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Autor: Jones, Gary
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Recently I was fortunate enough to join an Institution of Railway Signal Engineers visit to view the ETCS level 2 installation between Luzern and Olten at the end of November. At the same time I took the opportunity to make a longer stay and travelled all the way by rail with a stop in Paris outwards and return. Travel to Luzern from Paris on the Thursday was by TGV to Geneva, from where the chance of a ride behind an Re 10/10 was too good to miss - Re 6/6 plus Re 4/4 to Lausanne, then an ICN to Zurich. The performance of these tilting sets is very impressive especially on the section from Yverdon to Neuchâtel. A *Crocodile* was sighted on the depot at Biel - anyone know what it is, where from, etc? After arrival at Zurich and locating the "new" platforms a double deck IC set with a 460 provided the final sector to Luzern.

Friday afternoon was booked for a talk outlining our visit to the ETCS the next day, but time allowed for a trip to Göschenen with a stop at Erstfeld before direct return to Luzern.

An interesting feature of the journey from Arth-Goldau was running alongside a freight travelling "wrong line" so as not to delay our train. We turned left for Luzern, the freight turned onto the "right" line at the same time! No delay to either train.

ETCS LEVEL 2

Saturday morning saw the group leave Luzern on the 07.54 for Olten. The "signal-less" railway was observed between Sempach and Zofingen en-route. No one was aware that we were travelling without fixed signals (apart from the TGV style marker boards) and the transition at either end of the section was seamless. A visit followed to the loco depot at Olten where we were shown the driver's touch screen display as well as the electrical and electronic bits and pieces that make the system work. An Re 4/4^{II} was available for inspection to see how the system was fitted - no speedometer, just a touch

All pictures by Gary Jones.

Interior of an Re 4/4^{II} driver's desk and screen display





Olten Control Centre mains panel. The ETCS section is worked on a separate VDU (IECC) type panel.

screen monitor in its place! It was interesting to hear that the extra electrical equipment on board the loco had been housed in what was formerly the driver's "wardrobe" in the cab! (Done with full agreement of drivers and their union!) Needless to say the loco cab and equipment room were spotless. After coffee and croissants plus chats with SBB and Bombardier staff, the visit continued to Olten signalling centre, which controls the line. The chance was taken to view the control of the test section along with the more technical side of things.

A *sonderzug* was laid on for our return to Luzern and consisted of an Re4/4^{II} with 2 first class carriages. The departure was as scheduled and indicated on the platform monitors! Acceleration of the train was brisk! A stop was made at Dagmersellen to view trackside equipment - the train was put into sidings. Having ridden in the rear coach from Olten, we were moved to the front coach on departure where SBB had provided a live projected view of the

driver's display of the ETCS. The 240v supply for the projector was provided by a generator strapped to the generously-sized footboard on the Re4/4 with linking cable to the coach (couldn't happen here!). The view of the ETCS was fascinating, especially the distance that the driver can "see" ahead on his display - proceed authority plus neutral sections, speed restrictions, stations etc. The actual speed was shown as well as any speed that had to be kept to - if no action taken to reduce speed then the brakes are applied. At the end of the test section the display reverts to an ordinary speedometer. Altogether a very interesting visit and the shape of things to come!

For those unsure of ETCS level 2 (European Train Control System) - briefly, it means that communication from control centre to train uses a mobile phone style link (GSM-R) to tell the driver the necessary information to proceed safely via his display panel. Train detection is by conventional means to the

control centre from trackside equipment. Eurobalises (transponders) are also used in the system and these are laid in the track and signals from them picked up by the train. There are no lineside signals - only the TGV style markers as used on high-speed lines. A dedicated fleet of Re4/4s, shunting locos, engineers' trains and units have been fitted for the trial line and only trains fitted can use the route. As reported elsewhere, there have been teething troubles but delays are becoming few and SBB is looking forward to introducing the new system on the high-speed line Basel - Olten when it opens. (*Check this edition's Notepad for the latest news*). Future aspirations are for the entire Swiss network to be worked by ETCS, including private lines.

On arrival at Luzern and after a quick lunch the opportunity was taken to ride to Engelberg on the delightful LSE and experience the steep rack section before it becomes a tunnel in a couple of years time.

Sunday was spent on a round trip over the Brünig to Interlaken (Are the old Brünig locos

used on shuttle trains the oldest locos running?). Then on to Spiez and Brig, returning to Luzern via Bern (again no delays on the ETCS!) An interesting break was taken at Frutigen, as I had not realised that the Alptransit project was so advanced, the spoil from the tunnelling is very evident from the Lötschberg North Ramp. A viewing area is provided near the station at Frutigen and gives full details of the project. The website (www.blsalp-transit.ch) is very informative and in English!

I travelled back to Paris using the TGV from Lausanne. That was after hopping on and off ICN's at Solothurn and Yverdon on the way, for short stops and plenty of pictures of a good variety of stock including the venerable Ae6/6s. I would recommend rail travel to Switzerland as Eurostar and TGV now make it so easy and will definitely go the same way next time I get the chance of a visit.

Special Train hauled by 11278 enters sidings at Dagmersellen. The antenna on the loco for the ETCS can be seen, also a TGV style "signal" marker post.

