

Zeitschrift:	Swiss express : the Swiss Railways Society journal
Herausgeber:	Swiss Railways Society
Band:	- (2019)
Heft:	140
Artikel:	Back from the dead : the Marmot reports on No. 704's debut in traffic on the Dampfbahn Furka Bergstrecke
Autor:	[s.n.]
DOI:	https://doi.org/10.5169/seals-853837

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Back from the Dead

s'Murmeli



The maiden journey on 25 June captured at Furka.

Photo: Andreas Huwiler

The Marmot reports on No. 704's debut in traffic on the Dampfbahn Furka Bergstrecke

A remarkable story reached a critical moment at Christmas 2018. The authorisation to run in public service was stamped and signed by the Federal Railway Office. HG 4/4 No. 704 could now be operated by the DFB. What was so special?

Swiss Express has reported over recent years of the restoration of two HG4/4 locomotives built in 1923 by SLM Winterthur for the French Colonial Railways in IndoChina. These large rack locomotives were among the collection of ruined engines brought back from the post-war Vietnamese jungle in 1990. The two, Nos. 704 and 708 were in a forsaken condition. They were part of a bigger repatriation project in which four former Furka-Oberalp (FO) locomotives, which had run in Switzerland up to the line's electrification in 1941/42, prior to being sold to France after WW2 for service in Vietnam, were also returned to Switzerland. It was a hair-raising project, and in the team was Jakob Knöpfel, who now sees a conclusion, thanks to his 25 years of work to rebuild the two big engines. Around half of the original No. 704 was usable, although a lot had to be manufactured from new. No. 708 needed an even higher proportion of new material, and is not yet ready to run. However, No. 704 is there. In June 2018 she had been moved on low-loader trailer from the restoration workshop at Uzwil (SG) to the Verkehrshaus in Luzern. She was shown there on the VHS Rail Day where, as one of our images shows, she was a feast for all eyes, before being moved on to Realp for trials. She completed her first journeys in steam on July 5, 2018.

HG4/4 No. 704 is a complex machine. She was built to the 'Winterthur Principle' of two separate steam machines, one a high pressure two-cylinder engine driving the coupled adhesion wheels, and above this, beneath the boiler, a separate low pressure two cylinder engine driving the rack mechanism over a 2.2 to 1 reduction gear. Both engines have outside valve gear. A similar concept is found on the Brünig HG 3/3 locos

Nos. 1067 and 1068, now with the Ballenberg railway. The FO's HG3/4 engines were built to the engineer Roman Abt's principle, with an internal low-pressure engine for the rack drive. The double mechanism is necessary because the locomotives are in traffic only partly on the rack, so the adhesion machine is always in use, but the rack engine only as required. It all makes for a tightly packed machine, on what is after all a narrow gauge engine. There is also the unintended comic element on a 'Winterthur' engine; on these the motion and valve gear of the two visible machines rotate in opposite directions!

Regarding this group of engines a common misapprehension needs correction. The HG4/4 engines in Indochina went there first, ordered new by the French Colonial Railways from SLM in Switzerland. In total there were nine of them. Firstly five were built at Winterthur in 1923, and two more were built under licence by Esslingen, Germany. They were successful, and SLM built two more in 1930. They were numbered into the French Colonial Railways '700-series'. The smaller HG3/4s were built for the FO before it was electrified, and were only sold to the French for use in Indochina in 1945 at the end of the war with Japan. By that time the big '700-series' engines had accumulated 20 years of service, although only five had survived - Nos. 702/3/4/6/8. They then became Nos. 302/3/4/6/8 in the South Vietnamese State Railway and were in service on the Song Pha – Da Lat line. They saw service during the Vietnam War, with the last survivors, Nos. 304, 306 and 308, last running in 1975. Nos. 304 and 308 were left to rust in Da Lat depot while No. 306 was used as a stationary boiler and stripped of most fittings. In 1998 the frames, rack mechanism and cylinder block of No. 306 were recovered from Vietnam by the DFB and have helped in the restoration of Nos. 304 and 308, but many components of all three engines were completely worn out. Both DFB volunteers and private workshops have remade

components. For example Stadler Rail furnished new plate frames.

The rebuilt engines will run with their original numbers of 704 and 708 on the DFB, and although they were a Swiss design, they had never been intended to run in Switzerland. This has required Jakob Knöpfel, when reconstructing the

locomotives, to ensure that they meet current standards to enable them to be newly certified as suitable for running on the DFB. Never running in Switzerland meant that they did not appear in the usual Swiss works of reference. Below is a summary of the principal dimensions, which will interest the technically minded:

Length overall	8950 mm
Width overall	2650mm
Service weight	45.9 tonnes, in steam with 1.8 tonnes coal, 4 cu. m. water
Rating	590 kW / 800 hp.
Tractive effort (rack)	14.6 tonnes
Max speed (adhesion)	40 km/h
Max speed (rack)	15 km/h
Max load, 120 pro mille grade	65 tonnes
Boiler pressure	14 bar
Grate area	1.65 sq. m.
Heating Surface	92 sq. incl. 20.9 sq. m superheater surface
Cylinders	High pressure (2) 455 x 450 mm (adhesion) Low pressure (2) 455 x 430 mm (rack drive)
Driving wheel diameter	855 mm

No. 704 made its maiden journey on the DFB on 25 June for the benefit of workshop staff at Uzwil and financial sponsors. On 31 August the loco was introduced to the public during a big party at Gletsch, which your correspondent, unfortunately, could not attend. However, Andreas Huwiler of the Dampflokkfreunde Furka-Bergstrecke has kindly allowed us to publish some of his photographs taken at the initial events. Compare these photographs with those of the

rust-riddled wrecks as they were displayed at the VHS, on arrival in Switzerland from the Vietnamese jungle, and think what those pioneers in 1990 took on. 

s'Murmeli (The Marmot) is a Swiss, originally British, railwayman. Retired since April 2019, he may still write occasionally for Swiss Express. We thank him for his contributions over the last few years.



The locomotives as they returned from Vietnam in 1991 were displayed at the Verkehrshaus. *Photo: The Marmot*



The No. 704 in 2018 at the Verkehrshaus with restoration complete. *Photo: Marcel Broenlle - Eisenbahn Amateur*

Where's Heidi?

Question.

Unusually with a blue, not red, background, where would you see this sign pointing to an RhB station? 

