BPW · THE QUALITY FACTOR

ECO Tronic EBS. Trailer Manager
Operator's Manual

Version 1.3

Contents

1 Introduction

Notes on the content

This publication describes the Trailer Manager parameter setting and diagnostic software. Step by step, it explains how to install the necessary components, how to handle the software and what the individual functions do. Following this, the extensive possibilities for system diagnosis and fault analysis are considered.

It is essential to follow the safety instructions as well as to comply with the documentation for installation and operation of the ECO Tronic EBS.

Intelligent software for parameter settings

To ensure that the brake system and other running gear parameters are set perfectly, ECO Tronic EBS has an extensive and user-friendly software system for setting parameters of the trailer - the **Trailer Manager**. Configuration and diagnosis of the EBS could hardly be easier.

ECO Tronic stands for a new product family of intelligent electronic products from BPW for the trailer. The special features of the BPW ECO Tronic EBS not only offers standard EBS functions but also additional trailer-specific functions that can reduce service times and therefore save operating costs.

A clear menu system with step-by-step configuration allows for trouble-free inputs. Missing information is displayed as a safety feature in order to avoid possible mistakes in the system.

Do you sometimes find it difficult to identify vehicle components? It is not uncommon for valuable time to be lost finding out which spare part can be obtained from where in the shortest possible time. The additional function of Assembly Data Management (ADM) in ECO Tronic EBS will be greatly appreciated in this context. This function gives you a practical tool for reading in and managing information about the specific running gear and vehicle. Just one look at the ADM database allows you to identify spare parts and maintenance documents unambiguously. At the touch of a button, you can call them up or request them directly from the BPW customer network. This saves costs because ADM can significantly reduce the length of time spent in workshops and on repair jobs.

Please bear in mind our extensive and practical training courses on this topic, since only trained and qualified specialist personnel are allowed to undertake work on the brake system of the vehicle and the corresponding software.

The vehicle parameter data is stored inside the ECU. It will remain intact even after electrical power is removed from the ECO Tronic EBS.

Minimum system specification

The minimum PC or Laptop specification to run the Trailer Manager package is as follows:

- Processor - 486 or above
  RAM - 8 MB (16 MB recommended)
  Hard Drive - 20 MB
  Monitor - 800 x 600 VGA (Minimum)
  USB connection - for connecting the diagnostic cable
- MS Windows 98, ME, NT, 2000, Vista and 7
  Vista and 7: Installation only with administrator rights

1 Introduction

1.1 Safety information

- All work must be performed by trained specialists in qualified workshops and authorised companies which have all the necessary tools and knowledge for performing this work.

- The parameters of the system are only allowed to be set by specialists who have completed a suitable training course for this purpose. The parameters for the brake system can be found in the brake calculation prepared for the vehicle in question. The brake system calculation must take account of statutory requirements of the country in question, as well as the necessary safety provisions. If the set values are changed, the person who performs this change is responsible for complying with the statutory requirements of the country in question where the vehicle is operated, as well as for maintaining safe function of the system.

- When repairs are carried out on the vehicle, the brake system must be protected against mechanical, thermal and surge voltage damage.

- Local safety and accident prevention regulations as well as regional and national regulations must be complied with.

- The relevant operation and service regulations as well as safety regulations of the vehicle manufacturer and of the manufacturers of other vehicle parts shall be adhered to.

- The vehicle must be secured against rolling away during repair work. Please observe the relevant safety regulations for repair work on commercial vehicles, in particular the safety regulations for jacking up and securing the vehicle.

- Following each repair, it is necessary to perform a function check or a test drive in order to make sure that the brakes are functioning correctly.

- BPW can only guarantee the safety, reliability and performance of systems, in particular those of ECO Tronic EBS, if all instructions are complied with.

1.2 Abbreviations

Abbreviations	Explanation	Description
2S/2M	2 **S**ensors / 2 **M**odulators	ABS system with 2 rotational speed sensors and 2 modulators
ABS	**A**nti-Lock **B**raking **S**ystem	Prevents the locking of braked wheels to maintain lateral grip
ADM	**A**ssembly **D**ata **M**anagement	Software function for storing all important vehicle data
ADR	**A**ccord européen relatif au transport international des marchandises **D**angereuses par **R**oute	European agreement on international transport of dangerous goods by road
ASC	**A**daptive **S**urface **C**ontrol	ABS control that dynamically adapts to road conditions
AUX	**AUX**iliary	Additional input / output for sensors or actuators / valves
BPM	**B**rake **P**erformance **M**onitoring	Software function for monitoring brake performance
CAN	**C**ontroller **A**rea **N**etwork	Data bus system, used for controller communication in vehicles, among others
COLAS®+	Lift and lower valve	Valve for lifting and lowering the vehicle body in the case of airsprung vehicles
DCV	**D**ouble **C**heck **V**alve	Anti-compounding valve to prevent simultaneous application of service brakes and emergency brakes
DTC	**D**iagnostic **T**rouble **C**odes	Brake system error / warning codes for diagnosis and repair
EBD	**E**lectric **B**rake **D**emand	Electric brake function, additional function which makes it possible to operate the brake using electric control inputs.
EBS	**E**lectronic **B**raking **S**ystem	Electro-pneumatic brake system with CAN communication between the truck and the trailer
ECE R13	**E**conomic **C**omission for **E**urope **R**egulation No. 13	European regulation No. 13 - Brake systems
ECU	**E**lectronic **C**ontrol **U**nit	Electronic controller
EEPROM	**E**lectrically **E**rasable **P**rogrammable **R**ead **O**nly **M**emory	
ELS	**E**lectronic **L**oad **S**ensing	Function for automatically adapting the braking force to the load of the vehicle
EOLT	**E**nd-**O**f-**L**ine **T**est	End-of-Line system check to ensure correct system installation
EPRV	**E**lectro **P**neumatic **R**elay **V**alve	Electro pneumatically piloted relay valve of the EBS
GGVS	**G**efahr **G**ut **V**erordnung **S**traße	Act governing the road haulage of hazardous materials
GPI	**G**eneral **P**urpose **I**nput	AUX option
GPO	**G**eneral **P**urpose **O**utput	AUX option
ILAS®-E	**I**ntegrated **L**ift **A**xle **S**teering	EBS controlled lift axle valve
ISO 1185		Standardised interface between truck and trailer for lighting control
ISO 11992		CAN bus communication standard between truck and trailer for brake control
ISO 7638		Standardised interface between truck and trailer supplying ABS/EBS systems with power, transfering a signal for a warning device and, if fitted, enabling CAN communication as standardised in ISO 11992
LWS	**L**ining **W**ear **S**ystem	Brake pad wear sensing
LSV	**L**oad-**S**ensing **V**alve	
PPV	**P**ressure **P**rotection **V**alve	Pressure protection valve that separates the brake and air suspension circuits
PTC	**P**ush **T**o **C**onnect	Pneumatic connectors to ease installation
QRV	**Q**uick **R**elease **V**alve	
RCM	**R**oad **C**ondition **M**onitoring	Software function for recording and evaluating road profiles
REV	**R**elay **E**mergency **V**alve	Relay valve with emergency brake function
RtR	**R**eset **t**o **R**ide Height	Automatic return to ride height
SAUX	**S**uper **AUX**	Installation-optimized possibility for three digital inputs
TA	**T**raction **A**ssist	Starting traction control
TrCM	**T**railer **C**ontrol **M**odul	Parking and manoeuvring valve with emergency brake function (and integrated pressure protection)
TRS	**T**railer **R**oll **S**tability	Function that reduces the risk of the trailer rolling over

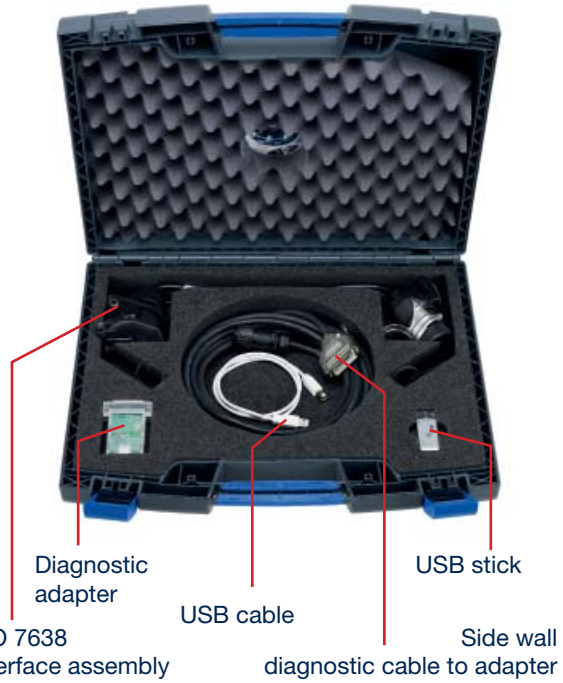
2.1 The hardware

Please follow the instructions in the order shown.

The software must be installed before the connection of the interface.

In order to connect the ECO Tronic EBS to a commercially available PC, you require the corresponding diagnostic case which contains the diagnostic adapter, the required connection cables as well as a USB stick with the Trailer Manager software.

ECO Tronic EBS diagnostic case
(BPW no. 99.00.000.9.64)



2.2 The software

Start the “Setup.exe” application to install the Trailer Manager. In the screen which appears, select the required language by clicking on the corresponding country flag.
Follow the instructions on the screen to install the program in the appropriate language. Program files are installed in the following folder on the PC:

C:\Program Files\BPW\Trailer Manager (Eng)

User files that are created and can be used in Trailer Manager are installed in:

C:\Documents and Settings\All Users\Documents\BPW\Trailer Manager

If required, click the button indicated as “USB driver installation Windows 2000 / XP / Vista / 7” or “USB driver folder Windows 98, ME” in order to install the USB driver. The driver in question only needs to be installed in the initial installation. There is no need to install a USB driver when installing additional language versions or updates.
To obtain the latest version of the Trailer Manager, please download this in the required language from the BPW website at www.bpw.de.

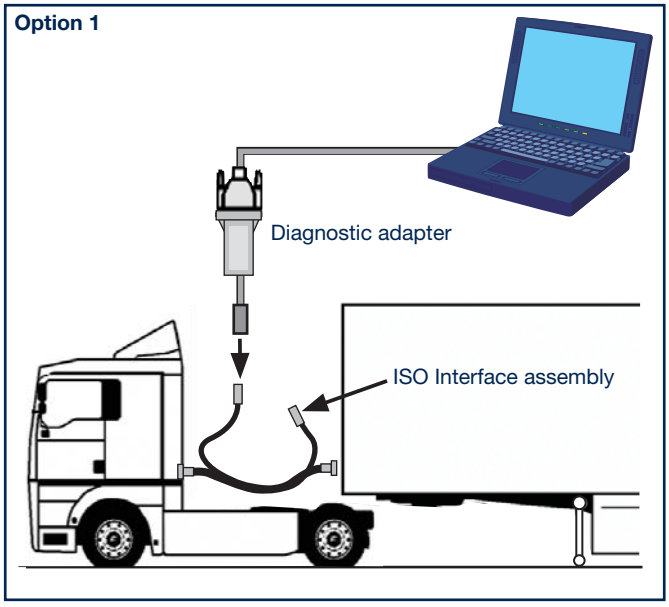
2.3 Diagnostic access

Before taking the vehicle into operation, make sure that the ECO Tronic EBS has been installed and connected in accordance with the installation and operating instructions.

Gently push the USB cable into a USB port on the back of your PC or laptop.

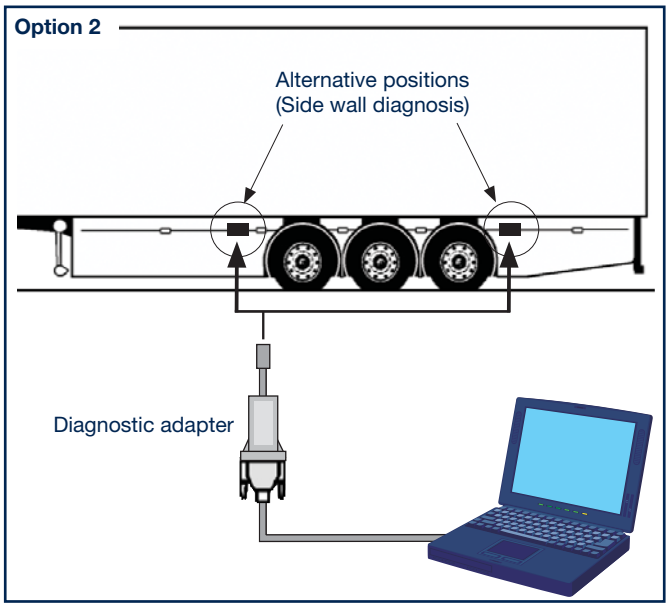
Option 1

Establish a connection with the ECU via the ISO interface unit using an ISO7638 7-pin plug connector, in which pins 6 and 7 are used as the CAN databus. The necessary cables can be found in the BPW diagnostic case.



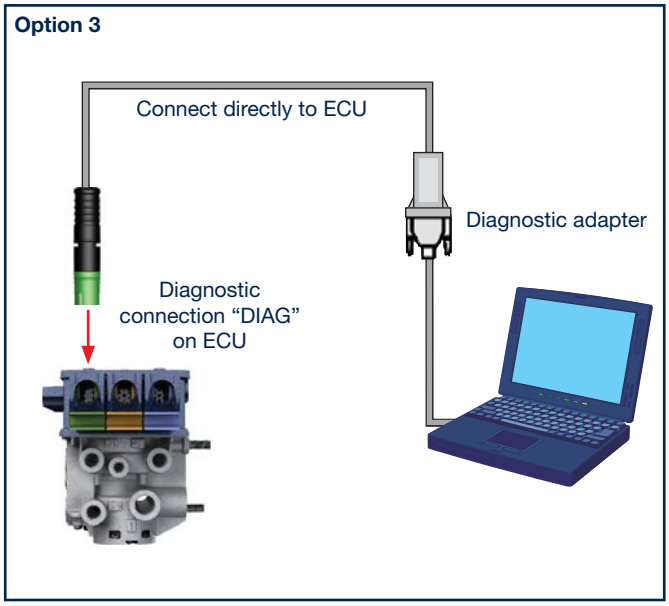
Option 2

Establish a connection with the ECU via the connection on the side of the vehicle (side wall diagnosis). The cable from the side wall diagnostic interface to the diagnostic adapter is contained in the diagnostic case.



Option 3

The connection to the ECU is performed using a cable that is connected to the DIAG interface of the Modulator. This permits direct access to the ECU. (Not included in the diagnostic case BPW no. 99.00.000.9.64).



2.4 Powering up the EBS

Power up the ECO Tronic EBS. During the self-check procedure the system displays the following functions:

1 - The trailer EBS warning lamp comes On and stays On (depending on the configuration).

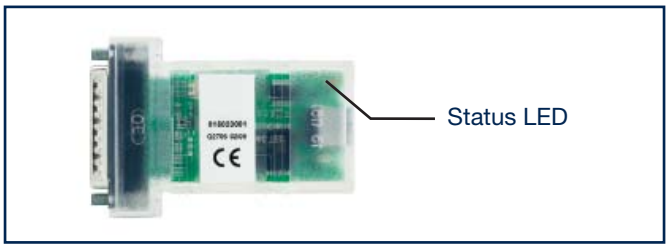
2 - One audible cycle is produced by the EPRV's (electro-pneumatic relay valves).

The diagnostic adapter is provided with a multi-function LED to confirm correct function of the unit as follows:

Orange: Indicates connection to USB port.
Red: Indicates connection to USB and EBS.
Green: To indicate data is being transmitted.
The "red / green" LED lights up when the EBS power supply is switched on.

Installation is now complete.
The installation program for the USB driver is in a sub-folder on the data carrier called USB should you need to install it separately.

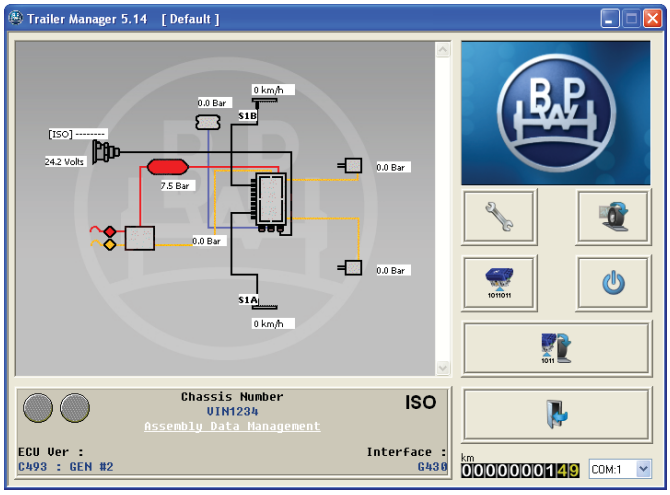
Please keep your installation software in a safe place in case you need to reinstall at any point.



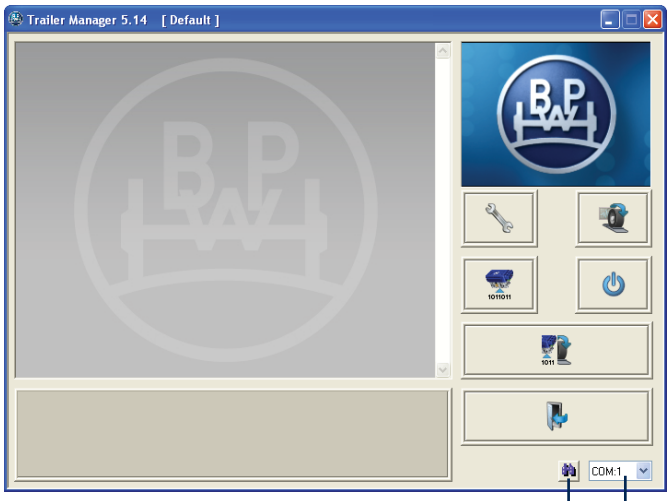
3.1 The main screen

Enter into the Trailer Manager program by the short-cut icon created on your desktop.

The following “normal” screen should appear.



If the screen looks like the one on the right, the ECO Tronic EBS is not connected. To find the right COM port to the ECO Tronic EBS click on the binoculars icon or select the COM port from the PC connection port indication list.



Binoculars icon

PC connection port indication list

3.1 The main screen

3.1.1 Description of the function icons


Read/delete Diagnostic Trouble Codes (DTC)

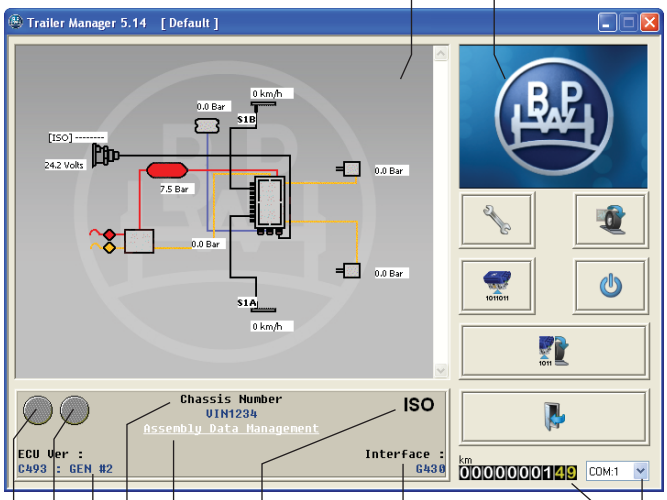

“End-of-Line test” (EOLT) procedure


Read, setup and program the ECU


Reset the ECU


New vehicle commissioning (automatic EOLT)

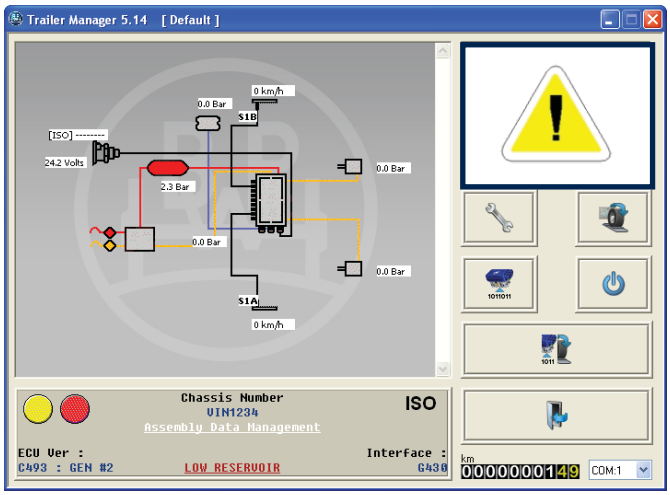

Exit the Trailer Manager program



Moving the mouse pointer slowly over a button displays a brief description which is referred to as “mouse-over events”. This information explains what each button does, or which function is activated by each button.

3.1.2 Video screen display

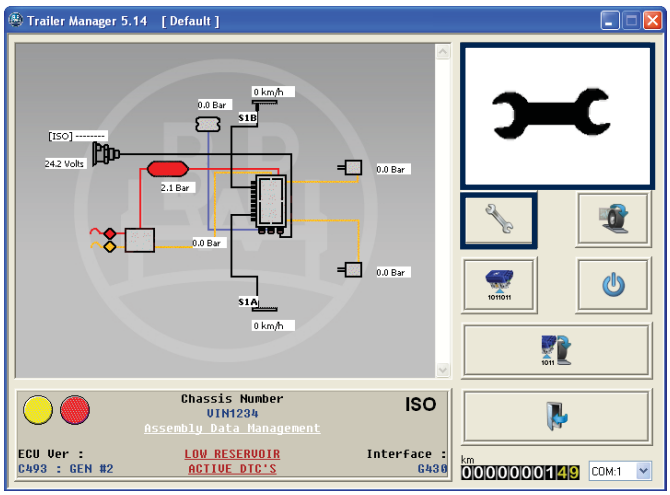
A flashing “Warning” symbol:
This indicates an ECO Tronic EBS system warning. This alternates with the following symbols:



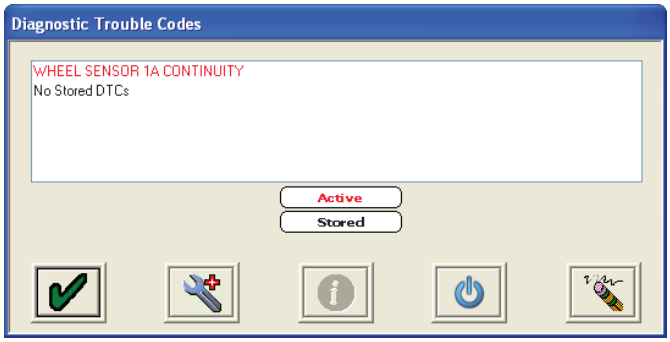
A flashing “Spanner” symbol:
This indicates the presence of an “**active**” Diagnostic Trouble Code.

Click on button  to read/delete DTC.

Alternatively, you can use the “active errors” hyperlink to access the active error code.

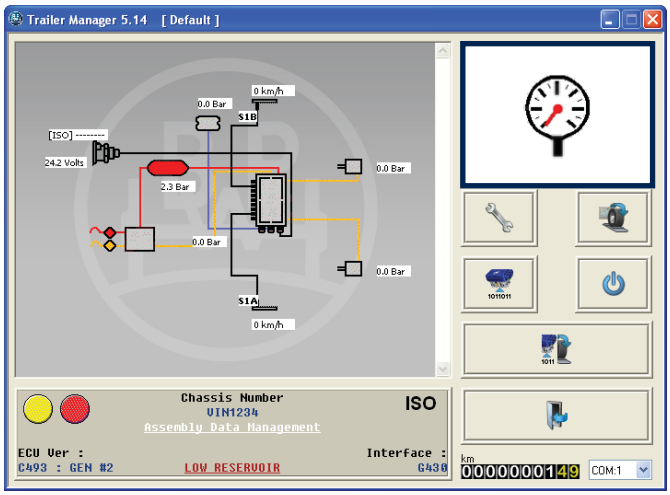


Example of a displayed active error code.



A flashing “Gauge” symbol:
This indicates the reservoir pressure is below 4.5 bar.

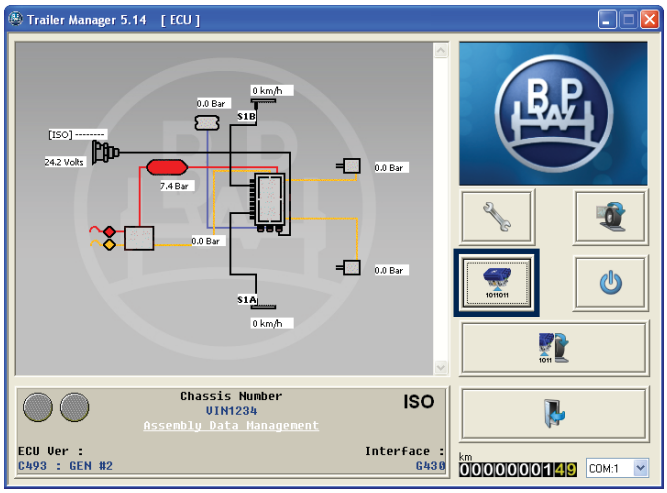
Note: End-of-Line test reservoir pressure requires to be 1 bar above laden brake output pressure to the trailer.



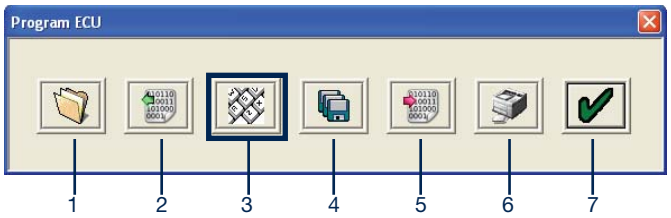
3.2 Setting system parameters

3.2.1 Button “Configure, Read, Setup and Program the ECU”

Click on button  .



The “Program ECU” screen will appear.



Understanding the screen display

1 - Read ECU configuration from file (Disc)
Note: To edit this file you must select the “Edit” ECU parameters. (Section 3)

2 - Read configuration information from ECU
Note: To read/edit this file you must select the “Edit” ECU parameters. (Section 3)

3 - Edit ECU parameters and configuration

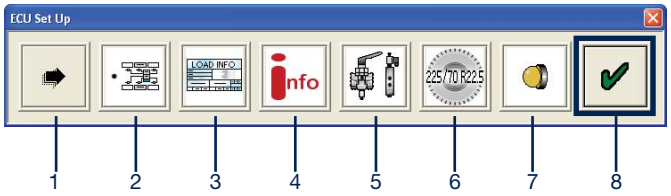
4 - Save ECU configuration.

5 - Program ECU with current configuration info.
Note: This button is only active with a diagnostic adapter connected holding ID 01.

6 - Print current ECU configuration information - load plate

7 - OK - Exit the “Program ECU” menu

Click on button  to edit the ECU parameters and configuration.



The “ECU Set UP” screen will appear.

Understanding the screen display

1 - Walk through button
(Note: The Walk through button guides the user through the configuration step by step. It is also possible to enter every configuration step (Buttons 2-7) separately.)

2 - ECU configuration and layout

3 - Set up parameter configuration.

4 - Display trailer information

5 - AUX configuration data

6 - Wheelscale configuration / tooth count of the exciter ring.

7 - Lamp flash configuration

8 - OK - Exit the ECU setup

3.2.2 Edit the ECU parameters / configuration

3.2.2.1 ECU configuration

Click on button  on the ECU setup screen (see page 12).

The “ECU Configuration” screen will appear.

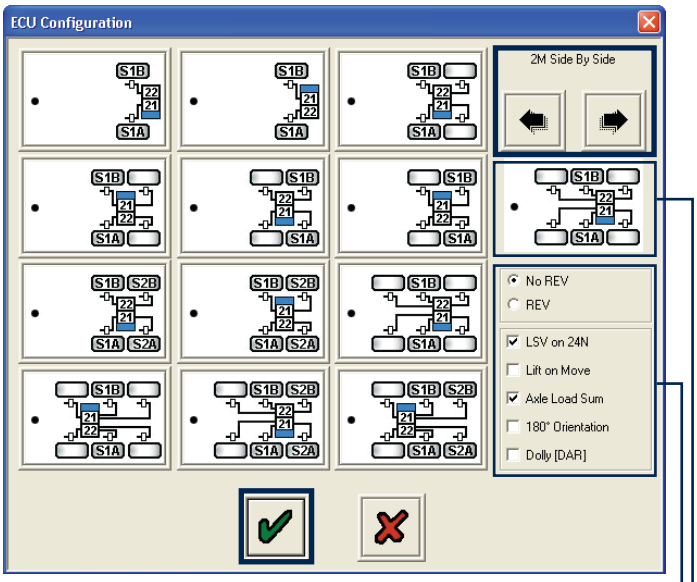
The configuration group title is shown at the top right of the screen in which below are left and right arrow boxes to enable to toggle between the configuration screens.

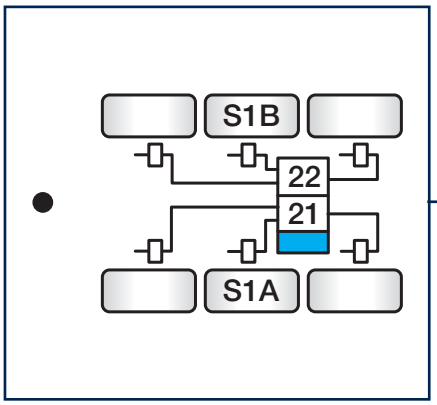
The following alternatives are possible:

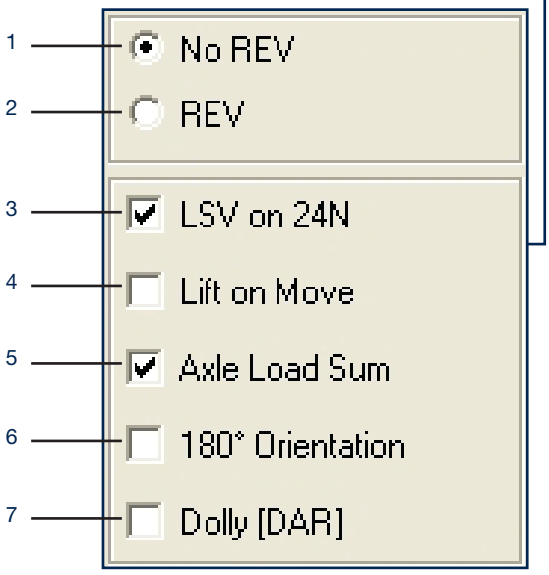
a) 2M, side by side - standard for semi trailer and centre drawbar axle trailer
b) 3M, drawbar trailer
c) 3M, semi trailer

Click on one of the boxes on the left side of the table selecting your system layout. A view on the right side of the table is the chosen ECU configuration and layout.

Note: The ECU configuration has a default setting of: 3-axle semi trailer, 2 sensors on centre axle, power connection plug installed on the left in the direction of travel (see fig. right).







If box **1** is selected (as shown) this adjusts the working parameters in the absence of a REV (Standard when using TrCM).

If box **2** is selected this adjusts the working parameters in the presence of a REV.

If box **3** is selected (as shown) the Load Sensing function is available together with ABS on backup powering (ISO1185 (24N)).

If box **4** is selected, any automatic lift axles will not raise until the vehicle starts moving (when the lamp goes out). It is to enable roller testing of all axles even when unladen. (Note: Use for the UK vehicle test authority).

If box **5** is selected (as shown) this allows the weight of the trailer to be indicated in the cab if the truck supports this function.

If box **6** is selected this eliminates crossing of the sensor cables.

After selection of box 7, the “Dolly Axle Regulation” (DAR) is on. It is intended only for dollies, which are mostly used in combination with a semitrailer while operating as a turntable drawbar trailer, but are also being used without a semitrailer operating as a centre axle trailer. This function can only be selected in accordance with the configurations side by side and 2M axle by axle. Furthermore, the ECU software has to include a “D” as prefix, in order this feature can be used.
The DAR function provides an improved ABS control for the above vehicles. In case the function DAR is not available, the TRS function should not be used in a dolly, operated as a centre axle drawbar trailer.

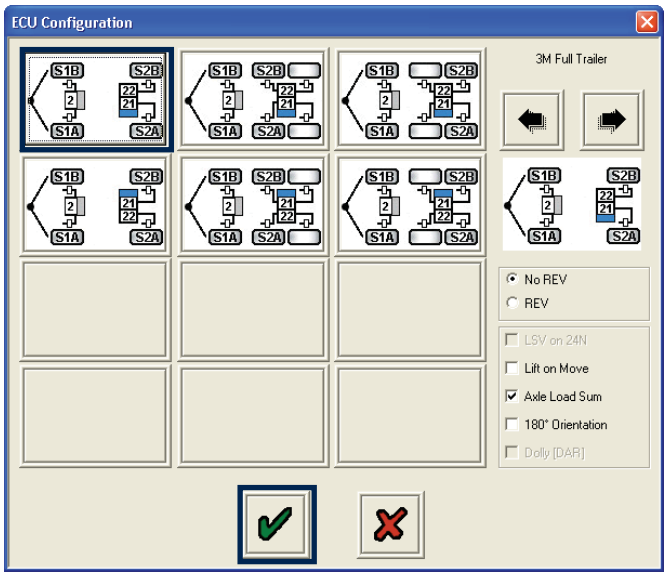
Note: Either box 1 or 2 must be selected. Boxes 3 to 6 may be selected or de-selected as required.

Click on button marked  to accept.

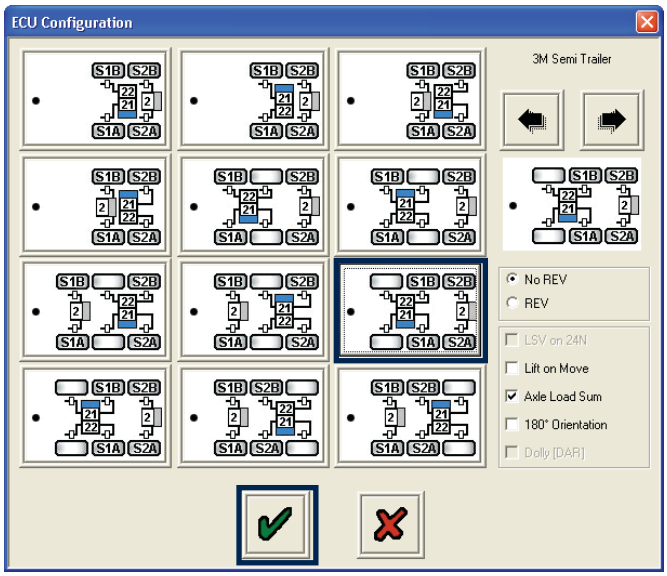
3.2 Setting system parameters

3M drawbar trailer configuration screen.

3.2 Setting system parameters



3M semi trailer configuration screen.



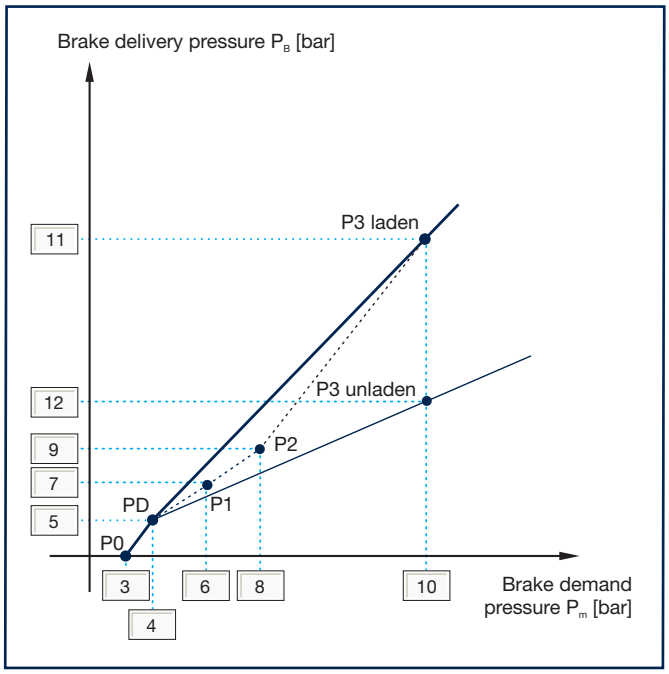
Click on button marked  to accept.

The “ECU Set Up” screen will appear.

3.2.2.2 ALB (Load apportioning) parameter data input

Click on button  .
The “Pressure inputs” screen appears (see below).

The pressure values to be entered in this screen (1 to 12) correspond to the points indicated in the adjacent diagram, and can be found in the corresponding brake calculation for the vehicle.
Recommendation: Point P0 response pressure (3) should be set to 0.2 bar.



A brake calculation made by BPW will additonally include an ECU setup file to be loaded in Trailer Manager, which contains also the calculated ALB parameters. If this file is loaded, the ALB parameters have to be examined for accuracy, but do not have to be entered manually.

After the box in question has been activated, the value can be edited. Alternatively, you can press the tab button on your PC to jump from one box to the next in order to edit or select it.

If the values 6, 7, 8 and 9 are required (see brake calculation example below), click the boxes ☐ P1 or ☐ P2, and enter the corresponding values from the brake calculation.

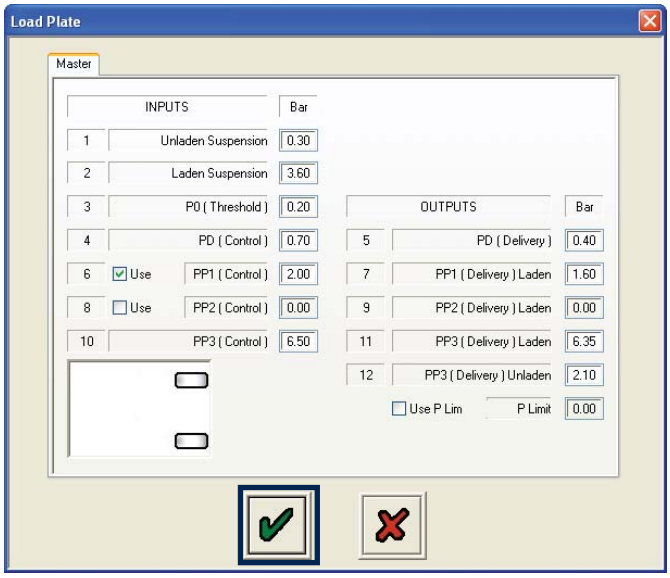
6	☑ Use	PP1 (Control)	2.00	7	PP1 (Delivery) Laden	1.60
8	☐ Use	PP2 (Control)	0.00	9	PP2 (Delivery) Laden	0.00

If the value “P limit” (pressure limitation) is required, this limits the pressure in the brake cylinders to the selected value. This must be between 5.00 and 8.50 bar. (Note: Is not derived from the brake calculation).

To enter the value, click the ☐ P Lim box (set to 8.50 bar by default).

In **semi trailer and centre drawbar axle trailers,** the following screen appears for the pressure values to be entered for the main Modulator.

The screen shown here displays a set of sample values which were entered from a BPW brake calculation as displayed below.



Click on button marked  to accept.

Adjustment data for ECO Tronic EBS (example)

	laden				
Axle	Axle load [kg]	Brake pressure at pm [10^2 kPa]			Bag pressure [10^2 kPa] Reference values!
		0.70	2.00	6.50	
		PD	P1	P3	
1	9000	0.4	1.6	6.35	3.6
2	9000	0.4	1.6	6.35	3.6
3	9000	0.4	1.6	6.35	3.6
	unladen				
1	1600			2.1	0.3
2	1600			2.1	0.3
3	1600			2.1	0.3

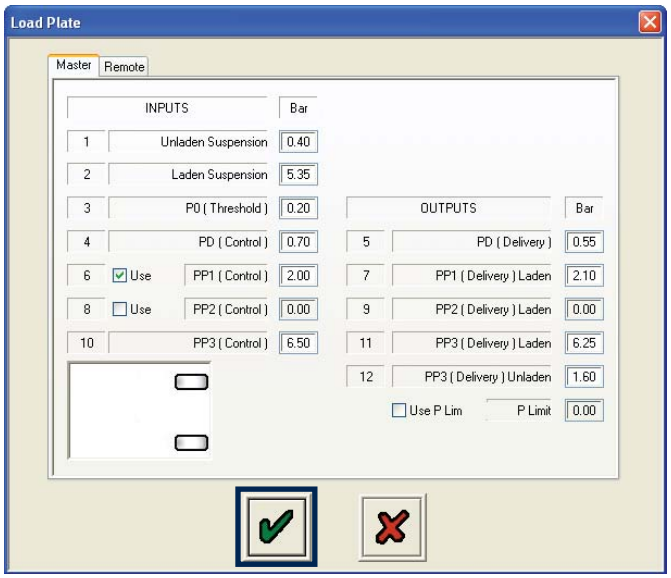
100 kPa = 1 bar

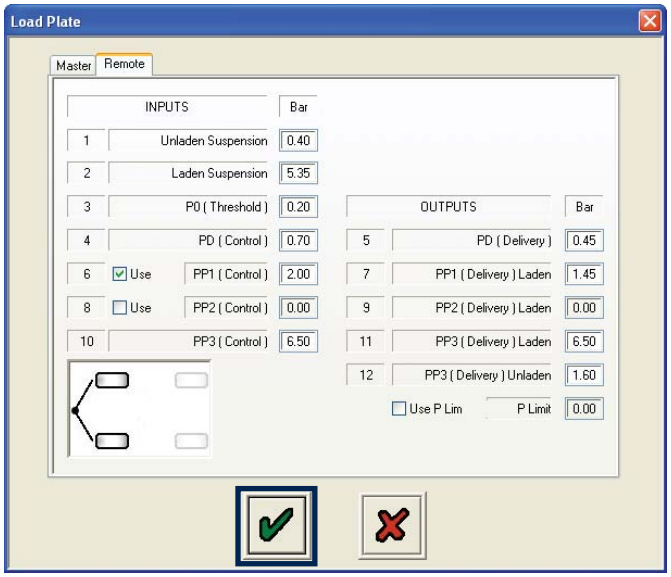
Caution: The calculated air bag pressures are guidance values only and may be different from the actual values. Accordingly, it is recommended that a check should be performed in the vehicle in order to obtain an optimum layout of the brake system.

3.2 Setting system parameters

In **drawbar trailers**, the following screen appears in which pressure values must be entered for the main Modulator and the auxiliary Modulator in accordance with the brake calculation for the vehicle.

The following examples shows values entered from a BPW brake calculation as shown below.





Click on button marked ✔ to accept.

Adjustment data for ECO Tronic EBS (example)

	laden				
Axle	Axle load [kg]	Brake pressure at pm [10^2 kPa]			Bag pressure [10^2 kPa] Reference values
		0.70	2.00	6.50	
		PD	P1	P3	
1	9000	0.45	1.45	6.5	5.35
2	9000	0.55	2.1	6.25	5.35
	unladen				
1	1450			1.6	0.4
2	1350			1.6	0.4

100 kPa = 1 bar

Caution: The calculated air bag pressures are guidance values only and may be different from the actual values. Accordingly, it is recommended that a check should be performed in the vehicle in order to obtain an optimum layout of the brake system.

3.2.2.3 Info - Trailer information and ADM

Click on button info.

The “Vehicle Details” screen will appear.

Enter details of:

Trailer manufacturer (max. 19 characters)

Brake calculation number (max. 16 characters)

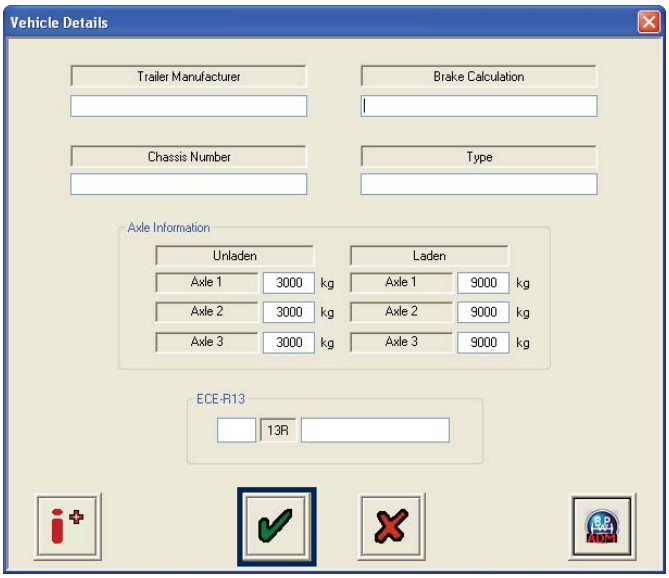
Chassis number (max. 17 characters)

Type (max. 12 characters)

Axle information - load of axle/s installed on the trailer.
(Default values are: unladen = 3000 kg, laden = 9000 kg)

This information is stored in the ECU and can be printed out on the End-of-Line test report and load plate. In type-certified vehicles, data from the ECE type certification can be entered here.

Click on button marked ✔ to accept.

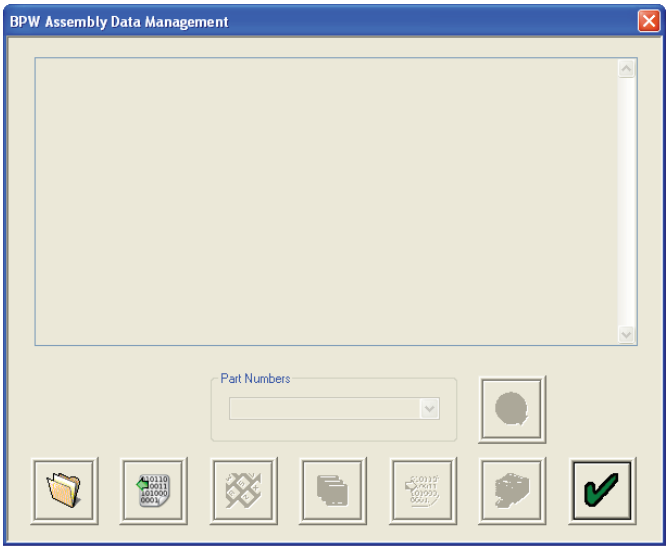


Clicking the button i+ opens a new screen titled “Geometric Data”. From here the user can enter detailed vehicle data.
- Configuration,
- Lift Axle Position,
- Wheel Base

From 2010 onwards, the vehicle data must be saved and transferred to the tractor vehicle via the CAN interface.

The Assembly Data Managment (ADM) is entered by clicking on the button. This BPW-specific function gives you a tool for reading in and managing information about the specific running gear and vehicle. A new screen appears with the title BPW Assembly Data Management.

A new screen titled BPW Assembly Data Management will appear.



3.2 Setting system parameters

The ADM data will appear in the upper window of the Assembly Data Management screen as shown. Advise regarding the creation of ADM files is given below.

All part numbers displayed in the ADM data window will also apear in the “Part Numbers” drop down menu. Select a BPW part number from the drop down menu.

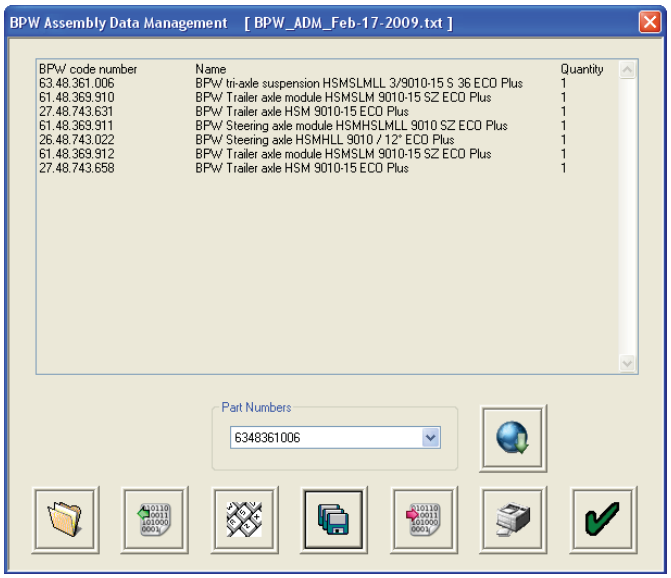
Click on the button.

After logging in with user name and password this button provides a direct link to the BPW Customer-Net which gives detailed information about the selected parts.

To edit the ADM data click on the button.

The ADM data can be saved to a file by selecting the button or written to the ECU by clicking on the button.

To print the ADM data select the button. Click on the button marked to exit the ADM screen.



Creating ADM files

An ADM file can be created quickly using the Edit function on the ADM screen of the Trailer Manager.

By clicking the button , the desired ADM data can be entered. Alternatively, an existing ADM file can be loaded and extended or amended with the ADM editor.

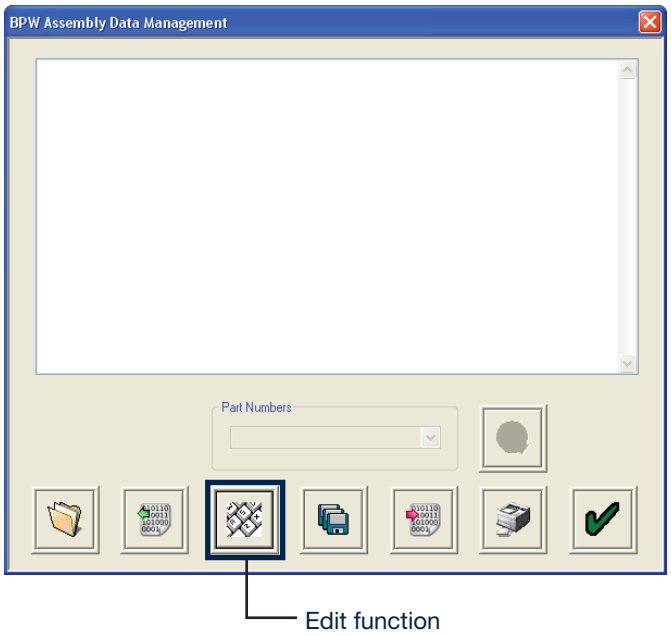
If the ADM file to be created outside the Trailer Manager, we recommend a simple editor (e.g. Windows Editor, which is included in any Windows operating system). The font should be set to default MS Sans Serif 8pt to behave exactly like the tabs in the ADM window of the Trailer Manager.

The created file must be stored in TXT format.

If a code number in the dropdown menu is to be registered, it must be separated by a tab of the following characters (in the ADM editor please insert the tab code by pressing Ctrl + Tab). The type of puncturing the 10-digit BPW code number is irrelevant.

If it is necessary to include a code number in the file, which is not deposited in the BPW Customer Net (and therefore should not be entered in the drop-down menu), then at least one space after the corresponding code number can be entered.

The maximum size of an ADM file is 16 kB (approx. 16,000 characters). This memory space within the ECU can also be used for entering any other text information, e.g. about the brake calculation.

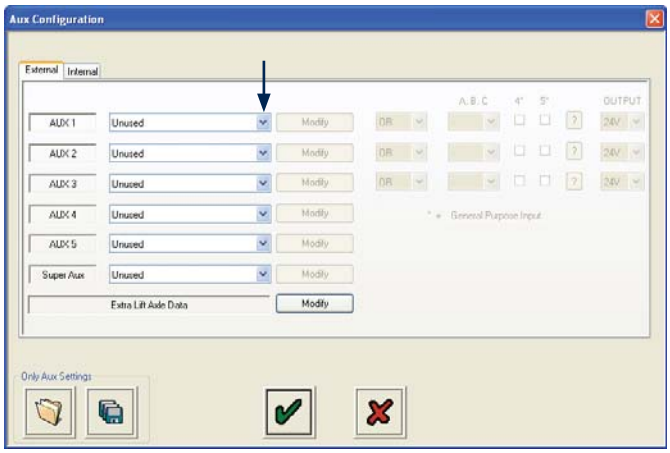


3.2.2.4 Setting auxiliaries

Click the appropriate button  on the “ECU Set up” screen for setting the auxiliaries.

The “AUX Configuration” screen will appear.
The screen shows the various auxiliary connections that can be used (i.e. AUX 1 to 5 and SuperAUX). Clicking on arrow displays a listing of options that can be selected.

The default setting for the auxiliaries is not used (unused).



AUX 1
COLAS®+
Retarder
Trailer Lamp
ILAS®-E Front
ILAS®-E Rear
AUX Power
Steer Axle Lock
Service Lamp
Overload Lamp
Remote Overload Lamp
Stability Lamp (TRS)
General Purpose Output
TA+
Info Point
Info Point / COLAS®+
Speed Lock

AUX 2, AUX 3
COLAS®+
Retarder
Trailer Lamp
ILAS®-E Front
ILAS®-E Rear
AUX Power
Steer Axle Lock
Service Lamp
Overload Lamp
Remote Overload Lamp
Stability Lamp (TRS)
ILAS®-E Front Manual
ILAS®-E Rear Manual
General Purpose Output
TA+
Speed Lock

AUX 4
Lining Wear Sensor
General Purpose Input
Control Line Sensor
Soft Docking
Mechanical Height Sensor

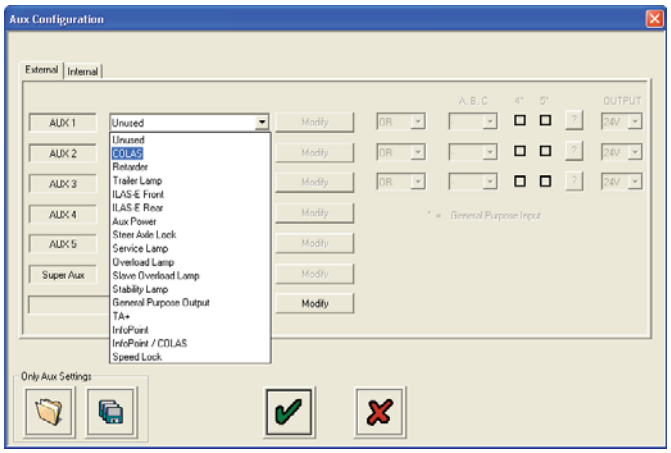
AUX 5
Lateral Accelerometer
General Purpose Input
Control Line Sensor
Soft Docking
Mechanical Height Sensor

SuperAUX
(configurable inputs and power supply)
Input A
Input B
Input C

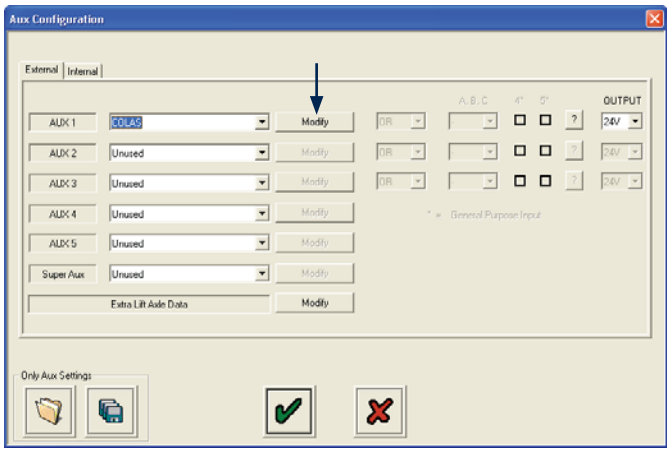
3.2 Setting system parameters

Selecting AUX options

Highlight AUX option and click to select it. Once an option has been selected, typical default values are set for it.



If changes are required to the typical default values then click the button indicated as “modified”.

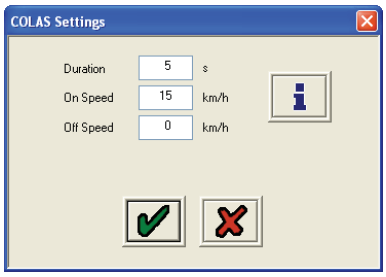


Use of the help function:

If there are many additional functions, it is possible to call up help descriptions using the button  or the button  .

COLAS®+ (AUX 1, 2 & 3)

Select COLAS®+ and click on the “Modify” button. The “COLAS®+ Settings” screen will appear. The following values can be modified:



Duration: Time COLAS®+ solenoid is energised (default 5s)

On Speed: The output to the COLAS®+ will be switched On (default 15 km/h)

Off Speed: The output will be switched off either when the vehicle decelerates below the “Off Speed” or when “Duration” has been exceeded, whichever happens first. (Default 0 km/h)

Click on button marked  to accept.

3.2 Setting system parameters

COLAS®+ settings information

General:
Activation (On) speed must be higher than de-activation (Off) speed.

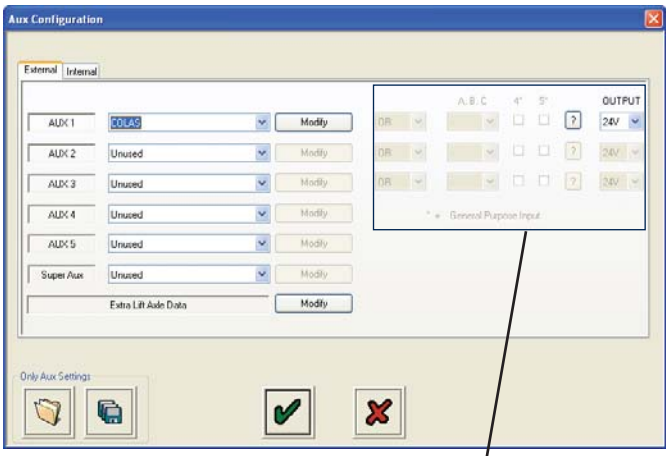
If the “On” speed is exceeded then the output is switched on, and switched off again after the set “Duration” or when the “Off” speed has been reached. This cycle starts again from the beginning once the “Off” speed has been reached.

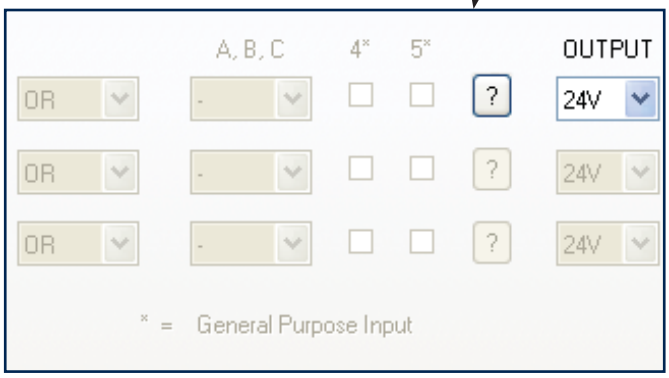
Possible settings for special applications:

1. Permanent output
   If the duration is set to “0”, then the solenoid will switch on after crossing the “On Speed” threshold, without a time limitation. It will only switch off when the “Off Speed” is crossed. You can use this setting e.g. to drive an external device that needs power and a C3 speed signal, that is always supplied on the yellow wire of the 3 core AUX cable of AUX 1. (E.g.: 0 s, 15 km/h, 10 km/h)

2. Movement detection **with** time limitation
   If the activation speed is set to „0“, then the solenoid will switch On after 1/4 turn of any wheel, irrespective of speed. When the wheel pulses from the sensor stop, the solenoid will switch off, also if the duration is exceeded. (E.g.: 10 s, 0 km/h, 0 km/h)

3. Movement detection **without** time limitation
   Like possibility 2. but “Duration” must be set to “0”. Output is continuously switched on during moving. (0 s, 0 km/h, 0 km/h)





?

COLAS®+ function can be controlled/extended by several inputs.

OR
AUX output will change status, if COLAS®+ function or any of the related inputs is active.

AND
AUX output will change status, if COLAS®+ funtion and all related inputs are active.

24 V
Standard output: COLAS®+ function and / or logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: COLAS®+ function and / or logic high -> 0 V to solenoid, otherwise 24 V.

Application examples:

1. Traction assist help signal can be used to reset the suspension to ride height at the same time.
2. Automatic “Reset to Ride Height” can be switched off if needed.
3. “Reset to Ride Height” can be started by a remote switch.
4. Customer specific, speed related functions can be controlled by the input.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C/ Custom, General Purpose Input (GPI) AUX 4 /5

3.2 Setting system parameters

Retarder and trailer lamp settings information

?

Function can be controlled/extended by several inputs.

OR
AUX output will change status if the function **or any** of the related inputs are active.

AND
AUX output will change status if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

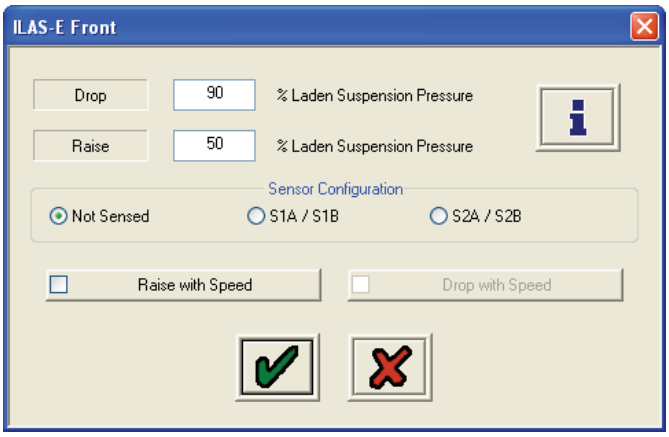
0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

Information about ILAS®-E settings

ILAS®-E (AUX 1, 2 & 3), Front and Rear
Auto raise / auto lower.
The "ILAS®-E Front" screen will appear, modify the values as required.



Drop: The pressure where the ILAS®-E solenoid is de-energised resulting the axle to drop. (Default - 90 % of laden suspension pressure)

Raise: The pressure where the ILAS®-E solenoid is energised resulting for the axle to raise. (Default - 50 % of laden suspension pressure)

Sensor configuration: Disables the wheel speed signal when a sensed axle is raised. (Default - not sensed)

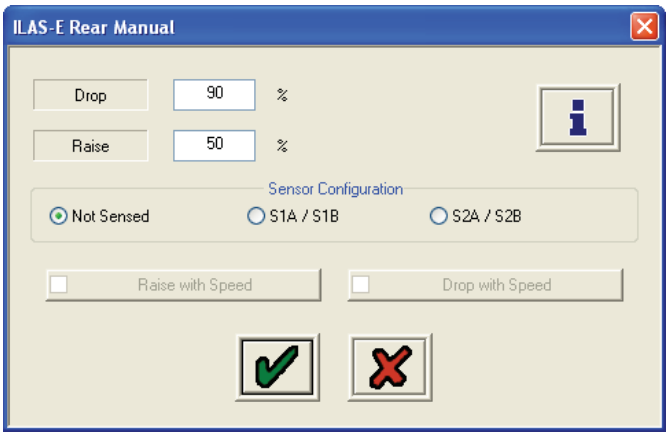
"Raise with speed", "Drop with Speed", are further options that can be selected when the drop and raise pressures are reached.

For installations with ILAS®-E use:

- Front lift axle only = ILAS®-E Front
- Middle lift axle only = If lifting it weights the king pin then ILAS®-E Front
- Rear lift axle only = ILAS®-E Rear
- Two axles lifted i.e. front and rear = ILAS®-E Front + ILAS®-E Rear

ILAS®-E Front / Rear Manual (AUX 2 & 3)
Manual = Manual raise / auto lower. Requires a 24 V signal / switch on the yellow wire of the 3 core AUX cable or another control input, e.g. from SAUX.

The ILAS®-E screen will appear, modify the values as required.



Drop: The pressure where the ILAS®-E solenoid is de-energised resulting the axle to drop. (Default - 90 % of laden suspension pressure)

Raise: The pressure where the ILAS®-E solenoid is energised resulting for the axle to raise. (Default - 50 % of laden suspension pressure)

Sensor Configuration:
Disables the wheel speed signal when a sensed axle is raised. (Default - not sensed)

"Lift at ..km/h", "Lower at ..km/h", options are not possible with „ILAS®-E front manual" / "ILAS®-E rear manual".

3.2 Setting system parameters

Raise "ILAS®-E Front" & Raise "ILAS®-E Rear"
- Occurs fully automatically below the raise threshold.
- In the case of two lift axles the one with the **higher** raise threshold raises first!

Raise "ILAS®-E Front Manual"
- Occurs only after a demand signal on the AUX port (yellow wire) or related control inputs (momentary or permanent signal)
- The first activitation is always carried out using the traction assist thresholds. If after exceeding the traction speed limit the lift axle drop threshold is not exceeded the axle remains up, otherwise it is dropped. It will be raised again after dropping below the traction speed limit if you have used a permanent latching switch.

Lower
- Occurs in both cases automatically after exceeding the drop threshold.
- In the case of two lift axles the one with the **lower** drop threshold drops first!

Raise with Speed
-> 2 possibilities, the **higher** value will be used

1. In the ECU setup screen select "Lift on Move" then **all** lift axles will not raise until vehicle has first exceeded 7 km/h after ignition on!
2. **And / or** here in this screen select "Raise with Speed" (option "Drop with Speed" becomes available and can be selected if necessary). Corresponding speeds must be set in the "Extra Lift Axle Data" screen (default: 50 km/h, 1 km/h).

Sensor configuration
- If sensors are fitted to the lift axle you have to specify, if not a DTC may be generated when moving!

Traction assist / disable lift axle - ILAS®-E front
- Activated by demand signal on AUX port (yellow wire) **or** related inputs.
- Corresponding thresholds must be set in the "Extra Lift Axle Data" screen (default: 130 %, 30 km/h)

Traction assist / disable lift axle ILAS®-E rear
- Works only if no ILAS®-E front is programmed!
- Activated by a demand signal on the AUX port (yellow wire) **or** related inputs.
- Corresponding thresholds must be set in the "Extra Lift Axle Data" screen (default: 130 %, 30 km/h)!

Lift Axle Information

?

Lift axle functions can be controlled / extended by several inputs. These inputs do not control the output directly as in other cases. In this case inputs are logically connected to the **yellow** wire of the AUX port.

With the yellow wire you can control manual lift axles and traction support and you get the same result if you use one or more of the SuperAUX or GPI inputs.

If you use **automatic** lift axles, only the input for ILAS®-E front is used.

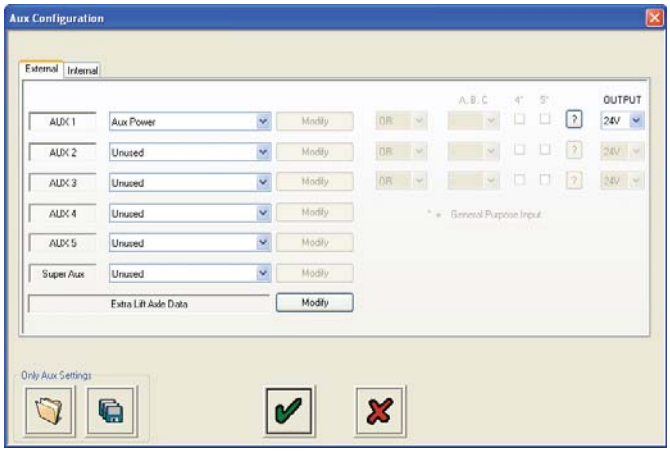
OR
AUX traction support is started if the yellow wire (AUX 2/3) **or any** of the inputs are active.

AND
Note: yellow wire must only be used on AUX 2/3.
AUX traction support is started if the yellow wire **and all** of the inputs are active.

24 V
Standard output: function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!
* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5



AUX Power Settings Information (AUX 1, 2 & 3)

?

AUX power function can be controlled / extended by several inputs. By default this fuction is high.

OR <<please don't use>>
AUX output status will never change. This setting has no effect.

AND
AUX output will change status, if **all** related inputs are active.

24 V
Standard output: **and** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: **and** logic high-> 0 V to solenoid, otherwise 24 V.

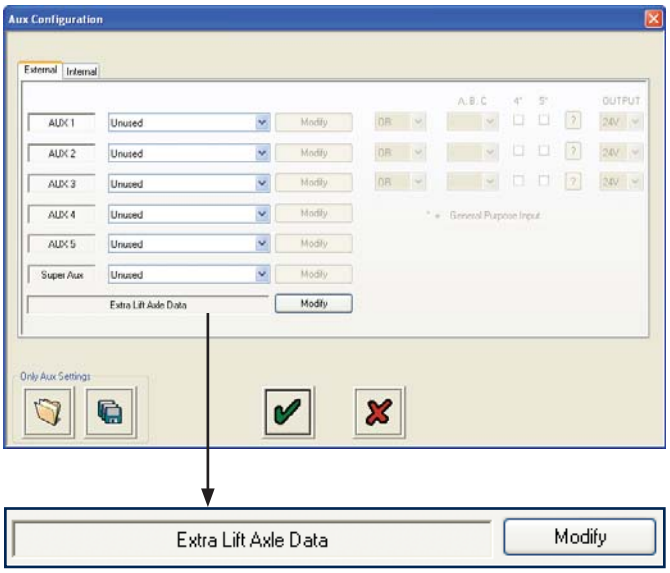
Application example:
Switchable power supply for customer applications.

3.2 Setting system parameters

Extra Lift Axle data menu

To view a set of parameters click on button marked “Modify”.

The following screen will appear.

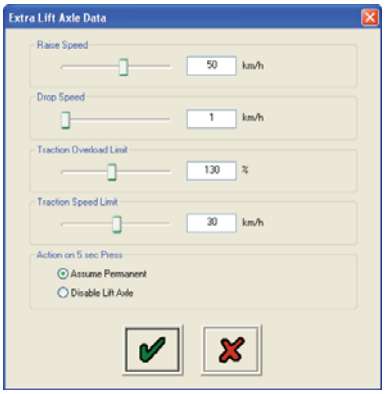


Raise Speed
If the option “**Raise with speed**” is set for any lift axle, then the axle will not lift before the set speed (the default is 50 km/h).

Drop Speed
If the option **“Drop with speed”** is set for any lift axle, then the axle will drop automatically the vehicle speed falls below the set speed (the default is 1 km/h).

Traction Overload Limit
The traction assist axle will drop once the suspension reaches this value, based on % of laden setting. An **“Information”** icon is displayed above 130% to ask the user to check the design weights for the remaining axle(s) as the legal limit is 130% of design weight (the default is 130 %).

Traction Speed Limit
The traction assist axle will drop once the vehicle speed increases above the value (the default is 25 km/h). A warning icon is displayed above 30 km/h to indicate that this is above the legal limit.



Action on 5 s Press
If the button is pressed for longer than 5 seconds and the option “Assume Permanent” is selected then the lifting axle is lowered again when the button is released. If the button is pressed for less than 5 seconds then the axle lowers when the button is pressed again.

If the “Disable Lift Axle” option is selected then the system will **always** assume that the switch is **momentary** and will disable (lower) all lift axles until the system is next re-powered (ignition off).

Steer Axle Lock (AUX 1, 2 & 3)
The "Steer Axle Lock" screen will appear modify the values as required.

Lock above: Speed at which the steer axle locks (default 25 km/h)

Unlock: Speed at which the steer axle unlocks (default 20 km/h)

In order to avoid an automatic steer axle lock during travel, BPW recommend that both of these speed parameters are set to ZERO!

Lift axle dependence:
The steering axle can be locked depending on the lifting axle.

Invert Steer Axle Lock

This function will reverse the values as stated above in the steer axle lock.

By default this function provides 24 V to lock a steer axle, 0 V otherwise.

You can invert the output to get 0 V to lock, 24 V otherwise.

Which output type you need depends on the locking device / pneumatic installation.

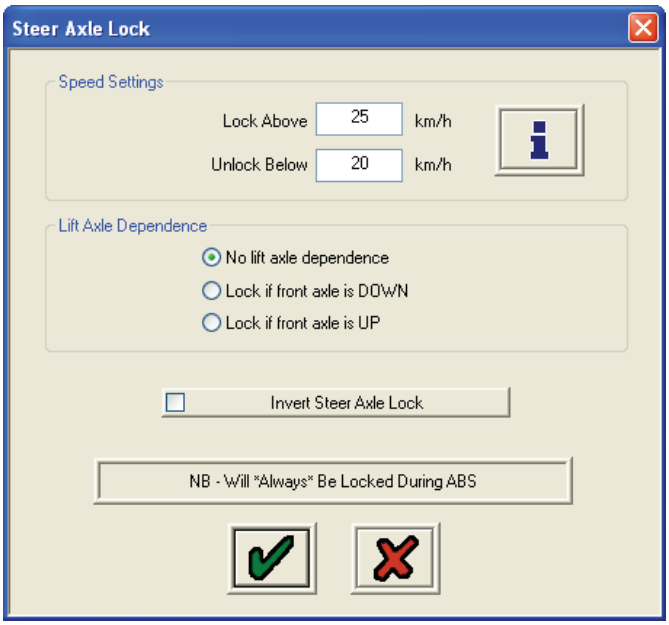
This "Inverting" of the output can be selected in two places:

1. Here in this screen -> is usable with all ECU software versions, but inverts only the output of this function. If you do not want to use further control inputs (or cannot because not available) you should use this option.

2. In the main AUX screen -> only usable with ECU software version B407 upwards (compatible with all ECO Tronic EBS models). This option offers the advantage that related control inputs also create an inverted AUX output. Your current software version is displayed for you on the startup screen.
   Example: Automatic steer axle lock function "high" **or** reversing "high" (e.g. SuperAUX B). Result: In both cases you get 0 V output to lock.

Important: Only use **one** of the "inversion" options! Otherwise you may get unexpected results!

Special case for speed setting:
If you set both speeds to "0" the function only locks depending on the lift axle position or related control inputs. Speed no longer has an influence!



Steer Axle Lock Settings Information

Steer axle lock function can be controlled / extended by several inputs.

It is possible to lock the steer axle for example on the following events:

- Reversing
- Demand signal(s) from a switch mounted in the cab or on the trailer panel.
- Depending on the front lift axle position.
- Depending on the speed thresholds

Note: AUX is always active during ABS events.

OR
AUX output will change status if steer lock function **or any** of the related inputs are active.

AND
AUX output will change status, if **all** related inputs are active.

24 V
Standard output: function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
<< Do not use this option if you intend to use the invert option in the steer lock function >>
Inverted output: function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

3.2 Setting system parameters

Service lamp settings information

?

Function can be controlled / extended by several inputs.

OR
AUX output will change status if function **or any** of the related inputs are active.

AND
AUX output will change status, if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

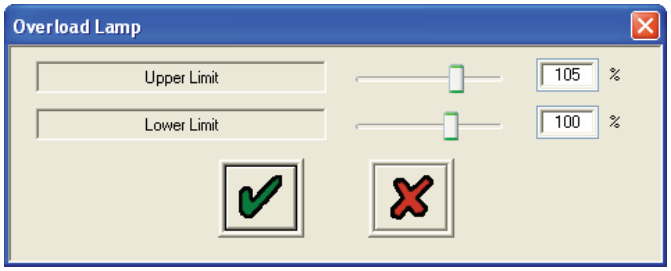
* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5.

Overload lamp (AUX 1, 2 & 3) for semi / centre drawbar axle trailers

This gives a 24 V output when the trailer load goes above the set limits.

The “Overload Lamp” screen will appear, modify the values as required.

Note: Overload lamp works with **only the main** (Master ECU) valve suspension input.



Overload lamp settings information

?

Function can be controlled/extended by several inputs.

OR
AUX output will change status if function **or any** of the related inputs are active.

AND
AUX output will change status, if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

3.2 Setting system parameters

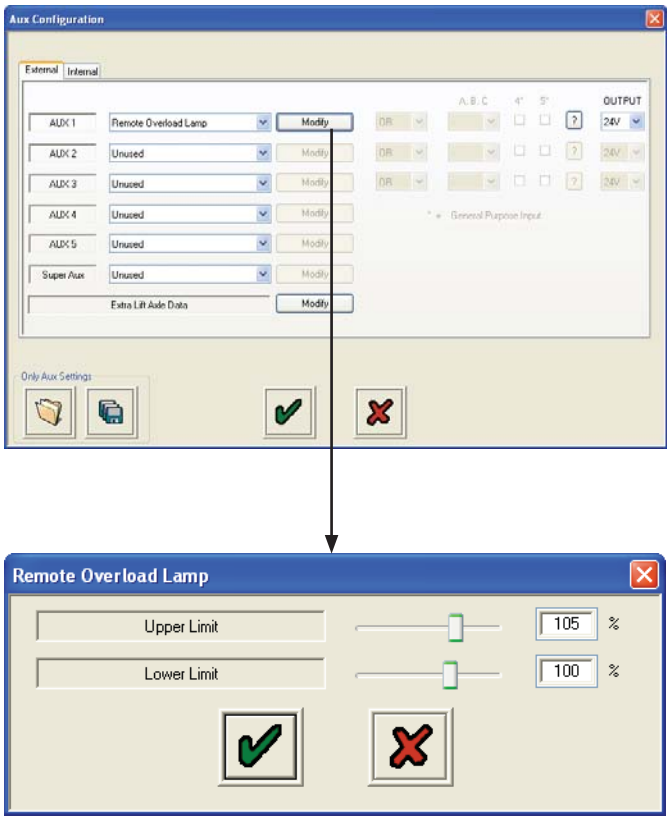
Remote overload lamp for drawbar trailers (4S/3M system)

Select “Remote Overload Lamp” on AUX 1/2/3 and click on the “Modify” button.

This gives a 24 V output when the trailer load goes above the set limits, and Off below the lower limit.

The „Remote Overload Lamp“ screen will appear, modify the values as required.

Note: The remote overload lamp works with **only the remote (Slave ECU)** valve suspension unit in 3M drawbar trailer systems.



Settings information

?

Function can be controlled / extended by several inputs.

OR
AUX output will change status, if the function **or any** of the related inputs are active.

AND
AUX output will change status, if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high-> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5.

Stability lamp settings information

?

Function can be controlled / extended by several inputs.

OR
AUX output will change status, if the function **or any** of the related inputs are active.

AND
AUX output will change status, if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

General Purpose Output (GPO) settings

?

External devices can be controlled by the neutral General Purpose Output (GPO). By default the function is low. If there is no control signal assigned, then this function corresponds to the inverted “24 V output” function, i.e. no output voltage is generated (inactive).

OR
AUX output will change status, if the function **or any** of the related inputs are active.

AND << **Only available with more than one control input** >>
AUX output will change status when **all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

3.2 Setting system parameters

Traction Assist (TA+) settings information

?

Function can be controlled / extended by several inputs.

OR
AUX output will change status if function **or any** of the related inputs are active.

AND
AUX output will change status, if the function **and all** related inputs are active.

24 V
Standard output: Function **and / or** logic high -> 24 V to solenoid, otherwise 0 V.

0 V
Inverted output: Function **and / or** logic high -> 0 V to solenoid, otherwise 24 V.

* The output level can be adjusted independently of input use!

* Possible inputs: SuperAUX A/B/C Custom, General Purpose Input (GPI) AUX 4/5

Info Point

Info Point is used to show different events / system faults by an **orange point**. In the Trailer Manager "Info Point Status" screen you can see what causes the indication.

Here you can set the following options:

Display:
- After system restart, the display is reset, if the error is no longer active.

Store
- **orange** point is **active** until the Info Point has been reset (vehicle service) . This can be done by clearing the system DTC's with:

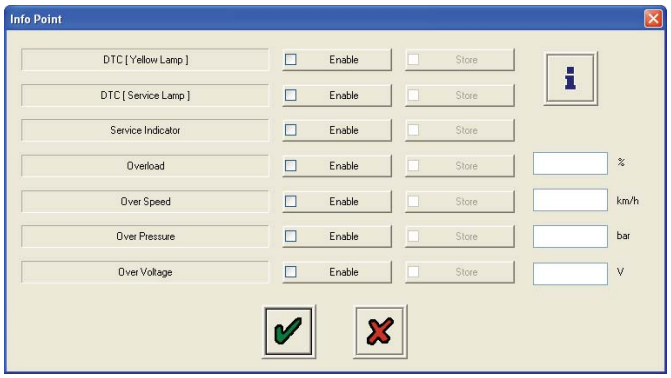
Trailer Manager, Trailer Monitor, by cycling the ignition: On for 4 seconds/ Off/ On for 4 seconds, Off.

DTC (yellow warning lamp)
- All ABS detected DTC's activate an Info Point indication.

DTC (warning lamp service)
- All non-relevant ABS DTC's activate an indication.

Service indicator
- Activated by error linings worn or exceeded service interval.

Overload
- Up to 150 %, default is 130 % when no value is shown
- During "Traction Help" monitoring is switched off.



Over speed
- Up to 150 km/h, default is 100 km/h when no value is shown

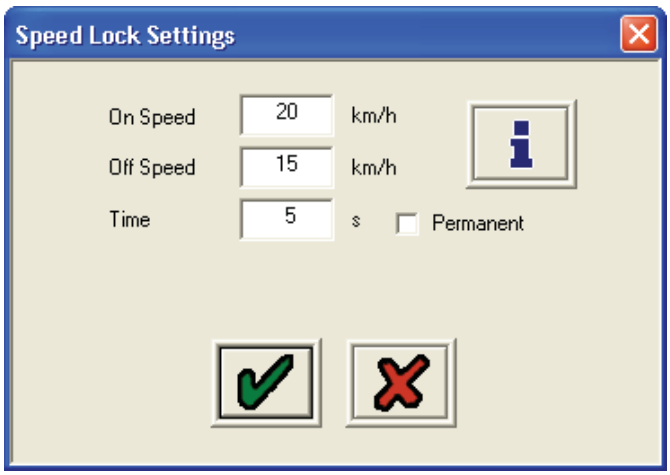
Over pressure
- Up to 12 bar, default is 9.75 bar (DTC trigger level) when no value is shown
- Legislation allows max 8.5 bar reservoir pressure
- Higher pressure reduces the life time of all pneumatic components

Over voltage
- Up to 32 V, default is 32 V (DTC trigger level) when no value is shown

Attention:
The indication "Info Point" changes the display immediately after an event occurs or is revoked.
With the combined function "Info Point/COLAS®+" the refresh of the Info Point is only started if the speed is higher than 15 km/h, because simultaneously the ride height is reset.

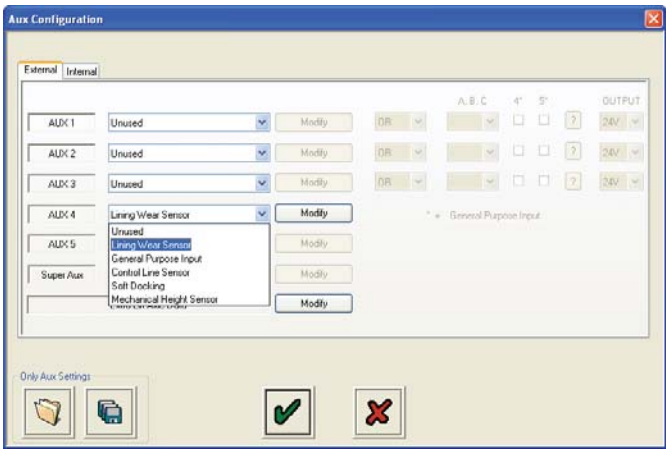
Speed Lock

Set the speed at which the AUX port will come on and turn off at.
The time set in the ”Time” box is the delay between the speed dropping below the set threshold and the AUX going off. This has a limit of 120 seconds.”



3.2 Setting system parameters

Brake pad wear indicator (AUX 4)
Select “Lining Wear Sensor” from the drop down menu. Then select “Modify” to enter specific parameters.

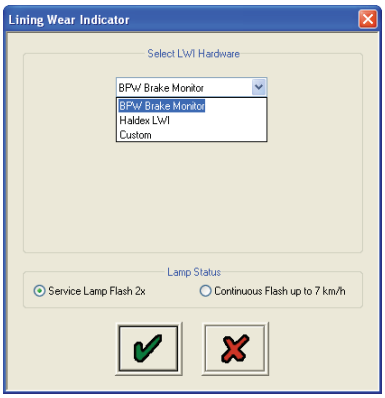


The “Lining Wear Indicator” screen appears.

From the menu select one of the following:
- BPW Brake Monitor
- Haldex LWI
- Custom

BPW Brake Monitor and Haldex LWI are pre-programmed options and no other data is required. “Custom” allows entry of user settings (see Custom screen below).

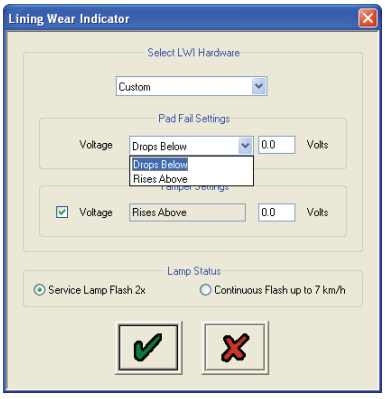
The “Service Lamp Flash” is set as default. A sequence of two lamp flashes on ECU power up. “Continuous Flash” causes the flashing to continue until the vehicle is first driven away from rest.



Custom screen

The custom screen allows the user to enter custom voltage settings as to an alternative manufacturer lining wear system used.

Note: As the pads wear the input voltage can rise or drop.



Service warning light for the brake pad wear indicator (AUX 1, 2 & 3)

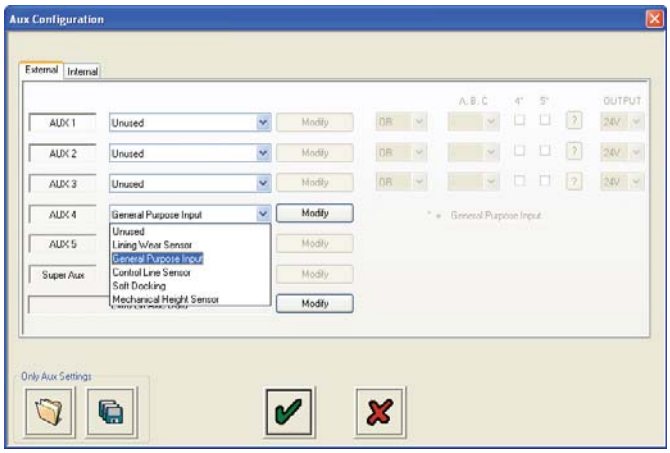
This gives a 24 V output to the service lamp when a lining wear sensor is worn.

Note: This can only be selected after AUX 4 Option.

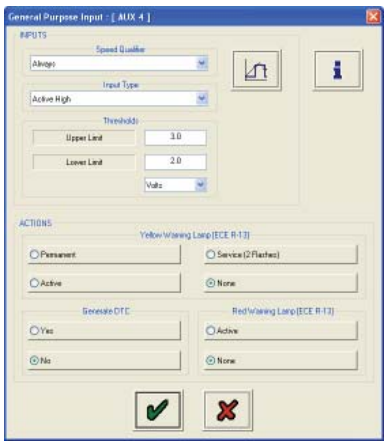
AUX 4 & 5 - Options

General Purpose Input (GPI)

Select “General Purpose Input” from the drop down menu. Then select “modify” to enter specific parameters.



“General Purpose Input (GPI) (AUX4) screen appears:



?

„General Purpose Input (GPI)“ is used to evaluate and process actions.

The actions from this screen are processed if the conditions are active (On).

You can connect simple switches or any type of 5 V sensor (e.g. pressure sensor 0-8 bar, sensor with thread M 16x1.5 and connecting calbe is available from BPW),

For information, AUX cable colours and function:
Red; output 5 V supply
Black; B-
Yellow; digital input (0 - 24 V), analog input (0 - 5 V)

You can use the “Output” (On, Off) to control other auxiliaries.

Application examples:
1. Traction assist for lift axle by switch mounted on the trailer and /or in the cab (especially for ECU without SuperAUX).

2. Monitoring spring brake pressure, f.e. warning lamp and DTC if lower limit (P) is exceeded.

3. Allow additional functions perhaps only if spring brake is 0 bar (i.e. brake applied)

Note:
The ABS check lamp usage is controlled by ECE-R13. Please comply with the statutory regulations regarding activation of the ABS check lamp!

3.2 Setting system parameters

Control line sensor

A control line sensor must be connected to either the AUX 4 or AUX 5 socket. An existing pressure switch must be first replaced by a new control line sensor. While the existing pressure switch cable can be reused.

After the sensor has been fitted, it can be programmed using the Trailer Manager via the auxiliary set up screen.

Soft Docking

There are currently no options for Soft Docking that can be set by the user.

Mechanical Height Sensor

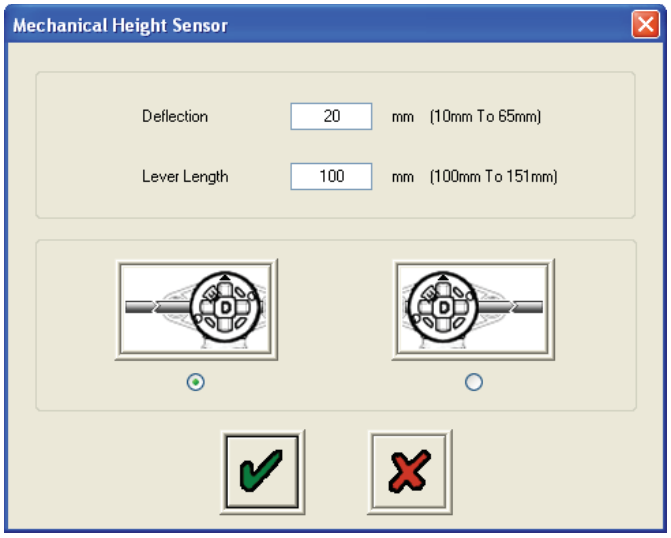
The “Mechanical Height Sensor” is for use on mechanical suspension trailers. It will allow the ECO Tronic EBS to measure load and therefore adjust braking force according to the load plate data.

To configure the “Mechanical Height Sensor” the user must first enter the trailer deflection. This is given by the trailer manufacturer (allowed is 10 to 65 mm).

Once the deflection is entered, the user must set the lever length to between the allowed lever length range. The allowed lever length range varies depending upon the deflection. E.g. a deflection of 20 mm will allow a lever length range of 100 to 151 mm and a deflection of 55 mm will allow a lever length range of 276 to 320 mm. Once the lever length is set, the user then enters the actual lever length.

The user now selects a left or right installation.

The “Mechanical Height Sensor” also needs calibrating which is performed during EOLT. To perform calibration the trailer must be in the UNLADEN condition.



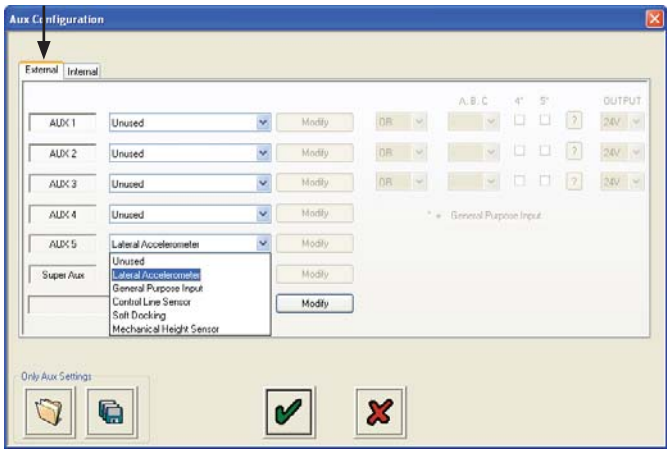
AUX 5 - Options

External accelerometer

A TRS function can be retrofitted if the BPW basic kit is used.

Select “Lateral Accelerometer” to calibrate Trailer Roll Stability.

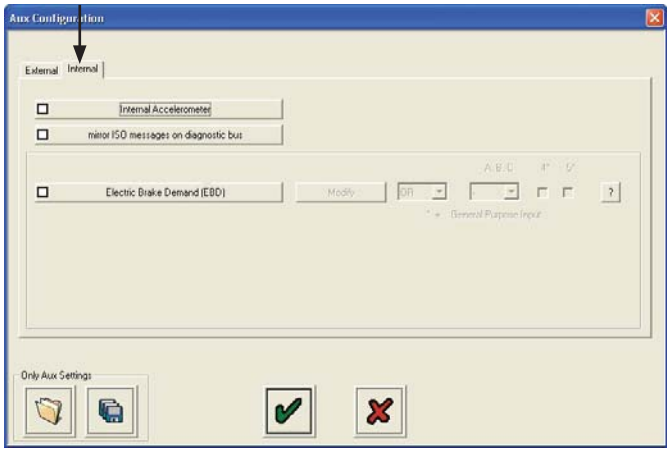
An “External Stability Sensor” can be connected to AUX 5.



Internal Functions

To set the parameters click on the tab marked “**Internal**”

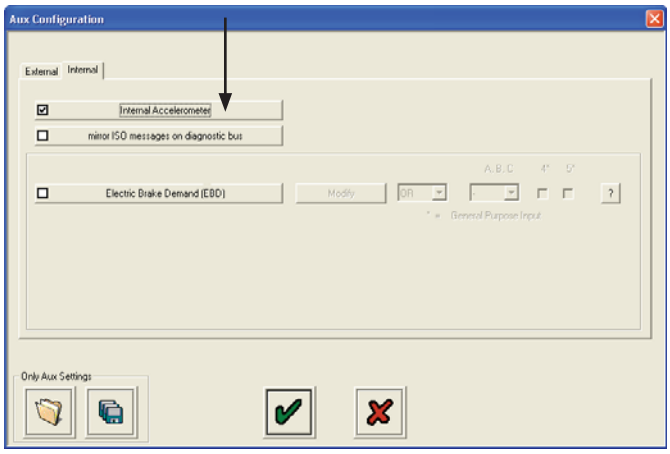
The “AUX Configuration” screen will appear.



Internal Accelerometer

A stability sensor is integrated in standard kits and standard plus kits. This is not activated by default and must be activated using the “Internal functions” tab.

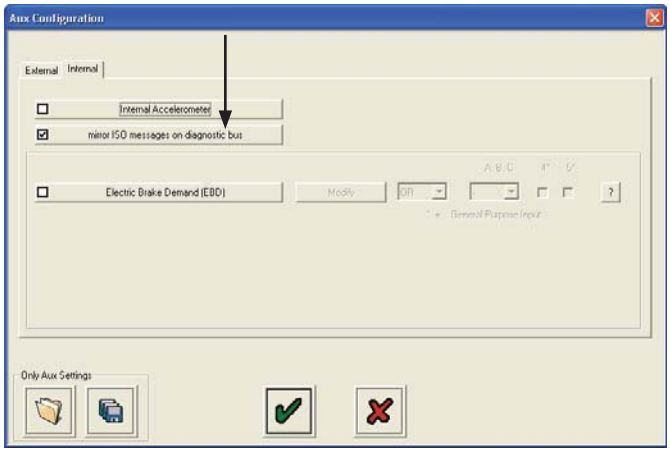
Click on the box “Internal Accelerometer” to select the installation. Note: An additional auxiliary test runs specifically for the internal accelerometer.



Mirror ISO messages on dianostic bus

Without activating this function transmit information such as current speed are already on the 5V CAN bus (port “DIAG” on the EBS).

By activating this function, the communication between truck and trailer over CAN according to ISO 11992 on the above 5V CAN bus is mirrored.

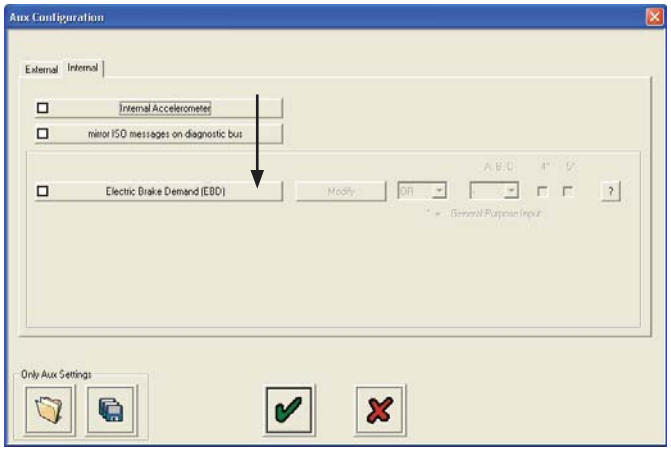


3.2 Setting system parameters

Electric brake demand

“Electric Brake Demand” is an internal feature that allows application of the brakes under certain conditions by electrical inputs. No ISO CAN or pneumatic demand is required. This feature is very flexible and can be used for many applications. (EBD = Electronic Brake Demand)

Click on box “Electric Brake Demand” to select installation.



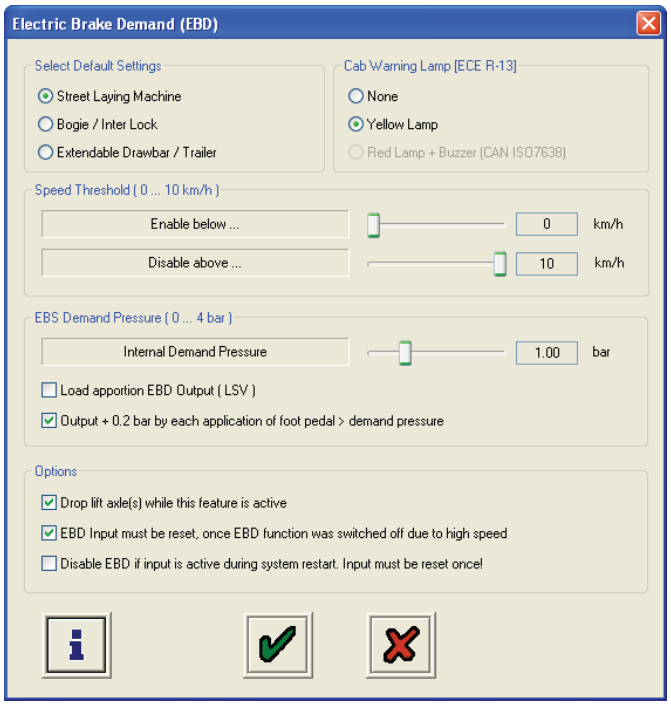
Select Default Settings
Load the default settings for these three known applications. Modifications are allowed.
- Street laying machine
- Bogie / Inter lock
- Extendable drawbar / trailer

Cab Warning Lamp (ECE R-13)
Driver can be informed by ABS warning lamp if EBD active.
- None
- Yellow lamp
- Red lamp + buzzer (CAN ISO7638) (Only on bogie / Inter lock option)

Speed Threshold
- Enable below -
  Below this speed it‘s possible to switch EBD feature on. Above this speed this function cannot be activated!

- Disable above -
  Above this speed this function will be switched off automatically in order to avoid damages on the brake system.

Internal Demand Pressure
This pressure will be delivered 1:1 to the actuators, if the following option (“Load apportion..”) is not selected.
If this option is selected you‘ll get load dependant output, (LSV active) corresponding to the demand pressure. Option “Output + 0.2 bar...” generates a higher output, if the current setting is not high enough under special conditions (big gradient during street building..). To achieve this, the pneumatic demand pressure must be higher than the current EBD demand pressure for a short period of time.



Options

- Keeps lift axles down as long as this feature is active, this avoids height changes of trailer chassis.
- If the “Disable Speed” was crossed during operation and therefore the EBD feature is switched Off, the control input must be reset once to switch the feature On again.
- If the control input is already active during ignition On, it must be Reset once to switch the feature On again.

The last two options avoid unexpected activation of the feature.

Electric brake demand info

?

By default the “EBD” feature is inactive and must be controlled by external input / switch!
(EBD = Electronic Brake Demand)

The following inputs can be used:

GPI 4 = AUX 4 connected to a switch, yellow core as signal input

GPI 5 = AUX 5 connected to a switch, yellow core as signal input

Additional, if you use SuperAUX EBS variant:
- Input A, B, C available on Power B connector
- Several of these inputs (A and/or B, A and/or C, B and/or C)
- or customer specific combination of these inputs (modify screen)

If you select more than one input, they are used corresponding to the selected logic:

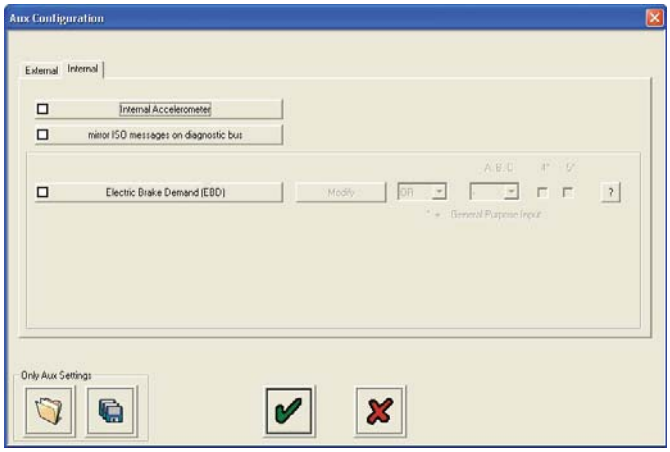
((Input A active) and / or (Input B active)) -> Action

The brake will be applied if the current speed is below EBD “Enable Speed” threshold and the logic is also valid.

OR
Brake will be applied if one of the inputs is active

AND <<only useful with more than one selected input >>
Brake will be applied if all related inputs are active.

Note:
If the ECU is reprogrammed, all DTCs are automatically deleted (see page 39 - ECU programming).

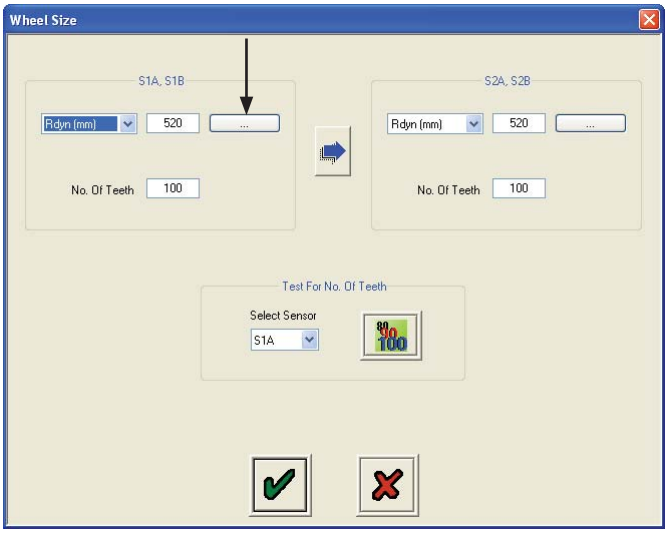


3.2 Setting system parameters

3.2.2.5 Setting wheel scaling

Click on button .

The “Wheel Size” screen will appear.



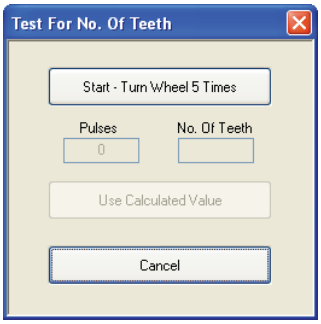
The screen shows the default value of a tyre size of 520 mm (dynamic rolling radius - Rdyn) with a 100 tooth exciter installed. Enter the tyre size value specified by the manufacturer or click on the button (arrow) on the right and select the tyre size installed in your trailer from the drop down menu. This value must correspond to the tyres installed for the ABS to function correctly.

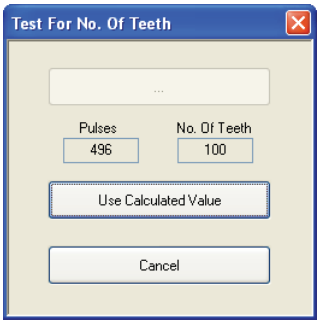
Specify the number of teeth of the ABS exciter ring.

Click on button marked to accept.

Test for number of teeth

Click on button .





Click on “**Start - Turn Wheel 5 Times**” Rotate the select sensed wheel 1 rev / 2 s, five times. The “Pulses” box automatically records during the wheel rotation procedure. After 5 turns, click on button marked “**Stop**”. The “**No. Of Teeth**” box indicates the value. Click on button marked “**Use Calculated Value**” if required to use in wheel scaling above or note the value for information purposes.

Click on “**Abort**” to exit.

Repeat this procedure for any other selected sensor.

3.2.2.6 Lamp settings

Click on button .

The “Lamp Settings” screen will appear.

The screen shows the two options of flash sequence for the trailer EBS warning lamp.
The On/Off sequence is set as a default.

Click on button marked to accept.

Note: The On/Off lamp sequence change will only be visible if system air pressure is above 4.5 bar.

3.2.2.7 Termination of configuration

“ECU setup” is complete (ECU parameters settings not **sent to ECU** - see next step).

Click on button marked to accept.

3.2.3 Saving the ECU parameters file

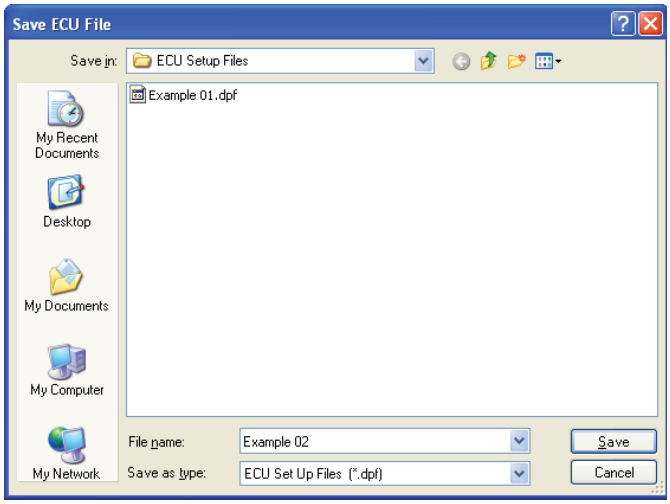
The ECO Tronic EBS parameters file can be saved and then used for future programming of ECU's (which require the same parameters) by recalling the file from the "Read ECU configuration from disc" button.

Click on button  .

The "**ECU Setup Files**" screen will appear.

A file name (e.g. Example 02 saved as type .dpf) can be entered in position "**File Name**" and stored in the **C:\Program Files\BPW\BPW Trailer Manager\ECU Setup Files** folder or from Version 5.18 onwards in the **C:\Documents and Settings\All Users\Documents\BPW\Trailer Manager\ECU Setup Files** folder.

Click on button "**Save**" to store the file.

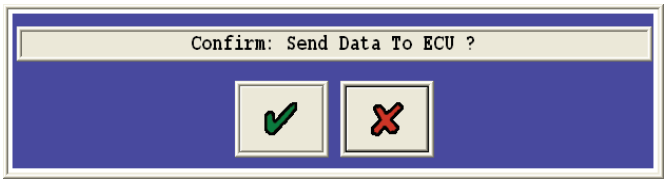


3.2.4 Programming the ECU

Click on button  .

This activates the sending of the edited parameters file to the ECU.

Note: At 90 % progress all the DTC's are deleted and the ECU is reset.

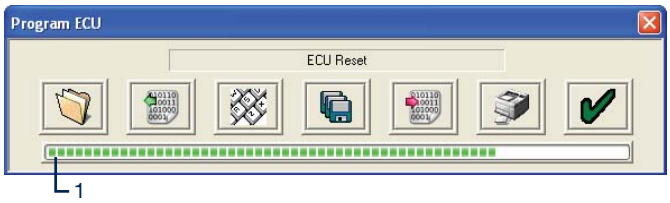


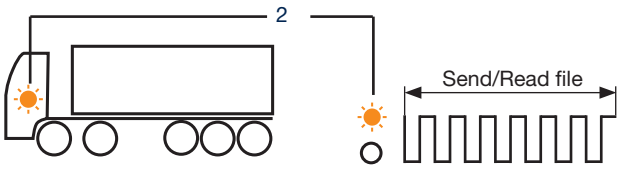
The status of this process is shown as follows:

1 - A bar indicator fills the progress box on the "Program ECU" screen

2 - The trailer EBS warning lamp function is -
a) On - ECU not programmed
b) Flashing - ECU is being programmed

This completes the programming of the ECU.





3.2 Setting system parameters

The “Program ECU” screen will appear.

Click on button  to view or print a label with the current ECU configuration information (load plate label).

3.2.5 Printing the Load Plate Label

Print label using BPW blank label 02.1028.69.10. **Use laser printer only** and refer to manufacturers information on printing a A5 size paper. After installation spray on a clear lacquer (or a hard varnish) to protect the printed surface.

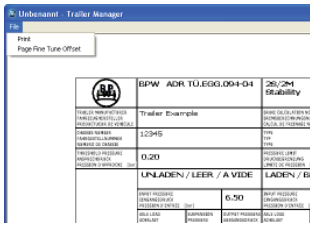
Example label for a semi or centre drawbar axle trailer.

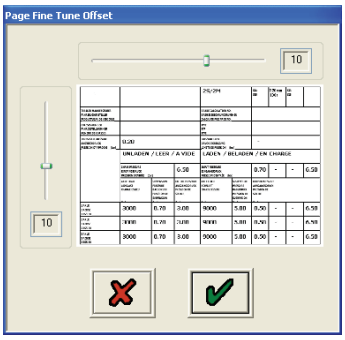
	BPW ADR TÜ.EGG.094-04			4S/2M Stability		S1A S1B	520 mm 100t	S2A S2B	520 mm 100t
TRAILER MANUFACTURER FAHRZEUGHERSTELLER PRODUCTEUR DE VEHICULE				BRAKE CALCULATION NO. BREMSBERECHNUNGSNUMMER CALCUL DE FREINAGE No.					
CHASSIS NUMBER FAHRGESTELLNUMMER NUMERO DE CHASSIS				TYPE TYP TYPE					
THRESHOLD PRESSURE ANSPRECHDRUCK PRESSION D'APROCHE [bar]	0.20			PRESSURE LIMIT DRUCKBEGRENZUNG LIMITE DE PRESSION [bar]		-			
[1.00 bar = 100 kPa]	UNLADEN / LEER / A VIDE			LADEN / BELADEN / EN CHARGE					
	INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		6.50	INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		0.70	-	-	6.50
	AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGSDRUCK PRESSION DE SORTIE [bar]	AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGSDRUCK PRESSION DE SORTIE [bar]			
1 AXLE 1 ACHSE 1 ESSIEU	3000	0.70	3.00	9000	5.00	0.50	-	-	6.50
2 AXLE 2 ACHSE 2 ESSIEU	3000	0.70	3.00	9000	5.00	0.50	-	-	6.50
3 AXLE 3 ACHSE 3 ESSIEU	3000	0.70	3.00	9000	5.00	0.50	-	-	6.50

To align the print on the blank paper to be within the cut out margins use from the top menu “File”, “Page Offset” command.

The following screen will appear. Use the vertical / horizontal sliders to make the adjustment for the appropriate printer.

Click on button  on completion of the label printing on the appropriate screens to return to the main screen.





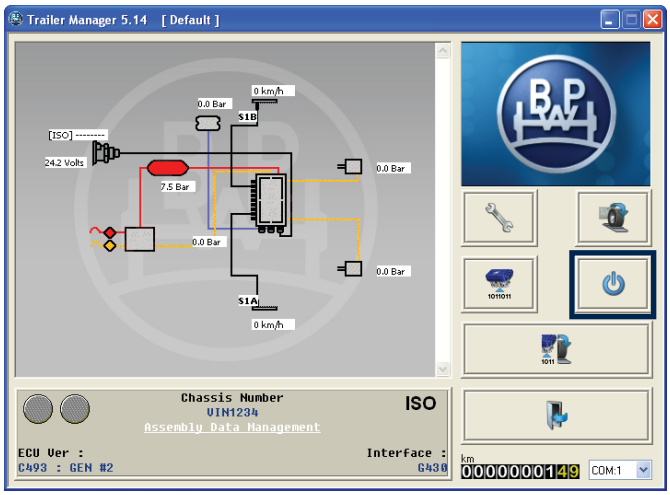
Example label for **drawbar trailer.**

	BPW ADR TÜ.EGG.094-04				4S/3M		S1A S1B	520 mm 100t	S2A S2B	520 mm 100t
TRAILER MANUFACTURER FAHRZEUGHERSTELLER PRODUCTEUR DE VEHICULE					BRAKE CALCULATION NO. BREMSBERECHNUNGSNUMMER CALCUL DE FREINAGE No.					
CHASSIS NUMBER FAHRGESTELLNUMMER NUMERO DE CHASSIS					TYPE TYP TYPE					
THRESHOLD PRESSURE ANSPRECHDRUCK PRESSION D'APROCHE [bar]	1 AXLE 1 ACHSE 1 ESSIEU	0.20	2/3 AXLE 2/3 ACHSE 2/3 ESSIEU	0.20	PRESSURE LIMIT DRUCKBEGRENZUNG LIMITE DE PRESSION [bar]		1 AXLE 1 ACHSE 1 ESSIEU	-	2/3 AXLE 2/3 ACHSE 2/3 ESSIEU	-
[1.00 bar = 100 kPa]	UNLADEN / LEER / A VIDE				LADEN / BELADEN / EN CHARGE					
	AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGSDRUCK PRESSION DE SORTIE [bar]		AXLE LOAD ACHSLAST CHARGE ESSIEU [kg]	SUSPENSION PRESSURE BALGDRUCK PRESSION DE SUSPENSION [bar]	OUTPUT PRESSURE AUSGANGSDRUCK PRESSION DE SORTIE [bar]			
	INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		6.50		INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		0.70	-	-	6.50
1 AXLE 1 ACHSE 1 ESSIEU	3000	0.70	3.00		9000	5.00	0.50	-	-	6.50
	INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		6.50		INPUT PRESSURE EINGANGSDRUCK PRESSION D'ENTRÉE [bar]		0.70	-	-	6.50
2 AXLE 2 ACHSE 2 ESSIEU	3000	0.70	3.00		9000	5.00	0.50	-	-	6.50
3 AXLE 3 ACHSE 3 ESSIEU	3000	0.70	3.00		9000	5.00	0.50	-	-	6.50

3.3 Resetting the ECU

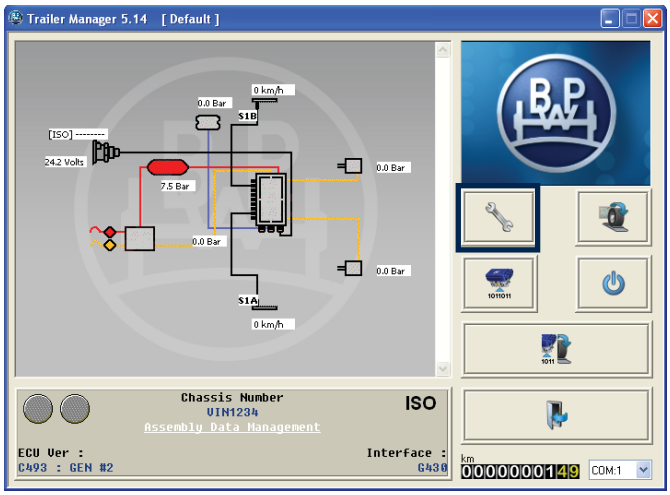
Click on button  to reset the ECU or switch power to the ECU Off but **do not exit the Trailer Manager Program.**

After resetting wait 10 s before proceeding further. Observe the trailer EBS warning light. The warning lamp should display what has been set in the “Lamp Setting” section (see page 38) of the “ECU Set Up”.



Note: If the EBS warning light comes ON and stays ON and the main screen displays as on page 12 there are Diagnostic Trouble Codes (DTC) present which need to be cleared (see page 42) or the system air pressure is below 4.5 bar.

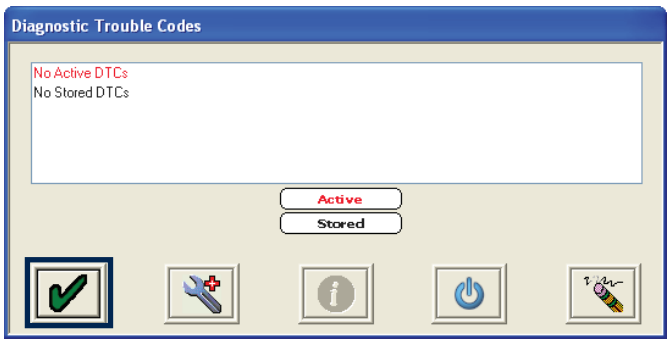
Click on button  on main screen.



Click on the button  on the “DTC’s, Info Point, Lining Wear and Modification Records” screen to show any stored DTC’s.

If no errors are active or saved then the “Diagnosis error codes” screen appears as shown on the right.

Click on button marked  to accept.



3.4 Diagnostics

3.4.1 Reading / deleting diagnostic codes

Click on the button on main screen.

Click also on the button on the “DTC’s, Info Point, Lining Wear and Modification Records” screen.

The “Diagnostic Trouble Codes” screen’s will appear.

Screen option 1:
If there is a current DTC it will be displayed in red 1st on the list. If there are other DTC’s listed they have been stored in the ECU memory. Repair the current DTC and reset the ECU by pressing the button or switch power to the ECU off.

Screen option 2:
If there is no current DTC it will display “No Active DTC’s” in red. Any other DTC’s which are stored can be deleted.

Click on the button marked to delete the stored DTC’s.

The screen shown on the right appears.

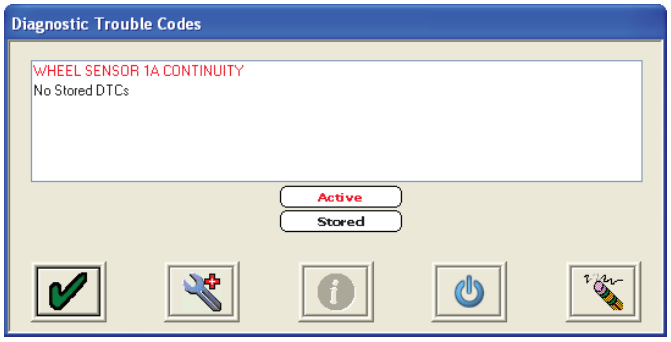
Click on button marked to exit.

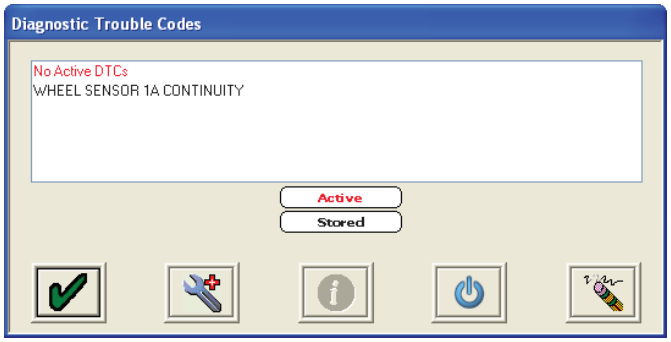
The Trailer Manager main screen will appear.

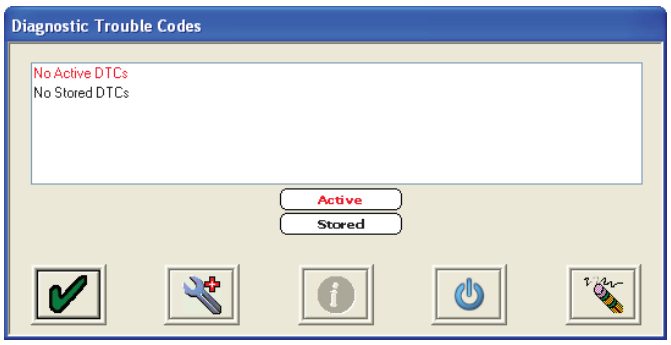
Reset the ECU by clicking button or switch power to the ECU Off but **do not exit the Trailer Manager Program.**

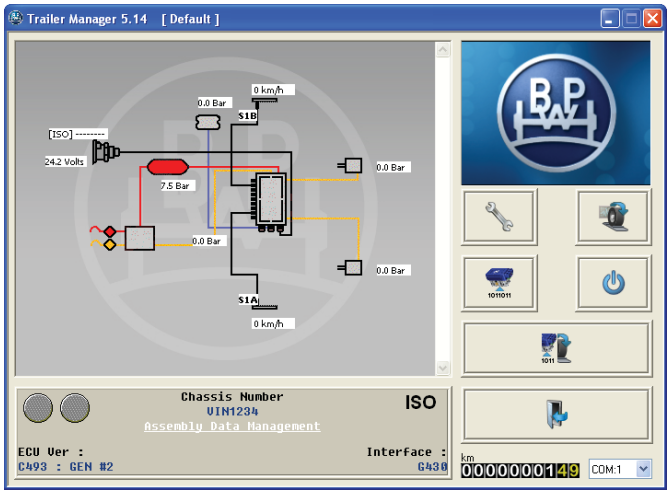
Observe the trailer EBS warning lamp. The warning lamp should display what has been set in the “Lamp Setting” section of the “ECU Set Up”.
Note: If the EBS warning lamp comes On and stays On there are DTC’s present which need to be cleared as above or if the system air pressure is below 4.5 bar.

The following screen will appear and should display no DTC’s. Note: If there are other errors then repeat the procedure described above.



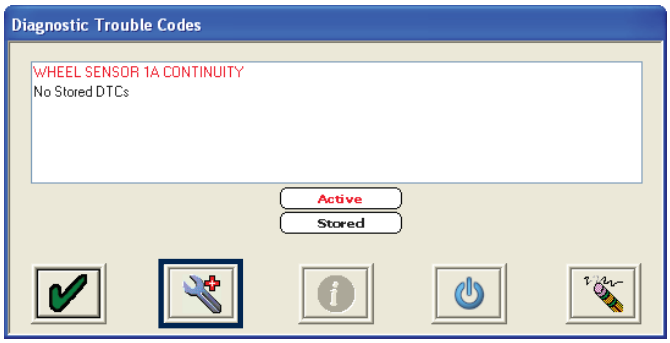






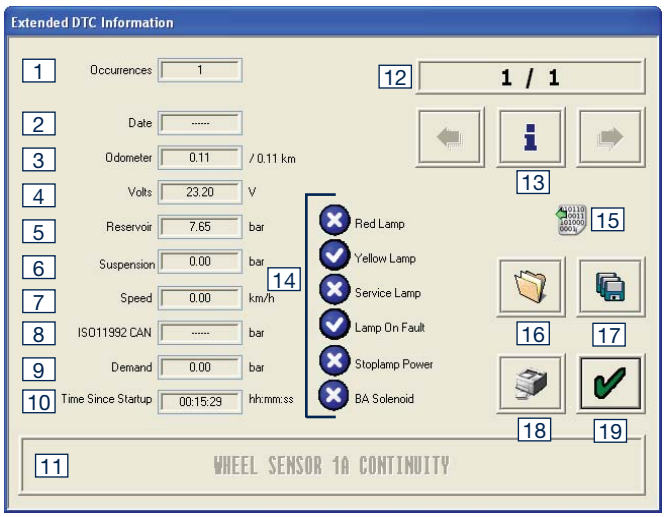
3.4.2 Reading extended diagnostic codes

On active and stored DTC's double click on any DTC or select button  to display the extended DTC information.



The "Extended DTC Information" screen appears.

Understanding the screen display



1 - The number of times the DTC occurred (max. 255 events). The event is logged every time the ECU is powered.

The following data relates to the 1st time the DTC occurred.

2 - Date reading. Recorded when a Trailer Monitor is installed. Updated every 10 min. (Example shows no Trailer Monitor)

3 - Odometer reading (Total distance)

4 - Volts reading

5 - Reservoir pressure

6 - Air bag pressure

7 - Speed at which the DTC occurred (Example shows vehicle stationary)

8 - Electric control line pressure CAN lines pins 6,7 on ISO 7638 (Example shows a 5 pin ISO 7638 installed)

9 - Pressure reading on the service (yellow) line while braking.

10 - Total time, from ECU power up, when DTC occured

11 - Description of DTC

12 - Order and quantity of DTC's

13 - Further information on DTC and possible causes for DTC

14 - Status flags of signal requests and system information refer to BPW for further interpretation.

15 - Flashing icons:

 DTC from ECU

 DTC from file

16 - Read extended DTC file from disc.

Note: To read this file you must enter the "Extended DTC Information" screen.

17 - Save extended DTC file to disc.

18 - Print extended DTC

19 - Exit

3.4 Diagnostics

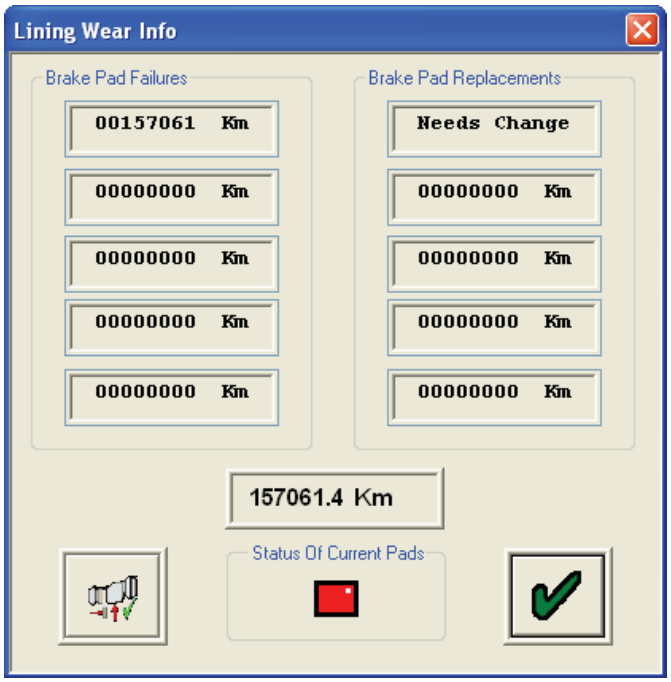
3.4.3 Reading lining wear sensor

Note: This feature must be set in AUX configuration - see page 32, AUX 4 -option.

Click on the button and check if a DTC "**AUX 4**" is listed.

If identified click on button to enter the lining wear info screen.

The "Line Wear Info" screen will appear which lists the history of the changes of linings **(last five recorded)**.



The left hand column records when the brake pads (lining wear sensor) have worn. The right hand column records or indicates when the brake pads have been replaced or require replacing.

If the "**Status of current pads**" indication is coloured **red** and the Info indicates "**Needs Change**" exit Trailer Manager, switch power off to ECU and repair appropriate lining/s.

Re-enter to Trailer Manager and "**Lining Wear Info**" screen. Click on the button .

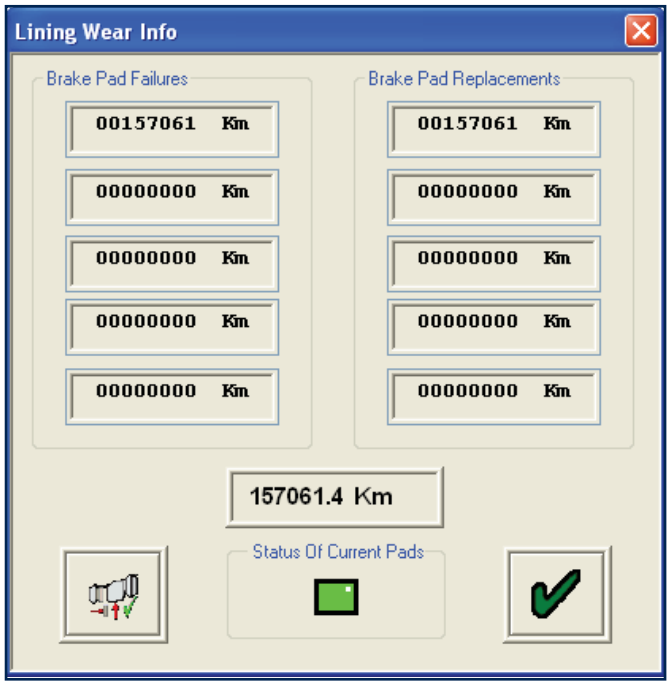
The "Pad Change" screen appears.

Click on the button marked .

The following should occur:

a) In the "Brake Pad Replacements" column the "Needs Change" is replaced by a figure in km.
b) The "Status Of Current Pads" indicator changes from red to green.

On "Lining Wear Info" screen click on the button marked to exit to main screen.



Note: Diagnostic code "AUX 4" is deleted automatically.

When linings are in good condition or to review the "Lining Wear Info" screen enter as described above.

The "Lining Wear Info" screen will be displayed.

The "**Status of current pads**" indication is coloured **green.**

Record any necessary details for future reference.

3.4.4 Reading modification record

Click on the button on the main screen.

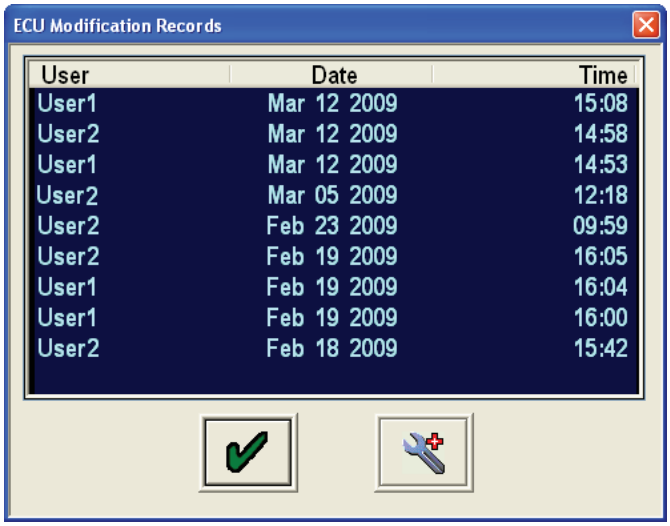
Then click also on the button “blue box” on the “DTC’s, Lining Wear and Modification Records” screen.

The “ECU Modification Records” screen appears.

This is a record of when the ECU has been programmed.

The user can be the computer‘s name or log on name or “Info C” representing Trailer Monitor. The display shows up to ten recent users.

Click on button marked to exit.



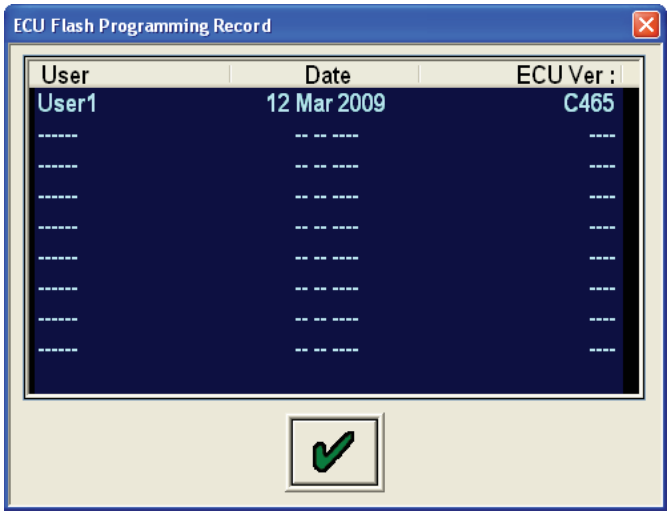
3.4.5 Reading history of flash programming of ECU

Click on the button “red box” on the “DTC’s, Lining Wear and Modification Records” screen.

The “ECU Flash Programming Record” screen appears.

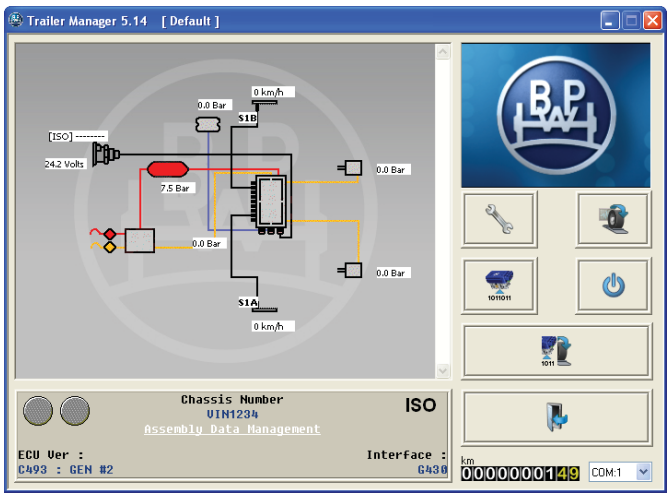
Works by displaying the last ten flash programming events, sorted most recent first, in the same manner as Trailer Manager Programming Record. When the ECU flash memory is reprogrammed, a record is made in the ECU memory.

Click on button marked to exit.



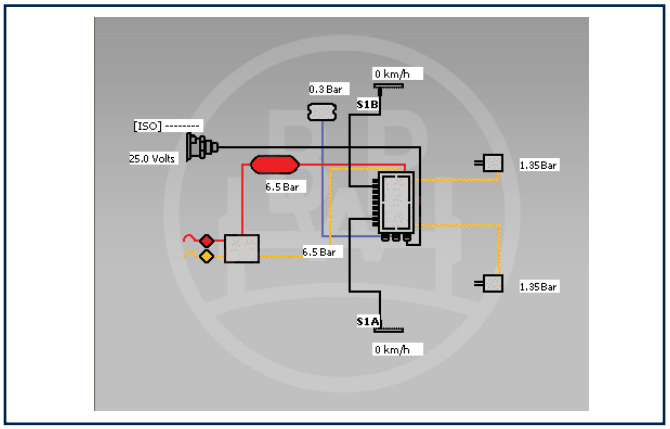
3.5 Reading system pressures, speeds and voltage

Connect emergency and service pressure lines. Observe the values of the system pressures and voltage on the browser window which shows the schematic of the ECO Tronic EBS.

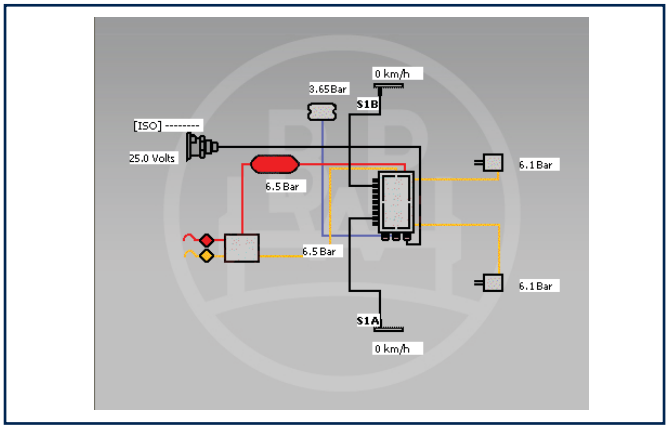


Example: the following should be displayed

1) Pressure values are from the Load Plate Data entry shown on page 16 for an **unladen trailer**. The reservoir pressure is shown as 6.5 bar minimum but can be whatever is used in the workshop.



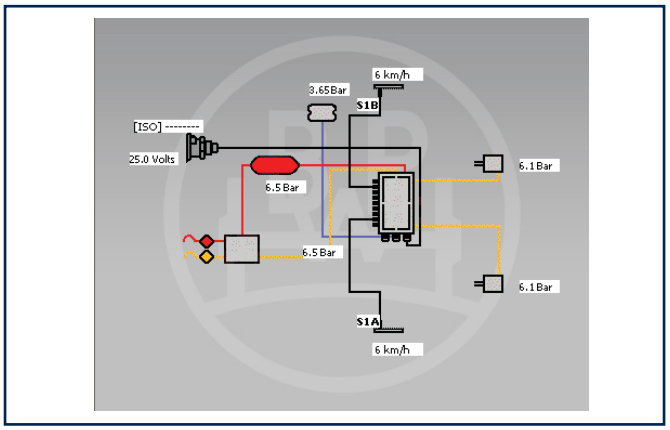
2) Pressure values are from the Load Plate Data entry shown on page 16 for a **laden trailer**.



On rotation of the sensed wheels the speed value will be displayed.

Example:

1 rev / 2 s (30 rpm) ~	4 km/h	for 80 impulse wheel teeth
	5 km/h	for 90 impulse wheel teeth
	6 km/h	for 100 impulse wheel teeth



3.6.1 Normal procedure for the End-of-Line test

! If the ECU is reprogrammed, all DTCs are automatically deleted (see page 39 - ECU programming).
If no reprogramming is performed then delete all active or stored DTCs before you perform the end-of-line test.

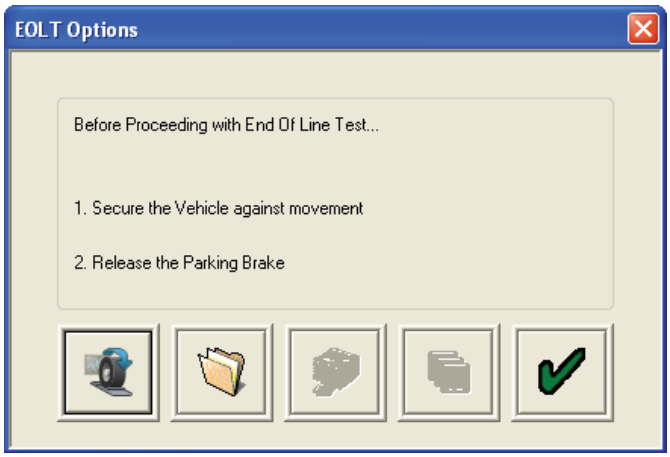
Click on button on the main screen.

The “EOLT Options” screen’s will appear.

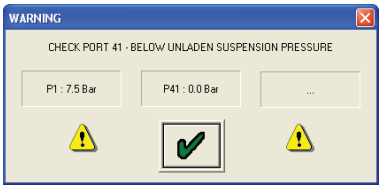
With the correct interface and ECU versions used ensure warning notes.

Continue the test, click to proceed with the next step.

The “View/print” and “Save to file” buttons are initially disabled. They are enabled under the following conditions:
a) Completion of an EOLT (End-of-Line test)
b) An existing EOLT file is opened (.eol) (“View/print” only)



“WARNING” screen
If there is no pressure measured at PORT 41 check installation piping.

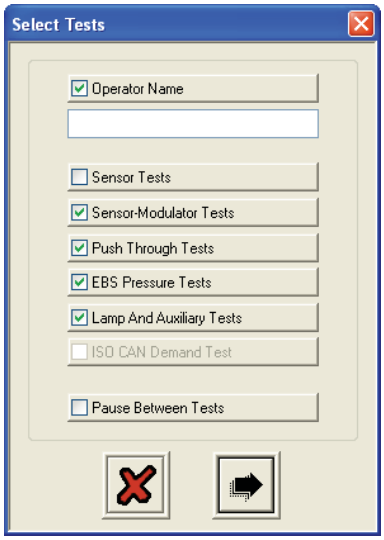


EOLT initialisation

The boxes marked indicate the tests to be carried out.
The tests can be selected or de-selected as required.

If the “**Pause Between Tests**” option is not selected, the selected tests screen will run automatically after each test has been carried out.

If the “**Operators Name**” option is selected, it will enable a name to be entered in the area below (max. 39 characters). This will be recorded on the EOLT report.



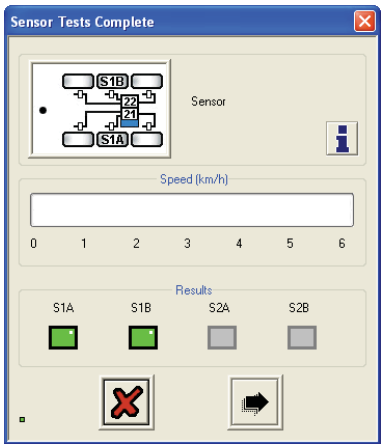
3.6 End-of-Line test

Sensor test
Rotate each wheel through 3 revolutions in 5 seconds.

Result section:
Yellow indicates wheel spinning fast enough.
Green indicates test passed.
Red indicates DTC generated during test.

Note: On each of the following test screens there is a button marked  .

This gives on-screen information about the test to be carried out. If the trailer information has been entered (see page 18 - “Info”) with the Vehicle Ident Number (VIN) then this will be displayed in the tiltle bar of each test.

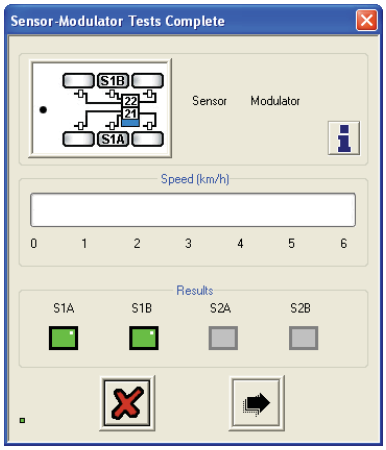


Sensor- Modulator test

Rotate each wheel through 1 revolutions in 2 seconds. The system should brake the spinning wheel.

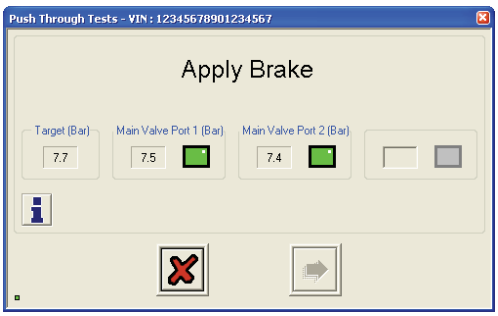
Result section:
Yellow indicates wheel has moved.
Green indicates test passed.
Red indicates test failed.

Note: The screen display as shown is relevant to a 2 Modulator system. The “Sensor-Modulator Tests” check if the sensor inputs correspond to the correct modulator outputs.



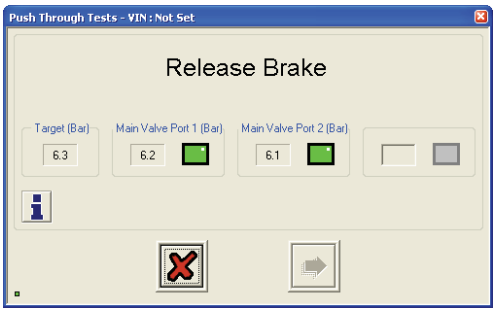
Push through pressure test

Apply brake
The system should be forced into push-through condition (approx. 1:1) and the delivery pressures will be measured.



Release brake
The **target pressure** is a calculated value. The "Main Valve Port 21 and 22" boxes display the actual pressure that is measured at the EPRV. For 3M systems the actual pressure is displayed in the "Remote Valve" box.

Result section:
Yellow indicates test started.
Green indicates test passed.
Red indicates test failed.

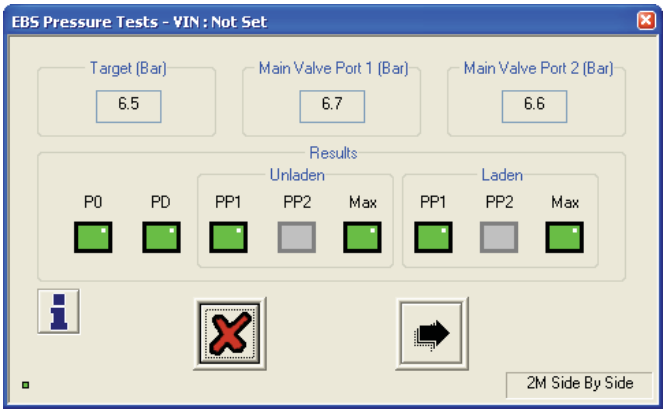


EBS pressure function test (automatic test)

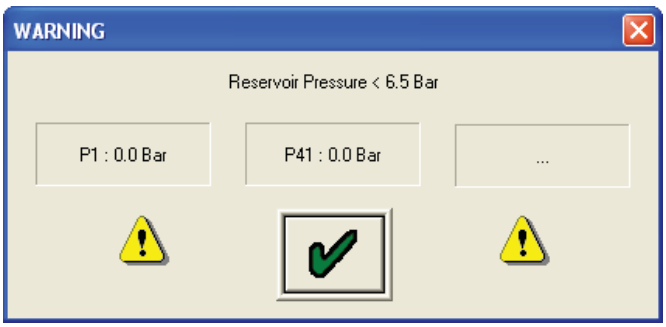
The system will be forced to simulate various load conditions and control pressures. The delivery pressures will be measured and compared with the target pressures.

Result section:
Yellow indicates test started.
Green indicates test passed.
Red indicates test failed.

Note: The example shows the screen as for a "2M side by side" installation. For 3M two screens appear "3M Master" and "3M Remote".



Note: Before this test a warning screen may appear. Make sure that there is the required air pressure in the reservoir to carry out the test. Failure results may occur if the pressure drops below 6.5 bar.



3.6 End-of-Line test

Lamp and Auxiliaries Test (automatic test)

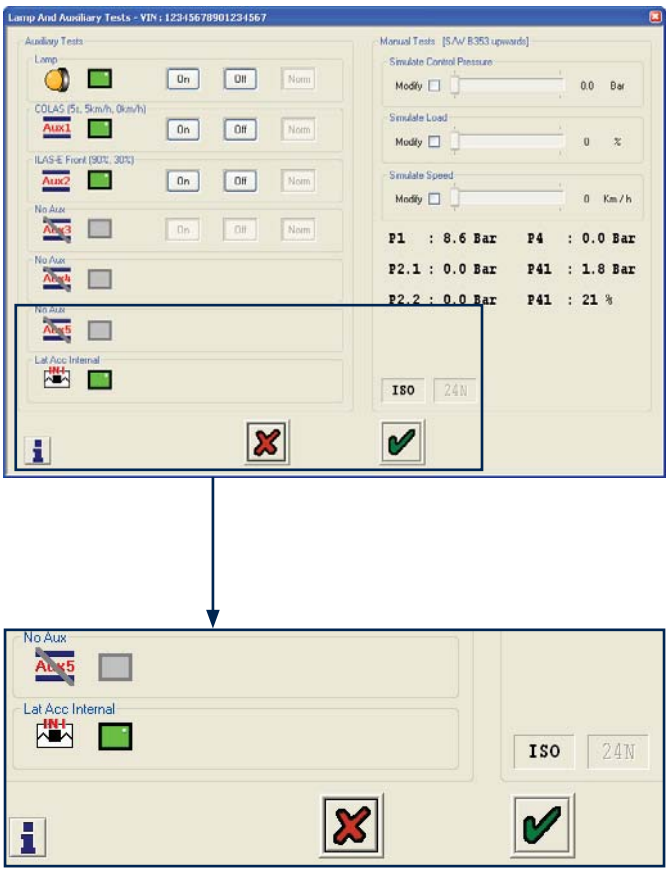
The cab lamp and any auxiliaries will be forced On then Off, and monitored to determine the correct response. Once correctly tested, the lamp or auxiliary can be switched manually without affecting test results. To switch to manual testing click on the "On" button, the "Off" and "Norm" buttons are highlighted, toggle between the "On" and "Off". The "Norm" resets to automatic mode.

Result section:
Yellow indicates test started.
Green indicates test passed.
Red indicates test failed.

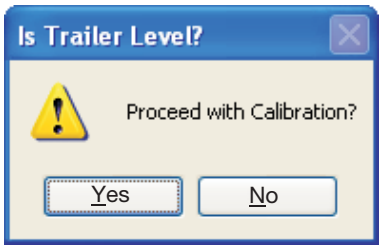
AUX 5 tests the (external) Lateral Accelerometer (Trailer Roll Stability) if selected in the AUX configuration option (see page 35). If the test fails refer to ECO Tronic EBS Installation Instructions and check chassis installation.

or

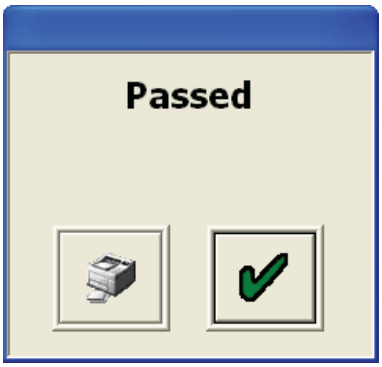
INT tests the Internal Lateral Accelerometer (Trailer Roll Stability) if selected in the AUX configuration option "Internal" (see page 35). If the test fails refer to ECO Tronic EBS Installation Instructions and check chassis installation.



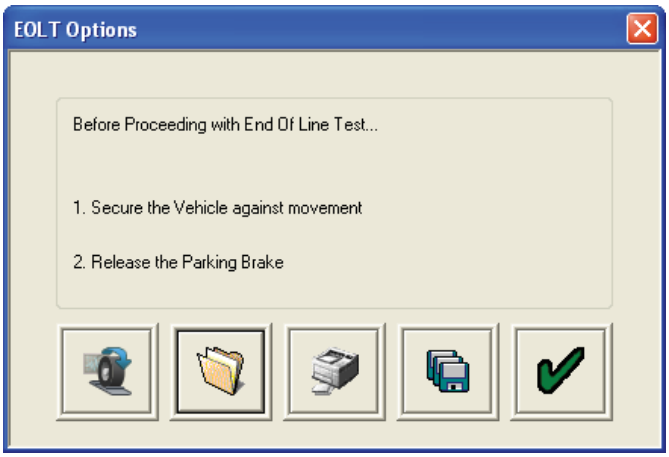
Note: The stability sensor is only allowed to be calibrated on flat, level ground. If the vehicle is not parked on flat-level ground then it is possible to skip the calibration step. In this case, calibration must be repeated on flat, level ground.



Click on button marked ✔ to accept.



The “EOLT Options” screen appears



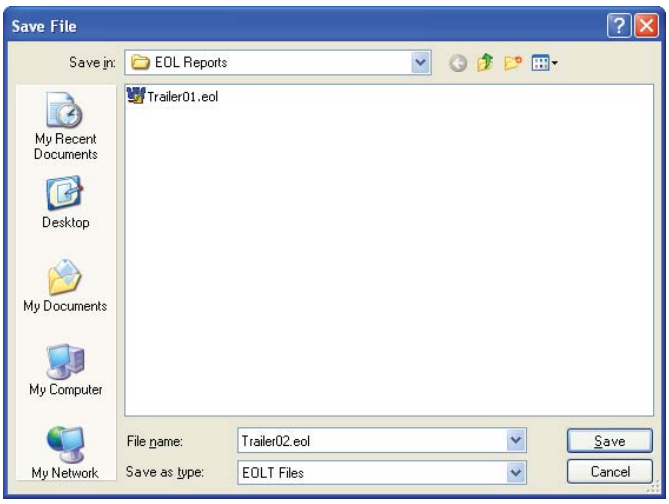
EOLT reports

The End-of-Line test report can be viewed by selecting the button. If required the report can then be printed.

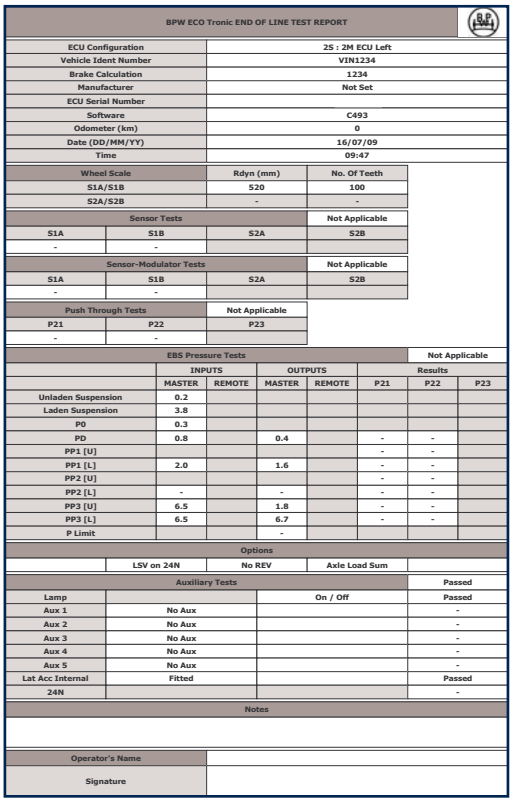
By selecting the button a report file can be saved.

A file name relevant to the vehicle tested (e.g. Trailer02 saved as type .eol) can be entered in position “**File Name**” and stored in the **C:\Program Files\BPW\BPW Trailer Manager\EOL Reports** folder.

Note: The EOLT report can only be viewed within Trailer Manager program in the EOLT section.



ECO Tronic End-of-Line test report.



BPW ECO Tronic END OF LINE TEST REPORT	
ECU Configuration	2S : 2M ECU Left
Vehicle Ident Number	VIN1234
Brake Calculation	1234
Manufacturer	Not Set
ECU Serial Number	
Software	C493
Odometer (km)	0
Date (DD/MM/YY)	16/07/09
Time	09:47

Wheel Scale	Rdyn (mm)	No. Of Teeth
S1A/S1B	520	100
S2A/S2B	-	-

Sensor Tests			Not Applicable
S1A	S1B	S2A	S2B
-	-		

Sensor-Modulator Tests			Not Applicable
S1A	S1B	S2A	S2B
-	-		

Push Through Tests		Not Applicable
P21	P22	P23
-	-	

EBS Pressure Tests							Not Applicable
	INPUTS		OUTPUTS		Results		
	MASTER	REMOTE	MASTER	REMOTE	P21	P22	P23
Unladen Suspension	0.2						
Laden Suspension	3.8						
P0	0.3						
PD	0.8		0.4		-	-	
PP1 [U]					-	-	
PP1 [L]	2.0		1.6		-	-	
PP2 [U]					-	-	
PP2 [L]	-		-		-	-	
PP3 [U]	6.5		1.8		-	-	
PP3 [L]	6.5		6.7		-	-	
P Limit			-				

Options		
LSV on 24N	No REV	Axle Load Sum

Auxiliary Tests			Passed
Lamp		On / Off	Passed
Aux 1	No Aux		-
Aux 2	No Aux		-
Aux 3	No Aux		-
Aux 4	No Aux		-
Aux 5	No Aux		-
Lat Acc Internal	Fitted		Passed
24N			-

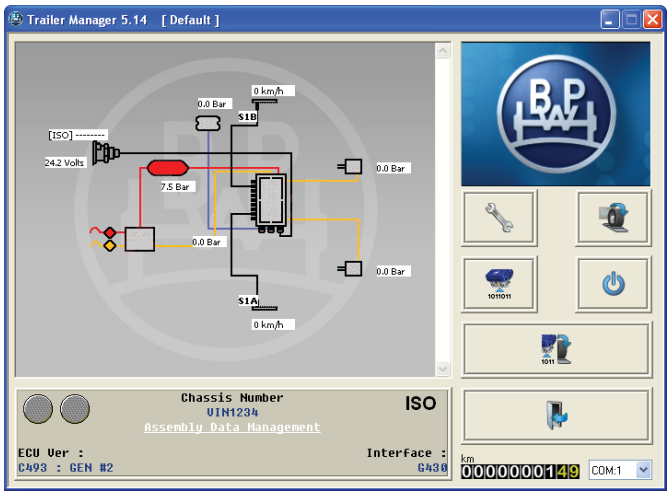
Notes

Operator's Name	
Signature	

3.6 End-of-Line test

3.6.2 Automated procedure End-of-Line test (OEM recommended only)

The auto End-of-Line test enables a parameter file to be opened for a trailer, program the ECU, rest and check for faults, fix any faults, perform End-of-Line test and save and print in sequence from one base window.



From the start screen, select the icon  to commence the auto End-of-Line test.

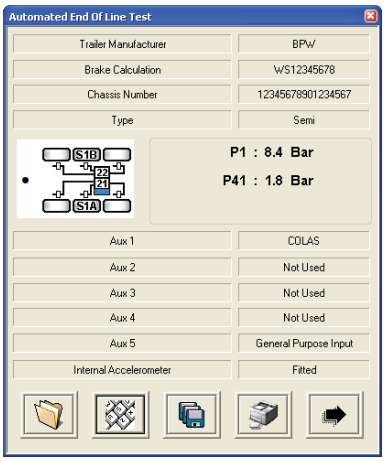
The “Automated End-of-Line test” screen will appear.

This displays the current actual pressure values in a 2M system.
Note P41_2 also appears in case of 3M systems.

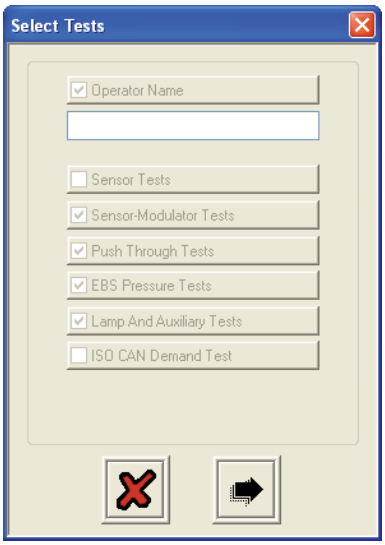
It is possible to check or edit the data (perhaps to change the VIN or auxiliary function) and save to a new file.

The print icon will allow you to print the Load Plate Data.

The forward button will proceed with the End-of-Line test for the trailer.

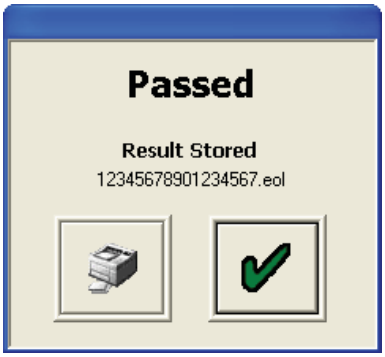


The operator name can be preset in the INI file, and can be locked out if required. It is not possible to change the tests selected in the INI file, as they are greyed out. The “End-of-Line” test will then proceed once the forward button is selected.



Once the automated End-of-Line test is complete and no faults identified, you should see this screen.

The option is given to print out the report.



3.7 Diagnostic Trouble Codes

If a Diagnostic Trouble Code displayed is not listed here, check for intermittent sensor and wiring faults.

DTC Displayed	Description
ECU TIME OUT or NO LINK	No supply on ignition switched line. Possible causes: Truck fuse blown BPW Trailer Monitor or cable fault. Open circuit B -. ISO7638 not connected
Sensor Group	
WHEEL SENSOR 1A CONTINUITY	1A Sensor/wiring open or short circuit
WHEEL SENSOR 1B CONTINUITY	1B Sensor/wiring open or short circuit
WHEEL SENSOR 2A CONTINUITY	2A Sensor/wiring open or short circuit
WHEEL SENSOR 2B CONTINUITY	2B Sensor/wiring open or short circuit
Intermittent Low Sensor Output Group	
WHEEL SENSOR 1A SIGNAL INTEGRITY	1A Sensor signal fault
WHEEL SENSOR 1B SIGNAL INTEGRITY	1B Sensor signal fault
WHEEL SENSOR 2A SIGNAL INTEGRITY	2A Sensor signal fault
WHEEL SENSOR 2B SIGNAL INTEGRITY	2B Sensor signal fault
	Possible causes: Loose sensor, sensor connection, bracked or exciter ring loose. Damaged exciter ring, cable insulation worn or maladjusted senor.
Low Sensor Output Group	
WHEEL SENSOR 1A OUTPUT LEVEL	1A Sensor system fault
WHEEL SENSOR 1B OUTPUT LEVEL	1B Sensor system fault
WHEEL SENSOR 2A OUTPUT LEVEL	2A Sensor system fault
WHEEL SENSOR 2B OUTPUT LEVEL	2B Sensor system fault
	Possible causes: Sensor worn, maladjusted sensor, wiring open or short circuit
Brake Apply Solenoid Group	
BRAKE APPLY SOLENOID SHORT CIRCUIT	Brake apply solenoid short circuit
BRAKE APPLY SOLENOID OPEN CIRCUIT	Brake apply solenoid open circuit

DTC Displayed	Description
BRAKE APPLY SOLENOID SHORT TO B+	Brake apply solenoid short circuit permanently energised
BRAKE APPLY UNSPECIFIED FAULT	Brake apply solenoid control circuit fault
EPRV 21 Hold and Dump Solenoid Group	
EPRV 21 HOLD SOLENOID SHORT CIRCUIT	Modulator 21 hold solenoid short circuit
EPRV 21 DUMP SOLENOID SHORT CIRCUIT	Modulator 21 dump solenoid short circuit
EPRV 21 HOLD SOLENOID OPEN CIRCUIT	Modulator 21 hold solenoid open circuit
EPRV 21 DUMP SOLENOID OPEN CIRCUIT	Modulator 21 dump solenoid open circuit
EPRV 21 HOLD SOLENOID SHORT TO B+	Modulator 21 hold solenoid short circuit permanently energised
EPRV 21 DUMP SOLENOID SHORT TO B+	Modulator 21 dump solenoid short circuit permanently energised
EPRV 21 HOLD SOLENOID UNSPECIFIED FAULT	Modulator 21 hold solenoid control circuit fault
EPRV 21 DUMP SOLENOID UNSPECIFIED FAULT	Modulator 21 dump solenoid control circuit fault
EPRV 22 Hold and Dump Solenoid Group	
EPRV 22 HOLD SOLENOID SHORT CIRCUIT	Modulator 22 hold solenoid short circuit
EPRV 22 DUMP SOLENOID SHORT CIRCUIT	Modulator 22 dump solenoid short circuit
EPRV 22 HOLD SOLENOID OPEN CIRCUIT	Modulator 22 hold solenoid open circuit
EPRV 22 DUMP SOLENOID OPEN CIRCUIT	Modulator 22 dump solenoid open circuit
EPRV 22 HOLD SOLENOID SHORT TO B+	Modulator 22 hold solenoid short circuit permanently energised
EPRV 22 DUMP SOLENOID SHORT TO B+	Modulator 22 dump solenoid short circuit permanently energised
EPRV 22 HOLD SOLENOID UNSPECIFIED FAULT	Modulator 22 hold solenoid control circuit fault
EPRV 22 DUMP SOLENOID UNSPECIFIED FAULT	Modulator 22 dump solenoid control circuit fault
Demand Pressure Transducer Group	
PRESSURE DEMAND SENSOR SHORT CIRCUIT	Service line pressure transducer short circuit
PRESSURE DEMAND SENSOR OPEN CIRCUIT	Service line pressure transducer open circuit
PRESSURE DEMAND FAULT	Service line pressure transducer fault
PNEUMATIC DEMAND ERROR	Service line pressure transducer fault

3.7 Diagnostic Trouble Codes

DTC Displayed	Description
Delivery Pressure Transducer Group	
EPRV 21 DELIVERY SENSOR SHORT CIRCUIT	Modulator 21 delivery pressure transducer short circuit
EPRV 21 DELIVERY SENSOR OPEN CIRCUIT	Modulator 21 delivery pressure transducer open circuit
EPRV 22 DELIVERY SENSOR SHORT CIRCUIT	Modulator 22 delivery pressure transducer short circuit
EPRV 22 DELIVERY SENSOR OPEN CIRCUIT	Modulator 22 delivery pressure transducer open circuit
One Wheel with Slow Recovery Group	
EPRV 21 SLOW WHEEL RECOVERY	Slow recovery of one wheel of Modulator 21
EPRV 22 SLOW WHEEL RECOVERY	Slow recovery of one wheel of Modulator 22
	Possible causes: Slow brake release, foundation brake mechanical faults, dry bearings, broken spring, restricted piping
	Check for kinks and blockages etc. Incorrect piping, wiring.
	Modulator fault. Sensor wiring crossed across an axle
Reservoir Pressure Transducer Group	
RESERVOIR SENSOR SHORT CIRCUIT	Reservoir pressure transducer short circuit
RESERVOIR SENSOR OPEN CIRCUIT	Reservoir pressure transducer open circuit
EXCESSIVE RESERVOIR PRESSURE	Reservoir pressure above 9.75 bar
Air Suspension Pressure Sensor	
SUSPENSION SENSOR SHORT CIRCUIT	Suspension pressure transducer short circuit
SUSPENSION SENSOR OPEN CIRCUIT	Suspension pressure transducer open circuit
SUSPENSION PRESSURE LOW	Suspension pressure values outside operating range
Pressure Switch Group	
REV PRESSURE SWITCH SHORT CIRCUIT	Trailer brake valve / pressure switch short circuit
REV PRESSURE SWITCH OPEN CIRCUIT	Trailer brake valve / pressure switch open circuit
REV SWITCH PNEUMATIC FAULT	Trailer brake valve / pressure switch pneumatic fault

DTC Displayed	Description
REV PRESSURE SWITCH SIGNAL FAULT	Trailer brake valve / pressure switch failed to activate
ISO11992 (CAN) Electrical Signal Group	
PNEUMATIC DEMAND LOSS	No corresponding pneumatic demand pressure
TOWED CAN DEMAND LOSS	CAN line (pin 6 and 7 on ISO7638) fault
TOWED CAN CONTROL LOSS	CAN line (pin 6 and 7 on ISO7638) data fault
Supply Voltage Group	
ISO7638 POWER FAILURE	Power loss on pin 1 or 2 (ISO7638)
LOW VOLTAGE	Supply voltage at ECU less than 19 V when brake apply solenoid energised
HIGH VOLTAGE	Supply voltage at the ECU greater than 32 V
UNSPECIFIED POWER FAULT	Internal ECU fault
ECU Group	
ECU EEPROM ERROR	Internal ECU fault or ECU not programmed
CONFIGURATION ERROR	Internal ECU fault or ECU not programmed
ECU UNSPECIFIED ERROR	Internal ECU fault or ECU not programmed
ECU SHUTDOWN	Internal ECU fault, the power supply to the solenoids has been isolated
UNKNOWN	The ECU has generated a DTC that is not recognised by this version of Trailer Manager or Trailer Monitor and so cannot be decoded
UNCONFIGURED SYSTEM	Added to 'CONFIGURATION ERROR' when the system has never been configured
SLAVE LOAD PLATE	Added to 'CONFIGURATION ERROR' when there is a problem with the load sensing parameters for the slave modulator
LOAD PLATE	Added to 'CONFIGURATION ERROR' when there is a problem with the load sensing parameters
VALVE	Added to 'CONFIGURATION ERROR' when there is a problem with the wheel to valve mapping parameters
TRAILER ROLL STABILITY SENSOR (TRS)	Added to 'CONFIGURATION ERROR' when there is a problem with the Trailer Roll Stability (TRS) parameters

3.7 Diagnostic Trouble Codes

DTC Displayed	Description
Auxiliary Components Group	
AUX1	Auxiliary 1 system/wiring open, short circuit or unknown
AUX2	Auxiliary 2 system/wiring open, short circuit or unknown
AUX3	Auxiliary 3 system/wiring open, short circuit or unknown
AUX4	Auxiliary 4 system/wiring open, short circuit or unknown
AUX5	Auxiliary 5 system/wiring open, short circuit or unknown
GENERAL LIFT AXLE	This is appended to 'AUX n' when there is a lift axle fault
REMOTE OVERLOAD LAMP	This is appended to 'AUX n' when there is an overload lamp fault
UNKNOWN AUX	ECU is programmed with an auxiliary function that this Version of Trailer Manager or Trailer Monitor does not recognise
Lining Wear Group	
BRAKE PADS	Lining wear wiring open circuit

DTC Displayed	Description
Trailer Roll Stability	
TRAILER ROLL STABILITY SENSOR (TRS) SHORT CIRCUIT	Lateral accelerometer wiring short circuit
TRAILER ROLL STABILITY SENSOR (TRS) OPEN CIRCUIT	Lateral accelerometer wiring open circuit
TRAILER ROLL STABILITY SENSOR (TRS) SIGNAL	Lateral accelerometer signal fault
Slave Valve Group	
SLAVE VALVE SENSOR	Pressure transducers open or short circuit
SLAVE VALVE MODULATOR	Hold, dump or brake apply solenoid open or short circuit
SLAVE VALVE CABLE	Link cable open or short circuit
SLAVE VALVE SLOW RECOVERY	Slow recovery of one wheel slave valve
SLAVE SUSPENSION PRESSURE LOW	Suspension pressure values outside operating range

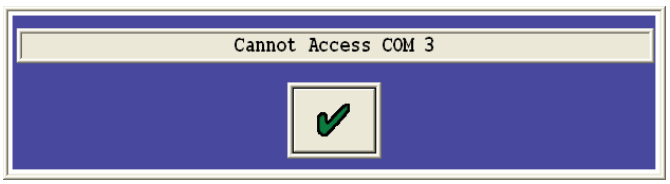
Note: If a DTC is displayed and after following recommended procedure, no fault is found, the ECU should be replaced.

3.8 Troubleshooting

Screen 1
On appearance of this screen the following areas need to be checked:

a) The receive and transmit buffers have been disabled on your PC. Check the COM port properties.

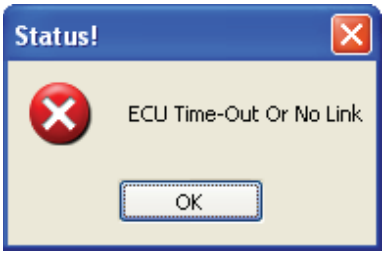
b) Another program that uses the COM port is open. Check the bottom of your PC screen and close any other programs.



Screen 2
On appearance of this screen the following areas need to be checked:

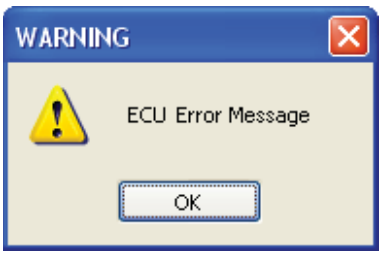
a) Connections loose. Check that each plug is firmly connected.

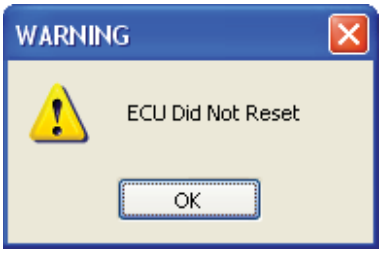
b) LED light off on PC Interface pod. Check if the power supply to the ECU from the ISO7638 (or similar 24 V supply) is on.



Screen 3 and 4
On appearance of this screen the system is still in system supplier mode (i.e. a command was requested within 10 s of clicking the “Reset button” (Page **41**, button )).

Switch power Off and On to trailer.





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