Hand-Held Tool

System configuration and communication with the tire sensor

GB   User manual
USA   Hand-Held Tool

[Rev. V04]

Contents

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1   General

1.1   Information on this user manual

This user manual is part of the TPM-02 Hand-Held Tool and provides important instructions on the intended use, safety, startup and operation of the Hand-Held Tool.

The user manual must be read and utilized by every person who operates this Hand-Held Tool and troubleshoots the Hand-Held Tool.

Inform the subsequent owner of the Hand-Held Tool of this manual.

1.2   Liability disclaimer

The manufacturer assumes no liability for damage and operational faults resulting from:

- failure to observe this user manual (In case of doubt the English version shall apply.),
- use for other than the intended purpose,
- improper repairs,
- unauthorized modifications or
- use of non-approved spare parts

1.3   Copyright

This user manual is copyrighted.

The user manual may not be duplicated in whole or in part for other purposes without the express permission of Continental Reifen Deutschland GmbH.

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1.4   Abbreviations

The following abbreviations are used in this user manual:

Abbrevia-tion:	Meaning
ADR	European convention on international carriage of dangerous goods by road (**A**ccord européen relatif au transport international des marchandises **D**angereuses par **R**oute)
ATL	**A**utomatic **T**railer **L**earning
CCU	**C**entral **C**ontrol **U**nit
CSW	**CA**N **sw**itch - switching module (integrated into the CCU trailer)
DSP	**Disp**lay
DTC	**D**iagnostic **T**rouble **C**ode
HHT	**H**and-**H**eld **T**ool
RX	Add. Receiver
SO	**S**urrounding **O**bserver

1.5   Explanation of symbols

Warnings in this user manual are also indicated by warning symbols. The following warning symbols are used in this user manual:

Symbol	Meaning
⚠️	General warning
⚡	Warning of electric current
ℹ️	General instructions and useful suggestions on handling
♻️	Note on observing environmental regulations for disposal
🗑️	Electric/electronic components with this symbol may not be disposed of in the normal household waste.

1.6 Warnings

In the current user manual, the following warnings are used:

⚠ WARNING
A warning of this hazard level indicates a hazardous situation.
If the hazardous situation is not avoided, it can result in serious injuries.
► Follow the instructions in this warning to avoid serious injuries to persons.

ATTENTION
A warning of this category indicates potential danger to property.
If the situation is not avoided, it may lead to damage to property.
► Follow the instructions in this warning to avoid damage to property.

NOTE
► A note contains additional information that is important for further processing or for simplifying the procedure step explained.

1.7 Manufacturer's address

Continental Reifen Deutschland GmbH

Vahrenwalder Straße 9

30165 Hannover

Germany

www.contipressurecheck.com

General

1.8   Warranty terms

The statutory warranty terms apply, with the exception of possible con-
tractual agreements.

Please refer to the General Terms and Conditions for further informa-
tion.

1.9   After-sales service

1.9.1   Eliminating errors

NOTE
► If the handling instructions in this user manual do not lead to the elimination of the fault, contact the after-sales service of the respective country.

All necessary information can be obtained from:
www.contipressurecheck.com

1.9.2   Updates

The current version of this user manual and further information can be
obtained from
www.contipressurecheck.com/downloads

Further information on the topic of Conti PressureCheck can be ob-
tained at:
www.contipressurecheck.com

2 Safety

2.1 General safety instructions

Observe the following general safety instructions to ensure safe handling of the Hand-Held Tool:

- Check all parts of the Hand-Held Tool for visible damage before use. Do not use a damaged Hand-Held Tool.
- Do not allow the Hand-Held Tool to fall down or subject it to hard knocks.
- With the exception of the slot for the SD memory card, do not open the Hand-Held Tool. There are no maintenance-relevant parts inside the Hand-Held Tool.
- The rechargeable battery of the Hand-Held Tool can not be replaced.
- Only allow the manufacturer to repair the Hand-Held Tool. Improper repairs or opening the tool will invalidate the guarantee.
- Protect the Hand-Held Tool against humidity or penetration of liquids or objects. If the tool comes into contact with liquids, disconnect it from the power supply immediately.

2.2   Particular hazards

2.2.1   Electric shock hazard

	⚠ **WARNING**
⚡	**Danger to life from electric current!**
	Contact with live wires or components can lead to serious injury or even death!
	► Only use the charger supplied otherwise the Hand-Held Tool could be damaged.
	► Do not use the Hand-Held Tool if the connecting cable or the housing or the charger is damaged.
	► Never open the housing of the charger. Danger from electric shock if live connections are touched and/or the electrical and mechanical configuration is changed.
	► Never immerse the Hand-Held Tool or the mains plug into water or other liquids.

2.2.2   Danger in potentially explosive areas

	⚠ **WARNING**
EX	**Risk of explosion!**
	If the Hand-Held Tool is used in locations with explosive gases and/or gas mixtures, in particular at petrol stations, there is a risk of explosion.
	► Do not use the Hand-Held Tool in hazardous areas under any circumstances.

2.2.3 Danger when using hazardous goods transporters

⚠	**⚠ WARNING**
	Hazardous goods!
	Various hazards when using the Hand-Held Tool in the vicinity of dangerous goods/transporters (e.g., risk of explosion).
	The Hand-Held Tool may be used on vehicles for the transport of dangerous goods (ADR) under the following conditions:
	► Inside the driver's cabin
	► Outside the driver's cabin, when - the vehicle is stationary and - no hazardous goods are loaded or unloaded.
	The following instructions must also be observed:
	► The Hand-Held Tool may not come into contact with hazardous material.
	► The safety instructions for transported hazardous goods must be observed.

2.3   Spare parts and accessories

⚠	**ATTENTION**
	Damage and malfunctions due to incorrect spare parts and accessories.
	The Hand-Held Tool or vehicle components can be damaged or malfunction if wrong or non-original spare parts are used.
	▶ Use original parts only.
	▶ Only use the original USB cable for transferring data between the Hand-Held Tool and the system otherwise data transfer errors can occur.

2.4   Intended use

The Hand-Held Tool is intended to be used only

- for communicating with and setting the tire sensors,
- for reading the pressure and temperature values,
- for setting up/adjusting the system on the vehicle,
- for checking the system performance,
- for error diagnostics,
- for transferring data between the PC and the Hand-Held Tool,
- updating the software
- for testing the CAN connection of the system with the vehicle CAN bus.

Use for any other purpose is not considered as intended use.

No claims of any kind will be accepted for damage resulting from use of the appliance for other than its intended purpose.

In such cases, the risk must be borne solely by the user.

2.5   Foreseeable misuse

⚠	⚠ **WARNING**
	Danger resulting from improper use!
	If used for other than its intended purpose, the Hand-Held Tool can be a source of danger and cause damage to equipment.
	► Use the Hand-Held Tool only for its intended purpose.

Any use for a purpose other than that specified in the section *„2.4 Intended use" on page 15* is considered improper and is therefore not permitted.

For example, misuse is when

- the information in this manual is not observed,
- the limits specified in the technical data are not complied with
- the Hand-Held Tool is operated in a modified or faulty condition
- the Hand-Held Tool is used in a potentially explosive zone,
- not observing the safety instructions given in the section *„2.2 Particular hazards" on page 13* .

3   Technical data

Hand-Held Tool		
Dimensions (L x W x H)	160 x 84 x 33 6.3 x 3.31 x 1.30	mm inch
Weight	325 11.46	g oz
Weight of the electronic components	292 10.3	g oz
Display	3-inch 128 x 64 pixel monochrome graphic LCD with backlighting	
Degree of protection	IP 54	
Power pack	Lithium-ion rechargeable battery 800 mAh / 11.1 V	
Operating temperature	-5 to 50 23 to 122	°C °F
Storage temperature	-20 to 25 -4 to 77	°C °F
Connections		
USB 2.0 (PC)	Type A	
USB cable	Hirose, 24-pole	
Charger connection	Barrel connector, 1.3/3.5 mm	
Memory card		
Card type	SD card	
Max. capacity	32 GB (scope of supply 8 GB)	

Radio-frequency	
Frequency range	315 MHz - 868 MHz
Used frequency	433.92 MHz
Transmission power	Reception only
Low frequency	
Frequency	125 kHz
Transmission power	24.52 dBuA/m @ 180%
Mating cycles	
USB plug	at least 1,000
Diagnosis plug	at least 100
Charger plug	at least 10,000
Charger	
Type	ICP20-150-1250D
Input	90 ... 264 VAC / 47 ... 63 Hz
Output	14.25 V - 15.75 V / max. 1.25 A

Mating cycles column: cycles

Comment

The tire sensors generation 2, work in such a way, that when they are connected to a mobile device via Bluetooth, then it is not possible to work with the Hand-Held Tool.

For tire sensors generation 1, it is not applicable as they have no Bluetooth.

4 Description

4.1 Description of functions

The TPM-02 Hand-Held Tool is a configuration and diagnostics device with the following functions:

- Tire sensor check,
- Tire pressure and temperature measuring,
- Tire sensor activation/deactivation,
- Switch on **"Auto activation"** feature on tire sensor generation 2,
- New Installation on the vehicle/trailer,
- Checking and changing the existing configuration,
- Checking the system performance (test drive),
- Reading of error codes (DTCs),
- Updating firmware for the display (DSP), CCU and switching module (CSW),
- Logging vehicle and setting data,
- Communication between the PC and the Hand-Held Tool.
- Testing the CAN connection of the system with the vehicle CAN bus.

4.2 Tool overview

4.2.1 Control elements
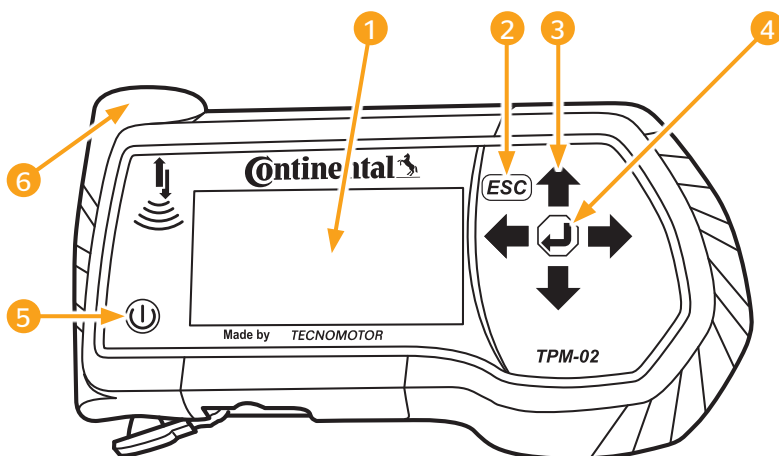
Pos	Designation	Task
1	Screen	Menu display.
2	ESC key (ESC)	Exit a sub-menu. Scroll back in some menus.
		Press the ESC key for 3 s. = cancel an action. Exit the menu.
3	Arrow keys	Navigate within a menu. Setup values
4	RETURN key	Confirm selection. Acknowledge a message. Exit dynamic help.
5	ON/OFF key	Switch the HHT ON/OFF.
6	Antenna	Antenna for communication with the tire sensors.

Description

4.2.2 Underside
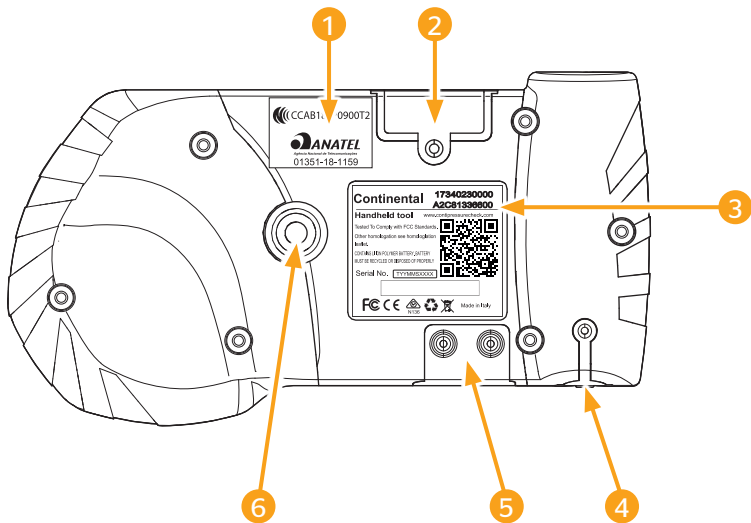
Pos	Designation
1	Additional homologation label
2	Slot for SD memory card
3	Type label
4	Cover for charger connection socket
5	Cover for USB and diagnosis cable connection sockets
6	Fixing for carrying strap* * (not included in the scope of supply)

4.2.3 Connections
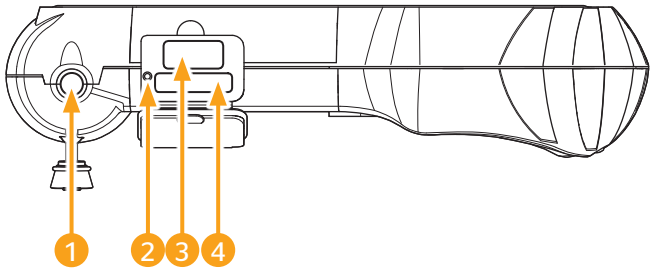
Pos	Designation
1	Connection for charger
2	Internal reset button
3	Connection for USB cable
4	Connection for diagnosis cable

4.2.4 Slot for SD memory card
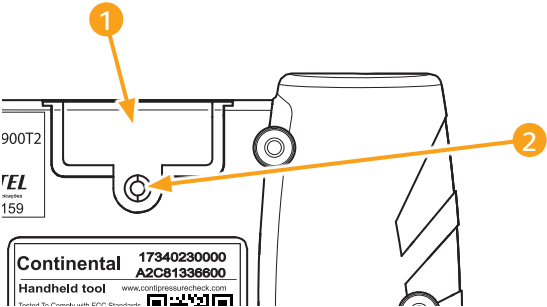
Pos	Designation
1	Cover for SD memory card slot
2	Fixing screw for cover

Description

4.3 Menu structure

Tire sensor
- Check all Tires
- Sensor inside wheel
  - Show
  - Check
  - Activate
  - Deactiv.
- Sensor in sight
  - Check Sensor
  - Activate Sensor
  - Deactivate Sensor
- Gen2 Auto-activation
  - Check
  - Enable
  - Disable
- Sniffing Tool
- Trigger Tool

Installation
- ContiConnect Upload
- New Installation
- Resume installation
- Test-drive

Modification
- Modify Installation
  - Check Installation
  - Modify Parameters
  - Modify Sensor IDs
- Activate CPC
- Deactivate CPC

Diagnosis
- DTC (error code)
  - Global DTCs
  - Tire related DTCs
  - Erase all DTCs
  - Save DTCs
- Software Update
- Connection to the PC
- CAN check

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Setup		
	Language	
		Česky / Czech
		Dansk / Danish
		Deutsch / German
		English / English
		Español / Spanish
		Français / French
		Italiano / Italian
		Magyar / Hungarian
		Nederlands / Dutch
		Norske / Norwegian
		Polski / Polish
		Português / Portuguese
		Romãna / Rumanian
		Русский / Russian
		Slovenský / Slovak
		Soumi / Finnish
		Svenskt / Swedish
		Türkçe / Turkish
	Meas. Unit	
		Pressure
		Temperature
	Sound set.	
		Sound
		Vibration
	Tool Properties	
		Auto power-off
		Date/time
		Use date
	Configuration	
		Startup settings
		Nominal pressure
		Help
		REDI sensor
	Release	

Description

4.4 Menu control

Operating the Hand-Held Tool takes place menu-driven via the keys of the tool. The following lists the possible operating steps:

4.4.1 Accessing a menu item

◆ Use the arrow keys ↕ to select the desired menu item.

◆ Confirm selection with the RETURN key ⏎ to access the selected menu item.

◆ If the menu includes submenus, use the arrow keys ↕ to select the desired menu item and confirm selection with the RETURN key ⏎.

◆ Press the ESC key (ESC) to return to the previous menu level.

◆ Press the ESC key (ESC) for 3 s to cancel an action.

4.4.2 Changing a selection

◆ Use the arrow keys ← → to select between the settings/options.

◆ Confirm selection with the RETURN key ⏎.

4.4.3 Scroll symbol

If the space on the screen is not sufficient to display all entries, a scroll symbol ⇓ or ⇑ on the right-hand side. All entries can be called with the arrow keys ↕.

4.4.4   Dynamic help

Help text appears automatically in some sub-menus after defined time has elapsed. These provide helpful information on parameters or settings in the respective menu automatically.

◆ The dynamic help can be exited with the ESC , return or arrow keys.

◆ This function can be switched off or on and a desired time can be set via the "**Settings/Configuration/Help**" menu path.

Description

4.5 Type label

The type label is located on the underside of the tool.

Pos	Meaning
1	Article number
2	Homologation marking according to FCC
3	Country of origin
4	Do not dispose of in the household garbage
5	Contains materials that can be recycled
6	Homologation marking according to RCM (Australia)
7	Homologation marking according to UKCA (UK)
8	Homologation marking according to CE (European Union)
9	Homologation marking according to FCC (USA)
10	Barcode
11	Serial number
12	Contains lithium-polymer rechargeable battery. The battery must be recycled or be disposed of properly.
13	See homologation leaflet for further homologation
14	Note on compliance with FCC standards

The label is located on the underside of the tool.

CCAB18LP0900T2 ①

ANATEL
Agência Nacional de Telecomunicações
01351-18-11159 ②

Pos	Meaning
①	CCAB number = Taiwan
②	Anatel = Brazil

5   Commissioning

5.1   Checking contents and packaging

As standard, the Hand-Held Tool is supplied with the following components:

- Hand-Held Tool (incl. 8 GB SD memory card)
- Diagnosis cable
- USB cable
- Charger
- 4 power adapters EU (European Union), UL (USA), UK (England), AU (Australia)
- 2 replacement fuses for the diagnosis cable
- Transport case
- Brief instructions
- Homologation supplement (art. no. 17340480000)
- Test reports
- Declaration of Conformity

	NOTE
i	► Check for visible signs of damage or missing items on delivery. Report an incomplete or damaged delivery to your supplier/retailer immediately.

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5.2   Charging the Hand-Held Tool

STOP	► Before using the tool for the first time, charge the tool for at least 3 hours according to the charging instructions. ► According to the charging instructions, the tool must be charged for at least 3 hours once every 3 month.

◆ Switch on the Hand-Held Tool.

◆ Open the rubber cover of the Hand-held Tool power socket and connect the power adapter to the mains.

◆ After approx. 10 seconds, the tool switches itself off automatically and a charging symbol ⮌ is displayed on the screen.

◆ When the battery is fully charged, the text **"100%"** appears instead of the ⮌ charging symbol.

i	NOTE
	► Only use the charger supplied. ► If the charging symbol ⮌ is not displayed during charging, the tool is not being charged sufficiently. ► The charging process takes approx. 3 hours. ► For accreditation reasons, the Hand-Held Tool may not be operated when the charger is connected.

5.2.1 Charging state display

■ If the Hand-Held Tool is running on battery power, the charging state is displayed by a battery symbol ▬▬▮ in the top right corner of the screen. The level indicated on the battery symbol corresponds to the charging state of the rechargeable batteries ▮▭▭▮ .

	NOTE
i	► The **"Low clock battery"** warning appears when the Hand-Held Tool is switched on, if the Hand-Held Tool has not been charged for a longer period of time. The date and time must therefore be set again.

■ The charging symbol ⟍▬▮ appears on the display when Hand-Held Tool is connected to the charger.

■ When the battery is fully charged, the text **"100%"** appears instead of the charging symbol ⟍▬▮.

5.3 Change the memory card

The files required for updating the firmware of the display, CCU and the switching module (CSW) are stored on the SD memory card built into the Hand-Held Tool.
The data for the system languages is also stored on the SD memory card serves as storage location for the log files created by the Hand-Held Tool.

NOTE
► An SD memory card is supplied with the Hand-Held Tool by default.
► For communicating with the SD memory card, the Hand-Held Tool is connected to the PC/Laptop via a USB cable, see section *„8.2 Connection to the PC" on page 149*. The SD memory card remains in the Hand-Held Tool.
► Do not erase or modify the data on the memory card as this leads to malfunctions or even total failure of the Hand-Held Tool.
► The log files are an exception! These can be erased without influencing the system.
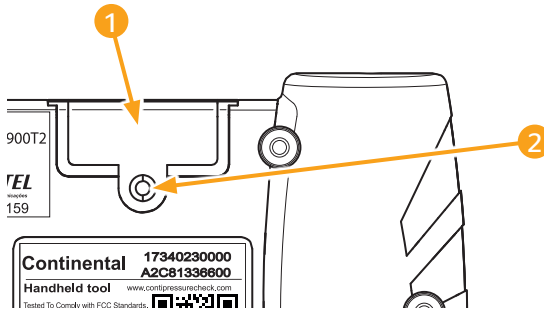
To replace the SD memory card if it is defective, proceed as follows:

◆ Loosen the fixing screw **2** of the cover **1** and remove it.

◆ Push the card lightly to release the locking mechanism of the memory card.

◆ Change the memory card. Pay attention to proper location of the contacts when inserting.

◆ Push in the memory card until it snaps in.

◆ Replace the cover **1** and tighten the fixing screw **2**.

	NOTE
i	► Reinstall the current software on the Hand-Held Tool to set up the new SD memory card.
	► The latest Hand-Held Tool software for setting up a new SD memory card can be found on the Internet page ***www.contipressurecheck.com/hht***.

5.4   Switch the Hand-Held Tool ON/OFF

Press the ON/OFF key ⏻ to switch the Hand-Held Tool.

Pressing the ⏻ key again for approx. 3 seconds switches the Hand-Held Tool off.

ℹ	**NOTE**
	▶ After switching on for the first time and after selecting the preferred language (menu path **"SETUP/LAN-GUAGE"**), the Hand-Held Tool must be completely set up (see section *„5.5 Setting up the Hand-Held Tool“ on page 35*).
	▶ The date and time display can be activated in the main menu under "**Setup-Tool Properties-Use Date**".

5.5 Setting up the Hand-Held Tool

Fundamental tool settings such as language, units etc. are determined in the **"Setup"** menu.

Menu item	Meaning	Selection	
Language	Operating language of the screen	Danish, German, English, Finnish, French, Italian, Dutch, Norwegian, Polish, Portuguese, Rumanian, Russian, Swedish, Slovak, Spanish, Czech, Turkish, Hungarian	
Meas. Unit	Unit for pressure and temperature	Pressure	bar/psi
		Temperature	°C/°F
Sound set.	Signal output as sound and/or vibration	Sound	On/off
		Vibration	On/off
Tool Properties	Time, after which the HHT is switched off automatically.	Auto power-off	Off 5min 10min 15min
	System date and time	Data and time setting. Date format can be selected.	
	Use date	Use date and time (yes / no). — Display in the main menu — Use with log files	

Menu item	Meaning	Selection	
Configuration	Startup settings	Determines whether the settings should be displayed after each power-up.	On/off
	Help	Dynamic help pages appear after the set time has elapsed or are switched off.	Off/5 s/10 s
	REDI sensor	Processing REDI sensors.	On/off
Release	Information on the firmware	Display of the FW version and the serial number	

Commissioning

◆ Select the desired menu item with the arrow keys ↕
and confirm with the RETURN key ⏎.

◆ Navigate between the menu items with the arrow keys ↕ and
change the values / settings with the arrow keys ← →.

◆ Confirm selection with the RETURN key ⏎ or exit the menu with
the ESC key (ESC).
The selection is accepted and you are returned to the next highest
level of the menu.

◆ All changes made are automatically saved when exiting the "**Set-
tings**" menu with the ESC key (ESC).

	NOTE
i	▶ The menu begins with the main setting in English. Select the desired language by following the menu path: **"SETUP/LANGUAGE"**. ▶ If no SD memory card is inserted in the Hand-Held Tool or it is defective, only "**ENGLISH**" is available. ▶ The "**SETTINGS / CONFIGURATION / STARTUP SETTINGS**" menu item can be used to set the desired start page. If the **"Startup settings"** option is configured with "**ON**", the language selection appears each time the Hand-Held Tool is switched on, followed by the **"Configuration"** menu ▶ If the "**REDI Sensor**" option is set to "**ON**" in the "**SETTINGS/CONFIGURATION**", the information on the value changed from the factory settings will be displayed automatically each time the Hand-Held Tool is switched on.

6   Operation

6.1   General instructions

For trouble-free operation, pay attention to the following instructions:

- Always operate the Hand-Held Tool with fully-charged batteries so that full transmission power is ensured.
- Keep the cover of the Hand-Held Tool closed so that dirt particles or fluids cannot penetrate the Hand-Held Tool.

6.2   Handling the Hand-Held Tool

In order to communicate with the tire sensors, the Hand-Held Tool is equipped with an antenna. The following describes the procedure for communication that is used in all menus.

i	**NOTE**
	▶ Always hold the antenna in the direction of the sensor in order to ensure the best possible communication.
	▶ If sound and/or vibration was switched on during set-up, a corresponding signal is emitted after successful reading.
	▶ The read operation takes place via 3 steps with increasing transmission power. If communication beyond that is still not possible, the process is aborted.

6.2.1   Reading an accessible sensor

In the event that the sensor is easily accessible, proceed as follows for reading:

◆ Hold the Hand-Held Tool with antenna ⬆ directly in front of the sensor as illustrated.
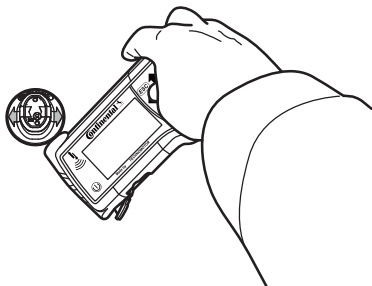
6.2.1.1   Problem when reading - communication failed

If communication with the sensor is not possible, the following message appears:

```
Communication
failed.

Refer to manual.
```
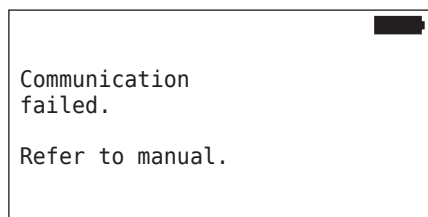
Remedy:

1. Check the charging state of the Hand-Held Tool and charge if necessary.

2. Repeat the procedure with another tire sensor.

   ► If communication is possible, the 1st tire sensor is defective.
   ► If communication is still not possible, contact after-sales service.

6.2.1.2 Problem when reading - other sensor in range

If a further sensor is within radio range, the sensor to be checked cannot be safely read.

The following appears:

```
OTHER SENSORS IN RANGE!

MOVE THE SENSOR AND CHECK
AGAIN.
```
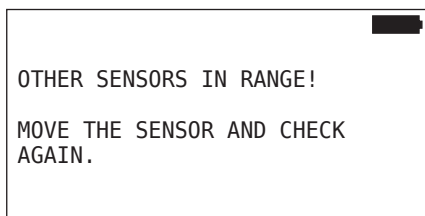
Remedy:

◆ Put the sensor out of range of the other sensors or sources of interference.

6.2.2 Fetching a sensor fitted in the tire

When fetching the tire sensors, the following is displayed:

```
SEARCHING FOR
SENSOR

PWR: XX%    1/3
```
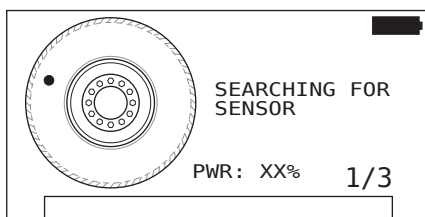
In the animation, the marker point moves along the side wall in a specified direction and at a specified speed.

NOTE
▶ The percentage indicates the current transmission power (PWR) of the query signal.

In **"Sensor inside wheel"**, **"Check all Tires"**, **"New Installation"**, **"Resume Installation"** or **"Modify Sensor-IDs"** further status messages can appear. Below are shown the status messages that can appear during the tire sensor fetching process:

- SEARCHING FOR SENSOR
- ACTIVATING SENSOR
- WRITING TIRE POSITION

◆ Hold the Hand-Held Tool with antenna ⛭ in front of the side wall of the tire as illustrated. The marker point is the starting point.
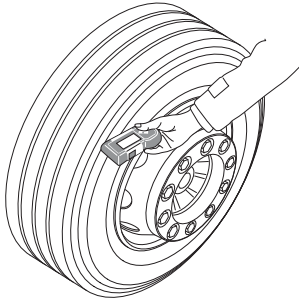
◆ Move the Hand-Held Tool along the side wall of the tire at the same speed of the animation.

The Hand-Held Tool transmits the query signals at 3 transmission power levels. The levels are represented on the screen.

◆ Move the Hand-Held Tool along the side wall around the whole circumference of the tire once for each power level.

	NOTE
i	▶ The mark must be aligned vertically to the side wall and the antenna below the tread when moving.
	▶ Pay attention to the location of the starting point and the direction of rotation in the animation.

6.2.2.1 Problem when fetching - 2 different sensors

If the Hand-Held Tool reaches 2 different sensors, the following message appears:

```
MORE THAN ONE SENSOR
RECEIVED!

MOVE THE TOOL WITH SPEED
SHOWN IN ANIMATION.
```

◆ Repeat the fetching procedure for this tire.

6.2.3   Tire sensor generations

There are two generations of tire sensor

- Generation 1: Black cover
- Generation 2: Orange cover

The Hand-Held Tool is capable to work with both tire sensor generations, even in mixed operation (this means, if tire sensors of both generations are installed at one vehicle).

In addition to features of generation 1, indication of battery status in % is one of the new features of generation 2.

The Hand-Held Tool detects automatically which tire sensor generation is installed in a tire. No special user interaction is needed.

6.3 Screen displays

Vehicle depiction:

```
H CO 123                    ████
    ┌───┐              ┌───┐ ┌───┐
    │   │              │   │ │   │
    │                              
    │                              
    │   ┌───┐              ┌───┐ ┌───┐
    │   │   │              │   │ │   │
```
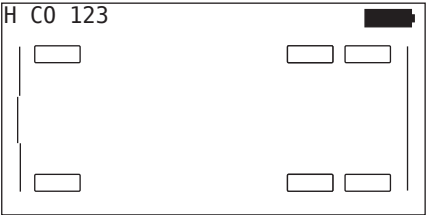
Shows the vehicle configuration from the top.

	NOTE
i	► If the option is selected for more than 6 axes, the 7th and 8th axes are displayed on a second page. The second page can be called up by pressing the right arrow key on the 6th axis. It is indicated by an arrow symbol ➡ on the right side of the screen.

Axle depiction:

```
Choose config.              ████

   ←        │   │   │        →
            │   │   │
          ┌───┐┌───┐┌───┐
```
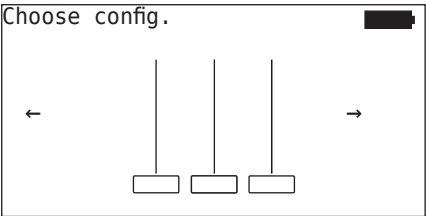
Shows the axle/tire configuration at a part of the vehicle.

Operation

Tire depiction:

To visualize the tire sensor data, the color and the content of the tire symbol changes.

Illustration	Meaning
Existing tires (empty box).	Existing tires.
X.X	Fetched sensor with data: 1. Tire pressure. or 2. number of telegrams or RSSI (see *„6.5.4 Test drive" on page 94*).
!	Faulty sensor. Show details on faults: ■ Select tire with the corresponding arrow keys. (tire marked with **"[ ]"**). ■ Confirm selection with the RETURN key ⏎. (for possible faults, see chart in section *„6.4.3.1 Check sensor" on page 57)*
X.X	Fetched, deactivated sensor (shipping mode)
⊠	Sensor not found.
▬	The tires are shown in this way when ■ the focus is on the axle. ■ a tire has already been fetched (this can be the case if the teach-in process is interrupted or sensor IDs are modified).

A tire symbol marked with **"[ ]"** is focused in the menu.

To visualize additional information in the case of error codes (DTC), the tire symbol could be displayed inverted or flashing.

Illustration	Meaning
`X.X` ▬	The following apples when indicating errors: Symbol is flashing: active DTCs pending. Symbol not flashing: passive DTCs pending. (see *„6.8.1.2 Read tire-relevant error codes (DTCs)" on page 128*)

6.4   Tire Sensor menu

6.4.1   Check all tires

This menu item is used to create and change a vehicle configuration in the ContiConnect web portal. It can also be used to query sensor data for vehicles without their own CCU and display. The entire vehicle configuration should be fetched.

If some sensors are not found or not mounted, then fetching process for those sensors can be skipped by pressing ESC key. In this case the Hand-Held Tool proceeds to the next tire to be fetched.

Tire sensor - Check all Tires

Querying the tires takes place in 5 steps:

1. Name of the vehicle

2. Selection of the vehicle configuration

3. Read/fetch the tire sensors

4. Create a log file

5. If required: display details of the sensor data

6.4.1.1   Enter vehicle name

The vehicle name serves to identify the vehicle and the associated con-
figuration. The vehicle name is stored in the log file.
See also *„7.4 Log files" on page 146.*

```
VEHICLE NAME            ▬▬
 _____
 _
 1  2  3  4  5  6  7  8  9  0  ←
   Q  W  E  R  T  Y  U  I  O  P
     A  S  D  F  G  H  J  K  L
    Z  X  C  V  B  N  M  ⎵    OK
```

◆ Use the arrow keys ✛ to select the numbers and letters.

◆ Confirm selection with the RETURN key ⏎.

◆ Select **"OK"** and confirm with the RETURN key ⏎ when the vehicle
   name is complete.

ℹ	NOTE
	▶ Max. length allowed for the vehicle name is 19 charac-ters. E.g: H CO 123
	▶ If vehicle name is not entered, **"NO VEHICLE NAME"** is used as vehicle name.

6.4.1.2   Select vehicle configuration

Characteristic	Meaning	Selection
Vehicle type	Type of vehicle	Truck/Bus
		Trailer
		Mining / Harbor
Total axles >6	The selection options depend on the vehicle type. Only available for Truck/Bus vehicle type.	Yes/No
Data via bluet.	Enables or disables the tire sensor generation 2 to send data via Bluetooth without pairing.	Yes/No

When selection is complete, the birds-eye-view of a possible vehicle appears:

◆   Select the axle to be changed with the arrow keys ← →.

◆   Change the tire configuration of the respective axle with the arrow keys ↕.

	NOTE
ℹ️	▶ If more than six axes are selected, the seventh and eighth axes are on the second side, indicated by an arrow symbol → on the right side of the screen.

6.4.1.3 Read/fetch tire sensors

Now each individual sensor can be read/fetched. The current tire to be fetched is marked on the screen by **"[ ]"**:

```
H CO 123                    ▬▬

  [    ]          [    ] [    ]



   ↵ TO PROCEED


  [    ]          [    ] [    ]
```

- ◆ Take the Hand-Held Tool and go to the marked tire on the vehicle.
- ◆ Start the fetching process by pressing the RETURN key 🔙.

An animation of the fetching process appears on the screen:

```
                    SEARCHING FOR
                    SENSOR

         PWR: XX%      1/3
```

- ◆ Read the sensor with the Hand-Held Tool as described in the section *„6.2.2 Fetching a sensor fitted in the tire" on page 40*.

	NOTE
i	► Pay attention to the starting point and the direction of rotation in the animation.
	► Tires not fitted with sensors can be skipped with the ESC key (ESC). These are shown in the bird's eye view with a crossed out box.

Fetched tires are illustrated as in section *„6.3 Screen displays" on page 44*.

	NOTE
i	► Remedy possible errors during fetching of the tire sensors as described in the sections *„Sensor not found after 2 attempts"*, *„2 Different sensors found simultaneously"*, *„Sensors not activated"* and *„Further termination criteria during the fetching process"*.
	► If a sensor is not acquired, fetching will be aborted. Fetching will continued for the next tire.

After completion of reading/fetching, a log file is created automatically and stored to the SD memory card. See also section *„7.4 Log files" on page 146*.

The following is displayed on the screen:

```
                              ▄▄▄▄

Report file stored.


H CO 123_ _ _ _
_V_YYYYMMDD_hhmmss
↵ TO PROCEED
```

◆ Exit display of the log file with the RETURN key ↵.

The overall view of the vehicle appears on the screen.

6.4.1.4 Display the tire sensor data

Now any tire sensor can be selected.

```
H CO 123                    ▬▬
 ┌───┐          ┌───┐ ┌───┐
 │8.9│          │8.4│ │8.4│
 └───┘          └───┘ └───┘

         ←  →   ↑ ↓   ↵

 ┌───┐          ┌───┐ ┌───┐
 │8.9│          │8.6│ │8.6│
 └───┘          └───┘ └───┘
```
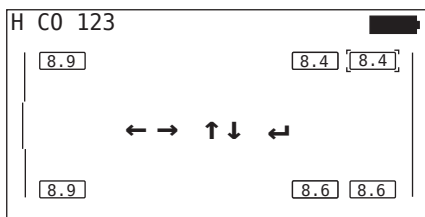
◆ Select the desired tire sensor with the arrow keys ✛.

◆ Confirm selection of the tire sensor with the RETURN key 🔘.

The data of the selected tire sensor is displayed. See section *„6.4.3.1 Check sensor" on page 57*.

To return to the overall view of the vehicle:

◆ Press the Return button 🔘 or the ESC key (ESC).

◆ Returning to the overall view takes place automatically after 15 seconds.

To exit the menu item:

◆ Press the ESC key (ESC) for 3 seconds.

◆ When prompted to exit the menu item, use the arrow keys ← → and press the RETURN key 🔘 and confirm with **"Yes"**.

6.4.2 Sensor inside wheel

For tire-related query/operation of sensors installed in a vehicle, the sensors with their associated tires must be fetched first.

Tire sensor - Sensor inside wheel

Querying the tires takes place in 4 steps:

1. Query whether the vehicle type is **"Mining / Harbor"**.

2. Selection of the axle configuration.

3. Fetching the tire sensors.

4. Specific communication with the tire sensors.

	NOTE
🛈	► In case of **"Mining / Harbor"** vehicle type, if the tires are not fitted with sensors, they can be skipped using the ESC key.

6.4.2.1   Select axle configuration

The following is displayed on the screen:
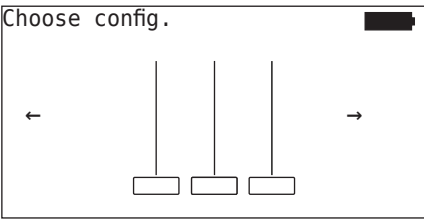
◆ Move between the axle configurations with the arrow keys ← →.
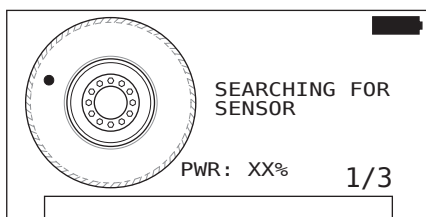
◆ Confirm selection with the RETURN key ⏎.

6.4.2.2   Fetching tire sensors

Now each individual sensor can be fetched. The current tire to be fetched is marked on the screen by **"[ ]"**:

The following is displayed on the screen:
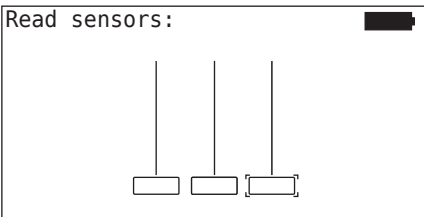
◆ Read the sensor with the Hand-Held Tool as described in the section *„6.2.2 Fetching a sensor fitted in the tire" on page 40*.

When the sensor is found in the marked tire, the tire pressure at the time of fetching tire is displayed in the tire symbol and the next tire to be fetched is displayed.

Fetch all tires as specified on the screen. The following message appears for the last tire to be fetched:

```
Read sensors:              ▬
        │   │   │
      [    ] [8.2] [8.4]
```
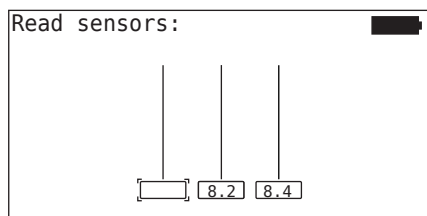
When the fetching procedure including the last tire is completed, the individual sensors can be addressed specifically.

ⓘ	**NOTE**
	▶ Remedy possible errors during fetching of the tire sensors as described in the sections *„Sensor not found after 2 attempts" on page 86*, *„2 Different sensors found simultaneously" on page 88*, *„Sensors not activated" on page 89* and *„Further termination criteria during the fetching process" on page 90*.
	▶ If a sensor is not acquired, fetching will be aborted. Fetching will continued for the next tire.

6.4.2.3   Communicating with the sensors

For specific communication with the tire sensors:

◆ Use the arrow keys ← → to navigate between the tires.

◆ Use the arrow keys ↕ to navigate between the 4 menu items.

◆ Execute the selected action by pressing the RETURN key ⏎.

The following is displayed on the screen:

```
Sensor inside wheel    ▮▮▮
                  │   │   │
 ↑  Show          │   │   │
    Check      ←  │   │   │  →
    Activate      │   │   │
 ↓  Deactiv.    8.2  8.2  8.4
```
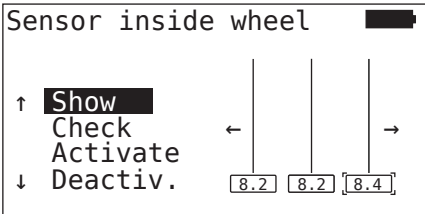
Menu item	Meaning
SHOW	Shows the previously read sensor data for 15 seconds. Data output as in section „*6.4.3.1 Check sensor" on page 57*
CHECK	Query the tire sensor again and to show the current sensor data for 15 seconds. Data output as in section „*6.4.3.1 Check sensor" on page 57*
ACTIVATE	Activates the selected sensor. Corresponds to the function in section „*6.4.3.2 Activate Sensor" on page 60*.
DEACTIV.	Deactivates the selected sensor. Corresponds to the function in section „*6.4.3.3 Deactivate Sensor" on page 61*.

◆ To exit the **"Sensor inside wheel"** menu, press the ESC key (ESC) for 3 seconds.

The following screen appears.

```
Exit menu?


←→ No
```
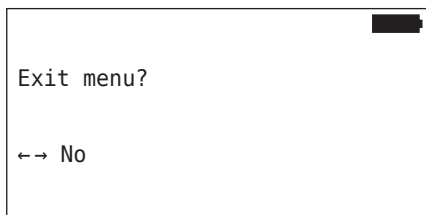
◆ Select **"Yes"** with the arrow keys ← → and confirm with the RETURN key ⏎.

6.4.3   Sensor in sight

6.4.3.1   Check sensor

Tire sensor - Sensor in sight - Check Sensor

◆ Read sensor as described in section *„6.2.1 Reading an accessible sensor" on page 39*.

The following is displayed on the screen:
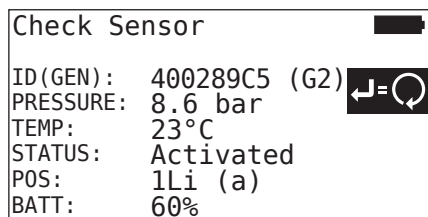
```
Check Sensor            ▬▬
ID(GEN):   400289C5 (G2) ↵=⟳
PRESSURE:  8.6 bar
TEMP:      23°C
STATUS:    Activated
POS:       1Li (a)
BATT:      60%
```

The above example is for tire sensor generation 2. For the tire sensor generation 1, the battery level indicator in percentage is not available.

Field	Meaning	
ID (hex)	Identification number of the sensor.	
PRES-SURE	Tire pressure (in a dismantled state, 0 bar/0 psi).	
TEMP	Temperature in the tire.	
STATE	**Activated** = park mode	Sensor is at idle. A telegram is transmitted every 2 minutes.
	Deactivated = shipping mode	Sensor only transmits telegrams when specifically queried.
	START Mode	Beginning at a speed of approx. 30 km/h (18 mph), a telegram is transmitted 40-times every 16 seconds. DRIVE Mode follows.
	DRIVE Mode	Sensor is moving. A telegram is transmitted every 2 minutes.
POS	**Tire position on trailer**	Tire position for the ATL + Position function (Example: 1Li - 1st axle on the inside left)
BATT	Only shown for tire sensor generation 2: Battery level of sensor in percentage. Shown in steps of 1%.	

Operation

The following error messages are possible:

Fault	Meaning
Sensor DEFECTIVE	The tire sensor is no longer operational. Replace with a new sensor.
BATT: Low	The capacity of the battery in the tire sensor is weak. Please consider replacing with a new tire sensor. Do not use the weak tire sensor in a different tire!
Sensor is LOOSE	It is possible that the tire module has become loose in the tire or was mounted head over heels. If this error occurs in the case of a tire sensor, it is no longer operational and must be replaced by a new sensor.
ACC > 5 g < -5 g	If this error occurs when the tire sensor is not in motion, it is no longer operational and must be replaced by a new sensor.

	NOTE
i	▶ If the is displayed on the screen, the test procedure can be repeated by pressing the RETURN key .

Ⓒntinental⅂

6.4.3.2   Activate Sensor

By default, the sensor is deactivated and does not transmit any tele-grams automatically. In order to be able to operate the sensor at the vehicle, it must be activated.

Tire Sensor - Sensor in sight - Activate Sensor

◆ Read sensor as described in section *„6.2.1 Reading an accessible sensor" on page 39*.

The following screen appears after the sensor is activated:

```
Activate Sensor        ▬▬
ID(HEX):   1C28F787
PRESS:     8.6 bar          ↵=↻
TEMP:      23°C
STATE:     Activated
POS:       1Li (a)
BATT:      60%
```

The above example is for tire sensor generation 2. For the tire sensor generation 1, the battery level indicator in percentage is not available.

6.4.3.3 Deactivate Sensor

The sensor must be deactivated for longer periods of storage or for shipping.

Tire Sensor - Sensor in sight - Deactivate Sensor

◆ Read sensor as described in section *„6.2.1 Reading an accessible sensor" on page 39*.

The following screen appears after the sensor is deactivated.

```
Deactivate Sensor        ▬▬
ID(HEX):  1C28F787
PRESSURE: 8.6 bar        ⏎=↻
TEMP:     23°C
STATUS:   Deactivated
POS:      1Li (a)
BATT:     60%
```

The above example is for tire sensor generation 2. For the tire sensor generation 1, the battery level indicator in percentage is not available.

i	**NOTE**
	► If the sensor is in a **"Deactivated"** state, it is in **"shipping mode"** and no longer transmits telegrams automatically.
	► The tire sensor must be deactivated for transport in an airplane.

6.4.4 Gen2 Auto-activation

The tire sensor generation 2 can automatically activate itself when mounted inside a wheel and pressure is applied.

In this menu, this feature can be checked for status, enabled or disabled.

This feature is not supported by Tire sensor generation 1.

NOTE
▶ In case there is a need to mount sensors inside the wheel and transport them via airplane, then the **"Gen2 Auto-activation"** feature must be disabled.

When a **"New installation/check all tires/ContiConnect Upload"** is performed then the feature will be automatically be enabled.

Operation

6.4.5 Sniffing Tool

For identification of all sensors within the receiving range of the Hand-Held Tool, data can be collected via the **"Sniffing Tool"** menu.

The sensors transmit:

- Identification number of the sensor (hex)
- Function code in hex (for internal use)
- Pressure (bar or psi)
- Temperature (°C or °F)

The header of the screen displays further information:

- Number of telegrams received

This menu item can be used to identify sensors that are unintentionally located within the work area.

Tire sensor - Sniffing Tool

The following is displayed on the screen:

```
                           7    ▬
1C4517F8       8h      8.1    23
4EDDEDB7       8h      0.0    21
4002878A       Fh      0.0    22
1C45068E       8h      0.0    22
6D645A71       8h      0.0    23
1C47D37C       8h      0.0    22
AD8E9606       8h      0.0    23
```

◆ Signal reception can be stopped with the ESC key (ESC).

The following is displayed on the screen:

```
STOP                       7    ▬
1C4517F8       8h      8.1    23
4EDDEDB7       8h      0.0    21
4002878A       Fh      0.0    22
1C45068E       8h      0.0    22
6D645A71       8h      0.0    23
1C47D37C       8h      0.0    22
AD8E9606       8h      0.0    23
```

◆ Confirming a second time with the ESC key (ESC) exits the **"Sniffing Tool"** menu.

Hand-Held Tool

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6.4.6   Trigger Tool

A signal with defined transmission power can be emitted to query the sensors surrounding the Hand-Held Tool. The sensors in range respond with the following data:

- Identification number of the sensor (hex)
- Status of the sensor (hex)
- Duration between two response telegrams received (in ms).

The header of the screen displays further information:

- Transmission power of the querying signal as a percentage (%)
- Number of telegrams received

The trigger analysis is able to recognize the proportional transmission power required in order for the sensor to respond.

Tire sensor - Trigger Tool

The following is displayed on the screen:

```
   8%          27
1C45186F          9h       230
0165D7BA          9h        30
4E960DB1          9h       160
1C45186F          9h       210
1C4517F8          9h        50
1C45186F          9h       350
```

◆ The proportional transmission power of the querying signal can be increase or decreased with the arrow keys ↕.

	NOTE
i	▶ When starting the function, the proportional transmission power is 0% and must be increased as described.

◆ Querying can be stopped and the menu can be exited with the ESC key (ESC).

6.5 Installation

6.5.1 ContiConnect Upload

"Check all tires" and **"ContiConnect Upload"** are the menus with same function. The function is duplicated with a different name, so that the new users can find it related to the Installation menu.

6.5.2 New installation

Initialization of the system takes place in 6 steps:

1. Name of the vehicle

2. Selection of the vehicle configuration

3. Definition of axle-specific characteristics

4. Fetching the tire sensors

5. Transfer of the configuration to the system

6. Create a log file

	NOTE
i	▶ The installation process can be canceled at any time by pressing the ESC key (ESC) for 3 seconds. ▶ It is possible to resume the installation process from the point where it was aborted via the **"Resume installation"** menu item. See section *„6.5.3 Resume installation" on page 93.*

Installation - New Installation

NOTE
► By selecting the **"Installation"** item in the main menu, the charging state of the battery is checked. If this is not sufficient, the following message appears: **"Low battery! Charge the HHT and try again."** Charge the Hand-Held Tool as described in the section *„5.2 Charging the Hand-Held Tool" on page 30*.

6.5.2.1   Enter vehicle name

The vehicle name serves to identify the vehicle and the associated configuration. The vehicle name is stored in the CCU and in the log file. See also *„7.4 Log files" on page 146.*
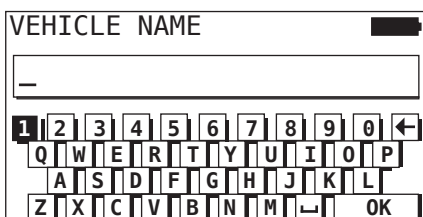
```
VEHICLE NAME          ▮▮▮
 _
1 2 3 4 5 6 7 8 9 0 ←
 Q W E R T Y U I O P
  A S D F G H J K L
  Z X C V B N M ⎵  OK
```

◆ Use the arrow keys to select the numbers and letters.

◆ Confirm selection with the RETURN key.

◆ Select **"OK"** and confirm with the RETURN key when the vehicle name is complete.

NOTE
► Max. length allowed for the vehicle name is 19 characters. E.g: H CO 123
► If vehicle name is not entered, **"NO VEHICLE NAME"** is used as vehicle name.

6.5.2.2 Select vehicle configuration

The vehicle-specific parameters are configured after entering the vehicle name. The following table lists all parameters to be configured.

The number of parameters can contain more or fewer entries, depending on the selection of parameters. The corresponding arrows ↕ on the right side of the screen indicate if further parameters are available below or above the entries shown.

- ■ The respective parameter can be selected with the arrow keys ↕.
- ■ The corresponding selection for a parameter can be changed by selecting the arrow keys ← →.

	NOTE
i	The recommended default values for the warning thresholds are ► 10% (**"LOW PRESSURE"**). i.e. 90% of chosen nominal pressure and ► 20% (**"VERY LOW PRESSURE"**). i.e. 80% of chosen nominal pressure.

	ATTENTION
⚠	**Damage to equipment!** Adjust the warning thresholds according to the area of application of the tires is at your own risk. The factory settings are for orientation only. ► No liability is assumed for the correctness of the warning signal speeds.

Characteristic	Meaning	Selection	
Vehicle type	Type of vehicle	Truck/Bus	
		Trailer	
		Married	
		Mining / Harbor	
Blink code	Blink code for the warning lamp on the trailer. (Selection only possible with selected vehicle type **"Trailer"**)	EU	
		USA	
Data via bluet.	Enables or disables the tire sensor generation 2 to send data via Bluetooth without pairing.	Yes	No
Number of axles >6?	Configuration whether the vehicle has more than 6 axles. Up to 8 axles can be configured depending on the type of vehicle. (Selection only possible with selected vehicle type **"Truck/Bus"**)	Yes	No
ATL (**A**uto**T**railer**L**earning)	Automatic recognition of the newly-connected trailer with optional surrounding observer (SO). (Selection only possible with selected vehicle type **"Truck/Bus"**). For further information, see the section *„Automatic Trailer Learning with Surrounding Observer" on page 74*)	Yes	No

Characteristic	Meaning	Selection	
ATL + Position	Activates ATL including the position assignment of the tires on the trailer. Only possible for trailers with a maximum of 3 axles. (Selection only possible with selected vehicle type **"Truck/Bus"**). For further information, see section 6.5.2.3.	Yes	No
ATL nominal pressure	Nominal pressure for trailer tires that are monitored with ATL.	1,8 ... 11,9 bar 26 ... 170 psi	
CAN Bus Format	**"CPC + J1939"** format must be configured when using the display or the pressure check indicator. For other cases, it is recommended to use **"J1939"** only.	CPC + J1939	
		J1939	
Add. Receiver	Configuration of whether an additional receiver is installed on the vehicle. (Configuration is defined automatically when **"ATL"** or vehicle type **"Married"** is activated)	Yes	No
Low pressure	Warning threshold for low pressure. % value refers to the configured nominal pressure.	-3%...-15%	

Characteristic	Meaning	Selection	
Very low pressure	Warning threshold for severe low pressure. % value refers to the configured nominal pressure.	-13%...-25%	
Temperature	Defines the tire temperature threshold at which the system displays a message.	50...115°C 122...239°F	
Pressure diff.	Configuration of whether a warning should be generated if the pressure difference in twin tires exceeds a specified value. (Function is only possible when CAN Bus Format **"CPC + J1939"** is selected)	Yes	No
Warning lamps	For vehicles with J1939 CAN Bus only. Allows control of warning lights in the dashboard (RSL, AWL). (Selection only possible with selected vehicle type **"Truck/Bus")** or **"Married"**.)	Yes	No

	NOTE
i	**For "ATL (AutoTrailerLearning)" characteristic.**

For "ATL (AutoTrailerLearning)" characteristic.

The system automatically detects when a single tire with tire sensor is replaced.
Also see: *ContiPressureCheck -Installation manual- section "Automatic Wheel Change Detection".*

► When selecting the ATL function, **"Automatic Wheel Change Detection"** is deactivated!

	NOTE
i	**For ATL nominal pressure characteristic** ► Only one nominal pressure can be defined for all axles! ► The nominal pressure applies to all newly-connected trailers! ► The nominal pressure can be set between 1.8 bar (26 psi) and 11.9 bar (173 psi). ► At a nominal pressure below 4.5 bar (65 psi) even small deviations in pressure can lead to a warning / alarm. ► When determining the nominal pressure, consider the instructions from the tire manufacturer.

	NOTE
i	Not all features and settings may be available when the system is integrated into a third-party solution. Follow the third-party's instructions during installation. In particular, ATL with position is not supported by all third-party vendors, which may cause the function to fail.

Different axle-tire configurations are possible depending on the vehicle type and configuration of the parameters.

```
AXLE CONFIGURATION        ▬▬
 ▮▬▬  ▬▬  ▬▬  ▬▬  ▬▬  ▬▬
                  ▬▬  ▬▬
 ↑↓:CHANGE ←→:SELECT   →
 ▬▬  ▬▬  ▬▬  ▬▬  ▬▬  ▬▬
                  ▬▬  ▬▬
```

```
AXLE CONFIGURATION        ▬▬
 ▮▬▬  ▬▬
 ←
 ▬▬  ▬▬
```
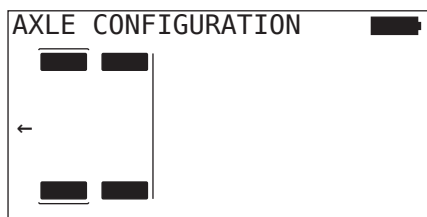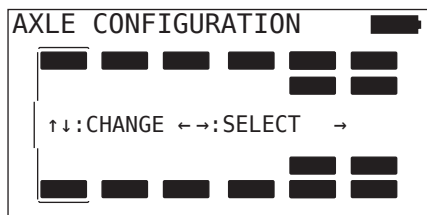
◆ Change the tire configuration of the respective axle with the arrow keys ↕.

◆ Select the axle to be changed with the arrow keys ← →.

◆ Confirm configured selection with the RETURN key ⏎.

NOTE
► If more than six axles are selected, the seventh and eighth axes are on the second side, indicated by an arrow symbol → on the right side of the screen. The second page can be reached by pressing the right arrow key on the sixth axle.
► Depending on vehicle type, not all vehicle configurations are supported.

Special case "Married"

Select this vehicle type when the tire sensors of the trailer are to be received and indicated in the display of the system of the truck.

The sensors of the trailer are permanently programmed into the CCU of the truck for this purpose.

An additional receiver is necessary for this vehicle type and is therefore automatically linked into the system configuration by the Hand-Held Tool.

The trailer must be permanently married to the truck otherwise **"NO SIGNAL"** is displayed in the display for the trailer sensors (see the user manual)

For the **"Married"** vehicle type, the number of axles for the respective truck and trailer is selected separately.

Altogether, it is not possible to select more than 8 axles.

In the special case **"Married"**, the axle configurations for the truck and trailer are selected one after the other. First of all, the axles are configured on the truck and then the trailer is configured after pressing the RETURN key ⏎.

After configuring the axle for truck and trailer, the axle-specific properties are defined according to the same principle first for the truck and then for the trailer.

◆ Modify the selection with the arrow keys ◀▲▶.

◆ Confirm selection with the RETURN key ⏎.

i	NOTE
	► The **"ATL"** function cannot be selected with this configuration.
	► **"Automatic Wheel Change Detection"** is active. Also see: *ContiPressureCheck -Installation manual- section "Automatic Wheel Change Detection".*

Automatic Trailer Learning with Surrounding Observer

The Surrounding Observer (SO) is an additional option for Automatic Trailer Learning (ATL).

i	**NOTE**
	► The trailer monitor by means of ATL only works when the trailer is moved for at least 10 minutes at a speed of >30 km/h (19 mph).
	► Warnings can only be displayed after completion of the automatic learning phase.

In order to be able to detect a tire with severe low pressure at the beginning of the journey, the Surrounding Observer (SO) at the system can be activated using the Hand-Held Tool. When ATL + SO and the system is switched on, the surrounding observer evaluates all signals received from tire sensors and checks whether they have a severe low pressure.

The ATL function can be configured by the Hand-Held Tool in three different ways.

"NO" [ATL off]	>	The ATL and surrounding observer functions are switched off.
"ATL" [ATL on]	>	Only the ATL function is switched on.
"ATL + SO(D)"	>	The ATL function and the surrounding observer are switched on while driving.
"ATL + SO(ST+D)"	>	The ATL function and the surrounding observer are switched on when stopped as well as while driving.

SO option	Meaning	Task
SO (D)	D = Driving	SO (D) displays all **"VERY LOW PRESSURE"** warnings received from moving vehicles, not from stationary vehicles.
SO (ST+D)	ST = Stopped + D = Driving	SO (D) displays all **"VERY LOW PRES-SURE"** warnings received when the vehicle is stationary and when the vehicle is moving.

	NOTE
i	► The surrounding observer only displays the **"VERY LOW PRESSURE"** warning. All other warnings are only displayed when ATL is completed. ► The **"VERY LOW PRESSURE"** warning from the surrounding observer may not come from the own trailer but can also come from the neighboring vehicle. However, the driver has the option in the event of a warning to check his own trailer.

For further information, see user manual.

Automatic Trailer Learning + Position

The **"Automatic Trailer Learning"** function can be configured optionally with position detection.
Position detection allows the trailer to be displayed graphically with the respective tire positions after automatic trailer learning has been completed.

If the **"ATL + Position"** function is active, the sensors of the trailer(s) must be set up after configuring the CCU on the **"Truck/Bus"**.

i	**NOTE**
	All trailers potentially connected to the **"Truck/Bus"** can be checked via the Hand-Held Tool (firmware 7.00 or higher) using the **"Check all Tires"** function (see section *„6.4.1 Check all tires" on page 47*). After ATL is completed, the trailer tire positions are then used by the system.

6.5.2.3   Define axle-specific characteristics

Nominal pressure

```
H CO 123                    ▄▄▄
  �                ▭ ▭

  8.0              8.2  8.0

  ▬▬              ▭ ▭
```

◆ Use the arrow keys ← → to navigate between the axles.

◆ Set the required nominal pressure with the arrow keys ↕.

◆ Confirm the set nominal pressures with the RETURN key ⏎.

	NOTE
ⓘ	► The nominal pressure can be set between 1.8 bar (26 psi) and 11.9 bar (173 psi). ► At a nominal pressure below 4.5 bar (65 psi) even small deviations in pressure can lead to a warning / alarm. ► When determining the nominal pressure, consider the instructions from the tire manufacturer.

Continental

Lift axle

Depending on the vehicle type, an axle can also be defined as a lift axle.

◆ Use the arrow keys ← → to navigate between the axles.

◆ Change the status with the arrow keys ↕:

  „✓" = lift axle
  „-" = no lift axle

◆ Confirm selection with the RETURN key ⏎.

General conditions:

■ If the selected configuration only has 2 axles (a truck or draw-bar trailer) or only 1 axle (semitrailer), the page for determining the lift axle is not displayed.

■ In the case of trucks or drawbar trailers, at least 2 ales may not be lift axles and in the case of the semitrailer only 1 axle.

■ In the case of a truck or drawbar trailer, the 1st axle can not be set as lift axle.

■ Altogether for each installation, a maximum of 2 axles can be set as lift axle (if the vehicle type is selected as **"Married"**, this is considered as one installation).

Operation

	NOTE
i	► Lift axle setup must be made carefully. ► If the lift axles are wrongly determined, correct function of the system cannot be ensured. ► If there are more than 2 lift axles on the vehicle, the two lift axles furthest away from the receiver must be specified as such in the Hand-Held Tool. Further lift axles must be configured as **"Normal"** axles without lift function. This configuration may result in unjustified **"Sensor not found"** false warnings on the nonconfigured lift axle.

6.5.2.4   Fetching tire sensors

Now each individual sensor can be fetched. The current tire to be fetched is marked on the screen by **"[ ]"**:

```
H C0 123                     � ▄▄▄
   ┌───┐          ┌───┐ ┌───┐
   │   │          │   │ │   │
   |
   |  ↵ TO PROCEED
   |
   │   │          ┌───┐ ┌───┐
   └───┘          └───┘ └───┘
```

◆   Take the Hand-Held Tool and go to the marked tire on the vehicle.
◆   Start the fetching process by pressing the RETURN key 🔄.

An animation of the fetching process appears on the screen:

```
                             ▄▄▄
                  SEARCHING FOR
                  SENSOR

                  PWR: XX%      1/3
```
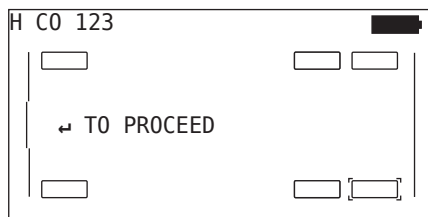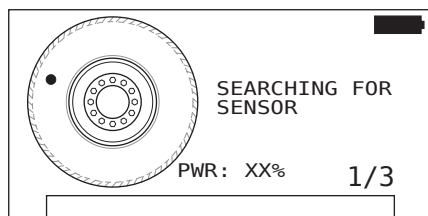
◆   Read the sensor with the Hand-Held Tool as described in the section *„6.2.2 Fetching a sensor fitted in the tire" on page 40*.
◆   The respective tire position is written to the sensor after the sensor has been read. This information is necessary for the use of the **"ATL + POSITION"** function (necessary to see the section *„6.5.2.2 Select vehicle configuration" on page 67*).

i	NOTE
	▶ Pay attention to the starting point and the direction of rotation in the animation.

Operation

When the sensor in the marked tire is found, the tire symbol changes and the entry is displayed with the detected tire pressure.

The next tire to be fetched is displayed.

Fetch all tires as specified on the screen. The following message appears for the last tire to be fetched:

```
H CO 123                        ■□

 ┌────┐              ┌────┐ ┌────┐

   ↵ TO PROCEED

 ┌────┐              ┌────┐┌────┐
```
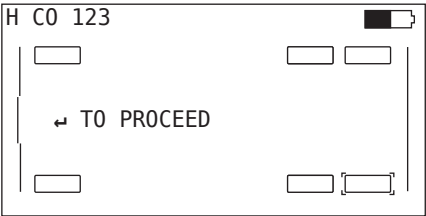
When the fetching process for all tires including the last is complete, the configuration is then ready to be transmitted to the system.

ⓘ	NOTE
	▶ To fetch the tire sensor of the inner twin tires, the tool can remain on the outer of twin tires.

6.5.2.5   Transfer of the configuration to the system

In order for the data to be transferred to the system, the Hand-Held Tool must be connected to the system via the diagnosis cable.

The following message appears on the screen of the Hand-Held Tool:

```
H CO 123                        ▬▬▬

CONFIGURATION COMPLETED.


CONNECT TOOL WITH CPC.
IGNITION ON.
START UPLOAD.
```

i	**NOTE**
	► To ensure safe transfer of the configuration, do not switch off the Hand-Held Tool during data transfer or interrupt data transfer.

To transfer the configuration for a Truck/Bus, proceed as follows:

◆ Connect the Hand-Held Tool to the unused plug socket of the display via the diagnosis cable or via the diagnostic connection of the K or L subharness.

◆ Switch on the ignition.

◆ Start transmission with the RETURN key ⏎.

Operation

To transfer the configuration for a trailer, proceed as follows:

◆ Release the plug connection between the pressure check indicator and the trailer wiring harness.

◆ Connect the Hand-Held Tool to the wiring harness via the diagnosis cable.

◆ Switch on the ignition.

◆ Start transmission with the RETURN key ⏎.

ℹ	NOTE
	► If the trailer has no power supply during installation, the Hand-Held Tool supplies power automatically to the CCU.

The following message appears during transfer:

```
H CO 123                    ▬▬▬

Upload in progress.

Please wait...

```
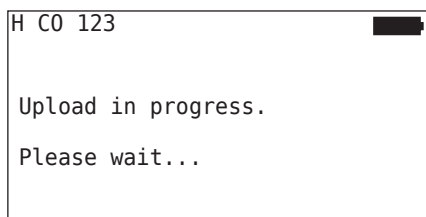
◆ Disconnect the Hand-Held Tool after transferring data and establish the plug connection to the pressure check indicator.

6.5.2.6   Log file

To complete transmission of the configuration data to the system, a log file is created automatically and stored on the SD memory card. See also section *„7.4 Log files" on page 146*.

The following is displayed on the screen:

```
                      ▬▬
Report file stored.


H CO 123_ _ _ _
_I_YYYYMMDD_hhmmss
↵ To proceed
```
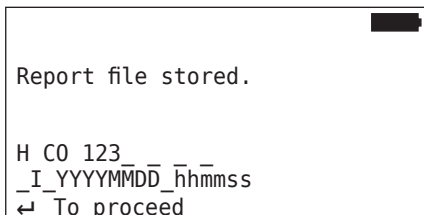
After successful data transmission, the following appears:

```
H CO 123              ▬▬


UPLOAD COMPLETED!


```

Operation
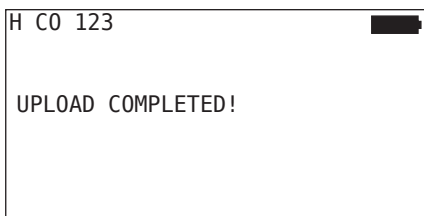
<table>
<tr><td rowspan="2">**i**</td><td>**NOTE**</td></tr>
<tr><td>▶ The previously-set configuration is always stored on the Hand-Held Tool. The advantage of this is that initialization of several vehicles with the same configuration is easier.</td></tr>
</table>

<table>
<tr><td rowspan="2">**i**</td><td>**NOTE**</td></tr>
<tr><td>▶ During every software update or every parameter modification on the CCU (**"New Installation"**, **"Modify Parameters"**, **"Modify Sensor IDs"**) all saved DTCs (error codes) are erased!
The existing DTCs (error codes) are automatically stored in a DTC report before each software update!
See also section *„6.8 Diagnosis" on page 118*</td></tr>
</table>

Continental

6.5.2.7   Possible problems

Sensor not found after 2 attempts

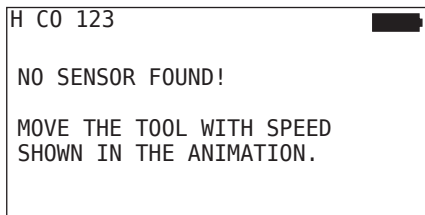Sensor was not found after the first fetching attempt. The following message appears on the screen:

```
H CO 123                    ███
 
NO SENSOR FOUND!
 
MOVE THE TOOL WITH SPEED
SHOWN IN THE ANIMATION.

```

◆ Repeat the fetching process of the tire.

If the Hand-Held Tool does not find the sensor after the second attempt, the fetching process is stopped and the following message appears:

```
H CO 123                    ███
 
NO SENSOR FOUND!
TEACH-IN STOPPED.
 
CHECK IF SENSOR IS PRESENT
IN TIRE.

```

◆ Acknowledge the message with the RETURN key ⏎.

Operation

Remedy:

1. Check the charging state of the Hand-Held Tool.

   ► The charging state must be at least 40%.
   ► If the charging state is sufficient, there is no sensor on the tire, the sensor is not operational or is defective.

2. Dismantle the tire for exact checking.

3. In the case of some tires and special vehicles, it is possible that the strength of the querying signal is not sufficient. Contact after-sales service for adjustment.

4. To initialize the system, proceed as described in the section *„6.5.3 Resume installation" on page 93*.

	NOTE
i	► Only one fetch process may take place at a time in the immediate vicinity. Otherwise the fetch process can be disturbed and after completion, the function of the system may be restricted or not work at all.

2 Different sensors found simultaneously

The following message appears on the screen:

```
H CO 123                    ▬▬▬

MORE THAN ONE SENSOR
RECEIVED!

MOVE TOOL WITH SPEED
SHOWN IN ANIMATION.
```
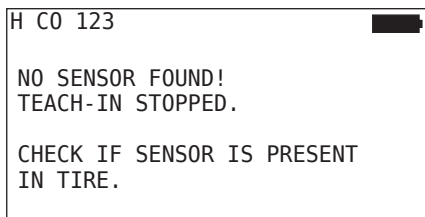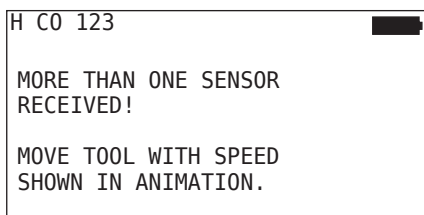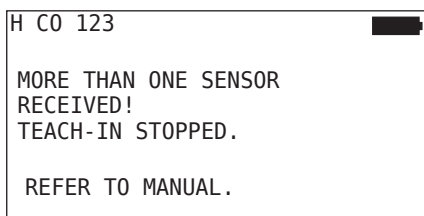
◆ Repeat the fetching process of the tire.

If the Hand-Held Tool finds 2 sensor again, the fetching process is stopped and the following message appears:

```
H CO 123                    ▬▬▬

MORE THAN ONE SENSOR
RECEIVED!
TEACH-IN STOPPED.

 REFER TO MANUAL.
```

◆ Acknowledge the message with the RETURN key 🔙.
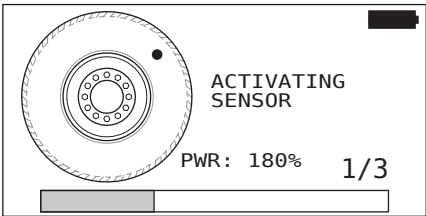
Remedy:

Check wether additional sensors are located within a range of 2 m of the tires.

▶ If yes, remove the sensors from the communication range and repeat the fetching procedure.

▶ If no, move the vehicle approx. 1 m forwards or backwards and repeat the fetching procedure.
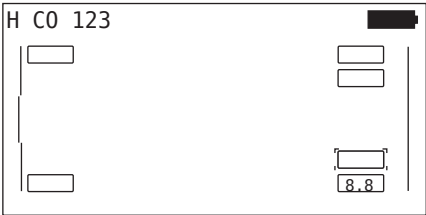
Sensors not activated

The following message appears on the screen:

	NOTE
i	▶ The sensor is automatically activated and fetched.

◆ Fetch the next sensor.

Further termination criteria during the fetching process

The following errors constitute termination criteria during the fetching process:

- ■ Sensor DEFECTIVE
- ■ Battery LOW
- ■ Sensor is LOOSE

If a tire sensor has one of the errors stated, the tire must be dismantled and the sensor must be replaced.
If the tire sensor is not replaced, the fetching process cannot be completed.

Exceptions:

1. If **"Sensor lost contact in tire"** is indicated when vehicle type is **"Mining/Harbor"**, then the user can continue with the fetching process by pressing the return button.

Configuration transfer not possible

If there is no CAN bus connection, transmission of the configuration is not possible and the following message appears.

```
H CO 123                    ▬▬
 
Check the CAN Bus
connection.
```
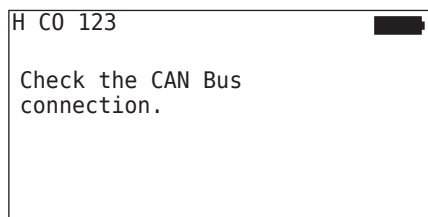
Remedy:

1. Check the connection between the Hand-Held Tool, the diagnosis cable and the system components.

   ■ Checking the CAN connections between Hand-Held Tool and components in the **"DTC (error code)"** menu (see the section *„6.8.1 DTCs (error codes)" on page 118* for this).

   ■ Checking the CAN connection to the vehicle's own CAN in the **"CAN Check"** menu (see the section *„6.8.3 CAN check" on page 142*).

2. In the case of a truck installation, check that the ignition is switched on.

3. Repeat transfer of the configuration.

4. If there is still no CAN bus connection, exit the menu and check the cabling of the system.

i	NOTE
	► If the above troubleshooting is not successful, contact Customer Service or your local company.

Transferred configuration not accepted

If configuration of the system is not successful, the following message appears:

```
H CO 123                    ▬▬
 
Error in upload
process!

Refer to manual.

```
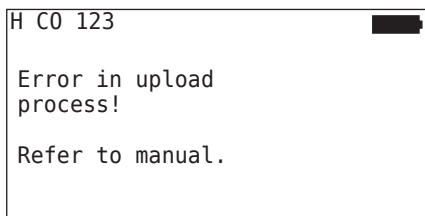
Remedy:

In this case, communication to the CCU has failed.

◆ Repeat transfer of the configuration.

If the message appears again:

◆ Check if CPC system is electrically connected good and then repeat the transfer of the configuration.

i	NOTE
	► If the above troubleshooting is not successful, contact Customer Service or your local company

6.5.3   Resume installation

The **"Resume installation"** menu item is only active when the **"New Installation"** procedure was interrupted.

Installation - Resume installation

The following message appears on the screen:

```
H CO 123                    ▬

DOES IDENTIFICATION
BELONG TO THIS VEHICLE?

←→ no

```

6.5.3.1   Identification name belongs to vehicle

◆ Select **"Yes"** with the arrow keys ← → and confirm the vehicle name with the RETURN key ⏎.

The initialization process is then continued from the point where **"New Installation"** was interrupted.

	NOTE
i	▶ The tires already taught are displayed as black tire symbols after an interruption of the fetch process.

6.5.3.2   Identification name does not belong to vehicle

◆ Select **"No"** with the arrow keys ← → and confirm with the RETURN key ⏎ to exit the menu item otherwise a wrong configuration is be installed for this vehicle.

◆ Carry out a new installation for this vehicle, see section *"6.5.2 New installation" on page 65*.

6.5.4 Test drive

The **"Test-drive"** menu item is used for checking the reception quality of the system built into the vehicle.

For this purpose, the following data is acquired:

1. The number of telegrams from the individual sensors received.
2. The signal strength of the individual sensors acquired by the receiver.

The data received is evaluated by the Hand-Held Tool and the result output in 3 steps:

- Good reception
- Enough reception
- Just sufficient reception

NOTE
► In order to be able to check the reception quality of all installed tire sensors, all lift axles must be lowered.
► Do not take the sensors of raised lift axles into consideration during the test drive.
► When the ATL function is activated, the tires of the trailer are not taken into consideration during the test drive.

NOTE
► A route should be selected for the test drive that allows a speed of at least 30 km/h (18 mph).

NOTE
► The **"Test-drive"** can be stopped at any time by pressing the ESC key (ESC) for 3 seconds.

Operation

The following applies to all test drives:

If the test drive is not completed with the **"Good reception"** result, the following remedial action is possible:

Variant	Remedial action
Only a CCU is used.	■ Optimize position and alignment of the CCU. ■ Retrofit an additional receiver
A CCU and an additional receiver are used.	■ Optimize position and alignment of both components.
The **"MARRIED"** application is used.	■ If the reception of the tire sensors of the trailer cannot be improved by the previous remedies, the trailer must be retrofitted with its own system.

6.5.4.1   Truck/Bus test drive, MARRIED or Mining / Harbor

In order to enable the data to be transmitted from the system to the Hand-Held Tool, a connection must be established with the diagnosis cable.

◆ Connect the Hand-Held Tool to the unused plug socket of the display via the diagnosis cable or via the diagnostic connection of the K or L subharness.

◆ Switch on the ignition.

i	NOTE
	► If the vehicle is moved, it must stand still for at least 20 min. before the test drive can be started.

Installation - Test-drive

The following query appears on the screen:

```
Does the vehicle
stand for at least
20 mins?

←→ no
```
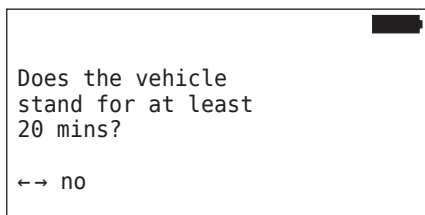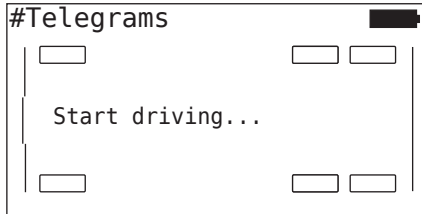
Standing time less than 20 minutes:

◆ Select **"No"** with the arrow keys ← → and confirm with the RETURN key ⏎ to exit the menu.

◆ Wait for the required standing time and restart the **"Test-drive"** menu.

Operation

Standing time at least 20 minutes:

◆ Select **"Yes"** with the arrow keys ← → and confirm with the RETURN key ⏎.

◆ Read the disclaimer and confirm with the RETURN key ⏎

```
#Telegrams            ▆▆▆
 | ▭                 ▭  ▭
 |
 |   Start driving...
 |
 | ▭                 ▭  ▭
```
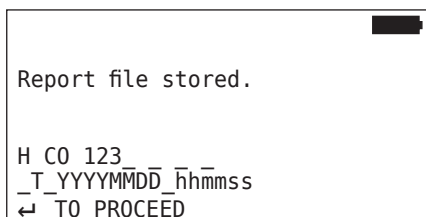
◆ Begin the test drive with the vehicle and continue until the end of the test drive is indicated by the corresponding instructions on the screen.

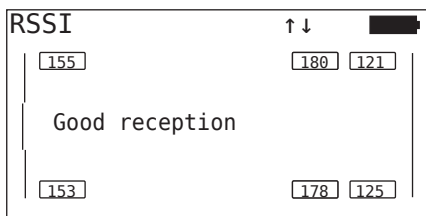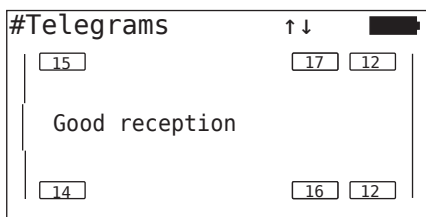The following display appears on the screen during the test drive:

```
#Telegrams               ▬
  ▭                  ▭  ▭

   In progress...

  ▭                  ▭  ▭
```
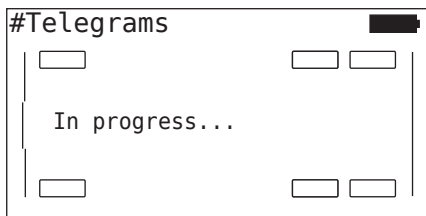
The test drive is completed and the Hand-Held Tool creates a log file:

```
                         ▬

Report file stored.


H CO 123_ _ _ _
_T_YYYYMMDD_hhmmss
↵  TO PROCEED
```

Following the message for creating the log file:

◆ Press the RETURN key ↵

For example, the following information appears:

```
#Telegrams       ↑↓      ▬
  15                17   12

   Good reception

  14                16   12
```

```
RSSI             ↑↓      ▬
  155               180  121

   Good reception

  153               178  125
```

Operation

Area	Meaning
Header	**Telegrams**: the number of telegrams received per sensor in the tires is displayed. **RSSI**: the signal strength detected for the respective sensor in the tires is displayed.
Tire symbols	In the case of the **RSSI display,** the tire symbols change their appearance according to the reception quality. ■ Good reception - tire is **"white"** (see image) ■ Enough reception - tire is **"black"** (inverted) ■ Just sufficient reception - tire **"flashes"**
Middle row	The result of the test drive is displayed here. Good, sufficient or borderline reception is indicated. ■ **Good reception** No reception disturbance is expected. ■ **Enough reception** In rare cases, it is possible that reception for the tires displayed could be disturbed (radio disturbance; extreme weather conditions). ■ **Just sufficient reception** Frequent disturbances to reception for the tires displayed are possible.

	NOTE
i	► Generally, the higher the RSSI value the better the reception.

	NOTE
i	► If a lift axle was raised during the test drive, no figures are displayed in the tire symbols for the lift axles.

◆ Switch between the **"Telegrams"** and **"RSSI"** display with the arrow keys ↕.

◆ In the case of the **"MARRIED"** vehicle type, it is possible to switch between **"Truck"** and **"Trailer"** with the arrow keys ← →.

◆ Confirm the result of the test drive with the RETURN key ⏎.

If the test drive is **not** completed with a **"Good reception"** result, remedial action is possible. See section *„6.5.4 Test drive" on page 94.*

ⓘ	**NOTE**
	If an error occurs when the log file is stored:
	► Make sure that the SD memory card is inserted in the tool. See section *„5.3 Change the memory card" on page 32*
	► Check access to the SD memory card with **"Diagnose/Connection to the PC"**. See section *„8.2 Connection to the PC" on page 149*

6.5.4.2 Trailer test drive

In order to carry out a test drive for a system installed in a trailer, the CCU of the trailer must be set to a **"Test drive mode"**.

Contrary to the truck, the following must be done for the trailer for the test drive:

1. Activate the trailer system for the test drive (with the Hand-Held Tool).

2. Carry out test drive (WITHOUT Hand-Held Tool).

3. Evaluate the results of the test drive (with Hand-Held Tool).

For steps 1 and 3, the following must be considered:

◆ Release the plug connection between the pressure check indicator and the trailer wiring harness.

◆ Connect the Hand-Held Tool to the wiring harness via the diagnosis cable.

◆ Switch on the ignition.
(if the vehicle power supply is not present, the Hand-Held Tool supplies the CCU on the trailer.)

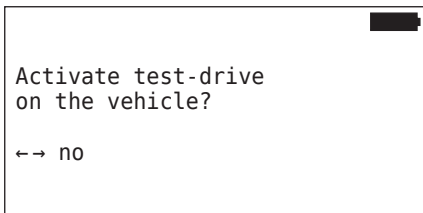◆ Subsequently disconnect the Hand-Held Tool and reconnect the plug to the pressure check indicator.

	NOTE
i	▶ If the CSW software version is <10, a test drive for the trailer is not possible.
	▶ Please update the CSW software accordingly. See section *„6.8.2 Software updates" on page 135*

Installation - Test-drive

◆ Process the query for the identification number of the vehicle as in section *„6.5.4.1 Truck/Bus test drive, MARRIED or Mining / Harbor" on page 96*.

The following query appears on the screen:

```
Activate test-drive
on the vehicle?

←→ no
```

◆ Select **"Yes"** with the arrow keys ← → and confirm with the RETURN key ⏎.

The Hand-Held Tool confirms with a corresponding message that the trailer system is activated for the test drive

◆ Disconnect the Hand-Held Tool and establish the plug connection to the pressure check indicator.

◆ Begin the test drive with the vehicle and continue until the pressure check indicator emits an optical signal (lights up continuously for 60 seconds).

◆ Connect the Hand-Held Tool with the vehicle as described and restart the **"Test-drive"** menu, evaluate the data.
Evaluation takes place automatically and assessment takes place analogous to sect. *„6.5.4.1 Truck/Bus test drive, MARRIED or Mining / Harbor" on page 96.*

| NOTE |
|---|
| ► If the vehicle is moved, it must stand still for at least 20 min. before the test drive can be started. |
| ► As long as the qualifying criteria for the test drive are not reached, the pressure check indicator flashes with a special code (double flash every 2 seconds). |

6.5.4.3   Possible error codes during test drives

If an error occurs during the test drive, the test process is canceled. If not already mentioned, the error messages described in this section apply to all vehicle types. After elimination of the error, the test drive must be started again from the beginning.

	NOTE
i	▶ If the vehicle is moved, it must stand still for at least 20 min. before the test drive can be restarted.

Warnings

If a warning occurs during the test drive (such as **"LOW PRESSURE"**), the test drive is aborted and the following message is displayed on the screen:
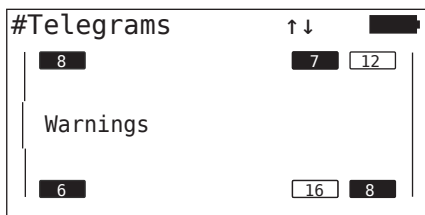
```
#Telegrams          ↑↓     ▬▬▬
   8                  7   12

   Warnings

   6                  16   8
```

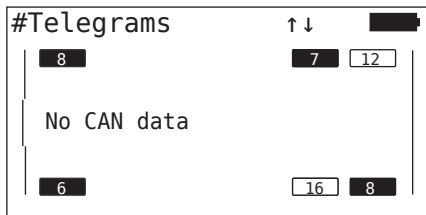A log file is created automatically and stored on the SD memory card.

In this case:

◆ Stop the test drive.

◆ Acknowledge the message with the RETURN key ⏎.

◆ Read the error codes via the menu described in section *„6.8.1 DTCs (error codes)" on page 118* and remedy the error correspondingly.

◆ Allow the vehicle to stand still for **at least 20 min.**

◆ Execute the **"Test-drive"** menu again.

No CAN data

	NOTE
ℹ	► The error message can only occur during **"Truck/Bus test drive, MARRIED or Mining / Harbor"**!

If CAN communication is interrupted during the test drive, the test drive is aborted and the following message is displayed on the screen:

```
#Telegrams        ↑↓    ▬▬
   8                7   12

  No CAN data

   6                16   8
```
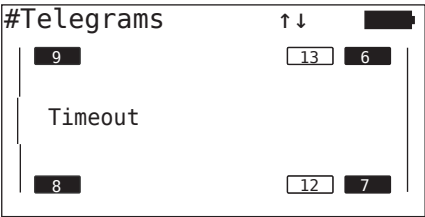
A log file is created automatically and stored on the SD memory card.

In this case:

◆ Stop the test drive.

◆ Acknowledge the message with the RETURN key ⏎.

◆ Error elimination according to the instructions in sections *„Configuration transfer not possible" on page 91* and *„Transferred configuration not accepted" on page 92 ff*.

◆ Allow the vehicle to stand still for **at least 20 min.**

◆ Execute the **"Test-drive"** menu again.

Failed

Only tire sensor telegrams in **"START Mode"** are used to evaluate the test drive (see sect. ***"6.4.3.1 Check sensor" on page 57***). If a telegram for one wheel in **"DRIVE Mode"** is received, before sufficient number of telegrams per wheel in **"START Mode"** are received, the message **"Failed"** is displayed on the screen.

```
#Telegrams        ↑↓        ▬▬▬
   15                  17    12

   Failed

   14                  16     9
```

A log file is created automatically and stored on the SD memory card.

In this case:

◆ Stop the test drive.

◆ Acknowledge the message with the RETURN key ⏎.

NOTE
► If a lift axle was raised during the test drive, no figures are displayed in the tire symbols for the lift axles.

NOTE
► It is possible to switch between the **"Telegrams"** and **"RSSI"** display with the arrow keys ↕ (see also section ***"6.5.4.1 Truck/Bus test drive, MARRIED or Mining / Harbor" on page 96***).

Possible causes:	Remedy
Test-drive with vehicle was started although the vehicle was moved less than 20 minutes ago.	Allow the vehicle to stand still for **at least 20 min.** before beginning the test drive.
The CCU and / or the additional receiver was unsuitably mounted or unsuitably aligned so that an insufficient number of telegrams from some wheel positions could be received in **"START Mode"**. These wheel positions are displayed inverted in the **"TELEGRAMS"** screen.	Check the position and alignment of the CCU and the additional receiver and change if necessary.

◆ Park the vehicle

◆ Check the error source according to the chart and eliminate the error if necessary.

◆ Allow the vehicle to stand still for **at least 20 min**.

◆ Execute the **"Test-drive"** menu again.

Pressure check indicator

If the defined flashing code is not displayed after activating the pressure check indicator (short double flash every 2 seconds), do not start the test drive with the trailer.

Possible causes:	Remedy
Activation failed.	Repeat activation.
Pressure check indicator defective	Connect the HHT to the components via the diagnosis cable. Switch on the HHT. Check whether the pressure check indicator lights up.
No power supply to the trailer system from the vehicle.	Establish power supply.

6.6   Modify Installation

i	**NOTE**
	► By selecting the **"Modification"** item in the main menu, the charging state of the battery is checked. If this is not sufficient, the following message appears: **"Low battery! Charge the HHT and try again."** Charge the Hand-Held Tool as described in the section *„5.2 Charging the Hand-Held Tool" on page 30*.

i	**NOTE**
	Not all features and settings may be available when the system is integrated into a third-party solution. Follow the third-party's instructions during installation. In particular, ATL with position is not supported by all third-party vendors, which may cause the function to fail.

i	**NOTE**
	The recommended default values for the warning thresholds are
	► 10% (**"LOW PRESSURE"**). i.e. 90% of chosen nominal pressure
	and
	► 20% (**"VERY LOW PRESSURE"**). i.e. 80% of chosen nominal pressure.

⚠	**ATTENTION**
	Damage to equipment!
	Adjust the warning thresholds according to the area of application of the tires is at your own risk. The factory settings are for orientation only
	► No liability is assumed for the correctness of the warning thresholds.

6.6.1 Modify existing installation

Modification - Modify Installation

This menu item contains the following submenu items:

- Check Installation
- Modify Parameters
- Modify Sensor IDs

Requirements for using the submenu items:

- To communicate with the CCU, the Hand-Held Tool must be connected to the system.

	NOTE
i	► If communication between the Hand-Held Tool and the CCU is not possible, the process is aborted and a corresponding message is displayed. Remedy: » See the sections *„Configuration transfer not possible" on page 91* and *„Transferred configuration not accepted" on page 92.*

	NOTE
i	► During every parameter modification on the CCU (**"New Installation"**, **"Modify Parameters"**, **"Modify Sensor IDs"**) all saved DTCs (error codes) are erased! See also section *„6.8 Diagnosis" on page 118*

6.6.1.1   Checking the installation

Modification - Modify Installation - Check Installation

The parameters of the existing installation are displayed under the **"Check Installation"** menu item. No changes can be made.

The list of parameters varies according to vehicle type and configuration.

After the parameter overview, the RETURN key ⏎ is used to display the known bird's-eye views of the set target pressures and lift axes.

After the overview of the serial numbers of existing components (ECU, DSP, RX) the **"Modify installation"** submenu appears again.

6.6.1.2   Modify Parameters

Modification - Modify Installation - Modify Parameters

The following parameters can be changed in the **"Modify Parameters"** menu item:

The following parameters are excluded from any changes:

- Vehicle type
- Number of axles and tires

	NOTE
	The system automatically detects when a single tire with tire sensor is replaced. Also see: ***ContiPressureCheck -Installation manual- section "Automatic Wheel Change Detection".*** ► When selecting the ATL function, **"Automatic Wheel Change Detection"** is deactivated!

After selecting the menu item, the vehicle name is queried first.

```
VEHICLE NAME           ▬▬
┌─────────────────────────┐
│H CO 123                 │
└─────────────────────────┘
1 2 3 4 5 6 7 8 9 0 ⬅
 Q W E R T Y U I O P
  A S D F G H J K L
  Z X C V B N M ␣  OK
```

As described in section *„6.5.2.1 Enter vehicle name" on page 66*, it is possible to enter or modify the vehicle name via the virtual keyboard or confirm the existing name with the RETURN key ⏎.

After the parameters are modified, they can be transferred to the CCU.

The following messages appear:

```
H CO 123                    ▬▬
 
CONFIGURATION COMPLETED.
 
 
CONNECT TOOL WITH CPC.
IGNITION ON.
START UPLOAD.
```

◆ Start the upload with RETURN key ⏎.

```
H CO 123                    ▬▬
 
Upload in progress.
 
Please wait...
 
 
```

If data transfer was not successful proceed as in sect. *„Configuration transfer not possible" on page 91* or in sect. *„Transferred configuration not accepted" on page 92*. Otherwise the "**Modify Installation**" submenu appears.

A log file is created for every parameter modification and stored on the SD memory card.

6.6.1.3   Modify Sensor IDs

Modification - Modify Installation - Modify Sensor IDs

In this menu, the user can modify the sensor IDs keeping the rest of the configuration of the CCU unchanged (e.g. After several wheel changes or swapping the tire positions).

The configuration is loaded from the vehicle's CCU after selecting the **"Modify Sensor IDs"** submenu.

The tires to be changed are queried after successful loading of the configuration. Selecting **"Some"** allows you to change individual tires instead of all. The tires to be changed are to be selected in the following bird's eye view.

Subsequently, the Hand-Held Tool is ready for the fetching process.

To fetch the tire sensors, remove the diagnosis cable from the Hand-Held Tool and proceed as in section *„6.5.2.4 Fetching tire sensors" on page 80*.

When the tire sensors are successfully fetched, the Hand-Held Tool must be connected to the system via the diagnosis cable to transmit the new configuration to the system.

A log file is created for every modification of the sensor IDs and stored on the SD memory card.

6.7   Deactivate/activate the system

6.7.1   Deactivate CPC

In the case that the system exhibits a malfunction that could disturb the driver and cannot be quickly remedied, it is possible to temporarily deactivate the system.

◆ Connect the Hand-Held Tool to the system via the diagnosis cable.

Modification - Deactivate CPC

The menu item serves to deactivate the entire system.

The following message appears:

```
CPC deactivated
successfully.
```
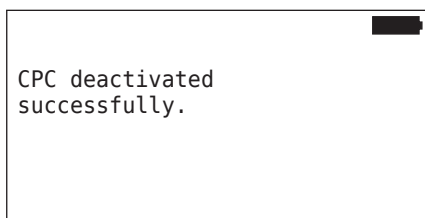
When the system is successfully deactivated, this is indicated at system level as follows:

- ■ Truck: display message **"SYSTEM NOT ACTIVE"**
- ■ Trailer: pressure check indicator does not function.

i	**NOTE**
	► If communication between the Hand-Held Tool and the CCU is not possible, the process is aborted and a corresponding message is displayed. Remedy: » See the sections *„Configuration transfer not possible" on page 91* and *„Transferred configuration not accepted" on page 92*.

6.7.2 Activate CPC

To activate the system in the vehicle,

◆ Connect the Hand-Held Tool to the system via the diagnosis cable.

Modification - Activate CPC

This menu item serves to activate the entire system in the vehicle.

The following message appears:

```
CPC activated
successfully.
```
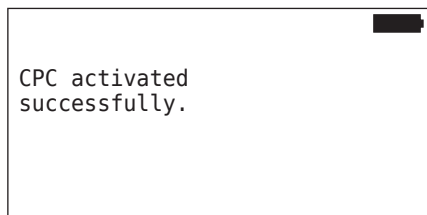
After successful activation, the system is fully functional again.

NOTE
► If communication between the Hand-Held Tool and the CCU is not possible, the process is aborted and a corresponding message is displayed. Remedy: » See the sections *„Configuration transfer not possible" on page 91* and *„Transferred configuration not accepted" on page 92.*

6.8   Diagnosis

6.8.1   DTCs (error codes)

i	**NOTE**
	► Max. 20 active DTCs are stored in the system.
	► During every software update or every parameter modification on the CCU (**"New Installation"**, **"Modify Parameters"**, **"Modify Sensor IDs"**) all saved DTCs (error codes) are erased!

i	**NOTE**
	► The charging state of the battery is checked by selecting the **"DTC (error code)"** item in the main menu. If this is not sufficient, the following message appears: **"Low battery! Charge the HHT and try again."**

Diagnosis - DTC (error code)

In the case of error messages, there is a difference between global and tire-relevant error messages.

First of all, the connection to the CAN bus is checked.

If there is no connection, the message appears:

```
H CO 123                    ▮▮▮
 Check the CAN Bus
 connection.
```
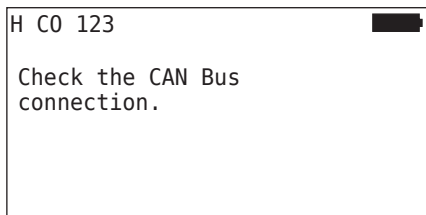
◆ Check CAN bus communication to the components (CCU, display and CAN switch).

If connected, the message subsequently appears containing the status information of all components:

```
Connected:                  ▮▮▮

CCU - Yes
DSP - Yes
CSW - No


↵ TO READ DTC
```
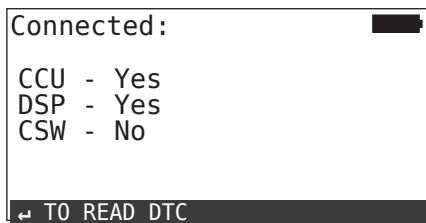
◆ Press RETURN key ⏎ to read DTCs from the system.

```
DTC (failure code)         ▮▮▮

Global DTCs
Tire related DTCs
Erase all DTCs
Save DTCs
```
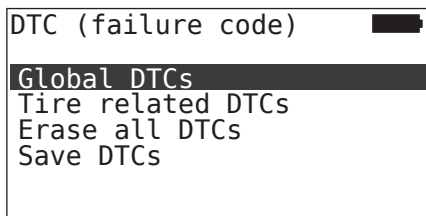
	NOTE
i	If the **"Error reading DTCs"** message appears during reading although the CCU, DSP or CSW components indicate a **"Connected"** status, then: ► Check whether the software for these components was correctly installed. See also section *„Errors during a software update" on page 141.*

	NOTE
i	If an additional receiver is installed in the system, it must be ensured that the CCU is configured accordingly with the parameter **"Additional receiver: YES"**. If the RX is wrongly displayed as not connected in the **"Diagnosis - DTC (error code)"** menu overview, the CCU configuration may be faulty. ► In this case, check the configuration of the CCU and change it if necessary (see the sections *„6.6.1.1 Checking the installation" on page 112* and *„6.6.1.2 Modify Parameters" on page 113*).

6.8.1.1   Read general error codes (DTCs)

Diagnosis - DTC (error code) - General DTCs

General error codes can be read for the following components:

- CCU (control unit)
- CSW (switching module)
- DSP (display)

All errors are listed. All listed messages can be viewed with the arrow keys ⬍.

	NOTE
i	▶ The error codes (DTCs) are updated automatically every 30 seconds.
	▶ If there are no general DTCs, the **"No global DTCs found"** message is displayed.
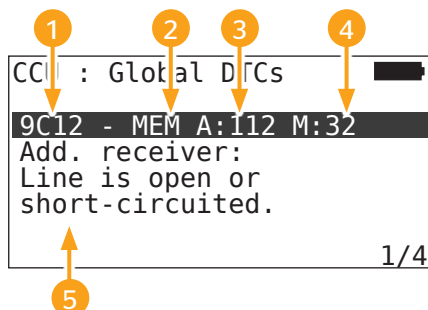
```
  1       2    3       4
CC  : Glob al D Cs     ▬▬
9C12 - MEM A:112 M:32
Add. receiver:
Line is open or
short-circuited.
                    1/4
  5
```

1	Error code	
2	Error status	**ACT**: active error
		MEM: passive error
3	Active counter	In the above example, the error was active for 112 ignition cycles (A: 112).
4	Passive counter	In the above example, the error has been passive for the last 32 ignition cycles (M: 32).
5	Error description	

- The error codes with a description and measures to correct them can be found on the following pages.
- Active errors (status **ACT**) must be eliminated. A passive error (Status **MEM**) has already been eliminated.
- The active counter indicates how many ignition cycles an error already exists (for active errors) or after how many ignition cycles it has been corrected (for passive errors). The active counter reaches a maximum value of 255. This means that if **"A: 255"** is displayed, the error is/was active for 255 ignition cycles or longer.
- As soon as an error has been corrected the status is set to **MEM**. The passive counter shows the number of ignition cycles since the error was corrected. Passive faults are automatically cleared after 40 ignition cycles (M: 40).
- The ignition cycles are not counted in the case of error codes related to the display.

Note on eliminating error:

- ◆ Before a component is replaced, all DTCs must be stored and then erased.
- ◆ Switch off the system and start again after one minute.
- ◆ Check DTCs again 2 minutes after restarting the system.
- ◆ If the corresponding occurs again, the components must be replaced.

	NOTE
i	► If a component is replaced, the corresponding DTC must always be notified or the DTC log file transmitted.

The following error codes are possible:

For the **CCU**:

DTC	Description	Remedy
9C01	CAN communication error.	» Check plug-in connector on the display. » Check cable. » Check CCU.
9C10	No communication with additional receiver.	» Check plug-in connector on the additional receiver and the CCU. » Check cable. » Check the additional receiver.
9C12	Add. receiver: Line is open or short-circuited.	» Check plug-in connector on the additional receiver and the CCU. » Check cable. » Check the additional receiver.
9A01	Supply voltage too low.	» Check whether on board voltage is at least 12 V.
9A02	Supply voltage too high.	» Check whether on board voltage is max. 28 V. » Replace CCU.
1F16	Data reception from tire sensors via RF is disturbed.	» Change location (indication of radio interference).
9B02	CCU defective.	» Replace CCU.
9B03	CCU defective.	» Replace CCU.

DTC	Description	Remedy
9F15	No Tire Sensors mounted or they are not activated.	» Use the HHT to check whether tire sensors are really installed. For this purpose, carry out the fetching process according to sect. *„6.4.1 Check all tires"*. or » Configure the system according to sect. *„6.5.2 New installation"*.
9F13	System not configured.	» Configure the system according to sect. *„6.5.2 New installation"*.

For the display:

DTC	Description	Remedy
9B04	Display defective.	» Replace display.

For the switching module (CSW):

DTC	Description	Remedy
9F02	CCU-Trailer defective.	» Replace CCU.
9F03	CAN communication error.	» Check plug-in connector on the CCU. » Check cable between CCU and pressure check indicator. » Check CCU.
9F04	External power supply too low.	» Check whether on board voltage is at least 12 V.
9F05	External power supply too high.	» Check whether on board voltage is max. 28 V.
9F06	Internal power supply too low.	» Check whether on board voltage is at least 12 V.
9F07	Internal power supply too high.	» Check whether on board voltage is max. 28 V. » Replace CCU.
9F08	Power supply for additional receiver too low.	» Check whether on board voltage is at least 12 V.
9F09	Power supply for additional receiver too high.	» Check whether on board voltage is max. 28 V. » Replace CCU.
9F0A	Short circuit at Pressure check indicator.	» Check cable between CCU and pressure check indicator. » Check whether the pressure check indicator is intact. (Connect the HHT to the components via the diagnosis cable. Switch on the HHT. Check whether the pressure check indicator lights up.)

Operation

| DTC	Description	Remedy
9F0B	Open circuit at Pressure check indicator.	» Check cable between CCU and pressure check indicator. » Check the pressure check indicator with the HHT (see instructions on the DTC 9F0A) **If the diagnosis plug on the pressure check indicator remains open for 5 minutes without DTC query, this DTC (9F0B) is activated.**

6.8.1.2   Read tire-relevant error codes (DTCs)

Errors for a certain tire can be read in the **"Tire related DTCs"** menu item.

Diagnosis - DTC (error code) - Tire related DTCs

The configuration appears on the screen as bird-eye-view. The tire positions with error message are marked in black: see also section *„6.3 Screen displays" on page 44*.

```
TIRE RELATED DTCs        ▬▬▬
  8.6                        8.8
                             8.8


                             8.7
  8.6                        8.8
```
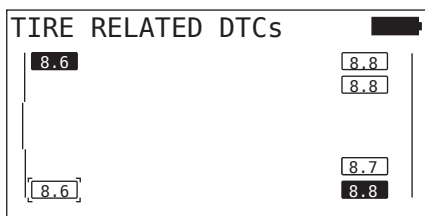
	NOTE
i	▶ Flashing, black tire: there is at least one active error for this tire.
	▶ Black tire: there is at least one passive error for this tire.
	▶ The error codes (DTCs) are updated automatically every 30 seconds.
	▶ In the case of a configuration with ATL, the DTCs of the trailer tires cannot be acquired by the Hand-Held Tool.
	▶ If there are no tire related DTCs, the **"No tire related DTCs found."** message is displayed.
	» Change to the bird-eye-view with the RETURN key ⏎.
	» Only the tire pressures are displayed.

◆ Select the desired tire with the arrow keys ↔↕. The selected tire is indicated by **"[ ]"**.
(In the case of the **"Married"** configuration it is possible to go to the axles of the trailer or the truck by pressing the arrow keys ← →.)

◆ Press the RETURN key ⏎ to display the error (only possible for black or flashing tires).

	NOTE
i	▶ The numbers in the tire symbols indicate the current tire pressures in bar or psi.
	▶ It can take up to 2 minutes until the pressures of all tires are displayed.
	▶ If no pressure values are displayed after 2 minutes, the tire sensor is located at an unfavorable position and can not be received or it is defective.
	▶ If the **"J1939"** standard is selected as CAN format only, no pressures are displayed for the tire-related DTCs.
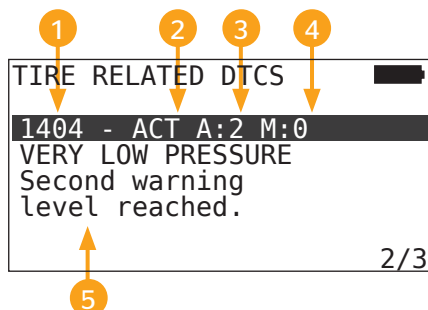
Ⓒntinental⅃

```
①        ②  ③    ④
TIRE RELATED DTCS      ▄▄▄
1404 - ACT A:2 M:0
VERY LOW PRESSURE
Second warning
level reached.
                    2/3
        ⑤
```

①	Error code	
②	Error status	**ACT**: active error
		MEM: passive error
③	Active counter	In the above example, the error is active for 2 ignition cycles (A: 2).
④	Passive counter	In the above example, the error is still active (M: 0).
⑤	Error description	

- ■ The error codes with a description and measures to correct them can be found on the following pages.

- ■ Active errors (status **ACT**) must be eliminated. A passive error (Status **MEM**) has already been eliminated.

- ■ The active counter indicates how many ignition cycles an error already exists (for active errors) or after how many ignition cycles it has been corrected (for passive errors). The active counter reaches a maximum value of 255. This means that if **"A: 255"** is displayed, the error is/was active for 255 ignition cycles or longer.

- ■ As soon as an error has been corrected the status is set to **MEM**. The passive counter shows the number of ignition cycles since the error was corrected. Passive faults are automatically cleared after 40 ignition cycles (M: 40).

The following error codes are possible:

DTC	Description	Remedy
90##	NO SIGNAL No reception of tire sensor data.	Poor reception » Check installed position and alignment of the CCU and/or additional receiver.
91##*	WHEEL JAMMED	» Check whether the wheel can be freely rotated.
92##	Tire sensor battery is low.	» Replace TTM.
13##	LOW PRESSURE First warning level reached.	» Increase tire pressure to recommended value.
14##	VERY LOW PRESSURE Second warning level reached.	» Check for damage. » If the tire is undamaged, increase the tire pressure to the recommended value.
15##	FAST PRESS. LOSS The tire is loosing pressure very fast.	» Check tire, valve and wheel rim for leaks.
16##	TEMPERATURE The tire sensor has detected a critical temperature.	Tire sensor was subject to too high temperature. » Check function of tire and brakes.
1A##	PRESSURE DIFFERS compared to twin tires.	» Increase tire pressure to recommended value.
97##	SENSOR DEFECTIVE Tire sensor is defective.	» Replace the tire sensor.

DTC	Description	Remedy
18##	The tire sensor is shut-down due to maximum temperature.	Tire sensor was subject to too high temperature. » Check function of tire and brakes.
19##	CHECK SENSOR The tire sensor is mounted wrongly.	» Dismantle tire. Renew tire sensor.
1D##	CHECK SENSOR The tire sensor lost contact in tire.	» Dismantle tire. Renew tire sensor.

* This error message is optional and not available in all system versions.

| **i**	**NOTE**
	▶ ## is a placeholder for the hex code that specifies the tire position. This position is dependent on the selected configuration.

6.8.1.3   Erase all error codes (DTCs)

The error messages of all components can be erased in the "**Erase all DTCs**" sub-menu.

Diagnosis - DTC (error code) - Erase all DTCs

The following message appears on the screen:

```
H CO 123                  ▬▬

Do you want to
erase all DTCs?

←→ No

```
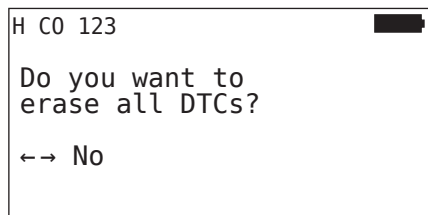
◆ Select **"YES"** with the arrow keys ← →.

◆ Press the RETURN key ⏎ to erase the error codes of all components.

The **"DTCs successfully erased"** message or **"DTCs not completely erased"** message appears. In the case of the latter, repeat the erase process.

6.8.1.4   Save error codes (DTCs)

Error messages can be saved using this menu item.

Diagnosis - DTC (error code) - Save DTCs

The following message appears on the screen:

```
Report file stored.


H CO 123_ _ _ _
_D_YYYYMMDD_hhmmss
↵ TO PROCEED
```
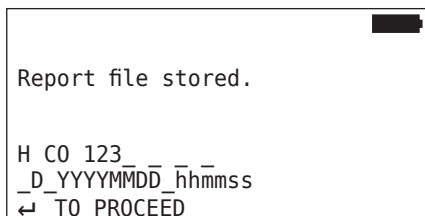
A log file was created automatically and stored on the SD memory card.

	NOTE
ℹ️	► If there are no general DTCs, the **"No general DTCs"** message is displayed.
	► Saving DTCs is only possible when the SD memory card is inserted. See also section *„7.4 Log files" on page 146*.

6.8.2 Software updates

Diagnosis - Software Update

	NOTE
i	▶ The CSW (switching module) component is only available for a system with trailer. ▶ The DSP (Display) component is only available in the case of the system for Truck/Bus. ▶ The charging state of the battery is checked before the software update starts. If this is not sufficient, the following message appears: **"Low battery! Charge the HHT and try again."** Charge the Hand-Held Tool as described in the section *„5.2 Charging the Hand-Held Tool" on page 30* . ▶ To ensure safe software updating, do not switch off either the Hand-Held Tool during data transfer or interrupt data transfer. There is a risk that the components to be updated (CCU, DSP, CSW) could be damaged permanently.

A software update is possible for the following components:

- CCU (control unit)
- CSW (switching module)
- DSP (display)

Continental 🐎

6.8.2.1   Available software on the Hand-Held Tool

To check the current component software on the Hand-Held Tool, it is possible to call the menu item in offline mode (without connection to the system).

Only the versions for the individual components stored on the Hand-Held Tool are then displayed.
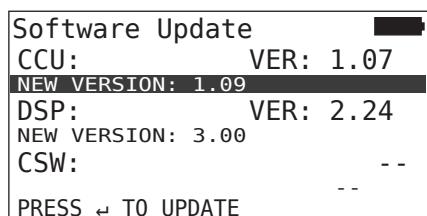
```
SW available:          ▬▬▬
CCU:                   --
NEW VERSION: 1.09
DSP:                   --
NEW VERSION: 3.00
CSW:                   --
NEW VERSION: 10
NO CAN CONNECTION.
```

6.8.2.2   Truck/Bus, married or Mining / Harbor

To update the software for **"Truck/Bus"**, **"Married"** or
"Mining / Harbor", proceed as follows:

◆ Connect the Hand-Held Tool to the unused plug socket of the dis-
   play via the diagnosis cable or via the diagnostic connection of the
   K or L subharness.

◆ Switch on the ignition.

If a new software version is available on the Hand-Held Tool, the follow-
ing message is displayed:

```
Software Update       ▬▬
CCU:            VER: 1.07
NEW VERSION: 1.09
DSP:            VER: 2.24
NEW VERSION: 3.00
CSW:                  --
                   --
PRESS ↵ TO UPDATE
```
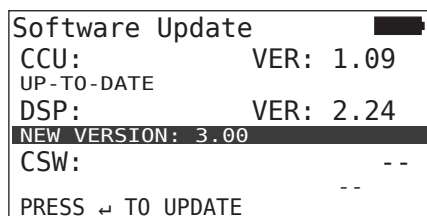
Software update is not possible in a 500KBaud CAN bus environment.
Hand-Held Tool shows a message **"Not supported in 500KBaud."**

Connect the CCU with 250KBaud and then update.

ℹ	**NOTE**
	▶ During updating of the CCU software, it is possible that **"SYSTEM ERROR"** appears in the display. This is not displayed after successful updating of the CCU.

◆ Start the software transmission for the CCU with the
   RETURN key ⏎.

```
Software Update       ▬▬
CCU:            VER: 1.09
UP-TO-DATE
DSP:            VER: 2.24
NEW VERSION: 3.00
CSW:                  --
                   --
PRESS ↵ TO UPDATE
```

◆ Start software transmission for the display with the
   RETURN key ⏎.

If the software for the components was updated successfully, the following message appears:

```
Software Update        ▬▬
CCU:            VER: 1.09
UP-TO-DATE
DSP:            VER: 3.00
UP-TO-DATE
CSW:                   --
                       --
```

ℹ	NOTE
	▶ No software versions are displayed for the CSW because the CCU for Truck/Bus does contain a CSW.
	▶ If the **"HHT IS NOT UP TO DATE"** message is displayed, update the software of the Hand-Held Tool. See section *„8.1 Software Update for the Hand-Held Tool" on page 148*.
	▶ If updating the CCU fails, the stored vehicle configuration is lost. The vehicle configuration must be repeated after successful software update. See section *„6.5.2 New installation" on page 65*.

ℹ	NOTE
	▶ Pressing the ESC key (ESC) returns to the diagnosis menu from every software update page.

6.8.2.3   Trailer

To update the software for a trailer, proceed as follows:

◆ Release the plug connection between the pressure check indicator and the trailer wiring harness.

◆ Connect the Hand-Held Tool to the wiring harness of the trailer via the diagnosis cable.

◆ Switch on the ignition.

	NOTE
i	► If the trailer has no power supply during installation, the Hand-Held Tool supplies power automatically to the CCU.

If a new software version is available on the Hand-Held Tool, the following message is displayed:

```
Software Update        ▰
CCU:          VER: 1.07
NEW VERSION: 1.09
DSP:                - -
                 - -
CSW:          VER:   08
NEW VERSION: 10
PRESS ↵ TO UPDATE
```

◆ Start the software transmission for the CCU with the RETURN key 🔲.

```
Software Update        ▰
CCU:          VER: 1.09
UP-TO-DATE
DSP:                - -
                 - -
CSW:          VER:   08
NEW VERSION: 10
PRESS ↵ TO UPDATE
```

◆ Start software transmission for the CSW (switching module) with the RETURN key 🔲.

If the software for the components was updated successfully, the follow-ing message appears:

```
Software Update        ▬
 CCU:           VER: 1.09
 UP-TO-DATE
 DSP:               --
                --
 CSW:           VER:   10
 UP-TO-DATE
```

◆ After successfully updating the trailer CCU, disconnect the Hand-Held Tool and reconnect the plug to the pressure indicator.

ℹ	**NOTE**
	▶ No software versions are displayed for the DSP be-cause the trailer configuration has no display.
	▶ If the **"HHT IS NOT UP TO DATE"** message is displayed, update the software of the Hand-Held Tool. See section *„8.1 Software Update for the Hand-Held Tool" on page 148*.
	▶ If updating the CCU fails, the stored vehicle configura-tion is lost. The vehicle configuration must be repeated after successful software update. See section *„6.5.2 New installation" on page 65*.

ℹ	**NOTE**
	▶ Pressing the ESC key (ESC) returns to the diagnosis menu from every software update page.

6.8.2.4   Errors during a software update

If the SW update fails, a corresponding warning is displayed.

```
H CO 123                    ▬▬▬

 Error in update
 process.

 Refer to manual.

```
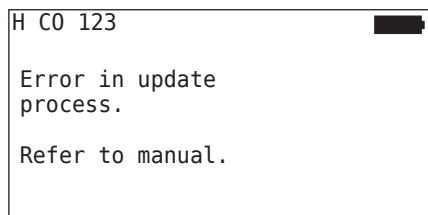
The current version number can not be read and is displayed as follows.

```
Software Update            ▬▬▬
 CCU:          VER:    --
 NEW VERSION: 1.09
 DSP:                  --
                   --
 CSW:          VER:    08
 NEW VERSION: 10
 PRESS ↵ TO UPDATE
```
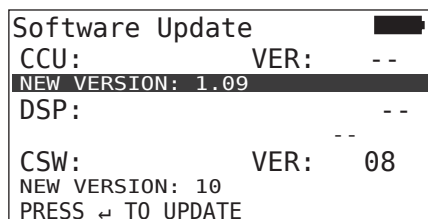
In this case:

◆ Repeat the software update.

If the error occurs again:

◆ Replace components.

6.8.3 CAN check

The **"CAN-Check"** menu is used to check the CAN bus connection between the system and the vehicle's own CAN.

The Hand-Held Tool supports the baud rates 250 kbit/s and 500 kbit/s. When the CAN bus is connected, the Hand-Held Tool checks and selects the appropriate baud rate automatically.
The selected CAN speed is shown in the bottom line of the screen.

i	NOTE
	▶ If the Hand-Held Tool is not correctly connected to the CAN bus or the CAN bus is faulty, the error message **"Check the CAN bus connection"** appears. In this case, the cabling to the system must be checked.

6.8.3.1 Basic mode

If the system and the Hand-Held Tool are properly connected to the vehicle CAN bus, the message **"Connected"** appears.

- ■ In this case, both the system and the vehicle's own CAN bus are properly connected.

If the system and the Hand-Held Tool are not properly connected to the vehicle CAN bus, the message **"Not connected"** appears.

- ■ In this case, the system is connected to the Hand-Held Tool properly, but there is no connection to the vehicle's own CAN bus.
- ◆ The desired CAN bus connection to the vehicle CAN must be checked.

6.8.3.2 Expert mode

NOTE
Expert mode is only recommended for trained experts.

In expert mode, all addresses of the ECUs connected to the CAN bus are displayed.

Example: 0x33 - CCU of the system

7   SD memory card

7.1   General instructions on the SD memory card

	NOTE
i	► Without SD memory card, the Hand-Held Tool only has the **"English menu language"**!
	► It is not possible to set the language without an SD memory card!
	► Storing of DTCs and log files is not possible without an SD memory card.
	► If the SD card is connected to the PC, and the user has changed something on the SD card via the PC, the Hand-Held Tool must be turned off and on again for the changes to take effect.

7.2 Handling data on the SD memory card

Access to the SD memory card takes place via a USB connection to the PC, see section *„8.2 Connection to the PC" on page 149*.

- ◼ The directory structure and names must not be changed.
- ◼ The contents of all files as well as their names must not be changed.
- ◼ Do not erase any files on the memory card!
  The **"Log Files"** in the **"REPORT"** directory are an exception and may be copied and erased.

⚠️	**ATTENTION**
	Failure of the system due to incorrect handling of files on the SD memory card!
	Failure to observe the specification for **"Handling data on the SD memory card"** can:
	— lead to total failure of the Hand-Held Tool.
	— lead to incorrect functionality or total failure of the system.
	— make log files for further processing unusable.
	▶ Follow the instructions on **"Handling data on the SD memory card"** to avoid damage to property.

7.3 Directory structure

SD MEMORY CARD

CONFIG
LANGUAGE
REPORT
TEMP
UPDATE

7.4 Log files

The log files that are created when working with the Hand-Held Tool are stored in the **"REPORT"** directory on the SD memory card, see section *„7.3 Directory structure"*.

To identify the individual log files, unique names are automatically assigned. These consist of the following data:

File name				
Vehicle name	Code letter for the menu function executed	Date	Time	Code letter for the subfunction in installation
		(Serial no.)*	(Consecutive no.)*	(Optional)
Max. 19 characters	T = Test drive D = DTC I = Installation V = Check all tires	YYYYMMDD	hhmmss	IN = New installation or Resume installation MP = Modify parameters MS = Modify Sensor IDs SU = Software Update
		(XXXXXX)*	(ZZZZ)*	

* Serial no. and consecutive no. only appear when use of date/time is deactivated in the menu Setup - Tool Properties - Date date.

NOTE
► The use of date and time can be activated under **Setup- Tool Properties- Use Date**. In this case: — the file name, date and time are used instead of the consecutive counter. — the date and time are stored in the log files.

The log files can be transmitted to the PC (see sect. *„8.2 Connection to the PC" on page 149*) and erased if required.

NOTE

► Storing of DTCs and log files is not possible without an SD memory card! An error message appears. Remedy:
 	
  » Make sure that the SD memory card is inserted in the tool. See section *„5.3 Change the memory card" on page 32*
 	
  » Check access to the SD memory card with **"Diagnose/Connection to the PC"**. See section *„8.2 Connection to the PC" on page 149*

NOTE
► A software program is offered for evaluating the log files . (See *www.contipressurecheck.com/hht*).

8   Maintenance

8.1   Software Update for the Hand-Held Tool

To update the software of the Hand-Held Tool, follow the instructions on the homepage:

www.contipressurecheck.com/hht

	NOTE
i	► The menu begins with the main setting in English. Select the desired language by following the menu path: **"SETUP/LANGUAGE"**. ► If no SD memory card is inserted in the Hand-Held Tool or it is no longer responding, only "**ENGLISH**" is available. ► After a software update, the Hand-Held Tool must be set up again after selecting the preferred language. See the section *„5.5 Setting up the Hand-Held Tool" on page 35.* ► The previously saved vehicle configurations of the Installation main menu were overwritten with the factory settings during the SW update and must be redefined.

	NOTE
i	► Check the website regularly for software updates.

8.2 Connection to the PC

The menu item allows communication between the SD memory card and a PC/Laptop in order to:
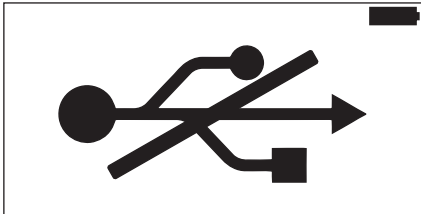
■ transmit the log files to the PC/Laptop.

Diagnosis - Connection to the PC

For communication (data transfer) with the SD card, the SD card can remain in the Hand-Held Tool. Communication with the PC/laptop takes place via the USB cable.
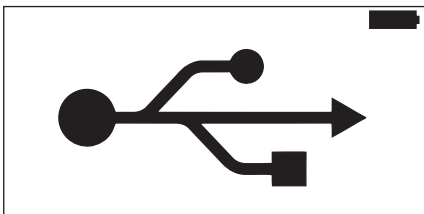
To establish communication, proceed as follows:

◆ Select the **"Diagnosis/Connection to the PC"** menu item and press Enter to confirm.

The following appears:

	NOTE
i	If the SD memory card is missing or does not respond, language setting is not possible. ► Follow the menu path **"Diagnosis/Connection to PC"** to connect the Hand-Held Tool to the PC.

◆ Connect the Hand-Held Tool to the PC/laptop via the USB cable.

The following appears:

	NOTE
i	► This procedure can take a little longer the first time until the Hand-Held Tool is recognized. ► The connection procedure can take place in reverse order: Connect the USB cable first and then run "**Diagnosis/ Connection to the PC**".

◆ The log files in the **"REPORT"** directory can be copied or moved to the PC/Laptop.

◆ After completing data transfer, safely remove the Hand-Held Tool out of Windows and disconnect the USB cable.

8.3 Replacing the fuse in the diagnosis cable

If the power supply to pressure control indicator or the CCU of the trailer system via the diagnosis cable is not possible, then the fuse in the diagnosis cable must be replaced.
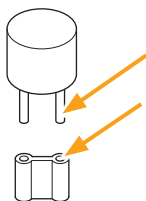
	NOTE
i	▶ Only use original 315 mA series 373 TR5 fuses from Wickmann. ▶ Two replacement fuses are provided for the Hand-Held Tool.

To replace the fuse in the diagnosis cable, proceed as follows:

◆ Remove the old fuse (see arrow).
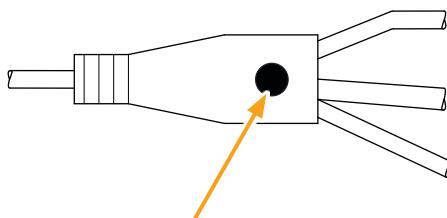
◆ Carefully insert the new fuse, pay attention to the position of the pins.

8.4   Cleaning

If dirty, clean the housing of the Hand-Held Tool with a slightly damp, lint-free cloth. Do not use cleaners containing solvents.

8.5   Storage

The following regulations apply to storage:

- Store at a dry place. Maximum relative humidity: 80%, non-condensing
- Protect against direct sunlight. Keep storage temperature between -20 ... +25 °C/-4...77 °F.

i	**NOTE**
	► After using, store the Hand-Held Tool in the transport case supplied.

9   Troubleshooting

9.1   Resetting

If the Hand-Held Tool should not longer react despite charged batteries, it must be reset. To reset the Hand-Held Tool, press in the reset key next to the connecting sockets with a ball-point pen tip or the tip of straightened paper clip.
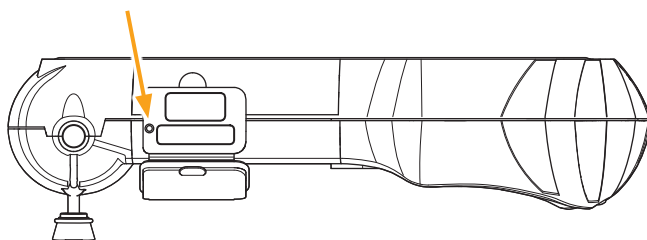
10 Disposal

10.1 Electrical/electronic components

This tool may not be disposed of in the domestic refuse.

The tire Hand-Held Tool contains a lithium battery that is cast into the housing and cannot be replaced. After reaching the end of its service life, the tool must be disposed of in accordance with all current local, regional and national laws and regulations. The tool can be taken to collection points for electrical/electronic component or the system sales partner. It can also be sent back to the following system collection point.

Address of the central system collection point:

Continental Trading GmbH

"Abteilung Entsorgung"

VDO-Straße 1,

Gebäude B14,

64832 Babenhausen

Germany

11 EC Declaration of Conformity

The complete original Declaration of Conformity including the serial number of your device is included in the scope of delivery.
A version without serial number can be found at
www.contipressurecheck.com/hht.

12 Homologation

12.1 Overview

An overview of the existing homologations can be obtained from the corresponding supplementary sheet (Hand-Held Tool Homologation Overview Art. no. 17340490000).
It can also be found at
www.contipressurecheck.com/hht/homologation.

12.2 Canada

- Canada, Industry Canada (IC) Notices
  "This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
  (1) this device may not cause interference,
   and
  (2) this device must accept any interference, including interference that may cause undesired operation of the device."

- Canada, avis d'Industry Canada (IC)
  "Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
  (1) l'appareil ne doit pas produire de brouillage,
  et
  (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

This Class B digital apparatus complies with Canadian ICES-003 plus the RES-GEN, 003 (2010-12) and RSS210, issue 8 (2010-12).

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The Future in Motion