# NS Series 2400 (1970-1990) for TS Classic

**MANUAL**

# Contents

# Disclaimer DoveTail Games Ltd.

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# Background

## NS series 2400-2500

In  the same period in time when the 2200/2300 series were built by Alsthom, this manufacturer also ran an assembly line for a universal light to medium goods diesel-electric locomotive, intended for service with the railways in the Franco-African territories. In order to speed up the transition from steam traction the Dutch Railways (NS) placed an order for 130 units of this model in 1954. Constructed on a fully welded frame, the engine layout consists of five compartments, which successively house the air equipment, the fans, the diesel engine with generator, the cab and the batteries. Another French factory, the SACM, supplied the 8-cylinder engines. The machines could be run in multiple-unit mode, i.e. two or more coupled locomotives could pull a train operated by one driver. The locomotives served NS until the 80s. Seven locomotives were sold to Volker Stevin for the construction of a port in Saudi Arabia and a larger part of the series returned to France to be used in work trains for the construction of TGV routes. Of this group, the 2561, 2407 and the 2454 were repatriated. They have been completely restored into working condition and pressed into service within the Dutch preservation scene, like VSM, STAR and 2454 CREW.
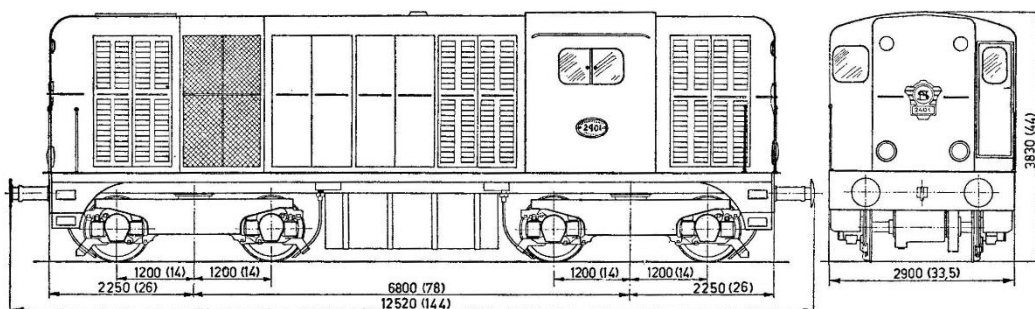
# What is new in version 2.1?

Since version 2.0 the following changes have been applied:

1. Realistic textures with shadow- and light effects
2. New cab with AWS and driver vigilance monitoring
3. Wilbur Graphics' NS series 24/2500 is continued as freeware addon
4. Improved scripting



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# Installation tips

## General

The NS series 2400 from Wilbur Graphics is supplied as a .zip file and includes the following items in addition to a Readme_EN.txt:

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

```
WG_NS_2400_tp4_Handbuch_V2_1.pdf
WG_NS_2400_tp4_Manual_V2_1.pdf
WG_NS_2400_tp4_Handleiding_V2_1.pdf
```

- installer `WG_NS_2400_tp4_V21_build_20231015.exe`

After launching the installer, you will be prompted to

- Select a language for the installer (Dutch/English/French/German)
- Accept the License Terms (EULA)

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

## Other tips

- The .zip file must be fully unpacked before you can begin 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 solve this by repeating the installation of Steam.

## Retro Canvas Route

After installing this release, the following window may appear at the start of a scenario ('Broken Consist'):



You can solve this simply by clicking on the EDIT box. TS Classic now starts the Scenario Editor. The following screen will then be displayed:

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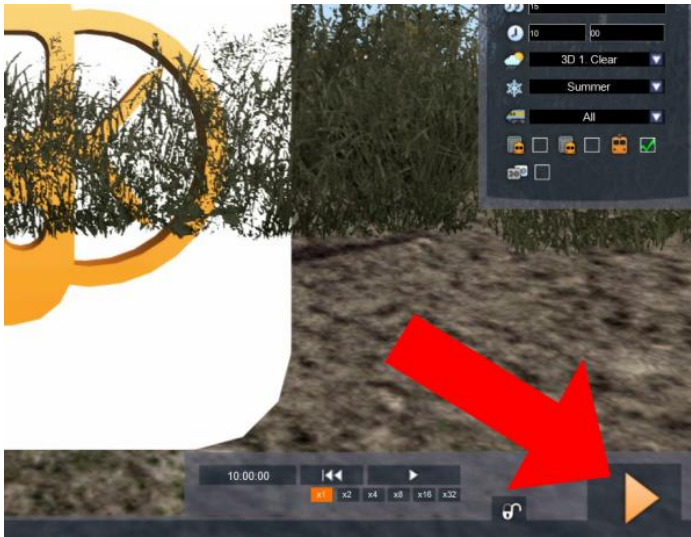
All you have to do is click the DRIVE button, at the bottom right corner of the screen. The SE will request a confirmation:
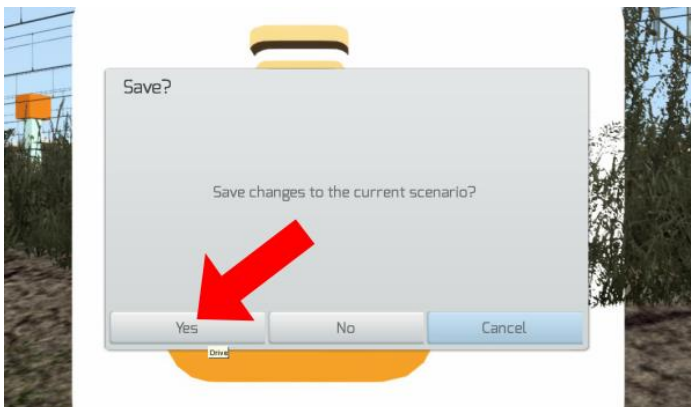


Click YES and the scenario will just start now as well as in future.

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# Rolling stock

## TS Object Browser Index

| Scenario Editor | Folder | Object ID |
|---|---|---|
| **WG NS 2407 tp4** | Rollend mat | WG_NS_2407_tp4 |
| **WG NS 2454 tp4** | Rollend mat | WG_NS_2454_tp4 |
| **WG NS 2561 tp4** | Rollend mat | WG_NS_2561_tp4 |



## Preloads

WG NS 2407 tp4 (light engine)

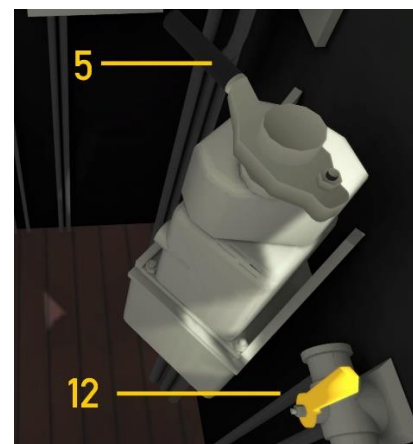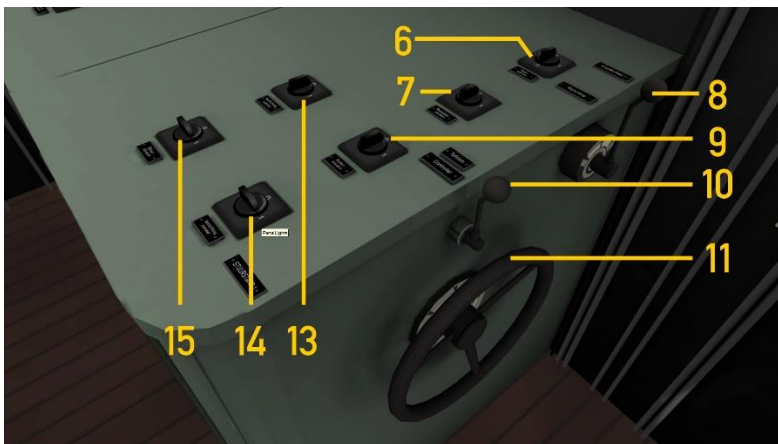WG NS 2407 tp4 with 8 Rs cars loaded with trucks/rail sections

WG NS 2454 tp4 (light engine)

WG NS 2454 with 5 NS ICR ABpmz coaches in transfer

WG NS 2400 tp4 multiple unit with NAM tankers

WG NS 2561 tp4 (light engine)

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# Operation
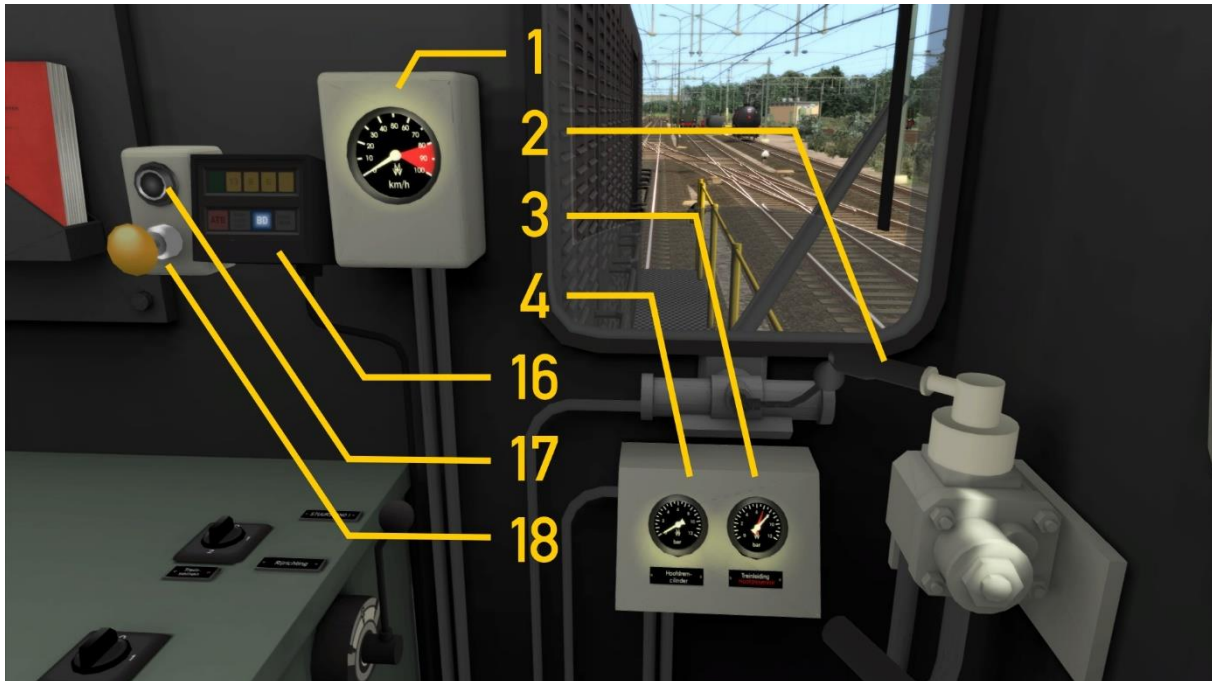






| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Speedo | | 10 | Wipers | V |
| 2 | Engine brakes | [ & ] | 11 | Controller | A & D |
| 3 | Trainbrake pipe/main res. pressure | | 12 | Sander | X |
| 4 | Brakecylinder pressure | | 13 | Panel lighting | CTRL+F12 |
| 5 | Train brake control | ; & ' | 14 | Cab lighting | CTRL+F11 |
| 6 | Head/tail lights | Headlights | 15 | Control current on/off | CTRL+0 |
| 7 | Shunting lights | CTRL+F9 | 16 | ATB Panel | |
| 8 | Reverser | W & S | 17 | Driver vigilance light | |
| 9 | Horn | SPATIEBALK | 18 | Driver vigilance reset | NUM ENTER |
| | Horn (short) | N | | | |

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Operting the engine does not deviate from the TS standard, but when reversing it is difficult to move the controls with the mouse because steering position 2 is mirrored with steering position 1, just like in reality. The engine and train brake controls have ended up in the right place, also in line with the real world.

## Driver vigilance and AWS

Our NS 2400 (corporate identity, era IV) is equipped with two optional safety features, driver vigilance monitoring  (DVM) and a close simulation of the Dutch pendant of AWS i.e. Automatic Train Control – First Generation (ATB-EG or ATB). Both systems monitor the player's actions as an engine driver. The DVM's function is to stop the train if the driver should lose consciousness. The ATB takes the same action if the driver does not respond to the commands of the signals along the line. The player can decide for himself whether and which systems he wants to activate in the scenario. Both systems can be used simultaneously if desired.

### Driver Vigilance Monitor
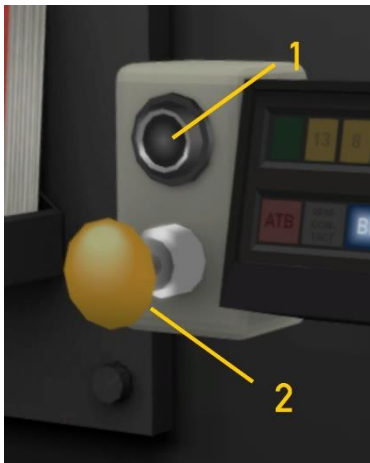


This system expects the driver to click the DVM reset button (2) or press the numeric ENTER key at least once every half minute. When 30 seconds have passed without any of these actions, a buzzer will sound and a flashing red light (1) will appear.  From that moment on, the driver has five seconds to respond. Failing that, an emergency brake intervention by DVM will follow. Only after the train has come to a complete stop are the controls released again.

Enabling and disabling DVM is done with the key combination CTRL + NUM ENTER. When lamp 9 of the TAB panel (see below) is lit, DVM is active.

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## ATB

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



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

We use the U key to enable or disable ATB. When ATB is switched on, lamp 8 will extinguish and the speed limit that is currently in force will be displayed by one of the lamps 1 to 5. There is also a ringing sound. When ATB is being switched off, this bell sounds five times in quick succession.
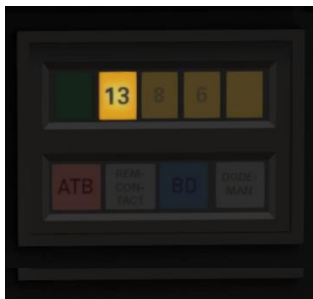




We will explain the operation of the activated ATB by means of an example. In the left image we drive a speed of 125 km/h. A limitation of 40 km/h has been detected in the right picture. A ringer sounds ('ding') and lamp 5 lights up.
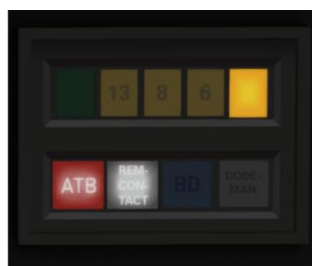




The driver engages the brakes and the brake contact lamp 7 is shown (left). When the assigned speed of less than 40 km/h is reached (with an upper margin of 5 km), three bell signals sound shortly after each other ('ding ding ding').

If the driver does not respond to a speed reduction command within 5 seconds, an alarm bell will ring for 3 seconds. Within this period of time, the driver can still prevent an ATB intervention by still applying the train brakes. If this condition is not met, an emergency stop will be forced upon the train. ATB lamp 6 lights up, as does the brake contact lamp. At the same time, train brakes are fully applied while controller and reverser levers are set to the 'neutral' position. Only after the train has come to a complete stop are these controls released again.

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The functions of this 'Wilbur Graphics' ATB version are controlled by a script, which is fed with information that is retrieved from the game while driving a scenario. These data come from the main signals, the section speed limits and/or from speed signs, depending on the tracks, signals and speed signs used. In the real world, the ATB looks at the distance signals when detecting upcoming speed limits. As a result, the simulated ATB may indicate a different restriction than a local speed limit. When driving Timetable and Career scenarios, you should therefore also pay attention to the limit that TS shows in the HUD. Another difference with reality is the possibility to run a scenario without DDM and/or ATB.



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# Colophon/Credits

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

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