THE TROLLEYBUS MUSEUM at Sandtoft

# Cedes Stoll Replica

The Trolleybus Museum at Sandtoft has commissioned the construction of a full-size working replica of a pioneer 1911 trolleybus. It was built in the Czech Republic in just 15 months from inception to testing and delivery, arriving at the Trolleybus Museum on Saturday, 4 May 2019.

The trolleybus our replica is based on had a chassis manufactured in Vienna by the Austro-Daimler company to a Mercedes design (hence the name "Cedes" was used in the UK), a body built in London by E.H. Bayley, and hub-mounted electric motors designed by Ferdinand Porsche who went on to found the Porsche car company and to also design the VW "Beetle". The use of hub motors obviated the need for expensive, complicated, high-maintenance and unreliable (at the time) gearing and transmission components such as chain drive or prop-shaft, differential and drive-shafts. The technology was demonstrated in West Ham (at that time part of the county of Essex) in September 1912, where it became the first trolleybus in London to run on a public road and the first there to carry passengers. The vehicle was demonstrated in Keighley, West Yorkshire, for a 3-month period in early 1913, following which Keighley Corporation decided to adopt trolleybuses and purchased eight such vehicles; they subsequently purchased the demonstrator - and gave it the fleet number 0! It was eventually withdrawn from service in 1924.

A further feature of this trolleybus (and our replica) is the use of a current collection system that is completely different to the two-pole under-running system ultimately universally adopted throughout the world and, of course, used at our Museum. In the very early days of trolleybuses, several variants of "troller" - contraptions running on top of two bare electric cables suspended over the roadways and connected to the vehicle by a long, cable - were tried with various degrees of success. In the main, it was the Stoll system and "troller" that evolved to become the most satisfactory of these current collection methods - and was demonstrated in West Ham in 1912 and adopted in Keighley in 1913.

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The aim of the project was to construct an as accurate as possible replica of the 1911-built prototype, and to then provide a stretch of roadway equipped with the Stoll system of overhead wiring to allow it to operate in an authentic manner with its "troller". Admittedly, there have had to be some compromises, but these are mainly "behind the scenes" and out of sight (it includes non-original battery operation) and don't detract from the appearance and traveller experience.

*The original trackless trolley in Keighley in April 1913* *Photo: British Trolleybus Society Library*

An amazing amount of research and trial-and-error work was required to achieve this aim. Some information about the original's chassis was gleaned from records in the Vienna Technical Museum but there are no known plans or blueprints of the overall original vehicle: the vast majority of the design was built up from the mere six known photographs of the original using CAD 3-D software to create a virtual computer model that could be scaled. The only known dimension of the 1911-built trolleybus was the wheel diameter - and even then, there was a choice of two possibilities so it was comparing scaled-up dimensions of other elements of the vehicle that determined which wheel measurement was correct. With no photographs of the interior to examine, our design team resorted to looking at contemporary preserved buses for evidence of what details were likely to have been used and, amongst other things, the seats in "Ole Bill", the Imperial War Museum's AEC "B"-type bus, stored at the time at the London Transport Museum Acton Depot, were measured to enable a batch of seats to be made, but more importantly, to determine the likely width of the body.

The finished product is certainly a very credible replication of the 1911 trolleybus and thus the Trolleybus Museum at Sandtoft can now tell another chapter in the history of the trolleybus - and tell it in the best way it can by allowing visitors to take a ride on it! It provides a rare opportunity to sample what it was like over 100 years ago to ride on a solid-tyred, wooden-seated "trackless trolley".

The Trolleybus Museum is now poised to construct a dedicated building where the development of early trolleybuses can be explained and illustrated in more detail - and to house this fascinating exhibit. The provision of a suitable roadway and Stoll overhead wiring so that our Cedes-Stoll trackless trolley can operate with its troller as its prototype would have done all those years ago will follow as funding permits.