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m2 MÉTRO LAUSANNE

George Hoekstra



The 2-car sets built by Alstom.

PHOTOS: *George Hoekstra.*

In March a group from the “Espace Mittelland” (Central Region) of the “Pro Bahn Schweiz” (Association of Rail Passenger Users) were invited to visit the Dépôt for the new m2 Métro in Lausanne.

The first part of the m2 replaces the old Ouchy to Lausanne CFF Station line which was built in 1877/79 as a funicular railway, locally known as “la ficelle” - the string.

A speciality of this line (something our older members might well remember) was the transport of normal freight cars.

A turntable, right on the station forecourt, connected it to the CFF tracks! This transport was terminated in 1958 when the line was rebuilt as a rack railway. When the line could no longer cope with traffic, it was decided to completely rebuild and extend the line. The old line to Ouchy, which was single track and mostly open air, was rebuilt as a double line and completely

covered. The land on top was cultivated and is now a much sought after area! At the same time, the line was extended northwards to Epalinges to give a total length of 5.9km. It was necessary to tunnel right underneath the city of Lausanne, through foundations of historical buildings like the “Grand Pont”.

As the building works caused huge disruption in the town the builders tried to keep the population informed and showed them as much of the works as possible. No less than 100,000 people were taken on site visits, and almost 2 million visited the regular open days with their street parties. Lausanne rises steeply from the lake in a northern direction. The same steep inclines will have to be tackled by the new Métro. Average climb is 6 % or about 1 in 16. The maximum climb is double that, 12 % or about 1 in 8!! It is clear that such inclines

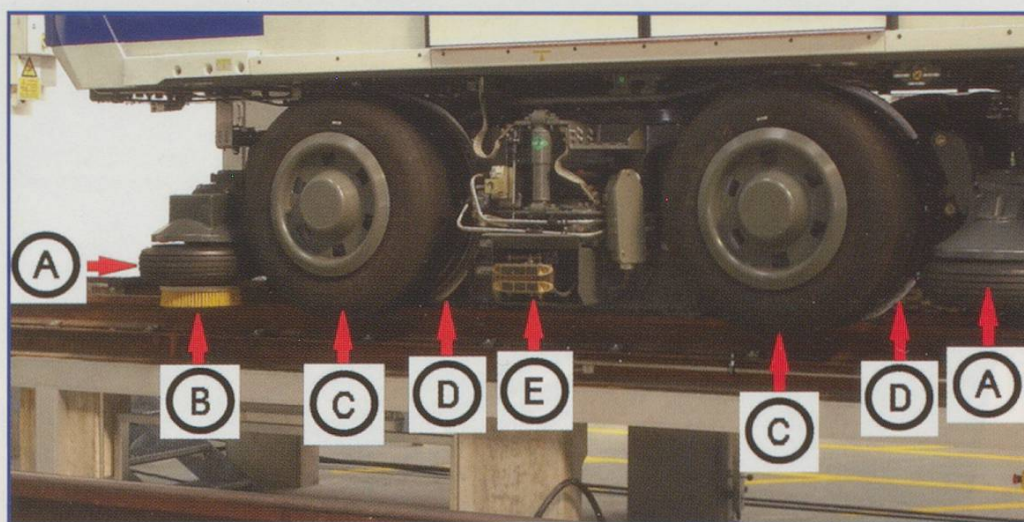
cannot be worked with steel wheel/steel rail adhesion traction. Rack working would be too slow and difficult, due to the frequent changes in inclination. The very sharp curves, some with a radius of only 80 m, also do not help. So the only solution was traction by rubber tyres on a profiled metal track, like some sections of the Paris Métro. Normal track is also used, but purely for guidance and to carry part of the weight: the rail-wheels turn free on their axles and traction current is collected from side rails. The contract for the vehicles was won by Alstom. Building is almost complete and route-testing has begun. Official opening will be towards the end of the year.

The whole line is automatically operated and centrally guided. There are no drivers or train captains on board, although for emergencies all vehicles have a normally covered and locked driving console. The driverless operation is the reason the whole line is shut off from the outside world, even at stations, as persons wandering on the line cannot be detected.

Editor's Note: The line will have 14 stations that will be served by the 15 new standard gauge 2-car units. Each unit will have 58 seats and space for 194 standing passengers giving a line capacity of 6,600 passengers per hour at the peak headway between trains of 2 minutes in the central section. The end-to-end journey time will be 18 minutes. The traction current is 750v dc. As all eight axles on each unit will be powered the acceleration will be exceptional. I wonder how the standee passengers will react to the G-forces when a train takes-off from a stop on one of the 12% gradients? I hope that the operator has good insurance cover



A1:8 incline, and an 80m radius curve, start right at the end of a station. Platform doors are on the left.



A close-up of a bogie.

- A. Four horizontal rubber wheels to guide and stabilises the vehicle.
- B. Brushes to clean the metal track.
- C. Four rubber traction tyres.
- D. Four conventional steel wheels to carry the weight of the vehicle.
- E. Two current collection shoes.

Trolleybus Line N0.5 follows the route of the m2 and will be discontinued when the Metro opens.

