Burlington Tests Show Signals Adequate

In five tests in the presence of representatives of the Interstate and Illinois Commerce Commissions, railway officers, newspaper men and others, the Chicago, Burlington & Quincy conclusively demonstrated that the disastrous collision at Naperville, Ill., on April 25, between the "Advance Flyer" and the "Exposition Flyer," in which 45 people were killed and 36 were seriously injured, could have been averted if the following train was operated in accordance with the rules and signal indications.

In making the tests, the Burlington used a 4,000-hp. Electro-Motive Diesel-electric locomotive, three coaches, one dining car, two Pullman tourist cars and three standard Pullman cars, all of conventional all-steel design and the identical type of cars that were in the "Exposition Flyer" on the day of the accident. Brake shoes were distributed throughout the train to compensate for the estimated weight of passengers on the regular train on that day. Water tanks on all cars were filled to capacity, as were the fuel tanks on the locomotive. The gross weight of the train was 2,146,610 lb., including the locomotive, cars, passengers, ballast and supplies. Brake-pipe pressure of 110 lb. was maintained throughout the tests.

Signal Visible 5,123 Ft.

As was reported on page 353 of the May issue of Railway Signaling, the collision occurred on track 2 when No. 11, the "Advance Flyer," stopped at Naperville for inspection after one of the trainmen thought he observed something fly from under the train. A few minutes later No. 11 was struck from the rear by No. 39. The second signal to the rear of No. 11 was displaying a yellow aspect, the "restricting" indication. This signal can be seen from an approaching train throughout a distance of 5,123 ft. before it is reached. The distance between this signal and the one immediately to the rear of the train, which latter signal displayed the "stop" indication, is 5,617 ft. The point of accident was 934 ft. beyond the "stop" signal. Throughout this entire distance the grade is slightly rolling and is calculated to average 0.04 per cent ascending for westward trains. The maximum authorized speed for No. 39 on track 2 in this area is 80 m. p. h.

The following Burlington rules govern the operation of trains at this point:

At the scene of the recent Naperville, Ill., accident, a test train was stopped short of the stop signal in all cases where the rules were obeyed.

Timetable Rule 1—When a distant signal is displaying a restricting indication, trains must reduce speed at once and move at "restricted speed" until the indication of the next governing signal can be determined.

Book of Rules—Definition of "restricted speed": Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

Rule 917, Book of Rules—When fogs, storms, or other conditions obscure the track or signals, speed of trains must be reduced to permit strict observance of signals and insure safety, regardless of time.

An extra engineman, qualified for passenger service, was used for the first two test runs, but because the three final runs were to be operated in a manner contrary to that required by the rules, they were operated by a road foreman of engines. In the first test the engineman was instructed to...
operate the train at 80 m. p. h., and, upon sighting the restricting signal, to comply with his understanding of the Burlington's rules, except that once the brakes were applied he was to allow the train to come to a stop.

In the actual test the train was running at 81 m. p. h. when the signal was sighted and the engineman made the brakes were applied he was to allow the train to come to a stop.

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The second test was identical to the first, except that the engineman was instructed to operate the train at 85 m. p. h., 5 m. p. h. in excess of that authorized by timetable. In this test the actual speed was 86 m. p. h. at the time the brakes were applied, a single 12-lb. reduction being made. The train stopped at a point 7,913 ft. beyond the point where the brakes were applied, or 1,364 ft. short of the "stop" signal and 2,208 ft. from the scene of the previous week's collision.

In test No. 3, the engine was handled by a road foreman of engines, who was instructed to operate the train at 80 m. p. h. up to the distant signal and then to stop the train by a brake-pipe reduction of 13 lb. The train came to a halt in 7,368 ft., 1,576 ft. short of the "stop" signal and 2,510 ft. short of the point of accident.

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