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# FROM OLD SBB TO NEW CJ

Theo Stolz reports on a cost-effective rebuilding project



For use on its metre-gauge lines the Chemins de fer du Jura (CJ) has a maintenance vehicle, Xm No.509, built in 1985 by Beilhack in Rosenheim. This has a dual function with a combined hydraulic overhead platform/crane used for working on the over-head lines (OHL) or other maintenance operations while, in the winter the crane can be replaced by snow clearance equipment. Unfortunately the manufacturers chose to power the vehicle with a hydrostatic transmission that has proved to be unreliable. This has resulted in the vehicle being out of service in recent years due to major damage, and long repair times, so the CJ decided to look for a second machine. As a new one would have been too expensive the CJ looked for second-hand solutions but no metre-gauge vehicles could be found. However, the SBB have a series of OHL-Maintenance Tm<sup>III</sup> vehicles built by Robert Aebi in Regensdorf between 1981 and 1986 and in 2010 the SBB sold the CJ SBB Tm<sup>III</sup> No. 9455. Due to other projects it was January 2012 before the CJ was able to commence the eight month project at their Tramelan Works to rebuild this into a metre-gauge vehicle.

The main new components are the shorter axles. These have been married-up with the old wheels, axle boxes and gearboxes. As the pneumatic brakes are independent for the left and right wheels this helped to simplify the modifications. The SBB vehicle had traditional buffers and coupling gear and these have been replaced with CJ's standard automatic couplers, whilst the Saurer D2K diesel engine was fully overhauled. The Voith hydrodynamic transmission is equipped with a retarder and it has two gear ratios with top speeds of 30 and 60 kph. Apart from the buffer beams, which had to be slightly shortened, the vehicle fitted

within the CJ's loading gauge. The front lights were modified to allow them to be switched between off/white/red from the cab. On completion of the rebuild the 'new' Tm2/2 No.511 was taken on a series of test runs over the whole CJ metre-gauge network. These identified no mechanical or clearance issues. The CJ had carried out all the necessary pre-homologation tests (following EN 50215) in its own workshops, so by mid-September the BAV were able to grant, in a very short time, the necessary authorisation for the machine to enter service.

No. 511 was a bargain, for the final cost of purchasing and modifying the SBB machine worked out at just 10% of the cost of a new vehicle. The only real

downside is that with only 165kW available from its Saurer engine, compared with the 263kW from the Deutz engine in the Beilhack machine, the rebuilt unit is limited to only 25kph when on the 5% (1 in 20) gradients that occur on parts of the CJ network. The machine's first use was in September, within days of its BAV approval, when it was used on the extensive tunnel renovation works that took place between Bollement and Combe-Tabeillon. The CJ currently has a lot of on-going infrastructure renewal projects, the biggest one being the modernisation of Le Noirmont station.

*Editor's note. Theo Stolz is the Chief Engineer of the CJ.*



**TOP:** CJ took over the Tm<sup>III</sup> 9455 from the SBB (seen at Wiler on the line from Burgdorf to Solothurn) on 19/06/2010 and brought it under its own power to Tavannes, the nearest standard gauge track to the CJ workshop at Tramelan.

**BOTTOM:** Now CJ Tm 2/2 No.511 it is seen on 13/11/2012 at Orange (between Tavannes and Tramelan) during driver instruction.

