

The use of metal versus concrete houses is not a vital question, both types should be constructed and ventilated so as to eliminate sweating on the inside. The house should be large enough to eliminate crowding of the relays, etc., also leaving head room so that terminals can be readily accessible. The house should also be provided with wired glass windows in the end opposite the door, and the house should be set parallel to the track so that the maintainer, when working within, can have full view through the window, or through the door, of the track and signals. Another convenience where a-c. power is available, is an electric light with a long drop cord and an a-c. plug to be used in connection with electric soldering irons, small electric drills, etc. A house so arranged is convenient for the maintainer and his efficiency is increased because he is out of the weather when working or making tests, rather than out in the weather in front of individual relay cases.

The use of a house eliminates all underground or aerial connections between cases, requiring only the termination of aerial cable and underground parkway or trunking in the house. All other wiring between other apparatus is open and visible inside.

It is also advisable to locate all the operating storage batteries for switch machines, signals, etc., with their proper charging apparatus, in the house even though it does take a few feet more of aerial or parkway conductors to reach the signals and switches on the ground.

Where individual relay boxes are used, either bunched or scattered over the plant, one maintainer loses considerable time in making tests, tracing his circuits and making any necessary repairs. Also, a maintainer working at individual relay boxes is inconvenienced by weather conditions. Opening the cases during wet, damp or cold weather is detrimental to the apparatus. It is my opinion that the use of a small fire-proof house, either metal or concrete, is very efficient, and contributes to the economy of the maintenance and operation of any centralized system.

Time-Table Schedules and Signal Indications

"In preparing rules for the operation of trains by signal indication, using the centralized-dispatcher controlled system, is it desirable to leave the time-table in effect, or should the signal indications supersede all other rights?"

Trains Should Be Flagged Through Territory in Case of Failure

By G. W. TROUT

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Pere Marquette, Detroit, Mich.

IN the centralized-control territory on the Pere Marquette, signal indications supersede time-table rights and written train orders. The only trains affected by the time-table are passenger trains scheduled to stop at stations in centralized-control territory, and these are not permitted to leave scheduled stations ahead of time.

The matter of leaving the time-table in effect, in case of a failure of signal and communication circuits, has been given consideration by our operating department. However, it is their opinion that, even though the time-table were to supersede signal indi-

cations, in case of failure of both communication and signal lines, train and enginemen in the territory would not know when such a condition existed, as the failure insofar as any one train is concerned, might be purely local for that train, and trains in adjacent territory might be operating under signal indications. Therefore, it would not be a safe operation to attempt to revert to time-table rights, owing to the fact that no method has been found of advising trains, when there is a complete failure of both communication and signal circuits.

It is the opinion of our operating department that it would be necessary, in case of such a failure, for trains to be flagged through the territory, and until either communication, signal lines or means of transmitting the orders could be established.

Time Card Only Needed to Show Departure Time at Stations

By J. H. SCHUBERT

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TIME-TABLES are used to confer rights, class and direction, train orders being distinct from, but used in conjunction with, time-tables for the same purpose. When centralized-dispatcher controlled signaling is applied, we have ruled that the signal indications supersede time-table superiority, and take the place of train orders. Such being the case, the necessity of a time-table for train operation has disappeared.

We do believe however, that a time card should be used, showing the time of passenger trains at a station, and that trainmen on such trains be instructed that they must not leave a station ahead of the leaving time shown on the time card. This however is not essential to train operation, but is maintained as an accommodation to the public. Should there be a failure of either a power-operated switch or a home block signal, the train is stopped, and, after examination of switch, or possibly operation of it by the dual-control switch machine, the train controller may grant permission for the train to proceed. Such permission is granted by telephones, which are located at all power-operated switches.

Should either of the above failures occur, and lines of communication be broken down at the same time, the train can only advance under flag protection, until communication is restored, or the signal defect remedied.

We have operated under these rules for five months during which time heavy traffic prevailed, and considerable ice and snow was present. To date we have had no serious delays.

Signal Dispatching Installation Must Be of Substantial Character, if Time Table Information Be Reduced

By B. J. SCHWENDT

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A TIME-TABLE is the authority for the movement of regular trains subject to the rules. It contains the classified schedules of trains, and also special instructions relating thereto. A schedule, however, is that part of a time-table which prescribes class, direction, number and movement for a regular train. By movement is meant the time, regular and flag stops, meeting and passing points, between what stations and on what days it runs. A schedule is simply a part of a time-

