

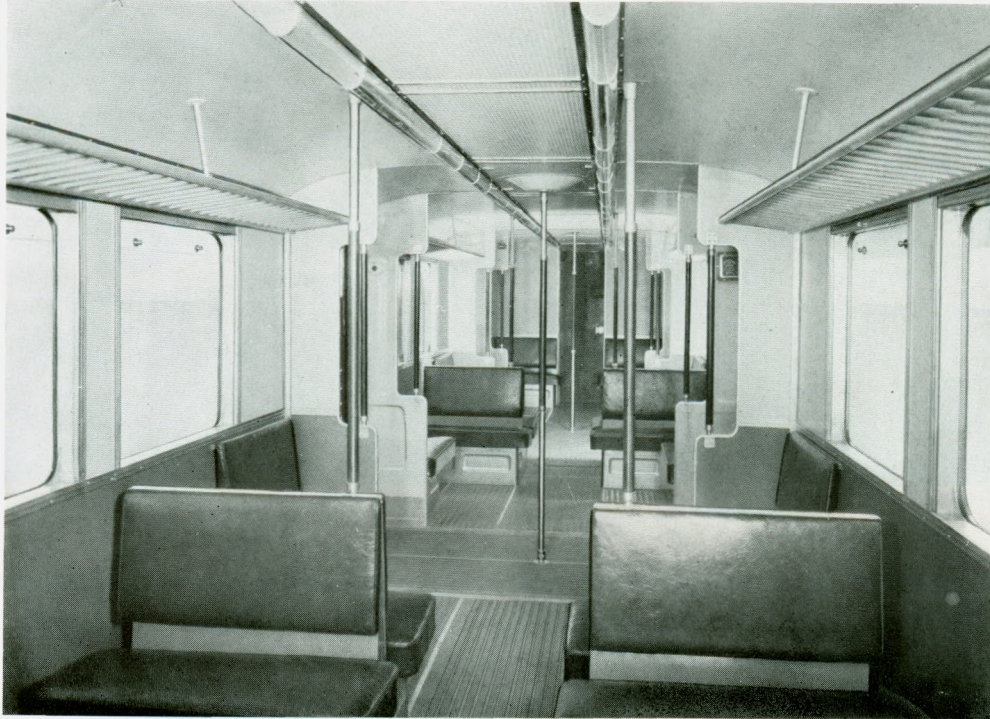


The subway car is designed to maintain the traffic between large cities and their adjoining suburban districts, whilst at the same time it contributes appreciably towards the relief of the heavily congested street traffic, in view of the fact that it travels through tunnels passing under the city centres. The car is consequently constructed to deal with the heaviest possible traffic, this being accomplished by means of a high rate of acceleration and the provision of a door system of such a nature that passengers can enter and leave the car with the least possible delay.

The car is built for a maximum speed of 75 km/h. It has a driver's platform at both ends. The cars can be coupled up to form a train with a maximum length of 8 cars.

In order to meet the demand for rapid production and delivery, somewhat different constructional principles are applied in the building of this car than those adopted in ordinary car production. Thus, all side panels etc., are spot-welded to form complete units before their assembly in the car. In the manufacture of the majority of sheet metal parts for the car body, the pressing process is adopted on a large scale. The side panels are riveted to the underframe and the roof framing, otherwise arc welding is chiefly employed for the underframe and spot welding for the walls and roof. In view of the fact that the car body is built with an entirely self-supporting steel frame, it is capable of sustaining a considerable weight and is crash-proof whilst retaining a light weight.

The bogies for the subway car are of a form of construction specially designed by the ASJ for this type of car, particular attention having been paid to providing continuous lubrication of all parts exposed to wear and thus reducing maintenance to a minimum. The springing of the bogies consists exclusively of coil springs which ensures smooth running of the car free from troublesome vibration. The arrangement of the springs likewise permits steady running and eliminates rolling. In order to avoid the increase in weight which the employment of central girders in the underframe of the car and in the bogie would entail, the car body is not mounted on pivots in the usual manner but rests directly on the outer sides of the bogie where the torsion of the latter is taken up by slides running in oil. The axles are supported in SKF roller bearings. The electrical equipment is ASEA manufactured under license from Westinghouse, USA. All bogies are equipped with two driving motors, one for each axle. The motors are suspended in the bogie frame and the driving power is transmitted through a flexible coupling to the gear mounted on the axle.



Current is supplied to the car on the third rail system, through 4 collecting shoes fixed to the outside of the bogies and sliding on a separate contact rail at the side of the track.

The motor voltage is regulated by special starting resistances which are connected in circuit by contactors from the controller on the driver's platform. The operating system is designed for multiple unit control, thus enabling the entire train to be controlled from any of the driver's platforms.

Should the current fail while the car is travelling or in the event of the driver releasing the dead man's handle, the current supply to the motors is cut off and the maximum brake power will come into operation within seven seconds. The brake consists of an electro-dynamic resistance brake combined with a pneumatic brake of the Westinghouse Air Brake Co's type. The combined brake is operated by a common handle through a brake valve located on the driver's platform. During the first stage only the resistance brake is coupled up, the pneumatic brake coming into operation automatically and progressively as the speed is reduced, so that when the car is brought to a standstill only the pneumatic brake is in action. The braking movement is transmitted from two brake cylinders on each bogie to the brake shoes on the outside of the wheels. The braking movement between the cylinders and brake shoes is constructed in accordance with a special ASJ design and is so arranged that the moving parts are enclosed in a special gearbox which is continuously lubricated and into which dirt cannot penetrate. This system also includes a slack adjuster. The car is fitted with a central coupling of the Westinghouse Air Brake Co's type by means of which the train is automatically coupled both mechanically and electrically. The coupling can be released by hand through a release valve located on the driver's platform.

The whole of the electrical and brake equipment is placed under the floor of the car, only the apparatus



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required at the driver's platform and the equipment necessary for operating the doors in the passenger compartments being located above the floor.

The inner walls and ceiling of the car consist of wood-fibre, the walls being lined with plastic whilst the roof is painted. The floor is covered with ribbed rubber matting offering a very high resistance to wear. The walls are heat-insulated with Isoflex, and the floor is covered with porous wood fibre to obtain satisfactory heat and sound insulation.

The windows, which can be lowered, are constructed with single panes which run between felt strips in the frames.

The seats are constructed with frames of stainless steel plate and have upholstered cushions and backs. All mouldings in the car consist of aluminium sections, wood being used very sparingly.

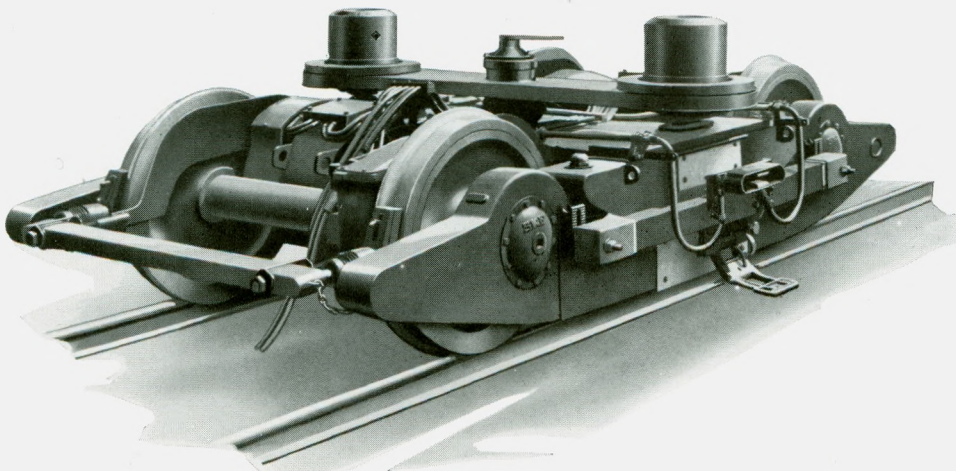
The car is heated entirely by hot air by means of a combined fan and heating aggregate, located in the roof. This aggregate has been specially designed by the ASJ for the car in order to meet the demand for a high output and silent operation.

For the entrance and exit of the passengers, the car is fitted with three double sliding doors on each side. These are operated electro-pneumatically and they can either be opened by the passengers themselves by means of pushbuttons on the inside and outside of each door aperture, or centrally by the train conductor, from one of the train's end platforms. Closing is always carried out by the train guard from a central point and a signal lamp lights up at the latter when all doors of the train are closed. The doors are connected to the departure signal so that the latter cannot function before the doors are closed and the above-mentioned signal lamp is alight.

Fluorescent tube lighting is employed for the dome lights of the car, tubes of the cold cathode type being used which give a strong, uniformly distributed and pleasant light.

Each car is equipped with a loudspeaker system with a loudspeaker at each end platform and four in the passenger compartments. By means of a throw-over switch installed on the driver's platform it is both possible for the driver and conductor to communicate with one another and for the driver to make communications to the passengers.

To allow traffic to be carried on reliably at short intervals even under adverse weather conditions, the car is equipped with a cab signalling system of American manufacture. Thus, it is not necessary to provide fixed signals along the line, the signals being transmitted from the track to a signal panel on the driver's platform. The system also includes warning signals which warn the driver of trains immediately ahead of him on the same track, and automatically stop the train in the event of the driver failing to observe them.





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### Main data

Seated passengers:	52
Standing passengers:	127
Maximum speed:	75 km/h
Tare:	30 metric tons
Voltage of contact line:	720—450 (average 650)
Voltage of motors:	600/2
One hour rating:	400 HP
Gear ratio:	1:7.235
Axle boxes:	SKF single roller bearing in special boxes.
Brakes:	Electric short-circuit brake and Westinghouse pneumatic brake. Hand brake is also supplied.
Electric lighting:	Two dome ramps of fluorescent tube lightings along the car.
Ventilation and heating:	Electric fans circulating fresh air throughout the car. The air is forced through self-regulating heating radiators.

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