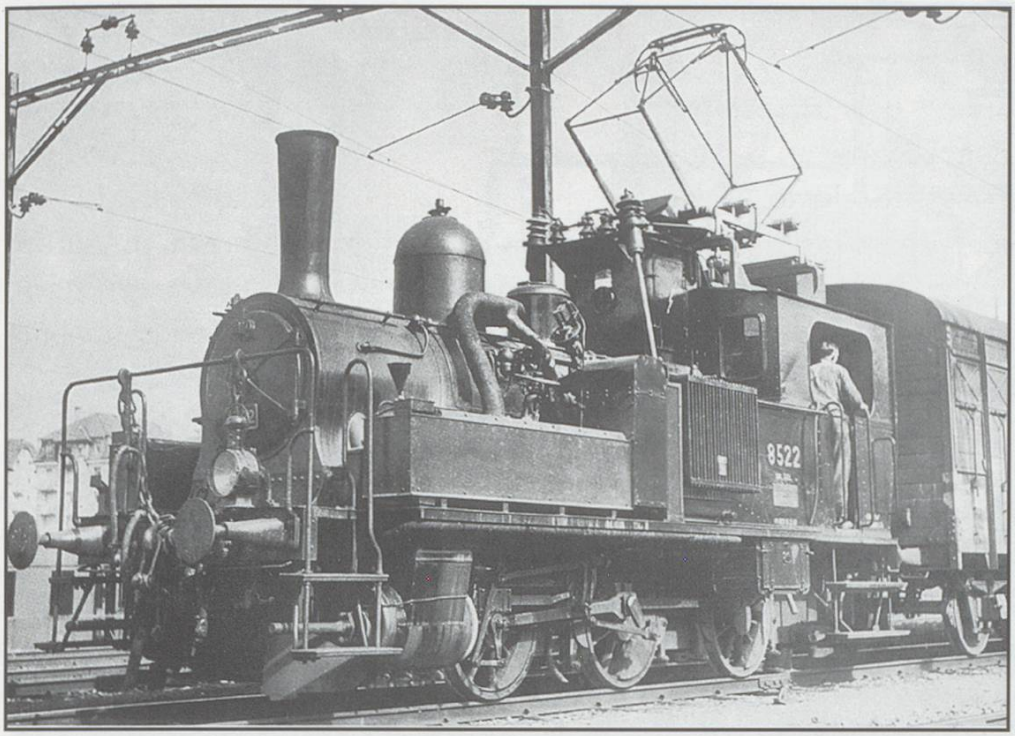
Ron Smith

# STEAMO-ELECTRIC TANKS
## OR POSSIBLY ELECTRO-STEAM TANK ENGINES

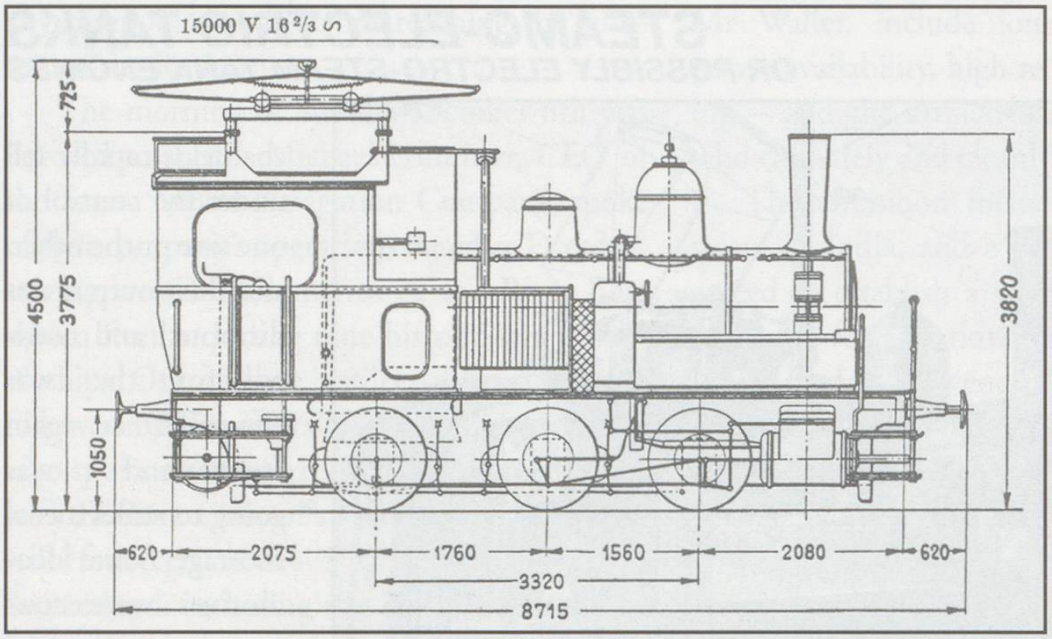



During a visit to Triengen, when the annual steam day was taking place on the Sursee Triengen Bahn, (ST) the engine shed was open. Inside was the beautifully proportioned and gleaming black 0-6-0 tank engine number 8522.

This was one of six built in 1913 for the SBB by SLM Winterthur. On a back wall of the shed is a picture of the loco – with a pantograph on its cab roof! Finding this oddity started an investigation. In the June 1999 issue of Swiss Express, Malcolm Hardy – Randall wrote an article about this phenomenon, with some interesting pictures and diagrams. Using this article, plus information from the ST, their web site, and information from Daniel Zumbuhl's excellent book "75 Jahre Sursee Triengen Bahn" which is available from the ST, including from their web site shop at www.dampfzug.ch, I was able to piece together the following story.

The First World War created a shortage of loco coal supplies to Switzerland. This prompted the Swiss government to commence wholesale electrification, using mostly hydro-electricity which is produced using natural, national resources. When the Second World War started, coalfields rapidly fell under the control of one side or the other, and their output was disrupted and needed for the war efforts. Once again Switzerland was going to suffer a coal shortage. Some locomotives were converted to wood burning. This is a poor substitute for coal. It has a lower calorific value, and the fireman must have been a blur of activity feeding the firebox! There were problems of ash and soot, sparks, and stacking the wood. It was decided to experiment with using electricity to power a steam engine and which used existing infrastructure.

Two locomotives were selected, 8521 and 8522. These charming tank engines were still quietly and efficiently performing shunting and trip workings and were in good condition. The SBB works at Yverdon were instructed to carry out the work in 1942. They worked with the well-known electrical engineers Brown Boveri & Co, of Baden. In 1943 the two electro-steam tank engines appeared. Standard BBC pantographs were fitted onto the cab roofs, batteries were installed for stand-by power, and heating coils placed in the boilers. The conversion costs were 100,000 CH Francs each, which contrasts with the 42,000 CH Francs of the original construction cost. The saving in coal usage was between 700 and 1200 kilograms per day, around 300 tonnes per annum. This made the conversion cost viable, especially as the cost of coal rose rapidly every year that the war continued. There was still a




coal fire on the locos, so that they could shunt sidings that were not electrified, but this was kept to a minimum. The weight of all the additional apparatus was 7 tonnes, bringing the gross weight to 42 tonnes. The springs needed strengthening to carry this extra weight.

The 15 kV 16 2/3 Hz overhead power went through transformers to feed the 20v 12k amps heating elements. From cold, the locos were in steam in one hour. The two locos were successfully tested, and 8521 sent to Zollikofen, and 8522 to Brig.

In 1951, the electrical gear was removed and the locos reverted to ordinary steam power. 8521 carried on working until it was fatally damaged in an accident in 1963. 8522 continued to operate successfully for the SBB until 1964 (51 years of faithful service) when it was sold to the ST. It then operated trains between Triengen and the SBB Luzern to Basle line at Sursee until 1972, when a diesel shunter replaced it.

The loco was then given in 1972 to the Verein Dampfbahn Bern who undertook the complete overhaul to full working order and mainline standards. This was carried out initially at Zollikofen, and completed at Burgdorf. The Verein used the loco themselves for a number of years on various commercial historic steam train operations, which generated an income to help pay the overhaul costs. Then, in 1987, just before the festivities of the 75th anniversary of the ST began, it returned to Triengen, where it has been ever since.

The remarkable loco is still under the care of the ST, and is used to supplement the E3/3 no. 5 (the other resident steam engine) on the annual steam day in September. It is also steamed for special occasions and private charters.

Although the conversion to electric operation was successful and achieved the coal savings desired, it was never extended to other locomotives. The conversion cost was relatively high, and probably the lower activity level and changing timetable frequency during the war meant that further conversions were not necessary or justified.

It seems strange to see a steam tank engine with a pantograph on its roof, but it does demonstrate how progressive and inventive Swiss engineers can be.

There remain some other questions, which I hope the Editor will permit me to ask in conjunction with the regular column, *The Question Is?* These are:

1. Where is 8521?
2. Was 8522 given or sold to the VDB?
3. Did the VDB use it? What trains did it pull?
4. Where was it overhauled by the VDB? Burgdorf?
5. Who owns it now?

*Answers please to:*
*The Question Is? at the Editor's address*