ODR-Tracker

Operating Instructions

WABCO

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Edition 1

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1 Symbols used

DANGER 	Imminent hazard situation which can cause serious personal injury or death if the safety instruction is not observed.

WARNING 	Potential hazard situation which can cause serious personal injury or death if the safety instruction is not observed.

CAUTION 	Potential hazard situations that can cause minor or moderate personal injury if the safety instruction is not observed.

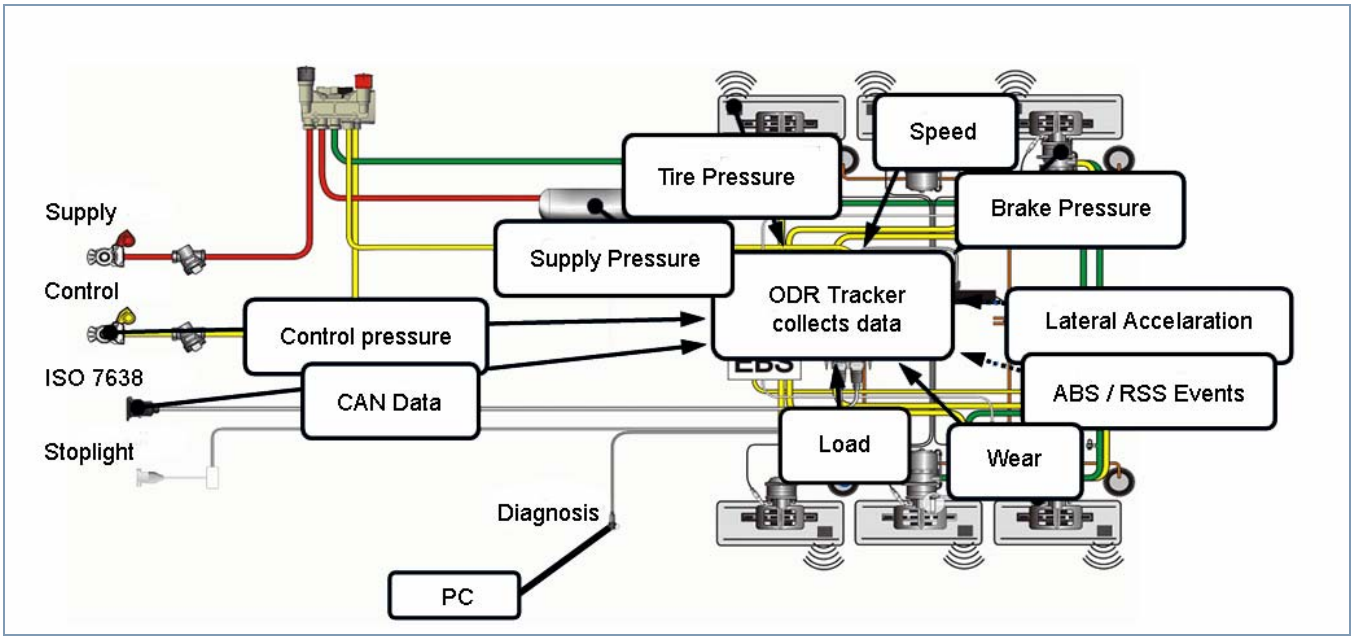
Important instructions, information or tips that you should always observe.

- List Action step

– Step

➔ Result of an action

2 Introduction



WABCO is also offering a software with the release of the Trailer EBS E generation, the so-called ODR-Tracker.

ODR stands for the Operating Data Recorder integrated in the TEBS modulator.

A Tracker is the "log book", which shows the conditions that the trailer was operated under.

Every vehicle that is equipped with a trailer EBS of the D generation (as of production week 01/2004) or the new E generation, has this integrated operating data recorder.

This data is used for analyzing the vehicle usage and the evaluation of the towing vehicle used.

The ODR-Tracker is a self-contained program that enables an evaluation and analysis directly on the vehicle or on the desk - without the TEBS diagnostic software.

3 System requirements

- PC with operating system Windows 98, 2000, ME, NT, XP or Vista*)
- at least 64 MB main memory
- approx. 30 MB free hard drive space
- Colour display with resolution of min. 800x600 pixels (Recommended: 1024x768)
- 1 free COM interface (9-pin) or resp. USB connection

*) The Diagnostic Interface 446 301 001 0 of set 446 301 022 0 (with USB connection) can only be used under Windows systems that support USB (98, 2000, ME, XP, Vista).

4 Connection diagram

Diagnosis TEBS E		
Option 1		
Diagnostic Interface with USB Interface 446 301 022 0 	Diagnostic cable 446 300 361 0 	Connection adapter ISO 7638 with CAN socket 446 300 360 0 
Option 2		
Diagnostic Interface with serial interface 446 301 021 0 	CAN Converter 446 300 470 0 	Connection adapter ISO 7638 with CAN socket 446 300 360 0 
Option 3		
Diagnostic Interface with serial interface 446 301 021 0  or Diagnostic Interface with USB interface 446 301 022 0 	Diagnostic cable 446 300 361 0 	Diagnostic Connection with yellow cap 449 611 ... 0 

5 Software

ODR-Tracker program is orderable on the USB stick and has the WABCO order number 446 301 692 0.

The software is installed on a PC with the Windows operating system (Windows 98, 2000, ME, NT, XP and Vista) with the WABCO installation program and is started via the respective Icon from the WABCO program group or from the Start menu.

Installing the ODR-Tracker program

Open file *setup.exe* on the USB stick to install the program.

Now enter the user identification.

Activation

Enter the registration data and request the activation code online, by fax, email, data exchange or telephone.

Demo function

The program is equipped with demo functionality. This can be called up with parameter *DEMO*: *Start menu => DEMO - ODR-Tracker*

A connection for starting the program in DEMO mode is provided in the program group. A connection to the ECU is not required in this mode and all dialogs can be opened.

Copy-protection

The Diagnostic software has a copy-protection that binds the software to a single PC hardware and limits the activation on a PC to one license.

After the installation on a target system, the software can be used without any restrictions for a short period but must be activated afterward.

6 Function

After the program is started, the diagnostics connection to the controller is established and the vehicle-specific data is read and displayed.

The ODR-Tracker software contains the following displayed functions.

When the program starts with automatic initialisation, the last used diagnostic interface is used.

If the connection cannot be established, a respective error message appears with the capability of selecting another diagnostic interface.

In Offline mode, a file with operation data can be loaded and saved.

6.1 Diagnostics

Start

A connection to the ECU can be established. A selection then appears showing which diagnostics connection should be used for the communication (CAN 5 V, CAN 24 V or K-Line).

If a valid ECU has been detected, the ODR data memory is read automatically and the ODR evaluation is started and displayed.

End

A connection to the ECU is closed.

Read from ECU

If a connection to the ECU has already been established, the ODR data memory can be read again (e. g. after deleting individual ODR data areas).

Read from file

A stored data record is read on the PC. The selected file is checked for its data content. If valid data exists, the evaluation is started and displayed.

Write to file

A valid data record from an ECU can be stored in a file. The file name derived from a compilation of the vehicle license number and the current kilometre reading is recommended.

When storing the data, the vehicle license number can be entered.

Print

Print evaluation: The evaluation that is being displayed is printed as a log. The report is then shown in a preview window and can be printed from there.

Exit: The program is ended, any possible connection with the ECU is closed automatically.

6.2 Tools

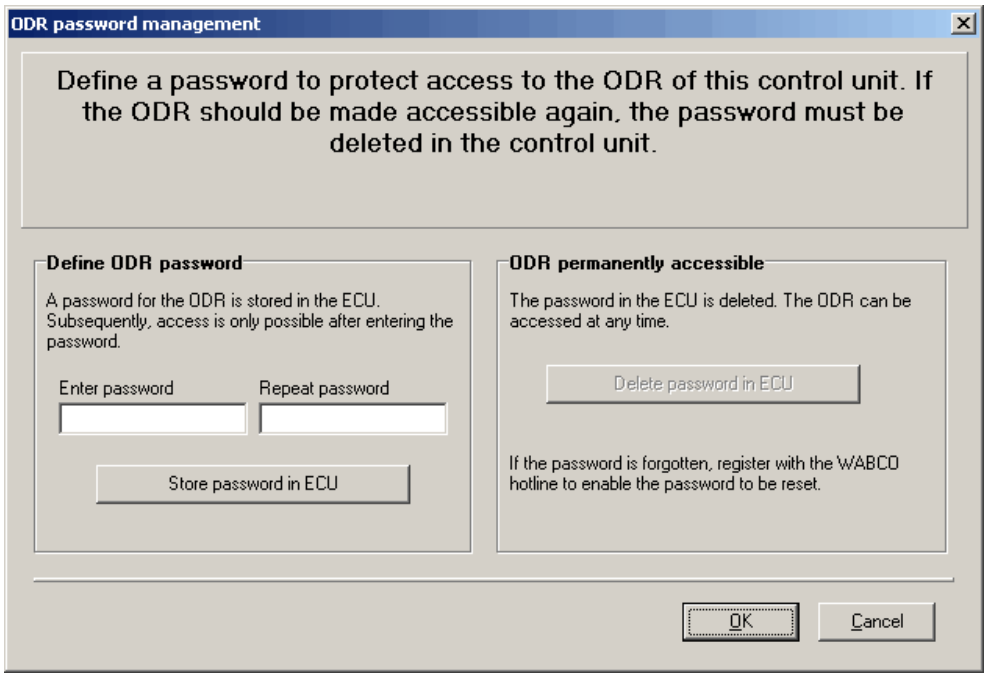
6.2.1 Resetting the ODR (deleting)

The following areas of the ODR can be deleted:

- Overview, histogram and trip accumulator

- ABS accumulator
- RSS accumulator

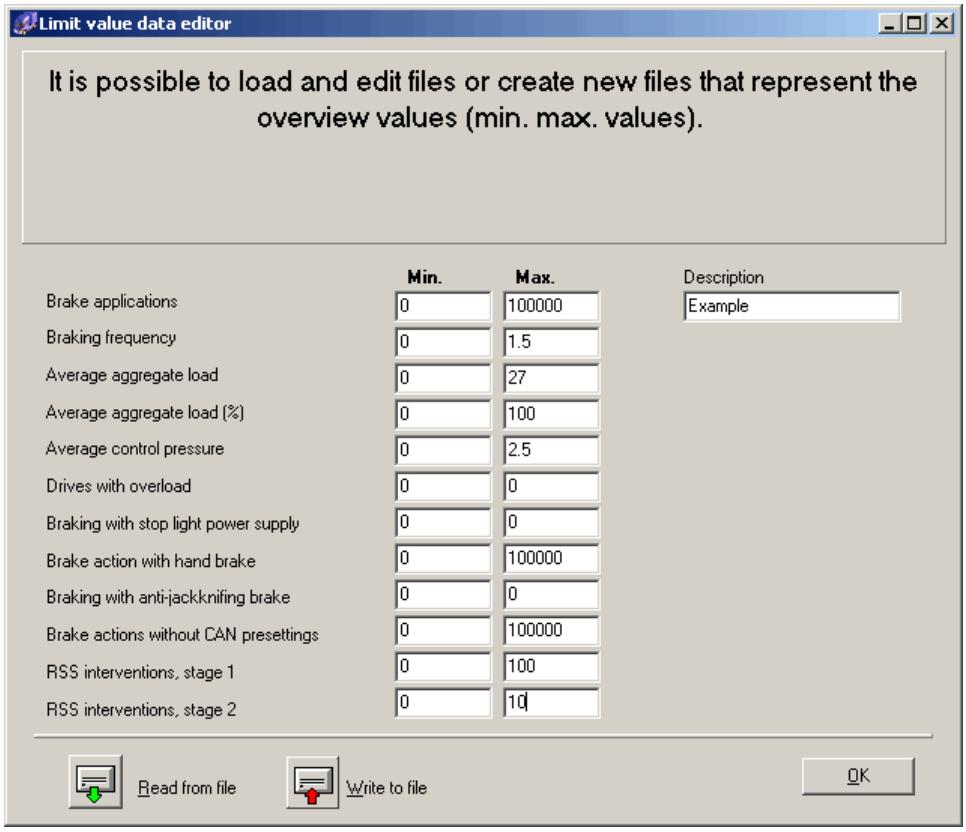
6.2.2 ODR password management



Access to the ODR can be password protected. A password is then required for read access.

The password can be changed or deleted again in the ODR Password window (see figure).

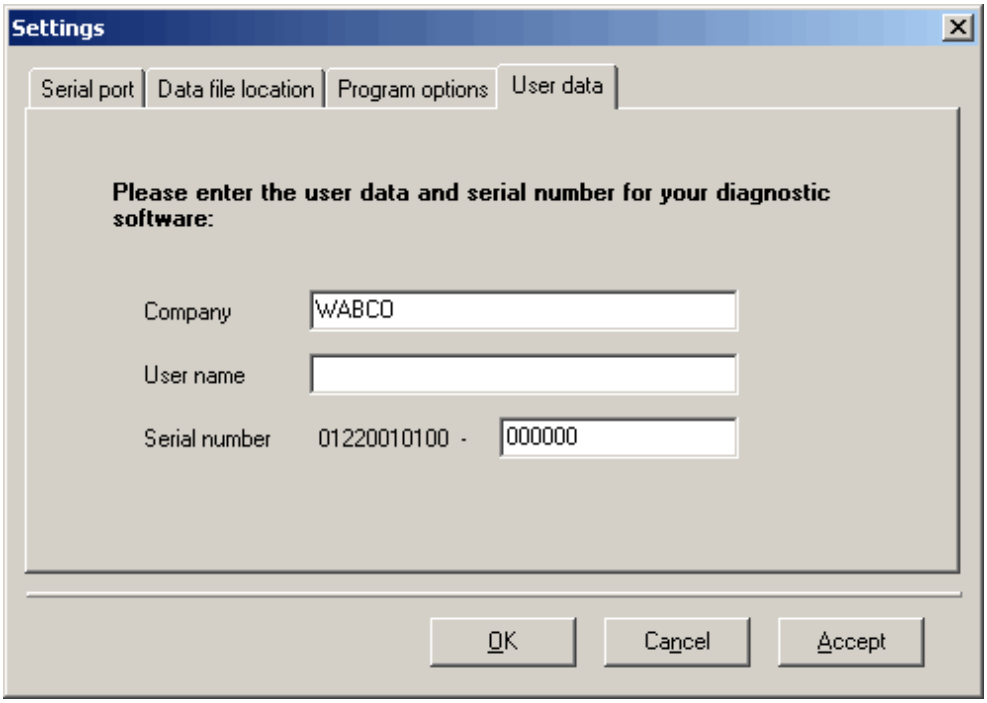
6.2.3 Limit Value Data Editor



An evaluation of the values read can be performed in the evaluation on the overview page. The relevant limit values can be set and stored in a file in this case. This data can be selected in the overview.

The limit values specified by WABCO should be maintained to the greatest degree possible.

6.3 Settings



Various settings for program behaviour, such as settings for the serial interface, file storage, program options or user information can be made on tabs in this window. The information is stored in the ODR-Tracker file.

Serial interface

This tab can be used for setting the serial interface (USB or COM port) to which the Diagnostic Interface is connected.

Data file location

The setting for the read and write directory can be changed on this tab.

Programme options

This tab can be used for defining settings for program behaviour, such as:

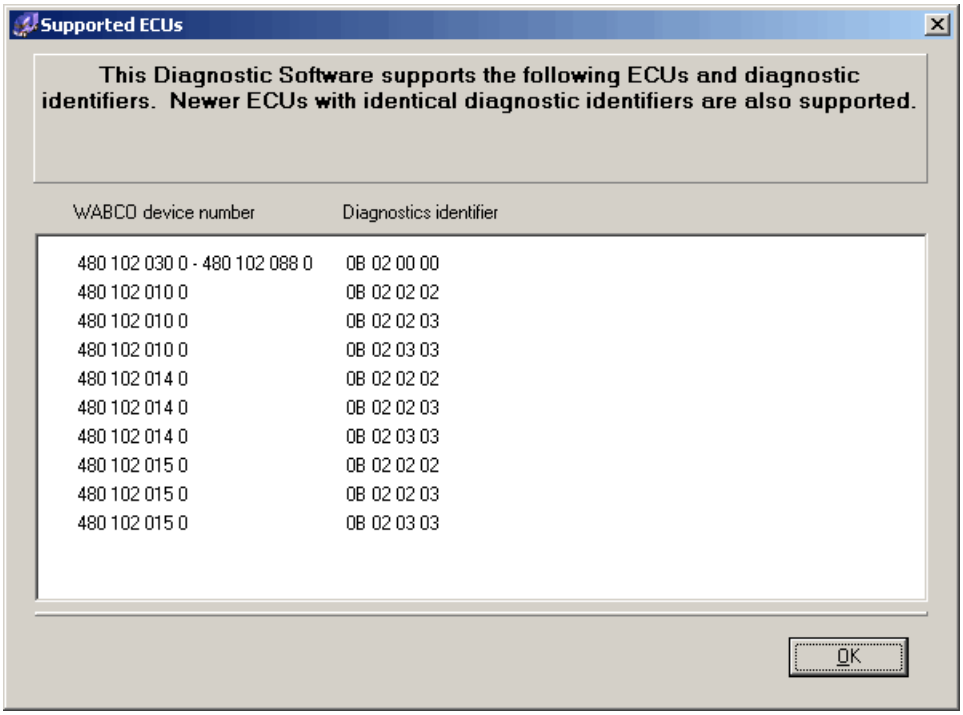
- Start in full-screen mode
- Direct diagnosis start-up upon program start
- Display of help text

User data

This tab can be used for changing user information such as company, user name and serial number, even after the installation, see figure.

6.4 Help

Supported ECUs



All of the ECUs supported by this program are listed in window *Supported ECUs*.

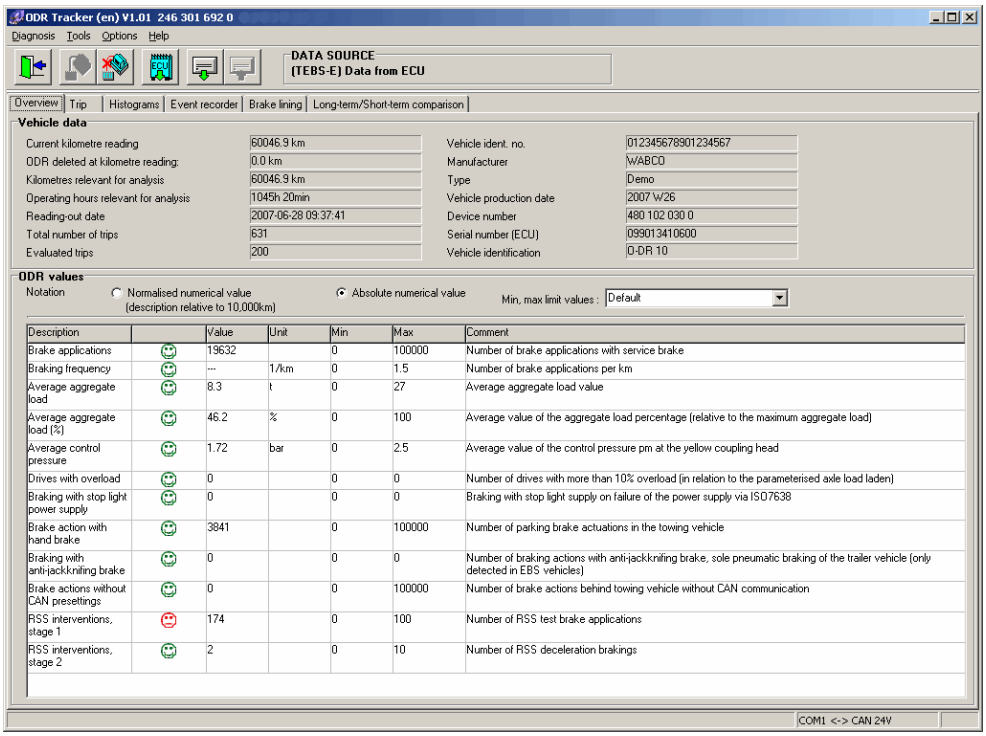
About

The version of the diagnostic software, the registered user and the serial number are shown in window *About*. The name and program version in the Diagnostic Interface are also shown.

7 ODR Evaluation

Evaluating the ODR is displayed over several screen pages, which are explained in the following pages. The data is partially shown in tables and the respective graphic.

7.1 Overview



Vehicle data

Tab *Overview* shows *Vehicle data* or the ECU, e. g. *Current kilometre reading* for evaluating the relevant kilometres or hours of operation, *Total number of trips*, etc.

ODR values

The ODR values can be shown as an *Absolute numerical value* or a *Normalised numerical value (description relative to 10,000km)*.

The limits that apply for the evaluation can be loaded individually from the file of the vehicle to be analyzed.

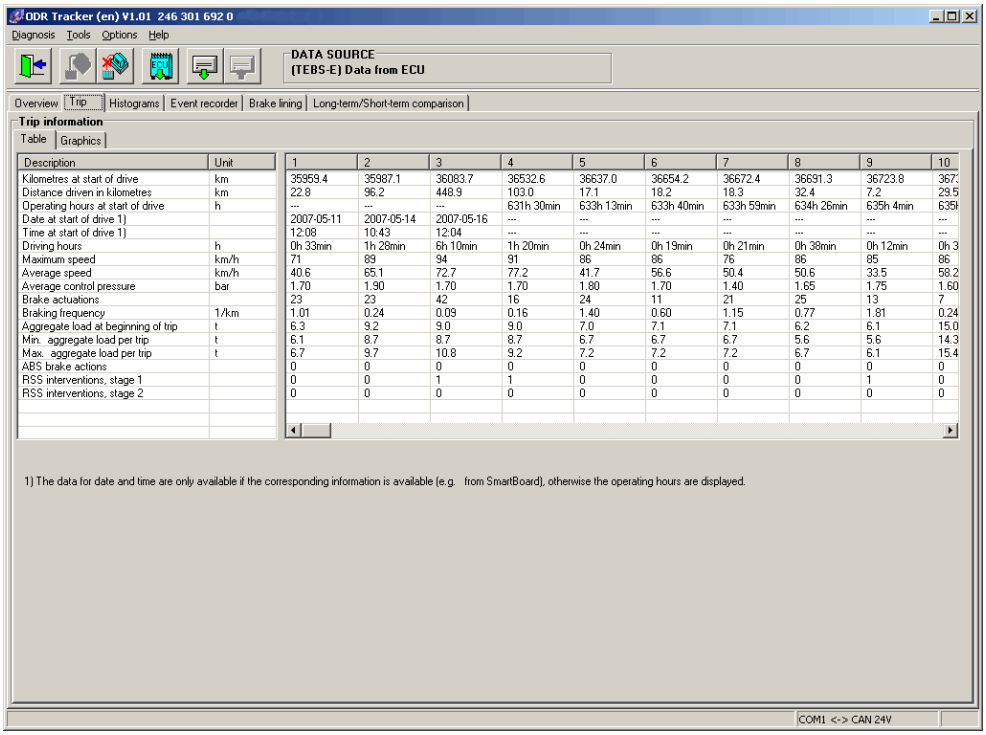
Characteristics	Comment
Brake applications	*Number of brake applications with service brake*
Braking frequency	*Number of brake applications per km*
Average aggregate load	*Average aggregate load value* (all axles combined) with 3-axle low-bed semi-trailer e. g. 3 x 8000 kg
Average aggregate load (%)	*Average value of the aggregate load percentage (relative to the maximum aggregate load)*

Characteristics	Comment
Average control pressure	*Average value of the control pressure pm at the yellow coupling head*
Drives with overload	*Number of drives with more than 10% overload (in relation to the parameterised axle load laden)*
Braking with stop light power supply	*Braking with stop light on failure of the power supply via ISO7638*
Brake actuations with hand brake	*Number of parking brake actuations in towing vehicle* The recognition is made only on towing vehicles with a CAN connection because only the pneumatic braking desire of the driver exists with the applied hand brake
Braking with anti-jackknifing brake	*Number of braking actions with anti-jackknifing brake, sole pneumatic braking of the trailer vehicle (only detected in EBS vehicles)* Recognition only with towing vehicles braked with EBS
Brake actions without CAN presetting	*Number of brake actions behind towing vehicles without CAN communication*
RSS interventions, stage 1	*Number of RSS test brake applications* (with RSS stage 1)
RSS interventions, stage 2	*Number of RSS deceleration brakings* (with RSS stage 2)

7.2 Trip recorder

Definition of Trip: A trip has a travel distance of at least 5 km and a minimum speed of 30 km/h and the ignition must be switched on at the time.

In the trip recorder of the Trailer EBS E Modulator, the data of the last 200 trips are stored.



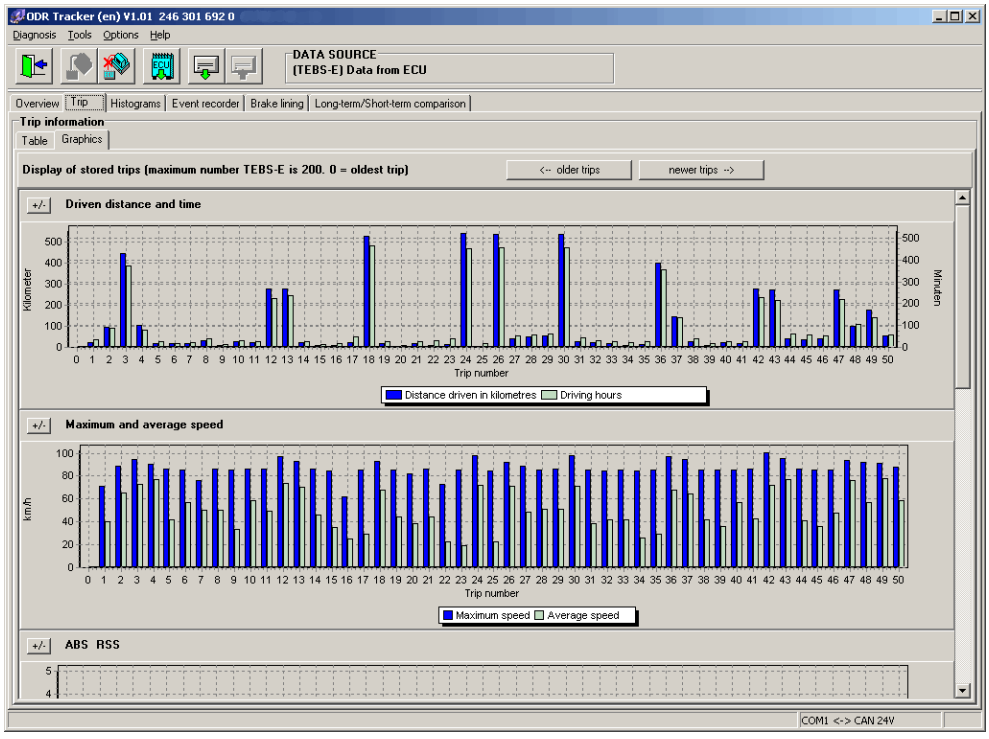
Table

The data of the present trip is shown. Data can be displayed as a graphic or in a table.

Characteristics	TEBS D	TEBS E without SmartBoard	TEBS E with Smart-Board
Kilometres at start of drive	x	x	x
Distance driven in kilometres	x	x	x
Operating hours at start of drive	x	x	
Hours of operation at trip start with date			x
Driving hours	x	x	x
Maximum speed	x	x	x
Average speed	x	x	x
Average control pressure	x	x	x
Brake actuations	x	x	x
Braking frequency	x	x	x
Aggregate load at beginning of trip	x	x	x

Characteristics	TEBS D	TEBS E without SmartBoard	TEBS E with Smart-Board
Display of min. and max. power unit load, in order to e. g. recognise added load on a dumper with the ignition switched on.		x	x
ABS brake actions	x	x	x
RSS interventions, stage 1	x (with RSS variant only)	x	x
RSS interventions, stage 2	x (with RSS variant only)	x	x

Graphic



The stored trips in the trip memory can be displayed as a graphic on the tab *Graphic*.

- *Driven distance and time*
- *Maximum and average speed*
- *ABS RSS* (-control)
- *Power unit load*
- *Braking frequency*
- *Control pressure*

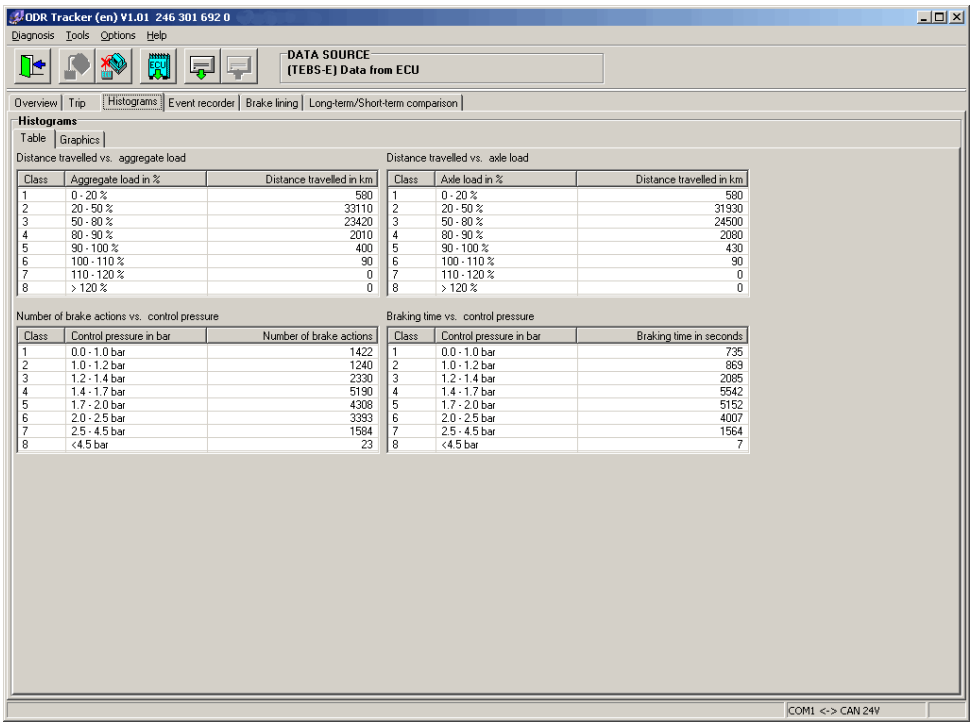
Buttons <-- *older trips* and *newer trips* --> can also be used with TEBS D to show up to 30 trips and with TEBS E up to 200 trips.

7.3 Histograms

Definition of a Histogram: A histogram represents the distribution of events as they occur over the operating time of the vehicle.

The values of the histogram are shown in individual classes.

Table



The following values are available under the tab *Table*:

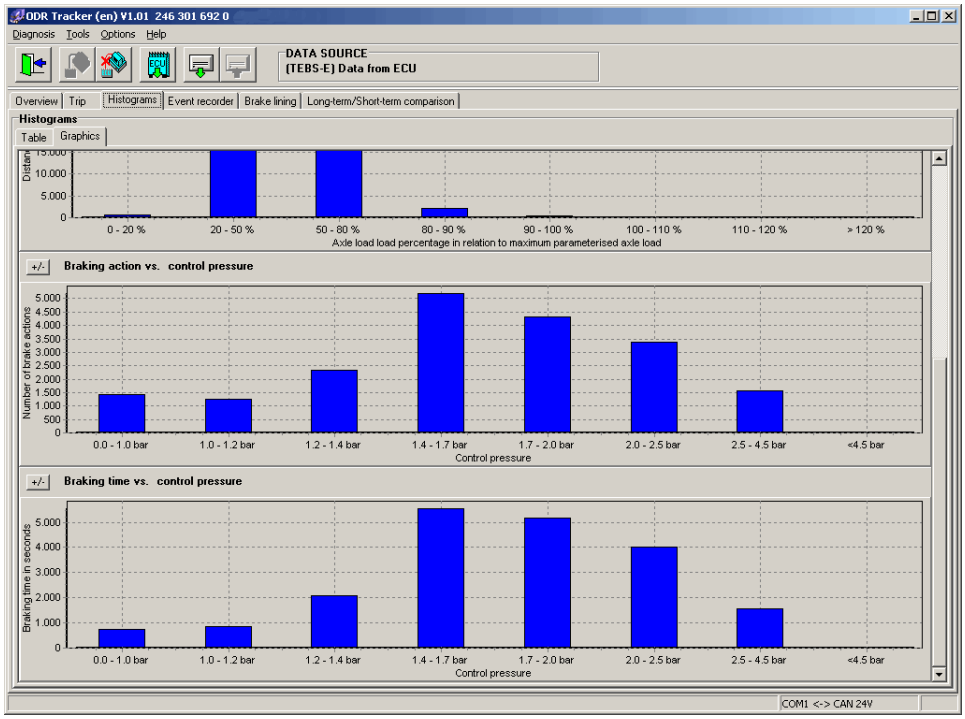
- *Distance travelled vs. aggregate load* (only available for TEBS E)
- *Distance travelled vs. axle load*
- *Number of brake actions vs. control pressure*
- *Braking time vs. control pressure* (only available for TEBS E)

Aggregate load (sum of all axles): This histogram stores how many kilometres were driven for each combined multi-axle class.

Axle load (axle load for one axle): This histogram stores how many kilometres were driven for each combined multi-axle class.

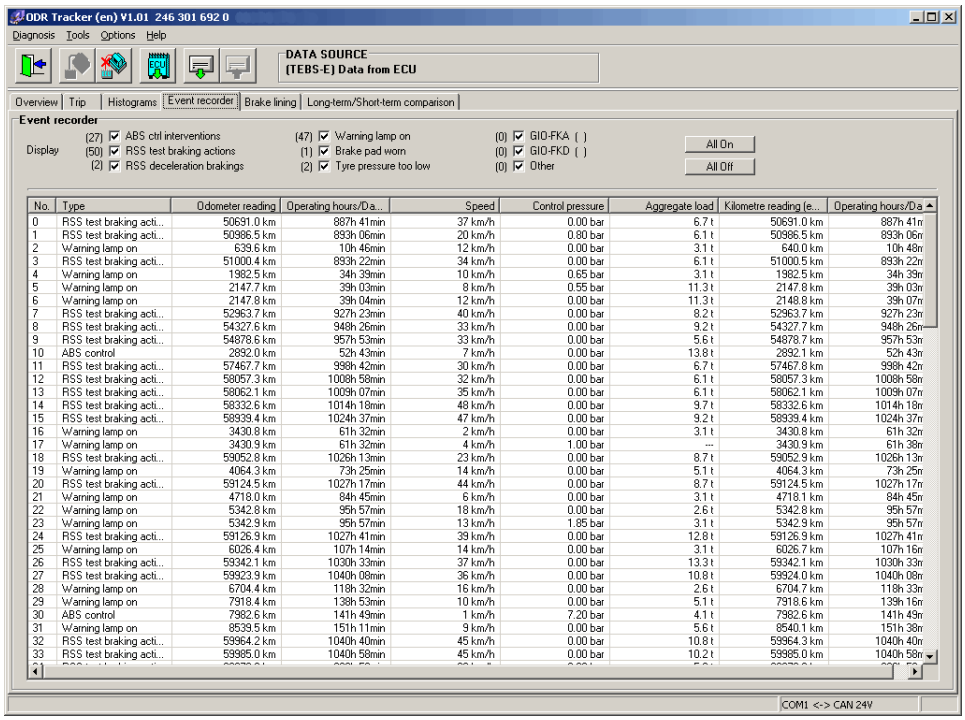
Control pressure: This histogram stores how many brake actions were performed for each class. The maximum pressure that occurred is also saved.

Graphic



The values shown under the *Table* are shown as a graphic representation here. Individual graphics can be either shown or hidden.

7.4 Event Recorder



The events recorded while traveling are displayed in a table.

The filter function can be used to change the display so that only individual event types are displayed.

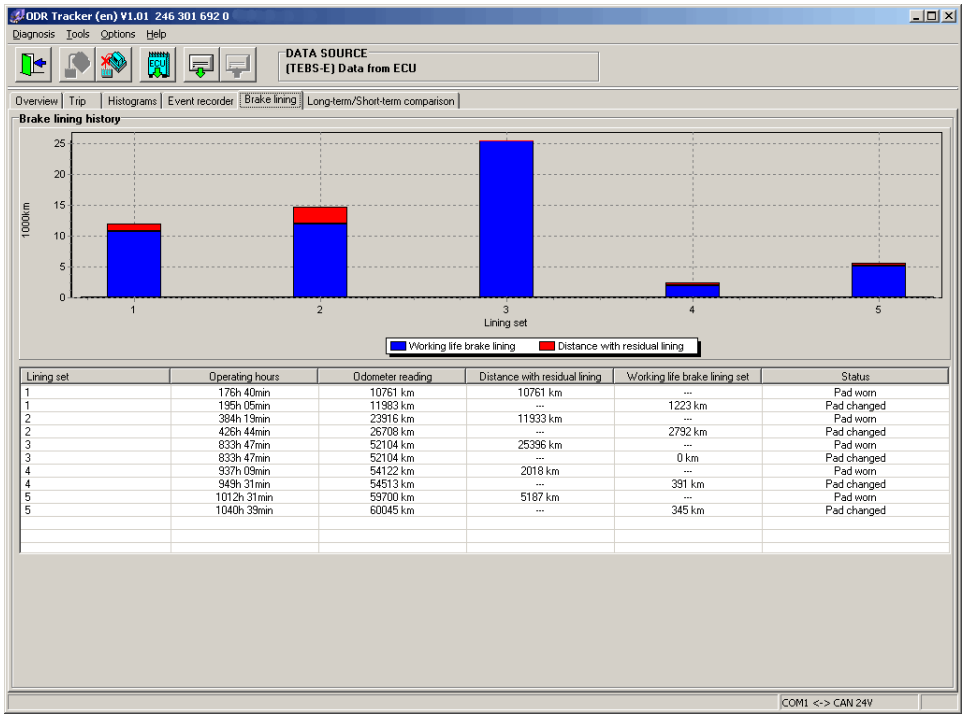
The following events are displayed:

- *ABS ctrl interventions*
- *RSS test brake actions*
- *RSS decelaration brakings*
- *Warning lamp on* (only available for TEBS E)
- *Brake pad worn* (only available for TEBS E)
- *Tyre pressure too low* (only available for TEBS E)
- *GIO-FKA ( )* (FKA = freely configurable analogue input) Function (only available for TEBS E)
- *GIO-FKD ( )* (FKD = freely configurable digital input) Function (only available for TEBS E)
- *Other* (only available for TEBS E)

Detailed information is available for every event. This information can be displayed (if available, otherwise "---") as:

- (Event-)*Type*
- *Odometer reading* (at event start)
- *Operating hours/Date* (at event start)
- *Speed*
- *Control pressure*
- *Aggregate load*
- *Kilometre reading (End)* at event end
- *Opterating hours/Date (End)* at event end

7.5 Brake lining



Lining set	Operating hours	Odometer reading	Distance with residual lining	Working life brake lining set	Status
1	176h 40min	10761 km	10761 km	---	Pad worn
1	195h 05min	11983 km	---	1223 km	Pad changed
2	384h 19min	23916 km	11933 km	---	Pad worn
2	426h 44min	26708 km	---	2792 km	Pad changed
3	833h 47min	52104 km	25396 km	---	Pad worn
3	833h 47min	52104 km	---	0 km	Pad changed
4	937h 09min	54122 km	2018 km	---	Pad worn
4	949h 31min	54513 km	---	391 km	Pad changed
5	1012h 31min	59700 km	5187 km	---	Pad worn
5	1040h 39min	60045 km	---	345 km	Pad changed

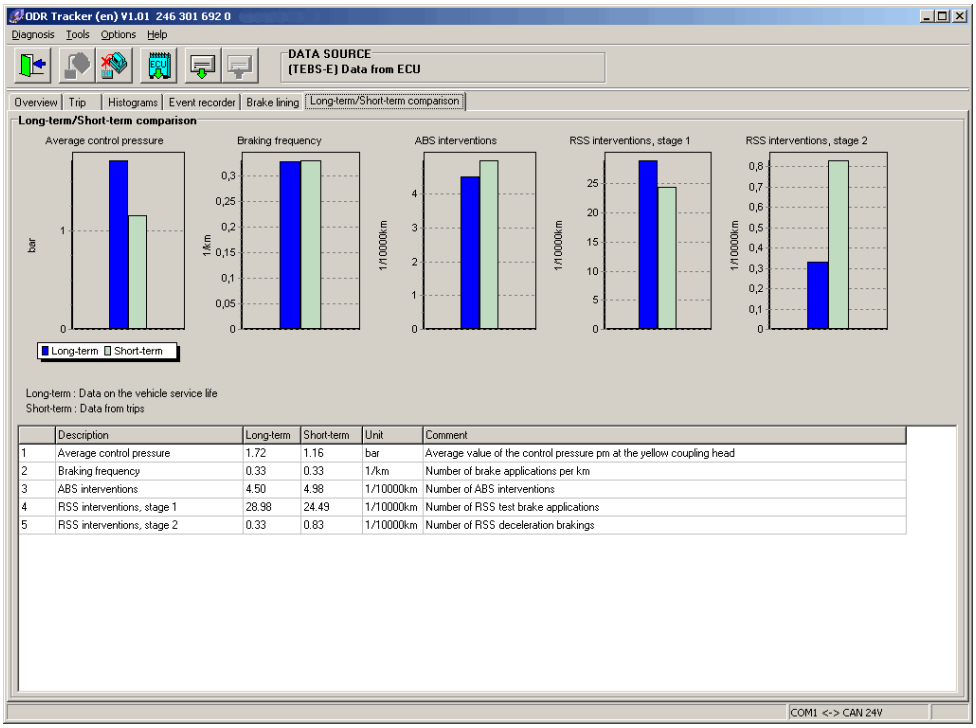
Brake lining history

The last 5 documented brake lining changes are shown under the tab *Brake lining*.

The kilometres that have been driven are shown in a table to indicate the hours of operation elapsed when the brake linings were worn or changed. This data is then used to determine and show the stationary and driving time with residual lining.

The stationary and driving times with residual thicknesses for the brake lining are shown graphically for every lining set.

7.6 Long-/Short-term comparison



	Description	Long-term	Short-term	Unit	Comment
1	Average control pressure	1.72	1.16	bar	Average value of the control pressure pm at the yellow coupling head
2	Braking frequency	0.33	0.33	1/km	Number of brake applications per km
3	ABS interventions	4.50	4.98	1/10000km	Number of ABS interventions
4	RSS interventions, stage 1	28.98	24.49	1/10000km	Number of RSS test brake applications
5	RSS interventions, stage 2	0.33	0.83	1/10000km	Number of RSS deceleration brakings

A comparison of the long-term data (total lifespan of the ECU) is made with the short-term data (recording period of the trip recorder) under the tab *Long-/Short-term comparison*.

The following values are shown as tables and graphically:

- *Average control pressure*
- *Braking frequency*
- *ABS interventions*
- *RSS interventions, stage 1*
- *RSS interventions, stage 2*

WABCO Vehicle Control Systems, is one of the world's leading providers of electronic braking, stability, suspension and transmission control systems for heavy duty commercial vehicles. WABCO products are also increasingly used in luxury cars and sport utility vehicles (SUVs). Customers include the world's leading commercial truck, trailer, bus and passenger car manufacturers. Founded in the U.S. in 1869 as Westinghouse Air Brake Company, WABCO was acquired by American Standard in 1968 and spun off in 2007. Headquartered in Brussels, Belgium, the business today employs more than 7,000 people in 34 offices and production facilities worldwide. In 2006, total sales were $2 billion. WABCO is a publicly traded company and is listed on the New York Stock Exchange with the stock symbol WBC.

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