

damage, he should not carry these items if the division storehouse is on his territory as he can readily secure it when needed. If the storehouse is not on his territory, then he should carry such items and a great enough variety of other items to take care of the ordinary emergency, realizing, of course, that it would be false economy for each man to have enough material on hand to take care of all possible emergencies.

There is room for a great difference of opinion as to what should be and what should not be kept at maintainers' headquarters. When it comes to emergency material, it is impossible for any one to state definitely that any certain item is going to be needed at any certain time, or that it is going to be needed at all. It should be left to the judgment of a supervisor of experience who knows the territory and the conditions that exist.

In this connection, after it is once definitely decided what material is to be held at any one point, a list of the items should be posted in the material shed; this list should show in one column the maximum amount that is authorized and in another column the minimum amount that should be on hand.

This posted list is of convenience to supervisory forces in checking stock, and it is also of convenience to the maintainer in defending his stock in the event that some one in authority but not in a position to know conditions is looking around.

I. A. Uhy, signal engineer, St. Louis-San Francisco, expresses his opinion as follows: "Under normal conditions supplies should be delivered by supply cars to a maintainer each 30 days in quantities sufficient to meet an average 30-day requirement. We have not found any necessity of requiring one maintainer to be a storekeeper for several others. We require maintainers to carry in their stock only the material and supplies which they need for their own use, and for which they alone are responsible."

Track Capacity

"Based on your experience, what would you say is the maximum number of trains that can be handled under practical conditions over a single-track division of say 60 to 100 miles?"

On the Big Four*

C. F. Stoltz

Signal Engineer, Big Four, Cincinnati, Ohio

The number of trains that can be operated over a single-track division depends very much on the latitude that may be permitted in arranging the schedules. Assuming that there will be the same number of trains in each direction, moving at the same speed, the maximum number that may be handled in a given period is obtained by pegging the trains on a time interval equal to the time required to operate in both directions between the two adjacent passing which are farthest apart in point of time. This interval divided into 24 hours will give the maximum number of trains that may be handled in each direction.

However, this method is not entirely practicable for these reasons: Arbitrary schedules are required, to meet the needs of the service, disregarding any theoretical time interval; trains do not operate at the same speeds, which necessitates slowing down one train to allow a faster one

*Other answers to this question were published in the June issue.

to meet or pass it; some trains are given more importance than others, with the result that the time of one or more trains will be sacrificed to avoid delaying the more important one; and the capacity and location of passing tracks may not be such as to provide full flexibility of all movements.

The maximum number of trains we have operated over the 95-mile single-track portion of the St. Louis division of the Big Four is 47, 16 of which were regular scheduled passenger trains. No doubt there was plenty of spare time in which more trains could have been operated but just how many would depend on how many it would have been practicable to operate at the time the track was available.

Mounting on Concrete

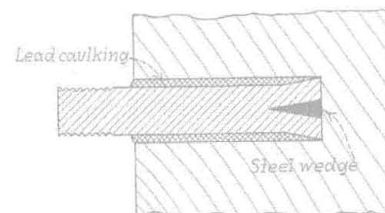
"Where it is necessary to mount signals or other equipment on concrete walls, what are some suitable methods of securing the foundation bolts to the concrete?"

Bolt Can Be Wedged

C. H. Cameron

Canadian Pacific, Toronto, Ont., Canada

Signal units may be fastened to cement, brick or masonry walls by means of ordinary bolts set in as follows: Drill a hole in the wall a little larger than the bolt, the depth of the hole depending upon the size of the bolt and the weight to be supported. Saw the head



Sketch showing suggested method of embedding foundation bolt in hole in concrete wall

of the bolt at the desired length, cut a slot lengthwise in the plain end with a hack saw, about twice as deep as the diameter of the bolt and insert a small steel wedge in the slot endwise of the bolt. Place the bolt in the hole and drive firmly, being careful not to damage the threads. As the bolt is driven against the bottom of the hole, it causes the wedge to spread the slotted end, which will grip the sides of the hole. Now wind small strips of sheet lead around the bolt and caulk it firmly. A piece of pipe the same size as the bolt makes a good caulking tool.

Molten Sulphur Used

H. W. Cooper

Signal Maintainer, Wabash, Forrest, Ill.

Where it is necessary to shift a crank or a compensator on a horizontal concrete surface we first drill a hole of proper size and depth to receive the head of the machine bolt to be used as an anchor. After the bolt is inserted, we fill the hole with molten sulphur, and in a few minutes the sulphur has solidified and the equipment can be bolted to the anchor.

Care must be taken when the concrete is damp or