

A guide to Çamlık Outdoor Railway Museum

This guide is intended to be more specifically of interest to the serious student of Turkish railways, who is attempting to learn a little more about the rich historical background of the original railway companies that eventually constituted today's TCDD. It attempts to explain a few details about each of the various items on display at Çamlık and all items of interest are highlighted in underlined bold text.

However, given that the locomotive exhibits themselves are arranged in no particular order, but, with each company being dealt with chronologically in turn within this text, it will take quite a lot of walking back and forth to find the engines in the order that they are dealt with in our guide. Therefore, you may wish to save time by merely taking a circular route right round the display and, for your assistance, a museum map at the end of this guide indicates the location of each exhibit. Visitors seeking more advanced information - and for a comprehensive list of all the exhibits itemised in numerical order - are respectfully invited to visit the website www.trainsofturkey.com.

Some of the museum exhibits are not referenced in this guide in order to keep the visit time to less than 2 hours.

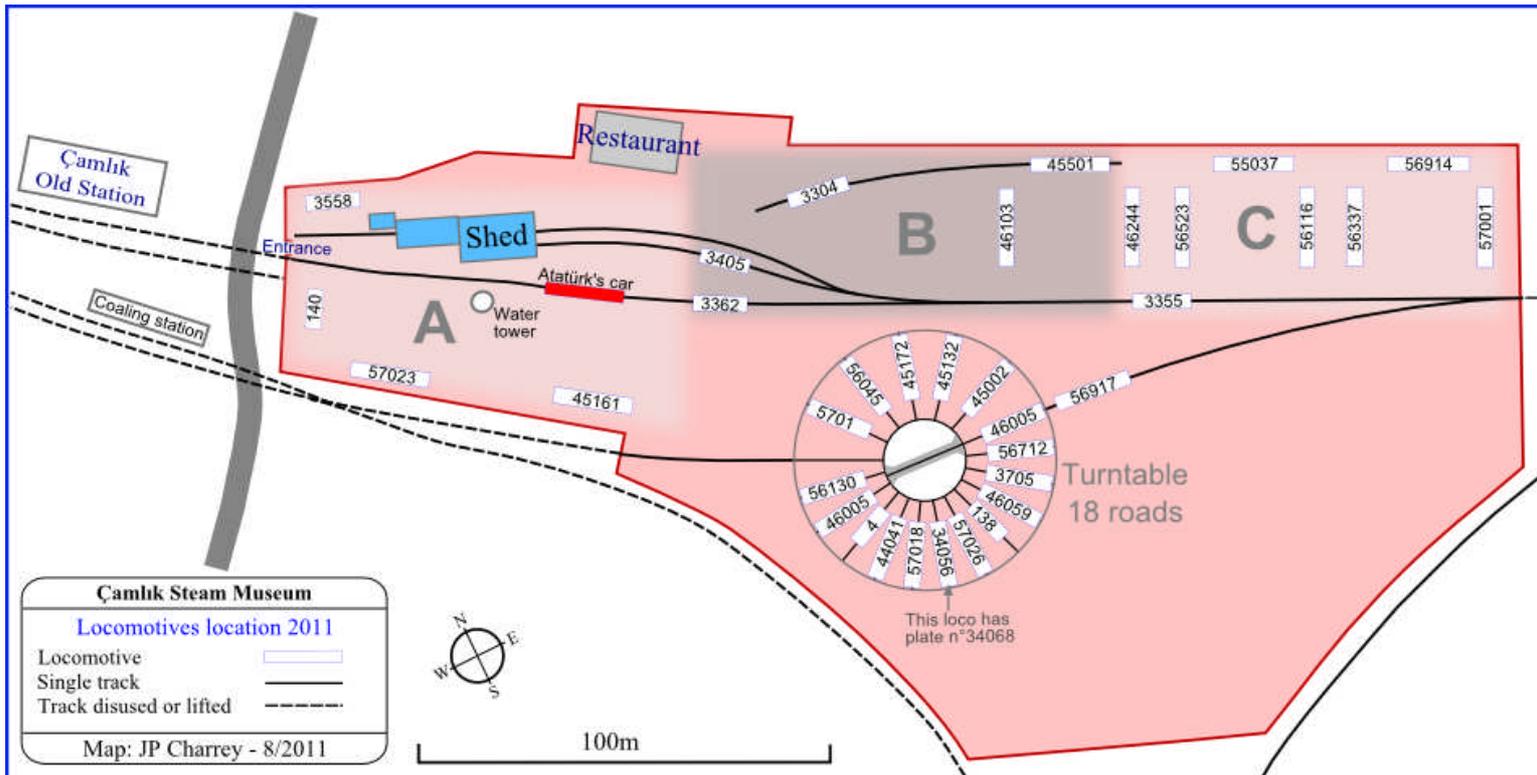
The first railway in Anatolia: The Oriental Railway Company (ORC) (1871-1888)

The tour of the site starts outside the museum entrance. Across the road from the entrance, you can see the original station building of Çamlık.

This station building was opened in 1866 by the Oriental Railway Company (ORC), a British company awarded the concession from the Ottoman government to construct the Izmir to Aydın line. The route was subsequently extended to Denizli, Dinar and finally Eğirdir, reaching a total length of 600km. It was the first railway in Anatolia and the second in the Ottoman Empire, after the Alexandria to Cairo line in Egypt.

The building was abandoned when the route of the main line was locally diverted to avoid a troublesome tunnel. A new railway station for Çamlık was then built further down the same road, to the west of the town. Remarkably the old station premises, complete with their platforms, have survived and, with all the tracks removed, are now used for non-railway purposes.

Across the station yard can also still be seen two of the hand-cranes that were once used for coaling the



locomotives that assisted trains up the ferocious gradients from Selçuk.

The tracks once crossed the road on which you are standing to pass by the locomotive depot. The whole of this part of the site, complete with most of its original buildings has now been converted into today's museum.

*Once passing through the gateway and entering the museum, you will see immediately in front of you the original **engine shed, repair workshops and water tower.***

The shed building no longer contains any locomotives, but is open to the public and where is displayed a fine collection of **railway artefacts**, such as tools, lamps and inspection trolleys.

*Having inspected the smaller exhibits on display, walk further down the main pathway and past the **water-tank***

On your left is locomotive 0-6-0T No **3362** (zone A)- the oldest machine in the collection and formerly owned by the Oriental Railway Company. Being built by Robert Stephenson & Co in the UK in 1888, this well-known manufacturer is credited with having invented several key features of the steam locomotive. It is an unusual looking engine, with a coal bunker placed on top of the boiler. It seems to have no cylinders, but they are in fact placed inside the frames and cannot be seen from outside. No 3362 was used in the Izmir area on shunting duties for almost 100 years, before being retired and placed in the museum.

Next to No **3362**, 2-8-2 No **46103** is a much more modern ORC locomotive, also manufactured by Stephenson in 1929. This locomotive was also used in the Izmir area, on suburban services to Torbalı and Tire.

The Smyrna Cassaba Railway (SCP) (1863 to 1934)

The Smyrna Cassaba Railway (SCP) was the other local company, like the ORC having its headquarters in Izmir. The SCP developed two lines that eventually reached Manisa, Afyon and Bandırma. The SCP was also a British company, but was subsequently purchased by French investors. It is represented in the museum by no less than 4 engines which came from various European suppliers, reflecting the more international character of this company.

- 0-6-0T No **3355** (zone C) is a small shunting and light-duty engine, built by Maffei, a German manufacturer, in 1911.
- 2-10-0 Nos **56914** (zone C) and **56917** (zone B) are two French engines, manufactured by Corpet-Louvet in 1926.
- 2-10-0 No **45132** (Turntable) is a larger engine built by Humbolt, also a German manufacturer, in 1912.

Just as with the ORC, most of the SCP locomotives stayed in the Izmir area all their lives.

The Oriental Railway (1856 to 1935)

The Oriental Railway was intended to develop railways in the Europeans territories of the Ottoman Empire, with the ultimate goal being to link Istanbul with Vienna. The Company was founded in 1870 by Baron Hirsh, a German-born banker who moved to Belgium where he acquired Belgian citizenship. He made a fortune thanks to his investments in the Oriental Railways and personally oversaw the construction of the Oriental Railway by moving to Istanbul. He managed to build most of the 2500km network foreseen in the concession, despite the various wars and the progressive loss of territory by the Ottoman Empire in Europe at the time. When the last gap in the Istanbul to Vienna line was closed in 1888, he also made possible the Orient Express, the most well-known luxury train in the world, linking London and Paris to Istanbul. The museum has two locomotives that formerly belonged to this fantastic company and this is quite an achievement given that most of the Oriental Railway network is now outside modern Turkey.

- 2-6-2T No **3558** (zone A) is a large tank locomotive, built by Maffei, in Germany, in 1911. This locomotive was originally used Istanbul area, on the European side.
- 2-8-0 No **45501** (zone B) was built by Batignolles in France in 1924. This locomotive saw service on the Istanbul to Edirne line.

The Baghdad Railway

The Istanbul to Baghdad railway is even more emblematic than the Istanbul to Vienna line and being the most famous of all of the Ottoman railways, it is often known under its German name "*Bagdad-Bahn*",

because it was built by German companies. Construction work started from Istanbul in 1871, but only accelerated in 1888 when funds for completion of the line could finally be raised. Reaching Ankara in 1892 and Konya in 1896, extension works to Adana and then Baghdad then commenced, but the most difficult sections crossing the Amanus and Taurus mountains were not completed in time to be of use during the 1st World War. Nevertheless, the line was still able to be used to transport supplies and ammunition to the Turkish Army on the Palestinian front.

0-4-0T No **140** is one of 95 of these narrow gauge locomotives that were manufactured by Henschel in Germany during the 1st World War. They were used on a temporary narrow-gauge railway that by-passed the unfinished parts of the Bagdad Railway. After the war, many were sold on to industrial companies and No 40 went to the Zonguldak Colliery.

The Bagdad-Bahn is represented by 3 locomotives that actually belonged to the CFOA, the sister company operating the Istanbul / Ankara / Konya part of the network. All engines of the *Bagdad-Bahn* were German, as was the rolling stock and its railway operating procedures.

No **55037** (zone C) is the ex-CFOA Railway, 1924-built, . The 50 members of the 55001 Class are basic Prussian G10 types, in Turkey the first of which were former KPEV engines transferred there during World War 1, or very soon afterwards. Subsequently the CFOA, and then the TCDD, continued to place repeat orders, essentially because this design ideally suited the needs of the railway. They survived in use until the 1980's.

2-6-0T No **3405** (zone B) was built by Borsig in Berlin in 1905 and spent its working life in and around Istanbul and Ankara.

2-6-2T No **3705** (Turntable) is a much larger and more modern locomotive, manufactured by Henschel in 1925 and similar to type T18 of the Prussian railways. This locomotive, too, was used on suburban services around Istanbul and Ankara and where its capability to start quickly made it particularly suited to this kind of work.

Finally, 0-8-0 No **44041** (turntable) is a powerful freight engine of the Prussian type G8. The G8 design was manufactured in large quantities by various German manufacturers, coming to be used by several countries across Europe. 46 were transferred to Turkey during World War 1 to haul military traffic to the Eastern Front. Interestingly, the SCP also acquired some G8 locomotives and more were subsequently purchased by the TCDD. Sister engine No 44079 was purchased by German enthusiasts and is now in a museum in Germany.

Atatürk and the Republic Locomotives

Following the fall of the Ottoman Empire, Mustafa Kemal Atatürk, founder of the new Turkish Republic, revised the policy towards railways. The Republic took over the *Bagdad-Bahn* and started to build a coherent national network opening railway access to major cities in Eastern Anatolia like Sivas, Erzurum, Malatya or Van. Slowly, the Republic started to buy-out the various Ottoman railways and to absorb them into the new national state railway company, the TCDD, which was founded in 1927.

In the shed on the left of the museum entrance make sure to visit the **photographic collection** that includes pictures of various of Atatürk's travels and inaugural ceremonies. Atatürk was a great train traveller and several special cars were constructed for his personal use. One such vehicle, **Saloon 4ufw No12**, is kept here at the museum (zone A). This car has all the comforts of a modern travelling hotel, as well as all the conveniences required for efficient working.

TCDD engineers were mostly trained by Germans and adhered to the practice of using German standard types, albeit adapted for Turkish working conditions. Turkey possessing no home manufacturers, the TCDD had to import all of its locomotives and ordered them from various European manufacturers.

2-6-0 No **34056** (turntable) was manufactured by Nohab in Denmark in 1930. It is derived from the German Railway type 24 and was particularly suited to light freight and passenger traffic. (Note: for some unknown reason, this locomotives bear the plate n°**34068**).

2-8-0 No **45002** was also manufactured by Nohab in 1927, derived from the Prussian type G8, but with so many improvements that it became a quite unique-looking locomotive. It was used on the Samsun to Sivas line and also that to Erzurum and Malatya.

2-10-0 No **46005** is another Henschel product from 1932 and also custom-built for Turkey. These engines were designed by utilising component designs from the standard German locomotives of the time, for

example from the P8 and the G8. In fact, the first batch resembles a "Stretched P8". **46025** from the second batch, built in 1932, had detail differences such as a higher running plate and smoke deflectors.

Nos **46059**, **56045**, **56116** and **56130** are four locomotives designed specifically for Turkey, and utilised the German type 41 design as a starting point. The design was so successful that this type became the most numerous on the TCDD, totalling 177 examples. Manufactured in several batches with minor improvements each time, these locomotives were used more specifically on main line assignments, both freight and passenger. They became the most useful type on the Turkish railway, right up until when steam was replaced by diesel in the 1980s.

- No **46059** is part of the first batch of 10 units that were manufactured by Henschel (Germany) in 1937. Unlike those that followed later, this loco has 4 driving axles (instead of 5) and was used on main-line traffic in the flatter areas around Konya.
- No 2-10-0 **56045** was manufactured by Henschel in Germany in 1940, No **56116** was manufactured in the UK by Beyer Peacock in 1948 and No **56130** was manufactured in Czechoslovakia by CKD in 1949. They had 5 driving axles with wheels of moderate sizes, favouring tractive effort over speed. The TCDD network is mostly set in mountain with a lot of gradient and curves; despite their great tractive effort, the TCDD has to use two or sometime three of these locomotives to haul the heaviest trains.

A similar approach was done for the 57001 type, designed and built soon afterwards. The museum has four locomotives of this type that were put into service in the 1930s, namely 2-10-2 Nos **57001**, **57018**, **57023** and **57026**. All 4 were part of a batch of 27 manufactured in Germany. Their design is specific for Turkey, but using standard German parts. Although they appear to be the largest loco in the museum, these locomotives are in fact lightweight machines, with many axles to spread the boiler weight as much as possible. They were intended for the old tracks of the former Ottoman railways around Izmir and many worked the Aydin line, right next to the museum. They replaced many of the smaller and outdated locomotives of the Ottoman railways.

Enemies in War

During both world wars, armies developed so called *war engines* to military specifications: rugged locomotives of essentially simplified design to be built in great numbers and used to haul soldiers, supplies and ammunition to the front lines. Owing to its neutrality during World War 2, Turkey was in a position to obtain war engines from both sides – the Germans and the Allies. Right after the war, the TCDD purchased additional American war engines that had been demobilised in the Middle East. The museum is, consequently, unique in the world in having these one-time enemy locomotives displayed almost side by side.

No **56523** (zone C) is the German war locomotive, type 52 and is the most well known of all. The Germans manufactured no less than 7000 of these for the war effort. They followed the German army all over Europe, including to the Russian campaign. For this reason, they were specially designed to run in very cold weather and had fully-enclosed cabs which were spacious, heated and could be used as a shelter by the crews. 53 of these locomotives were sent to Turkey during the war and used successfully by the TCDD for nearly 40 years until the end of steam.

No **45161** (zone A) is a British war locomotive, other than in minor details identical to the LMS Railway Class 8F and, of which, 852 were eventually constructed in total. After the 1944 landings in Italy and France, the British army used this type all over Europe and also in Egypt, Palestine and Iraq. With the Germans having control of the Mediterranean in 1940, the 27 locomotives destined for Turkey had to be dismantled and shipped in crates, by way of the Cape and the Suez Canal. 7 were lost at sea during this long trip and the remaining 20 were assembled in Sivas in 1941. Three sisters of this locomotive have been purchased back from the TCDD by British enthusiasts and been brought back to England. One of them, No 45160, has been restored to full working condition and can be seen today on the Gloucestershire Warwickshire Railway. In 2011, plans were being made to return the other two remaining Turkish examples, apart from 45161, back to the UK.

No **45172** (Turntable) is a US Army locomotive of type S160. The S160s were specifically designed to follow the US Army when it landed in Europe. After the war, they were disposed of with the TCDD purchased 50 of them and they entered service on many lines. With 4 driving axles, they were roughly the same size as the 8F, however they do possess the sturdier looks typical of American locomotive design.

No **46244** (zone C) is the fourth war engine in Çamlık and it is also American. It belongs to the type S200. This type was dispatched to the Middle East, Iraq and Iran to support the British Middle East forces. 29 were given to the TCDD during the war and the TCDD subsequently purchased an additional 25. The S200 could

be easily converted to burn either coal or oil and, indeed, the TCDD did converted some of them to oil-burning to use them mostly in the south east of the country around Gaziantep.

Heavy-Haul

After the 2nd World War, the TCDD ordered some much larger steam locomotives for heavy haulage of freight and passengers across the country.

No **56337** (zone C) is a huge locomotive, manufactured in 1947 by the Vulcan Foundry in the USA. With the largest firebox and boiler in Turkey, it is most impressive to look at. The type had a distinctive casing over the boiler that soon provided the nickname of 'Skyliners'. 88 Skyliners were constructed with most being used to haul iron-ore and coal in the Zonguldak and Sivas areas.

No **5701** (turntable) was manufactured by Henschel in Germany in 1951. This locomotive was specialized in one particular task, namely in assisting trains climbing the steep gradients from Bilecik to Eskisehir on the Ankara to Istanbul line, mostly by pushing them from the rear.

No **56712** (turntable) is a German-type locomotive, but built in France in 1945. It saw service on the French railways for a few years until becoming redundant. It was then sold to the TCDD in 1955, having the distinction of being the last steam locomotive to enter service in Turkey. This very powerful and modern machine has 3 cylinders, the 3rd cylinder being located inside the frames. It is suitable for all kind of main line duties and was even used to haul express trains, such as the prestigious Toros Express.

Snow in Turkey?

Çamlık is located in a very southerly location and most visitors are likely to visit under a scorching sun and may be quite unaware that parts of Turkey can experience some quite severe winters.

Therefore, as a complete contrast, you might like to conclude you visit by taking a final glance at the impressive display arrayed around the turntable and making a particular examination of the two large rotary snowploughs.

- Steam rotary snowplough No 4 built by Henschel (Germany) in 1912
- Steam rotary snowplough No 138 built by Nohab (Denmark) in 1929

These are, quite remarkably, self-contained steam-powered machines and serve to remind us yet again that much of the TCDD network is in the Anatolian mountains and plateau, with an average altitude of 1000m and exposed to heavy snowfall in winter.

The latter of the two became famous in February 1929, by rescuing the Orient Express which had been stuck for 5 days in a snow-drift in Trakia. It was this specific event that inspired celebrated authoress Agatha Christie when writing her best-seller "*Murder on the Orient Express*".

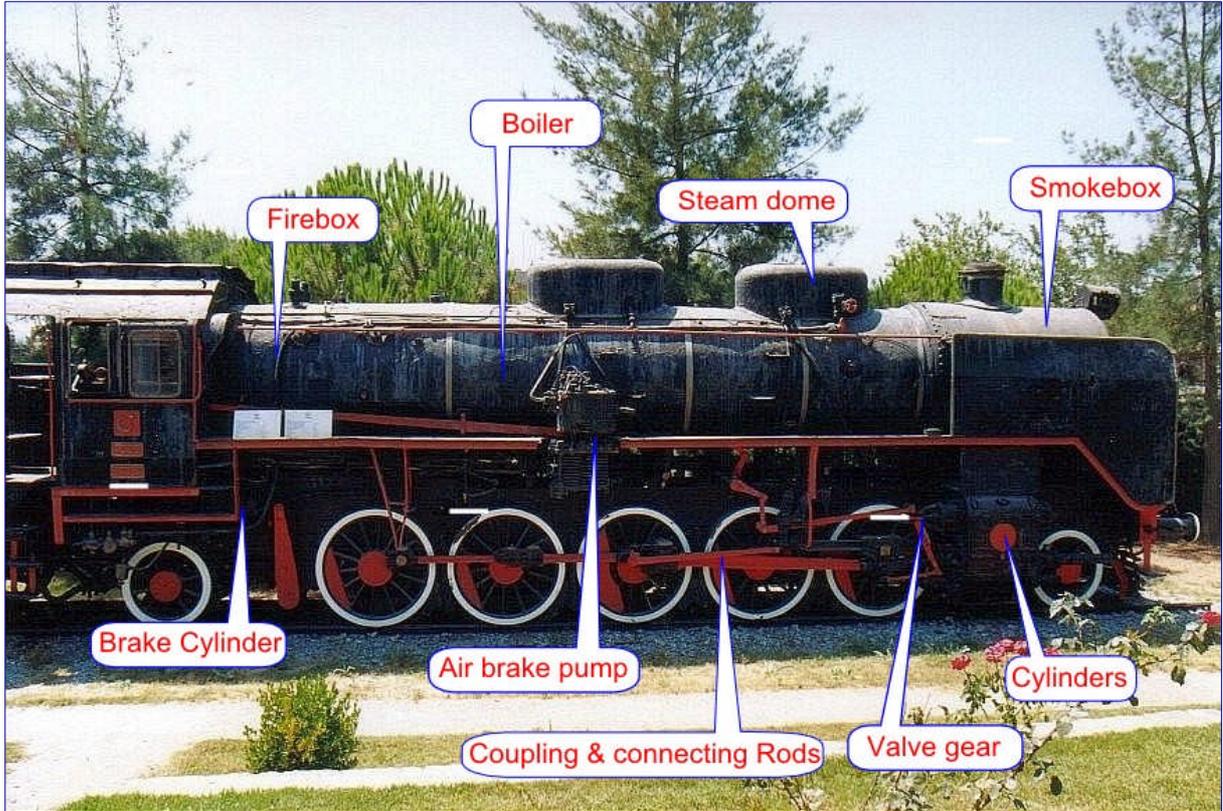
Note: list of locomotives not cited:

3304 is one of a class of ten 0-6-0 tank locomotives built in 1918 for the Turkish Army.

How does steam engine 57023 work?

No 57023 is on the right-hand side of the main pathway near to the entrance.

The following is a very simplified explanation of the workings of this locomotive.



Feel free to climb up inside the cab:

No 57023, like most steam locomotives, requires a team of two, namely the driver and the fireman. On 57023, the driver would have stood on the right.

The first step is to make sure that the boiler is full of water before the fire is lit. The fireman can visibly check this using one of the two gauge-glass tubes mounted on the boiler back-plate.

The fireman then builds a fire in the firebox. He does so by shovelling coal, from the coal bunker in the tender, through the firebox door. The heat and gases created by the fire will pass through the boiler thanks to rows of internal tubes surrounded by water that pass through the length of the boiler, before arriving in the smoke-box at the front. These will heat up and boil the water inside the boiler to create steam at high pressure. Meanwhile, the spent gases will exit to the open air through the chimney on top of the smoke-box.

The steam pressure is checked by means of a pressure-gauge inside the cab and, once this is high enough, it will be possible for the cylinders to move the locomotive.

When he is ready, the driver will then rotate the reversing hand-wheel from the neutral position, to select either forwards or backwards motion, before releasing the brake and slowly pulling open the regulator lever. This is in fact a kind of tap located in a dome on top of the boiler and where steam is collected. From the regulator valve, pipes will take the steam to the cylinders and where it will push on the pistons (inside the cylinders). The motion is transmitted to the wheels by the connecting rods and the locomotive starts rolling.

A set of valve-gear will direct the steam towards each side of each piston in turn, to alternatively push and pull the rods. The valve gear will also let expended steam flow back to the smoke-box, where it is exhausted through the blast-pipe and then up through the chimney. This blast-pipe creates a vacuum that creates a draught that draws the gases through the tubes and thus help activates the fire.

TRAINS OF TURKEY

Once in motion, the driver can then control the speed, either by cutting the supply of steam to the cylinders by closing the regulator or by opening the brake valve. This will let compressed air (created by the steam-operated air-brake pump) go into brake cylinders located adjacent to the driving wheels and which, through brake shoes, will press strongly against the wheels. The brakes will, of course, have to be released again in order to re-start.

It is one of the duties of the fireman to check the water level inside the boiler. If this is permitted to fall to too low a level, then the crown of the inner firebox will be exposed to excessive heat and considerable damage will occur. Water is admitted to the boiler, being pumped from the tender against the steam pressure using injectors that operate using steam on a sort of 'venturi' principle.

Steam engines use a great deal of water and the tender tank of No 57023 can hold 27 000 liters (27m³). This huge quantity will only provide a few hours of working and the tender will need to be re-filled frequently.

