

In type 2, all the weight of the car body and loading, except the body bolsters and a piece of the centre sill from half way between centre plate and end sill to half way between centre plate and outside crossbearer, is either carried directly by the side frames or is transferred to them. In other words, the sides carry all the load except that resting directly on the centre plates. This explains the very small centre sill bending moment shown in the diagram amounting to only 65,000 inch lbs. positive moment, (Line E-E on diagram) and 43,000 inch lbs. negative moment, (Line F-F on diagram) for the part where the batteries are located which is much the heaviest loaded section. The weight of the vestibule is assumed to be carried by the end frame which is practically a solid plate with an opening in the centre for the end door. The end construction and vestibule are both carried by the side frames.

Each crossbearer has a distributed load of its own weight plus the floor materials immediately above. The inside crossbearer receives 5,017 lbs. from the centre sills and two separate loads of 700 lbs. from the batteries. The outside beam has similar loads and in addition supports the dynamo weighing 685 lbs. However, the bending moment does not exceed that in the other beam as the load transferred from the centre sill is only 4,289 instead of 5,017 lbs. The details of both beams are the same, consisting of top and bottom cover plates, riveted to the flanged edges of single web plates. The bolster carries a distributed load consisting of its own weight and the floor material above. These items do not, however, enter into the stresses to any appreciable extent. Practically all the stress in the body bolster is due to the transfer of weight from the side frames. In this example the load on each end is 26,304 lbs., and the lever arm is assumed to be 49 inches. This is correct as the centre plate is 12" wide and the sill channels are riveted to a steel filler block.

The side frame loading is that weight which occurs on the side where the dynamo is located. The distributed weight includes the side and one-half the roof as well as the upper berths and proper portion of seats, passengers, floor materials, bulk head, partitions, lockers, etc. P_1 is $\frac{1}{2}$ of one vestibule. P_2 is $\frac{1}{2}$ of one end and parts carried by it except the vestibule. P_3 is the load transferred by the outside crossbearer. P_4 is the centre battery support. P_5 is the load transferred by the inside crossbearer.

The side frame, supported as it is 8 feet from the end, is subject to a negative bending moment of 2,930,300 inch lbs. at the centre of the car and a positive moment of 683,900 inch lbs. at the