User Manual

Version 2.0 Build 20260315

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Contents

1. Introduction

About this document

After many years of working on developing Dutch and German TS rolling stock, we thought it a good idea to combine both worlds in an fictitious border route that starts somewhere in the Netherlands and ends more than 50 kilometers further in Germany. The period around 1970 was chosen, so that on the German side of the route steam traction, which was still indispensable for the Bundesbahn at the time, could be given ample room in scenarios. In addition to the Wilbur Graphics stock, you'll find the V36. Its builders, Eisenbahnwerk (EW), have granted us a license for incorporating this engine. You will also come across the V200 from DTG as part of the ELAP package, about which more later on.

In this guide, Chapter 2 provides directions for installing the route, which comes complete with scenery and Wilbur Graphics and EW material objects. For certain scenery parts we expect that you already have the ELAP addon from DTG. In chapter 3 the route itself will be described and the station yards that you may encounter, followed in chapter 4 by an overview of the supplied WG and EW rolling stock. Chapter 5 deals with the applied subset of the German semaphore signals, followed by Chapter 6 with the description of the NS counterparts. The available scenarios are briefly covered in Chapter 7, and we conclude this manual with quick reference guides for operating the supplied WG and EW locomotives.

What is new in this version?

Rolling stock and scenarios

This release has been extended with locos from the Dutch series NS 2600 and some representatives of DB steam: series V188, BR42 and BR 93. Besides, we have made the so called (pre-war) Schuerzenwagen available, in traditional olive green and postwar 'Rheingold' blue. These rolling stock can be experienced in new and altered scenarios. Also, QuickDrive modus will be supported now.

Scenery

A number of scenery-objecten in the Dutch part of the route have been provided with new, improved textures and details.

2. Installation

Download contents

The Wilbur Graphics GLB is supplied as a .zip file and contains the following items in addition to the `readme.txt`:

- Folder `Manuals\Wilbur Graphics` with German, Dutch and English language user manuals:

> WG_GLB_DE_V2_0.pdf
> WG_GLB_EN_V2_0.pdf
> WG_GLB_NL_V2_0.pdf

- Installer program `SimTopia_WG_GLB_V20_build_20260315.exe`

The manuals will be installed in the Railworks folder structure:

```
..\Program Files
(x86)\Steam\steamapps\common\RailWorks\Manuals\Wilbur Graphics\
Grenzlandbahn
```

Please refer to the *release notes.txt* for the latest changes etc.

Installation

When started, the install .exe will prompt you to select and/or enter:

- Install procedure language (Dutch/English/French/German)
- Alternative install path (default is ../SteamApps/Railworks/etc.)
- Accepting an End User License Agreement (EULA)
- Install key (a series of 3 code groups)

…to continue the installation.

Other hints

- Your computer must have access to the internet
- Have the installation key at hand, which can be found in your SimTopia account
- If the software activation fails, check if other programs are blocking Internet access.
- There is NO need to repeat the download if the installation is not successful. First, find out which of the above problems can be solved by you.
- Make sure that the zipped files are unzipped before starting the installation.
- If the installation software cannot find the Railworks folder on your system, the reference to this folder in the Windows registry may no longer be valid. This situation occurs if you have moved the Steam environment to another computer or disk drive. You can solve this by repeating the installation of Steam.

How to delete the Grenzlandbahn

To remove the GLB from your system we advise you to delete the folder:

`ef784841-85d1-4162-924d-59c4f2f1ad1c`

from the location:

```
C:\Program Files (x86)\
Steam\steamapps\common\RailWorks\Content\Routes
```

Add-on required: ELAP

The GLB route uses, among other things, scenery objects from the 1950s that DTG no longer supplies as part of the package since the 2015 version. This mainly concerns passengers on the platforms, railway staff, etc., but is also important for the rendering of the landscape. In addition, the DB V 200 is used in the scenarios, which is also part of the ELAP.

Users who have come on board from this version on can solve this by purchasing the DTG add-on *European Loco and Asset Pack* (ELAP), available for a small fee on the Steam website.

Settings and system requirements

When developing this route, the builders have relied on the hardware specifications that Train Simulator Classic vendor, DoveTail Games, recommends:

Minimum system specifications:

OS   Windows® 10/11
Processor: 2.8 GHz Core 2 Duo (3.2 GHz Core 2 Duo recommended), AMD Athlon MP
                (multiprocessor variant or comparable processors)
Memory: 4 GB RAM (6 GB recommended)
Graphics: 512 MB with Pixel Shader 3.0 (AGP PCIe only)*
DirectX®:   9.0c
Hard Drive: 8 GB HD space
Sound: Direct X 9.0c compatible

* Laptop versions of these chipsets may work but are not supported by TS Classic. The drivers for your video and sound cards may need to be updated.

Furthermore, we recommend our users to adopt the graphics settings of TS Classic from the images below:

In addition to the graphical settings indicated above, the following settings of the game itself ensure an optimal experience of the scenarios. It is then assumed that you are stoking steam engines

yourself. If desired, you can of course also turn on the 'Auto Fireman' option:
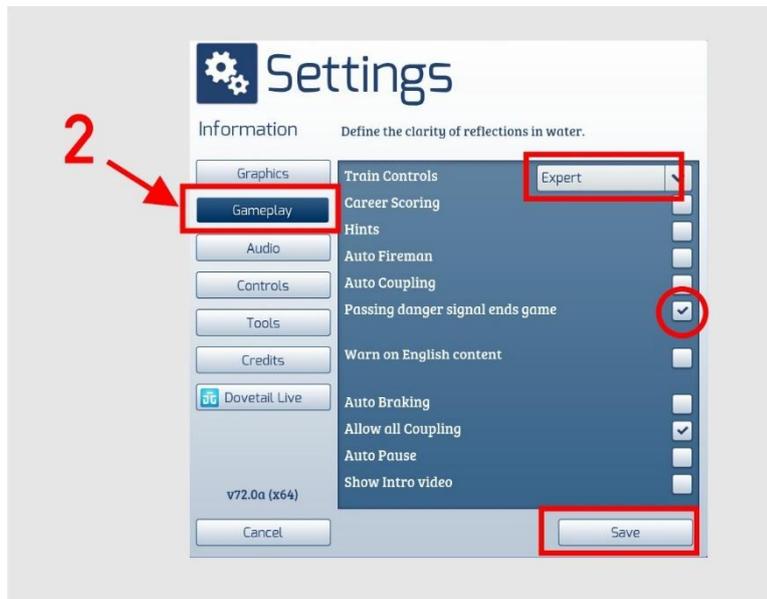
When using this add-on on heavier PCs with higher specifications than those specified by DTG, you could consider deviating from these settings, but we have not tested our route under those conditions. In addition, the frame rate, which should normally be above 25 fps, can benefit from a lower anti-aliasing setting (FXAA + 8 x MSAA). Although this results in a minor loss of quality of the screen display, the gain is in a smooth image progression.

The frame rate (number of images per second) can be made visible in the game with the key combination SHIFT+Z.

When running, the GLB will occupy around 3 GB of memory. Nevertheless, it is recommended to minimize the number of parallel and background processes before loading the route.

Attention (beginning) scenario developers!

It goes without saying that users who build their own scenarios have their own responsibility for monitoring performance. When TS is running in its own window, you can easily take readings with the Windows Task Manager utility (shortcut CTRL + ALT + DEL).

3. The route

Overview

This fictitious route represents a German-Dutch international route in the period around 1970. With the NS the GLB tracks has already been brought under the wire, but on the DB section trains are still being run with steam or diesel traction. However, a start has already been made with the introduction of computer numbers. This concept makes it possible to design scenarios in which a large part of the Wilbur Graphics rolling stock that has been built for Railworks (TS Classic) in recent years can be used.

In addition to the main route, a modest sideline has been created between Ruyschbeeck and Gölsdorf.
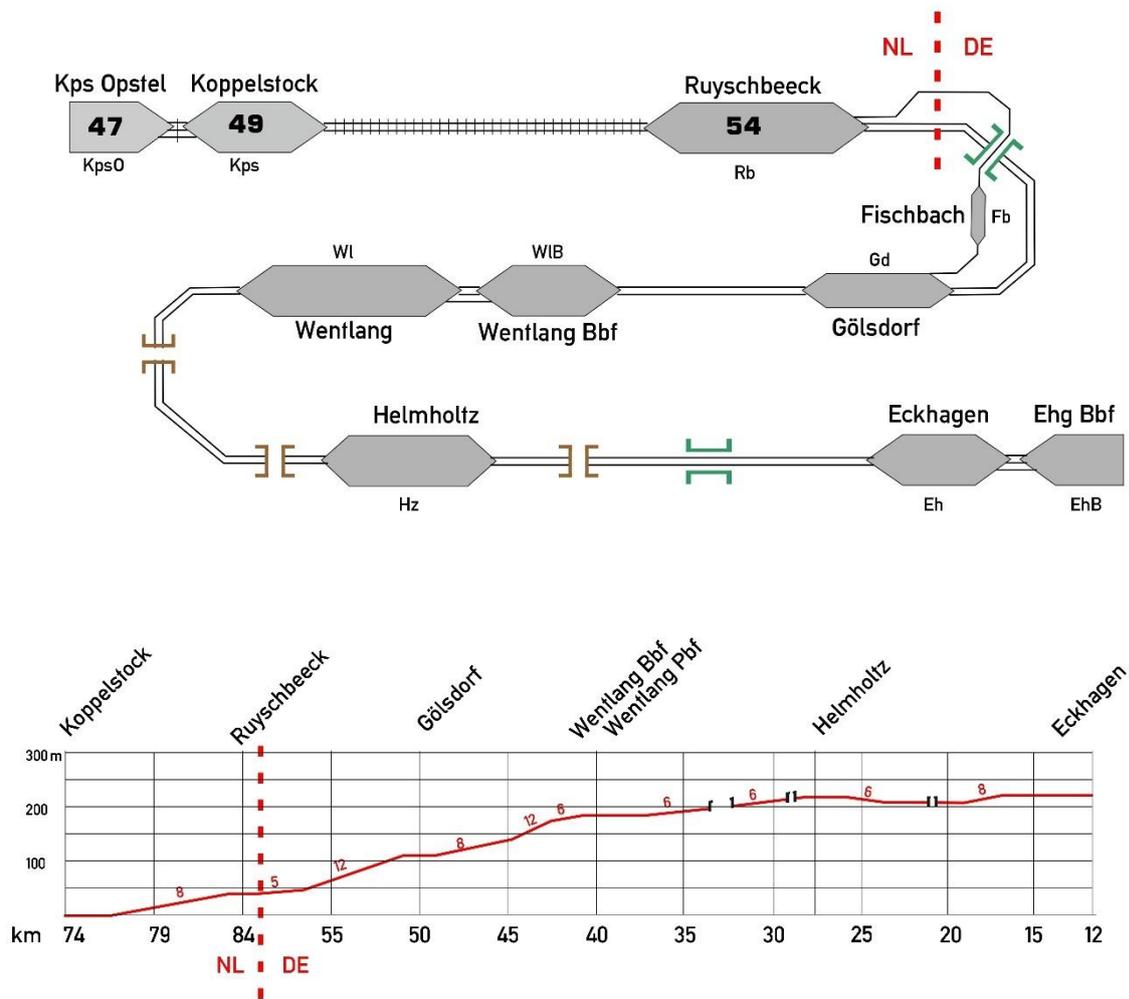
Milestones

A mileage count is used in the route, which can be read on km markers along the route. On the Dutch side you will find NS mileage in Km, while the DB uses its own indications.

Station Yard Plans

Plans have been made for all yards in the route with references to the signal numbers and the numbering of sidings and platforms. For the numbering of tracks, signals, etc., standards used by DB and NS in the second half of the last century have been followed closely.

Eckhagen

Kohlen/
Schlackengleis

12

11

12

N2   N3

N5

6.I

5

3

2

EG

P5   P6

P3

P2

Eh

DB

Eckhagen Pbf

9.I

8.I

7.I

9

Tankstelle

51.I

6   7   8

Ehf

51

P1

22   23

7.II   8.II   9.II

39

51.II

Verkehrsgleis

11

Helmholz   A

39

39.I

Helmholtz

Hz

DB

Helmholtz

Rampe

Gsch

Ladestrasse

Johann Schmitt GmbH

8

8

7.II

7

16

16

6.II

Hzf

6

7.I

26

Anschluss

6.I

P5

5

25

14

25

14

N5

F

Eckhagen

3

P3

3

N3

2

P2

2

N2

A

21

2

Wentlang

P1

1

N1

21

21

11

11

EG

Wentlang

Wentlang Betriebsbahnhof

Göisdorf

Verkehrsgleis 17
P-Abstell 16
P-Abstell 15
P-Abstell 14
P-Abstell 13

Ladestrasse
8
Rampe
Gsch

Verkehrsgleis 7
Verkehrsgleis 6

5.II
Wlr
P5
25
G-Züge
N5

5
5.I

4.II
P4
24
G-Züge
N4

4
4.I

3.II
23.II
23
Verkehrsgleis

3
3.I
23.I

G

2

A
1

WlB

Verkehrsgleis 30

29 Nord
28 Süd
27 Ost
26 West

Lokschuppen

214

213

Tankstelle

212

211

Wl

DB

Wentlang Pbf

Kohlenbansen

210   EDK-Zug   310   Kohlengleis

9   39   Bekohlung

9.II   38   Schlackengleis

9.I

7.II   7   27   Bekohlung

P6   7.I

6   N6   26   Maschinengleis

Rangieren Kohle/Schlacken   110

Wlf

Verkehrsgleis

14   14

14

P4   4   N4   24   24

P3   3   N3   F   Helmholz

3.I

P2   2   N2   21   21   2.II

A   11   P1   1   N1

11

EG

313

Gölsdorf

Ruyschbeeck

Koppelstock

Koppelstock

Kps Opstel

Kps II

6

5

4

3

2

1

T6

T5

B5

U4

KpsO

A4

A3

A2

A1
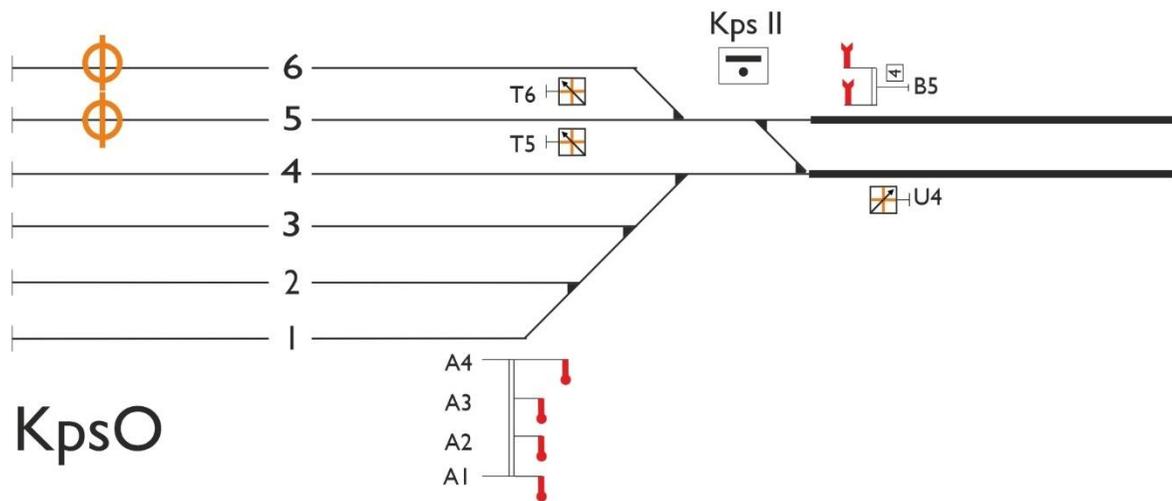
4. Rolling Stock

After installing the Grenzlandbahn, the following rolling stock will be available for deployment in the scenarios:

Wilbur Graphics

Wilbur Graphics/

Rollmat_NS	WG CIWL Orient F 1287
Rollmat_NS	WG CIWL Orient PS 4035
Rollmat_NS	WG CIWL Orient WR 4008
Rollmat_NS	WG NS 1112 tp3
Rollmat_NS	WG NS 1122 tp3
Rollmat_NS	WG NS 1125 tp3
Rollmat_NS	WG NS 1142 tp3
Rollmat_NS	WG NS 259 tp3
Rollmat_NS	WG NS 322 tp3
Rollmat_NS	WG NS 352 tp3
Rollmat_NS	WG NS 2016 tp3
Rollmat_NS	WG NS 2017 tp3
Rollmat_NS	WG NS 2447 tp3
Rollmat_NS	WG NS 2471 tp3
Rollmat_NS	WG NS 2601 tp3
Rollmat_NS	WG NS 2602 tp3
Rollmat_NS	WG NS 2603 tp3
Rollmat_NS	WG NS 2604 tp3
Rollmat_NS	WG NS 2605 tp3
Rollmat_NS	WG NS 2606 tp3
Rollmat_NS	WG NS 2517 tp3
Rollmat_NS	WG NS tp3 30m3 LbEb Esso NL
Rollmat_NS	WG NS 3737 tp3
Rollmat_NS	WG NS 3784 tp3
Rollmat_NS	WG NS 3816 tp3
Rollmat_NS	WG NS 3820 tp3
Rollmat_NS	WG NS 532 tp3
Rollmat_NS	WG NS 542 tp3
Rollmat_NS	WG NS 636 tp3
Rollmat_NS	WG NS A 7202
Rollmat_NS	WG NS AB 7206
Rollmat_NS	WG NS B 7103
Rollmat_NS	WG NS D 6061
Rollmat_NS	WG NS D 6064
Rollmat_NS	WG NS D 6066
Rollmat_NS	WG NS tp3 Dg2426

Rollmat_NS	WG NS Amstel Oppeln Tp3
Rollmat_NS	WG NS Frico Oppeln Tp3
Rollmat_NS	WG NS GTUW 64153 Tp3
Rollmat_NS	WG NS GTUW 65248 Tp3
Rollmat_NS	WG NS Mat 24 Aec 8517
Rollmat_NS	WG NS Mat 24 Aec 8527
Rollmat_NS	WG NS Mat 24 Bec 8501
Rollmat_NS	WG NS Mat 24 Bec 8521
Rollmat_NS	WG NS Mat 24 Bec bl
Rollmat_NS	WG NS Mat 24 Cec 8528
Rollmat_NS	WG NS Mat 24 Cec 8536
Rollmat_NS	WG NS Mat 24 mBD 9101 Ldg
Rollmat_NS	WG NS Mat 24 mBD 9115 Trl
Rollmat_NS	WG NS Mat 24 mCd 9424 Ldg
Rollmat_NS	WG NS Mat 24 mCd 9428 Trl
Rollmat_NS	WG NS Plan E A6547
Rollmat_NS	WG NS Plan E B6605
Rollmat_NS	WG NS Plan E B6712
Rollmat_NS	WG NS Plan E P7921
Rollmat_NS	WG NS Plan E RD6906
Rollmat_NS	WG NS S-CHO Tp3
Rollmat_NS	WG NS tp3 ZZw 51 Esso NL
Rollmat_NS	WG NS tp3 ZZw 51 NAM
Rollmat_de	WG DB Ep3 30m3 LbEb BP
Rollmat_de	WG DB Ep3 30m3 LbEb Shell
Rollmat_de	WG DB ABi2 A 86063
Rollmat_de	WG DB ABi2 B 84102
Rollmat_de	WG DB Am232
Rollmat_de	WG DB ABm232
Rollmat_de	WG DB Bm232
Rollmat_de	WG DB BDm232
Rollmat_de	WG DB BR 01 123
Rollmat_de	WG DB BR 01 195
Rollmat_de	WG DB BR 01 1056
Rollmat_de	WG DB BR 01 1075
Rollmat_de	WG DB BR 011 062-7
Rollmat_de	WG DB BR 23 023
Rollmat_de	WG DB BR 23 071
Rollmat_de	WG DB BR 23 076
Rollmat_de	WG DB BR 23 105
Rollmat_de	WG DB BR 42 1592
Rollmat_de	WG DB BR 42 1596
Rollmat_de	WG DB BR 42 1603
Rollmat_de	WG DB BR 56 2637

Rollmat_de	WG DB BR 56 2751
Rollmat_de	WG DB BR 56 2839
Rollmat_de	WG DB BR 58 1556
Rollmat_de	WG DB BR 92 6494
Rollmat_de	WG DB Ep3 Dwg Heizoel
Rollmat_de	WG DB E28 A4u
Rollmat_de	WG DB E28 AB4u
Rollmat_de	WG DB E28 B4u
Rollmat_de	WG DB E28 PwPost4u
Rollmat_de	WG DB E28 WL4u
Rollmat_de	WG DB E28 WR4u
Rollmat_de	WG DB Ep3 Tkos30 Dortm Union
Rollmat_de	WG DB Ep3 Gmmhs30 Oppeln
Rollmat_de	WG DB Ep3 Gms30 Oppeln (Brh.)
Rollmat_de	WG DB Ep3 Tkos30 Oppeln
Rollmat_de	WG DB Ep3 Glmmhs57
Rollmat_de	WG DB K-A Dampfkran 57t
Rollmat_de	WG DB K-A Dampfkr Mannschw
Rollmat_de	WG DB K-A Dampfkran Geraetew
Rollmat_de	WG DB K-A Dampfkran Schutzw
Rollmat_de	WG DB K-A Dampfkran Wasserw
Rollmat_de	WG DB Kof II 4151
Rollmat_de	WG DB Ep3 Off 52 A
Rollmat_de	WG DB Ep3 Off 52 B
Rollmat_de	WG DB Ep3 Off 52 C
Rollmat_de	WG DB Ep3 Off 52 D
Rollmat_de	WG DB Ep3 OOtz50 Erz IIId
Rollmat_de	WG DB Ep3 Omm55
Rollmat_de	WG DB Postmrz 73
Rollmat_de	WG DB Ep3 Pwg14
Rollmat_de	WG DB Ep3 R20 Stuttgart
Rollmat_de	WG DB Ep3 R20 Stuttgart NKF
Rollmat_de	WG DB Ep3 SSlmas53
Rollmat_de	WG DB Ep3 SSlmas53 Bridge
Rollmat_de	WG DB Ep3 SSlmas53 Spruce
Rollmat_de	WG DB Ep3 SSlmas53 NKF
Rollmat_de	WG DB Ep3 SSlmas53 Stahlrohre
Rollmat_de	WG DB Ep3 SSlmas53 Track: wood
Rollmat_de	WG DB Ep3 SSy 45 Hbb
Rollmat_de	WG DB Ep3 SSym 46 Hbb
Rollmat_de	WG DB V 188 001 a
Rollmat_de	WG DB V 188 001 b
Rollmat_de	WG DB 288 002-9 a
Rollmat_de	WG DB 288 002-9 b

Rollmat_de	WG DR BR 92 2902
Rollmat_de	WG DR BR 92 6484
Rollmat_de	WG DR BR 92 6494
Rollmat_de	WG DR Ep3 OOr47
Rollmat_de	WG DB Ep3 ZZw 51 Esso
Rollmat_de	WG DB Ep3 ZZw 51 Eva
Rollmat_de	WG DB Ep3 ZZw 51 Shell
Rollmat_de	WG DB Ep3 ZZw 51 VTG
Rollmat_FS	WG FS UIC X 78 000
Rollmat_SBB	WG SBB Bm51 85 30-80 028-7
Rollmat_SBB	WG SBB Bm51 85 22-30 057-2
Rollmat_SBB	WG+ NS DE IV mDk 1002 Engine
Rollmat_SBB	WG+ NS DE IV A
Rollmat_SBB	WG+ NS DE IV AR
Rollmat_SBB	WG+ NS DE IV 1002 Trailer
Rollmat_SBB	WG+ SBB RAm 502 Engine Unit
Rollmat_SBB	WG+ SBB RAm A
Rollmat_SBB	WG+ SBB RAm AR
Rollmat_SBB	WG+ SBB RAm 502 Trailer

Eisenbahnwerk

Eisenbahnwerk/AddOn07_V36	EW DB BR 236

DTG European Loco and Assets Package (ELAP)

Kuju/RailSimulator	Class V200 DB AG Red

5. DB Signalling

Introduction

In this chapter you will find an explanation of the mechanical signals of the DB and DR, as they were in use between 1950 and 1990. Although coloured light signals gradually replaced the arm signals during this period, the general picture of the railways in Germany was still often determined by the classic signals until the 1950s and 1960s. This add-on for TS is therefore completely populated by semaphore signals.

We like to mention that many other signals and signal aspects have been in use with German railways. For a realistic application of the mechanical German signals we have made a selection that will be described here.

Apects

Categories

The classic German signaling system has six basic signal aspects, which will now be discussed first. These can be placed in a variety of configurations, which we have organized into the following categories:
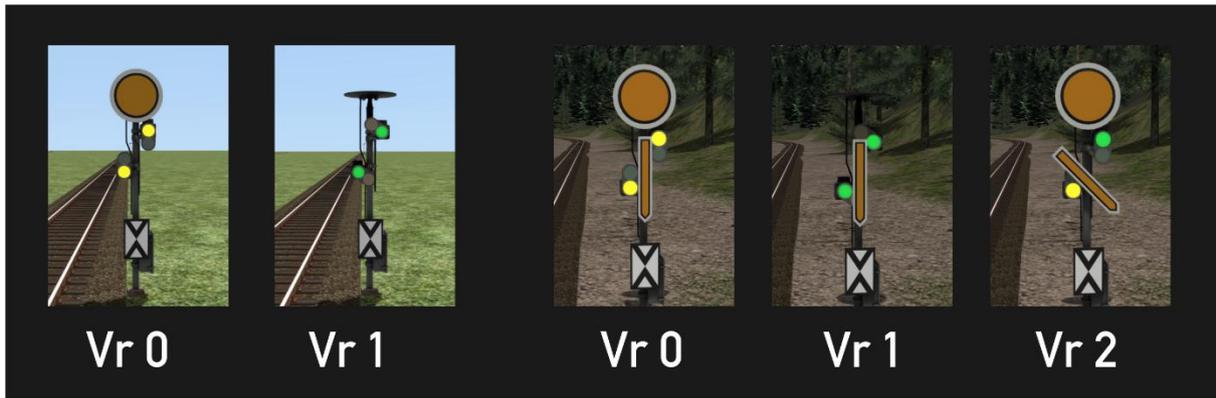
1. Home and distant signals
2. Shunting signals
3. Other signals and signs

Home and distant signals

Home signal are used to protect a danger point (level crossing, points) or as a block signal. Home signals can also be used as exit or entry signals in station yards. These signals have three models:

- with one arm (two aspects: Hp 0 – Stop or Hp 1 – Proceed)
- with two arms (three aspects: Hp 0, Hp 1 or Hp 2 – Proceed with speed restriction (40 km/u)
- with two linked arms (two aspects: Hp 0 or Hp2)

A home signal is always preceded by a distant signal, which indicates which signal aspect the home signal is currently showing.

Shunting signals

Yard sidings that are not protected by main signals are provided with shunting signals, which have two signal aspects: Sh 0 - Stop or Sh1 - Proceed. We come across the signal Sh2 on sidings that cannot be used or can only be used under certain circumstances, for example on entrances to works sidings or tracks that are temporarily out of service, e.g. for maintenance. Sh 0 is also used as a closing signal on buffer stops.

Signal Zs 7 actually belongs to the family of light signals, but is used in our route as yard entry signal and tells the driver: 'Drive on sight'.

| Ra 10 | Ra 11 | Ra 11 | Wn 1 | Wn 2 |
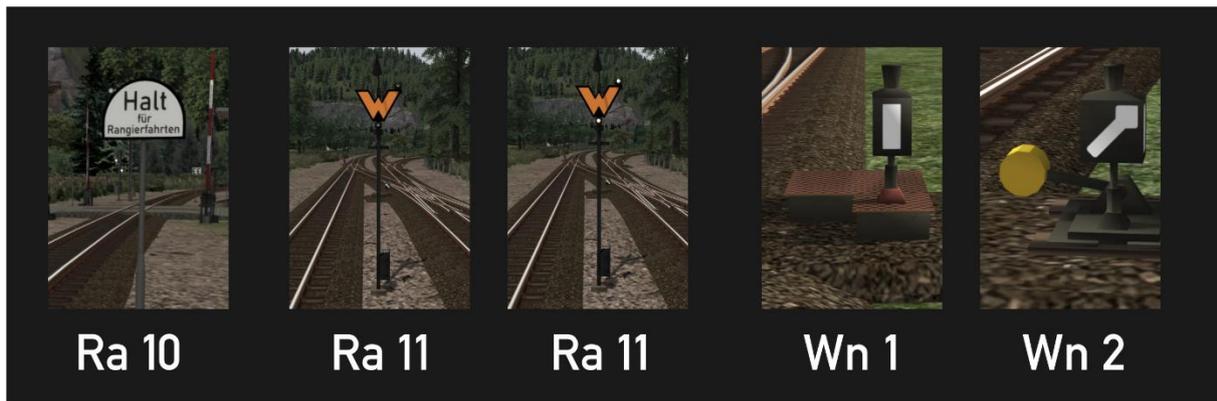
When shunting, engines may use a main line section under restrictions. The shunting consist may not pass the Ra 10 board. Ra 11 indicates that a train driver here has to wait for an order from the traffic controller to continue driving. This command is given in our route with two white lights. A point setting can be read from the point lantern: Wn 1 for straight and Wn2 for left or right, shown here for an electric and a manual turnout, respectively.

Signs

| Ne 3 | Ne 4 | Bü 3 | Bü 4 | Bü 5 |
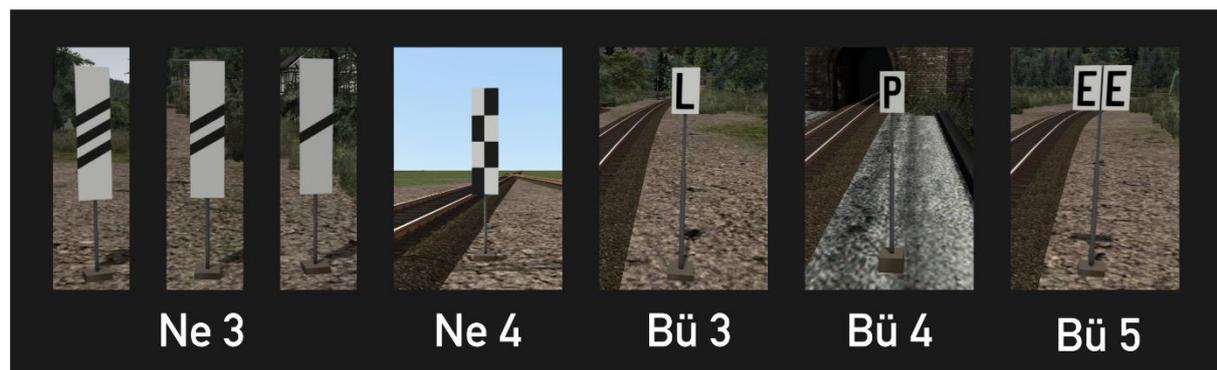
To warn a train driver that he is approaching a distant signal, beacons are placed along the track at successive 250 m, 175 m and 100 m before the signal. If there is not enough space on a yard to place a signal on the right side of the track, Ne 4, the 'chessboard' indicates that the signal is placed on the left side. The L and P signs instruct the driver to use the bell and whistle respectively, e.g. for a level crossing. The bell must be turned off when passing signal Bü 5.

6. NS Signalling

Introduction

In this chapter you will find an explanation of the NS classic signals, as they were in use between 1950 and 1990. Although coloured light signals gradually replaced the semaphore signals in this period, the general image of the railways in the Netherlands until the 1950s and 1960s was mainly determined by semaphore type signals. Incidentally, you can still encounter semaphore signals at Dutch preserved railways, such as the VSM and in particular the ZLSM.

Aspects

Overview

The classic NS signaling system has four basic signal aspects, which will now be discussed first. These can be placed in different configurations, which we have grouped into the following categories:

1. Main and distant signals aside of tracks
2. Branch signals aside of tracks
3. Main, distant and branch signals for placement on a platform or a signal bridge
4 Other signals and signs

Home signal (H)
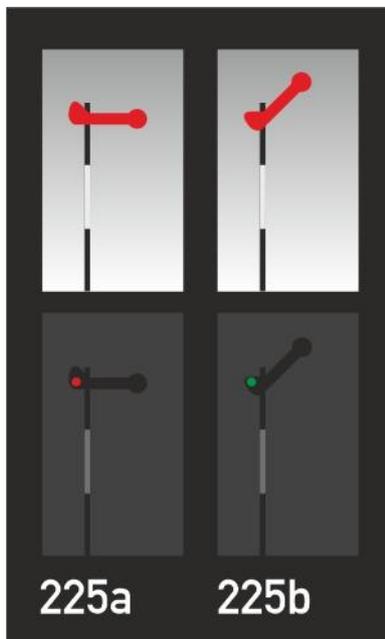
225a	Blocked
225b	Clear

A home signal is used to secure a danger point (level crossing, switch) or as a block signal. This signal can also be used as an exit signal for departure tracks at yards or stations.

Distant signal (Hv)
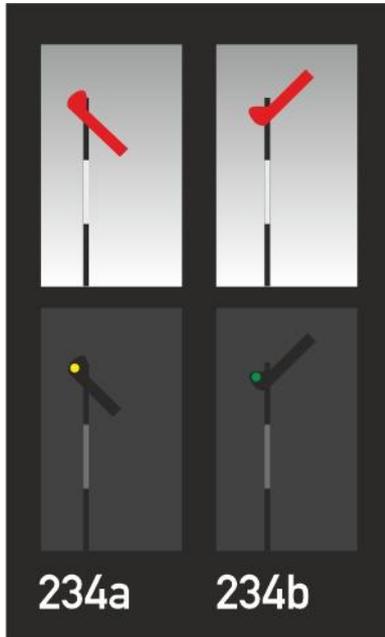
234a	Next signal shows blocked
234b	Next signal shows clear

The distant signal is used to inform a driver about the status of the next home signal. The distance to the home signal is 800 to 1000 m.

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Branch signal (T)
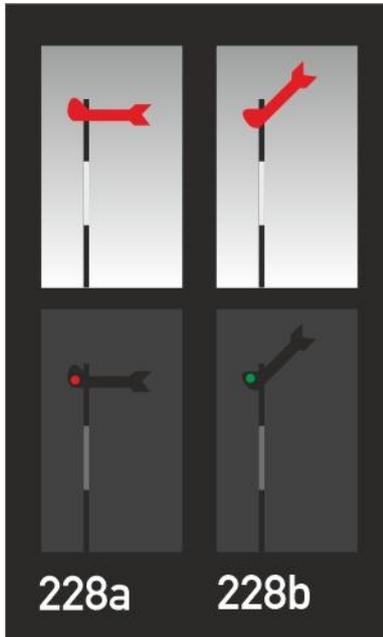
228a	Blocked
228b	Clear

This signal is used to indicate which route is set when a train enters a yard. This signal image occurs in combinations of two or more arms. A higher placed signal arm corresponds to a through track, lower placed signal arms refer to branching tracks.

Branch distant signal (Tv)

236a	Next signal shows blocked
236b	Next signal shows clear
236c	Speed limit ahead (40 km/h)

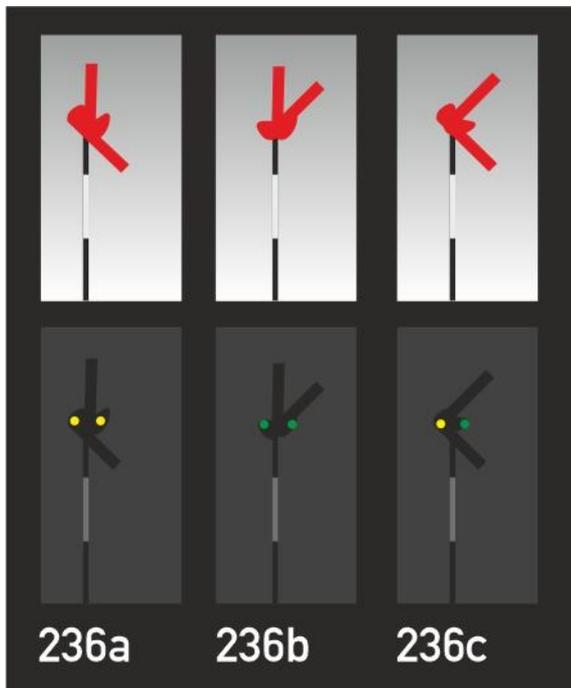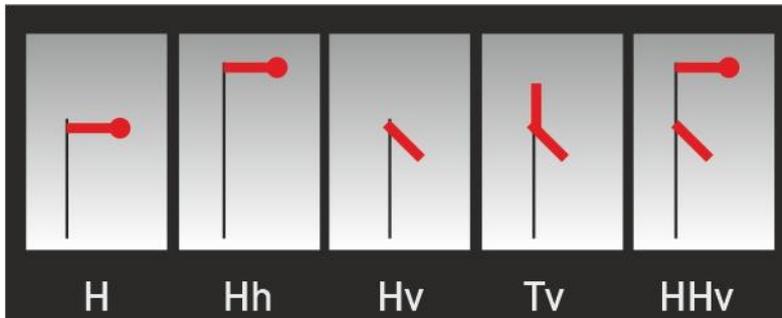The branch distant signal is used to inform the driver of the status of the next branch signal. The distance to the main signal is 800 to 1000 m. This signal can show three signal aspects, which correspond to the positions of the branch signal.

Armseinen in de GLB

Home and distant signals aside of tracks

H	Departure home signal
Hh	Home signal outside yards or departure signal
Hv	Distant signal
Tv	Branch signal
HHv	Combined home and distant signal

The HHV signal is always preceded by a branch signal and can show three aspects:

HHv aspect		HHv Instruction	Tv aspect	Tv Instruction
225a	234a	Stop	236a	Reduce speed to 40 km/h
225b	234b	Permission to pass, next signal shows clear	236b	Observe general speed limit
225b	234a	Permission to pass, next signal shows stop OR Permission to pass to branching track	236c	Reduce speed to 40 km/h

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In the example below, the different combinations have been worked out:
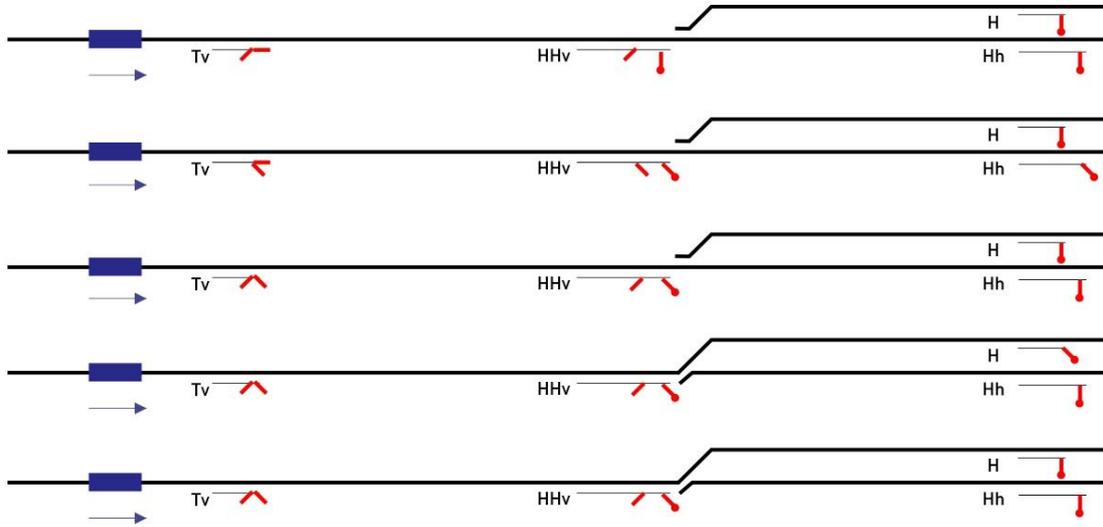
The functions of the 3-aspects signal can also be achieved by using the entry and branch signals discussed below.

Branching and entry signals (1)
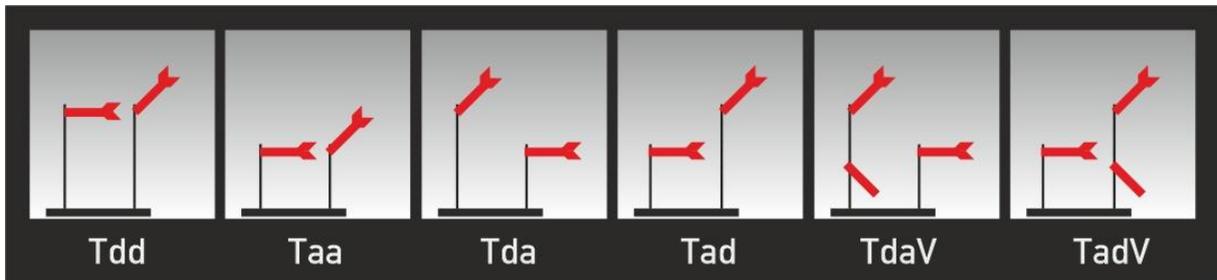
Tdd	Branching signal, no speed limit
Taa	Branching signal, reduced speed (40 km/h)
Tda	Right diversion branching signal
Tad	Left diversion branching signal
TdaV	Right diversion branching signal with distant signal
TadV	Left diversion branching signal with distant signal

These signals are used as entry signals when approaching relatively simple yards with two or three possible routes. Between stations, branch signals can be used to indicate driving directions and speed reductions when approaching a junction. If no route is indicated, the signal may not be passed. The signal objects consist of a platform with masts and signal arms.

Version 2.0 build 20260315
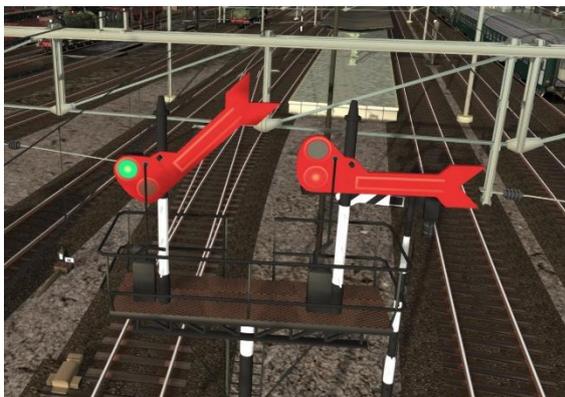
Branching and entry signals (2)
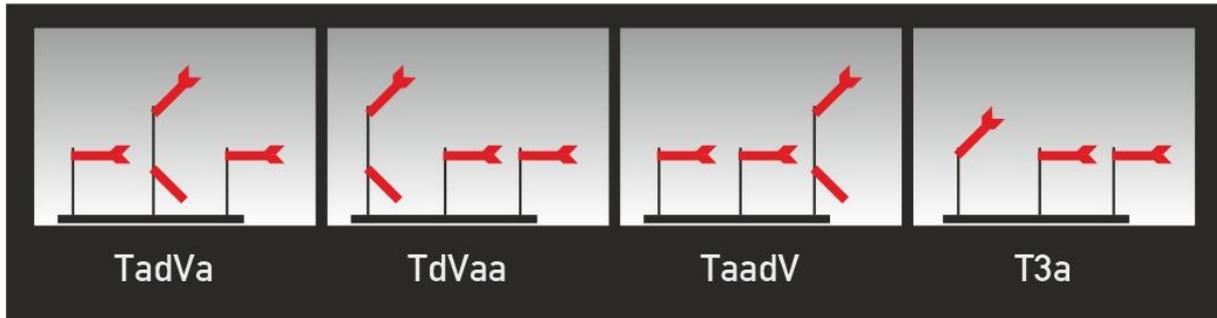
TadVa	Entry signal, three branches with home and distant arm for through track
TdVaa	As above, but with two right diversions
TaadV	As above, but with two left diversions
T3a	Entry signal for three equivalent branches, speed must not exceed 40 km/h

The above signals are used as entry signals when approaching a more complex yard with three possible routes. You can read the configuration from the coding, where **a** stands for a diverting and **dV** for a through branch signal, with distant signal arm. These signals have been realized in the add-on complete with platforms for three masts.

Branching and entry signals (3)
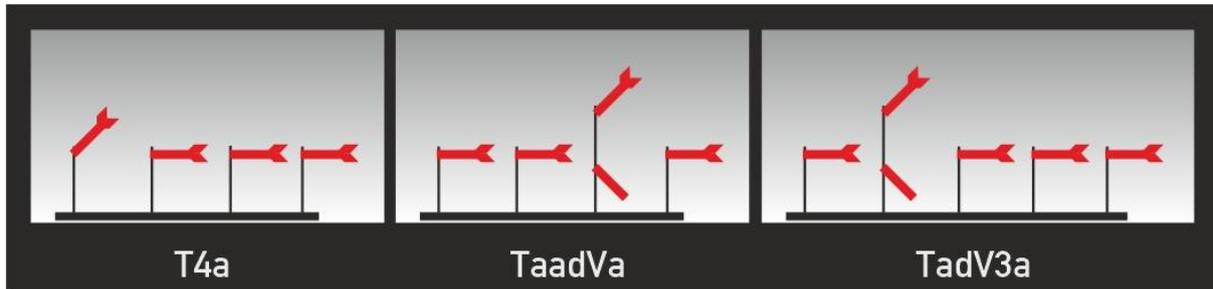
T4a	Entry signal, four equivalent branches, max. 40 km/h
TaadVa	Entry signal, two left branches, through home arm with distant arm, one right branch
TadV3a	Entry signal, one left branch, through home arm with distant arm, three right branches

If four or five alternative routes can be set when entering a yard, entry signals with a corresponding number of options are placed. Above are examples of such entry signals. The TaadVa signal, for example, can indicate two routes branching to the left, a branch to the right and a through route, whereby a distant arm is also present on the home signal. The other example shows the TadV3a signal, with one through and four branching routes

Home and distant signals at platforms or signal bridges
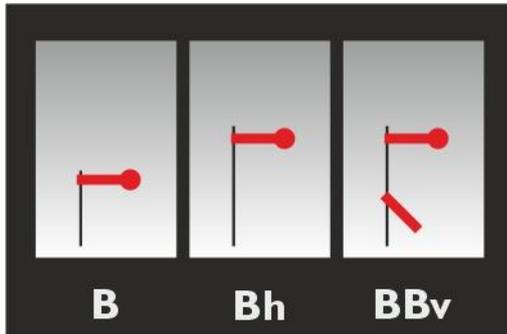
B	Home signal
Bh	Through track exit home signal
BBv	Through track exit home signal with distant arm (3-aspects signal)

These signals are used as exit signals at shunting or station yards and can be found on dedicated signal bridges or platforms.

Other signals and signs
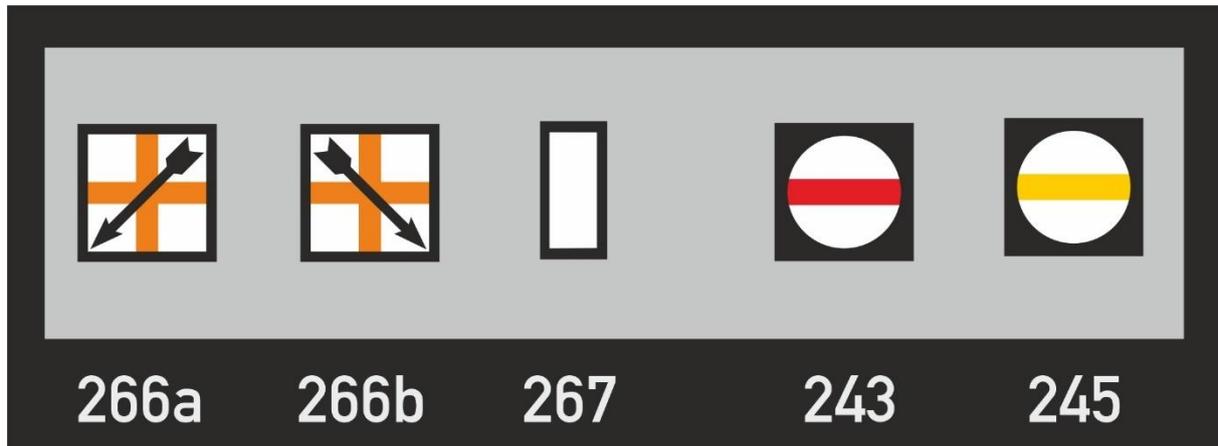
266a	Shunting signal, left hand track, blocked
266b	Shunting signal, right hand track, blocked
267	Shunting signal, clear
243	Buffer sign
245	Warning sign, route ends at buffer track

The two-sided shunting light has not been modeled because signals in the RE can only be assigned to one track at a time. The warning sign is a static scenery object without animation and security features. The buffer sign, on the other hand, appears in the player's 2D view as a permanent stop signal.

These electric traction signs are still in use today and speak for themselves. After passing sign 308, the pantographs must be lowered within 300m. These boards are configured as scenery objects and are not part of the TS signalling system.
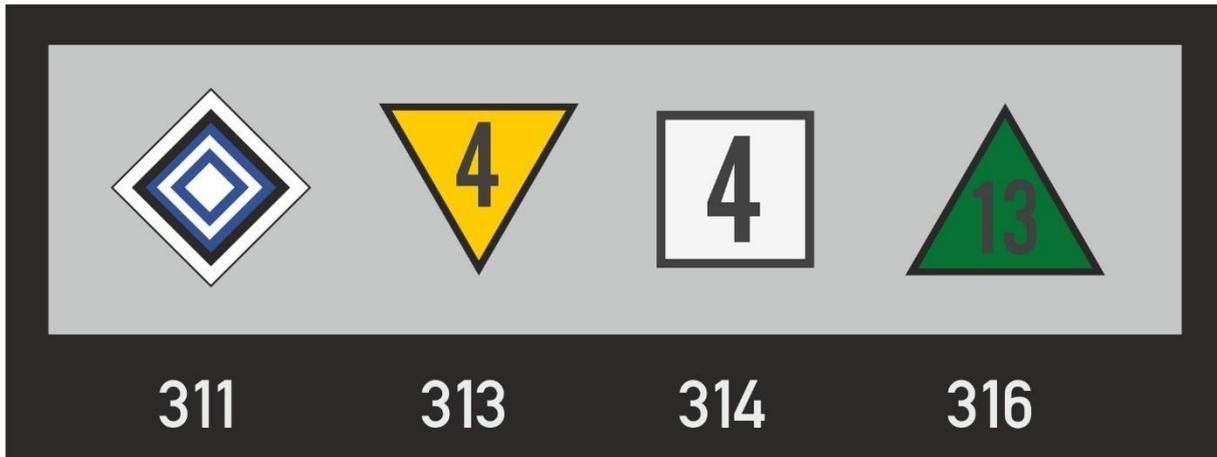
311	End of catenary
313	Restricted speed section ahead
314	Restricted speed start
316	Resume (standard-) speed

The numbers in the signs must be multiplied by 10. The standard speed on the GLB is 140 km/h.

Special signs
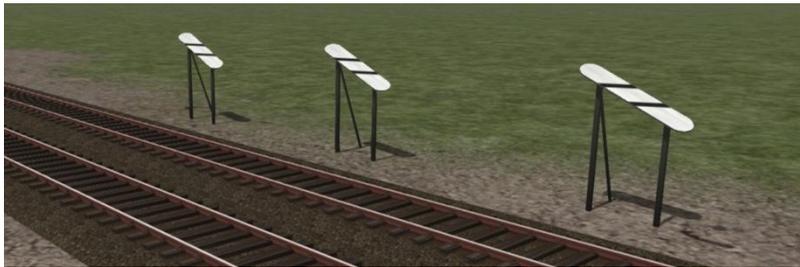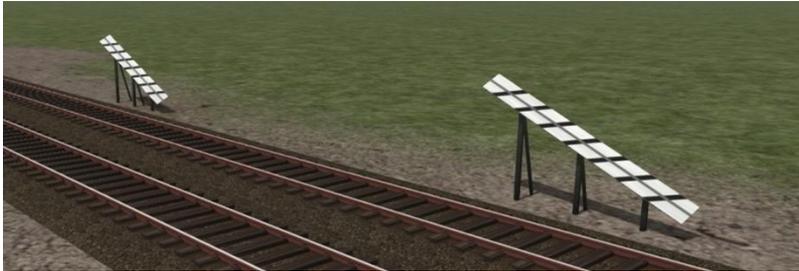
These signs are used to warn the driver that he is approaching a distant signal or a distant signal of a 3-aspect or branch signal.

If the distance between distant and the home signal is shorter than 800m, different signs will be placed:
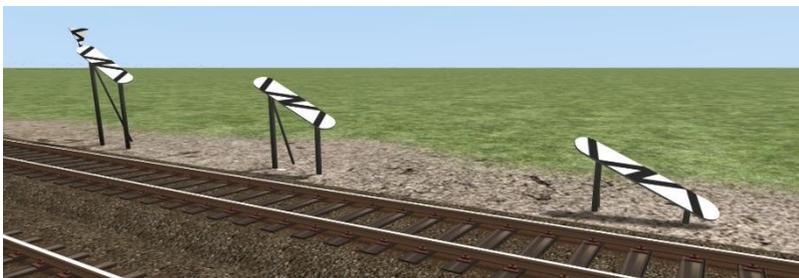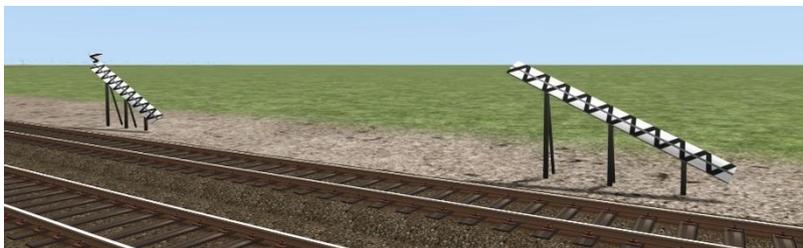
7. Scenarios

Free Roam Scenarios

Scenario name	Cat.	Type	Min.
FR Koppelstock		FR	
FR Ruyschbeeck		FR	
FR Gölsdorf		FR	
FR Fischbach		FR	
FR Wentlang		FR	
FR Helmholtz		FR	
FR Eckhagen		FR	

Standard and time tabled scenarios

Scenario name	Cat.	Type	Min
01 [TEE] Amsterdam-Zurich	TT	P	45
02 [TEE] Zurich-Amsterdam	TT	P	45
03/1 [NS 3700] Hook-Berlin Express	TT	P	20
03/2 [01 10] Hook-Berlin Express	TT	P	50
04/1 [NS 3700] Hook-Berlin Express (night)	TT	P	20
04/2 [01 10] Hook-Berlin Express (night)	TT	P	50
06 [BR 92] Local Wentlang-Gölsdorf	TT	P	30
07 [BR 01] Express Eckhagen-Ruyschbeeck	TT	P	45
12/1 [NS 1100] Holland-Italia Express	TT	P	20
12/2 [V 200] Holland-Italia Express	TT	P	50
13/1 [NS 1100] Rheingold Express	TT	P	20
13/2 [V 200] Rheingold Express	TT	P	50
14 [BR 23] Stopping passenger to Eckhagen	TT	P	45
15 [NS 1100] Swapping trains in Ruyschbeeck	ST	P/G	30
15 [NS 2600] Swapping trains in Ruyschbeeck	ST	P/G	30
16 [Mat 24] About turn at the border	TT	P	20
18 [V 36] Shortcut to Golsdorf	TT	P	45
19 [BR 92] Old faithful to Ruyschbeeck	TT	P/R	70
24/1 [BR 23] VW Beetles to Holland	ST	G	60
24/2 [NS 2400] VW Beetles to Holland	ST	G	45
25 [NS 2000] Oil to the Ruhr	ST	G	30
27 [BR 56] Freight service Ruyschbeeck-Eckhagen	ST	G	50
28 [BR 42] Freight service Ruyschbeeck-Eckhagen	ST	G	50
30 [BR 58] Iron Ore to the Ruhr	ST	G	60
31 [BR 42] Double heading to Eckhagen	ST	G	75
32 [BR 288] Mixed goods service to Eckhagen	ST	G	50
33 [288] Pine trunks for Walcheren	ST	G	65
34 [V 188] Bundeswehr Service	ST	G	65
35 [V188] Maintenance of Way Service	ST	G	60
51 [BR 93] Stopping Passenger Goelsdorf-Eckhagen	TT	P	45
81 [NS 500] Winter shunting at Koppelstock	ST	R	30
82 [NS 200] Ruyschbeeck shunting service	ST	R	30
84 [V 36] Shunting job at Wentlang	ST	R	30
85 [Köf II] Eckhagen shunting service	ST	R	30

TT = Timetabled, ST = Standard Scenario, FR = Free Roam
R = Passenger service, G = Goods service, Ra = Shunting service

Because TS always shows English text elements for Dutch users, we have made separate versions of our scenarios for these customers, in which the English text building blocks have been replaced by Dutch translations, recognizable by the prefix [NL].

01 [TEE] Amsterdam-Zurich

The TEE Edelweiss Amsterdam-Zurich has been diverted over Germany due to construction work. After your departure from Amsterdam, your shift went well, but now you have been waiting for some time for a stop signal. Due to the changed route, traffic control has to improvise. A path has now been cleared for the TEE, so that you can start the engines again and switch on the train signals.

02 [TEE] Zurich-Amsterdam

Due to heavy snowfall in France, the TEE Zurich-Amsterdam had to be diverted over West Germany. The railway company also suffers from delays there, so that your train has stopped in Helmholtz. In the meantime, the Dutch customs personnel have arrived at the platform.

03/1 [NS 3700] Hook-Berlin Express

Today you drive the 'Hook of Holland-Berlin Express' with the last serviceable NS 3700 to the German border at Ruyschbeeck, where a DB locomotive will take over your train.

03/2 [01 10] Hook-Berlin Express

You are now driving the 'Hook -Berlin Express' to Eckhagen, where you will be relieved.

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04/1 [NS 3700] Hook-Berlin Express (at night)

Tonight you drive the 'Hook of Holland-Berlin Express' with the last serviceable NS 3700 to the German border at Ruyschbeeck, where a DB locomotive will take over your train.

04/2 [01 10] Hook-Berlin Express (at night)

You are now driving the 'Hook -Berlin Express' to Eckhagen, where you will be relieved.

06 [BR 92] Passenger local Wentlang-Gölsdorf

Today you are responsible for a BR 92 and it is your task to drive a local service from Wentlang to Goelsdorf. The train is composed of 'Donnerbüchsen' carriages.

07 [BR 01] Express service Eckhagen-Ruyschbeeck

You are scheduled to ride an early international express service with a BR 01 from Eckhagen to Ruyschbeeck. No details have been reported by Traffic Control.

12/1 [NS 1100] Holland-Italia Express

Today you take the 'Holland-Italia Express' with an NS 1100 to the German border at Ruyschbeeck, where a DB locomotive will take over. Detach the locomotive after arrival and put her away in the shed.

12/2 [V 200] Holland-Italia Express

You have just arrived at the border station of Ruyschbeek. NS staff have already disconnected your V 200. Now you put the locomotive in front of the 'Holland-Italia Express', which is already waiting for you on track II.

13/1 [NS 1100] Rheingold Express

Today you take the 'Rheingold Express' with an NS 1100 to the German border at Ruyschbeeck, where a DB locomotive will take over. Detach the locomotive after arrival and put her away in the shed.

12/2 [V 200] Rheingold Express

You have just arrived at the border station of Ruyschbeek. NS staff have already disconnected your V 200. Now you put the locomotive in front of the 'Rheingold Express', which is already waiting for you on track II.

14 [BR 23] Stopping passenger to Eckhagen

You will drive a stopping passenger service from Goelsdorf to Echkagen.

15 [NS 1100] Swapping trains in Ruyschbeeck

Drive a rake of modern Dutch coaches to Ruyschbeeck, where you will pick up a Western Germany DB freight train.

15 [NS 2600] Swapping trains in Ruyschbeeck

Drive a rake of modern Dutch coaches to Ruyschbeeck, where you will pick up a Western Germany DB freight train.

16 [Mat 24] About turn at the border

In this scenario you will drive a classical motor coach train to Ruyschbeeck, where you change cabins for the return trip.

18 [V 36] Shortcut to Golsdorf

Today you run a local passenger service between Ruyschbeeck and Gölsdorf with a V36.

19 [BR 92] Old faithful to Ruyschbeeck

Today you drive a mixed goods and passenger local (GmP) from Goelsdorf to Ruyschbeeck. There is a lot of shunting to do at Fischbach.

24/1 [BR 23] VW Beetles to Holland

Today you are driving a car carriers train with VW Beetles from Eckhagen to Ruyschbeeck with a BR 23. During the long descents, the train brakes must be handled with care.

24/2 [NS 2400] VW Beetles to Holland

The train that has arrived in Ruyschbeeck in scenario 24/1 is now transferred to Koppelstock Opstel with an NS 2400.

25 [NS 2000] Oil to the Ruhr

You are driving an oil train from Koppelstock-Opstel to Ruyschbeeck with a pair of double heading NS 2000s.

27 [BR 56] Goods service Ruyschbeeck-Eckhagen

You are now driving a freight service with this BR 56: Ruyschbeeck - Wentlang - Eckhagen. Please note: in Wentlang the consist will split.

28 [BR 42] Freight service Ruyschbeeck-Eckhagen

Drive a mixed goods to Eckhagen headed by a Series 42.

30 [BR 58] Iron ore to the Ruhr

This assignment provides an excellent opportunity to gain experience with a heavy freight locomotive while driving an ore train to Eckhagen.

31 [BR 42] Double heading to Eckhagen

Due to striking dock workers in Emden iron ore traffic to the Saar has been diverted to Rotterdam. From there, a 4000 tons iron ore train has just arrived at Koppelstock Opstel, where the DB will take over. In the lead cab you are in charge of this double headed goods service to Eckhagen with two Series 42 engines.

32 [BR 288] Mixed goods service to Eckhagen

You will now be heading a Ruyschbeeck - Wentlang - Eckhagen goods service with this Class 288. At first sight this will look like a manageable proposition. However, the venom is in the tail. On arrival in Eckhagen, when applying the brakes the mass of the moving train will produce a surprisingly strong effect when the brakes are released, causing the speed to rise again.

33 [288] Pine trunks for Walcheren

Today the Deutsche Bundesbahn have tasked your V 188 from the Gemuenden MPD with a goods service from Eckhagen to Ruyschbeeck over the Grenzlandbahn. Your train will start from Eckhagen Yard. First destination is Wentlang.

34 [V 188] Bundeswehr Service

A Bundeswehr military train has stranded at Wentlang without its loco because of technical problems. You must come to the aid with your V 188.

35 [V188] Maintenance of Way Service

In Wentlang a MoW-train has been readied with a Krupp-Ardelt wrecker crane and SSlmas wagons with rail sections. It will be required in Eckhagen tonight for a scheduled maintenance job, so it's your task to collect that train and bring it to Eckhagen.

51 [BR 93] Stopping Passenger Goelsdorf-Eckhagen

Drive a stopping passenger train from Goelsdorf to Eckhagen.

81 [NS 500] Winter shunting at Koppelstock

This service consists of a number of shunting- and train movements with emty stock between Koppelstock and Koppelstock Opstel.

82 [NS 200] Ruyschbeeck shunting service

No border station can exist without a customs shed. It is your job to collect a number of goods wagons that have been cleared for export to West Germany and assemble them into a Bundesbahn train.

84 [V 36] Shunting job at Wentlang

First, you'll have to shunt some freight wagons inside the Betriebsbahnhof. After that, an empty stock consist must be driven to the Personenbahnhof.

## 85 [Köf II] Eckhagen shunting service

This shunting task involves pulling out an 'Umbauwagen' rake and shifting a number of 'Reisezugwagen' between Eckhagen Personen- and Betriebsbahnhof.

8. GLB Cab lay-outs

Cab lay-outs DB steam engines

The cab layouts of our DB steam locomotives are almost identical. Two camera positions are available. You can switch between them with the arrow keys (left: the stoker, right: the driver)
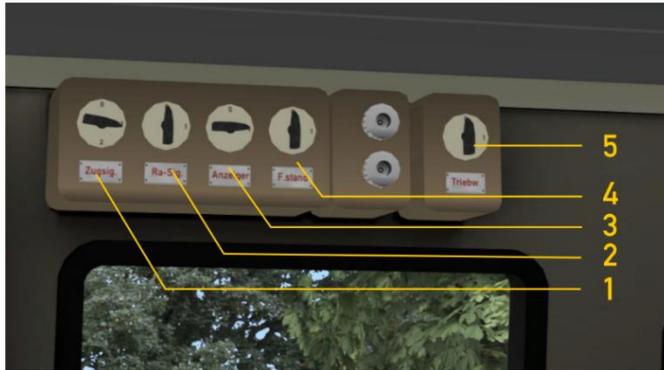

The loco inside and outside lights are controlled by the top left side panel in the cab. Initially, the shunting signals (2) are switched on, as are the illumination of the dials (4). The link motion lighting (3) is functional and can be switched on to perform an inspecting or lubricating round in the dark.

I	Train lights	H / SHIFT +H		4	Instrument lighting	CTRL+ F11	
2	Shunting lights	CTRL + F9		5	Cab lights	CTRL +F12	
3	Link motion lights	CTRL + F10					
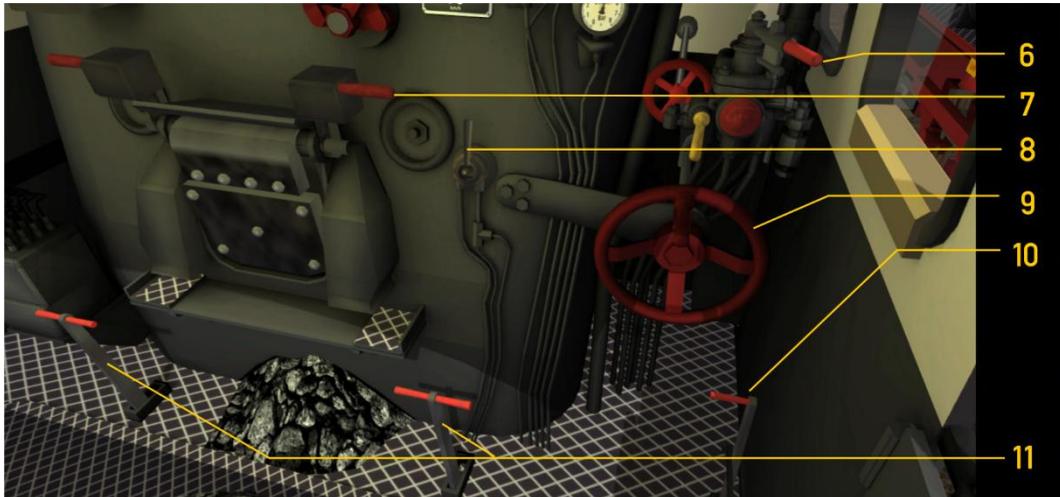
With the reverser (9) we set the degree of filling of the cylinders. Furthermore, we find here the train brake (6) and the fire door handle (7). Lever 8 controls the sand spreading device and lever (10) opens and closes the cylinder valves. These are initially open.

6	Train brakes valve	: / '		9	Reverser	W / S	
7	Fire door handle	F/SHIFT+F		10	Cylinder valves	C	
8	Sander	X		11	Dampers	M /SHIFT+M	
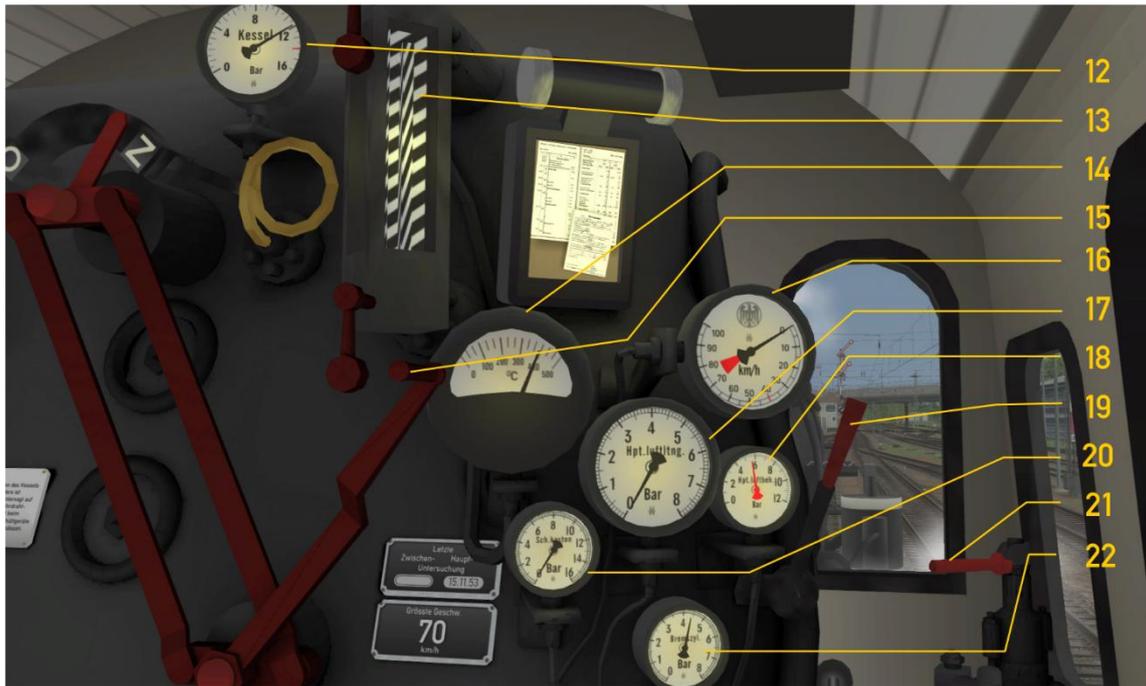
12	Boiler manometer		18	Main reservoir pressure		
13	Water level gauge		19	Whistle, long	SPACE	
14	Pyrometer			Whistle, short	N	
15	Regulator	A / D	20	Steam chest pressure		
16	Speedometer		21	Engine brakes valve	[/]	
17	Air brake pipe pressure		22	Brakes cylinder pressure		
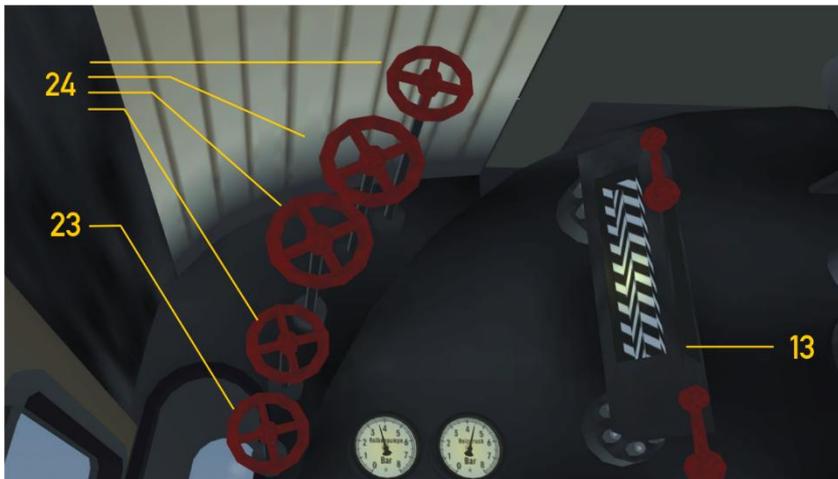
13	Water level gauge				
23	Blower	, / SHIFT + ,			
24	Boiler feed valves				

Cab Layout V188/288
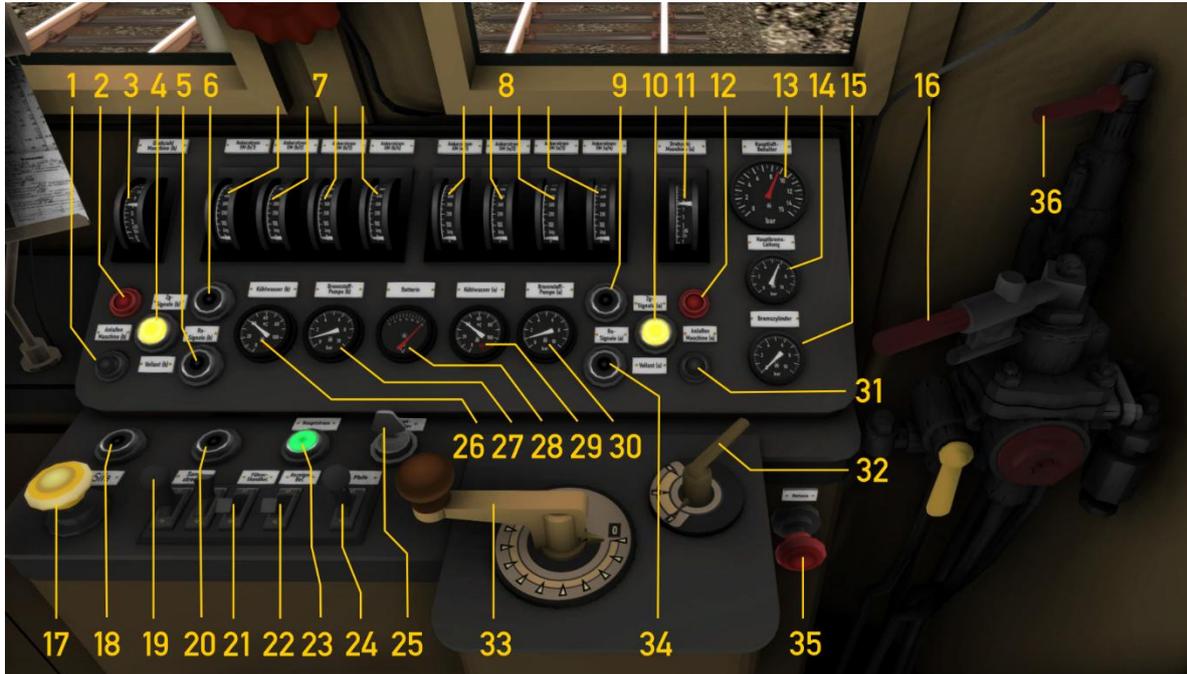
1	Engine unit (b) switch off		19	Sander	X
2	Engine unit (b) start		20	AWS alert indicator	
3	RPM Engine (b)		21	Cab lights on/off	CTRL + F12
4	Indicator shunting signals (b)		22	Panel lights on/off	CTRL + F11
5	Indicator overload (b)		23	Indicator control current	
6	Indicator head/taillights (b)		24	Whistle	SPACE
7	Traction current (b)		25	Master key	CTRL + 0
8	Traction current (a)		26	Cooling fluid temp. (b)	
9	Indicator head/taillights (a)		27	Fuel pump pressure (b)	
10	Indicator shunting signals (a)		28	Stuurstroomspanning	
11	RPM Engine (a)		29	Cooling fluid temp. (a)	
12	Engine unit (a) start		30	Fuel pump pressure (a)	
13	Main reservoir pressure		31	Engine unit (a) switch off	
14	Brake pipe pressure		32	Reverser	W / S
15	Brake cylinder pressure		33	Regulator	A / D
16	Train brake control	; / '	34	Indicator overload (a)	
17	AWS reset	NUM ENTER	35	Emergency break	
18	Indicator AWS activated		36	Engine brake control	[/]

Control current must be switched on and engines started before the locomotive can be driven (CTRL + 0, Z, CTRL + Z). Enable/disable Sifa (AWS) monitoring with CTRL + NUM ENTER.
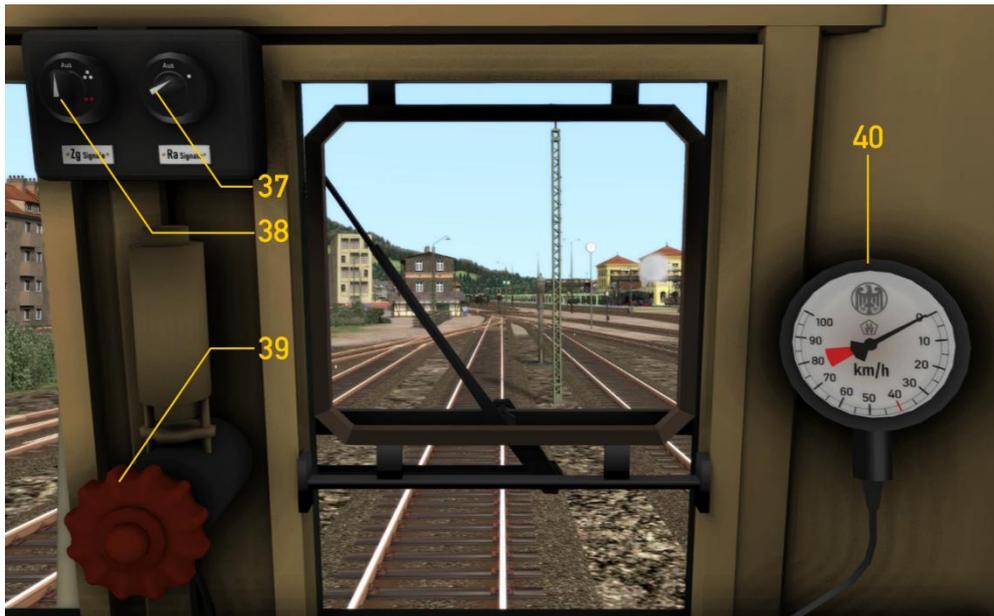
| 37 | Head/taillights on/off | H / SHIFT + H | 39 | Wipers on/off | V | |
| 38 | Shunting signals on/off | CTRL + F9 | 40 | Speedometer | | |

Sifa (Sicherheitsfahrschaltung)

Sifa or in English parlance AWS aims to apply an emergency braking as a goal to bring the rail vehicle to a standstill if the driver's vigilance can no longer be determined. To this end, an automatic function has been built in that is active for a period of 30 seconds while driving. When these have expired, an acoustic warning follows with a flashing warning light (20). Now the operator has five seconds to reset the AWS, using the button (17). If this is not done, an emergency brake will follow after three seconds. During each 30-second phase, the operator can also reset the ASW by pressing button (17). This will restart the timer.

Unlike reality, the Sifa in TS Classic is optional, i.e. a player can choose to drive scenarios with or without Sifa. In the simulation, the key combinations CTRL + NUM ENTER (enabling the Sifa) and NUM ENTER (reset) are available to the player. When the Sifa is switched on, the control lamp (18) lights up.

Cab layout NS 1100

Control lights and Faiveley-block
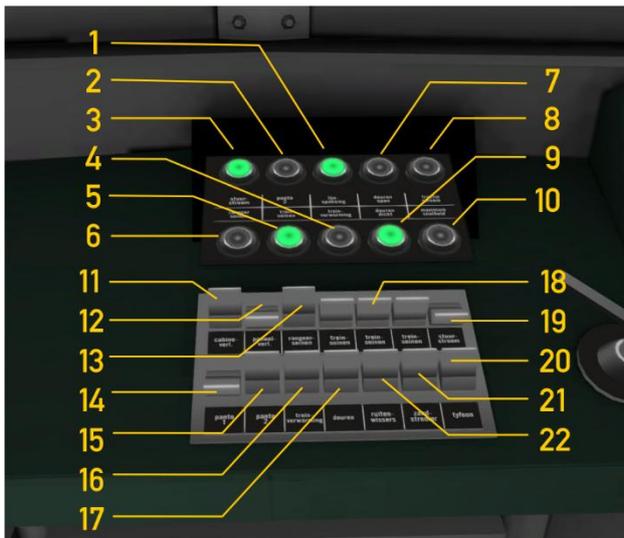
Switch 17 (doors/open closed) only responds to the hotkey T or to clicking the Load/Unload button in the HUD.

1	Line voltage detected		12	Instrument lights on/off	CTRL+F11
2	Panto 2 in upper position		13	Shunting signals on/off	CTRL+F9
3	Control current switched on		14	Panto 1 up/down	P
4	Train heating switched on		15	Panto 2 operation mode	
5	Train signals switched on		16	Train heating on/off	
6	Shunting signals switched on		17	Doors operation	T
7	Train doors open		18	Train signals on/off	CTRL+ 0
8	Traction current overload		19	Control current on/off	
9	Train doors closed		20	Horn	SPACE or N
10	Speed warning		21	Sander	X
11	Cab lights on/off	CTRL+F12	22	Wipers on/off	V

Handles and instruments

1	Train brake pipe/main res. pressures	6	Traction current truck 2	
2	Brake cylinder pressure	7	Speedometer	
3	Battery voltage	8	Controller	A / D
4	Main current voltage	9	Reverser	W / S
5	Traction current truck 1			

1	Speedometer
2	Engine brake valve
3	Train brake valve

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Cab lay-out NS 2000

1	Train brake pipe/brake cyl. pressures		5	Speedometer
2	Main reservoir pressure		6	Traction current ruck 2
3	Traction current truck 1		7	RPM engine 2
4	RPM engine 1			
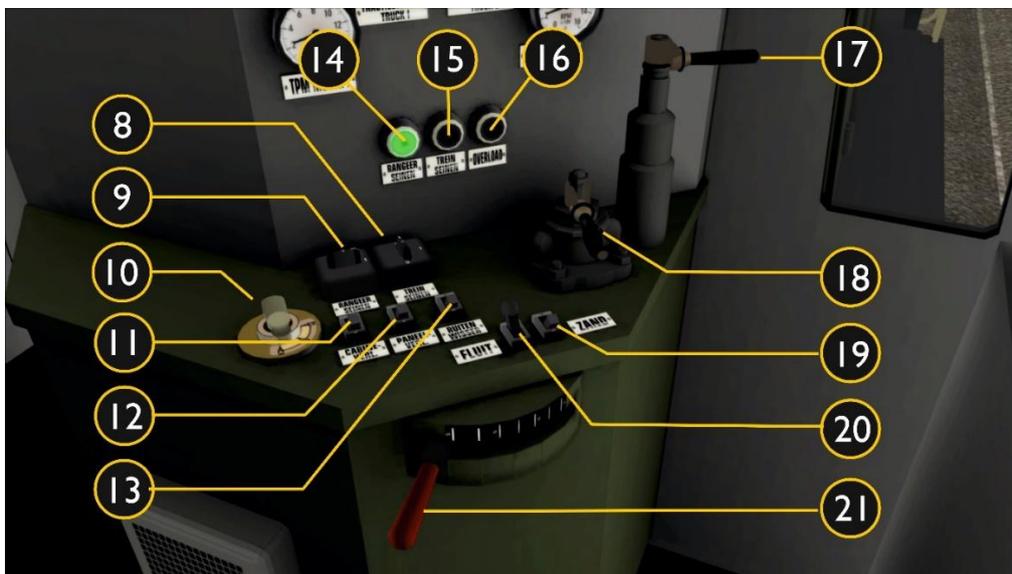
8	Train signals on/off	H	15	Train signals indicator light	
9	Rangeerseinen in/uit	CTRL + F9	16	Overload indicator light	
10	Reverser	W S	17	Engine brake	[ ]
11	Cab lights on/off	CTRL + F11	18	Train brake	; '
12	Instrument lights on/off	CTRL + F12	19	Sander	X
13	Wipers	V	20	Horn	SPACE or N
14	Shunting lights indicator light		21	Controller	A D

Cab lay-out NS 2400
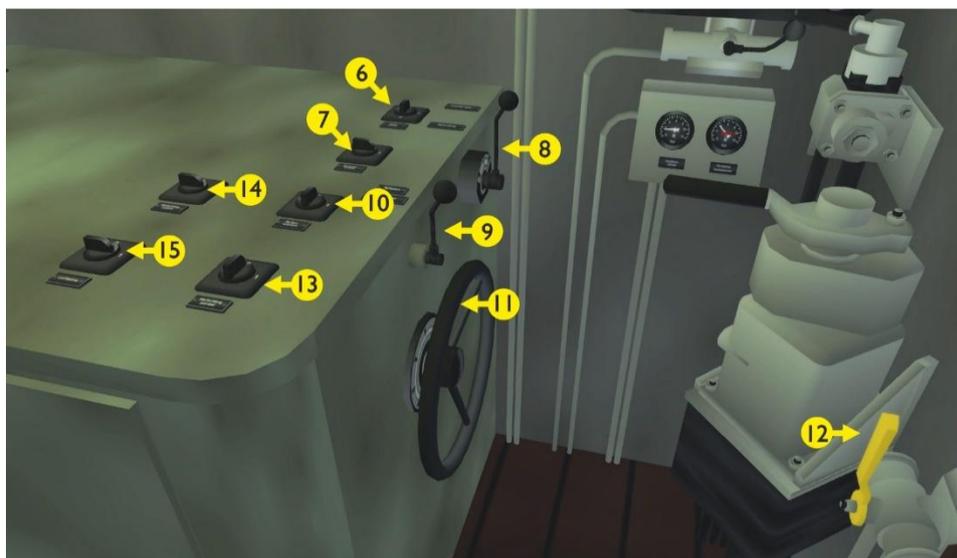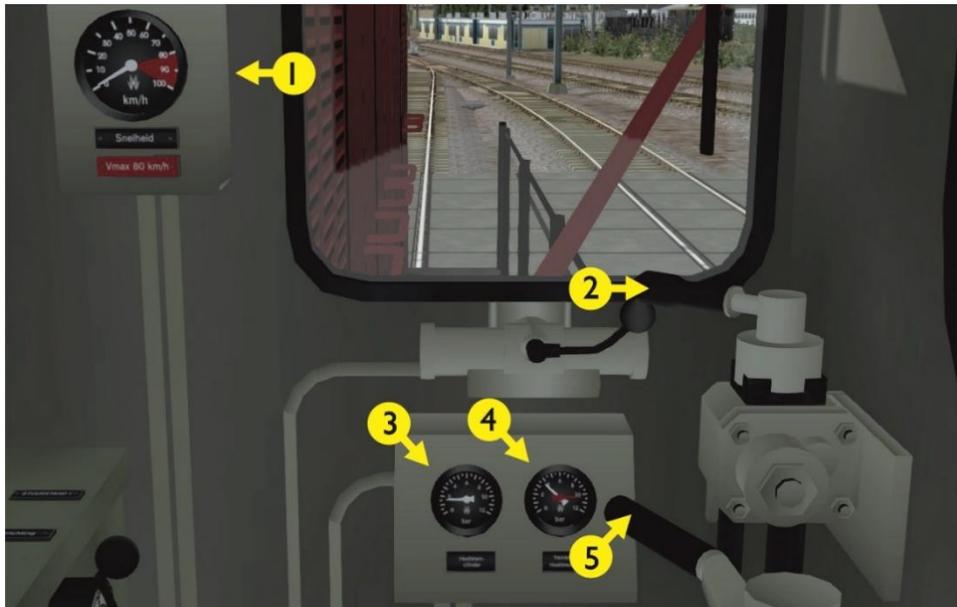
1	Speedometer			9	Horn		SPACE
2	Engine brake	[&]			Horn (short)		N
3	Brake cylinders pressure			10	Wipers		Wipers
4	Train brake pipe/main res. pressures			11	Controller		A & D
5	Train brake	; & '		12	Sander		X
6	Train signals on/off	Headlights		13	Instrument lighting on/off		CTRL+F12
7	Hirn	CTRL+F9		14	Cab lights on/off		CTRL+F11
8	Reverser	W & S		15	Control current on/off		CTRL+9

When preparing the loco, the air pump and the fuel pump must also be switched on after the control current, after which the main engine can be started (steps 1 to 4 in the figure below):

Please note:

1.   *When regulator notch 1 is selected the regulator will switch back to 'Neutral' if the local speed limit is exceeded*

2.   *The NS 2600 class was not equipped with a multiple unit option that made it technically possible to run in double heading or as helper engine. Our version of this locomotive does support this, but when the machine is pressed into service as helper engine, it must be coupled in the direction of travel (see picture), i.e. with the roof fan in front.*


Overview of the steering position with the Faiveley block and the indicator lights in the foreground. At the top right, you can see the Hasler tachograph with its 24-hour clock, and above the windows are the levers that allow the supply of compressed air to be released to the wiper motors (which also respond to the 'V' key). The other controls are explained below.

Faiveley block

1	Control light fuel pump			13	Train current 220V	
2	Control light board current			14	Wipers	V
3	Control light train heating			15	Doors	T
4	Control light headlights			16	Control current light	
5	Control light shunting lights			17	Headlights	H / SHIFT + H
6	Control light doors open			18	Fuel pump	
7	Control light doors closed			19	Compressor	
8	Diesel engine start	Z		20	Sander	X
9	Shunting signals	CTRL + F9		21	Horn (long)	SPATIE
10	Train heating				Horn (short)	N
11	Cab light	CTRL + F11		22	Control key	CTRL + 0
12	Paneelverlichting	CTRL + F12				
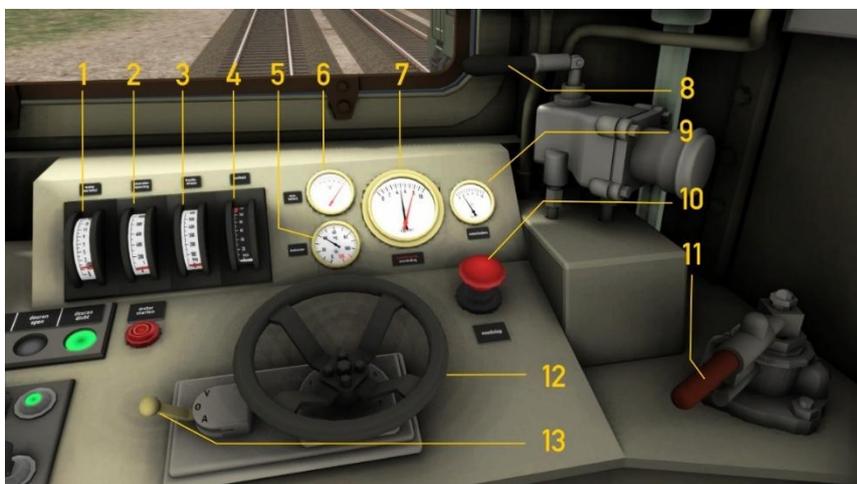
1	RPM Diesel engone			8	Engine brake	[/]
2	Generator tension			9	Brake cylinder	
3	Traction current			10	Emergency	BACKSPACE
4	Speedometer			11	Train brake	; / '
5	Cooling fluid temperature			12	Regulator (7 notches)	A / D
6	Battery tension			13	Reverser	W / S
7	Main reservoir (red)/Train brake pipe					

Cab lay-out NS 500
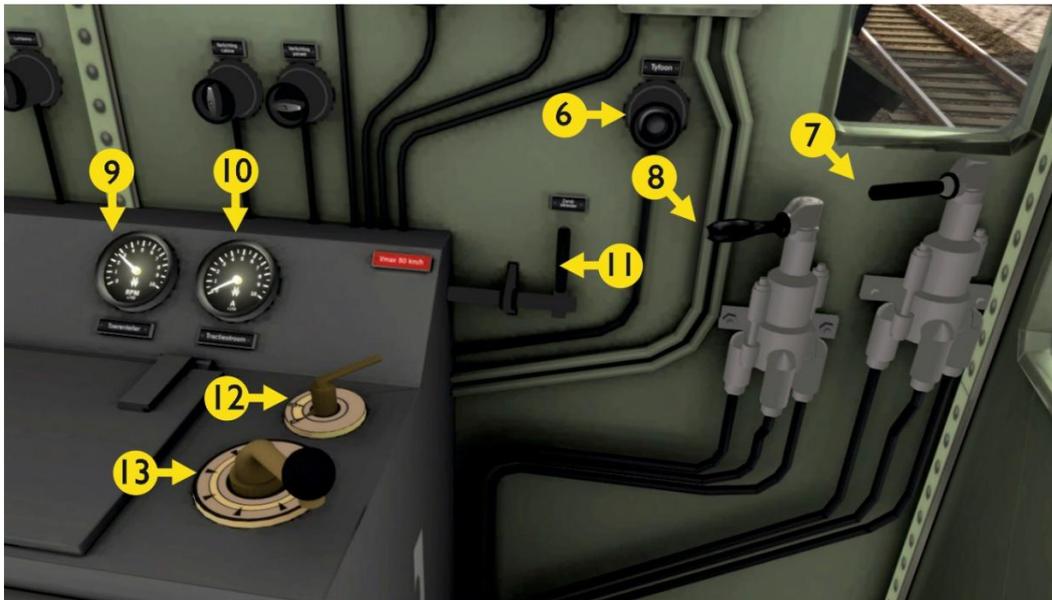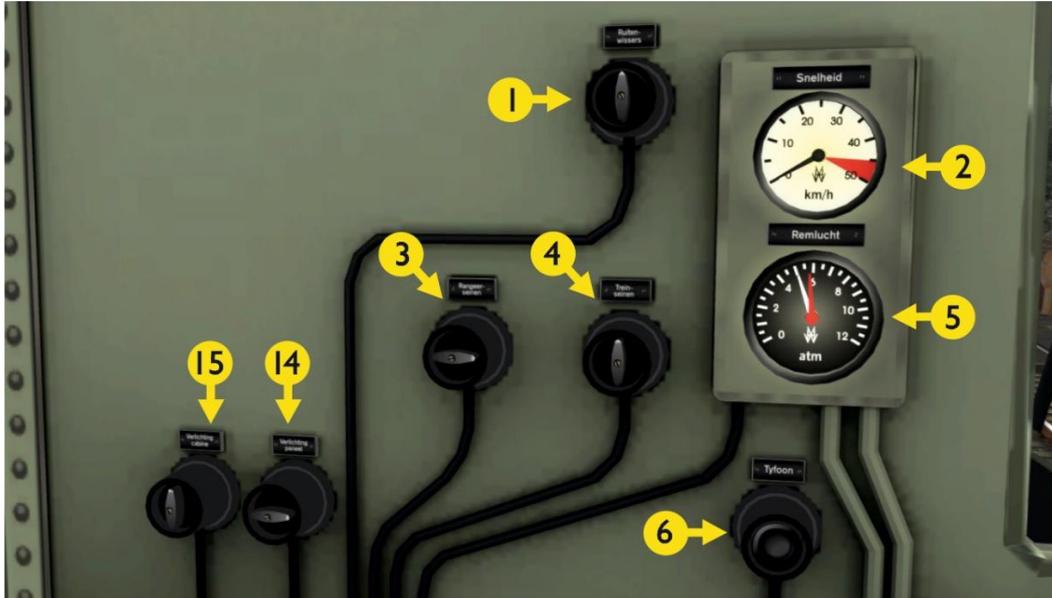
1	Wipers	V	8	Train brake	; '
2	Speedometer		9	RPM	
3	Shunting signals on/off	CTRL+F9	10	Traction current	
4	Train signals on/off	H/SHIFT+H	11	Sander	X
5	Train brake pipe/main res. pressures		12	Reverser	W S
6	Horn	SPACE	13	Controller	A D
	Horn (short)	N	14	Instrument lighting on/off	CTRL+F12
7	Engine brake	[ ]	15	Cab lights on/off	CTRL+F11

Cab lay-out NS 200
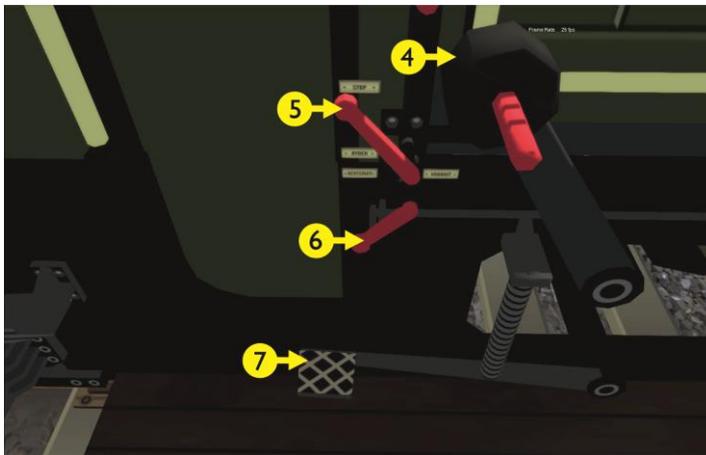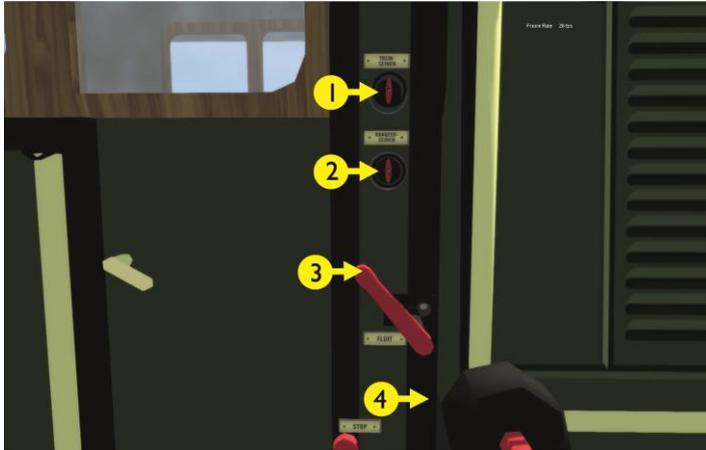
1	Train signals on/off	Headlights	7	Engine brake	[&]
2	Shunting signals on/off			Sander	X
3	Whistle	SPACE			
	Whistle (short)	N			
4	Train brake	; & '			
5	Controller	A & D			
6	Reverser	W & S			

Cab lay-out NS Mat 24

The interior of this cabin follows the TS Classic standard (expert mode) and therefore differs from the real world EMU because of the presence of a sander and an engine brake. The mCd and mBD cabs differ slightly from each other in terms of the controls placement.
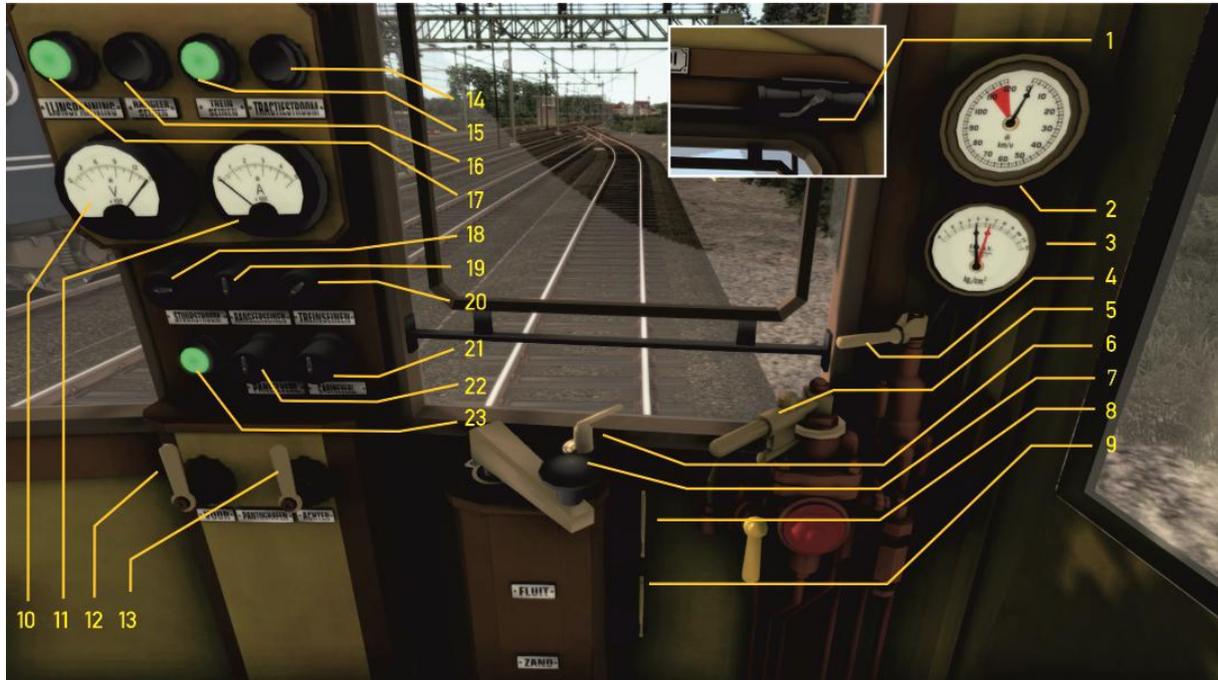

1	Wipers	Wipers | V	13	Panto 2 **		
2	Speedometer		14	Overload traction current		
3	Train brake pipe/main res. pressures		15	Train signals control light		
4	Engine brake	[|]	16	Shunting signals control light		
5	Train brake	; | '	17	Main voltage control light		
6	Reverser	W | S	18	Control current on/off		
7	Controller	A | D	19	Shunting signals on/off		
8	Whistle *	SPACE	20	Train signals on/off	Headlights|H	
9	Sander	X	21	Cab lights on/off		
10	Main voltage		22	Instrument lighting on/off		
11	Main current		23	Control current indicator		
12	Pantos up/down	P				

*) long (short: N-key)
**) controlled by engine script

Cab lay-out NS/SBB TEE I
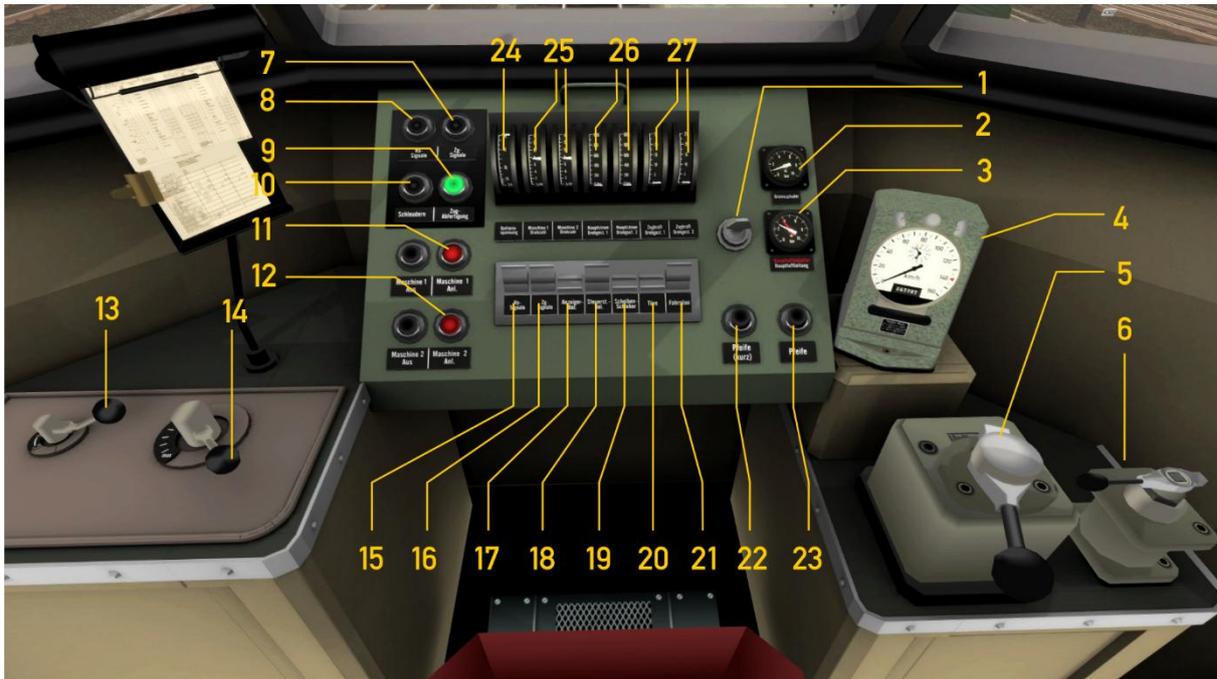
1	Master key	CTRL+0	15	Switch shunting signals	CTRL+9
2	Brake cylinder pressure		16	Switch train signals	H/SHIFT+H
3	Mainres./Brake pipe press.		17	Switch panel lights	CTRL+F12
4	Speedometer		18	Switch cab light	CTRL+F11
5	Train brake handle	;/'	19	Switch wipers	V
6	Engine brake handle	[/]	20	Switch doors open	T
7	Control light train signals		21	Change destination display	CTRL+10
8	Control light shunting sign.		22	Horn, short	N
9	Control light doors closed		23	Horn, long	SPATIE
10	Control light wheelslip		24	Control current voltage display	
11	Start/stop motor 1	Z	25	RPM diesel engines display	
12	Start/stop motor 2	CTRL+Z	26	Traction motors current display	
13	Reverser	W/S	27	Tractive effort display	
14	Controller	A/D			

Destinations displays (21) are located at every coach side and can be selected by repeatedly selecting CTRL + F10. Available services are   Zuerich-Amsterdam, Amsterdam-Zuerich, Zuerich-Munich and Munich-Zuerich. Speed limit is 140 km/h.

When you enter the cab for the first time, the train will be in the parking position. To be able to drive the engine, a number of (auxiliary) systems must first be switched on with either the mouse or a shortcut:

First move the master key a quarter turn to the left. This releases the control of the locomotive and the auxiliary power unit will start running. Next you have to start the main engines with Z (engine 1) and CTRL + Z (engine 2).

By applying the emergency brakes the direction selector will be reset to the 0-position and the engined are switched off. The control current is maintained.
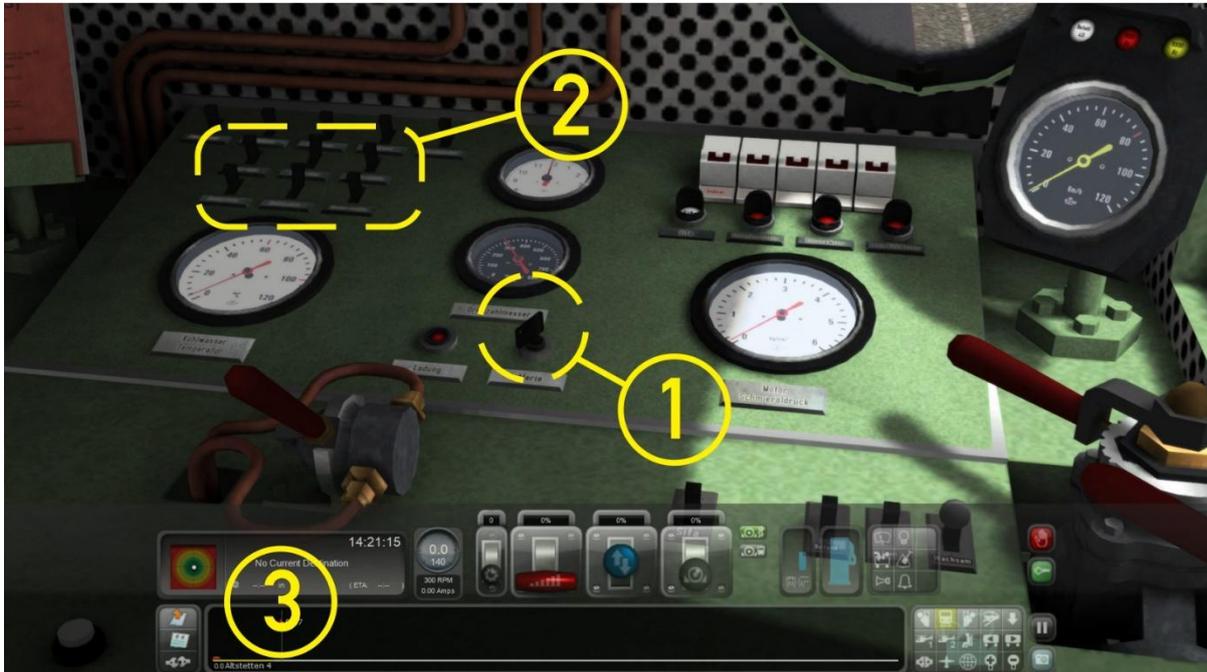

Cabin lights switched on.


Panel lights only switched on.

Cab Lay-out Eisenbahnwerk V36

At the start of a scenario, the engine is already idling. To be able to drive the locomotive, the battery switch must be turned on with the mouse (1).

Then - also with the mouse - the front and tail lights can be operated with separate switches (2). When the middle switches in the lower and upper row are switched on, shunting signals are displayed.

Driving itself works as we are used to with the HUD (3). Various levers in the cabin move with the settings of the HUD and can also be operated with the mouse if desired.
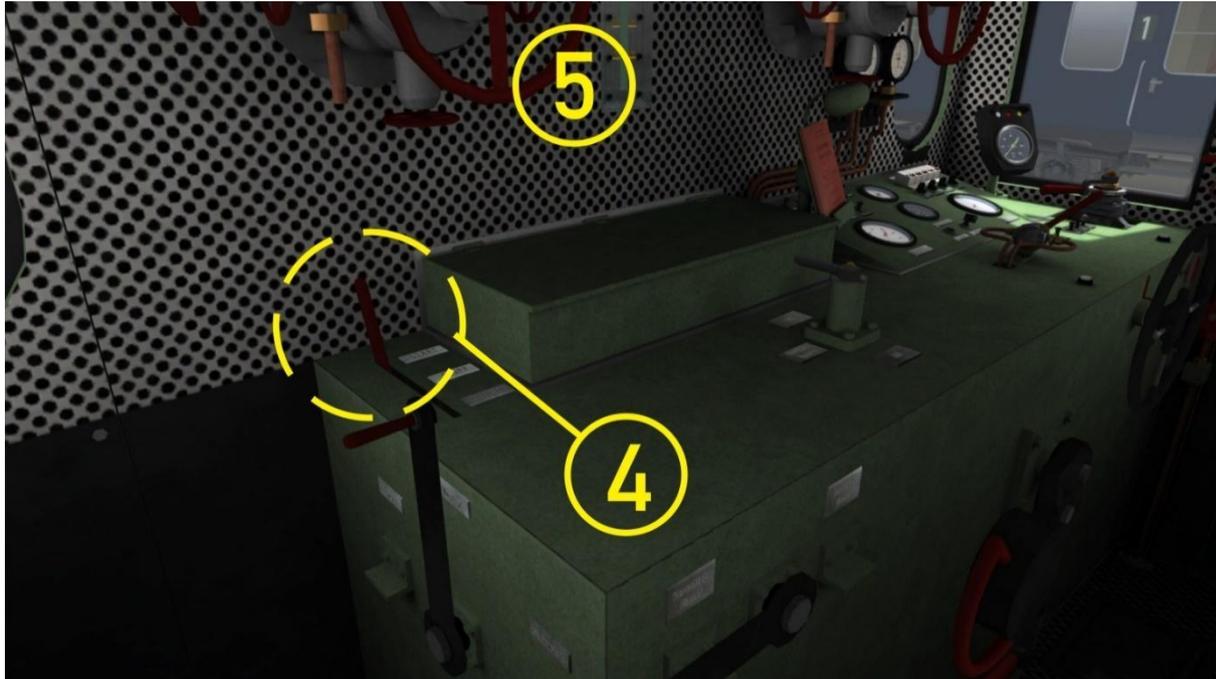
If you want to start the engine manually, the following is important. First move the leftmost lever (4) of the console to the "Start" position (hotkey: Z). The Controller (hand wheel) and the Reverser (on the left side of the panel) must be set to 0 resp. be at neutral or 0%. Then lock the transmission with the center lever of the panel.

The engine is started using exhaust gases, which are stored under a pressure of 25 bar during the ride. To crank it up, one of the two red handwheels (5) must be opened with the mouse (hold it to the stop, then release the mouse button). The engine will then start. Now set lever 4 into the 'Betrieb' position. A running engine can be stopped with the hotkey CTRL + Z or by moving lever 4 to the 'Stopp' position.

9. Colophon and credits

Route building and production:
© Wilbur Graphics, Henk van Willigenburg (www.wilburgraphics.com)

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© Michel R.

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