

fic. The area including the extension of the yard tracks, relocation of the northward main, the new switch layouts, retarders and new hump is all

N. The loud-speaker telephone system, made by the Western Electric Company and the humpmaster-to-engineer telephone system fur-

sible, be so installed and circuits so arranged that failure of any part affecting the safety of train operation will cause all signals affected to display the most restrictive indications which conditions require.

702. Signal indications shall be given by positions, by colored lights or flags, or by both. A single white light shall not be used for a Proceed indication.

703. Means of communication shall be provided between block stations.

704. The limits of each block shall be properly designated and marked, and means shall be provided by signal indication or prescribed form to convey to a train about to enter a block information concerning conditions affecting the use of the block.

705. Each railroad company shall establish rules which will provide that a passenger train shall not be admitted to a block which is occupied by another train and a train shall not be admitted to a block which is occupied by an opposing train or by a passenger train, except under flag protection; and a train other than a passenger train shall not be permitted to follow a train other than a passenger train into a block except when authorized by train order, permissive signal or prescribed form, and when such movement is so authorized the following train shall be permitted to proceed only with caution prepared to stop short of train or obstruction.

706. In the controlled manual block system continuous track circuits shall be provided throughout each block and signals shall be arranged to display their most restrictive indications automatically upon the entrance of a train into a block.

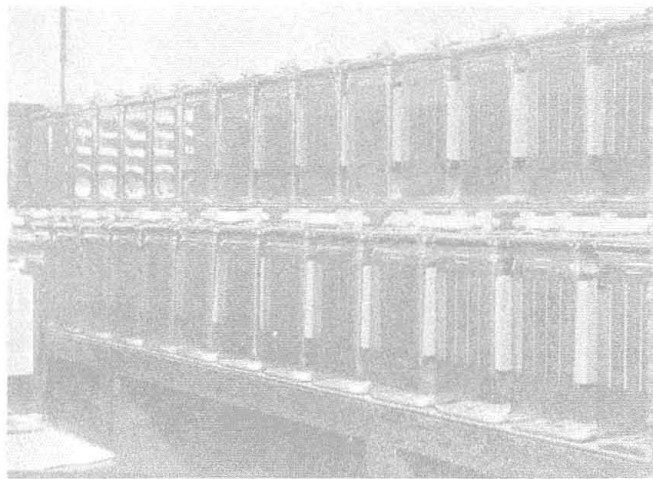
707. In the controlled manual block system a hand-operated switch electrically locked in normal position shall be so arranged that it can be unlocked only after release has been given, after signals protecting such switch display the most restrictive indications the condition requires, and either after a predetermined time interval or, with approach locking, when approach section is unoccupied.

708. In the controlled manual block system means shall be provided to prevent changing the direction of traffic through the block while any portion of the block is occupied or while a signal is displayed for a train to proceed into the block.

709. In the controlled manual block system indication locking or equivalent shall be provided for all home signals and for approach signals of the semaphore type, to insure that these signals display their proper restrictive indications before a signal for a conflicting movement can be cleared. (This section to be effective as applied to existing installations 1 year after issuance of order.)

710. In the staff block system the apparatus shall, so far as possible, be so installed and circuits so arranged that failure of any part affecting the safety of train operation will prevent a staff from being removed from the machine at either end of the block.

711. In the staff block system the staff instruments at the ends of each block shall be so electrically connected and synchronized that the withdrawal of a staff from either instrument can be effected only by the joint operation of the two staff instruments; also that but one staff can be out of both instruments at any one time. The same design of staff shall not be used in adjoining blocks.



The main battery includes 120 cells rated at 160 a.h.

new fill varying in depths of 2 ft. to 25 ft., approximately 115,000 cu. yd. of fill being required. Clay, gravel and other material was taken from two borrow pits located east of the tracks about one mile south of the hump. The fill was laid in layers of not more than 18 in., each layer being rolled and tamped with sheep-foot tampers. In order to insure stability, a bedding of bridge timbers 8 in. thick was laid 20 in. below the ties under each retarder, and gravel ballast was filled in from this bedding to the ties.

New 100-lb. rail was laid in the main leads and through the switches and turnouts. Through the retarders, the rails were welded in order to eliminate all rail joints in the retarders. Track circuits were installed to prevent the operation of switches under cars, an important feature with reference to track construction being that the insulated rail joints for these track circuits were located exactly in the correct positions to provide maximum protection and permit minimum spacing between cars.

The reconstruction and equipment of DeCoursey yard is the result of years of investigation and planning by operating and engineering officers of the Louisville & Nashville. A. M. Stevenson is superintendent of the division including this yard, W. T. Cummins is trainmaster and W. E. Burgoyne is general yardmaster. G. R. Smiley, chief engineer of the L. & N. had general jurisdiction of the construction program. The fill was placed by contractors, and the tracks were laid by railroad forces. The power switches, retarders and control system were furnished and installed by the General Railway Signal Company under the direction of W. H. Stilwell, signal engineer of the L. &

nished by the Union Switch & Signal Company, were installed by railroad forces under the direction of H. W. Burwell, telephone engineer for the L. & N. The expenditures for the entire program totaled about \$600,000, of which \$392,000 was for filling and track work, including the receiving yard as well as the classification yard; \$175,000 for the power switches, retarders, controls and power supply apparatus, \$15,000 for buildings and \$18,000 for communication equipment, flood-lighting, snow melters, office equipment and other incidentals.

In addition to meeting the demands of increasing traffic, the new facilities have eliminated delays and congestion in this yard, and the savings in time and operating expenses justify the completed project.

## I. C. C. Manual Block Regulations

The Interstate Commerce Commission has issued an order citing the railroads to show cause, on or before May 1, why the Commission's order of April 13, 1939, should not be amended by prescribing rules, standards and instructions for the installation, inspection, maintenance and repair of manual, controlled manual and staff block systems. The proposed regulations and definitions formed a part of this order. The standards are as follows:

701. Apparatus used in connection with power-operated signals shall, so far as pos-