wilbur graphics
trainsim assets

FROM STEAM TO CURRENT



User Manual

Version 1.0 Build 20261015

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Introduction

General

After ending the cooperation with TrainworX, Wilbur Graphics have mainly focused on activities in the rolling stock field. Apart from releasing freeware versions of the Bauernwaldbahn and the Retro Canvas Route, there was little activity from us in the field of route construction until last year. In the summer of 2025, we therefore started developing an imaginary NS section that starts somewhere in the Netherlands and ends more than 40 kilometres further. The period from 1950 to 1960 was chosen, in which steam locomotives were replaced by electric traction. Characteristic of this transitional phase was the advance of the overhead lines on routes that were not yet electrified. We find this in From Steam to Current (translated from the Dutch title *Van Stoom Tot Stroom* or VSTS) in a part of the route on which portals and wiring were still lacking, giving the steam free rein in some supplied scenarios. In addition to the Wilbur Graphics rolling stock, you will find the NS 2200 of ChrisTrains there. For certain scenery parts, we expect that you already own the ELAP addon from DoveTail Games, more on that later.

In this manual, you will find instructions for the installation of the route in Chapter 2, which comes complete with Wilbur Graphics scenery and rolling stock objects. In chapter 3 we give a description of the route and the yards you may encounter, followed in chapter 4 by an overview of the supplied WG locos and EMUs. The available scenarios are presented in Chapter 5, after which Chapter 6 contains compact cab operating descriptions for each engine or EMU. We conclude this manual in chapter 7 with a description of the applied 'subset' of the classic NS arm signals of the period.



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Installation

Download contents

De VSTS van Wilbur Graphics wordt aangeleverd als .zip-bestand en bevat naast de leesmij.txt de volgende items:

- Folder Manuals\Wilbur Graphics met Duits-, Nederlands- en Engelstalige handleidingen:

  WG_VSTS_DE_V1_build_20260915.pdf
  WG_VSTS_EN_V1_build_20260915.pdf
  WG_VSTS_NL_V1_build_20260915.pdf

- The installer program WG_VSTS_V10_build_20261015.exe

The manuals are installed in the Railworks folder structure:

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

See the *release notes.txt* for the latest changes and improvements.

Installation

After launching the installer, you will be prompted to

- Language selection for the installer (Dutch/English/French/German)
- Enter the license key (a series of 3 code groups) that is connected to your SimTopia purchase
- A different path for the installation (default is .. /SteamApps/Railworks/etc.)
- Accepting the license terms (EULA)

…to continue the installation.

Other tips

- Your computer must have access to the internet
- 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.

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Remove VSTS

To delete the VSTS route, we advise you to remove the relevant folder:

`9d18ed59-7828-48ca-b1e1-4811e9c5cf1d`

… in the TS Classic \Routes folder:

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

Required additional add-ons

ELAP

The route includes scenery objects from the 50s that DTG no longer supplies as part of the package since the 2015 version. This mainly concerns passengers on the platforms, staff in the yards, etc., but is also important for the profitability of the site. Users who have come on board after this version can download the DTG add-on *European Loco and Asset Pack (ELAP)* from the Steam webshop for a few euros.

CRISTRAINS NS 2200 and Plan V (Materieel 1964)

In some scenarios, rolling stock from ChrisTrains is present. This concerns the 'EMU of the Future' as a prototype for Plan V and the NS 2200 in the original versions.

ARMSTRONG POWERHOUSE (weather and sky effects)

Before DoveTail Games finally switched to TSW versions, TS Classic was modified in some essential parts, which noticeably improved the stability of the game. Unfortunately, this has been at the expense of the weather effects, which has resulted in incorrect sun positions and deteriorated lighting. We therefore advise our users to install the Armstrong Powerhouse Sky and Weather Enhancement Pack for optimal results.



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Settings and system requirements

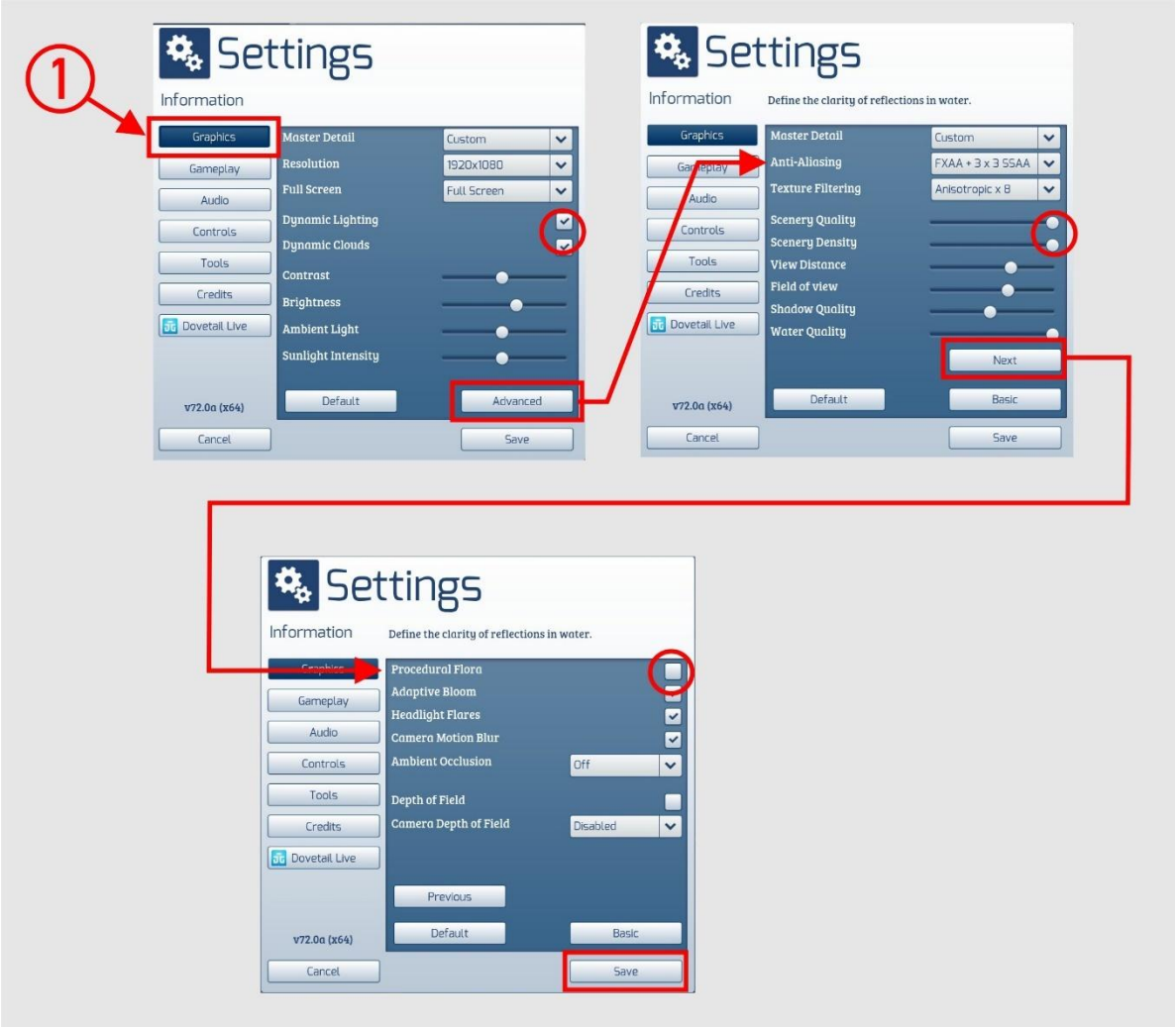
When developing this route, the builders have relied on the hardware specifications that Train Simulator Classic vendor, DoveTail Games, recommends:

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

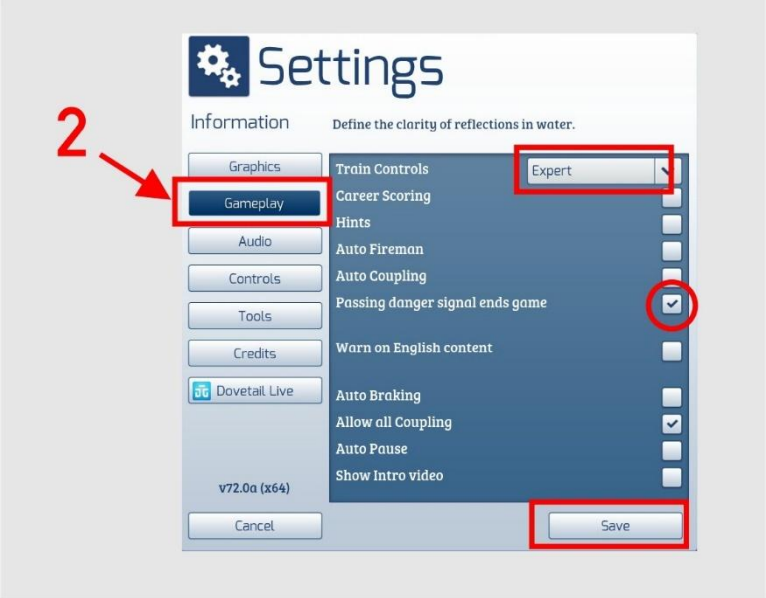
* Laptop versions of these chipsets may work but are not supported by TS Classic. The drivers for your video and sound cards may need to be updated.

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



© Wilbur Graphics 2026

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

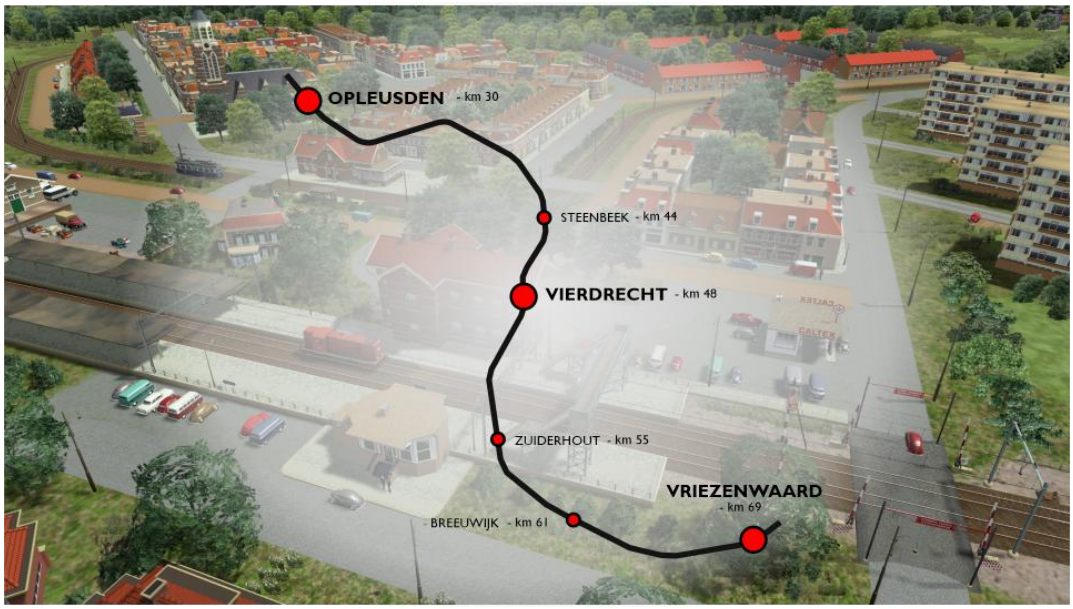
Attention (beginning) scenario builders!

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).

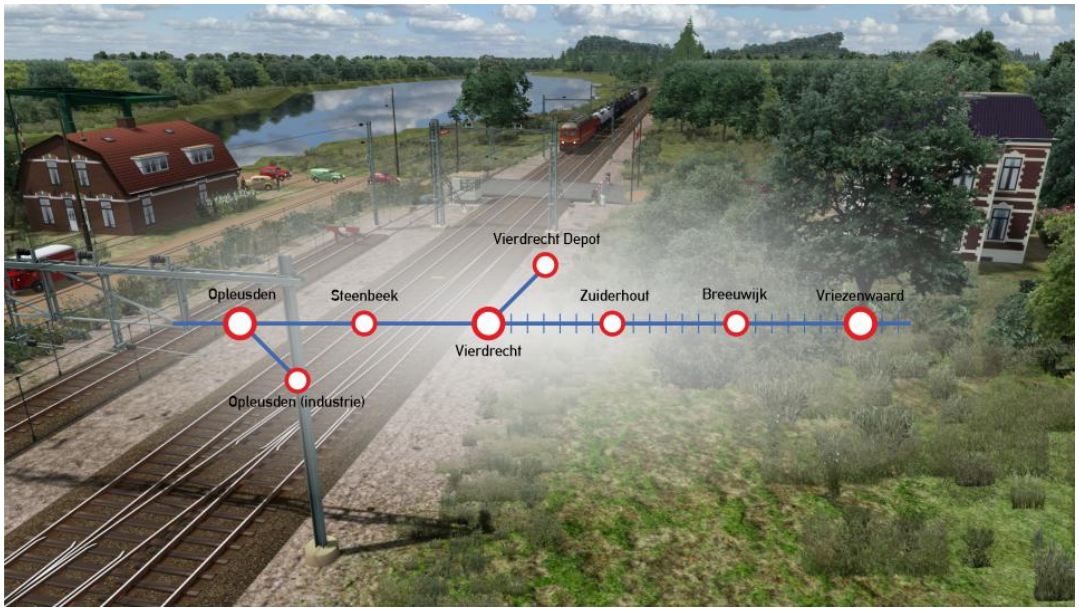
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The route

Overview



This fictitious route represents a Dutch domestic route in the 1950s. The track has already been partly brought under the wire, but some trains are still driven with steam or diesel traction along the entire route. This concept makes it possible to design scenarios in which a large part of the Dutch Wilbur Graphics rolling stock that has been built for Railworks (TSC) in recent years can be pressed into service.



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Mileposts



A kilometre count was used in the route that can be read along the route on contemporary kilometre posts.

Km	Station/MPD	Km	Station/MPD
29		61	Breeuwijk (Brw)
30	Opleusden (Opl)	62	
31		63	
32		64	
33		65	
34		66	
35		67	
36		68	
37		69	Vriezenwaard (Vwd)
38		70	
39			
40			
41			
42			
43			
44	Steenbeek (Sbk)		
45			
46			
47			
48	Vierdrecht (Vdt)		
49	Vdt Depot (Vdd)		
50			
51			
52			
53			
54			
55	Zuiderhout (Zdh)		
56			
57			
58			
59			
60			

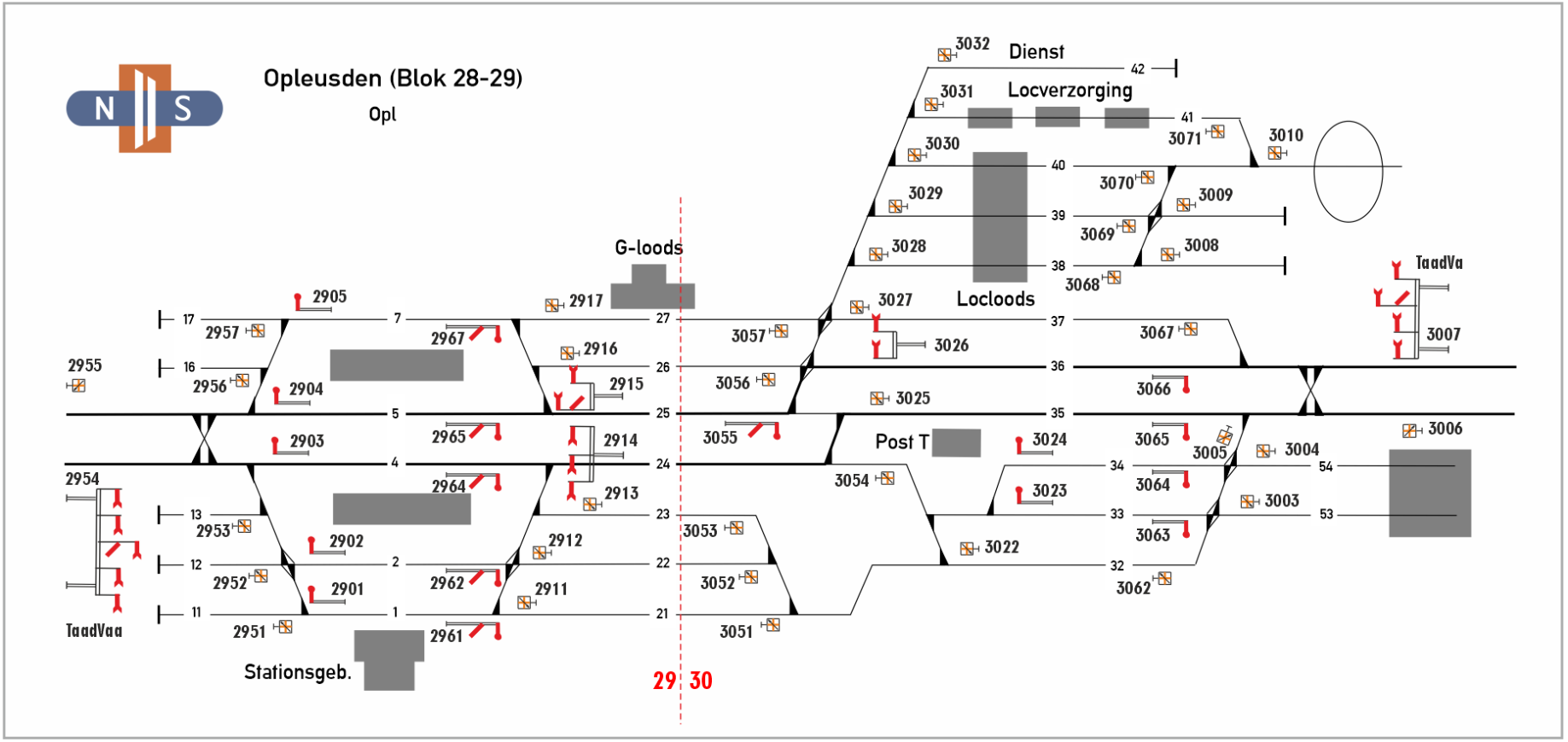
© Wilbur Graphics 2026

Station and MPD layouts

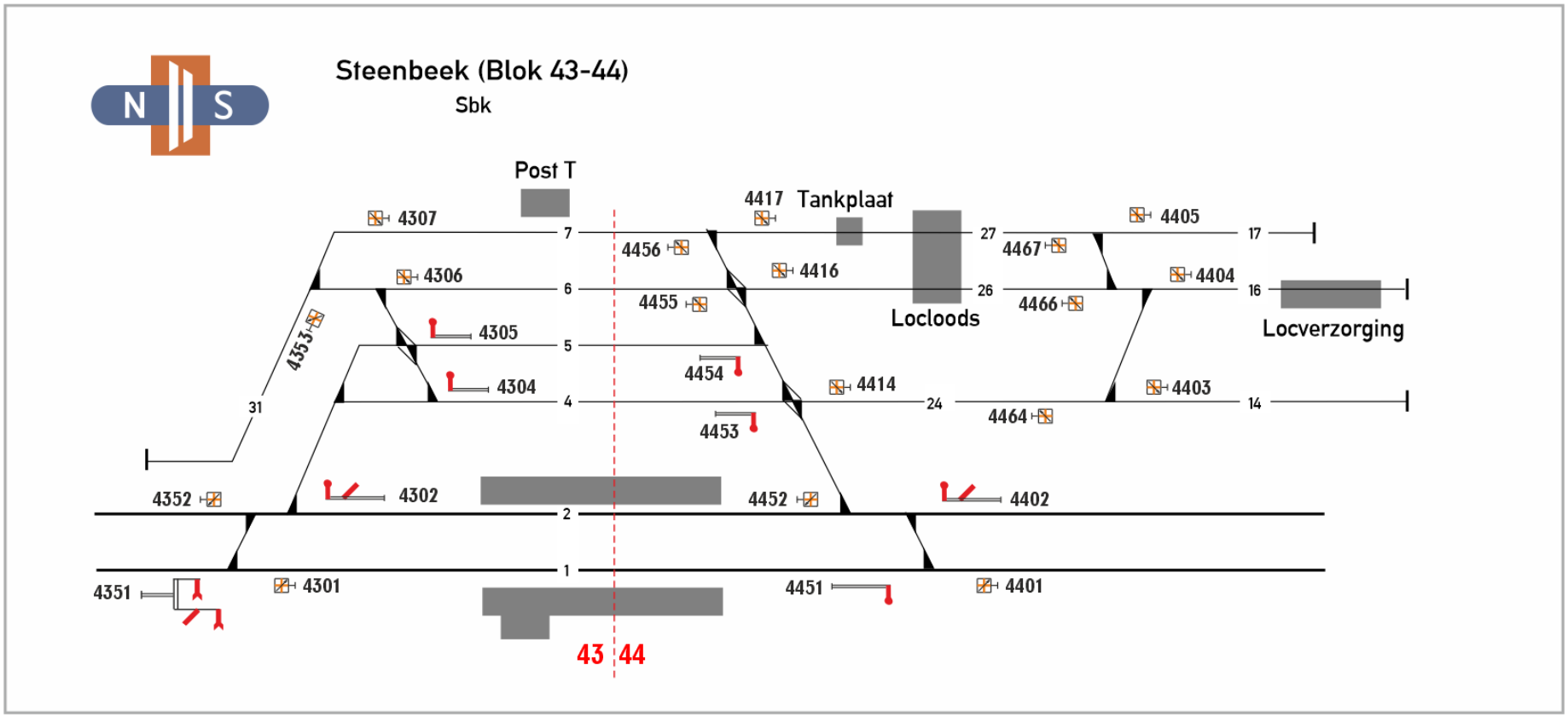
General

Diagrams have been made of all sidings in the route with references to the signal numbers and the numbering of *sidings* and *platforms*. For the numbering of the tracks, signals, etc., the standards used by the NS in the 50s of the last century have been aligned as much as possible.

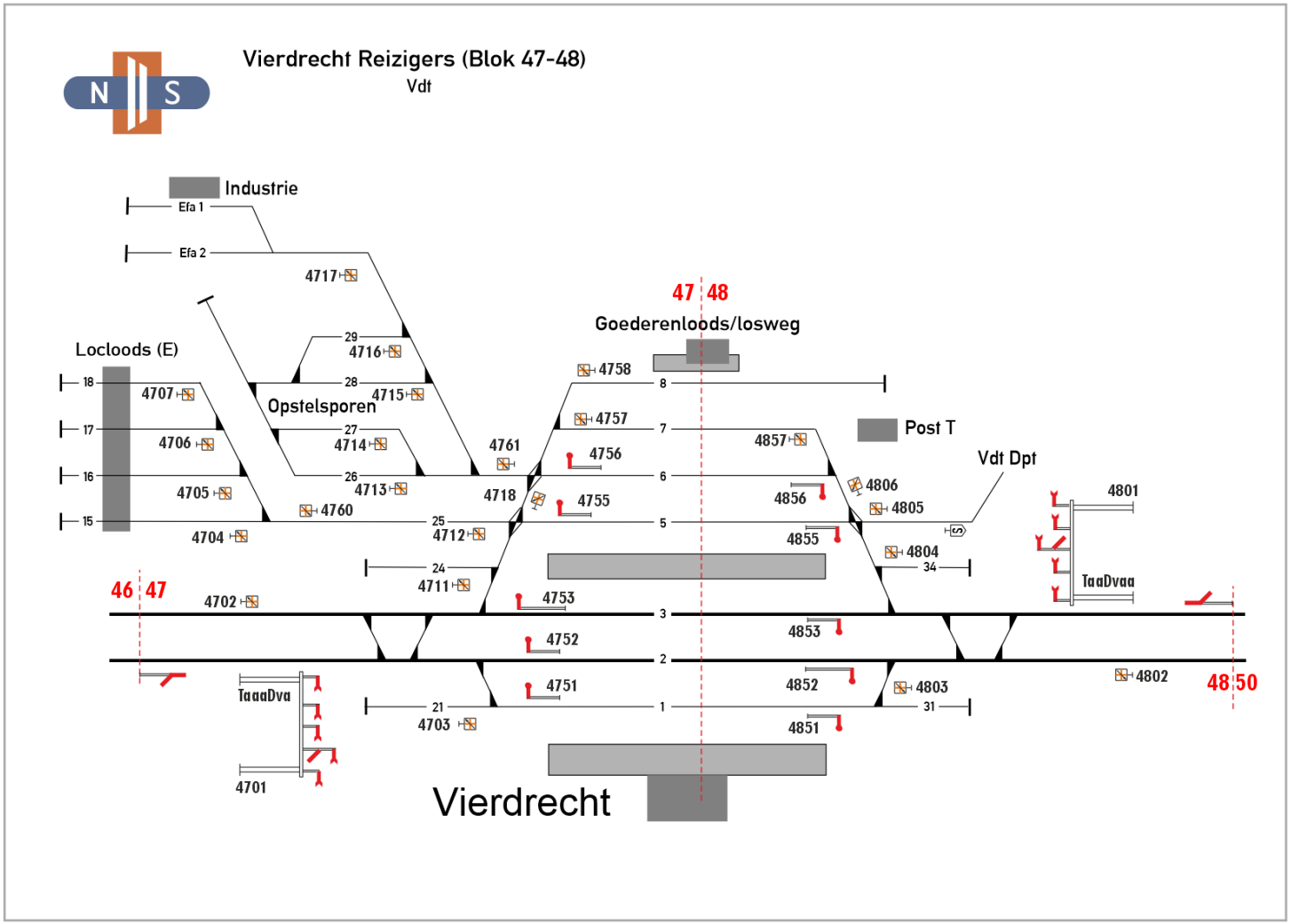
Opleusden



Steenbeek

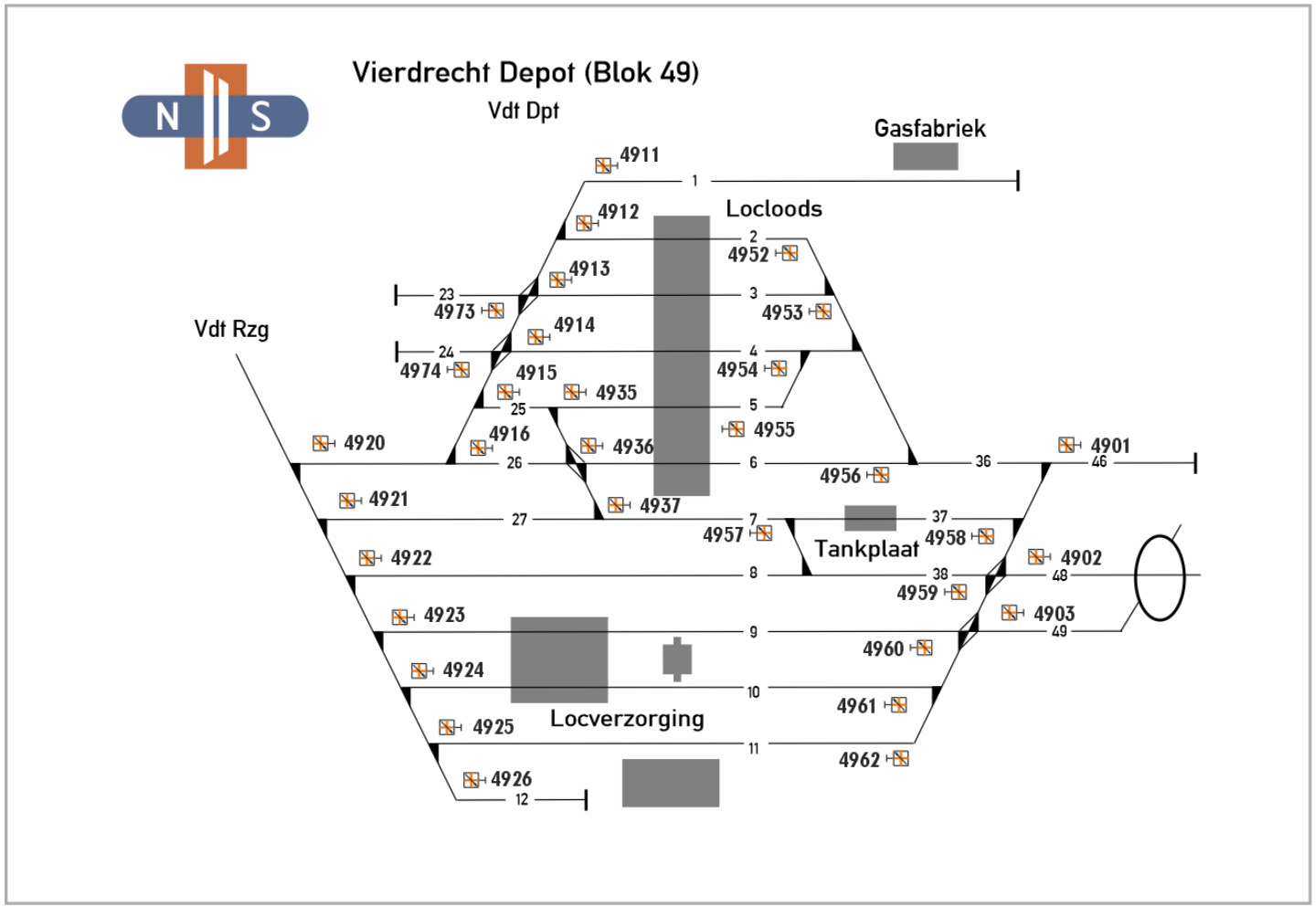

Steenbeek (Blok 43-44)
Sbk
Post T
4417 Tankplaat
4307
4306
4305
4304
4353
31
7
6
5
4
4456
4455
4454
4453
4416
4414
27
26
24
Locloods
4467
4466
4405
4404
4403
4464
17
16
14
Locverzorging
4352
4302
4452
4402
2
4351
4301
4451
4401
1
43
44

Vierdrecht (Reizigers)



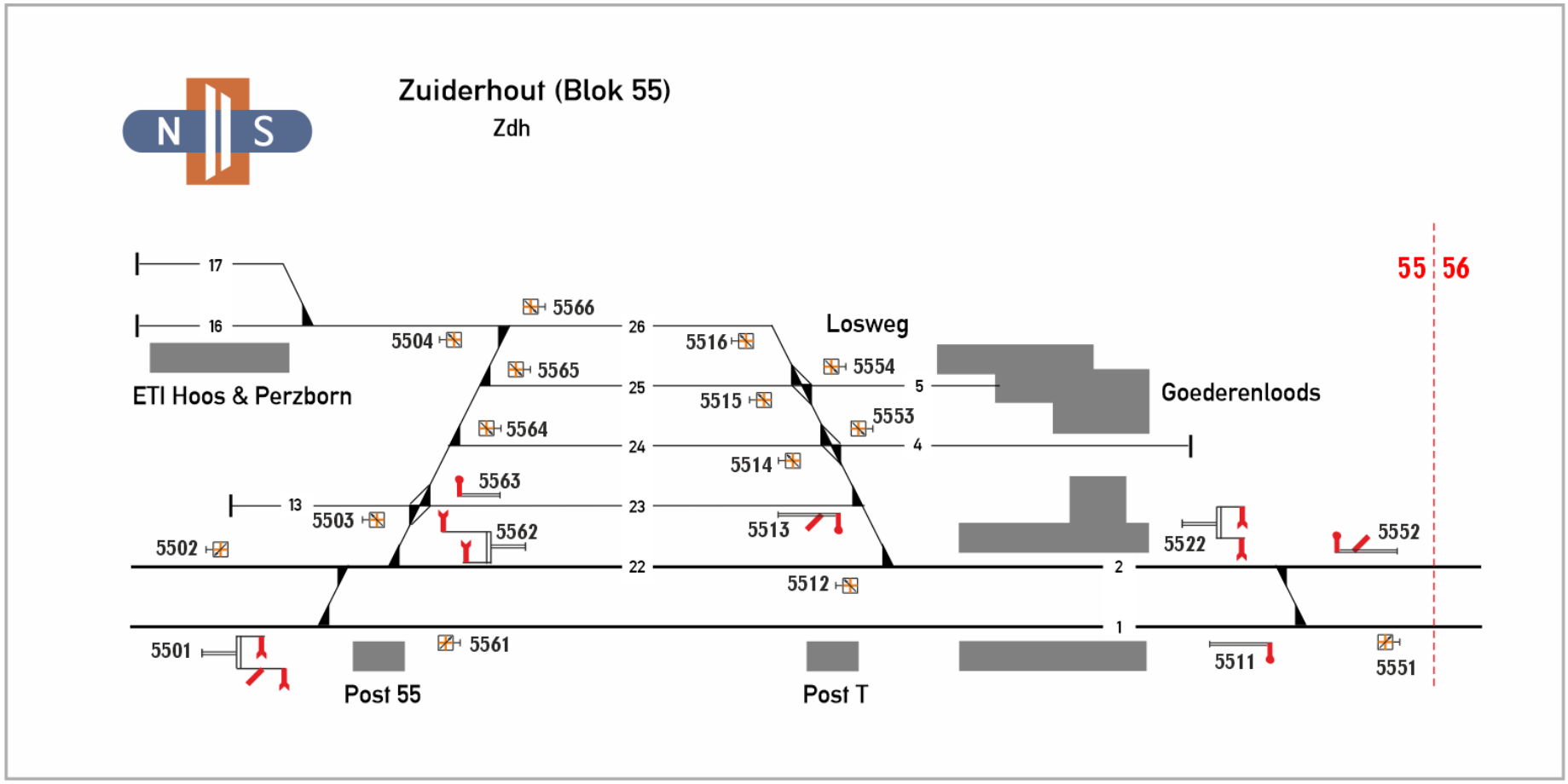
© Wilbur Graphics 2026

Vierdrecht (tractiedepot)



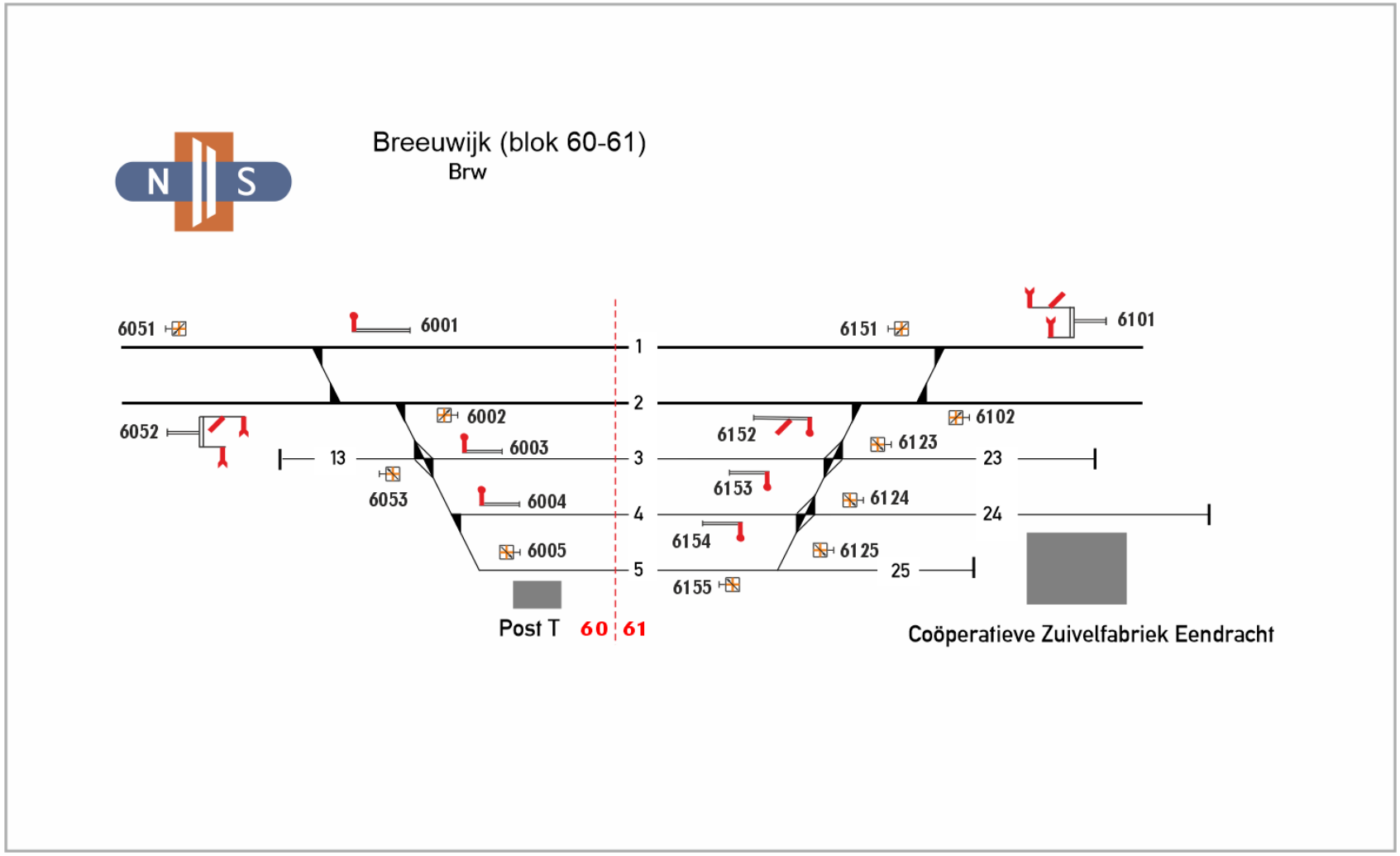
© Wilbur Graphics 2026

Zuiderhout



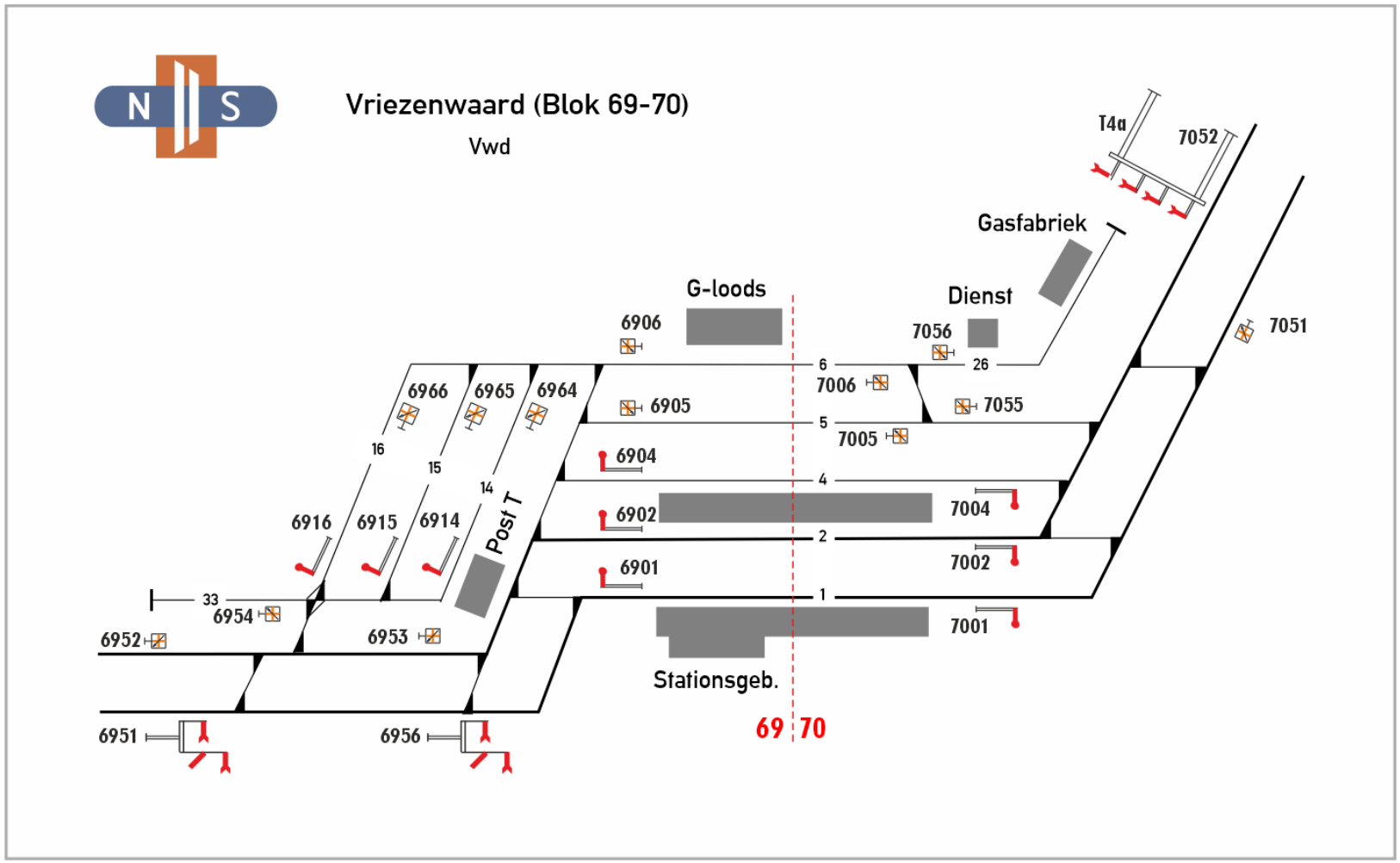
© Wilbur Graphics 2026

Breeuwijk



© Wilbur Graphics 2026

Vriezenwaard



© Wilbur Graphics 2026

Rolling stock

In this section of the manual, you will first find an overview of the folder structure of the rolling stock assets that are included with the VSTS:

Wilbur Graphics

Rollend mat
Rollmat_de
Rollmat_FS
Rollmat_NS
Rollmat_SNCF

ChrisTrains

RailSimulator\RailVehicles\EMUs\NS Mat64
RailSimulator\RailVehicles\Locomotives\Diesel\NS Class 2200

Below is a gallery of Wilbur Graphics locos that are present in the route:

NS 1000, in three versions, exclusively for the VSTS.







NS 1100



NS 2-300



NS 5-600



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NS 2000



NS 24-2500



NS 2600



© Wilbur Graphics 2026

NS 2100



NS 3700



NS 3900



© Wilbur Graphics 2026

NS 4600



NS 6100



NS 6200



© Wilbur Graphics 2026

NS 6300



NS Materieel 1924 (mBD)



NS Materieel 1924 (mCd)



© Wilbur Graphics 2026

Scenarios

Numbering system

To get a clear layout within the TSC menu structure, we use the following system for numbering scenarios:

Cat.	Reeks	Dienst
A	**01-99**	**Snel- en D-treinen, ook internationaal**
B	**01-99**	**Stoptreinen**
C	**01-99**	**Gesloten goederentreinen**
D	**01-99**	**Buurtgoederentreinen**
F	**01-99**	**Vrij spel/Free Roam**
G	**01-99**	**Overig**

Free roam scenarios

Scenario name
F01 Opleusden
F02 Steenbeek
F03 Vierdrecht
F04 Zuiderhout
F05 Breeuwijk
F06 Vriezenwaard

Free Roam scenarios make it possible to familiarize yourself with the layout of the different yards and driving with the different stock types that are available. Choose a locomotive or a train, go shunting or drive along the route to get acquainted with the landscape.



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Standard and timetabled scenarios

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

Scenario name	Service	Type	Min.
A01.1 Express passenger to Opleusden (1)	P	TT	20
A01.2 Express passenger to Opleusden (2)	P	TT	20
A02 Express passenger to Vriezenwaard	P	ST	30
B02 EMU Vierdrecht-Vriezenwaard and back	S	TT	30
B03.1 Stopping passenger to Opleusden (1)	S	TT	25
B03.2 Stopping passenger to Opleusden (2)	S	TT	25
B04.1 Stopping passenger to Vriezenwaard (1)	S	TT	25
B04.2 Stopping passenger to Vriezenwaard (2)	S	TT	25
B05 [CT Plan V] Introduction Press Ride New EMU	S	TT	25
C01 [CT 2200] Beetles from Opleusden	G	ST	50
C02 Tankers to Vierdrecht	G	ST	35
C03.1 Coals to Opleusden (1)	G	ST	35
C03.2 Coals to Opleusden (2)	G	ST	35
D01 Putting and getting reefers	G	ST	20
D02 Goods to Vriezenwaard	G	ST	30
D03 Goods to Steenbeek	G	ST	35

Service: D = Express passenger P = Stopping passenger G = Goods
Type: TT = Timetabled, ST = Standard Scenario, FR = Free Roam



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A01.1 Express Passenger to Opleusden (1)
In Vriezenwaard you take over an express passenger service with the NS 1125 from a colleague and drive it without stops to Vierdrecht, where the overhead lines end. You will uncouple the locomotive and put it away in the MPD locomotive shed. The next destination Opleusden is reached after a traction change in scenario A01.2.

A01.2 Express Passenger to Opleusden (2)
In Vierdrecht you will take charge of the D-train from the previous scenario with an NS 3900. Now reverse to the waiting D-train which you will then take to Opleusden without any stops, where you will be relieved after you have replenished water and coal at the MPD.

A02 Express Passenger to Vriezenwaard
With an NS 2600 you take an express train with a rake of NS carriages for domestic traffic with a stop in Vierdrecht to Vriezenwaard, where you are relieved.

B02 EMU Vierdrecht-Vriezenwaard and back
Your timetabled service starts in Vierdrecht where a Mat '24 EMU is waiting on track 1. Open the doors and leave at the indicated time for Vriezenwaard 2 with stops in Zuiderhout and Breeuwijk. After opening the doors, you will change cabs. Continue this local train service in the opposite direction until you reach Vierdrecht 5, where your service ends.

B03.1 Stopping Passenger to Opleusden (1)
In Vriezenwaard you take over a 'Plan E' rake drawn by the NS 1112 from a colleague and drive it with stops at all stations to Vierdrecht, where the overhead lines end. You will uncouple the loco and put it away in the MPD shed. The next destination Opleusden is reached after a traction change in scenario B03.2.

B03.2 Stopping Passenger to Opleusden (2)
In Vierdrecht, you take over the D-train from the previous scenario using an NS 2600. You begin at the Vierdrecht depot by topping up the fuel supply. Next, you shunt to the left-behind Plan E local train and take it to Opleusden—making an intermediate stop at Steenbeek—where you are relieved of duty.

B04.1 Stopping Passenger to Vriezenwaard (1)
In Opleusden, you take over a local train (compartment carriages) with the NS 3922 from a colleague and drive it with a stop at Steenbeek to Vierdrecht, where the overhead lines start. You uncouple the locomotive and put it away in the Vierdrecht MPD after replenishing water and coal on the tender. The next destination Vriezenwaard is reached after a traction change in scenario B04.2.

B04.2 Stopping Passenger to Vriezenwaard (2)
In Vierdrecht, you take over the stopping passenger service from the previous scenario with the NS 1002. The locomotive is already waiting on the siding so that you only have to drive in reverse to couple up with your carriages rake. You then take them to Vriezenwaard with stops at all intermediate stations, where you are relieved.

B05 [CT Plan V] EMU Introduction Press Ride
In this scenario, ChrisTrains rolling stock will be encounteredin the centre of activity, by an introductory run for the press with the latest NS rolling stock: EMU of the Future, actually the Plan V prototype. You will take it from Vierdrecht with stops at all intermediate stations to Vriezenwaard, where you are relieved.

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C01 [CT NS 2283] Beetles from Opleusden

The scenario starts in the cab of the ChrisTrains NS 2283, which has been waiting in the Vierdrecht MPD. You will first bring an empty car transport train to Opleusden, where the Minerva car factory assembles VWs. There you will pick up a loaded car transport train, which you will drive to Vriezenwaard.

C02 Tankers to Vierdrecht

Since the 6300 was specially designed for driving heavy coal trains, this locomotive has little trouble with a long tankers train, which we let depart from track 37 in Opleusden. After departure we are held up for a while by an incoming express service before we get under way to Vierdrecht. There we arrive on track 6 and bring the train to a stop for the starting signal post. We make way for the colleagues from the electric traction and take our loco to the Vierdrecht MPD, where we replenish the coal and water supplies on the locomotive. Then we will put it away in the locomotive shed, track 3.

C03.1 Coals to Opleusden (1)

The NS 1005 is already in the blue passenger service livery of around 1955, but in this scenario it shows what it is capable of for a coal train. At the beginning of the scenario, this train is standing in front of signal 7052, waiting for the release of track 2. If the signal shows proceed, we drive without stops to Vierdrecht track 6, where we uncouple the locomotive and put it away in the MPD shed on track 17.

C03.2 Coals to Opleusden (2)

In this scenario, the coal wagons that were left behind on Vierdrecht track 6 in scenario C03.1 will be taken over by a NS 6300. The service continues to Opleusden, where we are received on track 37. There we uncouple the locomotive and put it away in the locomotive shed on track 40 after replenishing the coal and water supplies.

D01 Putting and Getting Reefers

We start this service with an NS 2400 in Vriezenwaard, where we pick up the empty reefers that we will bring to Breeuwijk. We leave it there on arrival track 3. We now take a detour over track 5 and 24 and reverse to track 4, where the loaded reefers will be attached. When signal 6154 shows safe, we leave for the return trip to Vriezenwaard.

D02 Goods to Vriezenwaard

Another scenario with an NS 1100, the 1122. We start our shift at the Vierdrecht track 34 siding. After preparing the engine, we reverse to our mixed goods train, which stands ready on track 6. When departing signal 4856 shows safe, we leave for Vriezenwaard. Along the way we leave a number of cars behind in Zuiderhout. In Vriezenwaard we will arrive on track 5, where we are relieved.

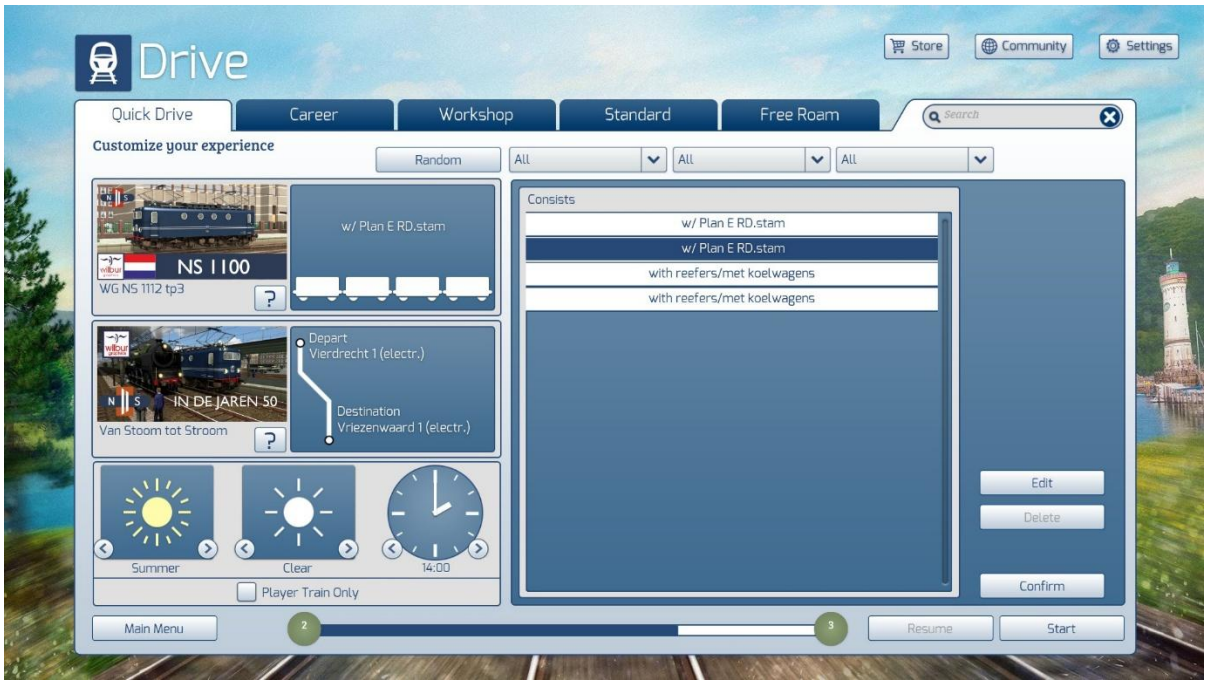
D03 Goods to Steenbeek

The series 2400, the workhorse of NS for a number of decades, is also put to work at the VSTS with a mixed goods train that stands ready in Vriezenwaard for exit signal 6915. Three closed goods wagons will go along and will stay at Zuiderhout 23. Next we will reach Vierdrecht, where we leave two wagons on track 6. With the remaining wagons we will then drive to Steenbeek, where our shift ends.

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QuickDrive Scenarios

Since the route is only partially equipped with overhead lines, it is only possible to configure a QuickDrive scenario with electrical stock on an electrified section of the VSTS. This has been taken into account in the naming of the destination nodes. Examples of this are given in the screenshots below.

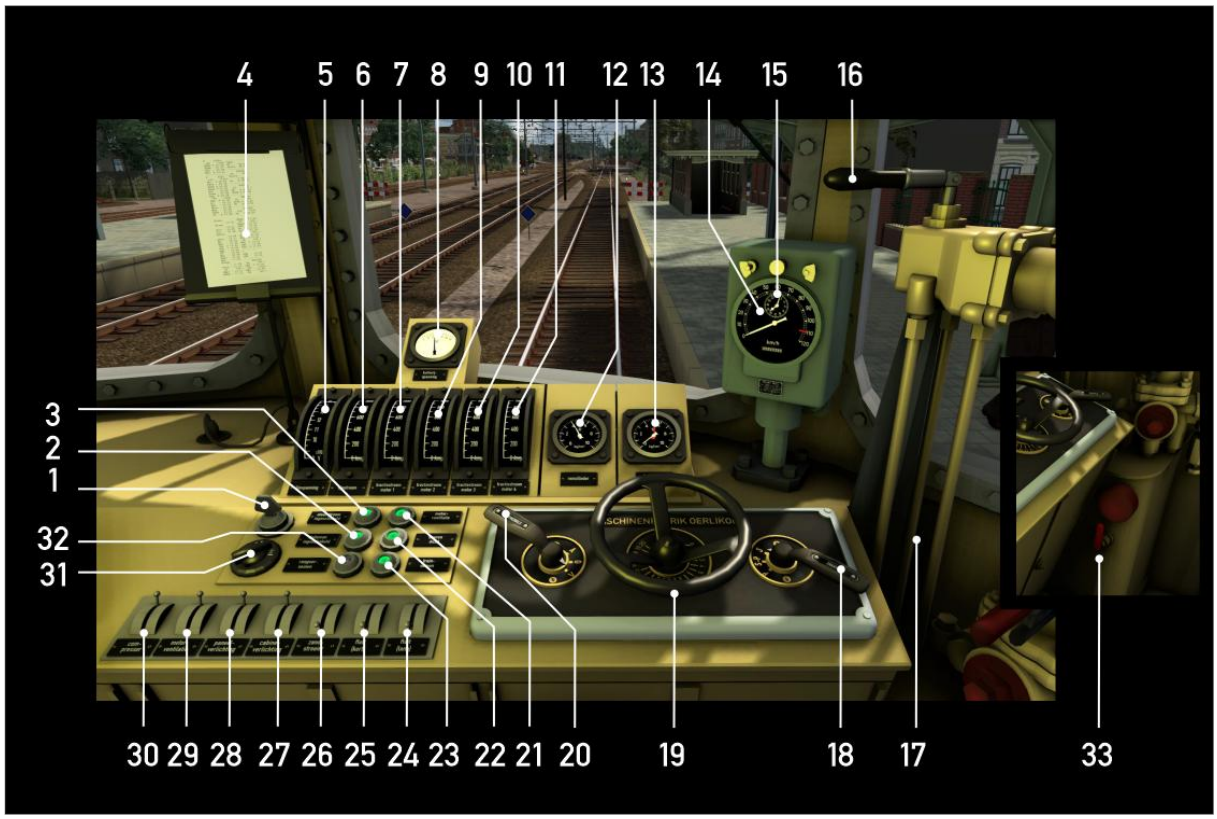




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VSTS Cab lay-outs

NS 1000



NS 1000 Dashboard

1	Control current on/off	CTRL+0	20	Reverser	W / S
2	Status light AWS		21	Status light traction fans	
3	Status light control current		22	Status light doors	
4	Time table		23	Status light headlights	
5	Line tension		24	Whistle	SPATIE
6	Line current		25	Whistle (short)	N
7	Traction current M1		26	Sander	X
8	Accumulator tension		27	Cab light	CTRL+F9/F10
9	Traction current M2		28	Panel lights	CTRL+F11/F12
10	Traction current M3		29	Traction fans on/off	F
11	Traction current M4		30	Compressor on/off	L
12	Brake cylinder pressure		31	Headlights control	H / SHIFT + H
13	Brake pipe/main reservoir.		32	Status light shunting signals	
14	Speedometer: km/u		33	Pantos up/down	P
15	Idem, 24-hour time			Wipers on/off	V
16	Engine brake lever	[/]		Platform stop confirm	T
17	Train brake lever	; / ‘		AWS on/off	SHIFT+NUM ENTER
18	Shunt selector			AWS Reset	NUM ENTER
19	Controller	A / D			

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Explanation

At the start of a scenario, the Panel lights are switched on.

The Shunt selector (18) responds to the highest settings of the Controller (SP1-3 and P1).

When the AWS button is enabled (SHIFT+NUM ENTER), Status light 2 shows green. If no AWS reset (NUM ENTER) has occurred within 30 seconds, it will show a flashing red light. The driver then has 10 seconds to react. Next, a bell sounds as a final warning. After another 10 seconds, emergency brakes will be applied. These margins have been somewhat widened compared to reality.

ATB

This safety feature is made up of three components. The first part has the task of detecting speed limits that are located on the set path of the train, within a distance of 1000-1200 meters, while driving. The values found are converted into one of the following five limits: 40, 60, 80, 130 or 140 km/h. A second automatic transmission monitors the driver's reactions to the speed limit found. The last part is formed by the ATB panel that communicates with the driver with lamps and bell signals.



In that panel, in addition to the DDM lamp (9) that we have already encountered above, we find eight lamps that can display the different states that the ATB can assume, alone or in combination. When the ATB is not active, lamp 8 is on (BD = out of service). Lamp 7 (brake contact) is displayed when the driver applies a train brake – even when the ATB is switched off.

We use the U key to turn the ATB on or off. When the ATB is switched on, lamp 8 goes out and the speed limit that is in force at that moment is shown because one of the lamps 1 to 5 lights up. A ring signal ('ting') also sounds. When switching off, this bell sounds five times in quick succession.





We explain the operation of the activated ATB with an example. In the image on the left we drive a speed of 125 km/h. In the right image, a restriction of 40 km/h is detected. A ring signal ('ting') sounds and lamp 5 lights up.





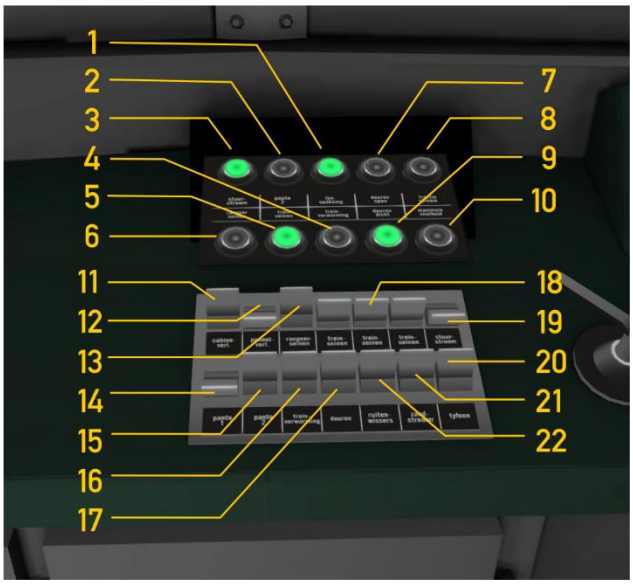
The driver applies the brakes and the brake contact lamp 7 is shown (left). When the instructed speed of less than 40 km/h is reached (with an upper margin of 5 km), three bell signals sound in quick succession ('ting ting ting').

If the driver does not respond to a speed reduction command within 5 seconds, an alarm bell will start ringing for 3 seconds. Within this period of time, the driver can still prevent an ATB intervention by still applying a brake. If this condition is not met, a rapid braking will follow. The ATB lamp 6 lights up, as does the brake contact lamp. At the same time, the train brake is set to the highest position while the controller and the direction of travel lever are moved to the "neutral" position. Only after the train has come to a complete stop are these controls released again.

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NS 1100

Status lights and Faiveley-block



Switch 17 (doors open/closed) only responds to the keyboard shortcut T or clicking *the Load/Unload* button in the HUD.

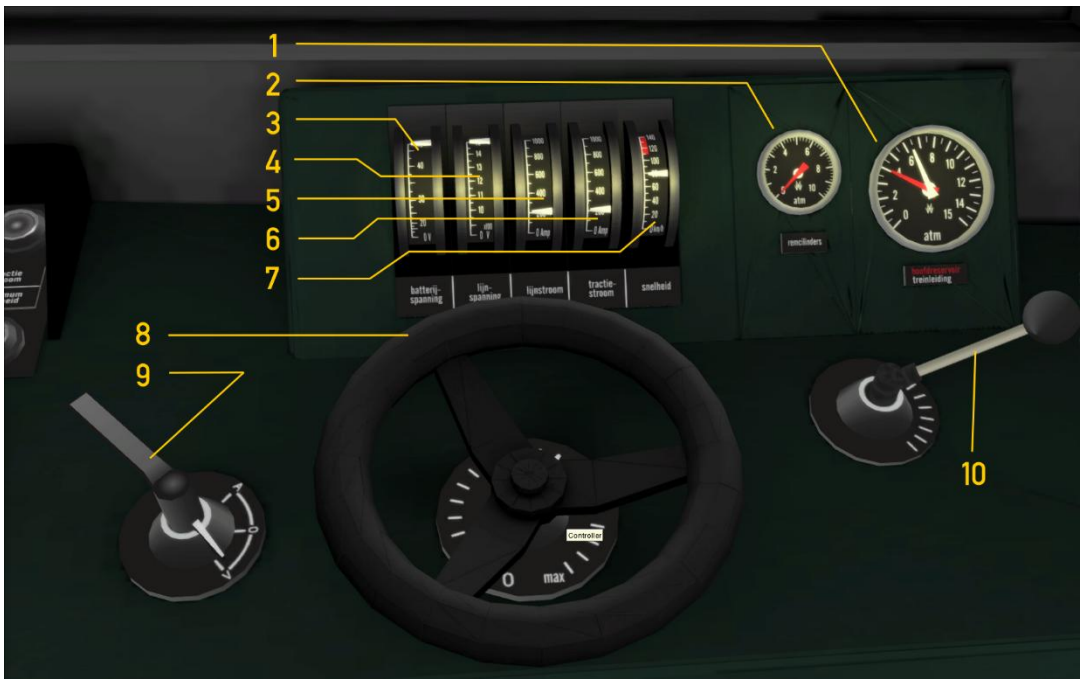
1	Status light line tension		14	Pantos up/down	P
2	Status light panto 2		15	Traction fans	F
3	Status light control current		16	Compressor	L
4	Status light train heating		17	Doors operation	T
5	Status light headlights		18	Headlights control	H SHIFT+H
6	Status light shunting signals		19	Control current on/off	CTRL+ 0
7	Status light doors open		20	Whistle	SPATIEBALK of N
8	Status light overload		21	Sander	X
9	Status light doors closed		22	Wipers	V
10	Status light AWS			Platform stop confirm	T
11	Cab light on/off	CTRL+F11/F12		AWS on/off	SHIFT+NUM ENTER
12	Panel lights on/off	CTRL+F9/F10		AWS reset	NUM ENTER
13	Train heating				

At the start of a scenario, the Panel lights are switched on.

When AWS is enabled (SHIFT+NUM ENTER), Status light 10 shows green. Whn no reset (NUM ENTER) has occurred within 30 seconds, it will show a flashing red light. The driver then has 10 seconds to react. Next, a bell sounds as a final warning. After another 10 seconds, emergency brakes will be applied. These margins have been somewhat widened compared to reality.

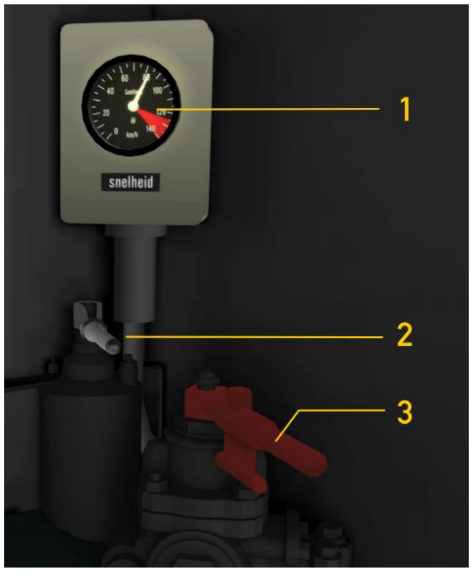
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Levers and panel instruments



1	Brake pipe/main reservor		6	Rotor current truck II	
2	Brake cylinder pressure		7	Speedometer	
3	Control current		8	Controller	A / D
4	Line current		9	Reverser	W / S
5	Rotor current truck I		10	Motor shunt control	

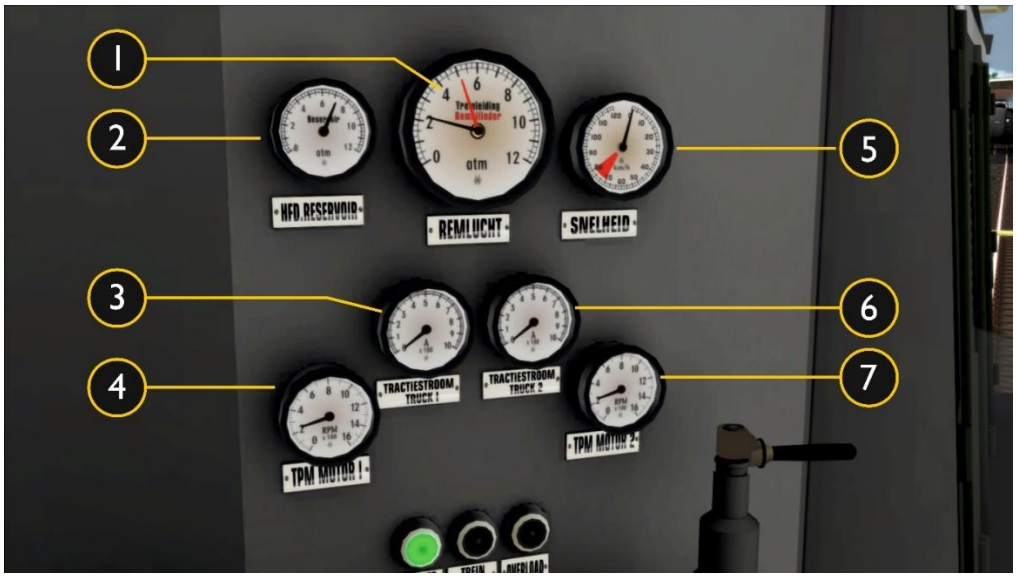
De zwakveldwals (10) reageert op de hoogste standen van de Controller (SP1-3 en P1).



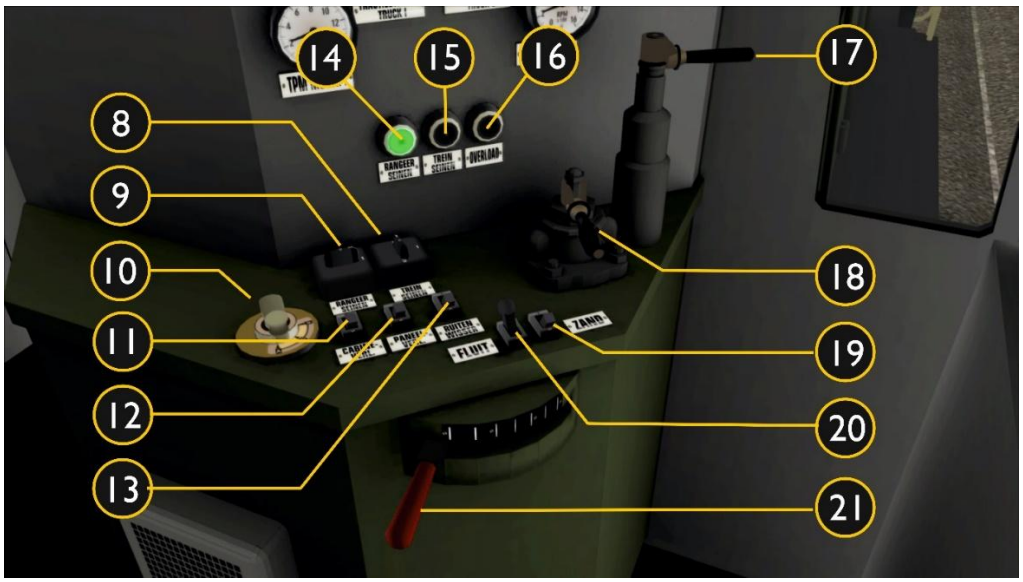
1	Speedometer
2	Engine brake lever
3	Train brake lever

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NS 2000



1	Brake pipe/brake cylinder		5	Speedometer	
2	Main reservoir		6	Traction current truck II	
3	Traction current truck I		7	RPM motor 2	
4	RPM motor 1				

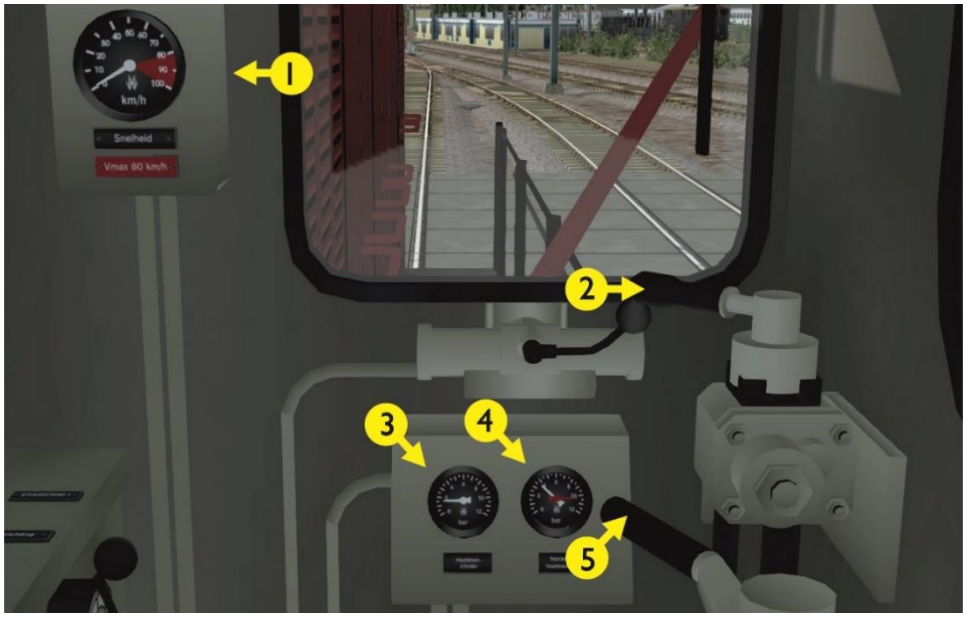


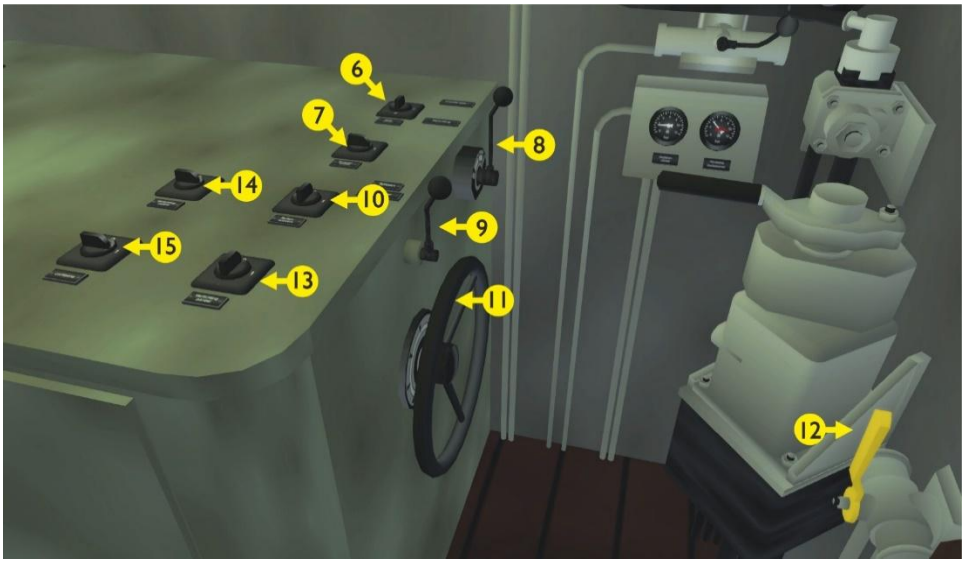
8	Headlights control	H / SHIFT+H	15	Status light headlights	
9	Shunting lights control*		16	Status light overload	
10	Reverser	W S	17	Engine brake lever	[ ]
11	Cab light	CTRL+F11/F12	18	Train brake lever	; '
12	Panel lights	CTRL+F9/F10	19	Sander	X
13	Wipers	V	20	Whistle	SPATIEBALK N
14	Status light shunting lights		21	Controller	A D

*) This switch is operated by TS Classic

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NS 2400





1	Speedometer		9	Whistle	SPATIEBALK
2	Engine brake lever	[&]		Whistle (kort)	N
3	Brake cylinder pressure		10	Wipers	Wipers
4	Brake pipe/main reservor		11	Controller	A & D
5	Train brake lever	; & ‘	12	Sander	X
6	Headlights	H / SHIFT+H	13	Panel lights	CTRL+F12
7	Shunting lights		14	Cab light	CTRL+F11
8	Reverser	W & S	15	Control current on/off	CTRL+9

*) Switch is operated by TS Classic

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NS 2600



Overview of the NS 2600 cab with the Faiveley block and the status lights in the foreground. At the top right you can see the Hasler speedometer with a 24-hour clock and above the windows are the levers that allow the supply of compressed air to the windscreen wiper motors (which also respond to the 'V' button). The other controls are explained on the following pages.

To prepare the locomotive, after the control current (CTRL+0), the air pump (L) and the fuel pump (F) must also be switched on, after which the main engine (Z) can be started (steps 1 to 4 in the image below):



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Please note:
The NS 2600 series was not equipped with a multiple unit control system that technically made it possible to run in a pre-tensioned locomotive or as a push-up locomotive. Our version of this locomotive does support this, but when the machine is used as a helper engine, the locomotive must face the direction of travel (see image), i.e. with the roof fan in front.



Faiveleyblock

1	Status light fuel pump		13	Aux. 220V power (train)	
2	Status light train aux. power		14	Wipers	V
3	Status light train heating		15	Doors	T
4	Status light headlights		16	Status light control current	
5	Status light shunting lights		17	Headlights	H / SHIFT + H
6	Status light doors closed		18	Fuel pump	F
7	Status light AWS		19	Compressor	L
8	Engine start button	Z	20	Sander	X
10	Train heating		21	Whistle (long)	SPATIE
11	Cab light	CTRL+F11/F12		Whistle (short)	N
12	Panel lights	CTRL+F9/F10	22	Control current	CTRL + 0

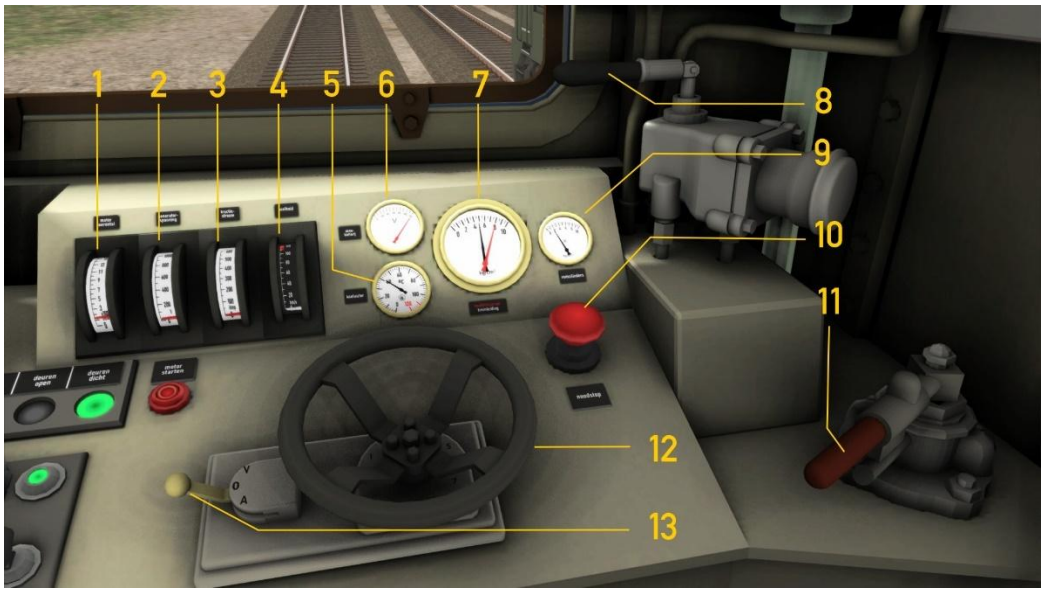
Explanation:

If no front and tail lights are selected, shunting lights are shown and status light 5 lights up.

When AWS is enabled (SHIFT+NUM ENTER), status light 7 shows green. When no reset (NUM ENTER) has been detected after 30 seconds, a flashing red light appears. The driver then has 10 seconds to react. Next, a bell sounds as a final warning. After another 10 seconds, emergency brakes will be applied.

These margins have been somewhat widened compared to reality.

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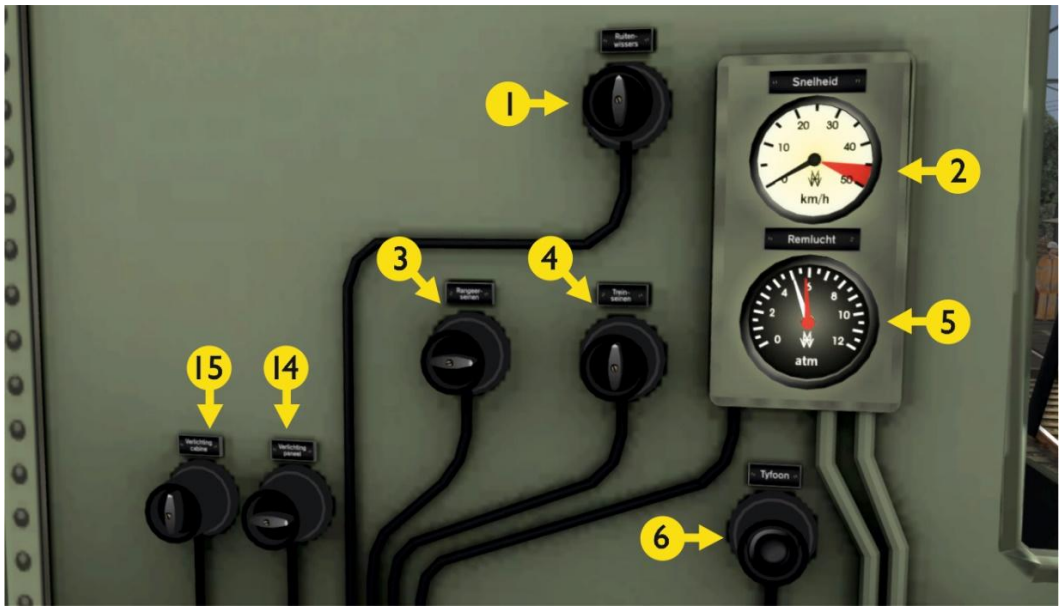


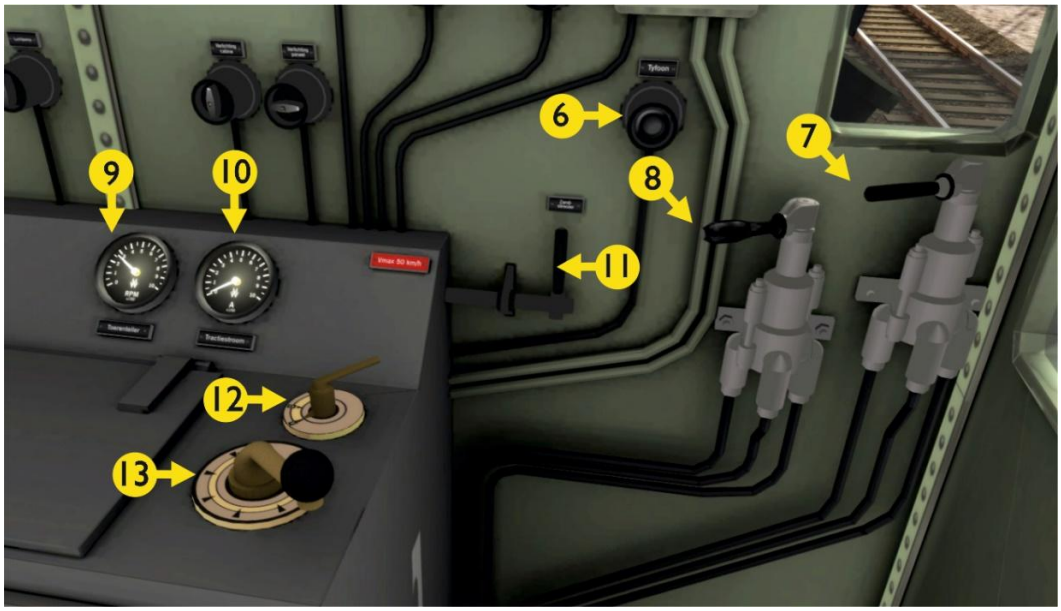
1	RPM Diesel engine		8	Engine brake lever	[/]
2	Generator tension		9	Brake cylinder pressure	
3	Traction current		10	Emergency stop	BACKSPACE
4	Speedometer		11	Train brake lever	; / '
5	Cooling fluid temperature		12	Controller (7 steps)	A / D
6	Accumulator tension		13	Reverser	W / S
7	Brake pipe/main reservoir				



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NS 500



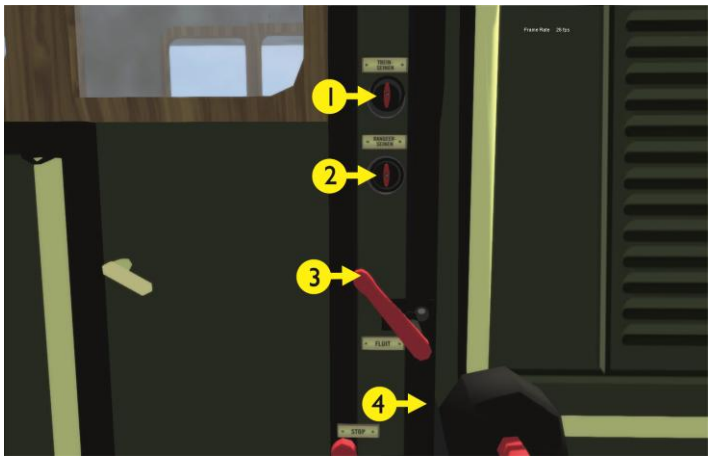


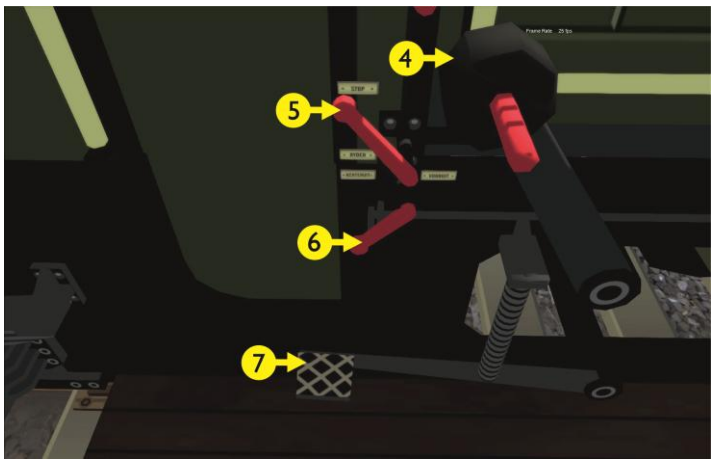
1	Wipers	V	8	Train brake lever	; ‘
2	Speedometer		9	RPM	
3	Shunting signals*		10	Traction current	
4	Headlights	H/SHIFT+H	11	Sander	X
5	Brake pipe/main reservor		12	Reverser	W S
6	Whistle	SPATIEBALK	13	Controller	A D
	Whistle (short)	N	14	Panel lights	CTRL+F9/F10
7	Engine brake lever	[ ]	15	Cab light	CTRL+F1/F12

*) is operated by TS Classic

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NS 200



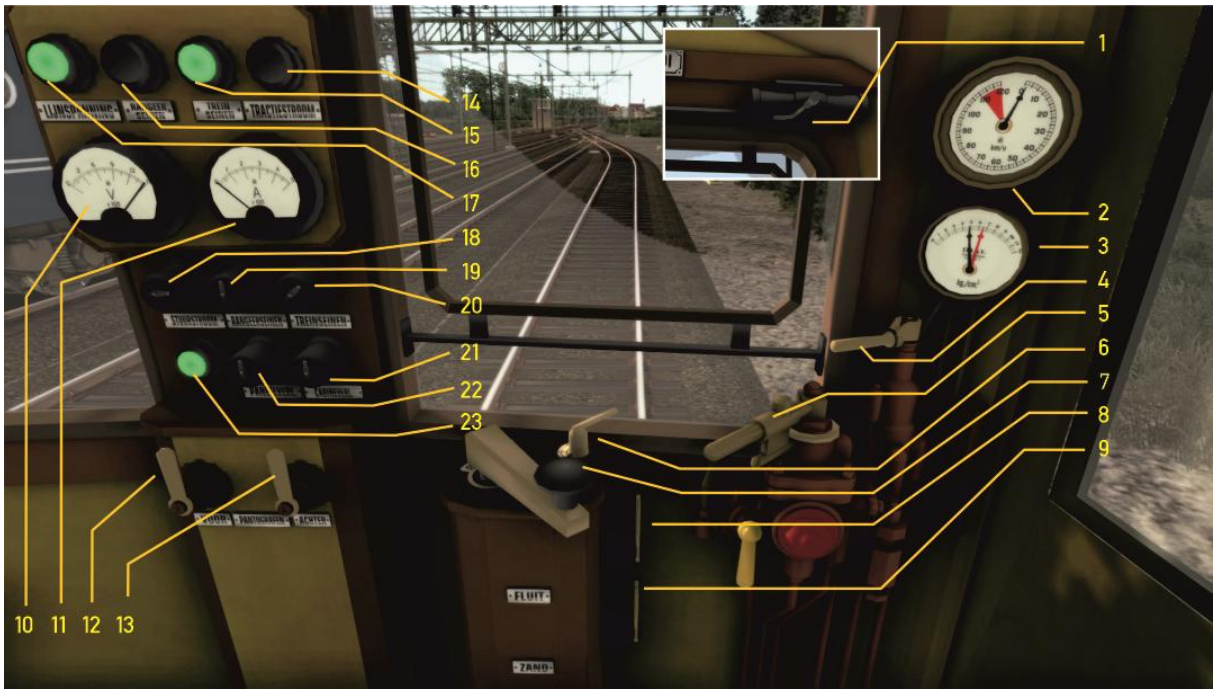


1	Headlights	Headlights	7	Engine brake lever	[&]
2	Shunting lights			Sander	X
3	Whistle	SPATIEBALK			
	Whistle (short)	N			
4	Train brake lever	; & ‘			
5	Regulator	A & D			
6	Reverser	W & S			

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NS Mat 24

The layout of the cabin in this TrainSimulator view follows the TS Classic standard (expert mode) and therefore deviates from the real cab due to the presence of a sander and an engine brake lever. The cabs of the mCd and mBD types differ slightly from each other in terms of the arrangement of the controls. Follow the on-screen instructions for preparing the EMU at the start of a scenario.



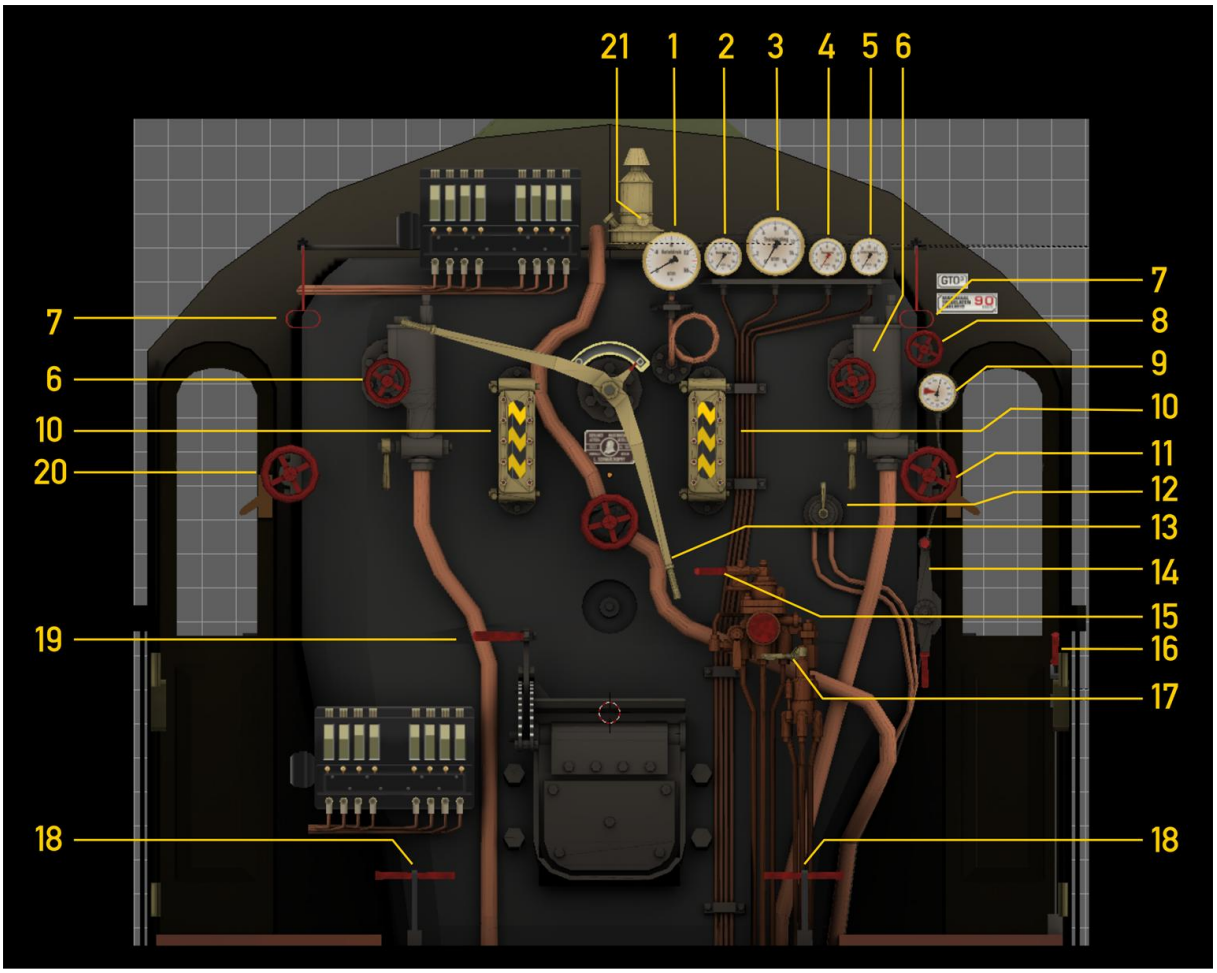
1	Wipers	V	13	Panto II up/down **	
2	Speedometer		14	Overload Traction current	
3	Main reservoir/brake pipe		15	Status light headlights	
4	Engine brake lever	[|]	16	Status light shunting lights	
5	Train brake lever	; | ‘	17	Status light line tension	
6	Reverser	W | S	18	Control current on/off	CTRL+0
7	Controller	A | D	19	Shunting lights **	
8	Whistle *	SPATIE	20	Headlights on/off	H | SHIFT+H
9	Sander	X	21	Cab light on/off	CTRL+F11|F12
10	Line tension		22	Panel lights on/off	CTRL+F9|F10
11	Line current		23	Status light control current	
12	Panto I up/down	P			

*) long (short: N-key)
**) is operated by simulator

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NS Steam Engines

The cab layouts of the Dutch steam locomotives in the VSTS differ so little that we will suffice here with the cab of the NS 6300. To release the controls, the air pump must be started with handwheel 11 or CTRL+0.



1	Boiler pressure		12	Sander	X (Sander)
2	Brake cylinder pressure		13	Regulator	A / D
3	Brake pipe pressure		14	Reverser	W S
4	Main reservoir pressure		15	Train brake lever	; / ‘
5	Steam chest pressure		16	Cylinder cocks	C
6	Live and steam injectors		17	Engine brake lever	[/]
7	Whistle	SPATIE	18	Dampers	M
	Whistle (short)	N	19	Firebox door	
8	Bell (6300 only)	B	20	Blazer	
9	Speedometer		21	Cab light (oil)	CTRL + F11
10	Water gauges			Headlights	H / SHIFT +H
11	Air pump on/off	CTRL + 0		Shunting lights	CTRL + F9

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The cab layout in this TrainSimulator view follows the TS Classic standard for steam locomotives (expert mode) and therefore deviates partially from the real cabs. Headlights operation is TS-compliant. The Dutch steam locomotives had no electrical installation, so the signal lighting consisted of kerosene lamps. These can be switched on and off with the H button in the usual way. The shunting lights are controlled with shortcut CTRL+F9 and are automatically extinguished when headlights are switched on. As a shunting signal a white light is also shown on the tender. Before driving in the dark, a kerosine lamp can be lit to read the gauges (CTRL+F11).



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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.



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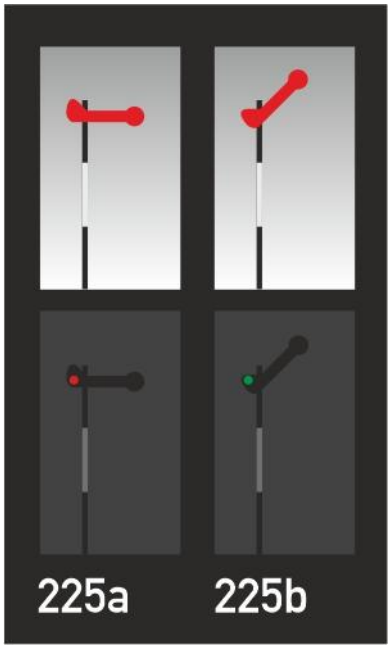
Aspects

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)

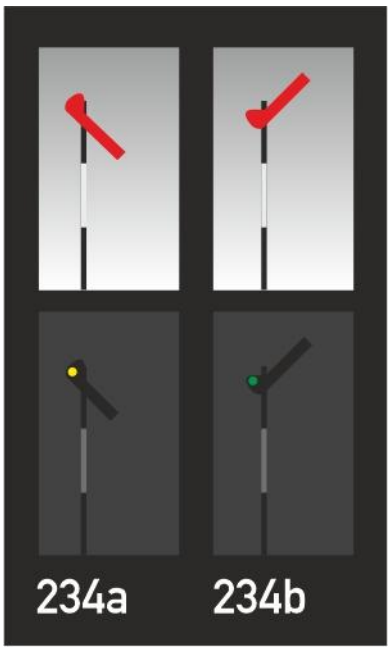


225a	Blocked
225b	Clear

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.

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Distant signal (Hv)

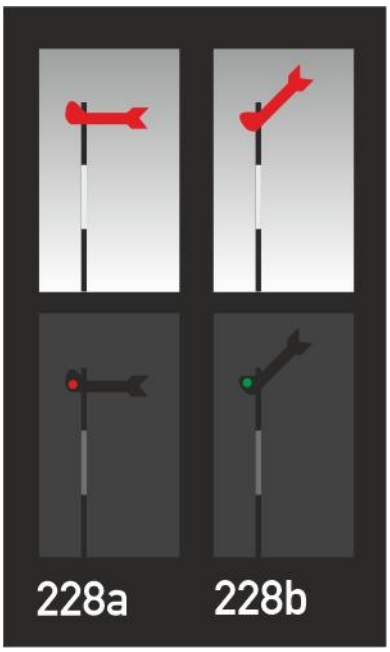


234a	Next signal shows blocked
234b	Next signal shows clear

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)

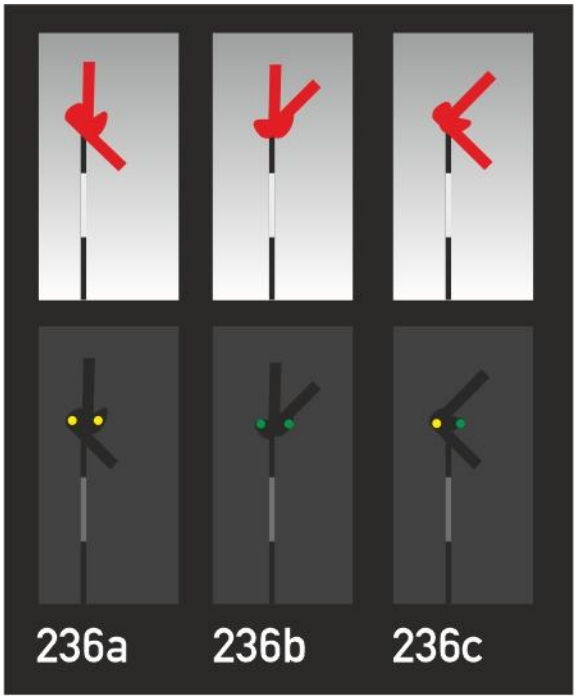


228a	Blocked
228b	Clear

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.

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Branch distant signal (Tv)



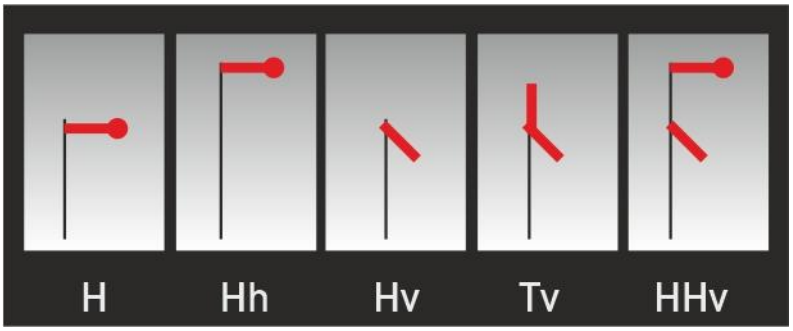
236a	Next signal shows blocked
236b	Next signal shows clear
236c	Speed limit ahead (40 km/h)

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.

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Semaphore signals in the VSTS Route

Home and distant signals aside of tracks



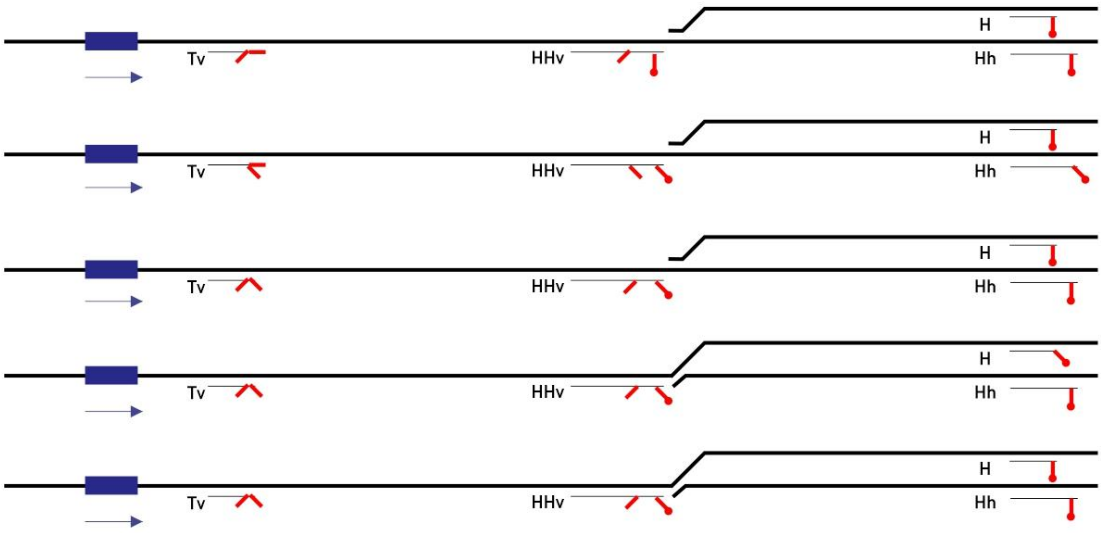
H	Departure home signal
Hh	Home signal outside yards or departure signal
Hv	Distant signal
Tv	Branch signal
HHv	Combined home and distant signal

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:

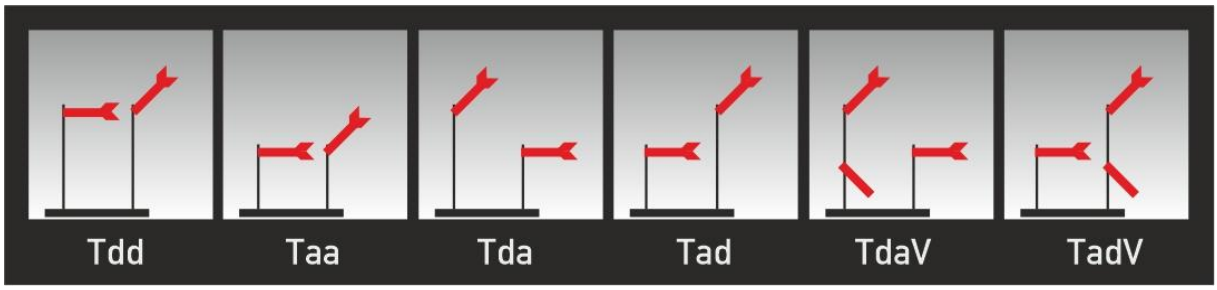


The functions of the 3-aspects signal can also be achieved by using the entry and branch signals discussed below.



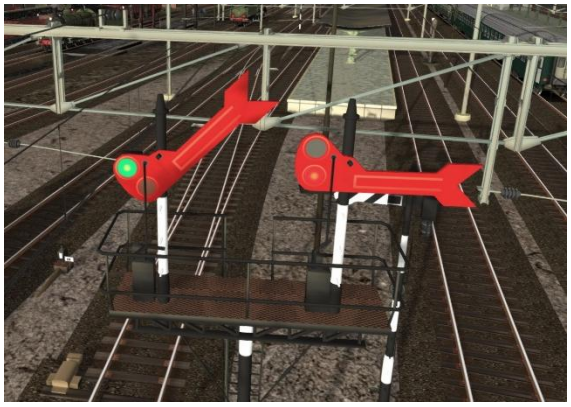
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Branching and entry signals (1)



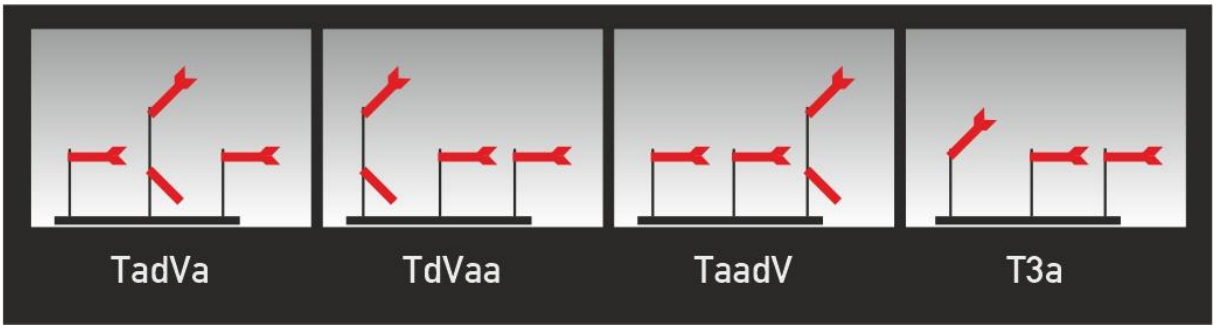
Tdd	Branching signal, no speed limit
Taa	Branching signal, reduced speed (40 km/h)
Tda	Right diversion branching signal
Tad	Left diversion branching signal
TdaV	Right diversion branching signal with distant signal
TadV	Left diversion branching signal with distant signal

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.



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Branching and entry signals (2)

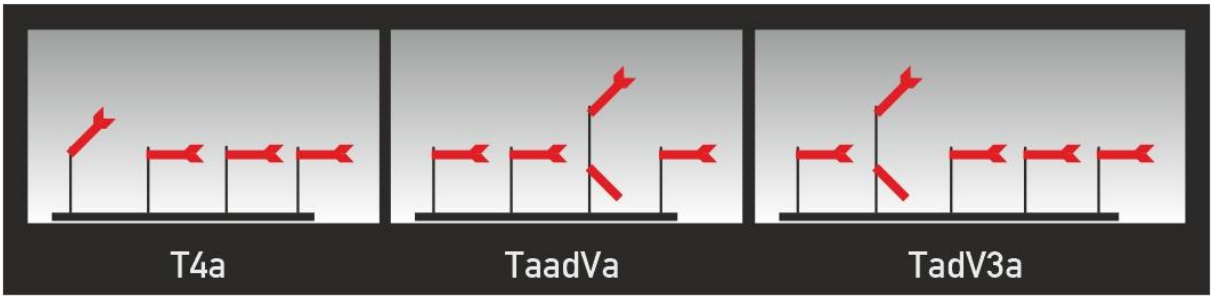


TadVa	Entry signal, three branches with home and distant arm for through track
TdVaa	As above, but with two right diversions
TaadV	As above, but with two left diversions
T3a	Entry signal for three equivalent branches, speed must not exceed 40 km/h

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.

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Branching and entry signals (3)

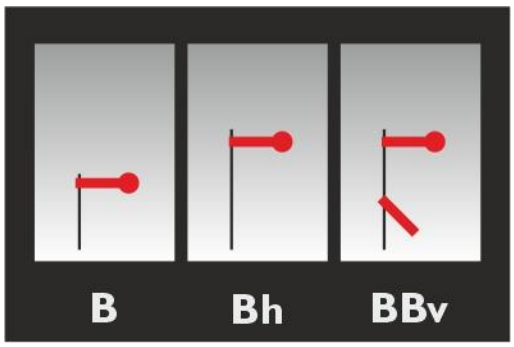


T4a	Entry signal, four equivalent branches, max. 40 km/h
TaadVa	Entry signal, two left branches, through home arm with distant arm, one right branch
TadV3a	Entry signal, one left branch, through home arm with distant arm, three right branches

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

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Home and distant signals at platforms or signal bridges

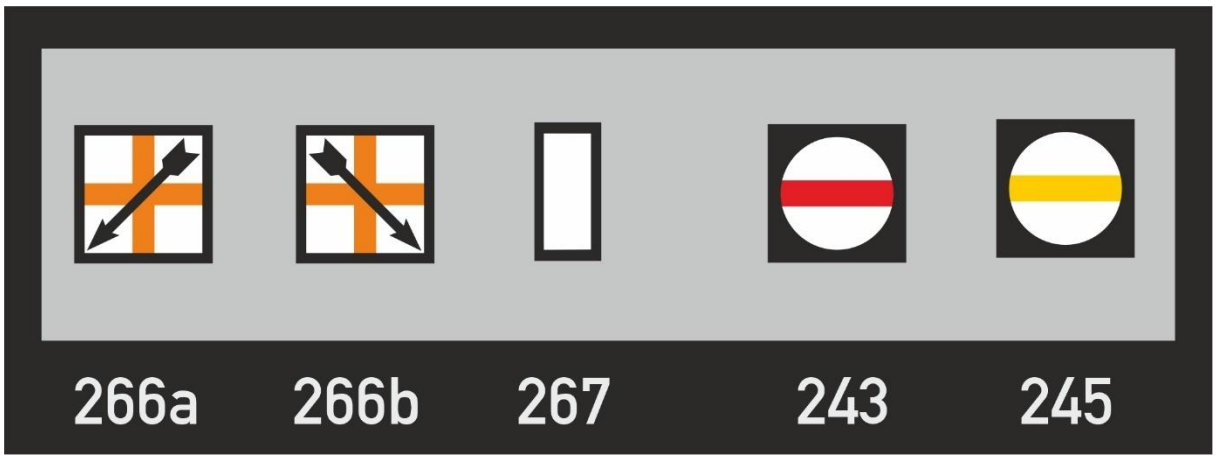


B	Home signal
Bh	Through track exit home signal
BBv	Through track exit home signal with distant arm (3-aspects signal)

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

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Other signals and signs

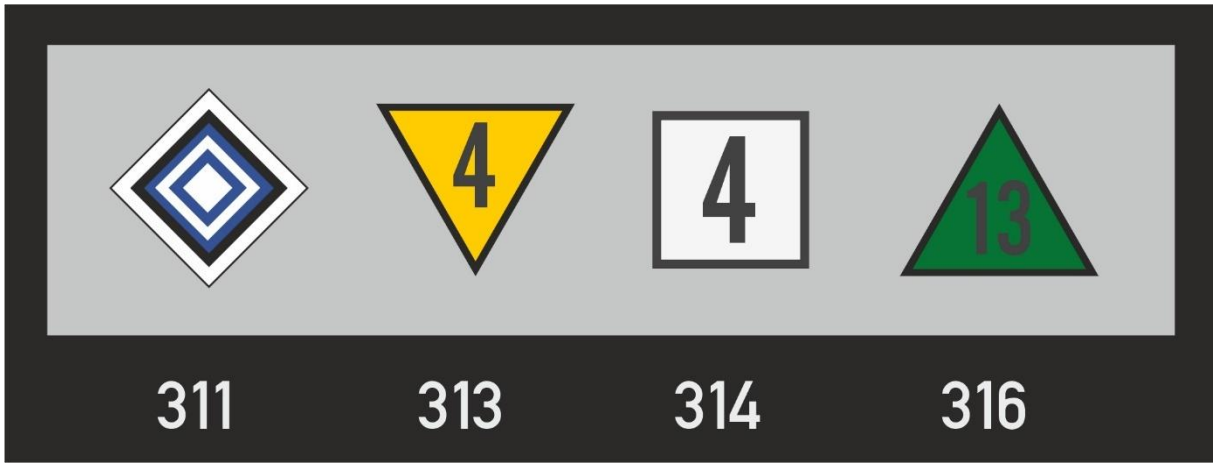


266a	Shunting signal, left hand track, blocked
266b	Shunting signal, right hand track, blocked
267	Shunting signal, clear
243	Buffer sign
245	Warning sign, route ends at buffer track

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.

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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.

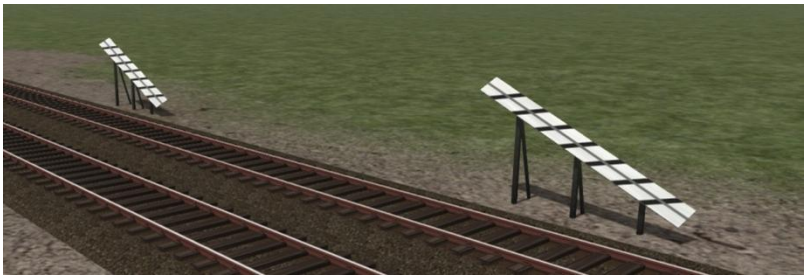


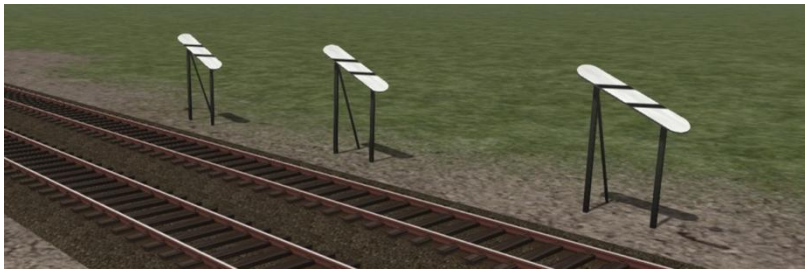
311	End of catenary
313	Restricted speed section ahead
314	Restricted speed start
316	Resume (standard-) speed

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

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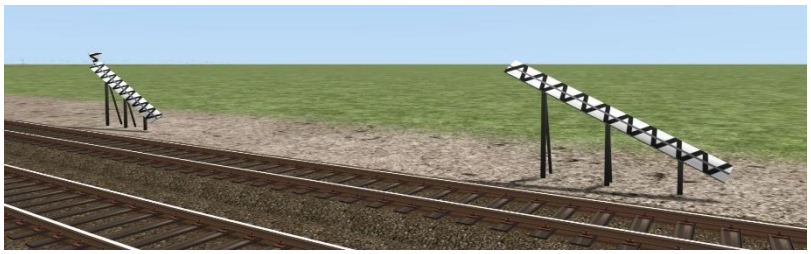
Special signs

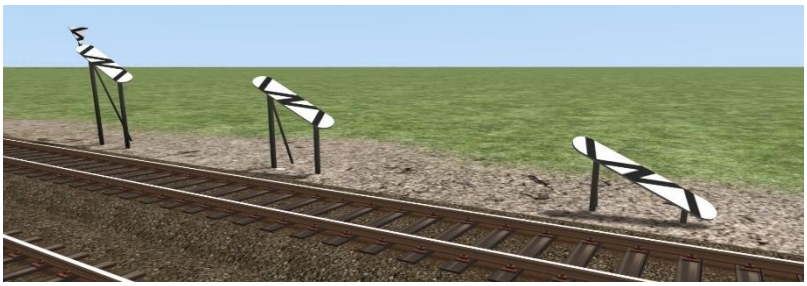




These signs are used to warn the driver that he is approaching a distant signal or a distant signal of a 3-aspect or branch signal.

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





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Colophon and credits

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© Michel R.

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