The first recorder was installed in 1948, and the most recent one was installed in 1950; three additional installations are scheduled for 1951. Five recorders are in service in Gary—one each at five grade crossings; one recorder is in service in East Chicago, covering six grade crossings; and one recorder is in service in Hammond, to provide a record for two grade crossings.

### Recorders Circuit

The circuit for a typical 10-pen recorder, as installed at Sheffield Avenue in Hammond to record the operation of two gates at that crossing, as well as two gates at Hohman Street, in the same city, is shown in Fig. 1, and a portion of the chart removed from the recorder is shown in Fig. 2. At Sheffield Avenue, the first and second pens are used to show occupancy of the eastbound and westbound track circuits controlling the gates, respectively. The third and fourth pens indicate that the north and south gates, respec-

**Occupancy of crossing protection approach control track circuits and whether gates are down automatically checked by recorders**

tively, are down at Sheffield Avenue, and the fifth and sixth pens show the same functions for Hohman Street. The seventh to tenth

closed during the time the gates are down between horizontal and 10 deg. off horizontal, and open from 10 deg. to 80 deg. when the gates are raised. Track-occupancy indications are picked up by BX-110 extending over back contacts of the XR relay de-energized, also with the CX-110 direct to the recorders.

The recorders for the installations are the Model AW case type for wall mounting, designed for 115-volt, 60-cycle service with 10 pens (available with one to 20 pens),

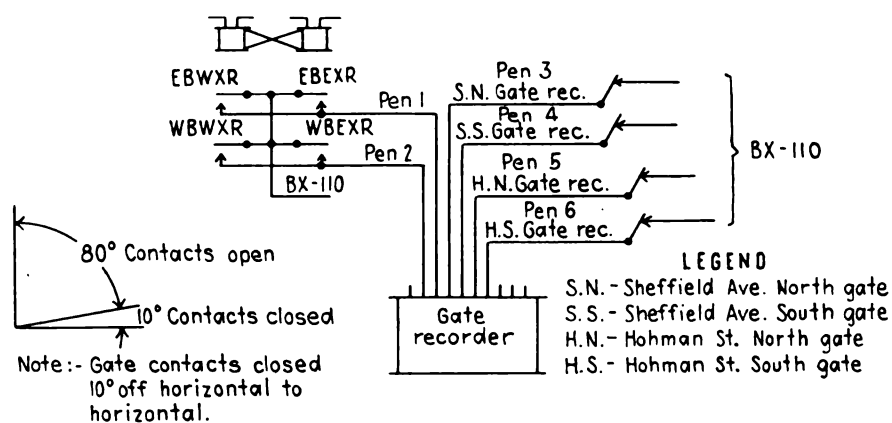


Fig. 1—The circuit for a typical 10-pen recorder

pens, inclusive, are not presently in use, and, therefore, are spares.

The four gate-down indication circuits to the recorder, as shown in Fig. 1, consist of BX-110 taken through a contact in the mechanism of each gate involved, with CX-110 direct to the recorder. The contacts in the gate mechanisms are

each having a separate electrical-return circuit. It is a voltage-operated recorder with a Type-3 chart drive, 115-volt, 60-cycle, synchronous motor-driven, providing a chart speed of 6 in. per hour, and using chart No. 1710-D. They were furnished by the Esterline-Angus Company.

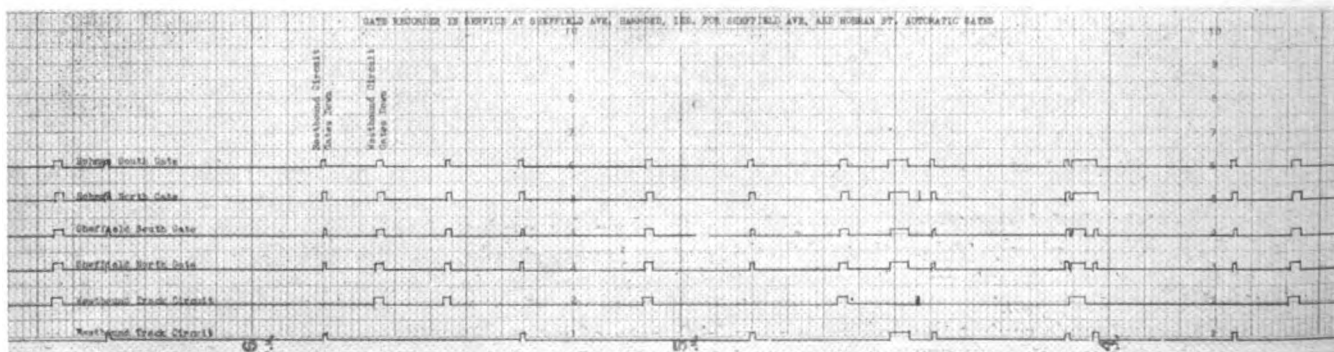


Fig. 2—Chart from the 10-pen recorder installed in Sheffield Avenue

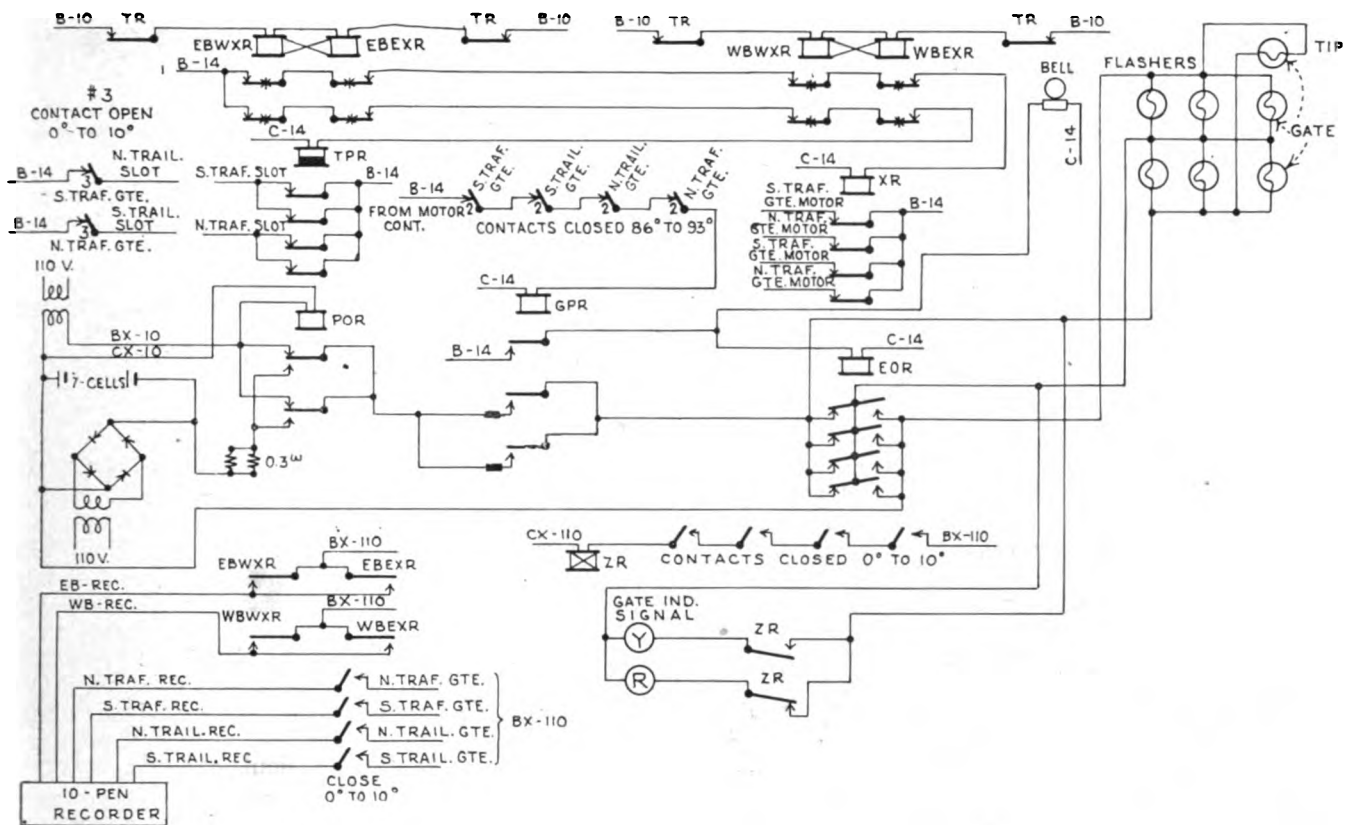


Fig. 3—A typical diagram for South Shore automatic gates

Referring to Fig. 3, which is a typical diagram for our automatic gates, it will be noted that we provide a wayside signal for train movements over automatic gate-protected grade crossings. The wayside signal is normally black, flashing red with flashers functioning and

gates lowering, and flashing yellow with flashers functioning and gates down. Although, normally, a train can not stop short of the crossing, the wayside signal does alert the train service employees to any abnormality, which has proved very worthwhile in several cases.

The highway crossing protection recording projects were carried out by the regular signal forces of the South Shore Line under the direction of W. F. Auch, assistant signal engineer. The crossing gates involved are the Western Railroad Supply Company's.

## Interstate Commerce Commission Statistics

THE Bureau of Safety of the Interstate Commerce has issued its annual tabulation of statistics pertinent to block signals, interlocking, automatic train control, telegraph and telephone for transmission of train orders, spring switches and train communication systems in use on the railroads of the United States as of January 1, 1951. The following information is abstracted from the compilation.

### Increase in Automatic Block

Automatic block signaling was in service on 77,251 mi. of road or 108,604 mi. of track. Of the miles of road, 49,836 were single track and 27,415 mi. were two or more tracks. These figures compared with those for January 1, 1950, represent an increase of 874 mi. of road and 652 mi. of track. Non-automatic block, at the beginning of 1951, was in service on 30,284 mi. of track or 29,132 mi. of road. Light type signals were

in service on 73,900 mi. of track, an increase of 2,659 mi. The total number of automatic block sections was 86,869.

As of January 1, 1951, automatic train stop or train control devices were in service on 13,967 mi. of track, involving 6,213 locomotives, as compared with 14,081 mi. and 6,688 locomotives a year before. Cab signaling, in connection with automatic wayside signals, without automatic train control was in service on 7,642 mi. of track, involving 4,518 locomotives. Cab signaling without automatic wayside signals and without automatic train control was in service on 7,753 mi. and cab signaling in connection with automatic train control, without wayside signals was in service on 1,668 mi. of track involving 700 locomotives.

The total number of interlockings in service at the beginning of 1951 was 6,592, a decrease of 147. Of the interlockings in service, 490

were automatic, 1,672 electric, 338 electro-mechanical, 467 electro-pneumatic, 1,297 mechanical, 2 pneumatic, and 86 other types. About 617 of the interlockings were controlled remotely.

The tables list a total of 461 installations of centralized traffic control, an increase of 35 over the year previous. The projects included 14,892 mi. of track, 2,076 passing sidings, 6,103 switches controlled, 18,567 signals controlled, and 8,242 automatic signals.

About 6,846 spring switches were in service at the beginning of 1951, compared with 6,802 the year previous. Of the 6,846, about 4,653 were in automatic block territory, 238 in manual block, 224 in C.T.C., 887 in non-block, 166 in interlockings and 688 in yards.

For transmitting train orders, the telegraph is used on 62,962 miles, and the telephone on 148,598 miles.