

# New steam locomotive for the Brienz Rothorn Bahn

Autor(en): **Hauser-Gubser, A.E.**

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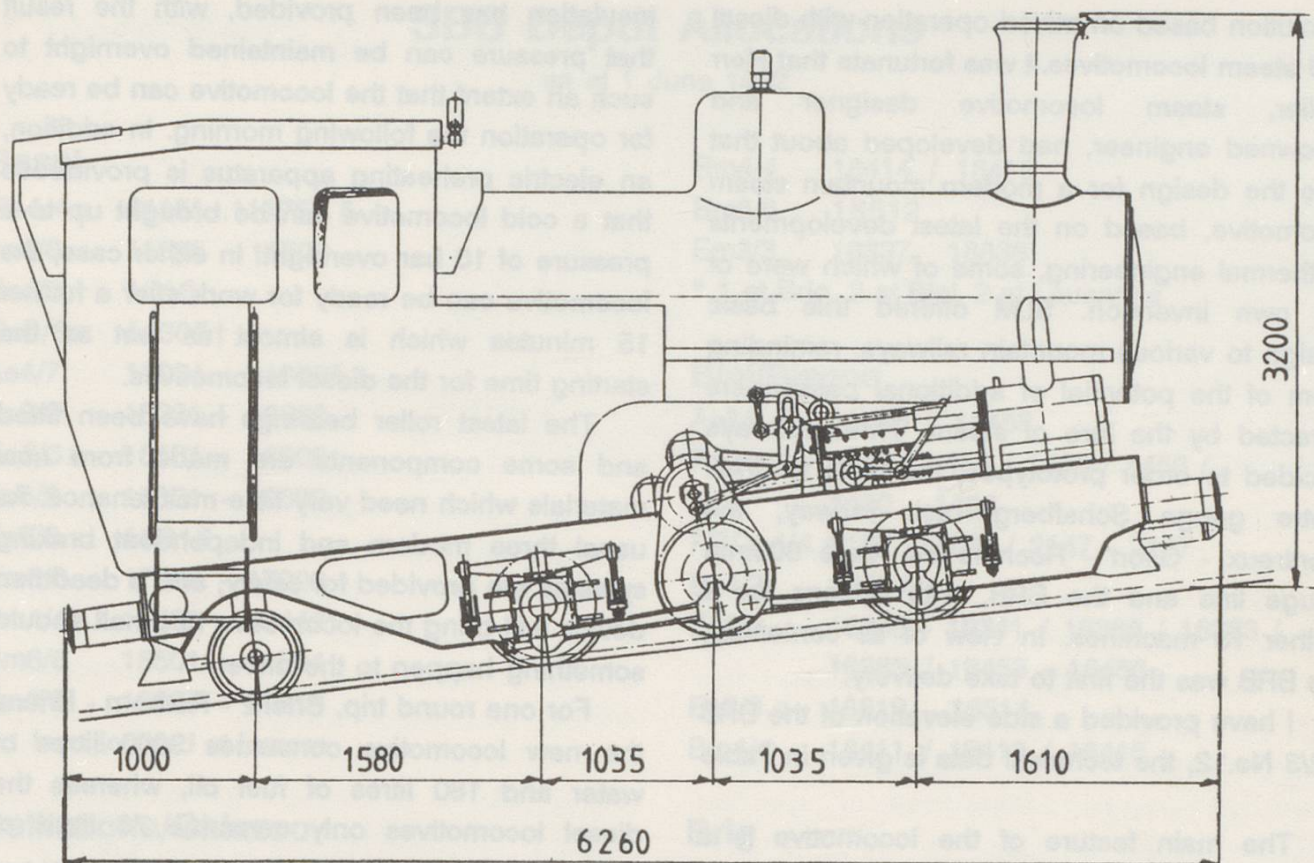
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Brienz Rothorn H2/3 Rack Locomotive

Courtesy SLM

## New Steam Locomotive for the Brienz Rothorn Bahn

by A.E.Hauser-Gubser

**Recently, SLM delivered** a new steam locomotive to the Brienz Rothorn Bahn (BRB). Members will be interested to take a closer look at this machine for at first glance one might wonder why it should be another steam locomotive, as the BRB owns three diesel powered rack locomotives, Nos.9-11, which give every satisfaction.

In the Brienz area there are many peaks with views at least as spectacular as those from the Rothorn, therefore the remaining BRB steam locomotives form an important attraction, the more so since this is the last line in Switzerland which offers regular steam workings. Indeed in the late fifties the management proposed a cable railway on the mountain, as this seemed the only way out of the enormous operating cost of steam traction. Whilst at that time the main opposition to this

plan came from the railway's shareholders who were attached to steam traction, together with many local citizens in Brienz, management surveys taken in the seventies and eighties revealed clearly that a large percentage, sometimes over half, of the visitors were travelling on the BRB because of the steam locomotives. A cable railway, or a rack line without steam would be just another of the many mountain lines operating in an area plentifully supplied with such attractions, all in stiff competition with each other.

But the steam locomotives, some of them by now centenarians, began to show serious signs of fatigue and despite the most careful maintenance the day is surely not far off when they will have to be retired from active service. The management, taking into account the growing popularity of steam traction, looked for

a solution based on mixed operation with diesel and steam locomotives. It was fortunate that Herr Waller, steam locomotive designer and renowned engineer, had developed about that time the design for a modern mountain steam locomotive, based on the latest developments in thermal engineering, some of which were of his own invention. SLM offered this basic design to various mountain railways, reminding them of the potential of additional passengers attracted by the lure of steam. Three railways decided to order prototypes, the ÖBB for their metre gauge Schafberg rack railway, the Montreux - Glion - Rochers de Naye 800mm gauge line and the BRB, with options for a further 13 machines. In view of its centenary, the BRB was the first to take delivery.

I have provided a side elevation of the BRB H2/3 No.12, the technical data is given in Table 1.

The main feature of the locomotive is a modern concept of design resulting in a considerable improvement of the economic performance. To this effect the machine is designed for one man operation, with fuel oil firing. A highly efficient blast pipe is fitted, the visitor will probably miss the excessive smoke generation and powerful exhaust beat of the older locomotives. Highly effective thermal

insulation has been provided, with the result that pressure can be maintained overnight to such an extent that the locomotive can be ready for operation the following morning. In addition, an electric preheating apparatus is provided so that a cold locomotive can be brought up to a pressure of 10 bar overnight. In either case, the locomotive can be ready for work after a further 15 minutes which is almost as fast as the starting time for the diesel locomotives.

The latest roller bearings have been fitted and some components are made from new materials which need very little maintenance. As usual three modern and independent braking systems are provided for safety, and a deadman device will bring the locomotive to a halt should something happen to the driver.

For one round trip, Brienz - Rothorn - Brienz the new locomotive consumes 3000 litres of water and 180 litres of fuel oil, whereas the diesel locomotives only consume 76 litres of fuel and negligible water.

It will be interesting to observe public reaction to the new locomotive. Will they miss the old demonstration of power, with smoke shooting straight into the air, or will it accept the modern, almost smokeless and far less noisy steam locomotive?

**Table 1 BRB H2/3 No.12**

|                               |          |
|-------------------------------|----------|
| Gauge                         | 800mm    |
| Length over buffers           | 6260mm   |
| Greatest width                | 2200mm   |
| Greatest height               | 3200mm   |
| Cogwheel diameter             | 573mm    |
| Carrying wheel diameter       | 649mm    |
| Running wheel diameter        | 440mm    |
| Total wheelbase               | 3650mm   |
| Rigid wheelbase               | 2070mm   |
| Boiler pressure               | 16bar    |
| Cylinder diameter             | 280mm    |
| Stroke                        | 400mm    |
| Gear ratio                    | 1:2.3    |
| Weight in operating condition | 15tonnes |
| Load capacity                 | 25tonnes |

## SBB Stock Changes

### New locomotives to the end of July 1992

Re4/4.450 450.046 - 047 / 049

Re4/4.460 460.005 / 024

Tm 235.010 - 011

Em3/3 831.001 - 002

### Withdrawn

Ae3/6 I 100649

Ae4/7 10990 (fire damage) / 10920

Te I 2 / 8 / 9 / 20 / 30 / 37 / 42 / 54

Te II 223

Ta 967 / 970

Tm II 724

Tem III 3233