

DB rebuild coaches '4yg'

Version 1.3 / 09.01.2020



Manual

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POLYGONZUG

Feine Modelle für Eisenbahnsimulatoren

Background

Like the Deutsche Reichsbahn (DR), the Deutsche Bundesbahn (DB) also had to contend with a considerable aging of its rolling stock after the Second World War and into the 1960s, in addition to a significant shortage of railway cars. In the 1950s, 22,345 two-, three- and four-axle compartment and high-capacity coaches of earlier Prussian and Bavarian designs from the period before and after the First World War still made up the majority of the fleet of passenger and express trains. The few city coaches from the early 1950s that had been purchased for express train services were by no means sufficient to renew and rejuvenate the rather old-fashioned equipment for passenger transport, especially since maintenance had also meant increased expenditure. The levels of steel production and other raw materials in the newly formed Federal Republic of Germany did not yet permit comprehensive renewal at that time. Like the DR in the 1960s, the DB was forced to modernise the pre-war cars as early as 1953 - simply called an "Umbau" or rebuild.

Following the success of the three-axle rebuild coaches, it was planned to convert the large number of four-axle compartment coaches still in existence from state railway stocks according to the same principles. For this purpose, the underframes of the old cars were brought to the same length. In 1956, another test car was built, which had a length of 19.5 metres. Two further prototypes from 1957 of the later type AByg 502 already had Minden-Deutz bogies. The end doors and other parts remained the same as developed for the three-axle coaches. Three types, B4yg, AB4yg and BD4yg, were realized.

The series delivery took place from 1957 as B4yg-56 (Byg 515). The series following from 1959 was classified as B4yg 58 and Byg 58a (later Byg 515 and 516). The coaches offered space for 72 passengers on plastic-covered upholstered seats. The AB coaches, equipped with 24 first-class seats and 36 second-class seats, were produced from 1958. They had a slightly modified layout with different locations of the WC. These cars were called AByg-58 and AByg-58a (later AByg 503 and 504). The half baggage cars were first delivered as BPw4yg-56 (later BDyg 531). Further series came into circulation as BPw4yg-56a (BDyg 532) and BPw4yg-56b (BDyg 533).

The first vehicles also had Prussian standard bogies, but these were converted from plain bearings to roller bearings. The next 300 coaches were fitted with the original American gooseneck bogie, a parallel to the four-axle Reko cars of the Reichsbahn of 1964. All other coaches of the yg-type were then fitted with Minden-Deutz MD 41 bogies. All were approved for 120 km/h.

In the first years the 4yg coaches were preferably used in express train service. Only in later years did they migrate to local trains. The last coaches were taken out of service at the beginning of the 1990s because it was no longer worthwhile to convert the doors to automatic door locking. The last areas where these coaches were used were the Lahntalbahn, the Cologne area and the Eifel. The four-axle coaches experienced a final highlight at the turn of 1989/90 in the GDR, where they were used in many reinforcement D-trains. Due to a lack of control cables, the cars were not used in push-pull trains.

It was remarkable that until their end, these coaches were only used in the bottle or chrome oxide green colour scheme of the DB of the 1950s and 60s and were not used in ocean blue-beige or other colours (apart from, for example, being used as centre cars in the ET 65 series multiple units in Stuttgart suburban traffic).

quoted from: Wikipedia article "Umbau-Wagen"

Pack Contents

This pack contains the following models of the eight-wheeled rebuild coaches operated by the former "Deutsche Bundesbahn" (German Federal Railway), era 1970 - 1991:

- Byg514 (8 variants)
- Byg515 (5 variants)
- AByg503 (6 variants)
- BDyg531 (12 variants)
- also included is a "parked" version of each type of coach, i.e. without light, steam heating effect and passengers

All 31 variants are presented in more detail on the following pages.



Merkmale und Funktionen:

- opening passenger doors (and loading doors on the BDyl458)
- dynamic numbering: wagon number, home location and train destination sign
- prototypical different bogie types
- detailed compartment model (Byl421)
- animated wagon transition connections (1)
- highly detailed coupler model with dynamic brake hoses and steam heating connection (1)
- prepared for steam heating (leaking) effect (2)
- switchable tail lights
- custom sound set
- individual textures with traces of weathering and ageing
- five coaches in the "Allgäu-Zollern-Bahn" livery of the 1980s, three of them with prototypical city coat of arms

(1) only operating if vehicles contained in this pack are coupled; also working with all other rolling stock products made by *Polygonzug*.

(2) requires a locomotive with a specific and compatible control to turn the train heating on and off.

Pack Contents

Byg514 - variant 1:

- gooseneck bogies
- rubber frame windows in the end doors



Byg514 - variant 2:

- gooseneck bogies
- metal frame windows in the end doors



Byg514 - variant 3:

- gooseneck bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows



Pack Contents

Byg514 - variant 4:

- prussian standard bogies
- rubber frame windows in the end doors



Byg514 - variant 5:

- prussian standard bogies
- metal frame windows in the end doors



Byg514 - variant 6:

- prussian standard bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows



Pack Contents

Byg514 - variant 7:

- gooseneck bogies
- metal frame windows in the end doors
- labelling variant with older smoking/non-smoking signs and pointed class numbers



Byg514 - variant 8:

- prussian standard bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- labelling variant with older smoking/non-smoking signs and pointed class numbers



Byg515 - variant 1:

- Minden-Deutz bogies (MD41)
- rubber frame windows in the end doors



Pack Contents

Byg515 - variant 2:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors



Byg515 - variant 3:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows



Byg515 - variant 4:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- labelling variant with older smoking/non-smoking signs and pointed class numbers



Pack Contents

AByg503 - variant 1:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows



AByg503 - variant 2:

- Minden-Deutz bogies (MD41)
- rubberl frame windows in the end doors
- grey manoeuvring handles at the centre entries



AByg503 - variant 3:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- labelling variant with older smoking/non-smoking signs and pointed class numbers



Pack Contents

BDyg531 - variant 1:

- prussian standard bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- four-windows luggage compartment doors



BDyg531 - variant 2:

- prussian standard bogies
- rubber frame windows in the end doors
- four-windows luggage compartment doors



BDyg531 - variant 3:

- prussian standard bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- original two-windows luggage compartment doors



Pack Contents

BDyg531 - variant 4:

- prussian standard bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- labelling variant with older smoking/non-smoking signs and pointed class numbers
- four-windows luggage compartment doors



BDyg531 - variant 5:

- gooseneck bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- four-windows luggage compartment doors



BDyg531 - variant 6:

- gooseneck bogies
- rubber frame windows in the end doors
- four-windows luggage compartment doors



Pack Contents

BDyg531 - variant 7:

- gooseneck bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- original two-windows luggage compartment doors



BDyg531 - variant 8:

- gooseneck bogies
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- labelling variant with older smoking/non-smoking signs and pointed class numbers
- four-windows luggage compartment doors



BDyg531 - variant 9:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- four-windows luggage compartment doors



Pack Contents

BDyg531 - variant 10:

- Minden-Deutz bogies (MD41)
- rubber frame windows in the end doors
- four-windows luggage compartment doors



BDyg531 - variant 11:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows
- labelling variant with older smoking/non-smoking signs and pointed class numbers
- four-windows luggage compartment doors



Pack Contents

Coach set of the 'Allgäu-Zollern-Bahn'

With the summer timetable 1984 the German Federal Railway introduced an improved service on the Tübingen - Sigmaringen - Aulendorf connection under the name "Allgäu-Zollern-Bahn". Outward signs were above all the light green decorative lines, with which a number of rebuild cars were equipped, which were to be used on this route for a few years. In addition to the decorative stripes, the ABYg cars also bore the lettering "Allgäu-Zollern-Bahn" and four coats of arms of each of the neighbouring communities.

For the relatively short-lived experiment (approximately until 1987) probably nine ABYg and BDYg as well as 18 BYg were adapted accordingly, they were all located in Tübingen.

Especially the BYg and BDYg with their unmistakable light green decorative lines appeared later also in other regions of Germany.

Byg515 - variant AZB:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- manoeuvring handles at the centre entries
- front face windows



BDYg531 - variant AZB:

- gooseneck bogies
- rubber frame windows in the end doors
- four-windows luggage compartment doors



Pack Contents

AByg503 - 38-11 144-1:

- Minden-Deutz bogies (MD41)
- rubber frame windows in the end doors
- manoeuvring handles at the centre entries
- City coat of arms Aulendorf and Saulgau



AByg503 - 38-11 249-8:

- Minden-Deutz bogies (MD41)
- metal frame windows in the end doors
- City coat of arms Sigmaringen, Tannheim and Wolfegg



AByg503 - 38-11 359-5:

- Minden-Deutz bogies (MD41)
- metal frame windows in the first class end doors, rubber frame windows in the second class end doors (prototypical)
- manoeuvring handles at the centre entries
- City coat of arms Memmingen and Balingen



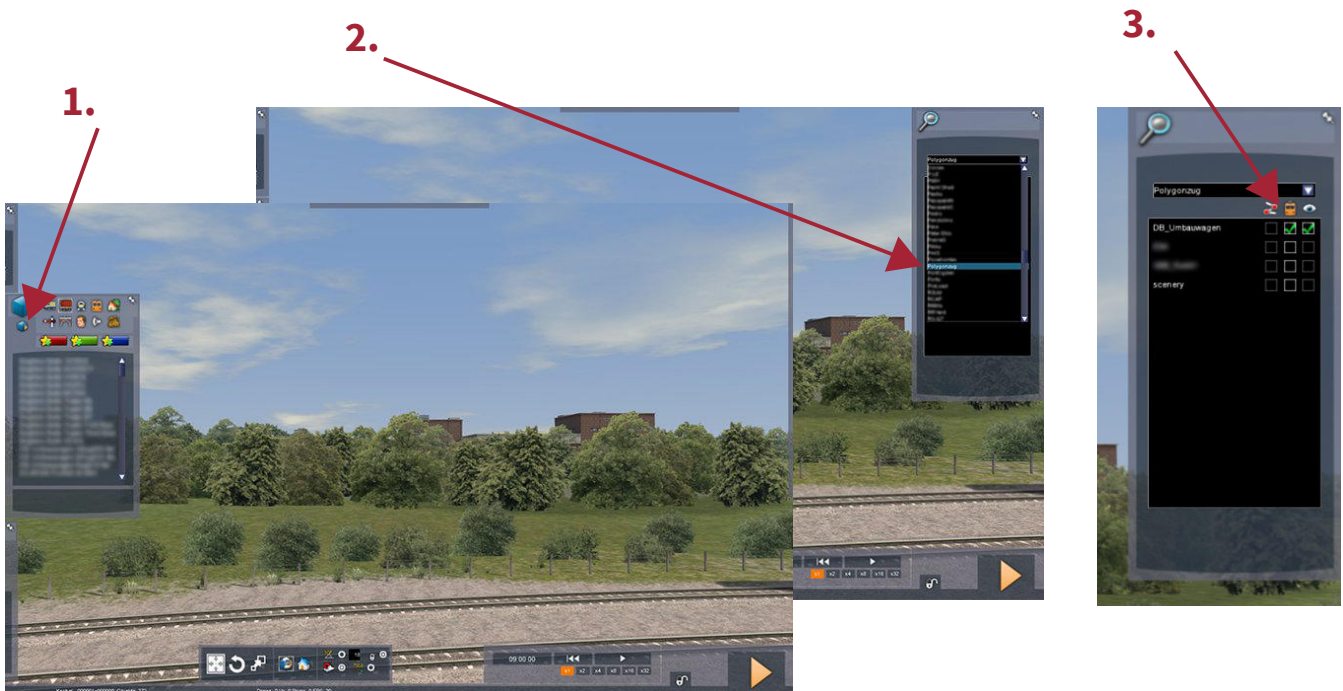
How to install

To install the models, simply run the downloaded installation file.

Note for scenario creators:

In order to use the coaches of this pack in your own scenarios, you must first activate them in the scenario editor:

1. Click on the little blue cube with the orange triangle in the left middle flyout of the Scenario Editor (activate object set filter)
2. A flyout should appear on the right side of the screen; scroll down to the list entry 'Polygonzug' and click on the text line
3. Tick the second and third option box in the line "DB_Umbauwagen". If the green ticks are set, the models can be selected in the left middle flyout (1.) and placed on the tracks
4. Select the coach here; the full name becomes visible when the mouse pointer remains over the font for a longer time.



Dynamic Numbering

Settings:

When placing a model in the scenario editor, it is preconfigured with a prototypically correct vehicle number. If there could be found information about the home station of a certain coach, these home locations are predefined as well (source: www.revisionsdaten.de).

Please proceed as follows if you like to change one or more of these variables:

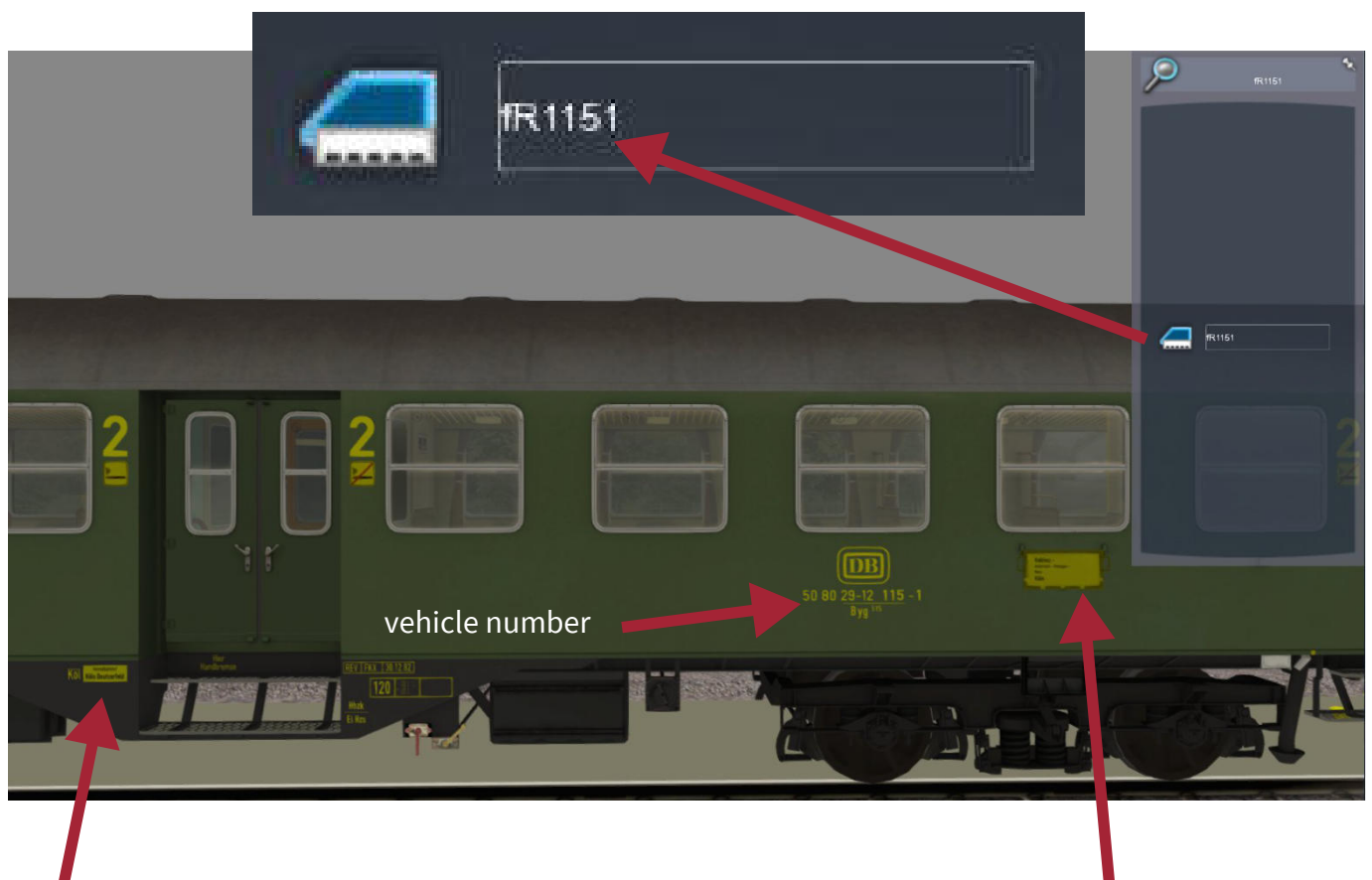
1. Place the desired model on the tracks as described on page 15
2. A double-click on the model opens a right-hand flyout, where a six-digit combination of letters and numbers appears in the following format:

xX1111

The **first digit** represents the **train destination sign** and has to be entered as lowercase letter (please see page 17 for a list of all available destination signs).

The **second digit** represents the **home location / home station** and has to be entered as lowercase or capital letter (please see page 18 for a list of all available home locations).

The **third to sixth digit** represents the **vehicle number + check number**. Use only numbers here!



home location / home station (see page 18)

train destination sign (see page 17)

Dynamic Numbering

train destination sign - list of all available settings:

- a München – Augsburg
- b Augsburg - München
- c Köln – Düsseldorf
- d Düsseldorf - Köln
- e Köln - Koblenz
- f Koblenz – Köln
- g Koblenz – Trier
- h Trier – Koblenz
- i Hamburg - Hannover
- j Hannover – Hamburg
- k München - Garmisch-Partenkirchen - Mittenwald
- l Mittenwald - Garmisch-Partenkirchen - München
- m - t *freely configurable*
- u Tübingen - Sigmaringen
- v, w *freely configurable*

- x no train destination sign is displayed

Dynamic Numbering

home location - list of all available settings:

	home location	railway division		home location	railway division
A	Augsburg	München	X	Aachen Hbf	Köln
B	Garmisch		Y	Düsseldorf Hbf	
C	Kempten		Z	Köln Deutzerfeld	
D	München Hbf		#	Koblenz	
E	Hof	Nürnberg	-	Bielefeld	Essen
F	Nürnberg Hbf		+	Dortmund Bbf	
G	Regensburg		ß	Duisburg	
H	Würzburg		~	Münster	
			!	Paderborn	
I	Friedrichshafen	Stuttgart	,	Braunschweig	Hannover
J	Heilbronn		—	Hannover Hbf	
K	Ulm		;	Oldenburg Hbf	
L	Tübingen		=	Osnabrück Hbf	
M	Freiburg	Karlsruhe			
N	Heidelberg				
O	Karlsruhe Hbf		§	Flensburg	Hamburg
P	Mannheim Hbf		\$	Hamburg-Altona	
			%	Kiel	
			&	Lübeck	
Q	Kaiserslautern	Saarbrücken			
R	Saarbrücken				
S	Trier				
T	Darmstadt	Frankfurt a.M.			
U	Gießen				
V	Kassel				
W	Limburg				

Features

Detailed separate interior model:

- large-capacity compartment of a type Byg coach
- windows with rain effect



animations of entrance and transition doors:

If coaches of this package are coupled together or with other coaches of Polygonzug coaches, the transition doors between the coaches are shown opened - the wide open passage is typical for the rebuild coaches.



Couplers and vehicle connections:

Brake hoses and steam heating couplings are automatically connected between models contained in this pack and also between them and other *Polygonzug* products.



Policies

Important notes about use:

These models have been tested on several computers and are compatible at least with Train Simulator versions from 2014 to 2020; general operation or operation without strange effects can not be guaranteed in older versions of the program.

I assume no liability for the correct function on user's computers as well as for damage to hardware and software that may arise from the use of the contents of this addon.

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Credits

Persons involved:

Modelling/ Textures/ Blueprints/ Sound/ Scripting: Heiko Müller

Sound sources: Heiko Müller, Ganderkeseeer, Gainmaster

Beta test: Loco-Michel, Ganderkeseeer, Barrett, Wander-Baustelle

Installer: Ulf Freudenreich, virtualRailroads

A special thank you goes to:

- karma99 and other members of the UKTS forum for their friendly and helpful hints on scripting.
- R. Kroneberg for finding and fixing a bug in the dynamic numbering and for his permission to include the update in the car package.

Polygonzug, January 2020

Heiko Müller

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Version history

Versions:

- 1.3 09.01.2020
changes:
- door animations run slower
 - display of heating steam improved
 - dynamic numbering: display errors regarding home locations and train destination signs corrected, more choices added
 - scripting errors corrected
 - small errors in 3D models, shader use and textures corrected
 - new sounds
 - new model variants ('parked' vehicles) added
 - passengers added
- 1.2.1 12.09.2017
changes:
- missing dynamic train location "Heimatbahnhof Trier" added for all variants
- 1.2 18.09.2016
changes:
- script completely revised to ensure compatibility with future models, performance improvements
 - audio optimizations
 - brighter interior lighting
- 1.1 28.12.2015
changes:
- missing geometry file of Byg 515 (variant 2) included
 - improved display of the interior view (shader adjustments)
 - small audio optimizations
 - display heating steam (particle effects) improved; script errors corrected
 - steam heating coupling and brake hoses moved from the coupling model to the geometry file of the car transitions for improved compatibility with other models
 - display error of the couplings with some vehicles of other developers eliminated
- 1.0 first release (19.07.2015)