



Trainsimming Modern Swiss Railways

April 2003



A new BLS 485 with a Rolling highway train from Freiburg i.B (Germany) through the Lötschberg to Italy
Model: Mad Mike Repaint Jean Yves Canoville.

- Background
- Routes
- Swiss Engine classification
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Switzerland is probably the most railway-orientated country in the world, with one of the densest route network per sq mile, and a high usage (second to Japan). It is certainly the most railway-orientated country that I have lived in.

Switzerland has 4,492 km of railways (1,564 km double track), of which 3,317 km is standard gauge. To all intents and purposes it is entirely electrified (3,288 km) at 15kV 16 2/3 Hz, the same as Germany and Austria -although Switzerland has a smaller loading gauge than Germany.

The Swiss Federal Railway the **SBB**, (**Schweizerische Bundesbahn**), run services on the backbone of the system, and apart from one line (the Brünig line), is all standard gauge. The other system to run mainline and international services is the **BLS**, the **Bern Lötschberg Simplon**, which runs services from Bern, including the services through the Lötschberg tunnel to the Simplon tunnel.

The largest private railway is the **Rhatische Bahn**, which run a network of metre gauge railways in the Alps in South East Switzerland connecting to the SBB at Chur.

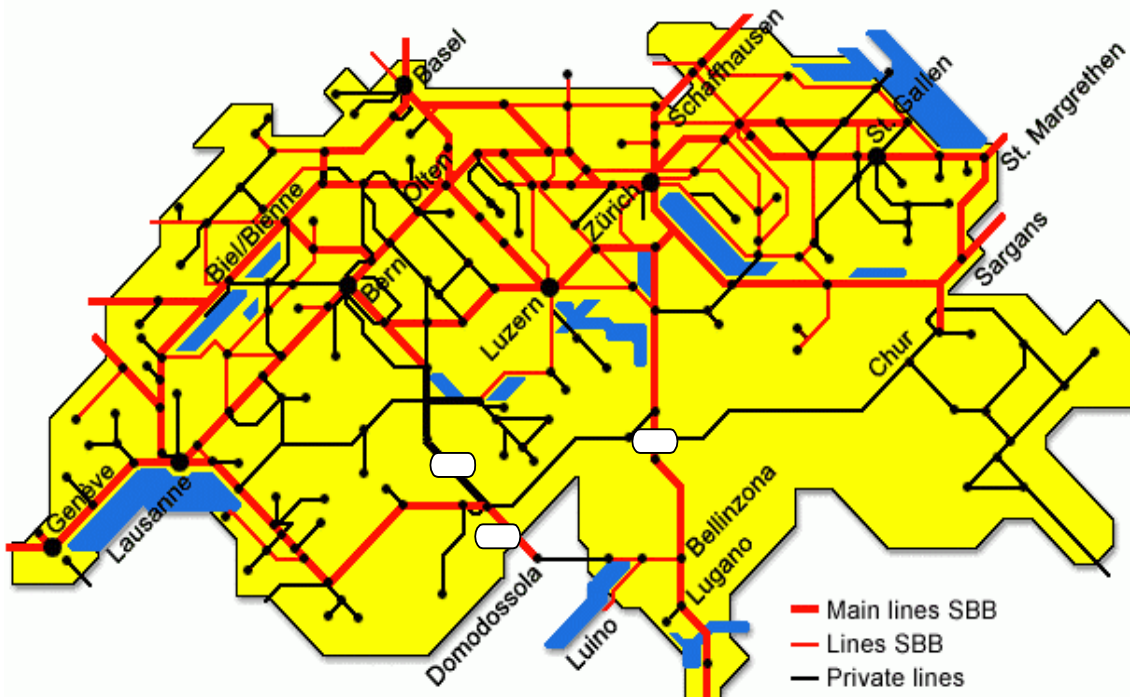
There are about 60 private rail companies operating mainly branch lines, which connect off the SBB network. They are financially supported by the cantons.

Switzerland has a uniform ticketing system so you can buy through tickets to the branch lines.

In this issue we are looking at the **SBB** and **BLS**.

SBB, CFF, FFS. SBB stands for Schweizerische Bundesbahn; CFF Chemins de fer Fédéraux, and FFS Ferrovie Federali Svizzere. Loco either have SBB CFF FFS on both sides of SBB CFF on one side and SBB FFS on the other. Swiss trains drive on the left.

Geography



Map of Swiss Railways © SBB. The white oblongs are the Lötschberg and Simplon Tunnels (on the Bern to Domodossola route) and the Gotthard tunnel.

Switzerland is a Confederation (of Cantons) with a population of 7.2m, roughly twice the size of New Jersey, and is bounded by France, Germany, Austria, Italy (and Liechtenstein). It lies on the major North South trade route between Italy and Germany.

The topography of Switzerland is a series of approximately south-west-northeast belts.

The **Jura Mountains** are a range of moderately high, but steep ridges on the French border. There are few gaps, except where the Rhine cuts through at Basel, which is Switzerland's inland port.

The **Swiss Plateau** is a hilly area, with some lakes and covers about 30 percent of the country, with low fertility, so much of it is under grass with the dominant form of farming dairying. It

contains the major French speaking cities of **Geneva** and **Lausanne**; and German speaking **Bern**, the Swiss capital, **Lucerne**, **Zurich** the largest town, and the manufacturing cities of **Winterthur** and **St. Gallen**.

The **Swiss Alps** cover more than half the country with the most southerly canton, Ticino, extends to the edge of the Italian plain and contains part of Lake Lugano and part of Lake Maggiore.

There are actually two parallel mountain ranges of Alps, separated by an almost straight, longitudinal trench formed by the valleys of the upper Rhone and Rhine.

The northern chain is made up of the Bernese Alps (Bernese Oberland) and their

northeastward continuation, the Alps of Uri and Glarus.

The southern ranges contain, in their lower parts, most of the Alps' population, as well as its few towns, such as Martigny and Sion in the Rhone Valley and Chur in the Rhine.

The Rail routes follow this geography will a strong NW-SE Trunk backbone, and a major rail junction at **Olton**.

To cross the Alps there two tunnels, at **Gotthard** or at **Simplon**. The later can be reached either by going along the Rhone valley from Lausanne, or by the **Lötschberg** tunnel from Bern, crossing the Bernese Alps.

The two major **airports** of Zurich and Geneva both have airport stations.

SBB

Swiss railways were built by private finance in an uncoordinated way, and in the 1890's the Swiss Federal parliament decided to take the major railways into Federal ownership, which they did commencing in 1901, after a referendum in 1897. In 1909 they bought the Gotthard route. As a result of a lack of coal in WWI major Electrification started in 1916, and by 1950 95% was electrified (at a time when Germany was 2% and France 9%), the majority being electrified by WWII.

The famous intercity **Cadenced timetable** (trains every hour at the same time) was introduced in 1982, the Zurich S Bahn in 1990, with an underground station at Zurich.

In 1987 the Swiss voted by Referendum to finance **Bahn 2000**, with major improvements to infrastructure, including a new 200 Km/hr line between **Mattstetten - Rothrist**, bringing Bern and Zurich to less than an hour from each other, with the SBB introducing new high speed locomotives (the Re 460), double deck intercity trains, and tilting trains.

The second major project are the two new **transalpine tunnels** (see box).

The third major project is a through line south under **Zurich** station, which is a terminus station with approximately 1400 trains a day. This should be complete in 2012.

In 1999 the SBB became a state owned limited company, and split itself into three divisions, **passenger, freight and infrastructure**, with the Locomotive park was split up.

As with other European countries the SBB has taken initiatives to increase its market share, in particular limiting setting up a **German subsidiary** to run thought freight trains from **Köln to Italy**. Originally at the Italian end this was a shared arrangement with **Trenitalia** (the new name for FS the state railways), but because of problems of reliability the SBB are now taking over responsibility for end delivery and collection in the Milan area.

BLS

The Swiss canton of Bern was not happy about the Gotthard tunnel, which meant that Bern was no longer on the North South Axis. They therefore decided to build a tunnel through the **Lötschberg**, to link up with the **Simplon** tunnel into Italy.

Although regarded by hostility by the Federal Government it received financial support from the French, who needed a new link, as they had just lost their routes through Alsace Lorraine and Basel to the Germans. The tunnel, ramps and electrified railway entered service in 1913.

In addition to running Intercity trains on the link, the BLS also have subsidiary companies operating

passenger train services Interlaken, and in the Bern area.

- Local commuter train services ("S-Bahn") of the Bern area
- Three cars-on-train service every 15-30 minutes through the mountain between Goppenstein and Kandersteg (and during the summer from Domodossola to Kandersteg)
- Cargo, in co-operation with the German DB Cargo from Germany to Italy, including from 2001 the **Rolling highway** for trucks from the southern German city of Freiburg to Novara in northern Italy The Lötschberg tunnel had to be specially adapted and the

flatcars lowered to enable vehicles up to four meters high and 44 tonnes to use the system

The SBB and BLS have now agreed that the BLS will stop operating express trains and express train coaches (e.g. between Basel and Brig or Italy) and will hand all their long distance coaches over to SBB and SBB on the other hand will retract from the Bern area S-Bahn traffic and hand over that business and some coaches to BLS.

The SBB and BLS have a **Train-Km offset agreement** and run services on the others tracks, and you can see mixed consists of SBB and BLS coaches.

The Swiss Policy on Heavy Goods Transport

The Swiss Policy is to reduce growth in the road transport sector in general and, in the special case of transalpine traffic, to limit the number of heavy vehicles on our transit routes. The policy relies on three pillars:

- In 1998 the Swiss parliament agreed to **Reform of the Swiss Railway System with open access, the separation of infrastructure from train operations, and commissioning regional trains**.
- In a further referendum in 1992 the voters agrees to building improved North South links, the **NEAT Project** (Neue Alpentransversale, also known as the Alp Transit) to construct two new transalpine railways is currently under construction. It includes the Gotthard base tunnel, which at 57 km (35 miles) will be the longest in the world, and the Lötschberg base tunnel that will be 34.6 km (21.5 miles) long. The Lötschberg tunnel is scheduled to open in 2006-7, and the Gotthard in 2012
- The Swiss people agreed in 1998 to introduce a **performance related fee for heavy vehicles (HVF)**, eg paying based on size, distance and emission levels of the vehicle.

MSTS Routes

Etoile de Savoie (Henri Verpiot)

We looked at Henri's Route in Part One of the French Trainsimming, but the route also contains the SBB line from Geneva Airport, or the freight yards at La Praille, through Geneva, to Nyon.

A relatively short stretch, but very well detailed, and in reality is a busy section of the network, as all major trains in the French speaking part of Switzerland funnel into Geneva. Even has some Swiss looking signals.

Alpentransit Light 1.02

Dirk Maass. www.thetrain.de

This is a semi fantasy depiction of the Gotthard route through the Alps, and is a development of Gotthard 2.0 with better textures.

It is a good looking route, and essential for Swiss freight and EC trains, on the Gotthard, and standing in for the BSS Lötschberg route.

The light refers to the fact that it was compressed with Route Riter, and so does not contain some of the textures of the full version (which because of a dispute over what is freeware is no longer available).

Disappointingly it does not have proper Swiss signalling.

Unterland 2.31 Daniel Mrawek

www.trainsimworld.de

This is quite a large route, and route is also a semi fantasy route depicting part of the North Zurich hinterland, up to the German border. It is a mixture of single and double track running.

This route has the coniferous/grass vegetation of Switzerland, but it lacks anything obviously Swiss, such as Station nameplates at the stations or signals, and will no well known towns or features it could be anywhere. I hope that in future updates Dani makes the route more identifiably Swiss.

Currently the activities are for non-Swiss consists.

Albula 2.0 Michael Vone

www.train-sim.com

Probably the best Freeware Route there is, depicting the Albula mountain route in South East Switzerland, by the man who wrote the book on Route writing. Finely detailed, with its own environmental files, and an associated train and activity pack. Unfortunately the Rhätische Bahn is a metre gauge railway, so although the SBB shares a station with the Rhb at Chur and Landquart, SBB and BLS trains cannot of course run on this routes.

You can use Environmental Control from <http://www.train->

sim.com/ to use the Environment file in Albula for the other Swiss routes.

Signaling.

The main signalling system on SBB is the L type, L standing for **Lichtpunkte** (Light). This consists of square five-light distant signals, with oblong seven-light main signals, sometimes combined on the same mast.

As this can be difficult to read a new system N, for **Nummern** (Numeric) was introduced, which is a combined system (ie combined distant and main signal) with a dot matrix showing the speed at which you can proceed. This has sometimes been introduced within the L system.

At present this is academic as none of the Swiss MSTS lines has Swiss signalling (Etoile de Savoie it is partially implemented).

The Mattstetten – Rothrist new line is supposed to have in Cab-signalling, but recent reports say it does not work on the trail section, so that traditional signalling will be introduced reducing the speed of the line to 160 Km/hr instead of 200 Km/hr.

See Roland Smiderkal's pages (in English) for a guide to Swiss signalling.

http://www.8ung.at/smi/asr/ensig_ch.html



Due to the Re6/6 going to cargo, the Passenger division has returned to using Re 4/4II in multi-traction on the Gotthard. Here are two pulling an Italian train-set February this year.

For pictures of the Gotthard route see www.gotthardbahn.ch (in German)

Swiss Locomotive Classification System

The old classification system was:

Prefix + Suffix + Numbers indicating powered and total axels + an index to differentiate between classes of otherwise similar classifications. Eg Re 4/4II

The locomotive numbers were then in blocks eg 10001- 11999 were electric locos that could do mote than 80 Km/hr

Since 1989 a new system has been introduced with the Suffix and prefix retained, but with a three number class eg Re 620. This is built up into a complete six digit number plus a check digit eg 620 042-2.

Prefix Locomotives	Suffix	Old Scheme
R Max speed more than 110 km/h A Max speed 85 to 110 km/h B Max speed 70 to 80 km/h C Max speed 60 to 65km/h D Max speed 45 to 55 km/h E Shunting locomotive G Narrow gauge locomotive H Rack fitted O Open wagon body T Tractor X Departmental vehicle Railcars A 1st class B 2 nd Class D Baggage compartment S Saloon vehicle Z Postal compartment Plus R if max speed over 110 km/h	a battery powered e Electric powered em Electric and diesel powered h Rack fitted m diesel or petrol powered r restaurant vehicle rot rotary snow plough t (used with X) Self propelled eg Crane	Numbers + Index Eg 4/4 II

New scheme (First three digits)

0 Museum, steam	0 = steam, 1 = electric, 2 = railcar, 3 = Diesel, 7 = tractor, 8 = snow plough, 9 = special purpose	0 Sub class 1 Sub class 2 Two system (or Subclass) 3 Three system (or subclass) 4 Four system (or subclass) 5 BLS 6 Other private 7 Other private 8 Other private 9 -
1 Narrow gauge	0--2 = locomotives, 7 = tractor, 8 = snow plough	
2 Tractors	0 = battery, 1 = electric, 2 = electric and Diesel, 4 = Diesel, 5 = electric and battery	
3 Electric 3 powered Axels or less	Locomotive generation eg II is 2	
4 Electric 4 powered axels	Locomotive generation	
5 Rail Car or EMU/DMU Motor car or trailer	0 = long distance EMUs, 1 = short distance EMUs, 4--7: single power cars	
6 Electric more than 4 powered axels	Locomotive generation	
7 -	-	
8 Diesel	Number of powered axles	
9 Electric Shunter	Number of powered axles	

Re 4/4 I

Twenty-six locos were built between 1946 and 1948. After gradually declining roles, ending in Push-pull trains in the Italian speaking area of Switzerland, the

last seven are serving as shunters for passenger wagons in Basel.

Class:	BLS Ae 4/4 (Ae 415)
Number	4
Built:	1944 - 45
Speed:	125 Km/hr
Multi:	Yes
Number in Use:	4
Color schemes	Brown



Use: The BLS has four of these remaining, although essentially in reserve. No of 251 above, is a designated Museum loco.

Model: Jean Yves Canoville

Class:	Re 4/4 II Re 4/4 III (Re 420/421) (Re 430)
Number	209
Built:	21
Built:	1964 86
Speed:	140 Km/hr 120 Km/Hr (III)
Multi:	Yes
Passenger:	120
Cargo:	132 + 21
Color schemes	Green; Red; TEE; Swiss Express; Advertising; Cargo



The classic Swiss locomotive for twenty years. Fast Passenger and freight on flat land, and double traction on mountain lines, now used for push-pull regional trains. They can work multiple and all are fitted for push –pull The Re4/4 III has lower gearing for use on the Gotthard line, where it is often in multitraction with a Re6/6.

There are different cab designs causing differences in length. Some have just one pantograph, and others one Swiss and one DB/OBB for working into Lindau (Reclassified as Re 421).

Also in use in private railways and the Rhätische Bahn Ge 4/4'' is virtually a narrow gauge copy.

An Re 4/4 II for the Swiss Express trains from 1975, still carried by 5 locomotives

Model Daniel Mrawek Texture Michael Habegger

Class:	BLS Re 4/4 (Re 425)
Number	35
Built:	
Built:	1964-83
Speed:	140 Km/Hr
Multi:	Yes
Number in Use:	35
Color schemes	Brown



The standard BLS loco found throughout BLS workings, pulling passenger and freight

Model: Jean-Yves Canoville

Re 4/4 IV

Four locomotives built as successors to the Re 4/4 II, but in the event not judged a significant enough improvement, and so the Re 460 was developed. The

locomotives were swapped with Südostbahn (Sob) for three Re 4/4III that had been sold to them, plus one built for SOB new.

Class:	Ae 6/6
Number	120
Built:	
Built:	1955 -1966
Speed:	125 Km/hr
Multi:	No
Cargo:	119
Color schemes	Green Red



Use: Originally freight and passenger on the Gotthard, now freight on the plain.

Developed in the 50's as a universal locomotive on the Gotthard. The two prototypes and the first 23 are have chrome bands and are known as Cantons as they are names after Swiss cantons. The next 25 received the names of the Canton capitol, with no chrome, and the remainder major rail centers. The Re 6/6 displaced them from the Gotthard.

This is a 'Canton' (Solothurn) with the chrome moustache and sides *Model: Jean-Yves Canoville*

Class:	Re 6/6 (Re 620)
Number	89
Built:	
Built:	1975 -1980
Speed:	140 Km/Hr
Multi:	Yes
Passenger	13
Cargo:	75
Color schemes:	Green; Red; Mint Green Cargo; Blue Cargo



Use: Pulling heavy Passenger and freight trains up the Gotthard and Simplon.

Effectively a larger, more powerful development of the Re 4/4 II. A Replacement for the Ae 6/6, capable of pulling heavy trains (800 tonnes) up slopes at up to 80 Km/hr, replacing the Ae 6/6. As a result of the introduction of the Re 460 the type is now seen elsewhere on the system.

An Re 620 in the new cargo Livery Model Daniel Mrawek Repaint by Michael Habegger

Class:	Re 450
Number	115
Built:	
Built:	1989 -1997
Speed:	130 Km/hr
Multi:	3 sets
Number in Use:	115
Color schemes:	Class Specific Dark Blue



An engine with a cab at just one end it is used exclusively to pull Zurich S Bahn Double deck stock, in a set comprising a B, AB wagon and a Bt driving trailer. Up to 3 sets can be used in multi.

Model: Bernhard Daenzer

Color schemes.

Prior to 1928 Loco were brown, but Green was introduced to camouflage the locomotives. In 1975 an Orange/gray scheme was introduced on the Swiss Express trains on a few engines, and some were in the Red/cream TEE colors. From 1983 the locos were red, repainted when they had a major revision (so that Green ones still remain in use). The slab sides of the Re 460 proved ideal for advertising locomotives, and this were introduced in 1994 with an AGFA scheme.

A few Cargo locomotives were painted in an attractive Green scheme in the late 90's, but for some reason it was not liked, and these are now repainted in a Red scheme with a blue central body.

The Regional EMUs introduced a mid Blue and gray scheme.

Class:	Re 460 Re 465
Number	119
Built:	18 (Re465)
Built:	1991- 1996
Speed:	230 Km/hr
Multi:	Yes
Passenger:	69
Cargo:	50
Color schemes	Red; Blue (BLS); Advertising.
Use:	Fast Passenger; Heavy Freight



Designed as a Universal locomotive as part of the Bahn 2000 program for fast passenger trains, including the new railway lines to be built, and for heavy goods trains on the Gotthard- and Lötschberg routes. The outside design is by Pininfarina.

Used on Intercity, in particular on the Geneva, Bern, Zurich, St Galen trains, and the Foot of the Jura route, where they are used in push-pull mode, and for freight, where they can often be seen on double traction on the Mountain routes. They were the first Advertising locomotives in Switzerland, painted overall with numerous advertising schemes.

The Re 465 s has been modified with slower speed and more power for the *Lötschberg* route. 8 are owned by the BLS and 10 by the SBB but in BLS livery. The first five BLS locos are used in push-pull, with SBB driving coaches, but the remainder have had one pantograph replaced with a German one, and cannot be used in this role.

There are 20 similar locomotives for the Finish Railways and 22 for the Norwegian.
A Re 465 on a Rolling Highway through the Lötschberg.

Class:	Re 481 Re 482 Re 485
Number	
Built:	
Re 482	40 ordered
Re 485	10
Re 481	6
Built:	2002
Speed:	140 Km/h
Multi:	Yes
Color schemes	BLS Specific SBB Blue Cargo; White Lokoop;
Use:	Similar to the DB 185; a dual system 15kV 16 2/3 Hz, 25 kV 50 Hz



Bought by the SBB (Re 482) and BLS (Re 485) for through trains from Germany (Cologne) to Italy (SBB), and from Freiburg in Germany to Italy (BLS). The Re 481 were leased by MThB Mittelthurgau-Bahn, who went bankrupt and are now run by SBB.

Once the SBB locos are delivered they will hand their Re 460 back to Passenger.

Model Mad Mike Repaint Jean-Yves Canoville

Class: **Rbe 4/4
(Rbe 540)**
 Number: 82
 Built: 1963 -66
 Speed: 125 km/hr
 Multi: Yes
 Number in Use: 80
 Color schemes: Green (originally)
 Now Blue/White



Designed to pull fast trains and S Bahn trains, from 1992 these have all been refurbished with thyristor controls, new interiors and the new white/blue scheme similar to the NPZ. Normally in a four car set with a driving trailer and two EW I or II coaches.

An Rbe 4/4 in 1994 Model: J.Y. Canoville

Class: **RBDe
560
RBDe
565**
 Number: 132
 Built: 1987 -90
 Speed: 140 Km/h
 Multi: Yes
 Number in Use:
 Color schemes: Class specific, Navy blue top, white skirt, red nose and yellow doors. The ones used on the Bern S Bahn network have a vertical S Band stripe just behind the cab area. Most have names.



Known as the Neue Pendel Zug (NPZ, new Shuttle train), or more commonly as the 'Kolobri' or Humming bird, this EMU is found throughout the SBB system on stopping services, and including the S Bahn network around Bern.

Comprised of a motor unit, and a control units, it frequently has two to four trailers cars from refurbished EW I or EW II coaches, in the same livery.

The last six were converted for dual voltage operation to use 25kV 50 Hz system from Basel into Mulhouse in France. They are know as RBDe 562

NPZ at Nyon Station. In the Background a narrow gauge train of the Nyon – St Cergue –Morez Railway. Model: Jean Yves Canoville

RABDe 500 ICN Intercity Neigezug (Tilting Train)

In 1999/2000 the SBB introduced the ICN seven set EMU with electrically operated tilting of the bodyshell of the cars. Its top speed is 200 km/h. There are currently 24 sets with a further 20 by 2004. There named after famous people, for example Albert Einstein.

RABe 520

Introduced in 2002, a new New Three set EMU, with a smaller motor compartment, for the Seetalbahn (Luzern – Lenzburg), built to a narrow profile than the standard SBB carriages, but still useable on the network



EW I carriages in their original color scheme. Model Jean-Yves Canoville

Coaching stock

For internal use SBB has four series of Standard coaching stock **Einheitswagen**: **EW I** in 1956, followed by the **EW II** in (1965-1974) and **EW III** in 1972 –75. The air conditioned **EW IV** was introduced in 1981.

EW I and II were originally green, but many have been refurbished, either in the

blue/white scheme to match the NPZ EMU or in the Vermillion Green and blue window scheme designated a Regional semi-fast trains.

EW III were designed for the push-pull Swiss Express services, and are in Orange and gray Swiss express scheme, but the advent of the larger and more air-

conditioned EW IV limited their role, and they moved to semi-fast trains. As BLS are taken over many commuter lines around Bern they are being swapped for the BLS EW IV carriages.

The BLS have EW I carriages in a blue/white scheme.



EW II in the New Regional color scheme. Model Jean-Yves Canoville Repaint Silvan Schwab

EW IV Einheitswagen IV (Standard Coach Mk IV)

Built with air conditioning to bring a new level of comfort to passengers, the first class carriages started to be delivered in 1981, and the second-class two years later. In all they have 540 carriages; comprising 205 First class, 264 Second class, four dining cars, salon cars and a test car were built, between 1983 and 1992.

The BLS also bought twenty-four EW IV in two lots between 1985 and 1989, as well as two smaller railways, the SOB and the Bodensee Toggenburgbahn BT.

From 1997 the SBB introduced push-pull sets on Inter city trains, and for this purpose 60 Bt Driving trailers were built, with a front modeled on the Re 540 locomotive that provides the driving power. Some but not all the EW IV coaches were modified for push-pull operation.

As part of the Bahn 2000 plan all the carriages are being modernized, including the ability to run at 200 Km/hr.

In addition the BLS has swapped its EW IV for SBB EW IIIs.

Color scheme: Originally White with green window bands and doors. The dining cars are white with red window band.

Carriages are being repainted in the new ICN scheme (whether refurbished or not), white, a thin black window band, and a red slash by and on the top half of the door (with a thin yellow stripe for first class).

The BLS carriages are in the BLS White/blue scheme.



EW IV coaches in the BLS Livery. Model Hayo Schelten Repaint Jean Yves Canoville



The EW IV Driving cab with the front based on the Re460, in the original White/green livery. On Zurich to Geneva trains the driving cab is at the Geneva end. Model Hayo Schelten

Eurocity

The SBB Eurocity coaches have a different scheme, and the original Eurofirma coaches were in orange until the mid 90's. Unfortunately I cannot find a stock list of these coaches so cannot give numbers.



SBB Eurocity Coaches through the Gotthard
Model JaMar Repaint: Ingo Wittenberg

Since 1991 the SBB has 12 observation coaches. These are often the first or last carriage on the train.

Model Karsten Pott



Double Deck stock

In 1996 the SBB introduced double deck cars (known as Dosto or IC 2000) Intercity services with heavy demand, they are push pull with an Re 460, and normally 7 intermediate cars and one driving trailer. Top speed is 200 km/h. Seating capacity is 1400. All There are 250 cars are currently in operation, and the fleet will be complete in 2004 with a further 70 cars. In Swiss Romande various road and pedestrian over crossings had to be reconstructed for the larger loading gauge.

Baggage cars



Both the SBB and BLS still use Baggage cars, and in fact these are ex-SNCF Corail Baggage cars that run at 160 Km/hr. The yellow squares at the corner means the carriages are equipped for push-pull.

Model Jean-Yves Canoville

EW IV Train compositions

With a restaurant car: 460+D+A+A+A+A+Wr+B+B+B+B+B+Bt

No restaurant car: 460+D+A+A+B+B+B+B+B+Bt

In addition at Peak times they add extra cars and a driving set to the consists, without removing the existing driving cab, (not so good if you are in the wrong part waiting for the coffee trolley) eg

Bt+B+B+B+B+B+Wr+A+A+A+A+D+460+A+B+B+B+Bt was seen going up the Lötschberg

Freight

Swiss railways use the same classification as the German railways, so I refer you to my *Trainsimming Modern German railways*.

In addition both the SBB and BLS sites have pictures and descriptions of their freight wagons.

www.sbbcargo.ch and <http://www.bls-cargo.ch/>

Other SBB and BLS Locos

The SBB has diesel and electric shunters, that larger shunter used for trip work, but no mainline diesel. It has narrow gauge stock for the Brünig line.

The BLS has an EMU similar in many respects to this NPZ, and also a new low floor car EMU the NINA.

Resources

The major references consulted were:

Both SBB and BLS have excellent websites (in English) www.sbb.ch and www.bls.ch

Clive Appleby *Swiss Railways Locomotives, Railcars and Trams* Platform 5 1997

Homepages on <http://homepage.sunrise.ch/homepage/kanada/Eisenbahnseiten/eisenbah.htm> (in German)

MSTS Sites

You can find most Swiss trains on www.thetrain.de, which perhaps inevitably has now introduced a registration system.

There is a Swiss site www.train-sim.ch, but its download page seems always to be down. A previous Swiss site has disappeared.

A delegation of Swiss transport experts went to visit Transport for London, who are in charge of London's tubes and busses. TfL proudly showed off its new dot matrix information system that it is installing at major bus stops. A central computer works out from a GPS device on the bus the time it will get to the bus stop, and this is displayed on the dot matrix screen.

The Swiss were not impressed.

“Why can't people just read the timetable?”

Also in this series:

Modern German Railways (Three parts)

Modern French Railways (Three parts)

From <http://www.train-sim.com/>