= OS T2000 =

T2000 was an electric train formerly used on the Oslo Metro of Oslo , Norway . Six double @-@ car multiple units were built by Strømmens Verksted and AEG in 1994 . Each was 18 metres (59 ft) long , and could carry 185 passengers , of which 60 could be seated in two compartments per car . Maximum speed was 100 km / h (62 mph) . Bought by Oslo Sporveier , they were owned by Kollektivtransportproduksjon , and operated by Oslo T @-@ banedrift .

The T2000 operated on Line 1 of the T @-@ bane , and replaced the aging HkB 600 teak wagons used on the Holmenkoll Line . The units were equipped with both third rail and overhead wire collectors , so they could operate on the Common Line and on the Holmenkoll Line . The trains were a prototype for a new design intended to replace the aging T1000 stock , but the MX3000 was chosen instead , as the T2000 did not perform satisfactorily . The T2000 were taken out of service in 2009 .

= = Background = =

When Holmenkolbanen , the operator of the Holmenkoll Line , was merged into Oslo Sporveier in 1975 , plans were put in place to replace the old teak cars with faster units that could operate from Nationaltheatret to Frognerseteren in 25 minutes ? allowing a turn @-@ around time of one hour . At the time there had been two separate pools of trains for the eastern and western networks . On the eastern metro , the T1000 units were in use , while the western network was using older material . During the 1980s , some T1000 stock had been rebuilt with pantograph , and taken into use on the western network .

Oslo Sporveier was highly satisfied with the SL79 articulated trams that had been delivered during the 1980s . In 1985 , work started on the development of a modified version for the western suburban lines . The stock on the Holmenkoll and Kolsås Line was the first that needed to be replaced . The new stock was considered to be a limited trial . If it met performance expectations , future orders could be made to replace the T1000 stock when the latter reached the end of its economical life in around 2000 . The required specification for the new train was published in October 1988 .

On 22 October 1987 , a fatal accident occurred when one of the old HkB 600 units suffered a catastrophic failure of its braking system , and rolled down the Holmenkoll Line , finally tipping over at Midtstuen . One person was killed and four were seriously injured , leading to a safety inspection of the old teak cars used on the line ; the HkB 600 units were withdrawn from service , but were reintroduced after some refits .

The initial proposal had called for 22 units , to replace all of the Kolsås and Holmenkoll Line stock . However , the Sognsvann and Røa Line was upgraded to metro standard between 1992 and 1995 , and could start using T1000 stock with only third @-@ rail support . At the time , the eastern network used third @-@ rail , while the western network used overhead wire . The upgrade used non @-@ utilised stock , so the order for T2000 was reduced to 12 units .

= = Construction = =

The order was placed with ABB Strømmen and AEG in August 1991 . The high development cost was subsidised by the Norwegian government , who saw the project as potentially establishing a new industrial export product . Electrical components were built by AEG in Berlin , while the bogies were built by MAN in Nuremberg . The bodywork was built at Strømmen , with profiles from Alusuisse , and the trains were assembled in Strømmen .

The six two @-@ car sets were delivered between 2 November and 22 December 1994 . The first official public presentation was made on 8 December , but the units did not enter regular service until April 1995 . The cars were numbered 2001 ? 2012 . In 1995 , a unit was test @-@ run in Paris during an International Association of Public Transport convention .

= = Specifications = =

Each car 's aluminum body was 18 @,@ 000 mm (710 in) long , 3 @,@ 650 mm (144 in) high and 3 @,@ 300 mm (130 in) wide . The latter was 100 mm (3 @.@ 9 in) wider than the HkB 600 , since the new trains would no longer have ski boxes on the outside . The empty weight of a car was 31 t (31 long tons ; 34 short tons) . Capacity was for 60 seated and 125 standing passengers . There was a driver 's cabin at one end of each car . Passengers sat in two compartments ; the forward had conventional 2 + 2 seating , while the back section had 1 + 2 + 1 seating with two aisles . Wagon 2012 was delivered with 2 + 3 seating in the forward section . Each car had three doors on each side .

Both cars had two bogies , with power on all axles , giving a Bo 'Bo ' wheel arrangement . Four traction motors , each of 143 kW (192 hp) , powered the car , giving a top speed of 100 km / h (62 mph) and an acceleration of 1 @.@ 3 m / s2 (4 @.@ 3 ft / s2) . The trains were equipped with both pantograph and contact shoe , the current for both of which is supplied at 750 volt direct current . The trains could not be connected for multiple running with the T1000 trains .

= = Legacy = =

The T2000 class was prone to technical problems , and was not as reliable as the older T1000 stock . It soon became evident that no more would be ordered . The Norwegian State Railways had been considering a modified version for use on the Flåm and Voss Lines , but those plans were also soon abandoned . Another possibility considered was to build modified T2000 cars for use on the Oslo Metro Ring Line ; at the time it was planned that the Ring Line would share track with the mainline Gjøvik Line at Grefsen , so the Oslo Metro rolling stock using this section would need to be able to support 15 kV 16 2 ? 3 Hz AC . However , a parallel section of dedicated metro track was built instead , at Grefsen .

Oslo Sporveier opted for the all @-@ new MX3000 from Siemens as a replacement for the T1000 stock instead of the T2000 . Although its design was found to be unsuitable , the T2000 was initially not planned to be replaced by the MX3000 , as the line was to remain with overhead wires and none of the new MX3000 trains are equipped with pantographs . However , following Oslo 's decision to host the FIS Nordic World Ski Championships 2011 , it was decided to upgrade the Holmenkollen Line to full metro standard , allowing longer than two @-@ car trains . A proposal to downgrade the line to light rail standard and make it part of the Oslo Tramway was rejected .

In 2009 , all twelve T2000 units were taken out of service , before the last of the much older T1300 . Kollektivtransportproduksjon , the successor of Oslo Sporveier , stated that procuring spare parts was becoming nearly impossible and that the small size of the series forced high maintenance costs . The initial orders for MX3000 trains did not call for sufficient numbers to replace the T2000 . Kollektivtransportproduksjon has estimated the cost of renovating the units so they can run for 15 more years at NOK 50 million . Alternatively , the city council has been recommended by Kollektivtransportproduksjon to purchase 15 new MX3000 three @-@ car trains for NOK 250 million .

In 2010 , Ruter decided to scrap all of the T2000 wagons , after only 16 years in operation , and ten of the wagons were sold for NOK 100 @,@ 000 a piece to the recycling company Hellik Teigen at Hokksund . The two remaining wagons will be preserved and displayed at the Oslo Tramway Museum . Ruter stated that it would cost about NOK 50 million to keep them in operation . Nevertheless , Ruter was in 2011 forced by the owner Oslo Vognselskap to keep renting the wagons for 22 million NOK each year , even though they were not in operation . Oslo Vognselskap stated the reason behind this was the contract which lasted for 30 years .