Truck
Training Model

Operating Instructions

WABCO

Original document:
The German version is the original document.

Translation of the original document:
All non-German language editions of this document are translations of the original document.

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You will find the current edition at:
http://www.wabco.info/i/1767

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1 List of abbreviations

Abbreviation	Meaning
6S/5M	6 Sensors/5 Modulators
ABS	Anti-Lock Braking System
CAN	Controller Area Network; serial bus system
EBS	Electronic Braking System
ECAS	Electronically Controlled Air Suspension
ECU	Electronic Control Unit
ISO	International Organization for Standardization
LSV	Load Sensing Valve
NW	Nominal Width
OBD	On-Board Diagnostics

2 Information about this document

2.1 General equal treatment

In this document, the masculine form, according to grammar, is used in a neutral sense. This serves to make the text more understandable and easier to read. People of all genders are always addressed in the same way. We ask for your understanding for this simplification in the text.

2.2 Symbols used

i	These information boxes contain important information, hints and/or tips.

Descriptive text

- For individual action steps

1. Action step 1
2. Action step 2
   - Consequence of an action

- Listing
  - ➲*See: Cross-reference*

3 Basic safety instructions

3.1 Proper use

The truck training model is a reduced scale towing vehicle that is used to provide knowledge about WABCO's brake and air suspension systems.

The training model can be used in conjunction with the trailer training model or alone.

The training model is intended for professional use and not for private use. Intended use also includes that you have read and understood this document completely.

3.2 Obvious misuse

The training model must not be used as a vehicle.

Any use other than that described in the intended use is not in accordance with the intended use and is therefore not permitted.

WABCO accepts no liability for damage caused by improper use. The risks of improper use lie solely with the user.

3.3 Qualification and knowledge of the personnel

The activities described in this documentation require basic knowledge of mechanics, electrics, pneumatics and knowledge of the associated technical terms.

To ensure operational safety, the training model may only be used by trained persons with demonstrable technical expertise in an educational environment for training or demonstration purposes.

3.4 Structure and explanation of the warning notes

3.4.1 Structure of the warning notes

Warnings are structured as follows:

- Signal word and pictogram
- Correct naming of the hazard
- Description of the consequences if the hazard is ignored
- Description of the measure(s) to prevent the danger

3.4.2 Explanation of the warning notes

⚠ CAUTION

Indicates a hazard that may result in slight or moderately serious injury if not avoided.

NOTICE

Indicates a hazard that may result in material damage if not avoided.

3.5 General safety instructions

- Follow all safety information, instructions and notices in this document to avoid personal injury and material damage.
- Follow regional and national regulations on accident prevention.
- Ensure cleanliness throughout the application.
- Keep this document and other documentation supplied with the product.
- Make sure your workplace is dry as well as adequately lit and ventilated.
- Only place the training model on a stable and level surface.
- Ensure that the compressed air lines are connected safely and correctly.
- Ensure that all the training model's connecting cables are laid in such a way that there is no risk of people tripping over them.
- Apply the brakes on the swivel castors to prevent the training model from rolling away. Only release the brakes if the training model is to be moved. If the training model moves uncontrolled, these castors can cause crushing.
- Keep hands and fingers away from all moving parts of the training model when operating.
- Always keep loose-fitting clothing, long, open hair, necklaces and limbs away from the moving parts of the training model as they can be pulled in.
- Use the training model indoors only.
- Do not make any changes to the training model as this will invalidate the warranty.
- Repairs may only be carried out by authorised personnel of the manufacturer or by authorised personnel of WABCO.
- Use the training model with the supplied power supply unit only in mains with 230 V and 50 Hz. Otherwise, the operator must use his own compatible power supply unit that provides a safe output voltage of 24 V DC.

3.6 Personal protective equipment

- Wear personal protective equipment to prevent injury:
  - Safety boots
  - Safety goggles
  - Ear protectors

4 Introduction

The truck training model is a reduced scale towing vehicle that is used to provide knowledge about WABCO's brake and air suspension systems.

The training model is equipped with the following systems/components:

- Braking system Truck EBS (Generation 3) with ABS configuration (6S/5M)
- Electronically controlled air suspension ECU ECAS CAN2
- Lifting axle control valve
- ECAS remote control unit
- System for targeted fault simulation

WABCO braking system Truck EBS

The Truck EBS braking system is an electronically controlled braking system with load-dependent braking pressure control, automatic anti-lock braking system (ABS), integrated automatic traction control and electronic stability control (ESC).

EBS controls and monitors all available functions in the truck training model.

> i Detailed information on the Truck EBS braking system can be found here:
> http://www.wabco.info/i/528

5 Technical description

5.1 Scope of supply

The scope of supply includes:

- training model on a trolley
- external power supply

> i Accessories such as cable or diagnostic cases are not part of the scope of supply and must be ordered separately.

5.2 Technical data

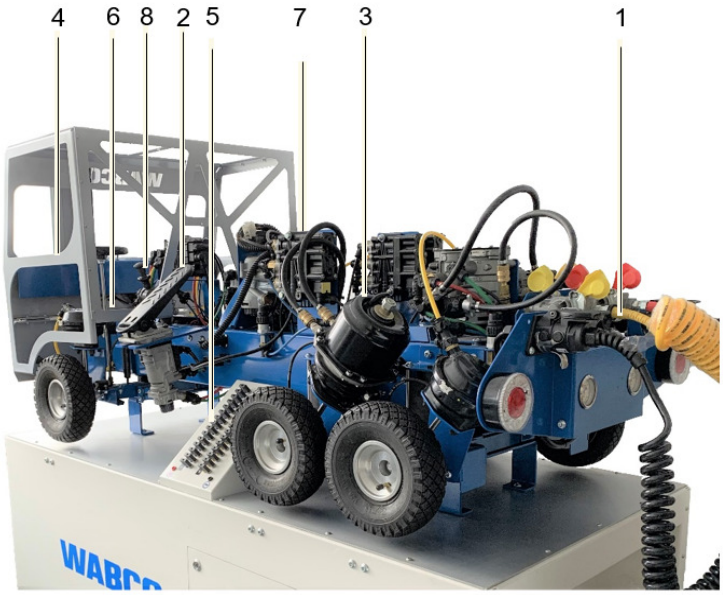
WABCO part number	300 000 001 0
Weight	408 kg
Substructure dimensions (L x W x H)	180 cm x 85.5 cm x 70 cm
Dimensions of substructure and truck with coupling heads (L x W x H)	180 cm x 85.5 cm x 155 cm
Mains connection (via separate power supply unit)	230 V, 50 Hz
Compressed air supply	Plug nipple NW 7.2
Permissible ambient temperature	0 °C to 35 °C
Max. permissible humidity	80 %

5.3 Overview graphics

5.3.1 Structure

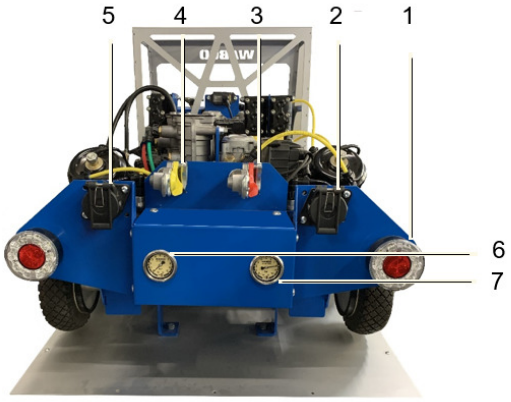
The truck training model consists of the substructure and the truck training model. The substructure has four swivel castors, which allow easy movement of the training model. Each swivel castor has a locking mechanism that secures the training model against unintentional rolling away.

The truck training model has one engine truck brake valve and one hand brake valve each mounted on the outside of the vehicle frame on the driver's side for realistic operation of the service and parking brake. In addition, the model has a display with numerous measuring sockets for taking measured values and a control panel for targeted fault simulation.



Position no.	Element
1	Coupling heads/ISO connection
2	Brake pedal
3	Tristop™ brake cylinder
4	Control switches and indicator lights
5	Measurement sockets
6	ECU ECAS CAN2 and EBS electronics
7	ECAS remote control unit
8	Park brake

5.3.2 Connections and operating elements on the training model

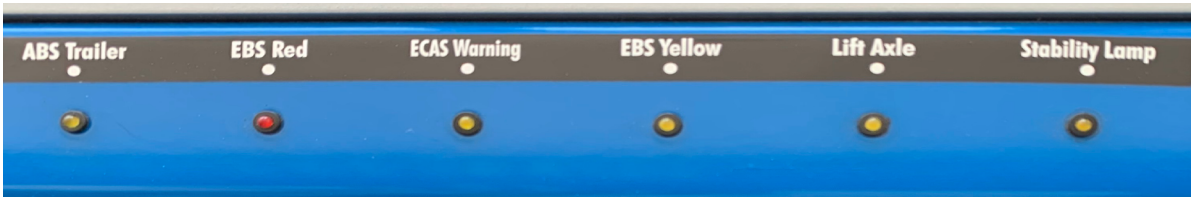


Position no.	Element	Description
1	Rear and brake lights	Indication of driving, reversing and stop lights
2	Connection ISO 7638, 7-pin	Transmission of the CAN signals to the trailer
3	Coupling head red	Supply of the trailer with supply pressure
4	Coupling head yellow	Supply of the trailer with control pressure
5	Connection ISO 12098, 15-pin	Transmission of the light signals to the trailer
6	Display of braking pressure	Shows the pressure during braking
7	Display of air suspension pressure	Shows the pressure prevailing in the air suspension

Eight switches are provided in the driver's cab for operating the training model.

Switch	Description
Ignition	Switches the training model to operating mode
Light	Switches the lighting of the training model off/on
Reverse Light	If a trailer training model is connected, the reverse monitoring system (TailGUARD) is activated and the TEBS E is switched into reverse gear
Lift Axle	Ensures that the additional axle of the truck training model is raised
ESC Module	Switches the ESC modules off/on
Traction Help	Activates the air suspension (ECAS)
Driving Level I-II (normal level I-II)	Changes the driving level of the truck training model
Lift Axle Trailer	If a trailer training model is connected, the additional axle is lifted

5.3.3 Indicator lights



You can see the status from the indicator lights in the driver's cab of the training model.
If an indicator lamp lights up, this is an indicator for a fault in the respective component.

> i The indicator lights should only light up when specifically simulating a fault.
>
> ▸ If an indicator light illuminates even without simulation, contact your WABCO contact person.

5.4 Installed systems/components

This section briefly describes the systems/components installed on the training model.

> i Further information on the installed systems/components can be found here:
>
> http://www.wabco.info/i/1365

Element	Description
Lifting axle	Liftable and lowerable axle
Rear area lighting	Fully functional rear lighting
Control panel for targeted fault simulation	Can specifically simulate faults and enables subsequent identification and evaluation
Braking system with brake pedal and park brake	Execution of braking commands
ECAS CAN2	Air suspension control system
EBS 3	• Main component of the truck training model • Electronic Braking System • Has an anti-lock braking system (ABS), an electronic stability control

5.5 ECAS remote control unit

Position no.	Description
1	Indicator lamp, front axle towing vehicle
2	Indicator lamp, rear axle towing vehicle
3	Indicator lamp, front axle trailer
4	Indicator lamp, rear axle trailer
5	Preselect button, lifting axle trailer
6	Preselect button, lifting axle towing vehicle
7	Normal level button
8	Stop button
9	Lower button
10	M2 button (memory level 2)
11	Preselect button, rear axle towing vehicle
12	Preselect button, rear axle trailer
13	Lift button
14	M1 button (memory level 1)
15	Preselect button, front axle towing vehicle
16	Preselect button, front axle trailer

6 Setting up

1. Remove the packaging.

NOTICE

Damage to the training model

The training model can be damaged if transported with a forklift without the protection of the original packaging.

- Only transport the training model with the forklift if it is still in its original packaging.

⚠ CAUTION

Crushing hazard for feet

If the training model moves uncontrollably, your feet can be crushed by the castors.

- Apply the brakes on the swivel castors to prevent rolling away.

2. Move the training model to the desired location.
   - Only move the training model using the swivel castors attached to the substructure.
3. Operate the locking mechanism of the swivel castors.
   - The training model can now be put into operation.

7 Start-up

Once the training model has been placed in the desired location, follow the steps below to prepare the training model for use.

7.1 Establishing the compressed air supply

To be able to use the full functionality of the training model, the training model must be supplied with external compressed air.

> i For faultless operation, the set pressure must (or should?) be between 7 and 8 bar.
>
> To prevent damage to the training model by excessive external pressure, a pressure limiter is built into the training model. Pressures > 8.5 bar are throttled by the pressure limiter.

- Connect an external compressor via a compressed air line.

  For this purpose there is a connection for compressed air (NW 7.2) on the side of the substructure.

7.2 Establishing the power supply

To be able to use all the electrical functions of the training model, the training model must be connected to a power supply.

The power supply required by the training model can be found in the technical data.

➲*See: chapter "5.2 Technical data", page 10*

The training model is powered by an external power supply unit and is only live when switched on (24 V). A CE-certified power supply unit, which ensures the power supply with low voltage, is part of the scope of supply.

NOTICE

Damage to the power supply unit

Do not switch on the mains unit immediately if it has been moved from a cold to a warm room. The temperature difference can cause condensation to form and possibly damage or destroy the power supply unit.

- Wait until the power supply unit has warmed up to room temperature before switching it on.

1. Check the power cable for visible damage before performing the following steps.
2. Connect the power cable of the training model to the power supply unit via the two connectors.

- Insert the plus plug into the left-hand, red connector.
- Insert the minus plug into the right-hand, blue connector.

3. Insert the connector of the power supply unit into a socket.
4. Switch on the power supply unit.

On the side of the substructure there is a rotary **Main Switch** for switching on the power supply.

5. Turn the rotary **Main Switch** to position 1 to turn on the power supply.
   - The power supply is on.

7.3 Switching on the ignition

⚠ CAUTION

Risk of crushing fingers and hands

When the ignition of the training model is switched on, the level of the training model may change and the lifting axle may move.

- Keep fingers and hands away from the moving parts of the training model.

- Operate the switch **Ignition.**
  - The training model is ready for operation.

7.4 Initial start-up of EBS 3

WABCO offers EBS 3 as a universal system that must be adapted to the vehicle type in question during start-up based on vehicle parameters. EBS 3 cannot function without such a configuration.

When the training model is delivered, EBS 3 is parameterised with an implausible standard parameter set for safety reasons. Before using the training model for the first time, a one-off start-up of the EBS 3 via the WABCO Diagnostic Software must be carried out. During start-up, the parameters for the components installed on the training model are set.

> i Information on the installation and activation of the Diagnostic Software as well as the required hardware can be found here:
>
> ➲*See: chapter "9 Diagnosis and parameter setting", page 22*

> i An EBS 3 system training is required in order to obtain a PIN for parameterisation or creation of a parameter set.
>
> You can find more information here:
>
> ➲*See: chapter "9 Diagnosis and parameter setting", page 22*

Carrying out the initial start-up

1. Connect the PC or laptop on which the Diagnostic Software is installed to the training model via a Diagnostic Interface.
2. Switch on the ignition of the training model.
3. Start the Diagnostic Software.
4. Select the menu item **Start-up**.
5. Start the parameter setting.

The training model is parameterised manually.

- Manual parameterisation (creation of your own parameter set)

After starting the start-up procedure, a menu can be used to select which steps are to be carried out. Some steps are mandatory and cannot be deselected.

Required steps:

- Parameter setting
- EBS pressure test
- Redundancy test
- ABS sensor assignment
- Test of warning lamp control

Optional:

- Testing the CAN lines

Only after a fully completed and successful start-up can all functions of the training model be used.

8 Function and operation

> To use the functions of the training model, first carry out the following steps:
>
> 1. Start-up
>
> ➲*See: chapter "7 Start-up", page 16*
>
> 2. Switching on the ignition
>
> ➲*See: chapter "7.3 Switching on the ignition", page 17*
>
> 3. Parameterisation of EBS 3 (only required for initial start-up)
>
> ➲*See: chapter "7.4 Initial start-up of EBS 3", page 18*

The most versatile functions of a modern truck can be demonstrated on the training model.

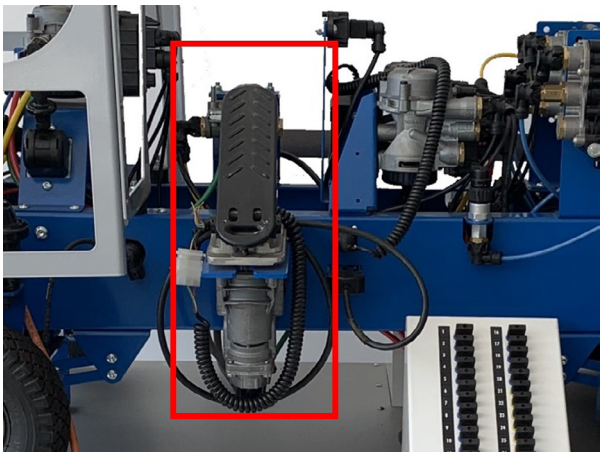
The training model has the following functions:

- ECAS air suspension including liftable and lowerable lifting axle
- Brake with brake pedal
- Lighting
- System for targeted fault simulation
- Quick release fasteners for line replacement
- Control switch in the training model driver's cab
- External remote control unit: ECAS remote control unit
- LEDs to indicate faults

8.1 Brake function

The brakes of the training model can be controlled either by the brake pedal or the park brake.

- The harder you depress the brake pedal, the stronger the braking force on the wheels.
- The motors that drive the wheels switch off automatically when the pedal is pressed.
- The brake functions even if the training model is not connected to a power source.



8.2 Air suspension (ECAS)

ECAS is an electronic level control for air-suspended trailers. For this purpose, displacement sensors record the distance between vehicle axle and vehicle body at certain intervals. ECAS uses the measured values of the displacement sensors to control the air suspension via solenoid valves.

The ECAS basic function is to compensate for level changes caused by a change in the load status or by new nominal value specifications (e.g. via the remote control unit). These control deviations cause a change in the distance between the vehicle axle and the vehicle body. ECAS balances these control deviations by means of level control.

In addition to controlling the driving level, ECAS also allows the control of enhanced functions via the external remote control units, such as the storage of different target levels (memory level function).

The ECAS air suspension functions can only be used if the training model is connected to a power supply and is switched on.

8.3 Operation with switches in the driver's cab

8.3.1 Lighting

The training model has rear and front lighting.

- Flip the **Light** switch in the driver's cab of the training model to activate the lighting.
  - The lighting is switched on.

8.3.2 Reverse monitoring system

The training model can use the TailGUARD system in combination with the trailer training model.

- Flip the **Reverse Light** switch in the cab of the training model to activate the reverse monitoring by means of TailGUARD.
  - The reverse monitoring system is now switched on and the TEBS E of the trailer training model is switched to reverse gear.

> For more information on reverse monitoring with the TailGUARD system, see the trailer training model operating manual: http://www.wabco.info/i/1377

8.3.3 Lifting and lowering the lifting axle

The training model is equipped with a lifting axle that can be raised and lowered. This lifting axle can be used to demonstrate the functions and operation of a lifting axle.

⚠ CAUTION

Risk of crushing fingers and hands

When switching on the ignition of the training model, the level of the training model may change and the lifting axle may move.

- Keep fingers and hands away from the moving parts of the training model.

- Flip the **Lift Axle** switch in the training model's cab to raise or lower the training model's lifting axle.

  ↳ The lifting axle is now lifted or lowered.

8.3.4 Activating and deactivating the traction help

⚠ CAUTION

Risk of crushing fingers and hands

When switching on the ignition of the training model, the level of the training model may change and the lifting axle may move.

- Keep fingers and hands away from the moving parts of the training model.

- Flip the **Traction Help** switch in the cab of the training model to activate or deactivate the traction help with air suspension (ECAS).

  ↳ The traction help is now activated or deactivated.

8.3.5 Regulation of the driving level

⚠ CAUTION

Risk of crushing fingers and hands

When switching on the ignition of the training model, the level of the training model may change and the lifting axle may move.

- Keep fingers and hands away from the moving parts of the training model.

- Flip the **Driving Level I-II** switch in the cab of the training model to adjust the driving level with the air suspension (ECAS).

  ↳ The driving level of the training model now changes.

8.4 Operation with the ECAS remote control unit

The ECAS air suspension system can also be operated with the ECAS remote control unit, which is mounted on the side of the training model. This remote control unit allows more precise and intuitive control of the air suspension system.

i For all information on the key assignment of the ECAS remote control unit and on control, refer to the chapter "ECAS remote control unit".

➲*See: chapter "5.5 ECAS remote control unit", page 14*

9 Diagnosis and parameter setting

9.1 Introduction

The training model is fully diagnosable.

The WABCO Diagnostic Software for EBS 3 is required for diagnosis and parameterisation of the training model. The Diagnostic Software offers numerous possibilities for carrying out diagnoses and demonstrating the parameterisation of the EBS 3 braking system.

The Diagnostic Software provides numerous possibilities for carrying out diagnoses and demonstrating the parameterisation of the EBS 3 braking system.

The graphic user interface of the Diagnostic Software is clearly structured and intuitive to operate. Extensive help is also available within the Diagnostic Software.

The diagnostic cable is connected to the EBS-ECU via the CAN data bus. To carry out a diagnosis, the Diagnostic Software must be installed on the connected laptop/PC.

9.2 System training and PIN

The diagnosis of the training model with the Diagnostic Software may be performed by any user.

> i For more information on WABCO Academy training courses, please visit:
> https://www.wabco-academy.com/

For start-up and parameterisation of EBS 3 you need an authorisation in the form of a PIN.
You will receive this after completing an EBS 3 system training.

After successful completion of the training, WABCO will send you a PIN and a personal user ID for the Diagnostic Software.

You can use this PIN to activate enhanced functions in the Diagnostic Software and thus carry out the start-up of the training model or change the parameter settings.

9.3 Hardware

The Diagnostic Software can run on any standard PC with a Windows operating system (Microsoft Windows 7 or higher).

There are no special requirements for the hardware. The PC must have a free USB port for the Diagnostic Interface however.

WABCO recommends the following hardware:

Hardware part number	Description
WABCO Laptop "Toughbook" 446 301 999 0 	• Suitable for the workshop: shock- and dirt-resistant • On request it can also be supplied with the Diagnostic Software already installed.
Diagnostic Interface Set 446 301 030 0 	• Diagnostic Interface 2 • USB connecting cable to PC/Notebook USB driver/Installation instructions: http://www.wabco.info/i/840
Diagnostic Interface Set 300 400 104 0 	• Diagnostic Interface 3 • USB connecting cable to PC/Notebook • Bluetooth and Wi-Fi ®

The vehicle connection on the Diagnostic Interface matches the connection for the Diagnostic Controller and earlier versions of the Diagnostic Interface, permitting the continued use of connecting cables used in the past.

Depending on which WABCO system you want to test, you will need appropriate connection cables. You can find an overview of the connection cables in our WABCO product catalogue under:
www.wabco-customercentre.com

The USB driver required to install the Diagnostic Interface is installed together with the WABCO Diagnostic Software.

You can still use the earlier versions of the Diagnostic Interface with serial connection (446 301 021 0) and USB interface (446 301 022 0).

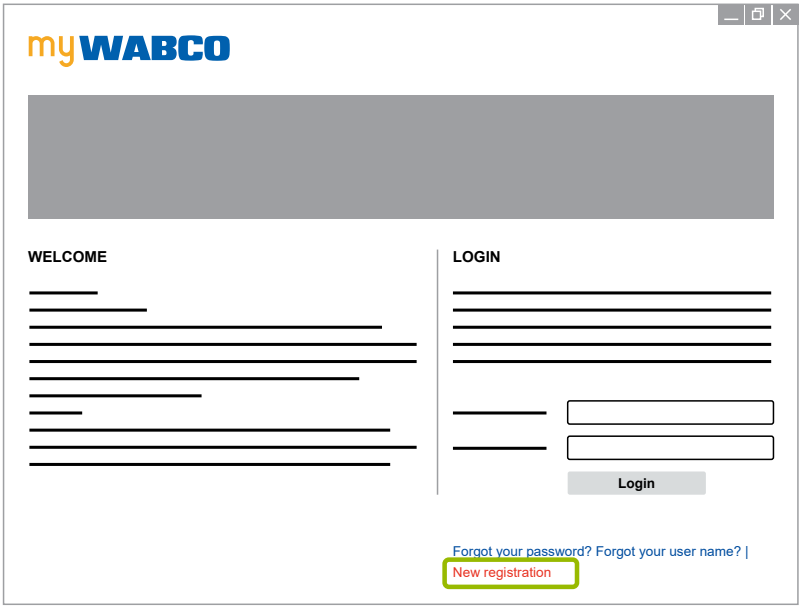
9.4 Installation and activation

Before use, the Diagnostic Software must be installed and activated.

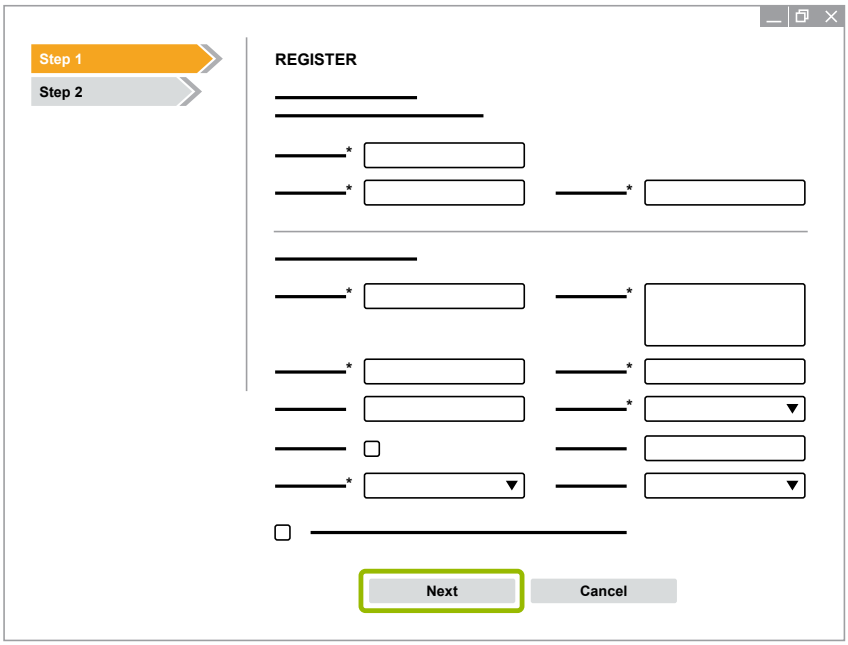
9.4.1 Registration at myWABCO

The first step is to register with myWABCO.

1. Enter the following link in your internet browser to access the myWABCO page: https://www.am.wabco-auto.com
2. Click on **New registration**.

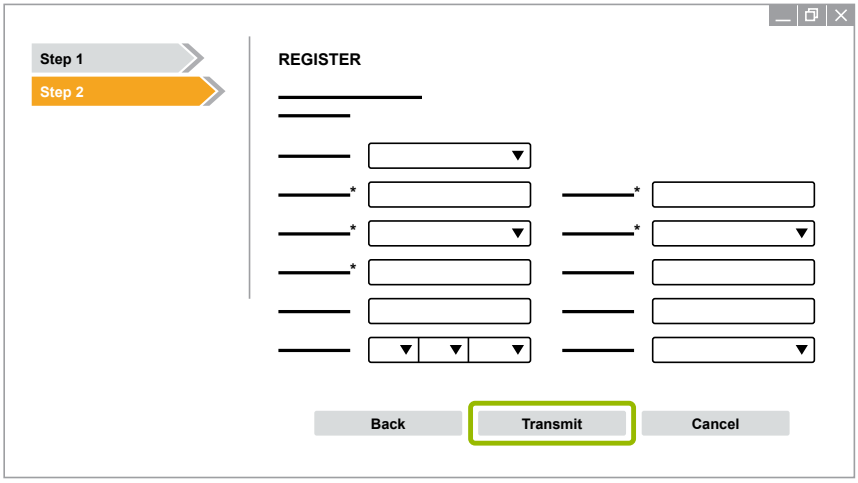


3. Fill in the required fields (marked with an asterisk *).
4. Click on **Next**.



5. Fill in the required fields (marked with an asterisk *).

6. Click on **Transmit**.
   ↳ You will promptly receive an e-mail to confirm your e-mail address.

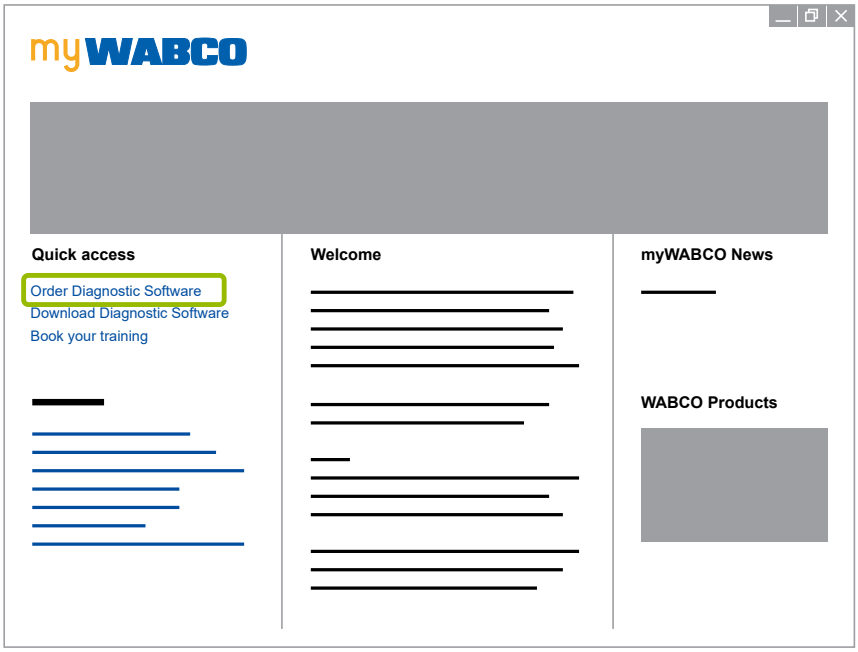


7. Click on the link in the confirmation e-mail to activate your account.
8. Log into your myWABCO account with your user name and password.
   ↳ You are now registered.

9.4.2 Ordering the Diagnostic Software

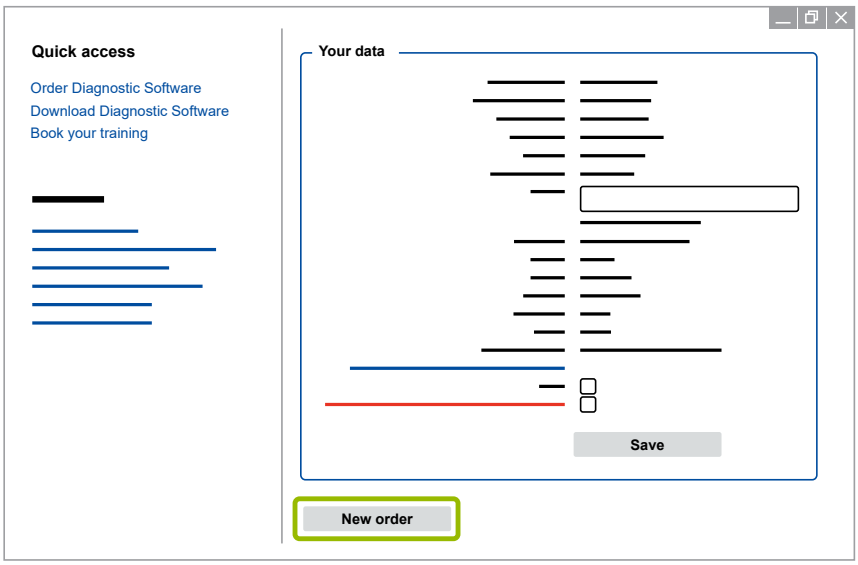
1. Login with your myWABCO account.
2. Click on **Order Diagnostic Software** in the **Quick Access** area.

> If a security warning from your internet browser appears at this point, select the option to also display unsafe objects.

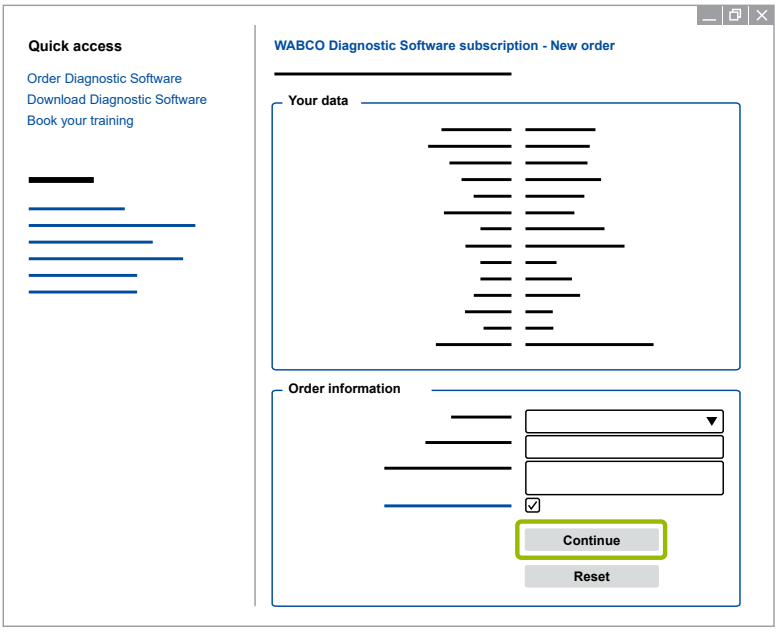


3. Enter your sales tax identification number (VAT-ID).

4. Click on **New order**.



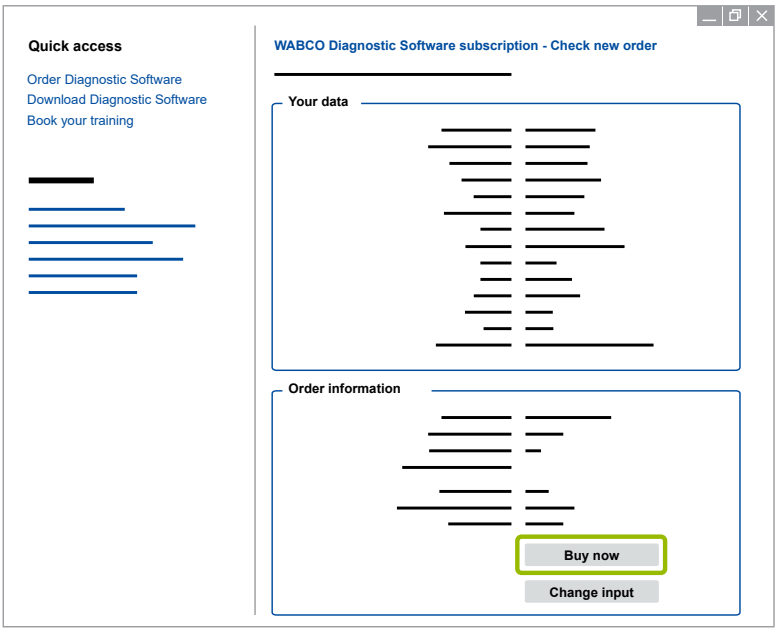
5. Enter your order data.
6. Confirm that you agree to the terms of use.
7. Click on **Continue**.



8. Check your data.

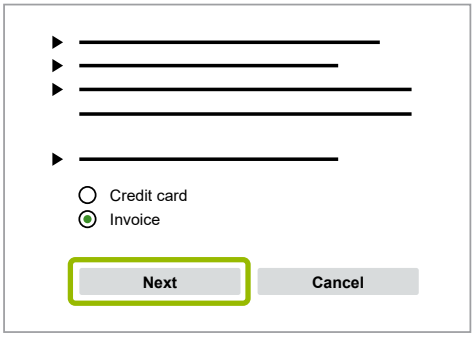
> If the data is incorrect, you can correct the data by clicking on **Change input**.

9. Click on **Buy now**.



Paying for the Diagnostic Software by invoice

1. Select **Invoice**.
2. Click on **Next**.



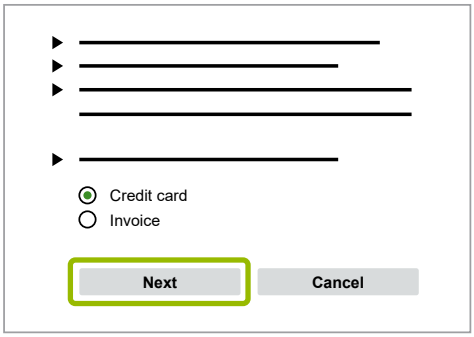
↳ You will receive an invoice by e-mail and by post.

↳ When we receive payment we will send you an e-mail as confirmation.

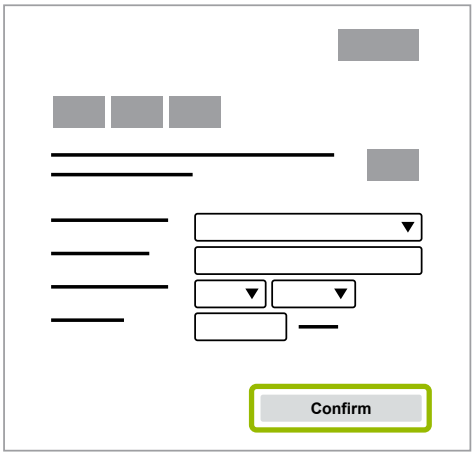
3. Log in to myWABCO.
4. Download the Diagnostic Software.

Paying for the Diagnostic Software by credit card

1. Select **Credit card**.
2. Click on **Next**.



3. Enter your credit card details.
4. Click on **Confirm**.

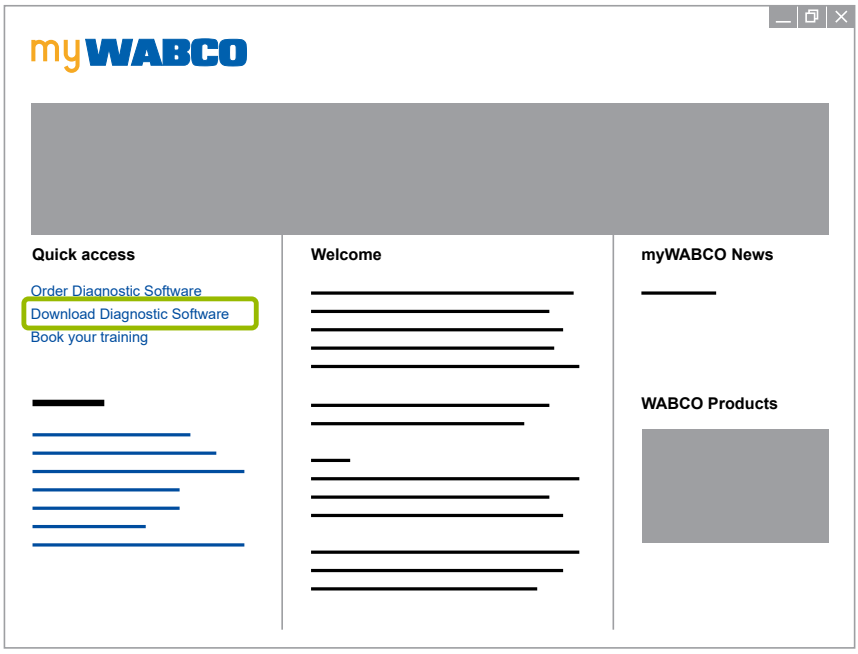


5. Download the Diagnostic Software.

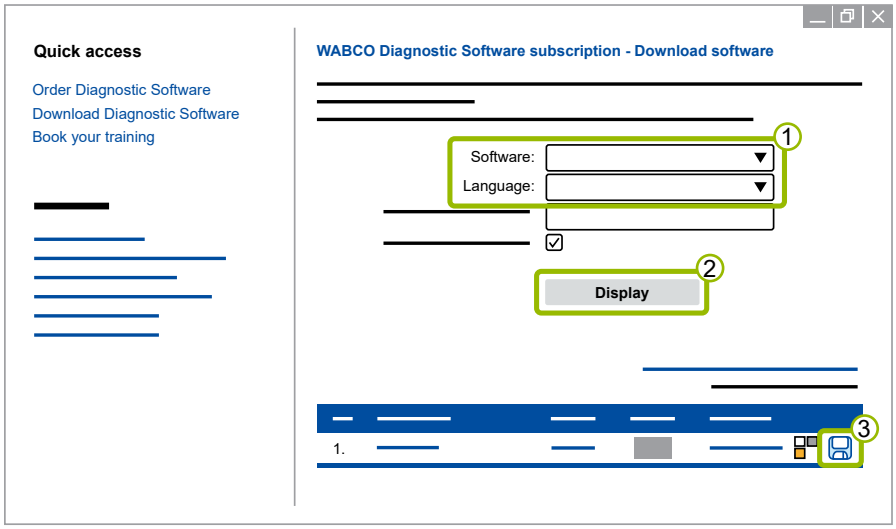
9.4.3 Installing the Diagnostic Software

Downloading the Diagnostic Software

1. Enter the following link in your internet browser to access the myWABCO page: https://www.am.wabco-auto.com
2. Login with your myWABCO account.
3. Click on **Download Diagnostic Software**.

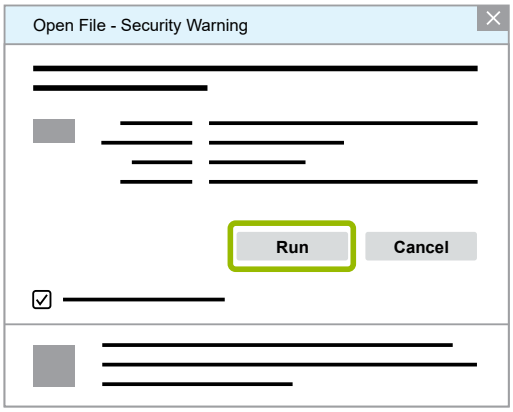


4. Select the **Software** and the **Language** ①.
5. Click on **Display** ②.
   ↳ The selected software is displayed.
6. Click on the **Download button** ③.
   ↳ The software will be downloaded.

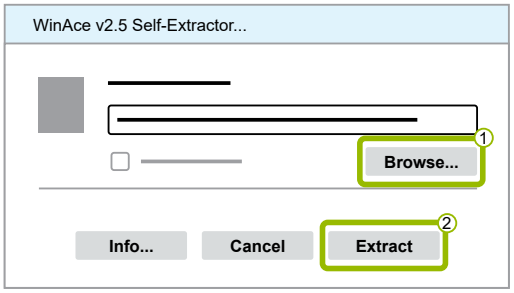


Installing the Diagnostic Software

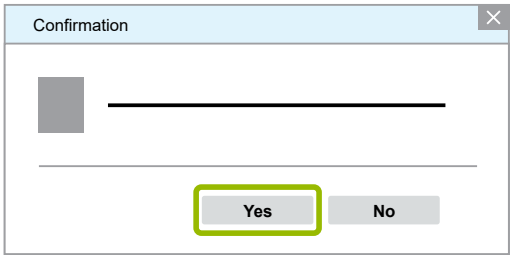
1. Double-click on the EXE file of the Diagnostic Software.
2. Accept the security warning by clicking on **Run**.



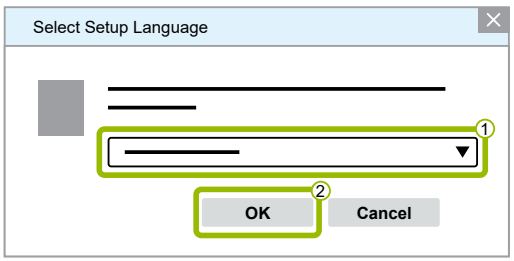
3. Click on **Browse...** ①.
4. Select a file path to extract the file.
5. Click on **Extract** ②.



6. Click on **Yes** to start the installation.

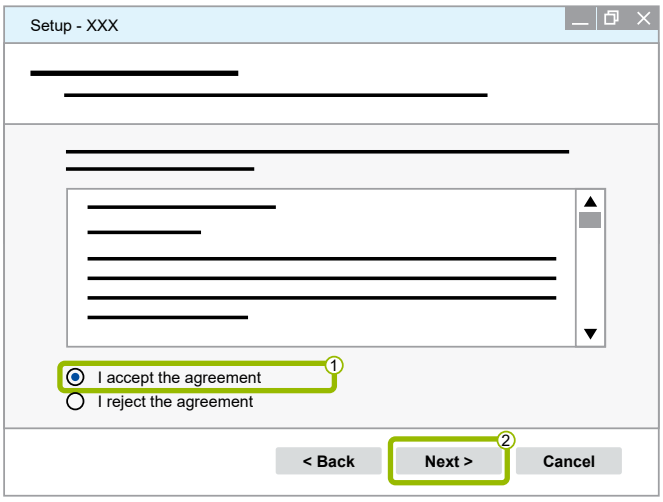


7. Select the desired language in the language selection dialogue box ①.
8. Click on **OK** ②.

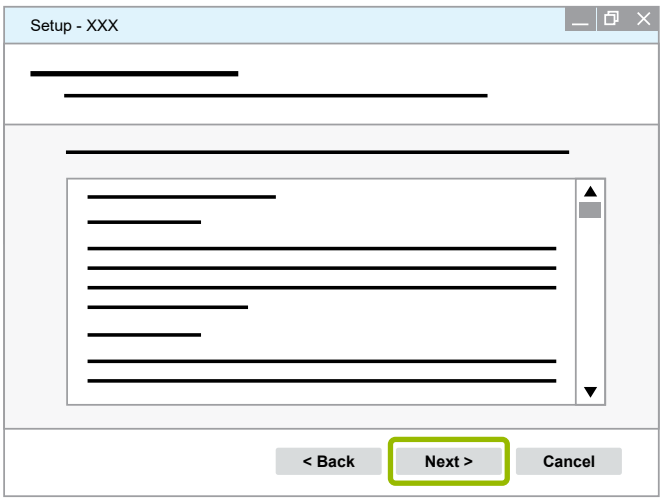


9. Click on **Next**.

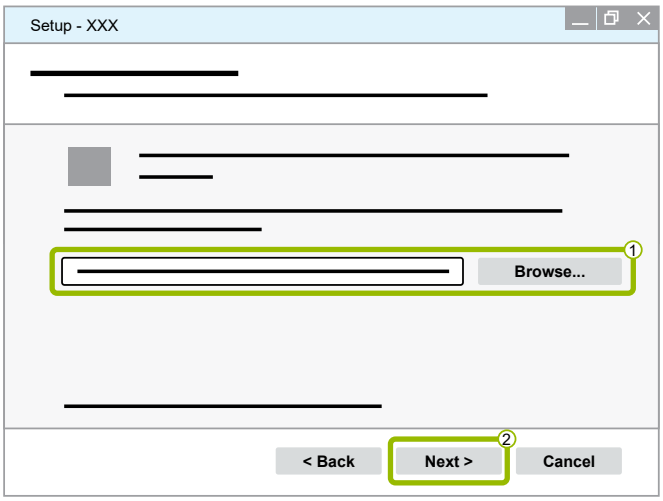
10. Accept the licence agreement ①.
11. Click on **Next** ②.



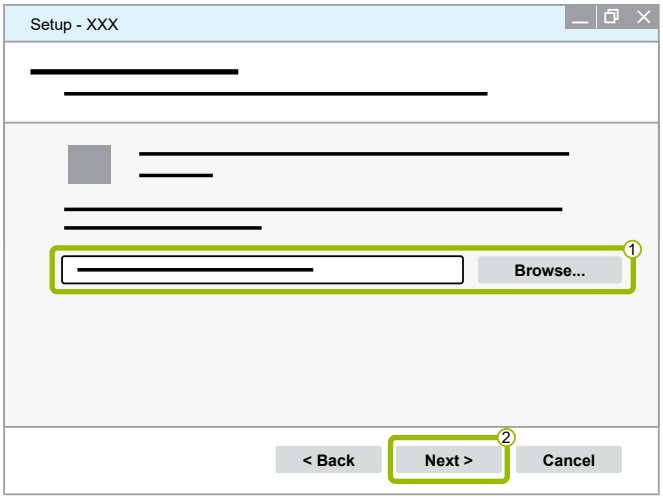
12. Read the important information.
13. Click on **Next**.



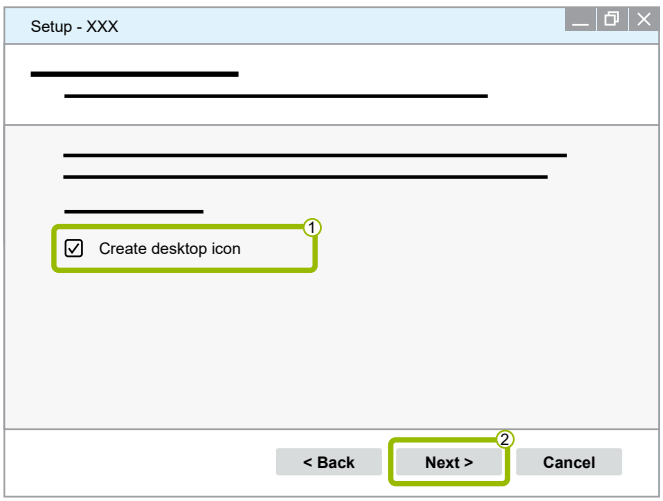
14. Select the destination folder for installation ①.
15. Click on **Next** ②.



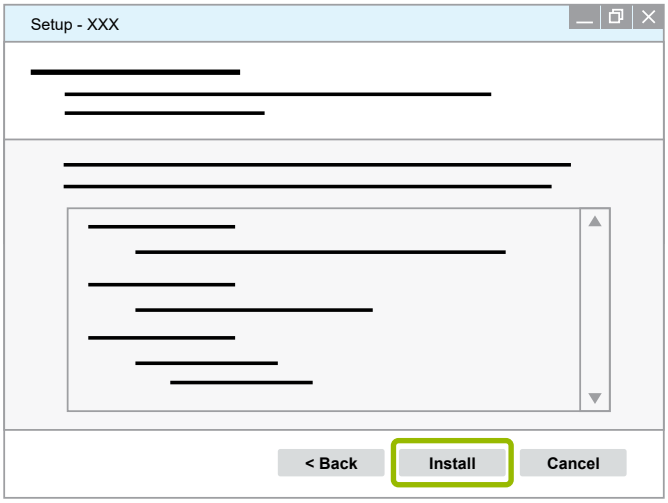
16. Select a folder in which the program shortcut is to be created ①.
17. Click on **Next** ②.



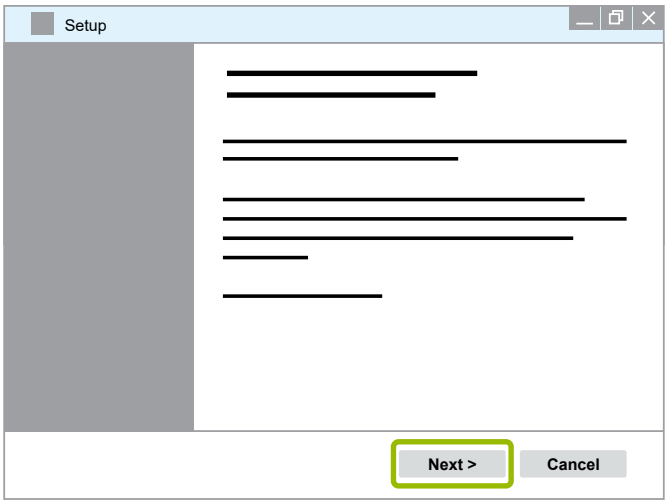
18. If you want to create a desktop icon, check **Create desktop icon** ①.
19. Click on **Next** ②.



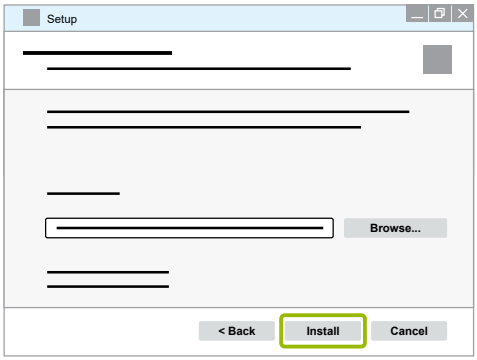
20. Click on **Install**.



21. Click on **Next**.

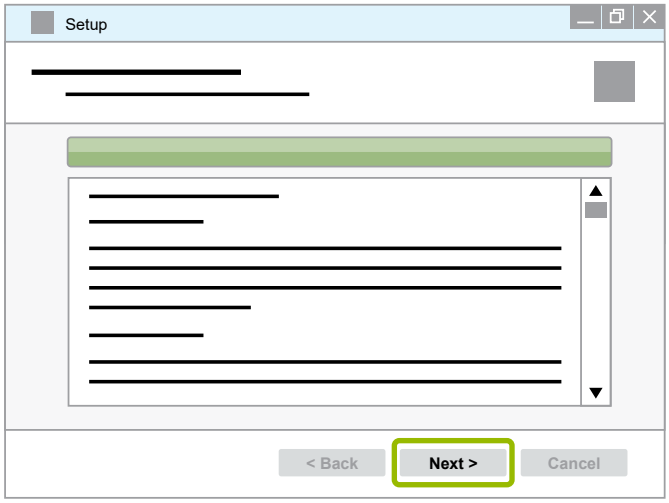


22. Click on **Install**.

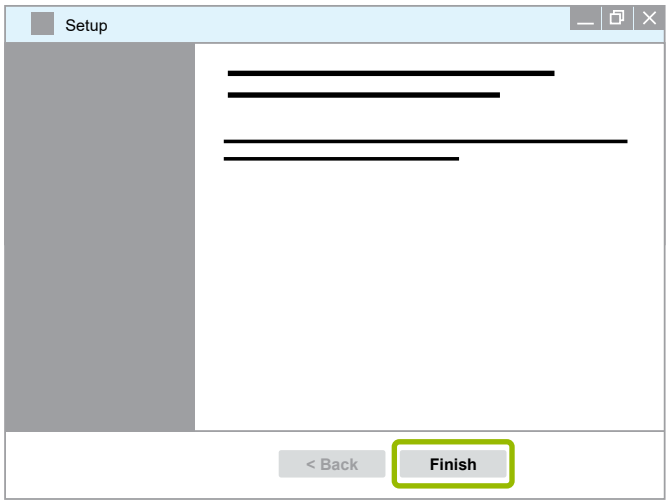


↳ The installation is executed.

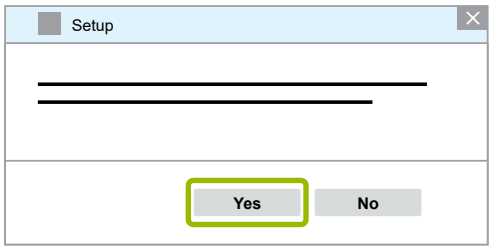
23. Click on **Next**.



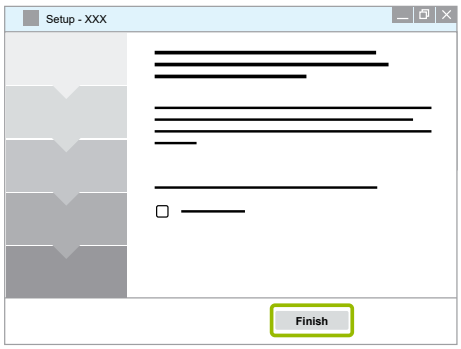
24. Click on **Finish**.



25. Click on **Yes**.



26. Click on **Finish**.



↳ The software is now installed.

9.4.4 Activating the Diagnostic Software

After installation and registration, you can test the Diagnostic Software for 10 days without restriction. After these 10 days have expired, you must activate the Diagnostic Software.

> After activation, the licence of the Diagnostic Software is bound to a PC and the licence is used up.
>
> Therefore, only activate the Diagnostic Software on the PC or laptop on which you want to use the Diagnostic Software.

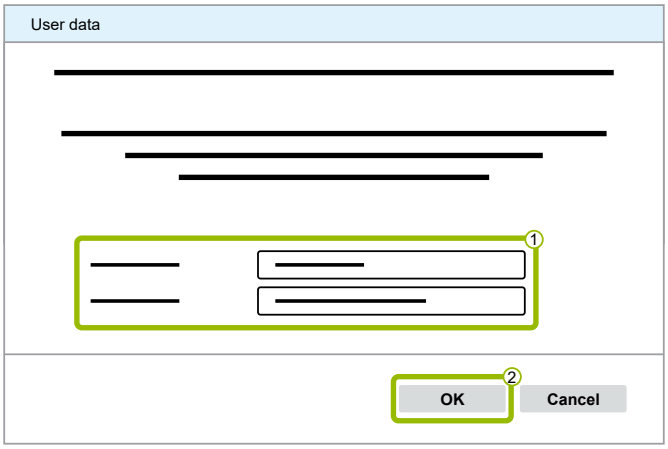
> You can find more information about activating and registering the diagnostic software on the internet at:
> https://www.am.wabco-auto.com/amsso/user_manual/deusermanual.pdf

The following options are available for activating the Diagnostic Software:

- Activation via internet
- Activation with Activation@Web

Registering the Diagnostic Software

1. Start the Diagnostic Software.
2. Fill in the required user data ①.
3. Click on **OK** ②.



Diagnosis and parameter setting

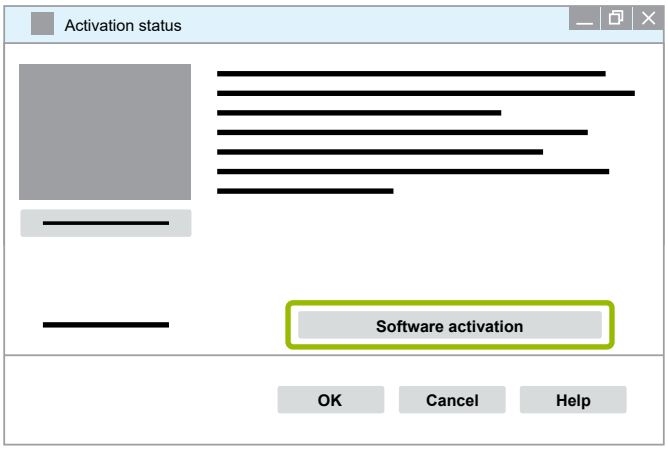
Testing the Diagnostic Software

1. After starting the Diagnostic Software, click on **OK** in the dialogue window **Activation Status**.
2. Read the licence agreement and click on **Yes** to accept the licence agreement.
3. In the dialogue window **Connection selection of the Diagnostic Interface** select **Serial port** or **USB**.
4. Click on **OK**.
5. Read the warning displayed and click on **Yes**.

   ↳ You can now test the Diagnostic Software.

Activating the Diagnostic Software

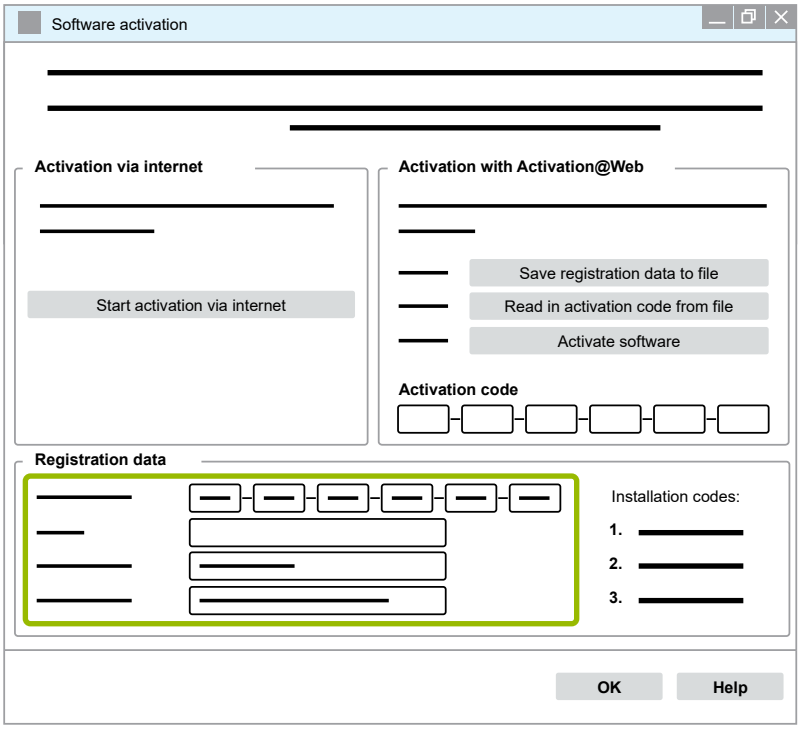
1. Click on **Software activation**.



2. Check your registration data.

You now have two options to request an activation code:

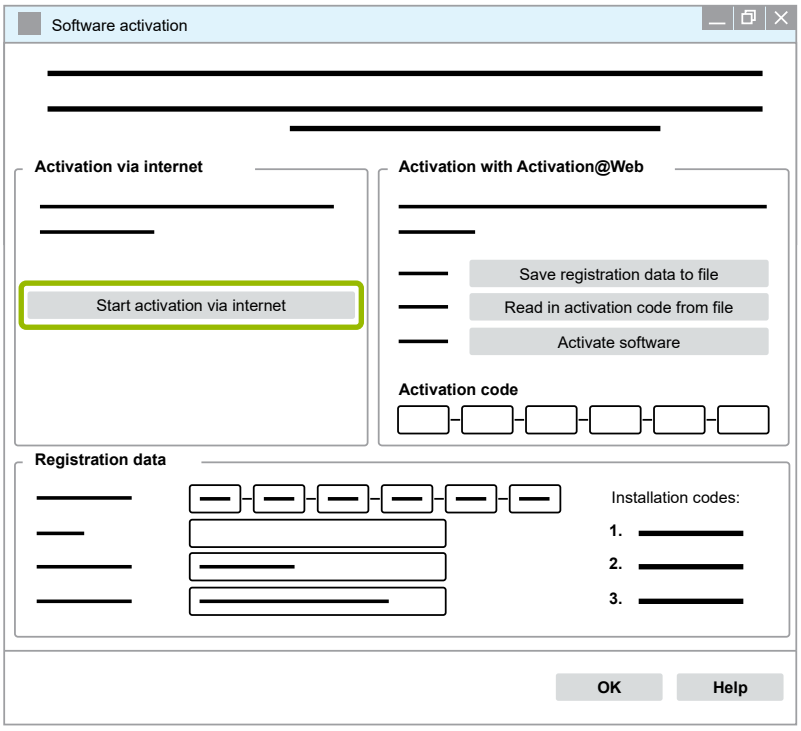
- Activation via internet
- Activation with Activation@Web



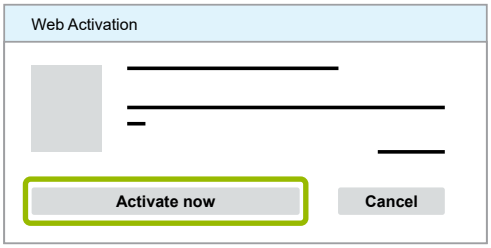
Activation via internet

Online activation requires an internet connection on the computer on which the software is to be installed.

1. Click on **Start activation via internet**.

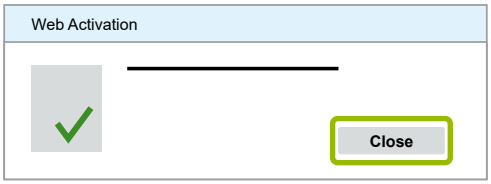


2. Click on **Activate now**.



↳ The activation starts.

3. Click on **Close** to complete the activation.

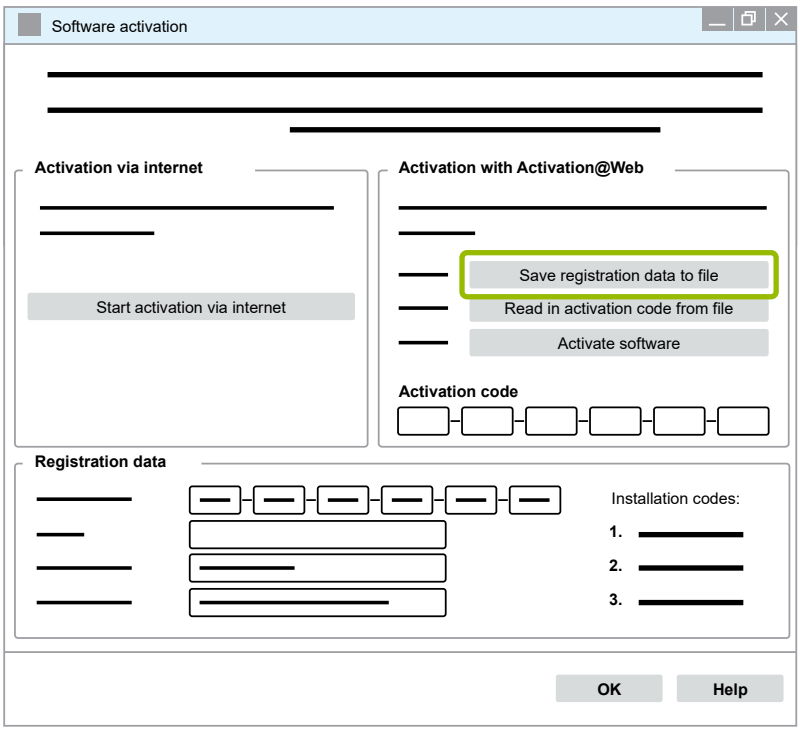


↳ The Diagnostic Software is now activated.

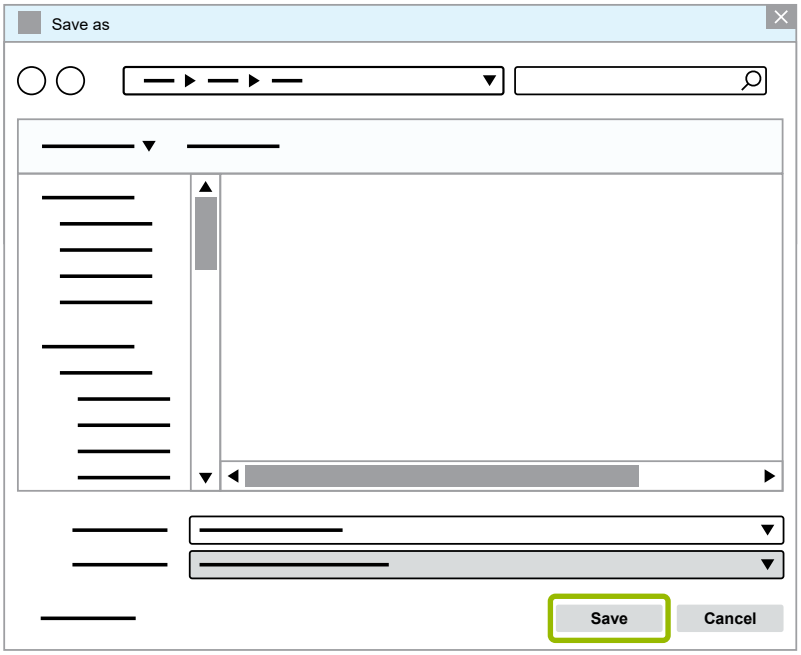
Activation of the Diagnostic Software with Activation@Web

Activation@Web is a continually available Internet portal that can generate activation codes at any time of day or night. For this purpose you only need a PC with an internet connection. You do not need to use the PC on which the software is to be installed for this.

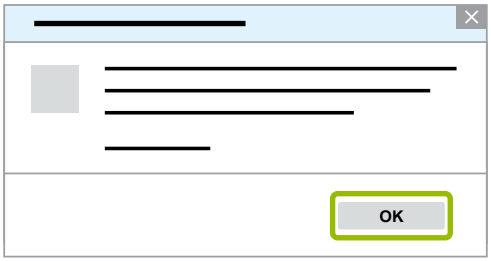
1. Click on **Save registration data to file**.



2. Select a removable storage device (USB) as the storage location.
3. Click on **Save**.



4. Click on **OK**.



5. Connect the data carrier to a computer with Internet access.
6. Start your browser of the computer with internet.
7. Enter https://abo.wabco.info/software_activation.php in the address bar.

You now have two options to request an activation code:

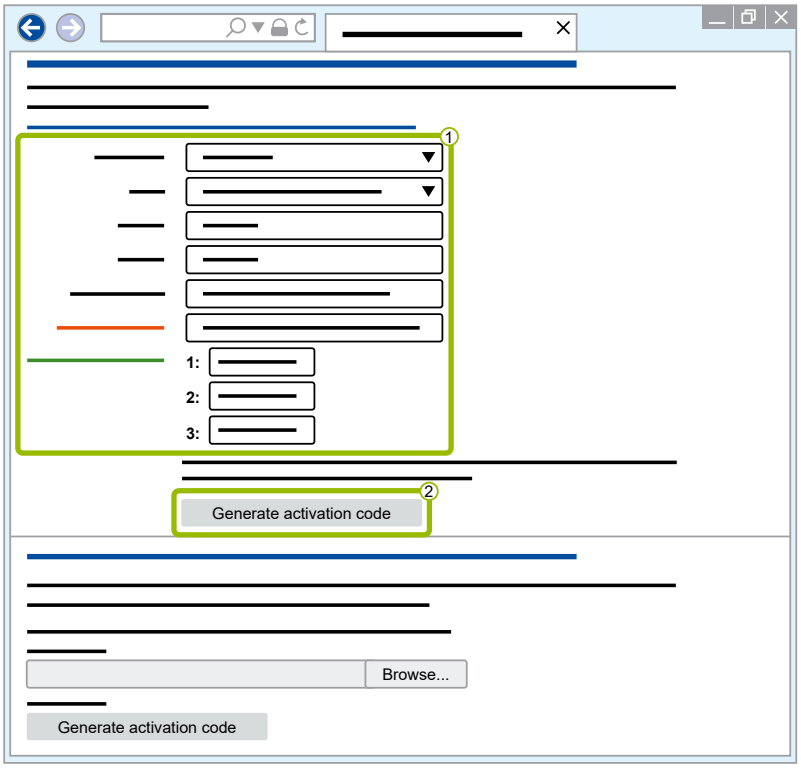
- Activation by e-mail
- Activation via removable storage device (USB)

Activation of the Diagnostic Software by e-mail

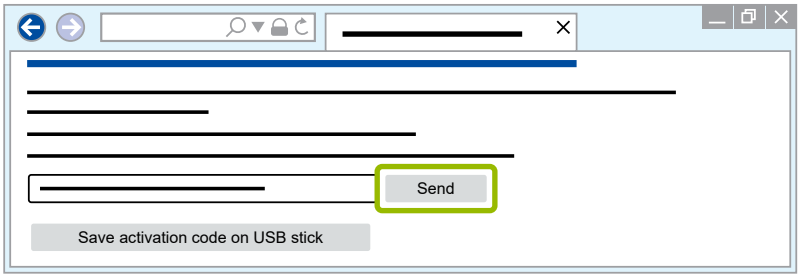
1. Fill in the fields in the form manually or transfer the data using a removable storage device (USB) ①.

   ➲*See: chapter "9.4.4 Activating the Diagnostic Software", page 35*

2. Click on **Generate activation code** ②.

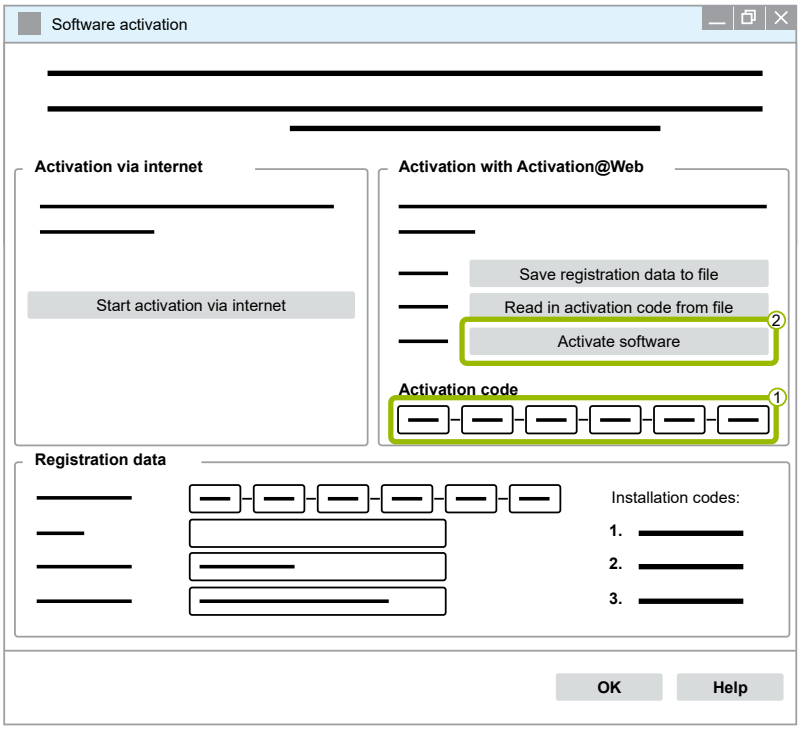


3. Enter your email address.
4. Click on **Send**.

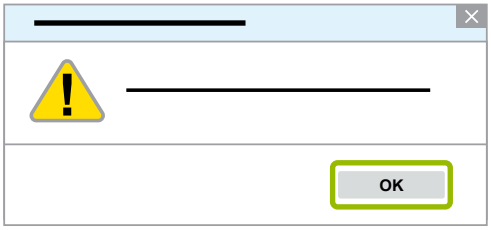


↳ The activation code will be sent to the specified e-mail address.

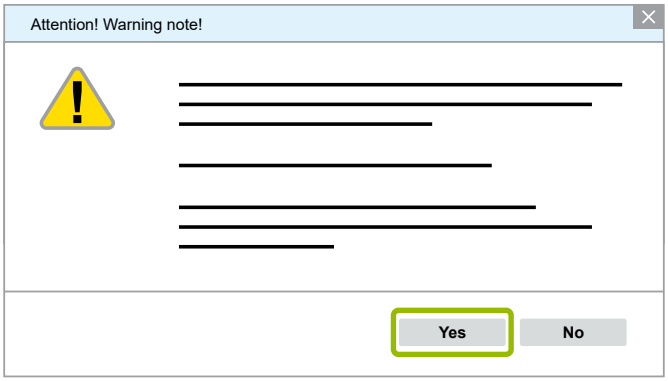
5. Enter the **Activation code** ①.
6. Click on **Activate software** ②.



7. Click on **OK**.



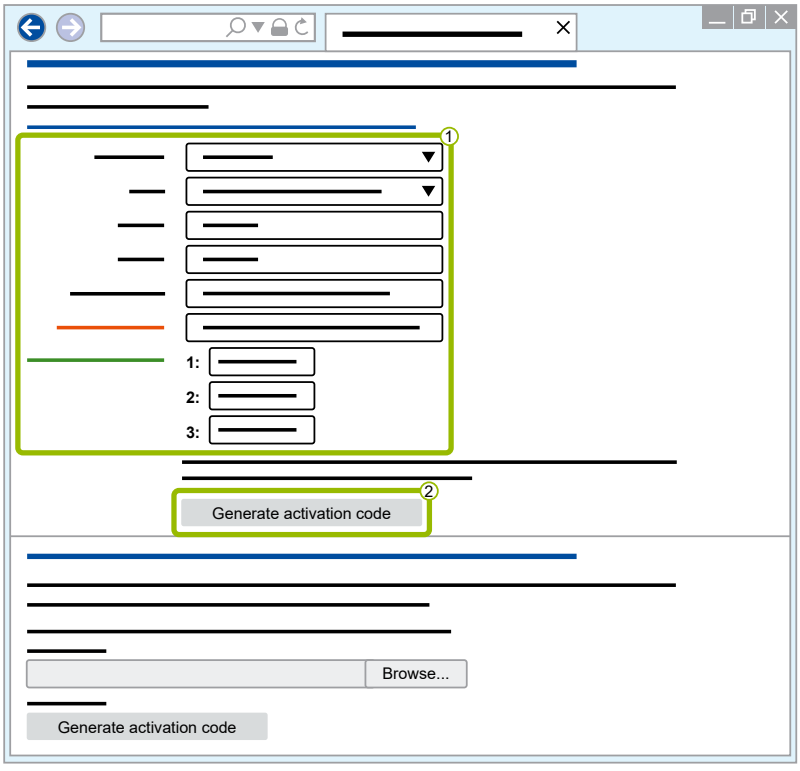
8. Read the warning note.
9. Click on **Yes**.



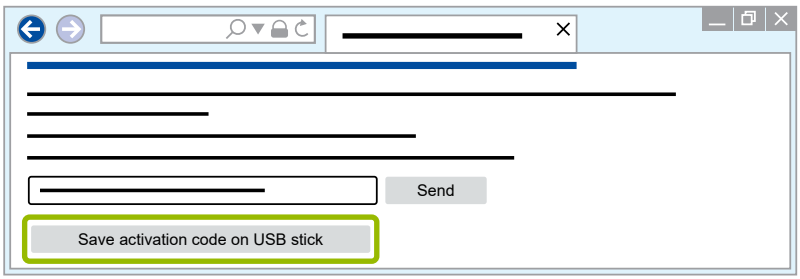
↳ The Diagnostic Software is now activated.

Activation of the Diagnostic Software via removable storage device (USB)

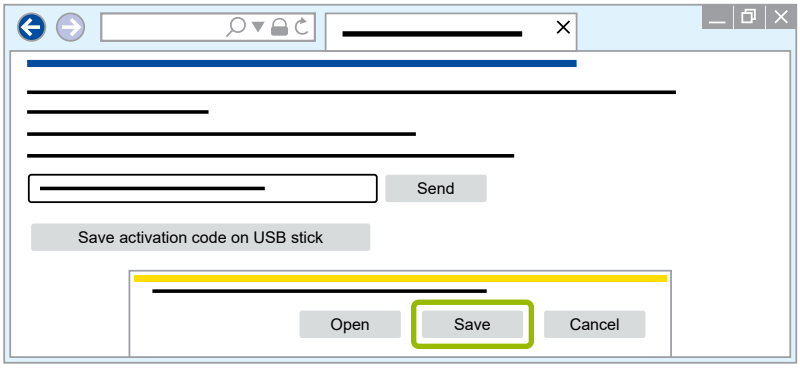
1. Fill in the fields in the form ①.
2. Click on **Generate activation code** ②.



3. Click on **Save activation code on USB stick**.

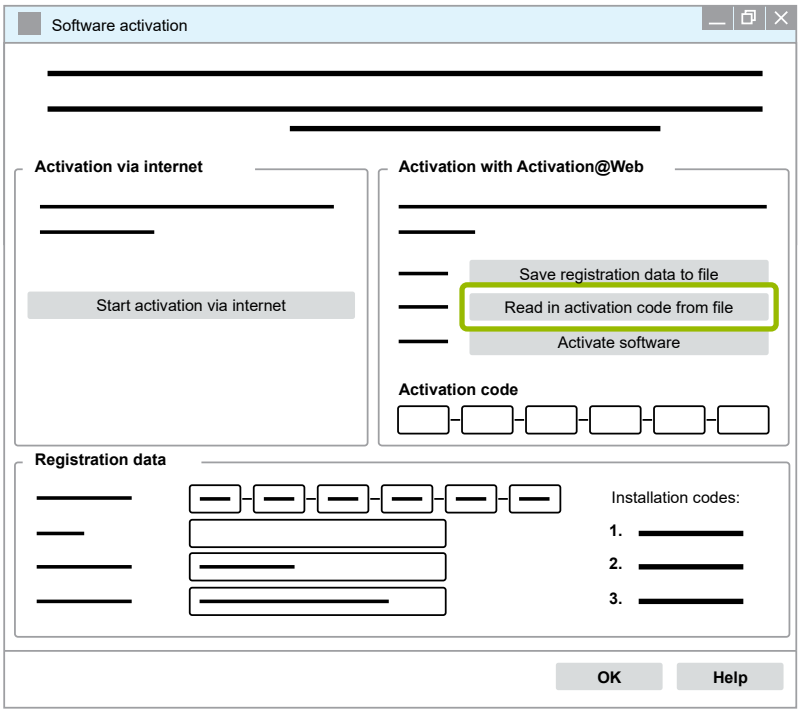


4. Click on **Save**.



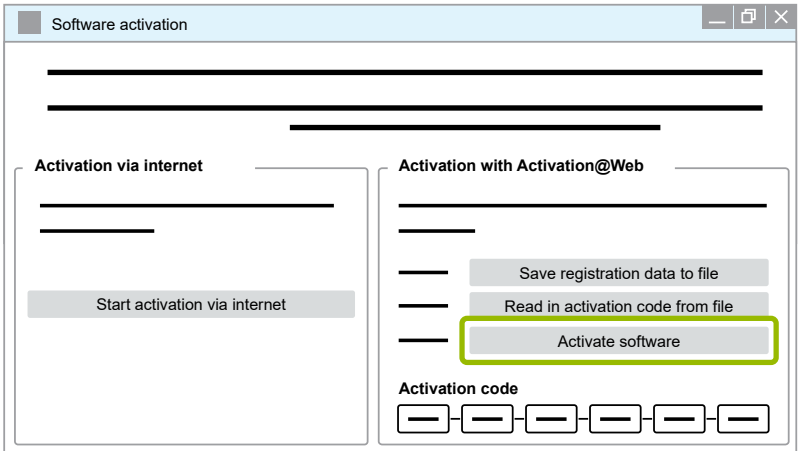
↳ The activation code will be downloaded.

5. Save the downloaded activation code on your removable storage device (USB).
6. Insert the removable storage device (USB) into the PC where the Diagnostic Software is used.
7. Click on **Read in activation code from file**.

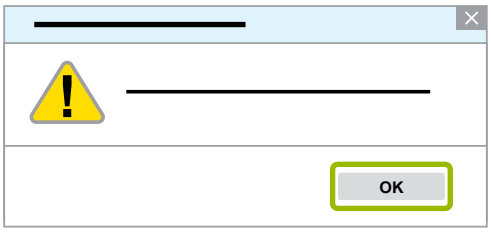


↳ The activation code is entered automatically.

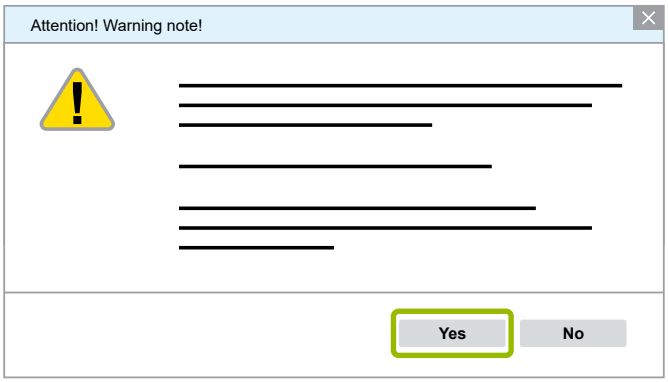
8. Click on **Activate software**.



9. Click on **OK**.



10. Read the warning note.
11. Click on **Yes**.



↳ The Diagnostic Software is now activated.

9.5 Starting the diagnosis

In order to carry out a diagnosis of EBS on the training model, a complete and successful start-up must have been carried out using the Diagnostic Software.

The EBS enables diagnosis via the diagnostic cable OBD.

When starting the Diagnostic Software, the ignition on the training model must be switched.

Establishing a diagnostic connection

1. Connect the diagnostic cable, which is located to the right of the brake, to the Diagnostic Interface.

2. Connect the Diagnostic Interface to your laptop/PC on which the Diagnostic Software is installed.
3. Start the Diagnostic Software.
4. Start the diagnosis via the **Diagnosis** menu in the Diagnostic Software.
   - The Diagnostic Software checks the individual components and logs any faults that have occurred.
   - The Diagnostic Software collects all faults that have occurred in the diagnostic memory.

9.6 Calling up the diagnostic memory

The diagnostic memory of EBS 3 can be read out and searched for stored faults. When messages are detected, they are displayed with information.

Current faults are shown in red in the overview, non-current faults are highlighted in blue.

- Call up the diagnostic memory in the Diagnostic Software via the **Diagnostic memory** command in the **Messages** menu or the  button.

The **Diagnostic memory** dialogue box provides information and notes on the stored faults.
In addition, extensive information on the respective fault codes and repair aids can be viewed via the **Info** button.

9.7 Parameter setting

The system parameters of EBS 3 can be read from the ECU or from a file. All data can be modified and saved in the ECU or as a file.

You can start the parameter setting in the Diagnostic Software via the **Start-up** menu or call up the parameters with the command **Parameters** in the **System** menu.

Alternatively, you can use the following buttons in the Diagnostic Software.

Symbol	Function
	Start-up
	Parameter setting

Overview of parameters

Extensive parameters are available in the Diagnostic Software. The following section therefore only provides a basic overview.

Explanations of the individual parameters as well as the functions and settings of the parameters can be found in the Diagnostic Software help.

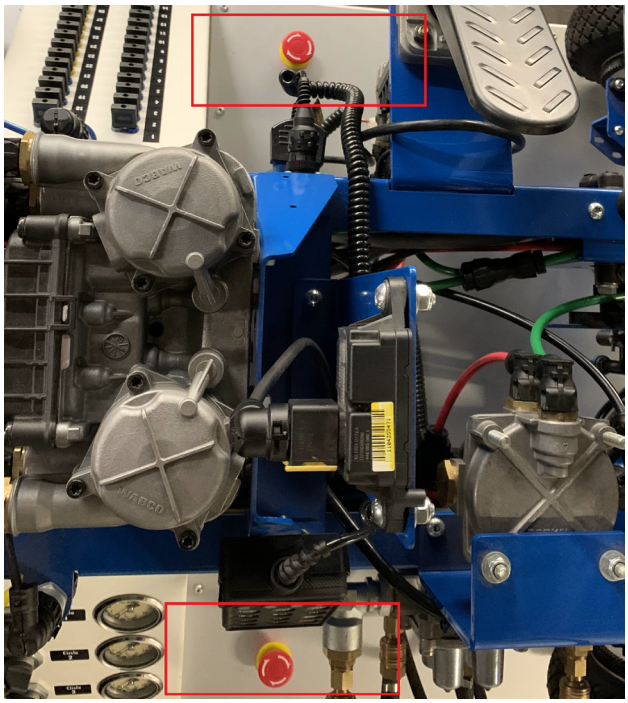
The parameters are set according to the functions in the individual tabs. The tabs are numbered and can be selected as required. To write the data into the ECU of the EBS all tabs must have been selected once. Whether a tab has already been selected can be seen from the colour of the tab. After selecting the tab, the tab changes its colour.

Diagnosis and parameter setting

Tab	Configurable parameters
(1) Start	• This tab contains a general note on parameter setting. • The tab can be hidden.
(2) Vehicle	• Vehicle type • Number of axles • ABS system • Axle definition • Modulator mounting • URL for vehicle information • Suspension
(3) Brake data	• Input of vehicle data (brake data) • Tires and pole wheel teeth • RSS parameter • Braking pressures
(4) Standard functions	• Standard functions • Subsystems • Show or hide parameters for general functions • Show or hide parameters for function modules
(5) Lifting axle control	This tab appears automatically if a lifting axle has been assigned on the Vehicle tab. • Configuration of the lifting axle control
(6) Brake functions	This tab only appears if the brake functions are activated on the Standard Functions tab. • Configuration of special brake functions • Special functions for special vehicles
(7) Air suspension	This tab only appears if the ECAS or eTASC function was selected during vehicle configuration. • Level control • Parameters for ECAS with eTASC/rotary slide valve • Parameters for green ECAS warning lamp • Additional tab with settings for advanced ECAS parameters
(8) General functions	This tab only appears if the general functions are activated for the standard functions. • Pressure sensors • General functions • CAN messages ISO 11992 • Warning lamp function • Service interval • ECU stand-by time

10 Procedure in case of accidents or malfunctions

For safety reasons, emergency stop switches are fitted on both sides which interrupt the power supply when actuated.



Unlocking the emergency stop switches

1. Before unlocking, make sure that no one is in a danger zone (indicated by yellow information stickers).
2. Turn off the ignition.
3. Turn the emergency stop switch to the right.
4. If the malfunction occurs on the brakes, additionally disconnect the compressed air supply and vent it.

   ➲*See: chapter "11.3 Disconnecting the compressed air supply", page 48*

   ➲*See: chapter "11.4 Venting the compressed air tanks", page 49*
5. Contact your WABCO contact person after a malfunction.

Putting back into operation

1. Turn the emergency stop switch to the left.
2. Switch on the ignition.

11 Taking out of operation

11.1 Switching off the power supply

On the side of the substructure there is a rotary **Main Switch** for switching off the power supply.

- Turn the rotary **Main Switch** to position 0.

↳ The power supply is switched off.

11.2 Disconnecting the power supply

1. Switch off the power supply unit.
2. Pull the plus plug out of the left-hand, red connector.
3. Pull the minus plug out of the right-hand, blue connector.
4. Unplug the power supply unit from the socket.

↳ The power supply is disconnected.

11.3 Disconnecting the compressed air supply

⚠ CAUTION

Injuries in the ears

By activating the park brake, both the instructor and the participants of the training are exposed to increased noise levels for a short time.

- Advise participants of the increased noise level and give them the opportunity to protect themselves from the noise, for example by covering their ears or using hearing protection.

1. Close the pneumatic shut-off cock on the left side of the substructure.
2. Disconnect the compressed air supply from the training model.

11.4 Venting the compressed air tanks

To vent the compressed air tanks, first follow the step below:

➲*See: chapter "11.3 Disconnecting the compressed air supply", page 48*

1. Turn open the **Air Exhaust** switch on the left side of the training model.
2. Turn open the four **Air Exhaust** switches on the back of the training model.

   ↳ The compressed air tanks are vented.

12 Maintenance

12.1 Maintenance and cleaning

The training model is maintenance-free.

WABCO recommends that the training model be cleaned with a dry or slightly moistened cloth when necessary. Only use solvent-free cleaning agents for cleaning.

NOTICE

Damage due to soiling

If dirt gets into the interior of the training model via the compressed air connections, damage, malfunctions or malfunctions can result.

- Cover the compressed air connections when cleaning the device if the coupling heads are not connected.

Follow these steps before cleaning:

1. Disconnect the power supply.

   ➲*See: chapter "11.2 Disconnecting the power supply", page 48*

2. Disconnect the compressed air supply.

   ➲*See: chapter "11.3 Disconnecting the compressed air supply", page 48*

12.2 Repair

⚠ CAUTION

Injuries due to structural changes

Structural changes can lead to incorrect behaviour of individual components and an increased risk of injury.

- Do not make any structural changes to the training model.

Repairs may only be carried out by authorised personnel of the manufacturer or by authorised personnel of WABCO.

Please contact your WABCO contact person for further information.

13 Noise emission data

Date:	29/07/2020	Order:	Berger Truck Service GmbH, 6300 Wörgl
System/machine		**Truck training model**	
Technical data:		Operating pressure of 8 bar	
Dimensions:		L x W x H	180 cm x 85.5 cm x 70 cm
Operating states:		Simulation of the brakes, moving the lifting axle and changing the driving level	
Measuring room			
Dimensions:		L x W x H	1700 cm x 550 cm x 267 cm
		Volume:	249645000 cm³
Room acoustics:			
Floor:	-	Ceiling:	-
Walls:	-		
Type of installation/assembly of the system/machine			
The truck training model has swivel castors that allow it to be moved easily from one place to another.			
Measurement conditions			
Temperature T:	21 °C		
Measuring device used:		Brüel & Kjaer 2232	
Next test date:		Recalibration 2021	

Measurement no.	Operating state	A-weighted sound pressure level L'_{pa} in dB(A) at the measuring point					
		1	2	3	4	5	Average sound pressure level:
1	Simulation of the brake	91.6	82.7	82	81.9	80.2	**83.68**
2	Switching the valves	80.2	78.9	77.5	77	76.2	**77.96**
3	Moving the lifting axle	75.8	75.6	75.2	74.8	74.8	**75.24**
4	Changing the driving level	72.6	72.2	71	70.2	71.5	**71.5**

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L Aeq	83.68	**Time**	15
L Aeq	77.96	**Time**	13
L Aeq	75.24	**Time**	17
L Aeq	71.5	**Time**	15

Equivalent continuous sound level in dB(A)	79.3
Total impact duration in h	1
Daily noise exposure level LEX,8h in dB(A)	70.3

14 EEC declaration of conformity

EG-Konformitätserklärung

gemäß der EG-Maschinenrichtlinie 2006/42/EG vom 17.Mai 2006

Der Hersteller:

Berger Truck Service GmbH
Gewerbepark 16
AT-6300 Wörgl

erklärt hiermit, dass die Maschine:

Typ: Schulungsmodell
Bezeichnung: Truck-Schulungsmodell
Beschreibung: Modell eines Zugfahrzeugs in verkleinertem Maßstab, das zur Vermittlung von Wissen zu Brems- und Luftfederungssystemen von WABCO dient
Teilenummer: 300 000 001 0
Seriennummer: siehe Typenschild
Baujahr: siehe Typenschild

allen einschlägigen Bestimmungen der Maschinenrichtlinie 2006/42/EG sowie den grundlegenden Sicherheits- und Gesundheitsschutzanforderungen entspricht.

Die Maschine entspricht weiterhin allen Bestimmungen der folgenden Richtlinien:

- EMV-Richtlinie 2014/30/EU vom 26. Februar 2014

Folgende sonstige technische Normen und Spezifikationen wurden angewendet:

- EN ISO 12100:2010 Sicherheit von Maschinen - Allgemeine Gestaltungsleitsätze - Risikobeurteilung und Risikominderung

Mit der Zusammenstellung der technischen Unterlagen ist beauftragt:

Christian Nunner
Gewerbepark 16
AT-6300 Wörgl

Unterzeichner: Manfred Mohn
Funktion: Geschäftsführer

Ort, Datum: Wörgl 23.11.2020 Unterschrift: _____

Original-Konformitätserklärung

15 WABCO Contact

You can find your local WABCO contact via the following page:
http://www.wabco.info/i/1489

You can find information on WABCO products here: www.wabco-customercentre.com
Please contact your WABCO partner for further information.

ZF Friedrichshafen AG

ZF is a global technology company and supplies systems for passenger cars, commercial vehicles and industrial technology, enabling the next generation of mobility. ZF allows vehicles to see, think and act. In the four technology domains Vehicle Motion Control, Integrated Safety, Automated Driving, and Electric Mobility, ZF offers comprehensive solutions for established vehicle manufacturers and newly emerging transport and mobility service providers. ZF electrifies different kinds of vehicles. With its products, the company contributes to reducing emissions and protecting the climate.

ZF, which acquired WABCO Holdings Inc. on May 29, 2020, now has 162,000 employees worldwide with approximately 260 locations in 41 countries. In 2019, the two then-independent companies achieved sales of €36.5 billion (ZF) and $3.4 billion (WABCO).

With the integration of WABCO, the leading global supplier of braking control systems and other advanced technologies that improve the safety, efficiency and connectivity of commercial vehicles ZF will create a new level of capability to pioneer the next generation of solutions and services for original equipment manufacturers and fleets globally. WABCO, with almost 12,000 people in 40 locations worldwide, will now operate under the ZF brand as its new Commercial Vehicle Control Systems division.

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