Easy Access, or vestibuled cars, have doors at ends and centre operated pneumatically, connected by electric starting signal so that with all doors closed signal to start je "uto-matically sounded in motorman's call."

Old style, or open platform cars, have side doors operated pneumatically and connected with semi-automatic starting signal, the contact from car to car being made by trainmen after closing gates. These cars are now being rebuilt along lines of Easy Access cars.

On both these types of cars guards and brakemen operate all doors, the front edges of which are furnished with pneumatic rubber strikers.

Measurements of Passenger Cars.

DE DE DE

46 ft. 10% in.—length over draw bars. 8 ft. 9% in.—width over drip boards.

8 ft. 734 in.—width across platforms.
3 ft. 8 in.—running rail to top of platform.

32 ft. 2 in.—running ran to top of platforn 32 ft. 2½ in.—between truck centres. 37 ft. 6 in.—length inside old style car.

37 ft. 6 in.—length inside old style car.
48 ft. —length inside Easy Access car.
12 ft. 5 in—height of car.

5 ft. & 6 ft.—wheel bases of trailer truck

6 ft. —wheel base of motor truck.
4 ft. —width of middle door.
3½ in.—between platforms at center.

Weight of old style car, light, 59000 lbs.
""" loaded, 72000 lbs.
""" Easy Access car, light, 61000 lbs.
""" "" loaded, 74000 lbs.

Percentage of weight on motor trucks, 63,45. Seating capacity, 48

All cars carry fire extinguishers.

Motors: 200 Westinghouse 50-C 150 H. P. Gear ratio 21:50=2.38.

100 Westinghouse 50-C Special, 150 H. P. Gear ratio 17:54=3.18.

48 Gen. Electric 68-E 170 Gear ratio 18;59=3,28.

Trucks: 104 Baldwin. Cradle motor suspension on 150 cars.
21 Curtis. Swinging link nose suspension

Wheels: Cast steel, cast iron and wrought iron centres.

34 in. steel tires on motor wheels and 31 in. steel tires on trailer wheels.

tires on trailer wheels.

Use Krupp, Latrobe, Standard and Midvale tires.

Each tire is ground about once every two weeks, from 0.92 to .03 inches being ground off at each grinding.

About 48 pairs ground per day.

This excessive wear caused by numerous curves on

line.
Life of tires is from 2 ½ to 3 years.
Motor truck axle is 6 ½ in., 7 ½ in. wheel and gear

Motor truck axle is 6% in., 172 in. Watch fit, 4%x8 in. journal.

Trailer truck axle is 5 in. M. C. B. 334x7 in.

Air Brake: Christensen system. No. 2 compressors. Christensen motorman's valve and triple. 24 Rasy Access cars equipped with Westinghouse

24 Easy Access cars equipped with Westinghouse triple valves.

All cars equipped with automatic trip and emergency valves.

valves.

Control: 150 cars equipped with Sprague Multiple Unit

Automatic Control (cylindrical.)

24 cars equipped with Sprague-General Electric
Automatic Control (contactor system.)

Approximate maximum speed 40 miles per hour. Schedule speed averages 14 " " Average amperes per car while in motion about 160—88 K W.

Average K. W. H. per car mile 4.0.

Repair Shops.

The Machine Shop is equipped with:

1—Putnam 90 inch double head lathe.
1— " 36 " tire turning lathe.
1— " 300 ton wheel press.
4—Springfield wheel orinders

1—Colburn keyway cutter.

1—Chicago Pneumatic Tool Co.'s 1½ ton pneumatic geared

1—Cleveland 15 ton electric traveling crane, 40 it. span.
1—6 ton hand traveling crane with air hoist.

1—6 ton hand traveling crane w 1—Otis 25 ton plunger elevator. 1—Niles 60 inch radial drill.

1—6 ton stationary air hoist, 1—Cincinnati 20 inch sharper.

1—La Blond 18 inch lathe.

1—Hillis & Jones power shear.

All large tools are motor driven.

Ingersoll-Sergent motor compressor furnishes compressed air for forges, hoists, pneumatic hammers and testing apparatus.

Rails and turntables are laid in Machine Shop floor for economical movement of trucks and wheels.

Shopmen are paid a sliding scale of wages ranging from 11 cts. per hour for apprentices to 29 cts. per hour for mechanics.

Form 800, Mo

A DESCRIPTION OF THE

... Elevated Division ...

Boston Elevated Railway Company.



H. A. PASHO,

July 1, 1905.

Superintendent.

Roadway.

The elevated structure was designed and built under the direction of Mr. George A. Kimball, Chief Engineer, being completed in the summer of 1901. Road opened to traffic June 10, 1901. Was a little over two years in building and

cost approximately \$400,000 per mile outside of stations The Subway was built and is owned by the City of Boston being built under the direction of the Boston Transit Commission. It was four years in building and was completed in 1898. First surface car was run into subway with passengers. Saturday, September 1, 1897. Subway used by elevated trains is 1.33 miles long and cost approximately \$1,000,000 per mile exclusive of stations. Length of track in subway

Distance from Sullivan Sq. to Dudley St. via Atlantic Ave. 5.4 miles: via subway 5.2 miles.

Longest distance between stations 1.06 miles or 5605 it (Sullivan Sq. to Thompson Sq.)

Shortest distance between stations .189 miles or 988 ft. (State St. to Rowe's Wharf.)

Length of track-main line 6.644 miles " -second track 6.468 " " " -sidings, etc. 2,903 "

Lowest point of running rail on structure is 20 feet above

level of street. (Dudley St.) Highest point of running rail on structure is 39 feet 6 inches above level of street. (Main and Runker Hill Sts.)

On the structure, tracks are laid 24 ft, apart on centres where they are 12 ft, apart,

Inside wooden guard is four inches from gauge side of Outside wooden guard is 101/2 inches from gauge side of

Centre of third rail is 193/4 in. from centre of running rail.

The elevated structure crosses Charles River over a swinging drawbridge 240 ft. long and 100 ft. wide, with rim bearing turn-table 54 ft. in diameter. Weighs about 1200 anything to go through-average opening seven minutes.

Running rail is standard A. S. C. E. section, 85 lbs, per

Guard rail, Pennsylvania R. R. section, 100 pounds per

Ties are hard pine on structure and chestnut in the subway-laid 16 inches on centres on structure,

Rail lies on Goldie tie plates and is fastened by Goldie There is one down grade of 8 per cent, and two up and

two down of 5 per cent Righteen curves of less than 100 ft. radius and 16 others

Longest radius is about 5000 ft. (Washington and Brook-

Shortest radius is 82 ft. (Entering Park St. Station south-Ordinary commercial steel rail wore out on above named

Manganese steel has been used on this and other sharp

curves to the amount of 475 ft, with good results On the average 3000 ft. of rail is renewed each month. About 50 per cent, of rail renewels are occasioned by

In making a round trip from Sullivan Sq. to Sullivan Sq., via the subway, a train makes the equivalent of 9 43 com-

plete circles. Trains are protected by the Union Switch & Signal Co.'s eletro-pneumatic block signal system with direct current track circuit. Longest block is 1994 ft. and shorest block is

Five electric interlocking towers and two mechanical

Two hundred and two signals and fifty-five switches comprised in the system. Maintained by eleven signalmen and a like number of in-

four principal towers during all hours of operation. Two complete telegraph lines and one telephone cable towers, etc. Telephone switch board is located in Train Dispatcher's office at Sullivan So.

Operation.

from each terminal into the subway and return via mits of reaching any station on the system direct from any

trains in six minutes, or a train every two minutes. Ten

are in service at a time without causing delays, at terminals are in service at a time without causing delays at terminals or junctions. Trains consist of three cars during light hours, or junctions. Frams consist of three cars during inguenous, and four and five cars during heavy hours, the rear car and rous and live cars always being reserved for smokers. The average daily car

Free bodily transfer is made at Sullivan Sq. terminal to Free boday transfer is made at Samvan Sq. terialist to for two, and at Park St., south-bound, or Boylston St., northurban lines, connecting practically the whole of the State of Massachusetts. At each of the twenty-two stations free

transfer is made to and from surface cars. An average of over 115,000 passengers are handled at each terminal every day, and about 60,000 each at Boylston St. and Park St. stations. During the evening rush hour an average of over 9,500 passengers per hour arrive at each teradmitted at an island station in one day, the station being attended by two ticket sellers and two ticket choppers at a time. Station stops average twelve seconds on the structure and

The division is in charge of a Superintendent and is divided into three departments, Train Service, Road Dept. charge of a Train Master, three Train Dispatchers and two District Supervisors ; maintenance of track, structure, signals, and buildings in charge of a Road Master, and repair and equipment of cars in charge of a General Foreman of Shops. About 625 men are required to man the trains, stations, towers, yards, etc.; 100 in Road Dept., and 150 in repair

departments. Motormen are paid 23 cts, per hour for the first year, 24 cts, per hour for second year, and 25 cts, per hour thereafter ; guards, 21 cts. per hour; brakeman 1814 cts. per hour, and Station Masters, \$2.35 per day.

hours. Increased compensation of five cts. per day for each service stripe worn up to and including three. Stripes are

for color blindness. All motormen, guards, brakemen, and

Car Equipment.

174 passenger cars. construction car.

twenty in the subway.

A 16 M Passenger car bodies built by St. Louis Car Co.

180 Total number of cars.