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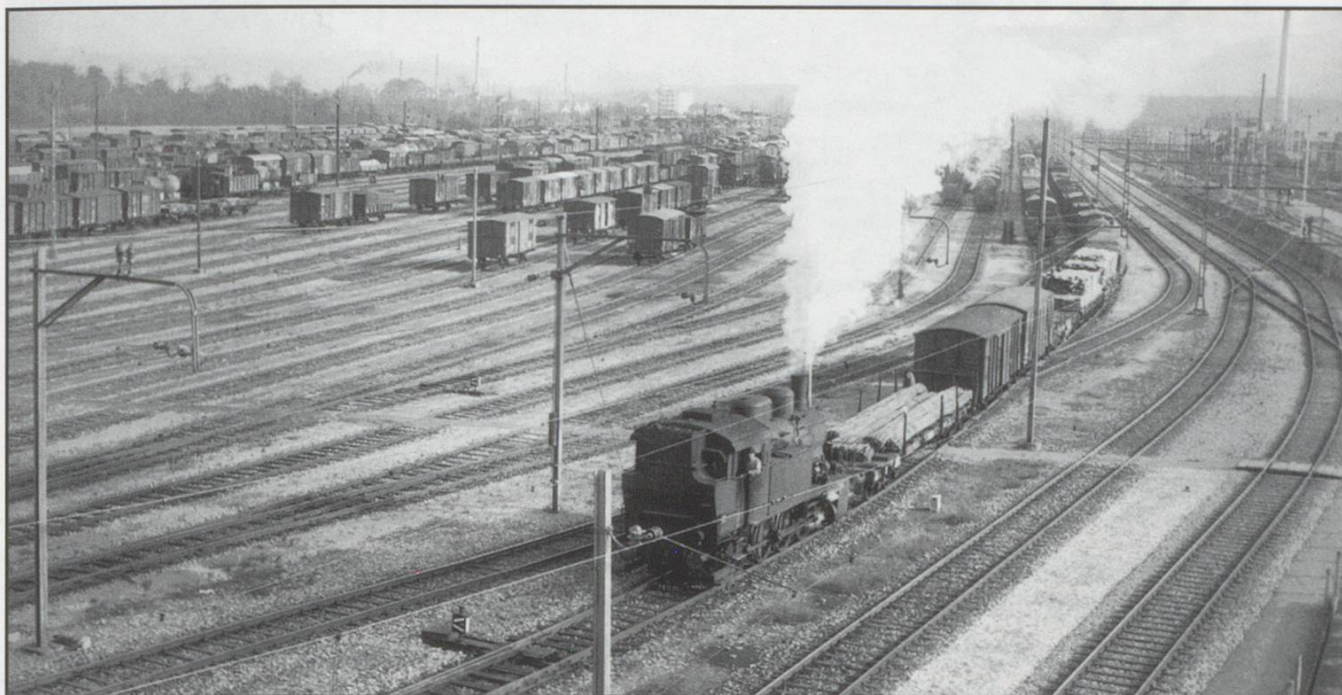
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SBB E4/4 working the marshalling yard at MuttENZ.

Photo: MH-R Collection

The city of Basel, situated in the North West corner of Switzerland, lies on an important crossing point of the Rhine. It is also the last navigable place on the river for the shipment of goods by barge coming from the north. Freight in the middle ages would arrive by sailing barge and be unloaded on the southern bank of the river, or by wagon on the German side which then needed to be ferried across to the opposite bank. The importance of Basel as a freight centre increased dramatically after the Bishop of Thoun pawned the church silver to pay for the construction of the first permanent crossing of the river - known today as the Mittlerbrücke - and charged a toll for all crossings in order to retrieve the silver. When the Gotthard mule/oxen freight route opened in the 13th Century the importance of Basel increased yet again, as this was the starting point for the shortest route to and from Italy.

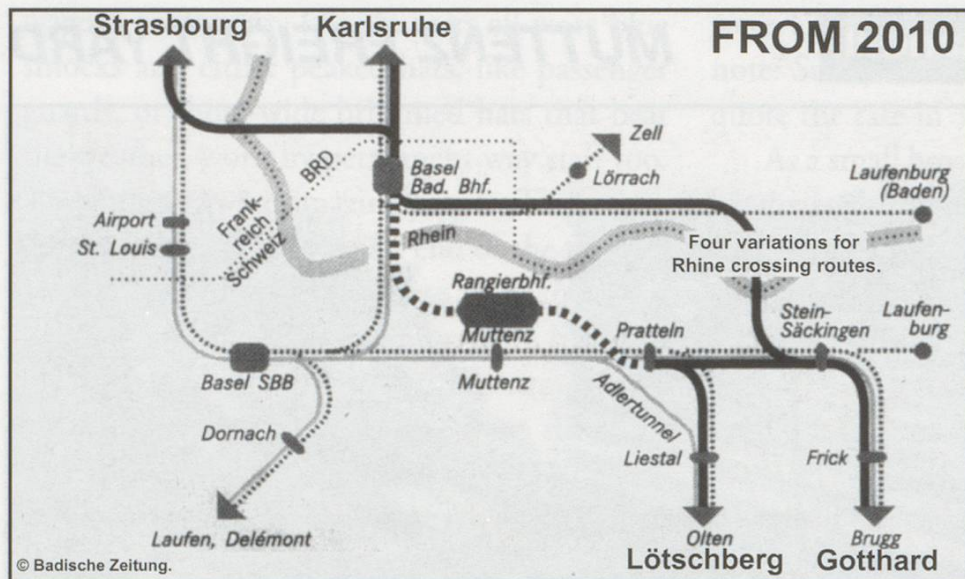
Basel lies at the meeting point of the boundaries of Switzerland, France and Germany. Here the routes of the SNCF from Paris and Strasbourg meet those of the DB from Germany and the SBB of Switzerland, in the passenger main station. For freight traffic a

special yard was built just three kilometres east of Basel near a town called MuttENZ. The freight yard SBB RB [MuttENZ] completed in 1933 comprises an arrival yard, connecting tracks via a hump ramp to the main marshalling section and on into the departure yard.

The yard handles all freight between France, Germany and the north, Italy and Switzerland. Motive power for use in the yard is based in Basel which in the 1930s comprised modified Ce 6/8s fitted with a single pantograph, Kühn shunting brake system and a shunter's platform at each end and E 4/4 steam locomotives rebuilt by SLM from C 4/5s. Type C 5/6 steam locomotives operated to and from the docks at Kleinhünigen, but had been modified by the addition of ballast in the form of ten tonnes of lead around the boiler to give extra adhesion weight for the ramp from the docks.

When a train arrives in the yard and does not require formation changes it is passed through on the bypass tracks from arrivals to the departure yard where it is given a change of locomotive and driver before proceeding on its way.





Trains requiring sorting are propelled up the ramp to the hump and sent down the incline according to the route required for each wagon. To avoid the possibility of wagons speeding out of control, speed retarders are fitted to each of the sorting yard tracks. The speed retarder is controlled by a radar detector, located alongside the track, that calculates the speed of the approaching wagon. During the early years marshalling of wagons in the sorting yard - in which there is no catenary - would have been undertaken by steam locomotives of the type E 4/4, later replaced by Em 6/6 diesel tractors.

Completed formations are transferred to the departure yard, where respective motive power is attached and the train is cleared for traffic to its destination in Switzerland or to a border yard such as Buchs, Chiasso via the Gotthard or Domodossola via the Simplon. For destinations in France or Belgium a steam locomotive from the SNCF would haul the train through the SBB Basel station and on over the Swiss French border. For destinations via or in Germany a steam locomotive of the DB hauled the train out through Basel Bad Bf and on into Germany. In the case of the Gotthard route train tonnage out of Muttentz in the 30s was 750 tonnes over the ramp, which would be hauled by locomotives of the type Ae 4/7, Ce 6/8

or the mighty Ae 8/14, at the time the most powerful electric locomotive in the world.

By the late 60s freight tonnage being handled by the yard increased rapidly and it became obvious that the yard needed to be expanded. By this time the Gotthard was handling trains weighing up to 1,300 tonnes, and

for this task new locomotives were being delivered, in the form of the ubiquitous Ae 6/6. Plans were submitted and approved for a second freight yard to be built on the north side of the original SBB RB I yard. Work commenced on a new design and was completed in 1976.

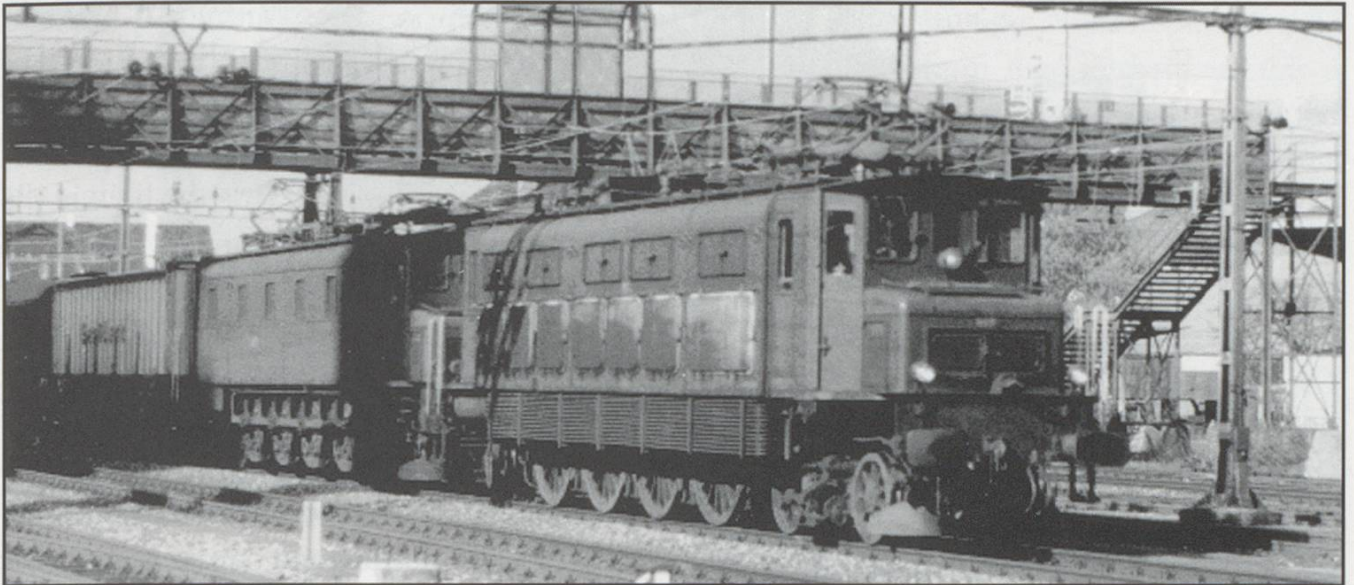
When the new yard - SBB RB II - was completed it took over the task of sorting all freight heading from the south to destinations in Germany and France, with the original yard being responsible for the sorting of all freight trains heading south. Because some freight arrives from the southern part of Switzerland and requires to be sent to yards such as Olten or Limmatal near Zürich a crossover track is provided between the two sorting yards. As the trend is to send freight between countries in the form of block trains, which require no sorting

Muttentz. RB I marshalling yard.

Photo: MH-R Collection







Pratteln. Two Ae4/7s work a freight out of Muttentz Yard. 8/95.

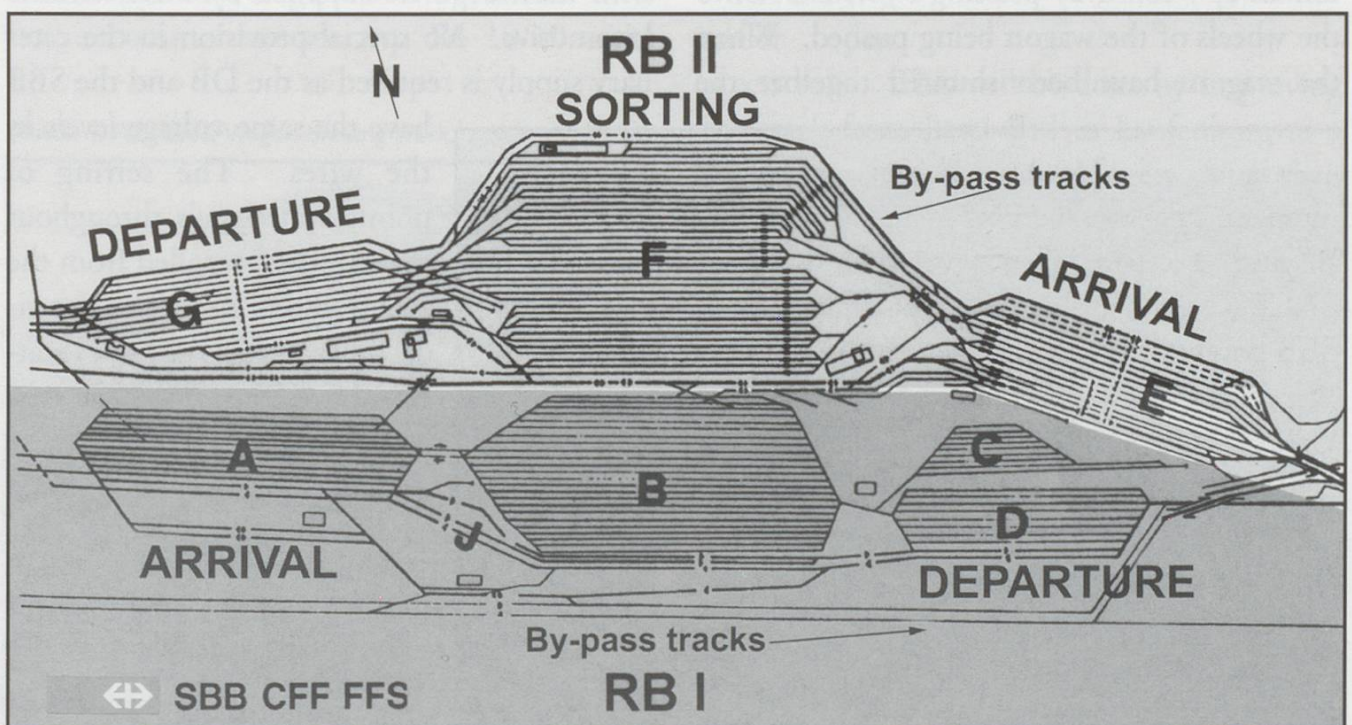
Photo: MH-R collection

until the final destination, through tracks are provided to allow the trains to run straight through to the departure area. Now with open access in operation those trains can run through with the same locomotive or even bypass the yard all together.

The new RB II yard was constructed without a hump sorting system as the arrival yard is built on an incline. When wagons are required for sorting the formation runs forward to the holding point and is held by speed retarders that lock onto the wheels of the first wagon in the batch until the formation is prepared.

Computer printouts show the operator which wagons are going where and the train is uncoupled accordingly. The wagons are then freed to proceed down the incline to the sorting yard in batches. A special detection device fitted alongside the feeder track checks the gaps between the wagons to make sure the batch comprises the correct number of wagons. As the wagons roll down the incline radar units check the speed and if too high will activate a speed retarder in the appropriate track.

Wagons come to a halt in various parts of the track and then require to be shunted up







Muttenz. East signal tower.

Photo: MH-R collection

together. This work is carried out by a marshalling device fitted in each of the tracks in this part of the yard. Acting on a signal from the control tower a trolley located inside the tracks and operated by a long cable running under the track pushes the respective wagons until they can be coupled correctly ready for transfer to the departure yard. The marshalling unit is able to move a maximum load of 500 tonnes at 5 km/h by pressing two rollers onto the wheels of the wagon being pushed. When the wagons have been shunted together the

unit returns to its start point at 10 km/h to await the next set of wagons on that track.

If any wagon is found to require repair of any kind it will be removed from the consist and sent to one of two repair depots built in the yard area. One depot will deal with powder or liquid cargo tank wagons and the other will deal with solid cargo wagons. The latter is also able to repair major damage caused by the shipment of scrap metal in wagons of the type Eaos where the body becomes badly deformed.

A through track is located on the north side of RB II for northbound block trains, that require a locomotive change, to gain direct access to the departure yard. On the southern side of the RB II yard is a special feeder track to allow the multi-voltage locomotives of the SNCF to arrive/depart with freight.

In the case of freight from the departure yard for French routes a dual voltage locomotive of the SNCF will haul the train through the SBB station area on a special track that is fitted with, a catenary changeover section from the SBB 15kV to the SNCF 25 kV operating voltage and voltage level signals. For German destinations the trains head out north from Muttenz on special tracks for freight traffic that cater for the right hand running of the DB, with motive power supplied by a DB electric locomotive. No special provision in the catenary supply is required as the DB and the SBB

have the same voltage levels in the wires. The setting of points and signals throughout the yard is controlled from the signal towers as well as electrical power to the catenary located above the tracks in the arrival and departure yards.

For block trains running under open access rules, the



Muttenz. Feb 2003. View from the roof of the east signal tower of the RBII sorting yard.

Photo: Malcolm Hardy-Randall





Muttenz, Feb. 2003. Wagon control in the East Signal Tower.

Photo: MH-R

locomotive has to be fitted with a pantograph according the specification of the SBB and will pass through the area with the same driver. A signal tower ZStw West is located near the departure yard and sorting yard connection tracks and controls all points and signals in those areas of RB I, a similar tower Stw Ost is located near the RB II feeder tracks from the arrival yard and is responsible for controlling all traffic from that arrival yard into the sorting area. Available motive power are Ee 6/6, Em 6/6 and Bm 6/6 that can be called upon for duty in either of the two complexes. Motive power for the freight trains, is usually Re 10/10 [Re 6/6 + Re 4/4] or two Re 460/465s all of which are under single driver operation. It is not uncommon to see two Re 10/10 units

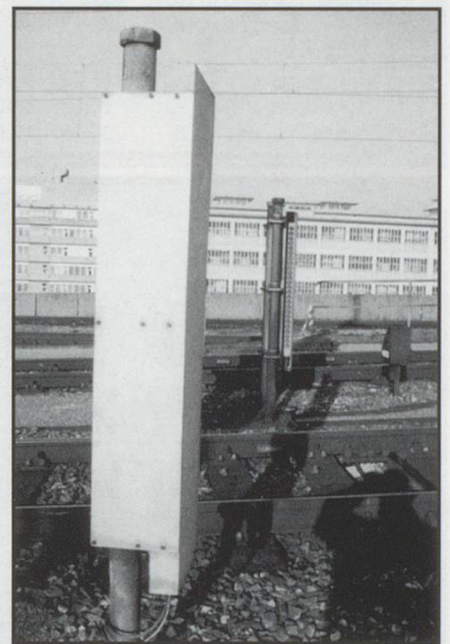
ate an arrival yard that is inclined similar to that in RBII and thereby do away with the hump section. A proposal has been put forward to bypass the area around the Muttenz yard for trains r u n n i n g

under open access rules. This will be done by improving the track from Basel Bad to Laufenburg to a point opposite Stein-Säckingen, and then crossing the Rhine by a new bridge to join the current freight route through Frick and the Brugg bypass. This would provide a through route for all block traffic to and from the Gotthard, with driver changeover taking place in Mannheim or Köln.

With the conversion of Muttenz into a Euro-hub system and the transfer of SBB Cargo to Basel the future for the area looks bright. The anticipated growth in freight tonnage through Muttenz is expected to reach approximately 40 million tonnes per year.

hauling a northbound freight from the Gotthard, as this is done to reposition motive power from the Chiasso yard in the south of Switzerland. If the trainload permits the second Re 10/10 unit will run with pantographs down.

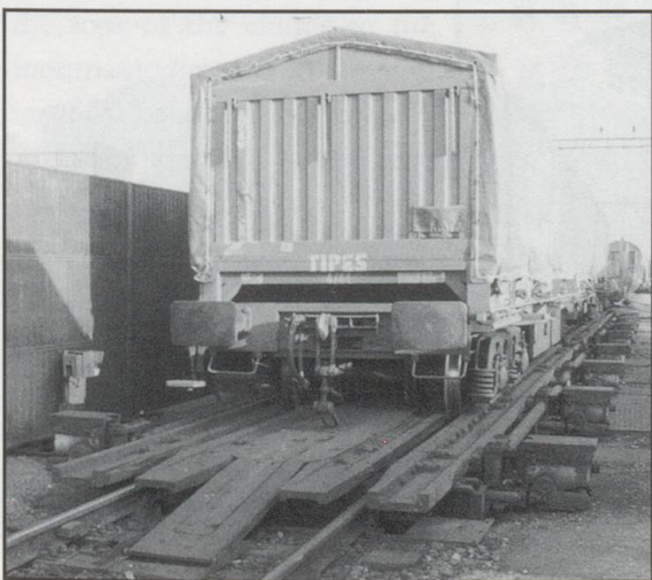
A total rebuild of the arrival yard for the RBI yard is planned to take place in about five years time. This will cre-



Muttenz, Feb. 2003. Between wagon gap detectors. Photo: MH-R

Muttenz, Feb. 2003. Wagon braking track.

Photo: MH-R





This will mean more operations during the night and to alleviate the noise where possible a special acoustic reduction wall is to be built in strategic places around the perimeter.

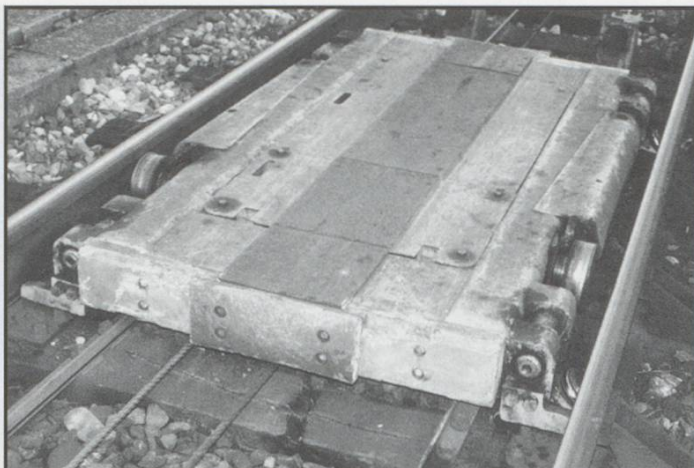
My thanks to the SBB for the special visit and to especially the staff at Stw Ost for the information and assistance provided.

#### **Yard data**

Length	4.2 kilometres [east to west]
Breadth	400 metres [north to south]
Track work	150 kilometres
Points	480
Signals	680
Operating staff	244

#### **Data for 2001**

Wagons handled in RBI	312,341
Wagons handled in RBII	352,844
Trains arriving. RBI	13,304
Trains arriving. RBII	15,247
Trains departing. RBI	20,696 [6,622 in transit]
Trains departing. RBII	35,667 [19,868 in transit]

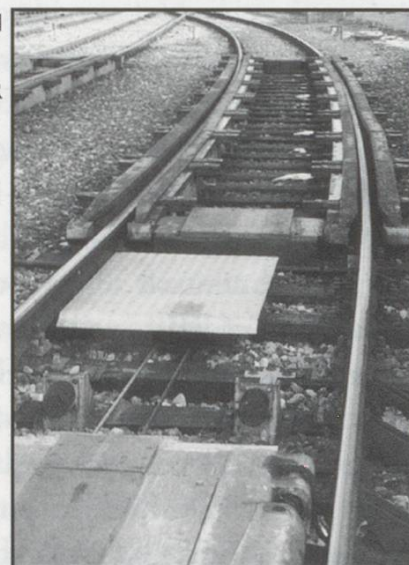


Muttenz. Feb. 2003. Cable powered manoeuvring unit.

Photo: MH-R

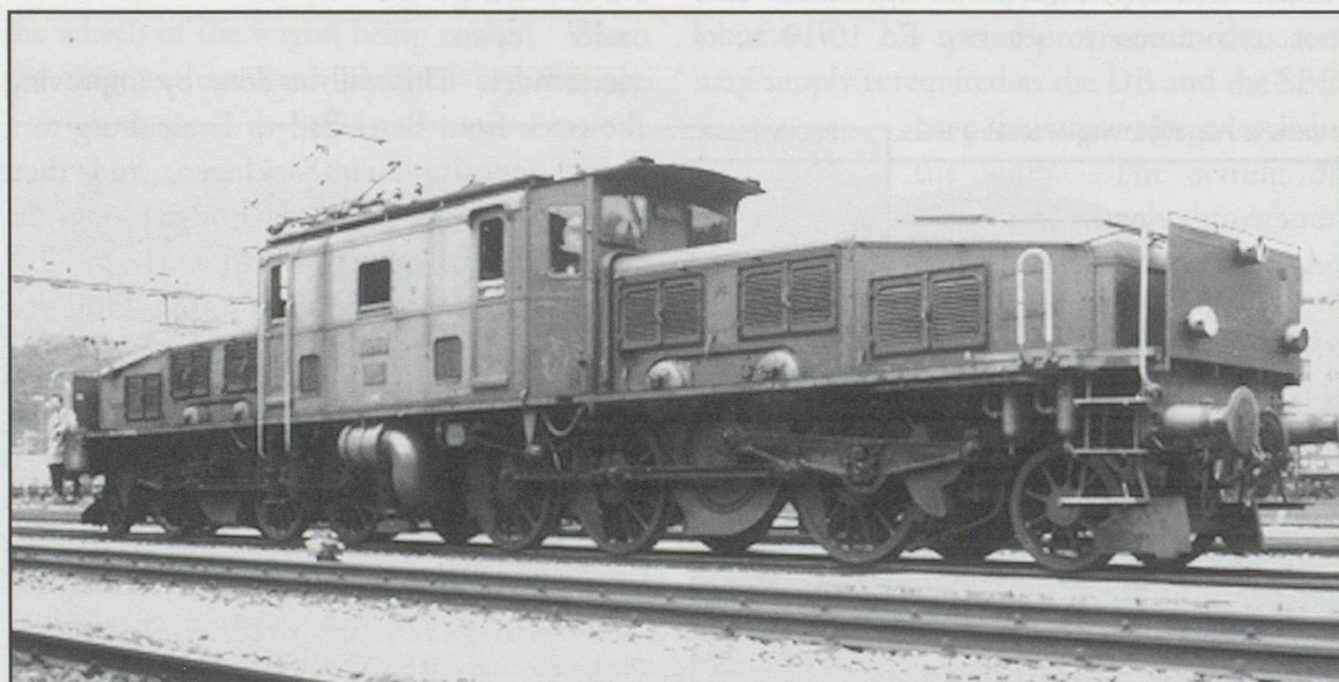
Muttenz. Feb. 2003. Speed retarder clamps.

Photo: MH-R



Muttenz. Feb. 2003. Wagon speed detectors, 1 per track.

Photo: MH-R



Muttenz. SBB Ce 6/8 14282 modified for shunting duty. Photo: Courtesy SBB