Train simming Modern German railways

Part One Jan 2003

Köln Hbf
Cologne Main Station
Cabview: BR 151 Blackman

Welcome to Trainsimming Modern German railways

In Part One:

- **Brief History of DB**
- **DB Color schemes**
- **The Baureihe Classification system**
- **Signals**
- **Rhine Valley Routes**
- **Protrain 1**
- **Wupper Express 6.0**
- **Electric Locomotives in Service**
- **Resources**

With the release of the High quality freeware route Wupper Express 6.0 (www.thetrain.de), and a growing number of German Locomotives, carriages and wagons available from an increasing number of German train-sim sites, now is the ideal moment to discover and train–sim current day German railways.

With a large number of different locomotive types, a variety of Passenger traffic brandings, and with three changes of color scheme for locos and carriages since 1968, German railways can be confusing for the beginner.

This series aims to show the what, where and when of locomotives, carriage and freight stock.

In Part Two:

EMU's, DMU.s and coaching stock

In Part Three:

Diesel Locomotives in Service

Freight stock

Post War History of German Railways

Prior to WWII German Railways had were unified under one semi private Railway Administration Deutsche Reichsbahn (DRG), excepting some small private railways.

In the immediate post war period Germany was divided into four zones by the occupying forces, and the Military authorities ran the war-damaged railways. In 1949 the three Western zones became the Bundesrepublik Deutschland, and the East Zone the Deutsche Demokratische Republik (DDR).

The key dates in the history of the post War West Germany and post reunification railways are:

- 1949 Hand-over of US and British/French control of the Railways to civilian operation.
- 1952 Deutsche Bundesbahn (DB) in West Germany and Deutsche Reichsbahn (DR) in East formed.
- 1950's commencement of major electrification of the West German rail network
- 1956 the DB logo makes an appearance
- 1957 TEE TransEuropExpress net of international high speed luxurious services, with on board customs introduced.
- 1957 Neubauprogramm (New construction program). The four base electric locomotives of the new German network enter (and are still in) service – E10, E40, E41 and E50.
- 1968 Computer renumbering of locomotive types. Color schemes change.

- 1971 InterCity network of regular connections
- 1973 Commencement of first high speed line
- 1977 End of DB steam locomotive usage. Steam usage was current up to then – in 1975 for example there were still significant steam hauled freight trains at Köln's Gremburg freight yard.
- 1979 IC79 The Intercity network of regular hourly 200Km/hr connections between cities launched.
- 1985 DB launched the "New railway" and color scheme changed again, with a modified logo.
- 1990 East and West Germany reunited. Co-operative operation quickly introduced between DB and DR.
- Commencement of significant investment to open up the broken links between East and West Germany and to bring the East German rail network up to modern standard. East German rail freight traffic plunges.

Map of current German rail network: Full size on http://www.bueker.net/trainspotting/maps.php

The first German railway to have scheduled operation with low-frequency high voltage AC power was the branch line from Murnau to Oberammergau in Bavaria, electrified at 16Hz by Siemens in 1904. In 1912, the German Railways adopted this 15kV 16 2/3Hz system as standard for low-frequency high voltage electrification. The exceptions are the Berlin S Bahn, which is 800V dc third rail and the Hamburg S Bahn 1200 DC third rail. Of its neighbours only Switzerland and Austria have AC 15kV 16.7HZ.

The remaining mainland European countries have four different electrification systems, so that cross border journeys were made by Diesel. The introduction of "open access" plus the development of the new multi current engine such as the four system BR 189 is changing this.

DBAG 1994

On the 10 January 1994, the face of German railways changed forever. The two state owned railway companies DB and DR were handed over to a joint stock company Deutsche Bahn AG (DBAG).

In turn DB AG split into an infrastructure provider and a number of train operating companies who must compete with the international or domestic "open access" operators, track repair and operating companies, of which these are the main ones.

- DB Reise & Touristik Long distance passenger services
- DB Regio Local passenger services
- DB Station & Service Operates passenger stations
- DB Cargo Freight
- DB Netz Track and infrastructure
- DB Holding & Gesellschaften Other activities.

Apart from the 1994 introduction of a new livery – Traffic red – for locos and most trains, and a new logo the changes since 1994 have been significant:

Locomotives: An extensive investment in new locomotives to replace those built or derived from designs from the 1950's.

Regional railways: – large loss makers – since 1996 are now the responsibility of the State Governments on a user pays basis. There has been considerable expenditure on new stock, including new diesel railcars, new EMUs replacing push pull trains, and the extensive use of new Double-decker stock, which was extensively used by DR, but not used at all by DB. Open access operators run some regional services.

Inter city railways: considerable investment on high-speed lines, with new ICE stations at major airports (Düsseldorf, Frankfurt, and to come Köln-Bonn), which is a growth area.

Cargo: There was a considerably collapse in the East German Railfrieght business, and in West Germany. Many Freight yards are closed. DB has bought new stock more suited to customers needs, invested in container depots, and in 1999 merged with the former freight-operating arm of the Dutch Railways NS. NS-Cargo, and with DSB Gods (Denmark) to form Railion. In addition open access operators run freight services.

German Model railroaders divide German Railway history into periods or Epochs. Unfortunately they don't all use the same periods, with some recognizing a Epoch VI and others not) particularly:

Epoch I Before 1920
Epoch II 1920-1945
Epoch III 1945-1970
Epoch IV 1970-1985
Epoch V 1985-1994
Epoch VI Post 1994 (not used by all)

Baureihe Class system

The word for class or series in German is Baureihe of BR. Any single Baureihe meant a specific type of loco (with only little variations when new decisions were made).

Since 1968, with the introduction of UIC (Union Internationale des Chemins de Fer) numbering system, the type of locomotive indicated by the three leading digits, with the second three the series number, and the last number a check number

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In the example above 101 – 126 - 1. The first digit is the type of locomotive (Electric), the second the sub type (passenger), and this is the engine 126 in the series: the 1 is a computer check digit. The Baureihe are not sequential number so that, for example was introduced in 1996, and the famous 103 is just about to come out of service.

Prior to 1968, electric locomotives had a series number begging with E, and diesels a "V" (= Verbrennung, "burning"). "Triebwagen" (railcars) got an additional "T": "ET" = Electric railcar, "VT" = Diesel railcar. "Beiwagen" (railcar wagons without engine) a "B", so "EB" and "VB". In most cases the numbering system swapped the letter for 1 or 2 respectively, although some diesels (V) became a 3.

Downloads can be labeled BR 101, DB 101, or even BR E101, of DB E101. It is the same engine. Normally, however a letter in the download indicates it is a pre 1968 engine.

First Digit	Type	Second digit
0	Steam locomotive	See Source
1	Electric locomotive	0-1 Passenger 2-3 Universal 1-5 Freight 6 Shunting 7 Other systems 8 Multiple systems
2	Diesel Locomotive	0-8 Mainline 9 Shunting
3	Small Shunting Engine	Power group
4	Electric railcars (EMU)	0 High speed 2 Commuter 7-8 Commuter DC (e.g. S Bahn)
5	Accumulator railcars	
6	Diesel railcars (DMU) except railbus	0-1 Long Distant 0-2 2-9 Shirt distant
7	Service railcars and rail bus	0-8 Service cars 9 Short distance
8	Additional/immediate/cab cars for 4 and 5	Same as power car
9	Additional/intermediate/cab cars for 6 and 7	Same as Power car
Source: http://Mercurio.iet.unipi.it/misc/germanum.html		

The Hl signal outside Coswig is at Hl6b. The Top line is the Distant signal and is actually flashing “expect proceed at 100km/h”. The main signal is yellow with yellow light bar “proceed with 100 km/h”.

Signaling

There are four main types of signalling systems in use in Germany

The HP system (Hauptsignale) was introduced in 1935, but was (and is) mainly used by the DB. II is based on aspects that are displayed by the semaphore signals at night. As the name indicates it has separate Main (Haupt) and Distant (Vor) signals, but to improve running these are often on the same signal.

The Hl (Hauptlichtsignale – the second character is an L) was introduced by DR and is used in East Germany, and aims to get over the spacing needed by separate Main and Distant signals by combining the main and distant indications in one signal head, with the distant indications the top row. The Hl system is also the standardized signaling systems in the former COMECON states.

The Ks system (Kombinationssignal (combined signal) was designed after the Reunification and is to ultimately replace both older systems. This system also combines main and distant indications within a single head.

On High speed lines there is cab signaling LZB (system (Linienzugbeeinflussung)

Christoph Schmitz has a good site on signals (in English) with Java demonstrations of the signal aspects http://www-users.rwth-aachen.de/christoph.schmitz2/signal_e.html

Wolfgang Meyenburg has a more detailed site (in English).

http://www.sh1.org/eisenbahn/index.htm

Hagen Knop is the guru of MSTS signaling and has a freeware signaling script, as well as the signals in Protrain Two.

Color Schemes Electric locos

DB has had four major color schemes since the war.

Electric Engines were Bottle Green until 1959, and then Chrome Green until 1975. From 1955 Electric locos that could go over 120Km/h were painted Steel blue; from 1969 Cobalt blue.

The famous DB logo appeared in 1956.

From 1965 the classic TEE scheme of Beige with a red skirt (and eventually side band) was introduced. From 1974 remaining Electric locomotives were painted beige with an Ocean-blue skirt.

From 1986 Engines were painted Oriental red, which has a bluish tinge, and to me at least, makes many engines, particularly the 103, ugly.

In 1994 the simplified DB log appeared, and since 1996 engines have been painted traffic red, which is a brighter red. DB Cargo locos often have a big DB Cargo logo on the side.

A series of 111, and some other locos on S-Bahn push-pull duties have been painted light gray with an orange waist band.

There is no rush to repaint the engines in the new colors, so for example many 103's retired in their original colors, and you see beige/Ocean-blue locos pulling carriages in the Traffic red RE or white/red IC scheme. In 2002 there are even locos is their original cobalt blue

Since about 2000 a significant number of engines, particular 101s have been painted in advertising liveries, (Werbeloks).

With Open access other operator's liveries can now be seen on German Railways.

Oriental red RAL 3031

Traffic red RAL 3020

There are still Electric engines in service in their original blue or green scheme, although of course less each year. In addition there are Museum locos restored to their original condition.

This is a 181 pulling freight in the Obermosel August 1998

Model MadMike Repaint Rainer Bluhm

Two (German language) sites with details of the RAL colours used by DB are

http://www.bahnstatistik.de/RAL.htm

http://www.ae.op.dlr.de/www/staff/gretzschel/RAL/tabelle.html

MSTS Routes: The Rhine Valley Routes

One of the spans of the six-track Hohenzollen Bridge Köln

The Betuwe Railfrieght Line (BRL): The Netherlands rail system is stretched to capacity: to maintain their share of the intermodal market, and to relieve roads the Dutch rail authorities are building a new double track 160km line from Rotterdam to the German border at Emmerich, which should be completed in 2006. The line has attracted considerable opposition, and in some parts runs in tunnels, and alongside the A15 motorway.

The **Rhine Valley line** runs on both sides of the Rhine from **Frankfurt** to **Köln**, passing through Mainz, Koblenz and Bonn on the left side and Wiesbaden on the right, and is one of the busiest stretches of rail in Germany, as well as being one of the most attractive. At some stages the railway is only a roads width or less from the River, and with vineyards rising from the Hills on the other side of the track. The track is only two tracks, with passing loops, on the sides of the Rhine.

3000 Passenger trains a day pass over the **Hohenzollen Bridge at Köln**; while possible 500 goods train a day (I have read various figures) pass over Köln second bridge the Südbrücke. Köln is a major Rail junction. The Rhine Valley line continues to **Düsseldorf**, and then to **Duisberg**, or there is a line to Dortmund, while eastwards is the track to Aachen and Belgium and the Netherlands.

Up to December 15 of this year the Intercity trains used the left bank of the Rhine. Since then **High speed railway** (**Neubaustrecke** or NBS) has come into service – reducing the time from Köln – Frankfurt from two hours to an hour, and reducing the Intercity trains on the left bank by about a half.

However, while traditionally the right bank has been identified with goods traffic and the left bank with passenger traffic, there is in fact significant goods traffic on the left bank, in particularly Container traffic, with a large container terminal at **Eifeltor** near Köln. The amount of goods traffic on the left bank is expected to significantly increase one the new **Betuweroute Freightline** between Rotterdam and Germany opens in 2006, and in fact there has been significant upgrading of the left bank track, including additional passing loops.

On the right bank there is large goods yard at Gremburg near Köln.

Both banks have experienced a growth in Regional train services in recent years.

The Bridge at Remagen

The **Ludendorff Rail Bridge** spanning the Rhine River, between Remagen to Erpel was started in WWI to allow quicker access to the Western Front, but actually opened just after the war ended.

On the 7th of March 1945 an advanced element of the 9th US Armour division arrived to discover that the Germans had failed to demolish the bridge (twice in fact). Despite bombing by the Germans 40,000 troops crossed the Rhine before the bridge collapsed 10 days later through overload.

The bridge was not rebuilt after the war

Pro-Train One (Rhine Valley) (Commercial)

The first MSTS Add on introduced Germany, and now bundled with MSTS in Germany is Pro-train's Rhine Valley. It has the tracks on both sides of the Rhine between Frankfurt and Köln, joined at the top by the famous Hohenzollen Bridge over the Rhine by Cologne Cathedral. It depicts the situation prior to the NBS.

The Protrain simulation has good depictions of Cologne (as per Page One) and Frankfurt stations, but may have been too ambitious, and German Train-Sim fans, in decreasing levels of seriousness for, have heavily criticized it:

- Unrealistic signaling with no Distant signals
- Too tight curves, and correspondingly unrealistic speed limits – the Rhine Valley line is 200 Km/h in some stretches whereas the highest in Protrain is 160K/Mph
- The bridge halfway down the river at Koblenz has incomplete links to the right bank (apparently to stop a circle effect). Koblenz has the only two railway bridge across the Rhine before Köln
- Too bright colors
- No Boat traffic on the Rhine (apparently promised) – the Rhine is a very busy river
- Lack of vehicle traffic
- Pretty boring gantries
- No freight wagons

My own grumbles are that the Sudbrucke at Köln is not included, which is used for Goods trains rather than the Hohenzollen bridge, and the Container cranes at the Eifeltor depot outside Köln are not included.

Some of this is fixable and some are not. The original Pro Train team has broken up, so it is unlikely that an update will be issued, and for of copyright reasons it is unlikly that a freely available fix for the signals will be made. There are instructions to fix the Koblenz Bridge in the forums at WWW.tssf.de and some replacement textures are available.

Personally I feel the locomotives are unrealistic I have replaced most with freeware.

However many activates written for it, and activities for other routes often assume you have these trains.

The **Neubaustrecke (NBS)** or High speed line between Frankfurt and Köln comes into full service with the December 15th Timetable, with three or four trains an hour cutting the time to travel between these two cites from two to one hour. The line goes up and down with 4% gradients so only ICE3 sets with powered axels distributed through the train, can be used. It leaves the old line after Frankfurt airport, going through Limburg, running on the side of the A3 Motorway and rejoining the right Rhine line at Troisdorf, then on to a new low-level station at Köln- Deutz for onward services to Munster or Dortmund, or on to Köln Hbf for service to Amsterdam.

The Clock tower at Düsseldorf Hbf with a BR 101 in Aspirin livery.

Model MadMike; repaint Stefan

Wupper Express 6.0 (Freeware from www.thetrain.de)

At **Köln Deutz** there is a complicated junction (not shown on Protrain 1), with one leg a four-track stretch (2 S-Bahn and two high speed tracks) to Düsseldorf. Wupper Express covers the track from just south of Düsseldorf through Düsseldorf HBF, the new airport station and to Duisberg (a run of twenty minutes by IC train).

However, the major part of **Wupper Express** are the line west from Düsseldorf over the Rhine to Monchen Gladbach, across the Rhine on the Dutch border, and on the east side two lines, one to Wuppertal and on to Hagen, and the other to Solingen, and the attractive mountain railway through Remscheid and onto the Wuppertal -Hagen line. In addition there are several branch lines. East- West is two hours by suburban train.

Billed as semi realistic with recognisable features, such as Düsseldorf station with its clock tower, the suspended railway **(Schwebebahn**) in the Wupper valley, tram tracks in Düsseldorf, and the Müngstener Bridge, with the remainder standard MSTS buildings.

Wupper Express 6.0 covers a significant part of the Rhine-Ruhr Netz (suburban railway network), is ideal for those who like suburban passenger traffic. It is not really freight, as freight trains take a freight only loop eat of Düsseldorf that is not shown.

Ralf Kölsche (Graph15) and his team have done a superb job on this route, which is attractive and provides an ideal opening to German rail simulation.

http://www.bueker.net/trainspotting/maps.php has a detailed railmap of the Rhine-Ruhr area on his site.

http://www.tickettoride.com/ have Cabview video/DVDs with English narration from Frankfurt to Duisberg on the left bank plus Out and about DVDs covering Cologne, the Ruhr and indeed other parts of Europe.

BR:	**101**
Old BR:	**-**
Built:	**1997 -99**
Number build:	**145**
Max Speed:	**220 Km/h**
In Use:	**144**

Colour: Traffic red.

Since 2000 these have been popular trains for advertising logos (Werbeloks), starting with Bayer's seven "Aspirin" and four "Makrolon" engines; then 53 "Milk" or "Meat" engines. Two engines are in Silver for the "Metropolitan" Köln-Hamburg service.

Designed as a Fast passenger and heavy Goods loco, to replace the 103 in Passenger service. Max speed 220 km/h, and equipped with ventilated disk brakes. Currently (November 2002) 29 are off the road because of axel problems, so prolonging the life of the 103.

DB 101 Model Protrain 2

German Electrical locomotives in Service 2002

By 1952 it was decided to build new Electric locomotives, because the old machines of the series E18, E44 and E94, which were continued to build also after the war still, were too uneconomic.

In 1952 five prototypes of the series **E10** were delievered, which served the unit locomotive as basis for the new building program starting from 1956. To beginning of the 90's still were over 2.000 locomotives of these in the use. It had 5,000 HP and reached a maximum speed of 150 km/h.

The four locomotive of the series were the **E10** for passenger traffic, the visually similar **E40** and **E41** for Universal traffic, and the Co-Co **E50** for heavy goods trains. The current collectors, main switches and drives were uniform for all these locomotives. All four types have examples still in service (in the new series numbers **110, 140, 141 and 150**)

With the exception of the **103**, all German locomotive design until the 120 in the mid seventies were essential an updating of these designs, particularly for the increased speed that was now though necessary.

The BR 103, which came into service in 1970 with its rounded front, was designed specifically for 200Km/h high speed trains, and is just retiring this year from timetabled service.

The **120** was designed as a replacement for High speed trains and also heavy goods train, and although with some mechanical difficulties provided the basis for the new range of Electric locomotives that DB introduced in the mid 1990's, the **101** family consisting of the BR 101 high speed train and heavy goods, and the BR **145** and **146** which are used for Goods and regional trains, and the **152** family, derived from the Euro sprinter of the **152**, the multi-currant **189**, and the multi-currant **182**.

In addition following reunification the latest DR designs, particularly the **143**, saw extensive use in the old West Germany in Regional train service.

The following Engines were is Service in 2002 as per Eisenbahn Kurrier "DB Triebfahrzeug Lexicon 2001" (3rd Qtr).

BR:	**103**
Old BR:	**-**
Built:	**1970-74**
Number build:	**145**
Max Speed:	**200 Km/h**
In Use:	**Retired Dec 2002**

Colour: Tee Beige/Red, 2 still in this scheme on retirement in 2002, Oriental red. One Traffic Red sponsored by Roco. and one multi coloured Tourist train. In 1990's one Yellow/white for Lufthansa express

Use: IC Passenger trains, later Inter Regio trains until retirement Dec15 2002.

The 103 with its rounded front, was designed for pulling ICs at 200 Km/h, and included an early form of cruise control, which was deactivated after an accident, although updated equipment later installed for use on high speed lines. Had initial problems, but possibly the best looking German electric loco at the head of a fast passenger train.

With the coming of the 120 and the ICE trains it moved from IC trains to Inter Regio trains in the 1990's including from Berlin into the former East Germany. The Inter Regios are also disappearing from the timetable this December.

From 103.216 a slightly longer to give more room in the cab.

BR at Leipzig 25 Nov 2002 with IC 754 to Frankfurt/M a Sunday only Service, and the only diagramed IC service in the last year of the 103's career. Model Protrain.

BR:	**110**
Old BR:	**E10.1 E 10.3**
Built:	**1957-1963** **1964-1969**
Number build:	**110.1 - 187** **110.3 - 223**
Max Speed:	**140 Km/h**
In Use:	**110 + 188**

Colour:

Blue (3 left in 2001), Ocean Blue/Beige, Oriental Red, Traffic Red

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Use: Fast Passenger traffic, now Regional push-pull trains

The E10 was one of the four post- war Neubauprogramm series and was designed for fast (at the time) passenger traffic.

There are two variations the 110.1 and the 110.3, the first with a flat front, and the third series with the Creased "Büglefalten" front that originated with the BR 113, which you can just see in the picture.

A 110.3 with ex Silverfish carriage stock Köln area 2001. Model: Uwe Sonnenberg

BR:	**111**
Old BR:	**-**
Built:	**1975 - 1984**
Number build:	**227**
Max Speed:	**160 Km/h**
In Use:	**226**

Blue, Ocean-blue/ beige, Orient Red, Traffic red

111.111 - 188 painted in the S Bahn colours of light grey/ with orange band,

Use: Passenger trains, particularly push-pull S-Bahn trains

An updated and faster version of the 110. Used in particular for push pull trains, including the S-Bahn network in Munich, Frankfurt/Main, Nuremberg, Dortmund and Freiburg. where they are sill in service

BR 111 in S Bahn livery with S Bahn Push Pull Stock Düsseldorf area 2000 Model Madmike Repaint Stefan

BR:	**112.1 and 114**
DR:	**212 (now 114)**
Built: 112.1	**1990-92** **1992-1994**
Number build:	**112.1 90**
Max Speed:	**160 Km/h**
In Use:	**90+38**

Colour: Orient Red; Traffic Red

Use: 112 IR and Regional; 114 Regional Push Pull

The DR 212 (renumbered BR 112 then BR 114) is a 140 KM/hr reclassified to 160 Km/h version of the 143. DR bought 38 from 1989. The 112.1 is an updated version. 45 were ordered by DB and 45 by DR. Most 112.1 can be distinguished by having one light, rather than a pair of red and headlights.

The 114 are owned by DB Regio, based in Cottbus and work in the Berlin region. The 112.1 are owned by DB Reise & Touristik are based in Berlin, but work IR trains throughout Germany.

BR 112 with IR Düsseldorf 22 October 2000 Model Protrain 2

BR:	**113**
Old BR:	**E10.12**
Built:	**1962 -64**
Number build:	**11**
Max Speed:	**160 Km/h**
In Use:	**9**

Colours: Rhine-Gold Cream Blue, TEE beige/Red, Oriental Red, Traffic Red

Use: High Passenger trains, now Regional trains in the Munich area

The E10.12 renumbered BR 112 now BR 113 is a 160 Km/h version of the 110 for use with the Rhine-Gold Express and TEE Net, and was the Star loc until the 103 appeared. The Aerodynamic "Creased" front (" Bügelfalten") was then used on all subsequent 110s. The remaining 9 are based in Munich, pulling Regional Trains.

BR 112 in Frankfurt Hbf August 1983 Model Uwe Sonnenberg

BR:	**120**
Old BR:	-
Built:	**1987 - 88**
Number build:	**60**
Max Speed:	**200 Km/h**
In Use:	60

Colour: TEE Beige/red (pototype), Oriental Red, and Traffic Red.

120 151 in ZDF blue advertising scheme. ZDF is a TV channel, 120 119 from June 98 to April 2002 in A Mickey Mouse advertising scheme.

Use: Fast passenger trains and fast goods trains. Now InterRegios and light Intercity

The prototype was built in 1978, but a long gestation period. . Designed as a Universal locomotive with a speed of 120Km/ h, later 200Km/p/h they had heavy usage pulling IC in the day, and heavy freights at night. As the result of heavy wear and tear now used for lighter InterRegios and IC trains.

BR 120 with IC 614 diverted in August 2002 onto the Right bank of the Rhine, and crossing the bridge at Koblenz. Model Alexander Pohlemann Repaint Kenji

BR:	139/140
Old BR: 140 139	E 40 E 40.1
Built: 140 139	1957 – 1973 1959-60 1964-65
Number build:	879 (140) 37 (139)
Max Speed:	110 Km/h
In Use:	756 (140) 37 (139)

Colour: Green (30 remaining in 2002), Ocean blue/beige, oriental red, traffic red

Use: Mixed traffic – Medium Goods and Push-pull trains

The BR 140 is the Good version of the 110, but with a simpler braking system. BR140. 757 – 879 plus a few others equipped for push pull trains and double traction.

The BR 139 is identical to the 140, except with additional brake resistance, similar to the 110. All 47 are based in Munich; carry freight, particularly through the Brenner pass. Some 110 have been rebuilt into 139s

BR 140 Model Uwe Sonnenberg

BR:	**141**
Old BR:	**E 41**
Built:	**1956 1971**
Number build:	**451**
Max Speed:	**120 Km/h**
In Use:	**285**

Colour: Cobalt Blue (one now repainted), Chrome Oxide Green (as blue too susceptible to contamination – 5 remaining in 2001), Ocean blue/beige, Oriental red, Traffic red.

141.436 –442 painted in S Bahn light grey with orange band. Last one repainted in August 2000.

Some in Advertising liveries

Use: Passenger (Push-pull) and light freight traffic. Being replaced by EMUs or displaced by the 143 or newer engines.

The 141 was the first of the Neubauprogramm to be ready in 1956

BR 141 with Mint green double-decker stock Koblenz 01/02/98 Mode; Uwe Sonnenberg Repaint Marco Valdoni

BR:	**143**
DR:	**243**
Built:	**1984 - 1990**
Number build:	**646**
Max Speed:	**120 Km/h**
In Use:	**630**

Colour: Bordeaux red (DR), oriental red, traffic red,

S Bahn, Light grey with orange band

Use: Freight originally, now standard engine for S-Bahn and Regional push-pull trains

Developed by DR as a 120 Km/hr Mixed traffic train, in 1990 DB rented 150 for Push pull service, and subsequently rented some more. Now the backbone of regional Push-pulls services, particularly the double-decker stock, throughout the whole of Germany.

BR 143 Leipzig station Model Protrain 2

BR:	**145**
Old BR:	-
Built:	**1998 2000**
Number build:	**80**
Max Speed:	**140 Km/h**
In Use:	**80**

Colour: Traffic Red, Special scheme for introduction in Rhineland Pfalz

Popular with Open Access Operators

Use: Light and medium freight in North Germany (the 152 is used in South Germany, which is mountainous), and Regional Passenger trains with Double-decker stock in Rhein-Pfalz (Left bank of the Rhine), and the Ruhr area.

In the same family as the BR 101, and almost the same size, but looks smaller because of the 101's side skirt, but with a slower speed of 140 Km/h for use with Medium freights and Regional Push pull trains, where its accelerating and braking powers are much appreciated.

The BR 145 enters service in Rhineland-Pfalz 1999 Model Mad Mike Repaint: Rainer Bluhm

BR:	**146**
Old BR:	**-**
Built:	**2001**
Number build:	**16**
Max Speed:	**160 Km/h**
In Use:	**16**

Colour: Traffic red

Use: Regional Push pull Passenger trains

The new Double-decker stock for the Regional railways is capable of 160 Km/h, but the BR 145 can only do 140 Km/h. Hence the 146 which is capable of this speed. Visually different from the 145 by a full width dot matrix indicator above the driver's window.

Based in the Dortmund area

BR enters service on RE1 Aachan Bielefeld November 2000 Model: MadMike Repaint: Felix Banaszak

BR:	**150**
Old BR:	**E 50**
Built:	**1957-1973**
Number build:	**194**
Max Speed:	**100 Km/h**
In Use:	**69**

Colour: Chrome oxide green (4 still in this colour in 2001), blue, ocean blue/beige, oriental red, traffic red

Use: Heavy freight

One of the four original post war designs this is a six axel loco designed for heavy freight.

Model Uwe Sonnenberg

BR:	**151**
Old BR:	**-**
Built:	**1957-1973**
Number build:	**170**
Max Speed:	**120 Km/h**
In Use:	168

Colour: Green (four remaining in 2001), Ocean Blue/Beige, oriental red, Traffic Red

Use: Heavy freight

A development of the 150, with a higher speed. Frequently used in double traction for iron ore trains, but are equipped with controls for push pull trains and occasionally seen pulling regional passenger trains. Based in Nuremberg and Hagen

Model MadMike Repaint Rainer Bluhm

BR:	**152**
Old BR:	**-**
Built:	**1997 - 2001**
Number build:	**170**
Max Speed:	**140 Km/h**
In Use:	**170**

Colour: Traffic red, often with a large DB cargo, or Railion Logo. Some in advertising schemes for Siemens or 152 041 for Porsche.

Use: Heavy Good trains

For heavy Goods loco with a top speed of 140 Km/h and disk brakes, which are on the outside of the wheels. More mechanically successful than the 101. The 101, 145 and 152 have essentially the same cab controls.

DB 152 Porsche 26.02.2001 Bhf München Nordt Model: Kenji

BR:	**155**
DR:	**273**
Built:	**1974-1984**
Number build:	**250**
Max Speed:	**125 Km/h**
In Use:	**235**

Colour Bordeaux Red (DR) (2 remaining 1n 2001); Oriental Red, Traffic red, occasionally with a large DB cargo

Use: Heavy Goods

A six-axel loco designed for DR in the early seventies to replace steam, the BR 155 has top speed of 125K/mph and is still in use with by DB Cargo, including in the Rhine Valley.

DB 155 Rhine Valley October 2000. Model: Maik Keilholz & Felix Banaszak

BR:	**156**
Old BR:	**-**
Built:	**1991**
Number build:	**4**
Max Speed:	**125 Km/h**
In Use:	**4**

Colour:

Bordeaux Red (DR) All now Traffic Red.

Use: Passenger originally, but now freight

Prototypes built for DR for heavy freight, but overtaken by German reunification. Based in Dresden. Probably end service end of 2002

In Leipzig Station in DR livery Model Uwe Franke

BR:	**171**
DR:	**251**
Built:	**1966**
Number build:	**15**
Max Speed:	**60 Km/h**
In Use:	11

Colour: Green (one remaining in 2001); Bordeaux Red (DR), oriental Red and Traffic Red

Use: Goods trains on Rübeland Railway former East Germany

The BR 151 is a six axel 25V/50Hz loco that can only be used in Germany on the Rübeland railway, which DR experimental electrified using this system. Will probably be replaced by Diesels.

BR 151 in DB cargo logo. Model Mirko Küster

BR:	**180**
Old BR:	**-**
Built:	**1988-91**
Number build:	**20**
Max Speed:	**120 Km/h**
In Use:	**20**

Colour: Bordeaux Red (DR), Traffic Red

Use: IC between Dresden and Prague, also Berlin to Warsaw; Freight trains Germany -Czechoslovakia

A dual system 15KV/16.7Hz or 3000V DC for Intercity trains between Dresden and Prague. The Czech Railways (CD) Class 372 is identical

Br 180 and identical CD Class 372 Dresden 17 Nov 1994. 180 Repaint Holger Jungnitsch; CD 372 Model Stary Textures Pikulintu

BR:	**181.2**
Old BR:	-
Built:	**1974-1975**
Number build:	**25**
Max Speed:	**160 Km/h**
In Use:	25

Colour: Cobalt blue (3 still in 2001), Ocean-blue/beige, Oriental red, traffic red

Use: Trans-border IC and Goods trains

The 25 Dual system trains puling IC trains, as well as freight between Strasburg and Stuttgart, Frankfurt/Main and Metz as well as Koblenz and Luxembourg. Based in Saarbruecken.

BR 181.2 in Koblenz Hbf with Modern IC stock31.08.88. Model: Madmike

BR:	**182**
Old BR:	-
Built:	**2001**
Number build:	**25**
Max Speed:	**120 Km/h**
In Use:	25

Colour: Traffic Red

Use: Heavy freight – Two system loco, 15 kV AC 16.7 Hz and 25Kv AC 50 Hz overhead

As the ÖBB would not give type approval for the 152, because of slightly heavy axel loading DB Cargo, bought 25 Taurus locomotive, similar to the OBB 1166, for trans-border work, based in Stuttgart.

The ÖBB 1166 Class will be pulling EC on the Vienna Munich Köln. Route.

BR 182 at Stuttgart 2002 Model: Andreas Them

Class:	**185**
Number Built:	**400 Ordered**
Built:	**2001 -**
Speed:	**140 Km/hr**
Multi:	**Yes**
Number in Use:	**100+**
Color schemes	**Traffic Red, One with Railion logo.**

Use: Dual Voltage 15 kV/46.7 Hz and 25kV/50Hz for European wide freight

This is a dual voltage development of the BR 145 for Europe wide freight, and has been developed to meet other network norms, for example deeper retraction for the pantographs, and is equipped with European Train Control system (ECTS) and European Train Control Management System (ERTMS). Has also been bought by SBB (Switzerland) and BLS (Switzerland) for trans Alpen freight from Germany to Italy.

Model: MadMike. This model has four pantographs –only the first three DB models and the Swiss have four pantographs – the remaining DB locos have two.

BR 189

The **189** are a four system loco, built by Siemens and based on the Eurosprinter, partly based on the **BR 152**. It will cope with 1500 V DC, 3000 V DC, 15 kV AC 16.7 Hz and 25Kv AC 50 Hz overhead. DB Cargo has on order 100 of these, and 15 by private companies

Resources

Germany has a rich tradition in Railway modeling, and of interest in Railways and has an extensive supporting structure of railway magazines, videos, publishers and of course web sites to provide an almost overwhelming supply of information. All of this is of course in German.

The two major Rail magazines are Eisenbahn Journal and Eisenbahn Kurrier, each of which has an extensive website showing details of their specialist and videos.

www.merker-verlag.de (for Eisenbahn Journal)

www.eisenbahn-kurier.de

The majority of specialist books can be obtained from the German Amazon site, www. Amazon.de . I particularly recommend the pockets books by Michael Dostal.

There are a large number of fan sites. I recommend www.db-loks.de as it has a brief description and details of the locos plus pictures including cabviews. You can translate sites into English if you load the Google Toolbar – this adds an option to the mouse right click to translate a web site. Otherwise do a search on Google for sites. The map came from www.bueker.net

Train-sim

There are an increasing number of German trainsim sites. The three I use most often are:

www.thetrain.de (with English): My favorite site and the one I check regularly. All the engines bar two are available on this site.

www.tssf.de Sebastian Frey's site with high usage

www.trainsimworld.de Good site for Blackman's cabviews (Superb!)

A new portal with details by Engine type is www.koroka.de

You can get the Commercial add-ons from the German Amazon site www.amazon.de

In Part Two:

- Passenger services branding, Carriage Color schemes, and carriages
- EMUs and DMUs

"None of these simulators replaces a hard Loco drivers days, or simulates it only slightly. Who doesn't believe this should set the alarm clock for 2.00 in the morning and say "Honey, I'm on my shift again!" even on Christmas or New Years Eve, and shut yourself in a room for the next 8, 9, 10 hours with the PC that you can't leave "during the journey". You can't listen to the radio or watch TV nearby, and a real loco has no pause button or an assistant function. If you chose a diesel loco, don't forget to set the room temperature to 50C" www.103er.de

From Philip.Chesters@consultant.com
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