Digital Tachograph – DTCO 1381

Release 1.4x – 2.0

Operating instructions Company & Driver   GB

VDO

Dear user,

The **DTCO 1381 d**igital **t**ach**o**graph, with its system components, is an EC recording device that complies with the technical specifications according to the EC regulation (EEC) no. 3821/85 annex I B, (as amended).

The prepared data helps …

- the driver obey the law when driving
- and gives the company useful data about the performance of the driver and the vehicle (special software required).

These operating instructions were written for the **company** and the **drivers** and describe proper handling of the DTCO 1381 as specified by the regulations. Carefully read these instructions and become familiar with the DTCO 1381.

Further information on the DTCO 1381 as well as contact addresses are available on the Internet at: **www.dtco.vdo.com**

We wish you happy motoring.

Your friends at Continental Automotive GmbH

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■ Release overview

The present certified operating
instructions are valid for the following
DTCO 1381 device versions:

Release version (can be seen on the model plate)	Certified operating instructions	Special operational features
Rel. 1.4x	BA00.1381.20 100 102	As soon as the vehicle starts moving and no message is displayed, the standard display **(a)** appears automatically.
Rel. 2.0	BA00.1381.20 101 102	Current operating instructions • During driving, individual setting of a desired standard display **(a)**, **(b)** or **(c)** possible, ➥ *see page 18.* • Printout in local time possible. • Option: VDO Counter *

☞ For previous device versions -
DTCO 1381 Rel. 1.2x and 1.3x -
these operating instructions are not
suitable!

General instructions

Means of depiction

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■ Means of depiction

You will find the following emphases in these operating instructions:

🛑 **Warning message**

A warning message points out possible risks of injury or accidents.

⚠ **Attention!**
The text beside or below this symbol contains important information to avoid loss of data, to prevent damage to the device, and to comply with legal requirements.

☞ **Hint**
This sign will give you some advice or information which, when not observed, could lead to malfunctions.

📖 The book means a reference to another documentation.

Steps

1. The numbered steps describe actions – You must do something. For example you will be guided through the menu step by step and asked to make an entry.

2. Further actions are numbered consecutively.

Symbols

* The asterisk marks a special feature / option.
Note: Observe the instructions for the **ADR variant** " Ⓔ " and the option "**Automatic adjustment of the activities after ignition on/off**", as individual functions depend on the ignition. The **VDO Counter** (from Rel. 2.0) supports your daily, weekly planning when "on the road".

➡ This sign shows the page on which you will find further information about the topic.

⇨⇨ This sign indicates that the topic will be continued on the next page.

Menu representation

```
           ↘ driver 1
1 ———  •⃗ begin country
```
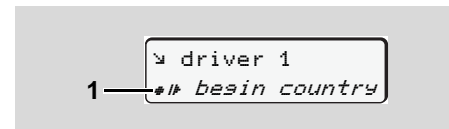
Flashing lines or characters in the menu display are shown in *italics* **(1)** in these operating instructions.

Definitions

Driver 1 = Crewmember who is driving the vehicle at the moment or will be driving the vehicle.

Driver 2 = Crewmember who is not driving the vehicle.

■ Handling the DTCO 1381

🛑 **Risk of Accident**

While driving, messages can appear in the display. It is also possible that the driver card will be automatically ejected.
Do not be distracted by this; instead, continue to focus all of your attention on driving safely.

🛑 **Danger of injury**

You and other persons might be injured by an open printer drawer. Open the printer drawer only for inserting a paper roll!

Depending on the volume of information printed, the thermal printing head may be very hot! Wait until the printing head has cooled down before you insert a new roll of paper.

🛑 **Danger of explosion**

The DTCO 1381 ADR version * is designed for use in explosion-risk environments.
Please observe the instructions for transport and handling of hazardous materials in explosion-risk environments.

⚠ **Observe the following instructions in order to avoid damage to the DTCO 1381!**

- Authorised persons are responsible for installing and sealing the DTCO 1381. **Do not carry out any repairs of the device or the supply lines.**
- Do not insert any other cards, such as credit cards, cards with relief printing, or metallic cards, etc. into the card slot. These type of cards will damage the card slot of the DTCO 1381!

- Only use type-approved paper rolls recommended by the manufacturer (original VDO printer paper). Make sure that it contains the approval mark.
  ➥ *Details refer to "Paper roll" on page 84.*
- Do not activate the button elements with sharp-edged or pointed objects such as a ballpoint pen, etc.
- Clean the unit with a slightly moist towel or with a microfibre cleaning cloth. (Available from your sales and service center.)
  ➥ *Refer to "Care and maintenance" on page 83.*

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■ Legal requirements

> ⚠ Any person who makes any changes to tachographs or the signal feed in a way that influences the recording and memory of the tachographs, especially if done with fraudulent intentions, may violate laws or provisions.
>
> The falsification, suppression, or destruction of tachograph recordings, the tachograph cards, and the printed documents is forbidden.

Legal Foundation

The use of tachographs is now regulated in the latest consolidated valid version of the EC regulations 3821/85 in combination with EC regulations (EC) no. 561/2006 and the relevant national laws. They require the driver and the operator of the vehicle (company) to conform to a number of obligations and responsibilities. The following list is not guaranteed to be complete or legally valid.

► **Obligations of the driver**

● The driver must take care that the driver card and the tachograph will be used properly.

● Behaviour in the event of malfunctions of the tachograph:
  – The driver must note information about the activities which are no longer properly recorded or printed by the tachograph on a separate sheet or on the rear side of the paper roll!
    ➥ *Refer to "Handwritten activity entries" on page 36.*
  – If away from base, for more than 1 week, the driver must ensure that the tachograph is repaired by an authorised workshop en route.

● During mixed tachograph operation (use of vehicles with analogue [chart based] and digital tachograph), the necessary documents must be carried.
  ➥ *Refer to "Driver/vehicle change during operation" on page 40.*

● If the driver card is lost, stolen, damaged, or malfunctions, then the driver must at the beginning and at the end of the journey generate a daily printout from the DTCO 1381 and add his personal information. If necessary, availabilty periods and other working times must be inserted by handwritten entries.
  ➥ *Refer to "Handwritten activity entries" on page 36.*

● If the driver card is damaged or fails to operate properly, it must be sent back to the authorised authority, or its loss must be duly notified. The replacement card must be applied for within seven calender days.

● If the driver card is lost, stolen, damaged or malfunctions, a journey may be continued without driver card for a period of 15 calendar days or longer if necessary for the vehicle to return to the company location.

➫➫

- Inform the authorised authority immediately about the exact reasons for the renewal, replacement, or exchange of the driver card by another member state authority.

- After the end of validity, the driver must continue to carry the driver card for at least 28 calendar days (Driving Personnel Decree in Germany).

▶ **Obligations of the company**

- Take care that, when a new vehicle is delivered, an authorised workshop immediately completes the calibration data with authorised member state and vehicle registration number.

- When inserting in the company card, you are requested, if necessary, to enter the member state and the vehicle registration number of the vehicle in the DTCO 1381.
  ➥ *Refer to "Enter vehicle registration number" on page 24.*

- Lock the company in the DTCO 1381 at the beginning of the vehicle deployment, and lock it out again at the end.
  ➥ *Details refer to "Company card insertion" on page 23.*

- Make sure that enough authorised rolls of paper are available in the vehicle.

- Monitor the proper function of the tachograph. Observe the intervals which, according to the legal stipulations, are prescribed for the inspection of the tachograph. (Periodic (calibration) test at least every two years.)

- Download the data from the data memory of the DTCO 1381 and from the driver cards at regular intervals and store the data according to the legal stipulations.

- Have repair and calibration work done by authorised workshops only.
  ➥ *Details refer to "Compulsory Tachograph inspections" on page 83.*

- Supervise the proper use of the tachograph by the drivers. Check driving times and rest periods periodically and compare these with the legal requirements.

▶ **Handling of the printouts**

- Take care that the printouts will not be damaged by strong light, sunlight, moisture, or heat (making them illegible).

- The holder of the vehicle / the company must retain the legal printouts for at least 1 year. (2 years for Working Time Directive Regulations.)

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■ Handling the tachograph cards

Possession of a tachograph card author-
ises the holder to use the DTCO 1381.
Areas of activity and access rights are pre-
scribed by law.
➥ *Refer to "Tachograph cards" on*
page 79.

⚠ The driver card is person-specific.
The driver uses this card to identify
himself to the DTCO 1381.
**The driver card is not
transferable!**

⚠ The company card is designed for
owners and operators of vehicles
with installed digital tachograph
and must not be transferred to
"Others".
**The company card must not be
used for driving!**

☞ Handle your tachograph card care-
fully in order to avoid loss of data
and observe the instructions of the
issuing authorities for tachograph
cards.

● Do not bend or fold the tachograph
card and do not use them for anything
other than their intended purpose.

● Do not use damaged tachograph
cards.

● Keep all contact surfaces clean, dry,
and free of grease and oil (always use
a protective cover).

● Protect the card from direct sunlight
(do not allow it to lie on the instrument
panel).

● Do not place it in direct proximity to
strong electromagnetic fields.

● Do not use the card beyond its period
of validity. Apply for a new tachograph
card in a timely manner before expiry.

▶ **Cleaning tachograph card**

Clean dirty contacts of the tachograph
card with a slightly moistened cloth or with
a microfibre cleaning cloth. (Available from
your sales and service center.)

⚠ Do not use any solvents like thinner
or petroleum spirits to clean the
contacts of a tachograph card.

Introduction

First operating steps

Display and operational elements

Display variations

2

■ First operating steps

2

► For the company

1. Register your company within the DTCO 1381. Insert the company card into any card slot.
➥ *Details refer to "Company card insertion" on page 23.*

☞ The company card must not be used for driving!

2. Withdraw the company card at the end of the registration or the download of data from the card slot.
➥ *Details refer to "Company card withdrawal" on page 26.*

► For the driver

1. Insert your driver card into the card slot at the beginning of the shift (start of working day).
➥ *For more details, see "Inserting driver card(s)" from page 28.*

2. Using the "Manual entry" you can add activities on your driver card.
➥ *For more details, see "Manual entries" from page 28.*

3. Use the activity button to adjust the activity you want to carry out at that moment.
➥ *Details refer to "Setting activities" on page 35.*

4. Adjust the time to the current local time.
➥ *Details refer to "Set Local time" on page 61.*

The DTCO 1381 is ready for operation!

5. Important! During a rest period or break time, always set the activity to "ꜩ".

6. Possible faults in the device or the system components will appear in the display. Acknowledge the message.
➥ *For more details, see "A message appears" from page 66.*

7. At the end of the shift (end of the working day) or vehicle change, you request your driver card from the card slot.
➥ *For more details, see "Withdrawing driver card(s)" from page 38.*

8. You can display or print activities from preceding days as well as saved events, etc. by means of the menu functions.
➥ *For more details, see "Calling up menu functions" from page 48.*

⚠ These operating instructions do not contain the legal requirements which are valid in the respective countries. If necessary, they must be complied with, too.

■ Display and operational elements
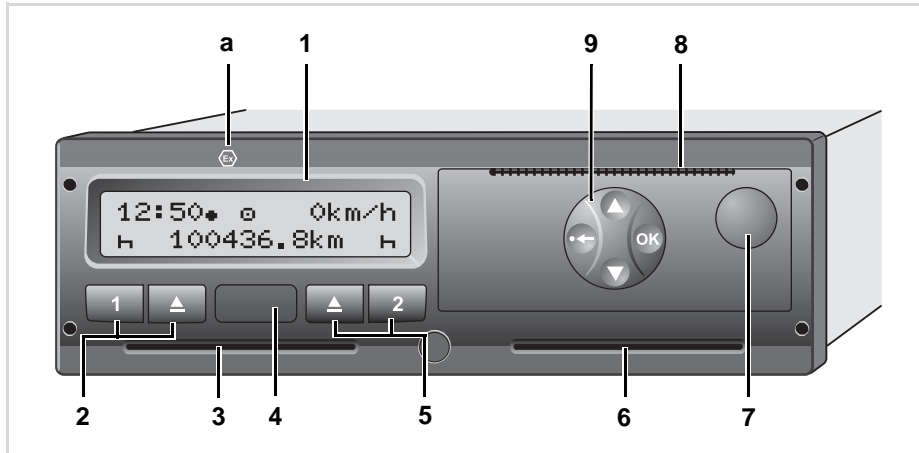
(1) Display
(2) Driver 1 keypad
(3) Card slot 1
(4) Download interface
(5) Driver 2 keypad
(6) Card slot 2
(7) Unlock button printer drawer
(8) Cutting edge
(9) Menu buttons

(a) Symbol " ⊕ " for ADR variant *
(ADR = European **A**greement con-
cerning the international carriage of
dangerous goods by **r**oad)

► Brief description

Display (1)

Depending on the vehicle's operational
condition, different displays will appear or
data can be displayed.
➥ *Refer to "Display variations" on
page 17.*

Driver 1 keypad (2)

▌**1**▐   Activity button for driver 1
       ➥ *Details refer to "Setting
       activities" on page 35.*

▲   Ejection button for card slot 1

Card slot 1 (3)

Driver 1, who will drive the vehicle at this
moment in time, inserts his driver card into
slot 1.
➥ *For more details, see "Inserting driver
card(s)" from page 28.*   ⇨⇨

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Download interface (4)

The download interface is located under the cover. The access rights of this interface are regulated according to the inserted tachgraph card.

➥ *Details refer to "Access rights of the tachograph cards" on page 80.*

Driver 2 (5) keypad

2 Activity button for driver 2

▲ Ejection button for card slot 2

Card slot 2 (6)

Driver 2, who is not driving the vehicle at this moment in time, inserts his driver card into slot 2 (crew operation).

Unlock button (7)

Use this button to unlock the printer drawer, for example when inserting a roll of paper.

Cutting edge (8)

You can use the cutting edge to tear off a printout generated by the integrated printer.

Menu buttons (9)

Use the following buttons to enter, display, or print out data:

▲/▼ Use the paging function to select the desired function or selection. (This is possible by pressing and holding down the auto-repeat function key.)

OK Confirm or acknowledge desired function / selection.

OK)) Press and hold, repeatedly until the last entry field.

⬅ Back to the last entry field, abort the entry of a country, or leave the menu one step at a time.

ADR variant * (a)

☞ Some functions, such as insertion or removal of the tachograph cards, printing or display of data are possible only while the ignition is switched on!

Model plate
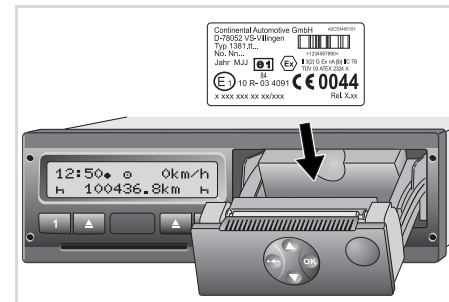
Model plate

After opening the printer drawer, the model plate is visible with the following data: Name and address of the manufacturer, device version, serial number, year of manufacture, test and approval mark, and release version.

■ Display variations

General Information

The display consists of pictograms and text with the language being automatically set as follows:

● The language will be determined by the driver card that is currently inserted in card slot 1 and / or the driver card that was most recently inserted in the DTCO 1381.

● Or the tachograph card with a higher value, such as the company card, control card.

Select language

As an alternative to the automatic language setting, you can individually set a preferred language.

➥ *Details refer to "Setting the language" on page 49.*

▶ **Standby mode**
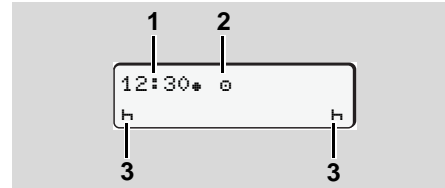
Display Standby mode

In the Operational "⚙" mode, the DTCO 1381 will switch into standby mode after about 5 minutes:

● the vehicle's ignition is off,

● and no message is pending.

The set activities **(3)** will appear in addition to the time **(1)** and operating mode **(2)**. The display disappears after another 3 minutes (customer-specific value).

Display Standby mode will be cancelled when:

● you switch on the ignition

● you press any key,

● or when the DTCO 1381 announces an event or a fault.

▶ **Display after ignition on/off**
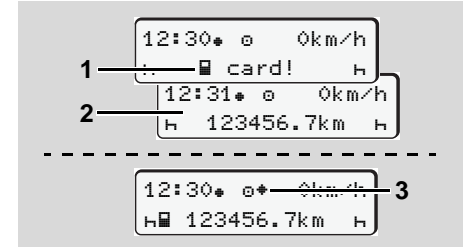
Display after ignition on/off

Ignition on: If there is no tachograph card in card slot 1, this note **(1)** will appear for approximately 20 seconds and then the standard display **(2)** will appear.

Ignition off: Symbol **(3)** indicates that the IMS function is available.
(IMS = Independent Motion Signal)

2

2

► Standard display(s)

```
      1    2    3
  ┌─────────────────────┐
  │ 12:50⋆  ⊙   75km/h  │──── a
  │ ⊙▯ 123456.7km  ▮⊡  │
  └─────────────────────┘
    4 5    6        7 8

      1          2
  ┌─────────────────────┐
  │ 1⊙01h21  ▮▮00h15    │──── b
  │ 2⊡02h05             │
  └─────────────────────┘
             3
```

VDO Counter *   1

```
  ┌─────────────────────┐
  │ VDO       ⊙▸03h09   │──── c
  │ ▸▸00h30             │
  └─────────────────────┘
             2        Rel. 2.0
```
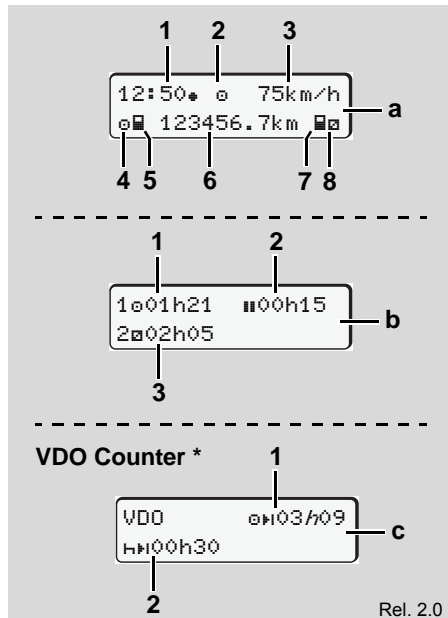
Standard displays during trip
- Rel. 1.4: automatically back to (a)
- Rel. 2.0: individually possible (a), (b) or (c)

As soon as the vehicle starts moving and no message is displayed, the previously set standard display appears automatically.

By pressing any menu key, you can also switch over to the standard display **(a)**, **(b)** or **(c)**.

Rel. 1.4: The DTCO 1381 switches automatically back to the standard display (a).

Standard display (a):

(1) Time
with symbol "⋆"   = Local time
without symbol "⋆" = UTC time
(2) Symbol of the operating mode "Operational"
(3) Speed
(4) Activity, driver 1
(5) Card symbol, driver 1
(6) Total odometer
(7) Card symbol, driver 2
(8) Activity, driver 2

Standard display (b):

(1) Driving time "⊙" of Driver 1 since a valid break time.
(2) Valid break time "▮▮" in cumulative break periods of at least 15 minutes followed by 30 minutes, in accordance with regulation (EU) no. 561/2006.

(3) Times of driver 2:
Current activity availability time "⊡" and duration of activity.

☞   If the driver card is missing, times which are assigned to the respective card slot "1" or "2" will appear.

Option: VDO Counter * (c)

(1) Remaining driving time "⊙▸"
("*h*" flashes = this part of the display is currently active).
(2) Next valid break time / daily or weekly rest period "▸▸".
➥ *For more details, see "VDO Counter *" from page 50.*

► Data display when the vehicle is stationary

When the vehicle is not moving and driver card is inserted, you can call up other data of the driver card.
➥ *Refer to "Calling up menu functions" on page 48.*

▶ Display of messages

Regardless of which display currently appears or whether the vehicle is moving or stationary, messages will be displayed with priority.
➥ *Refer to "A message appears" on page 66.*

▶ Production status
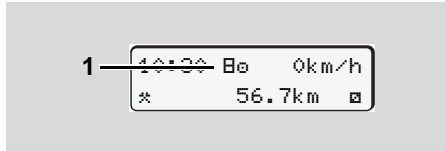
Display of production status

If the DTCO 1381 has not yet been activated as a recording device, then "Production status", symbol "🗓" **(1)** will appear. The DTCO 1381 will not accept any tachograph cards except the workshop card.

> ⚠ **Please make sure that the DTCO 1381 is immediately and properly brought into operation by an authorised workshop.**

▶ Out of scope
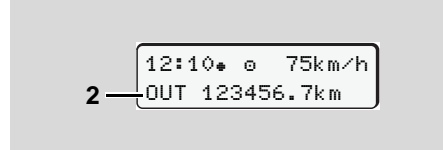
Standard display (a): Out of Scope display

The vehicle is driving outside the scope of the regulations, symbol "OUT" **(2)**.

You can set this function through the menu.
➥ *Refer to "Enter Out beginning / end" on page 61.*

The following journeys may be outside of the scope of application:

- Journeys on non-public roads.
- Journeys outside of EU countries.
- Journeys where the vehicle does not require use of the DTCO 1381 in accordance with the regulations.

By pressing any menu key, you can switch over to the standard display **(b)** or **(c)** *,
➥ *see page 18.*

▶ Ferry transfer or train transfer
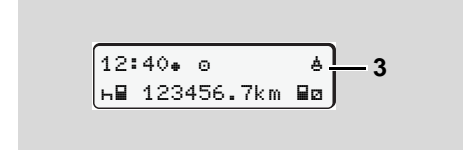
Standard display (a): Display of ferry transfer or train transfer

The vehicle is located on a ferry or on a train, symbol "⛴" **(3)**.

You can set this function through the menu.
➥ *Refer to "Enter Beginning of ferry / train" on page 61.*

☞ Please ensure that this function and its current activity are set during the transport.

By pressing any menu key, you can switch over to the standard display **(b)** or **(c)***,
➥ *see page 18.*

2

2

▶ **Behaviour during low voltage / overvoltage**

1 ── `12:10.  ⊙÷ 45km/h`
      `⊙▣ 123456.7km ▣▱`

2 ── `12:10.  ⊙⚡ 45km/h`
      `⊙▣ 123456.7km ▣▱`

3 ── `12:10▾  ÷`
      `   123456.7km`
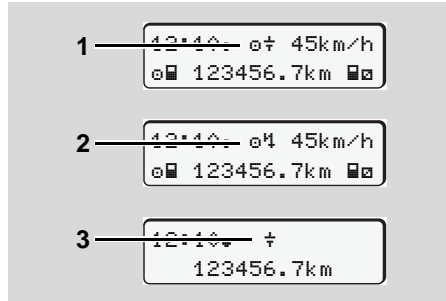
Standard display (a): Fault in the supply voltage

If the supply voltage of the DTCO 1381 is too low or too high, an indication is shown in the standard display **(a)** as follows.

Case 1: "⊙÷" **(1)** Low voltage or ...
Case 2: "⊙⚡" **(2)** Overvoltage
The DTCO 1381 continues to save activities. The functions printing or display of data and the insertion or withdrawal of a tachograph card are not possible!

Case 3: "÷" (3)
This case corresponds to a power interruption. The standard display (a) appears automatically. The DTCO 1381 cannot fulfill its role as a recording device! The driver's activities will not be recorded.

▶ **Power interruption**

1 ── `xx.xx.xx`
2 ── `SWUM xx.xx`
      `!÷ power-`
      `interruption  xx`
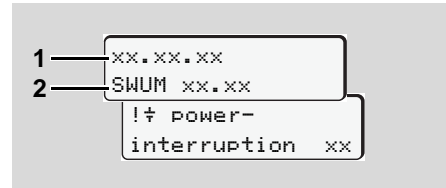
Display of the "Power interruption" message

As soon as the voltage is present again, the version of the user software **(1)** and the version of the software upgrade module **(2)** will appear for approximately 5 seconds.

Then the DTCO 1381 indicates "Power interruption".

⚠ If, with correct on-board voltage, the symbol "÷" is displayed permanently, please contact an authorised workshop.
When the DTCO 1381 is defective, you are obligated to note activities with handwritten entries.
➥ *Refer to "Handwritten activity entries" on page 36.*

"Company" mode

Functions of the company card

Company card insertion

Prepare data download

Company card withdrawal

3

■ Functions of the company card

⚠ The company takes care for the correct use of the company card(s).

Please observe the legal stipulations applicable in your country!

The company card identifies the company and registers it into the DTCO 1381, the first time that the card is inserted. Thus, the access rights to the data assigned to the company will be ensured.

The inserted company card authorises you:

● To lock-in and lock-out the company when using this DTCO 1381, for example on sale of the vehicle, expiry of the vehicle lease etc.

● If necessary (one time), the entry of the member state and the vehicle registration number of the vehicle.

● To access data from the data memory and, especially data that has been assigned specifically to this company.

● Access to data from an inserted driver card.

● To display, print out or download data via the download interface.

☞ The company card is designed for the data management of the company only and must not be used for driving! If the company card is used for driving, a message will be displayed.

Downloading of data at regular intervals is compulsory in most member states. In the following situations download of data from the data memory is also recommended:

● Sale of the vehicle,

● Immobilisation of the vehicle,

● Replacement of a defective DTCO 1381.

▶ **Menu functions in the "company" mode**

In principle, follow the same procedure when navigating in the menu functions.
➡ *Refer to "Calling up menu functions" on page 48.*

If, however, the company card is in card slot 2, all main menus assigned to card slot 2 will remain blocked.
➡ *Refer to "Menu access blocked!" on page 51.*

In this case, you can only display, print out or download data from a driver card inserted in card slot 1.
➡ *Refer to "Overview of the menu structure" on page 52.*
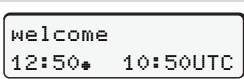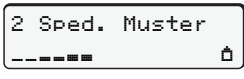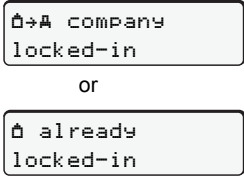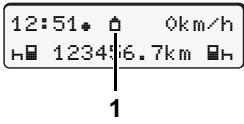
■ Company card insertion
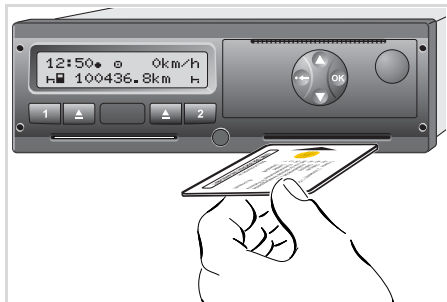
Insert company card

1. Turn on the vehicle's ignition.
   (Required only for ADR variant *.)

2. Insert your company card (with the chip facing upward and the arrow pointing forward) into any card slot.

☞ The company card determines the language of the display. As an alternative, you can individually set a preferred language.
➥ *Refer to "Setting the language" on page 49.*

Step / menu display	Explanation / meaning
3. welcome 12:50◆ 10:50UTC	Greeting text: The set local time "`12:50◆`" and the UTC time "`10:50UTC`" will appear for approximately 3 seconds (time offset = 2 hours).
4. 2 Sped. Muster ――――■■ ◻	The name of the company appears. A progress bar indicates that the company card is being read. If required, the DTCO 1381 may order you to enter the vehicle registration number. ● Select "**Yes**" and confirm with the button ⊛, ➥ *see page 24.*
5. ◻→▲ company locked-in or ◻ already locked-in	If the company card is inserted the first time, the company will automatically be locked-in the DTCO 1381. The company lock function is activated. Thus, the protection of company-specific data is ensured!
6. 12:51◆ ◻ 0km/h ዞ▤ 1234⌷6.7km ▤ዞ **1**	After reading is complete, the standard display will appear. The DTCO 1381 is in the "Company" mode, symbol "◻" **(1)**.

3

3

▶ **Enter vehicle registration number**

Step / menu display	Explanation / meaning
1. ⌨ enter Vehicle / Reg. Number? *yes*	If the next query appears, • select "**Yes**" and confirm.
2. Country: D / VS W*M*	• Select and acknowledge the country. First character field to be entered is shown by a flashing cursor "**_**". • Select and confirm desired character. • Repeat process, maximum 13 positions.
3. Country: D / VS WM 877 _	• In the event that fewer characters are required, press and hold the key ⊕, until the last character field is flashing. • Confirm entry once again with the key ⊕.
4.	A technical data printout takes place automatically.
5. ⌨ confirm Veh. / Reg. Number? *no*	• **Please verify your entry!** • Select "**Yes**" and confirm. If the registration number is wrong, select "**No**" and confirm. Step 1 appears, repeat the entry.

Note: The entry of the vehicle registration number is a one-time entry. Any changes can only be made by an authorised workshop.

Entry:
Use the buttons ⊙ or ⊙ to select the desired function and confirm your selection with the ⊕ button.

Correct the entry:
Gradually navigate back to the previous position with the key ⊖ and repeat the entry(ies).

Printout: Technical data
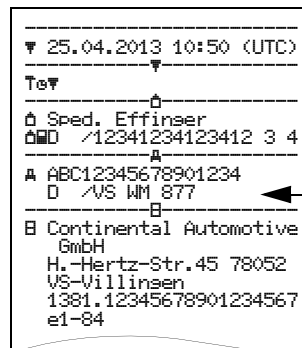
```
---------------------------
▼ 25.04.2013 10:50 (UTC)
----------▼------------
T⊙▼
----------⌂------------
⌂ Sped. Effinger
⌂▣D  /12341234123412 3 4
----------A------------
⌨ ABC12345678901234
  D  /VS WM 877
----------B------------
B Continental Automotive
  GmbH
  H.-Hertz-Str.45 78052
  VS-Villingen
  1381.12345678901234567
  e1-84
```

■ Prepare data download

STOP	**Danger of explosion** Please observe the instructions for transport and handling of hazardous materials in explosion-risk environments. **When loading and unloading hazardous materials ...** ● **the covering cap (1) must be closed** ● **and no data may be downloaded.**
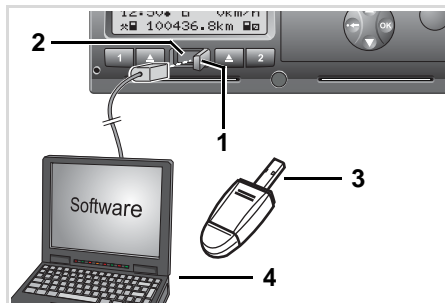
Connection to download interface

1. Open the covering cap **(1)** to the right.
2. Connect the Laptop **(4)** with the download interface **(2)**.
3. Start the reading software.
4. Or insert the download key **(3)** into the download interface.

Standard display (a): Identification Data transmission running

The symbol **(5)** appears during the data transmission.

☞ Do not under any circumstances interrupt the connection to the download interface. Leave the ignition on with an the ADR variant *.

5. After downloading the data, make sure you always close the covering cap **(1)**.
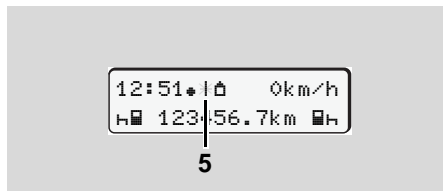
Data identification

Before the data is downloaded, the DTCO 1381 will attach a digital signature (identification) to the copied data. With this signature, the data can be assigned to the DTCO 1381 and permit checking of the data's completeness and authenticity.

Remote download *

With a fleet management system, data can also be downloaded remotely following authentication of a company card.

📖 For detailed information about the reading software, please refer to the appropriate documentation.

3

■ Company card withdrawal
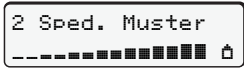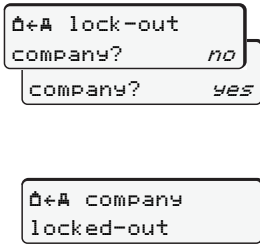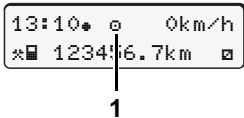
☞ You can only withdraw the company card from the card slot when the vehicle is not moving!
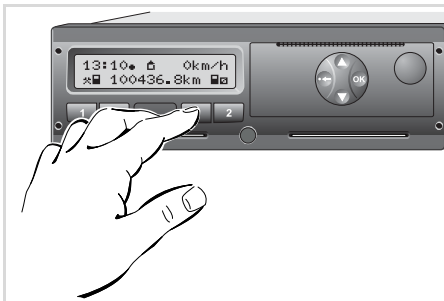
Request company card

1. Turn on the vehicle's ignition.
(Required only for ADR variant *.)

2. Press the appropriate ejection button ▲ of the card slot in which the company card is located.

Step / menu display	Explanation / meaning
3. `2 Sped. Muster _____▇▇▇▇▇▇▇ ⌂`	The name of the company appears. A progress bar shows that the DTCO 1381 is transferring data to the company card.
4. `⌂←🄰 lock-out company?        no` `company?       yes` `⌂←🄰 company locked-out`	**No company Lock-out** ● Use the buttons ▲ / ▼ to select "**No**" and acknowledge with the button ⊙. **Company Lock-out** ● Select "**Yes**" and acknowledge with the button ⊙. The company lock function is deactivated. The saved data of your company remains, but are locked out for any other company!
5. `13:10 ⊙   0km/h ⊠ 12345 6.7km  ⊠` **1**	The company card is released; the standard display appears. As applicable, a notice may appear that the periodical inspection is pending or the validity of the company card is expiring, ➥ *see page 76.* The DTCO 1381 is in the "Operational" mode again, symbol "⊙" **(1)**.

☞ **Please note:** The ejection from card slot 2 is blocked if the printer drawer is open! This will be indicated by an operational note.

Operational mode

Inserting driver card(s)

Setting activities

Downloading driver card data

Withdrawing driver card(s)

Driver/vehicle change during operation

4

■ Inserting driver card(s)
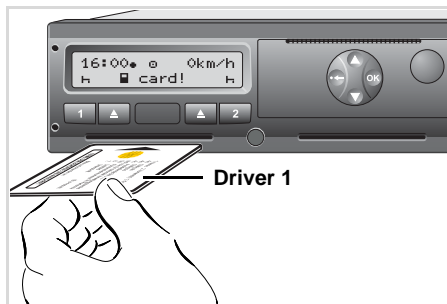
Operational note after ignition on: Driver card in slot 1 missing.

> ⚠ **In accordance with responsible driving behavior as described in the EU regulations and in the general interest of traffic safety, please do not attempt to insert the driver card(s) while the vehicle is in motion!**

It is possible to insert the driver card while the vehicle is moving, but this will be shown and saved as an event!
➥ *Refer to "Overview of the events" on page 68.*

1. Turn on the vehicle's ignition. (Required only for ADR variant *.)

2. **Driver 1**, who will drive the vehicle, inserts his driver card (with the chip facing upward and the arrow pointing forward) into card slot 1.

3. The subsequent procedure is menu-guided, ➥ *see page 29.*

4. As soon as the driver card of driver 1 has been read in, **driver 2** inserts his driver card into card slot 2.

Remark
Menu guidance is carried out in the language stored on the driver card. As an alternative, you can individually set a preferred language.
➥ *Refer to "Setting the language" on page 49.*

▶ **Manual entries**

> ⚠ According to the EU regulations, activities, which cannot be registered on the driver card, are to be added by means of manual entry. (For details on activities, ➥ *see page 35.*)

Withdrawal (15.04.2013)   Insertion (18.04.2013)
16:31 Local time   07:35 Local time
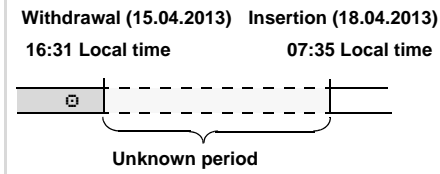
Unknown period

Example of unknown period

The following entry scenarios are possible after each time the driver card is inserted:

● Add activity rest period "⊢"; example 1, ➥ *see page 32.*

● Continue work shift; example 2, ➥ *see page 33.*

● Continue, end a work shift and/or prefix activities to a work shift; example 3, ➥ *see page 34.*   ⇨⇨

Fundamental course of action

● Select the desired function, activity or numeric value with the keys ⬆ / ⬇ in the entry field.

● Confirm your selection with the button 🆗 .

1.
```
welcome
07:35⬆  05:35UTC
```
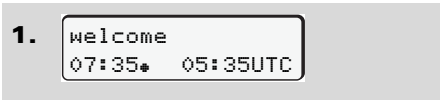
Greeting text: The set local time "07:35⬆" and the UTC time "05:35UTC" appear for approx. 3 seconds (time offset = 2 hours).

2.
```
1 Maier
----          ⊙
```
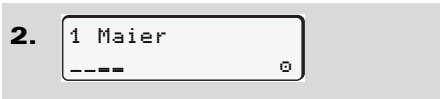
The driver's last name appears. A progress bar indicates that the driver card is being read.

3.
```
last withdrawal
15.04.13  16:31⬆
```
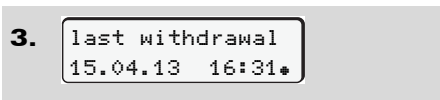
The date and time of the most recent card withdrawal will be displayed in local time (symbol "⬆") for approximately four seconds.

4.
```
1M entry
addition?      no
    addition?     yes
```
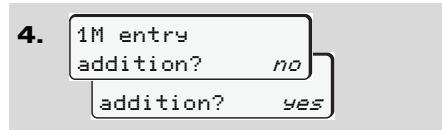
● If you do not want to add **any activities**, select "**No**"; for more options see step 9.

● By selecting "**Yes**", you request DTCO 1381 to make manual inputs.

5.
```
M 15.04.13 16:31
⊢ 18.04.13 07:35
```
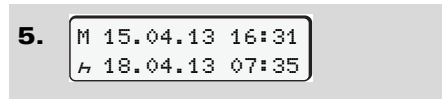
"M" = Manual entry;
"⊢" = Entry field of the activity is flashing

The period between removal (1st line) and current insertion (2nd line) in local time appears.

6.
```
M 15.04.13 16:31
⊠ 16.04.13 07:35
   ⊠ 16.04.13 09:35
```
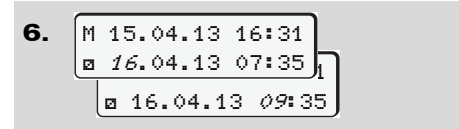
2nd line = entry block

You can successively enter the logically possible variables (flashing entry fields) in the following order:
"*Activity – Day – Month – Year – Hour – Minute*".
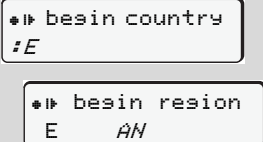
The process ends when the time of the insertion operation is reached.

7.
```
1M confirm
entry?        yes
   entry?         no
```
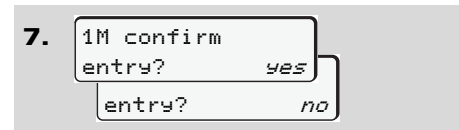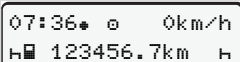
● Confirm entry with "**Yes**".

● Select "**No**".
  ➥ *Refer to "Correction possibilities" on page 30.*

⇨⇨

4

The following request appears when an "end country" was entered at the last withdrawal.

8.
```
•|▶ begin country
:E
```
```
•|▶ begin region
  E    AN
```

4

- Select and acknowledge the country.
- If required, select and acknowledge the region.
- You can abort the entry of a country with the button ⊖.

9.
```
07:36• ⊙   0km/h
H▪ 123456.7km  H
```

The standard display **(a)** appears. Symbols of the card symbol which are displayed before have the following meaning:

- "▬" The driver card is in the card slot.

- "▪" You can start the journey, relevant data are read in.

☞ While the driver card is being read, some functions are not possible.
  - Calling up menu functions
  - Requesting a tachograph card

If a menu button or the ejection button is pressed, a message will be displayed.
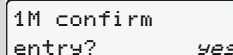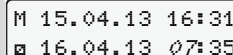
```
please wait!
```
or
```
4▪ ejection not
possible      xx
```

▶ **Correction possibilities**

You can select and correct the possible variables with the key ⊖ (backspace) directly in the entry block.

In the event that you do not accept the entries at query "M confirm entry?", first step 4 appears and subsequently the first entry block (step 5) requires to be completed.

4.
```
1M confirm
entry?        yes
```

5.
```
M 15.04.13 16:31
⊠ 16.04.13 07:35
```

You can only successively correct the possible variables.

☞ When pressing and holding key ⊛, you will jump to the next entry field or to the next complete entry block, respectively.

▶ Country entry during manual entry

1.
```
M 28.10.13 17:45
ᴴ 07.11.13 14:00
ᴹ●? end country
ᴹ●? end country
:D
```

- Select and acknowledge the symbol "ᴹ●? end country" in the first entry field "ᴴ". (Only possible if no "End country" was entered during the last withdrawal.)
- Select and acknowledge the country.

Or:

2.
```
M 07.11.13 12:10
ᴴ 07.11.13 14:00
●ᴵᴴ? bes. country
●ᴵᴴ? bes. country
:A
```
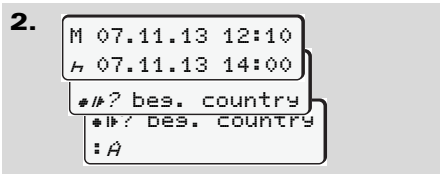
- Select and acknowledge the symbol "●ᴵᴴ? bes. country".
- Select and acknowledge the country.

Selecting the countries

The most recently entered country appears first. By pressing the buttons ⊙ / ⊙ , the four most recently entered countries will appear. Symbol: Colon in front of the country symbol ":B".

Further selection is made in alphabetic order starting with letter "A":

- using key ⊙ A, Z, Y, X, W, ..., etc.;
- using key ⊙ A, B, C, D, E, ..., etc.
- ➥ *Refer to "Country symbols" on page 89.*

☞   Pressing and holding down the keys ⊙ / ⊙ will accelerate the selection (auto-repeat function).

▶ Aborting the entry procedure

If no entry is made during the entry procedure, the following display will appear after 30 seconds.

```
ᴹ⊻ please
enter
```
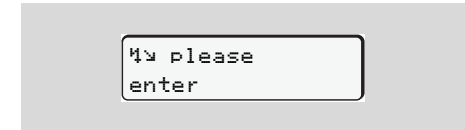
If the button ⊛ is pressed within an additional 30 seconds, then the entry can be continued.

After this time or when driving commences, the driver card will be read to completion and the standard display **(a)** will appear. The DTCO 1381 saves any entries that have already been acknowledged with the button ⊛.

Rel. 2.0: Aborting the manual entry procedure by requesting the driver card.
➥ *Details refer to "Card withdrawal during manual entry (from Rel. 2.0)" on page 38.*

4

4

▶ **Add "Rest period" activity**

Withdrawal to insertion manual entry operation

①

```
last withdrawal
15.04.13  16:31.
```

Confirm activity

```
1M entry
addition?     yes
```

```
M 15.04.13 16:31
ʰ 18.04.13 07:35
```
```
M 15.04.13 16:31
ʰ 18.04.13 07:35
```

①

```
1M confirm
entry?        yes
```

```
.ıⱶ begin country
:D
```
1)

```
07:36. ⊙    0km/h
ʰ▪ 123456.7km  ʰ
```

1) Appears when "End country" was
entered during the last withdrawal.

Example 1:

Withdrawal (15.04.13)   **Insertion (18.04.13)**
16:31 Local time   **07:35 Local time**

```
⊙        ʰ
```

Add rest period
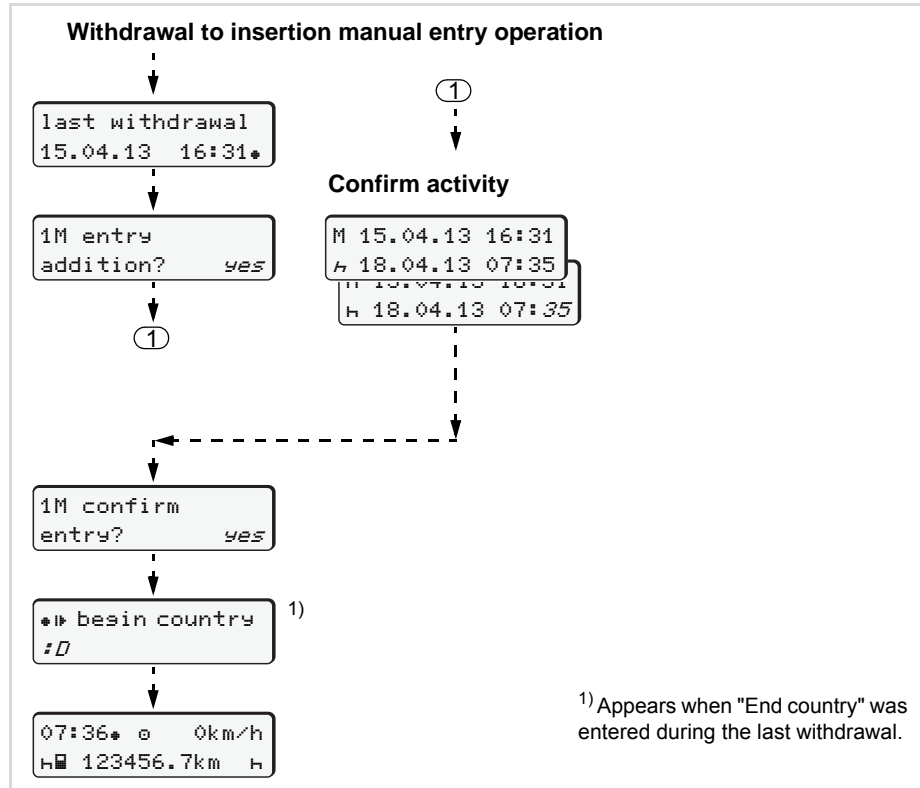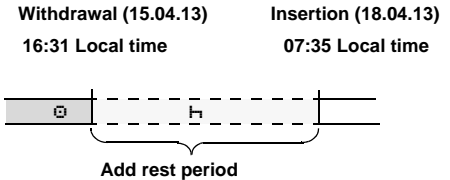
Please note: Entry takes place in local
time.

1. Press and hold key ⓞ.

2. Automatically jumps to the last entry
field (minutes flash).

3. Confirm entry with key ⓞ.

4. Follow the menu guidance.
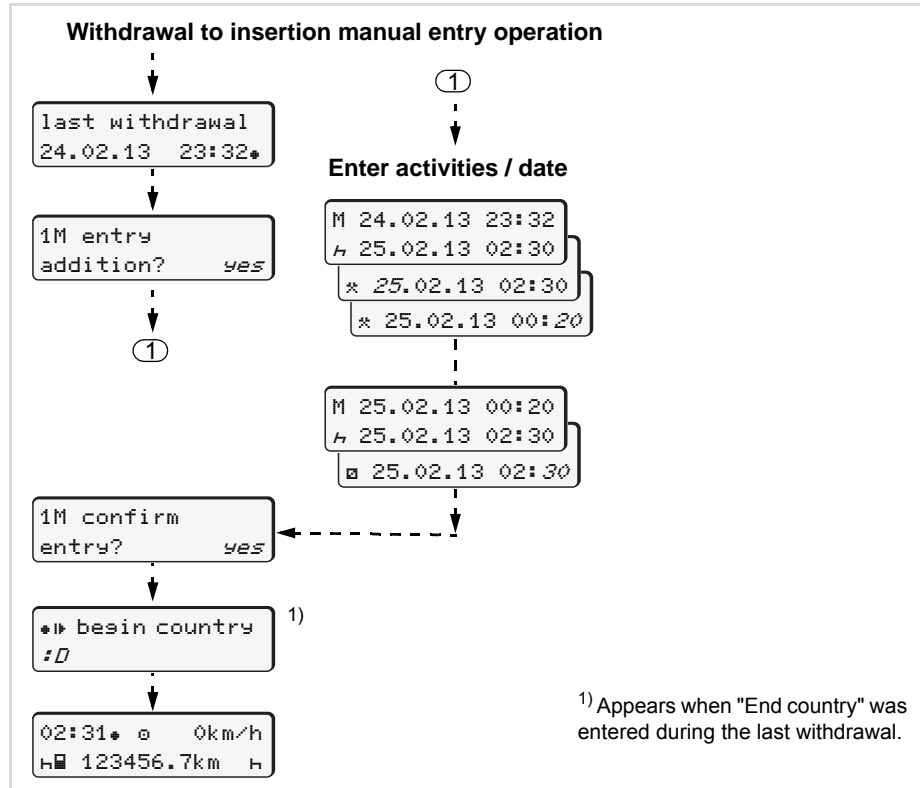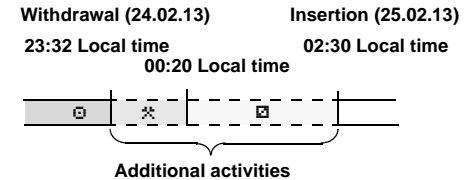
► **Continuing the work shift**

Withdrawal to insertion manual entry operation

```
last withdrawal
24.02.13   23:32●
```

```
1M entry
addition?      yes
```

①

Enter activities / date

```
M 24.02.13 23:32
ⱨ 25.02.13 02:30
```
```
ⱷ 25.02.13 02:30
```
```
ⱷ 25.02.13 00:20
```

```
M 25.02.13 00:20
ⱨ 25.02.13 02:30
```
```
⊠ 25.02.13 02:30
```

```
1M confirm
entry?         yes
```

```
●ⱷ begin country
:D
```
1)

```
02:31● ⊙    0km/h
ⱨ▣ 123456.7km  ⱨ
```

1) Appears when "End country" was entered during the last withdrawal.

Example 2:

Withdrawal (24.02.13)   Insertion (25.02.13)
23:32 Local time   02:30 Local time
            00:20 Local time

Additional activities

4

Please note: Entry takes place in local time.

1. Set and confirm first activity "ⱷ".
2. Set and confirm the day, set and confirm hours, set and confirm minutes.
3. Set and confirm second activity "⊠".
4. Press and hold key ⊛, until the minutes flash.
5. Confirm entry with key ⊛.
6. Follow the menu guidance.

► **Continuing the work shift and prefixing activities to a work shift**

Withdrawal to insertion manual entry operation

```
last withdrawal
05.11.13 17:50*
```

```
1M entry
addition?      yes
```

①

Enter activities / date

```
M 05.11.13 17:50
⊢ 14.11.13 14:00
  * 05.11.13 18:45
⊬* ? end country
```

Enter country [1]

```
⊬*? end country
:D
```

```
M 05.11.13 18:45
⊢ 14.11.13 14:00
  ? 14.11.13 12:10
M 14.11.13 12:10
*⊮? bes. country
```

```
*⊮? bes. country
:A
```

```
M 14.11.13 12:10
⊢ 14.11.13 14:00
  ⊠ 14.11.13 14:00
```

```
14:01* ⊙   0km/h
⊢▣ 123456.7km  ⊢
```
⭠
```
1M confirm
entry?         yes
```

[1] Only possible if no "End country" was entered during the last withdrawal.

Example 3:

Withdrawal (05.11.13)   Insertion (14.11.13)
17:50 Local time   14:00 Local time

18:45   12:10

Prefixing activities

End of shift

Additional activity   Start of shift

Please note: Entry takes place in local time.

1. Set and confirm first activity "*" with date, time.

2. If applicable, select and acknowledge the symbol "⊬*? end country".

3. Select and acknowledge the country.

4. Set and confirm activity "?" = unknown time with date, hour.

5. Follow the same procedure until the time entries of the insertion-withdrawal process has been completed.

■ Setting activities

⊙ = Driving time (automatic when driving)

⁎ = Other work time

⊠ = Availability (waiting time, co-driver time, driver 2 sleeper-cab time during a journey)

⊢ = Break times and rest periods

▶ Manual setting

☞ The activities may be set only if the vehicle is stationary!
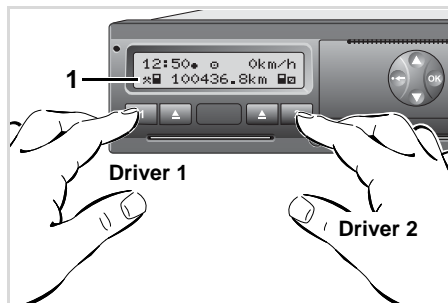
Setting activitiy

1. **Driver 1** presses the button **1**, The standard display **(a)** appears.

2. Continue pressing the button until the desired activity (⊢ ⊠ ⁎) appears in the display **(1)**. After aprox. 5 seconds, the previous display appears.

3. **Driver** 2 presses the button **2**.

Note

Rel. 1.4: An activity change is only possible in the standard display **(a)**.

▶ Automatic setting

The DTCO 1381 switches automatically to the following activities:

for ...	Driver 1	Driver 2
Driving	⊙	⊠
Vehicle stop	⁎	⊠

⚠ At the end of a shift or at the start of a break, **always** set the activity to "⊢". This will ensure that the VDO Counter * provides an accurate calculation.

▶ Automatic setting after ignition on/off *

After ignition on/off, the DTCO 1381 can be configured to switch to a defined activity; for example "⊢".

The activity **(1)** and/or **(2)** which changes automatically on the basis of ignition on or off, appears in the standard display **(a)** and flashes for approx. 5 seconds. Then, the previous display will appear again.
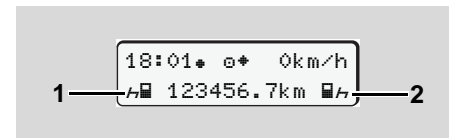
Flashing of the activity(ies) in the standard display (a)

☞ As necessary, change the set activity according to your current task.

⇨⇨

4

Note

Which activity is triggered automatically by
the DTCO 1381 on switching the ignition
on / off can be programmed according to
the customer's wishes by an authorised
workshop; ➥ *see page 112.*

4

▶ **Handwritten activity entries**

According to the directive, you (as driver)
are obligated to note activities with
handwritten entries in the following cases:

● When the DTCO 1381 is defective.

● If the driver card is lost, stolen,
  damaged, or if the driver card
  malfunctions, a daily printout from the
  DTCO 1381 must be generated at the
  beginning and end of the journey. If
  necessary, you must insert the
  availabilty and other working times by
  handwritten entries.

The rear side of the paper roll can be used
to make handwritten entries **(2)** of your
activities and to complete the printout by
personal information **(1)**.

Handwritten activity entries

Personal information

⊙   First and last name

⊙▤   Number of the driver card or the
       driving licence

No.   Vehicle registration number

▪▸   Location at the beginning of the
       shift

▸▪   Location at the end of the shift

▸km   Odometer reading at the end of the
       shift

km▸   Odometer reading at the beginning
       of the shift

km   Kilometres travelled

Dat. Date

Sig. Personal signature

⚠ Please observe the legal
  stipulations applicable in your
  country!

■ Downloading driver card data

Danger of explosion

Please observe the instructions for transport and handling of hazardous materials in explosion-risk environments.

When loading and unloading hazardous materials ...

- **the covering cap (1) must be closed**
- **and no data may be downloaded.**
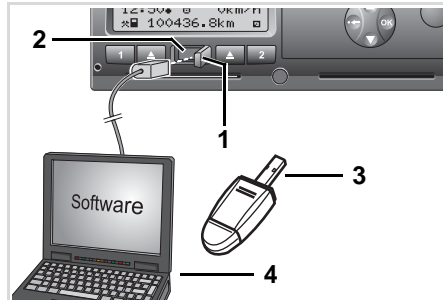
Connection to download interface

☞ Please make sure that only one driver card is inserted! Otherwise there will be no transfer of data.

1. Open the covering cap **(1)** to the right.
2. Connect the Laptop **(4)** with the download interface **(2)**.
3. Start the reading software.
4. Or insert the download key **(3)** into the download interface.

Standard display (a): Identification Data transmission running

The symbol **(5)** appears during the data transmission.

☞ Do not under any circumstances interrupt the connection to the download interface. Leave the ignition on with an the ADR variant *.

5. After downloading the data, make sure you always close the covering cap **(1)**.
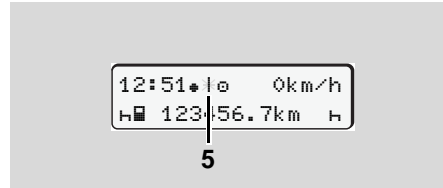
Data identification

The copied data are provided with a digital signature (identifier). With this signature, the data can be assigned to the driver card and permit checking of the data's completeness and authenticity.

📖 For detailed information about the reading software, please refer to the appropriate documentation.

4

■ Withdrawing driver card(s)

⚠ In principle, the driver card can remain in the card slot at the end of the work shift – please enter the activity "ⱶ".
However, when the driver or vehicle is changed, the driver card should generally be withdrawn from the card slot.
➥ *Refer to "Driver/vehicle change during operation" on page 40.*

☞ You can withdraw the driver card from the card slot only when the vehicle is not moving!
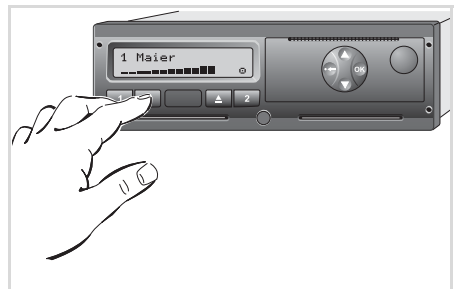
Driver card request

1. Turn on the vehicle's ignition. (Required only for ADR variant *.)
2. Enter the corresponding activity; for example, at the end of the work shift to "ⱶ".
3. Press the ejection button ▲ for card slot 1 or card slot 2. The subsequent procedure is menu-guided,
➥ *see page 39.*

☞ The ejection from card slot 2 is blocked if the printer drawer is open! This will be indicated by the following operational note.
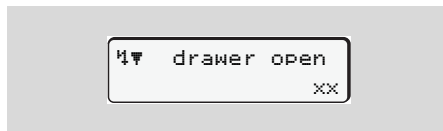
As soon as you close the printer drawer, the ejection will be started.

Card withdrawal during manual entry (from Rel. 2.0)
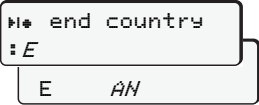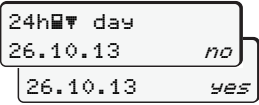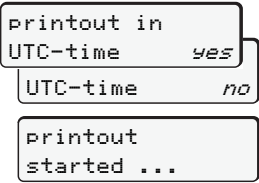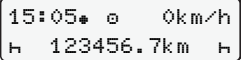
1. Press the corresponding ejection button ▲.
2. Select and acknowledge the following queries with "**No**".
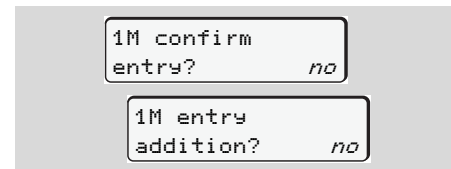
3. Continue, ➥ *see page 39.*

The manual entry is aborted, the DTCO 1381 saves the activity "?" for the unknown period.

▶ **Menu guidance after withdrawing driver card**

Step / menu display	Explanation / meaning	
1. `1 Maier` `__---_-■■■■■  ☺`	The driver's last name appears. A progress bar shows that the DTCO 1381 is transferring data to the driver card.	
2. `▶• end country` `:E` `E    AN`	• Select and acknowledge the country. • If required, select and acknowledge the region. • Use button ⊟ to abort the entry of a country if you, for example, want to continue your work shift.	Use the buttons ▲ or ▼ to select the country and confirm your selection with the ⊛ button.
3. `24h■▼ day` `26.10.13    no` `26.10.13    yes`	• Select "**Yes**" and acknowledge if you need a printout, otherwise acknowledge "**No**".	
4. `printout in` `UTC-time    yes` `UTC-time    no` `printout` `started ...`	• Acknowledge "**Yes**" if you want the printout in UTC-time (required by law). • If you select "**No**" and acknowledge, you will receive a printout in „Local time". When the function is selected, the continuation of the action will appear in the display.	**Rel. 1.4:** Function not available.
5. `15:05♦ ☺  0km/h` `⊦ 123456.7km ⊦`	The driver card is released; the standard display **(a)** appears.	As applicable, a notice may appear that the periodical inspection is pending or the validity of the driver card is expiring, ➥ *see page 76.*

4

■ Driver/vehicle change during operation
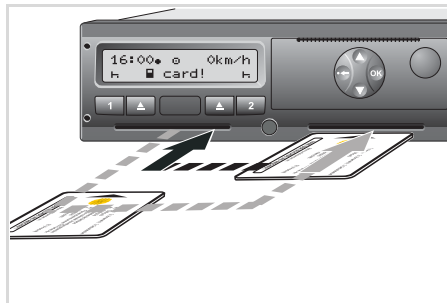
Exchanging driver card(s)

4

Case 1:
The crew exchanges positions, driver 2 becomes driver 1

1. Withdraw the driver cards from their re-spective card slots and exchange them by inserting them into the other card slots.
   Driver 2 (**now driver 1**) first inserts his driver card into card slot 1 and driver 1 (**now driver 2**) inserts his driver card into card slot 2.
2. Set the desired activity.

Case 2:
Driver 1 and/or driver 2 leave the vehicle

1. The driver who is leaving the vehicle requests his driver card, generates a daily printout, if necessary, and takes the driver card out of the DTCO 1381.
2. The new vehicle crew insert their new driver cards, depending on function (driver 1 or driver 2), into the card slots.

Case 3 – Mixed operation:
Vehicle usage with different tachograph types

- For example, analogue tachographs or ...
- Digital tachographs with driver card according to EC Regulation (EEC) no. 3821/85 annex I B, e.g. DTCO 1381.

During an inspection, the driver must be able to present the following items for the current day and for the previous 28 calendar days:

- the driver card **(1)**,
- the relevant daily printouts from the digital tachograph **(2)**, e.g., if the driver card is damaged or fails to operate properly,
- the charts covered with data **(3)**
- and, if necessary, handwritten information concerning the activities.
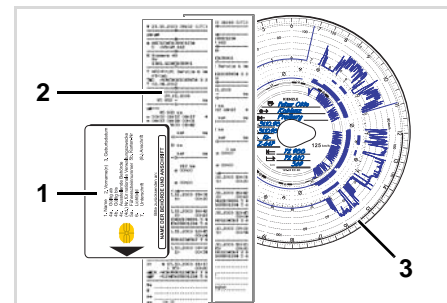
⚠ Please observe the legal stipulations applicable in your country!

▶ **Documents to be kept while driving**

Convalescence / Recreation holiday:

Pursuant to directive 2006/22/EC of the European Commission, the driver must have a certificate relating to the following circumstances over the previous 28 days:

● Period during which the driver was on sick leave.

● Period during which the driver was on holiday.

● Period for a journey which took place outside of the scope of application of Council Regulation (EC) No. 561/2006 or the AETR.

📖 You will find a printable version of the form on the Internet at: **ec.europa.eu**

ATTESTATION OF ACTIVITIES (¹)
(REGULATION (EC) No 561/2006 OR THE AETR (²))

To be filled in by typing and signed before a journey.
To be kept with the original control device records wherever they are required

False attestations constitute an infringement

Part to be filled in by the undertaking

1. Name of the undertaking: ....
2. Street address, postal code, city, country: ....
3. Telephone number (including international prefix): ....
4. Fax number (including international prefix): ....
5. E-mail address: ....

I, the undersigned:

6. Name and first name: ....
7. Position in the undertaking: ....

declare that the driver:

8. Name and first name: ....
9. Date of birth (day/month/year): ....
10. Driving licence or identity card or passport number: ....
11. who has started to work at the undertaking on (day/month/year): ....

for the period:

12. from (hour/day/month/year): ....
13. to (hour/day/month/year): ....
14. ☐ was on sick leave (*)
15. ☐ was on annual leave (*)
16. ☐ was on leave or rest (*)
17. ☐ drove a vehicle exempted from the scope of Regulation (EC) No 561/2006 or the A
18. ☐ performed other work than driving (*)
19. ☐ was available (*)
20. Place: ....   Date: ....

    Signature

1. I, the driver, confirm that I have not been driving a vehicle falling under the scope of Reg the AETR during the period mentioned above.

2. Place: ....   Date: ....

    Signature of the driver

Extract: Form sheet Activities
http://eur-lex.europa.eu/LexUriServ/LexUriServ.
do?uri=OJ:L:2009:330:0080:0081:EN:PDF

Abnormal cases:

Provided that road safety is not thereby jeopardised and to enable the vehicle to reach a suitable stopping place, the driver may depart from Drivers Hours rules to the extent necessary to ensure the safety of persons, of the vehicle or its load. The driver should indicate the reason for such departure at the latest on arrival at a suitable stopping place:

● manually on a chart

● printout from the DTCO 1381

● or in the duty roster.

4

4

Printer Handling

Insert paper roll

Printout of data

5

■ Insert paper roll

☞ **Please note!**
Use (order) only paper rolls (original VDO printer paper) on which is visible the following markings:

● Tachograph type (DTCO 1381) with approval mark "⌐⌐84"

● and approval marks "⌐⌐174" or "⌐⌐189".

Press the unlock button

1. Press the unlock button. The printer drawer opens.

🛑 **Danger of injury**
Depending on the volume of information printed, the thermal printing head may be very hot. You can burn your fingers!

Exercise caution when inserting the roll of paper or wait until the printing head has cooled.
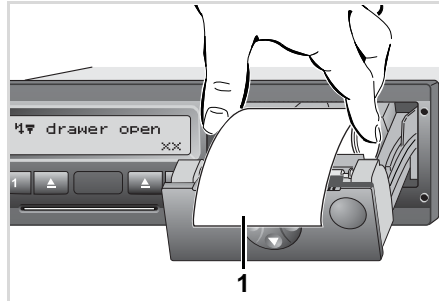
Insert paper roll

2. Insert new roll of paper as shown in the image above.

☞ Make sure that the paper roll does not become jammed in the printer drawer and the start of the paper **(1)** extends beyond the edge of the printer drawer!

3. Close printer drawer.
The printer will automatically start feeding the paper forward.

🛑 **Danger of injury**
Make sure that the printer drawer is always closed. You and other persons might be injured by an open printer drawer.

4. The printer is ready for operation.
You can start a printout or the interrupted printout (at the end of the paper roll) will be continued automatically.

5

■ **Printout of data**

► **Start printout**

☞ Printing is only possible when ...

- the vehicle is stationary and the ignition is switched on (required only for ADR variant *),
- the printer drawer is closed and a roll of paper is inserted,
- no other faults prevent printing.

```
24h▪▼ day
26.10.13       yes
```
1

```
▪▼ driver 1
!x▪▼ event
```
2

1. Either the menu guidance will command you to make a daily printout after "Withdraw driver card" **(1)**, or you request the corresponding printout through the menu **(2)**.
  ↳ *Refer to "Calling up menu functions" on page 48.*

2. Acknowledge the menu display with the ⊙ button.

3. **Rel. 2.0:** Select and acknowledge the printout type (UTC or local time).

4. The printout will start. Wait until the printout is complete.
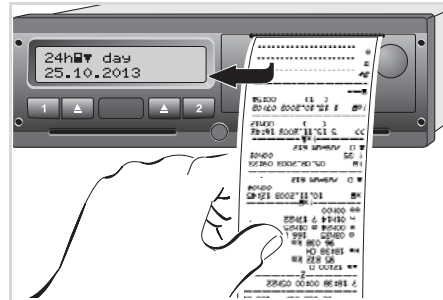
Tear off the printout from the paper roll

5. Pull the printout up and down over the cutting edge and then tear the printout from the roll of paper.

6. The printout should be kept clean and protected from dirt, strong light, and sunlight.

► **Cancel printout**

1. While the printout is running, press the button ⊙ and the following question will appear.

```
cancel
printout?      no
  printout?     yes
```
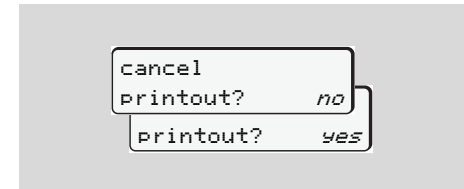
2. Use the buttons ▲ / ▼ to select the desired functions and confirm your choice with the button ⊙. The printout will be either continued or cancelled.

5

▶ **Things to note when printing**

● If the shift started before 00:00 UTC time, after "Withdrawing the driver card" the DTCO 1381 will automatically print the daily values of the previous day and the current day.

● You will see a coloured mark **(1)** on the rear side of the printout shortly before the paper roll is empty.

● When the paper roll is empty, you will see the following message.

```
╣┳o no paper
                    xx
```

● If a new roll of paper is inserted within one hour, the DTCO 1381 automatically continues the printout.

● A notice is given in the first two lines of the subsequent printout **(3)**.
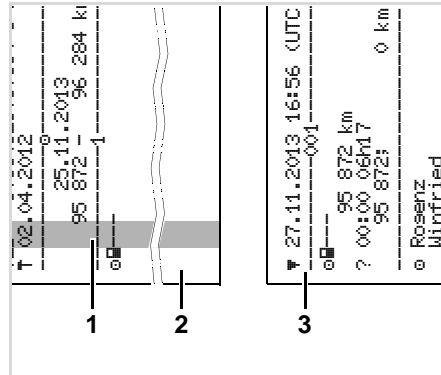
Continuing the printout at the end of the paper roll.

(1) Coloured mark (on the rear side)
(2) End of the interrupted printout
(3) Continuation of the interrupted printout
Line 1: Start time of printout
Line 2: The following printout counter

☞ Individual lines of the first printout may be repeated on the second printout!

▶ **Clear paper jam**

If a printout is not torn off properly, the paper may become jammed and then prevent the next printout from coming through the paper slot.

1. Open printer drawer.
➥ *Refer to "Insert paper roll" on page 44.*

2. Tear off any crumpled paper from the roll and remove any remaining bits of paper from the printer drawer.

3. Insert paper roll again and close printer drawer.

🛑 **Please observe the given warning messages!**
➥ *Refer to "Insert paper roll" on page 44.*

Menu functions

6

■ Calling up menu functions

```
        ⬦↑
   12:40. ⊙    0km/h         ──── a
   ⁂▪ 123456.7km ▪▫
   ───────────────────
   1⊙03h46    ▮▮00h15
   1⊙▮▮25h57   ⁂00h21
   ───────────────────
   2⊙01h10    ▮▮00h00
   2⊙▮▮15h00   ⁂00h21
   ───────────────────
   VDO        ⊙▸00h44        ──── *
   ▸▸11h00   +▸03h23
   ───────────────────
   VDO24h     ⊙▸02h00
   ▸▸11h00   +▸03h15
   ───────────────────
   UTC⊙ 29.09.2013
   10:40       +02h00
   ───────────────────
   select
   language?
   ───────────────────
   call main menu?
        ⬦↓
```
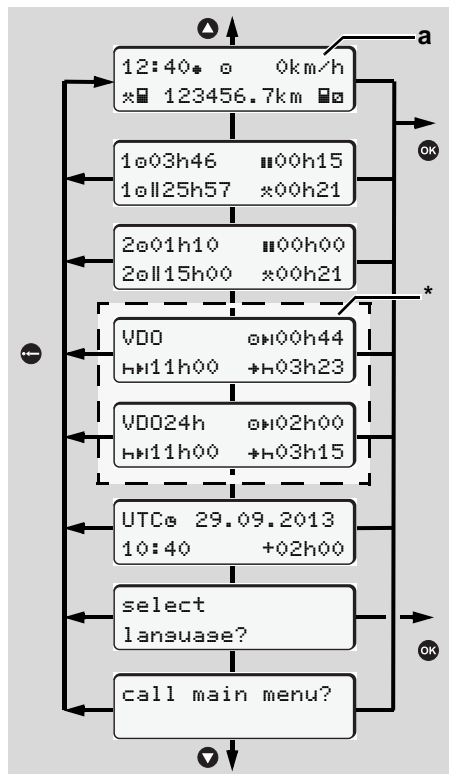
Navigating in the standard display

▶ **When the vehicle is stationary**

You can access the following information with the keys ⬦ / ⬦ within the first menu level.

● Detailed times of the inserted driver card(s).

● VDO Counter * information - daily and weekly driving, work, rest / break time planning and availability.
  ➥ *For more details, see "VDO Counter *" from page 50.*

● The UTC time with date as well as the set offset for the local time.

● The menu to set the desired language.
  ➥ *Refer to "Setting the language" on page 49.*

● Use the key ⬤ to return directly to the standard display **(a)**.

The extensive menu functions will appear when pressing the key ⊛.
➥ *Refer to "Overview of the menu structure" on page 54.*

▶ **Change of activities**

1. When pressing key **1** / **2**, the standard display **(a)** will appear.

2. If necessary, change the currently displayed activity. After 5 seconds, the DTCO 1381 switches back to the previously set display.

Rel. 1.4: An activity change is only possible in the standard display **(a)**.

▶ **Display at start of drive**

When driving commences, the most recently set standard display **(a)**, **(b)** or **(c)** appears.
➥ *Details refer to "Standard display(s)" on page 18.*

▶ **Displaying the times of the driver card**
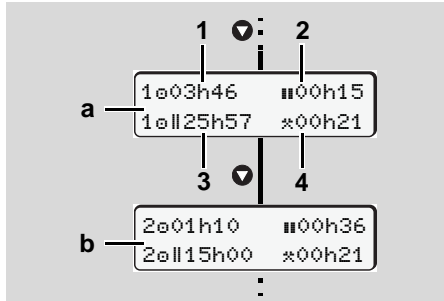
Data display of driver 1 and 2

(a) Times of driver 1
(b) Times of driver 2

(1) Driving time "⊙" of Driver 1 since a valid break time.
(2) Valid break time "‖" in cumulative break periods of at least 15 minutes followed by 30 minutes, in accordance with regulation (EU) no. 561/2006.
(3) Sum of driving times over two weeks
(4) Duration of the set activity

☞ If the driver card is missing, times (except for pos. 3) which are assigned to the respective card slot "1" or "2" will appear.

▶ **Setting the language**

☞ Observe the paragraph "Storing the language setting" so that the DTCO 1381 will temporarily memorise the desired language.

1. Use the buttons ▲ / ▼ to select the function "select language?" and press the button ⊙.
2. Use the buttons ▲ / ▼ to select the desired function and confirm your selection with the ⊙ button.
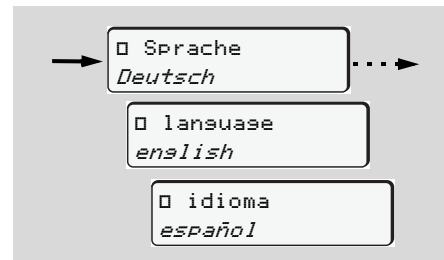
Select the desired language

3. The DTCO 1381 indicates the action for about three seconds in the selected language.

Storing the language selection

If, at the time of the language setting, only your driver card or company card is in the card slot 1, the DTCO 1381 memorises the preferred language for your card number.

When withdrawing / inserting the tachograph card again, the menu guidance as well as all displayed texts will be in the selected language.

The DTCO 1381 reserves up to five storage areas. If all storage areas are full, the oldest saved value will be overwritten.

■ VDO Counter *

⚠ **Please note!**
The VDO Counter * (from Rel. 2.0) computes driving times and rest periods on the basis of the Drivers Hours Regulations (EU) 561/2006. Country-specific social directives for driving times and rest periods as well as country-specific regulations related to working time are not taken into account. **The device makes no claim to a legal interpretation.** If applicable, this must be made by the driver himself.

☞ The following conditions are obligatory in order to analyse the data and display useful Drivers Hours information:

● Complete shift time activities, including manual entries to the driver card.
● Correct activity settings during the shift - no operational error. For example, unintentional setting of the work time activity "⁎" instead of a daily rest period "ʜ"!

● Entry of ferry/train special condition and the current activity.

▶ **Layout of the VDO Counter display**
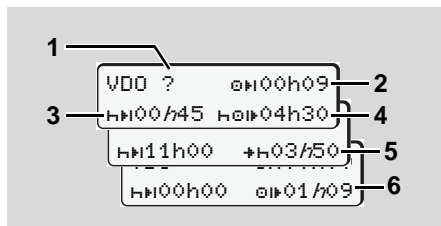
VDO Counter: Layout of the display

☞ The flashing "*h*" means that this part of the display is currently active.

(1) "?" = **User information**
Periods with unknown activity "?" or unsufficient data are recorded on the driver card (e.g. use of a new driver card). The VDO Counter evaluates unknown activities, as the activity "ʜ".

(2) Remaining driving time "ⓞʜ"
When driving, the display indicates remaining driving time available. (ⓞʜ00h00 = Driving time completed)

(3) Remaining break time "ʜʜ"
Duration of the next required break time / rest period. While the activity "ʜ" is set, the remaining break time will be counted down. (ʜʜ00h00 = break finished)

(4) Next available driving time "ʜⓞ⊩".
Duration of the available driving time after after completion of a required break / rest period.

(5) Latest start of the daily rest period "⁑ʜ"
For example, with the activity "⁎" being set, the remaining time until the start of your next required daily rest period is displayed.

(6) Beginning of the next driving time "ⓞ⊩"
You may begin the next driving period only after the end of this time.

▶ **Displays during trip**

> ⚠ Please observe the country-specific regulations related to working time!

Example 1:

```
VDO        ⊙�device02ℎ09─── 1
2 ──ꜱꜱ00h45
    ꜱꜱ00h30
```
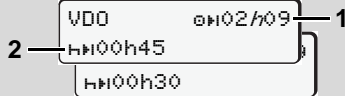
Activity "⊙"; "ℎ" = active display

(1) Remaining driving time.
(2) At the end of the driving time **(1)**, at the latest the duration of break (full or continuation of the cumulative break time) shown must be taken.

Example 2:

```
VDO        ⊙ꜱ02ℎ09─── 1
3 ──ꜱꜱ11h00
    ꜱꜱ09h00
```
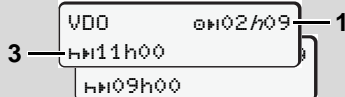
Activity "⊙"; "ℎ" = active display

(3) At the end of the driving time **(1)** at the latest, the legally stipulated rest period displayed must be taken. The rest period may be taken in two parts, the first at least 3 hours long and the second at least 9 hours long.

Example 3:

```
VDO        ⊙ꜱ02ℎ09─── 1
4 ──ꜱꜱ45h00
    ꜱꜱ24h00
```
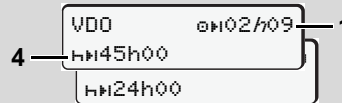
Activity "⊙"; "ℎ" = active display

(4) At the end of the driving time **(1)** at the latest, a regular weekly rest period must be taken or, if allowed, a reduced weekly rest period.

Example 4:

```
VDO        ⊙ꜱ00ℎ29─── 1
5 ──ꜱꜱ03h25
```
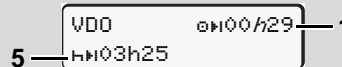
Activity "⊙"; "ℎ" = active display

(5) The VDO counter takes into consideration a ferry/train specific condition. Prerequisite: correct entry of this specific condition, ➥ *see page 61.*

At the end of the driving time **(1)** at the latest, the daily rest period should continue.

Example 5: OUT of scope

```
VDO        ⊙ꜱ02h19─── 6
    ꜱꜱ00h45
```
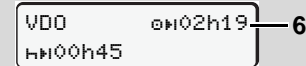
Activity "⊙"; Out of scope set

(6) The display of the remaining driving time is not active ("ℎ" does not flash), there is no counting down. The VDO Counter evaluates activity "⊙" as activity "✕".

6

▶ **Display for activity "Break time"**

Example 1: Break time

```
        VDO      ⊙ʜ00h09  ── 2
1 ──ʜʜ00h29 ʜ⊙ᴵᴵ04h30 ── 3
        VDO      ⊙ʜ04h30  ── 4
        ʜʜ00h00
```
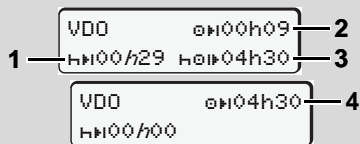
Activity "ʜ"; "h" = active display

(1) Remaining break time.
(2) Remaining driving time if the break time **(1)** is disregarded.
(3) Duration of the next available driving time after the end of the displayed break time **(1)**.
(4) Available driving time after a valid break time.

Example 2: Break time

```
        VDO      ⊙ʜ00h09  ── 2
5 ──ʜʜ00h44 ʜ⊙ᴵᴵ01h09 ── 6
```
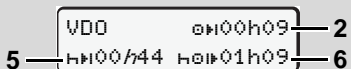
Activity "ʜ"; "h" = active display

(5) Remaining break time.
(6) Duration of the available daily driving time after after completion of a required break time **(5)**.

Example 3: Daily rest period

```
        VDO      ⊙ʜ00h09  ── 2
7 ──ʜʜ10h59 ʜ⊙ᴵᴵ04h30 ── 3
```
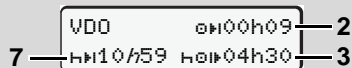
Activity "ʜ"; "h" = active display

(7) Remaining daily rest period.
If applicable, divided into 3 + 9 hours.

Example 4:

```
        VDO      ⊙ʜ00h00
8 ──ʜʜ00h00 ⊙ᴵᴵ01h09 ── 9
```
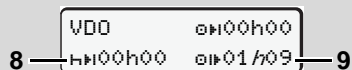
Activity "ʜ"; "h" = active display

(8) Valid break / rest time has been completed.
(9) Start of next driving time.
Situation: The max. weekly or two weekly driving time has been completed. The daily / weekly rest period has been completed but the new daily driving time can only be started after the displayed time. (Due to no remaining time left in the current fixed week.)

▶ **Display for activity "Working time"**

⚠ Please observe the country-specific regulations related to working time!

```
        VDO      ⊙ʜ00h28  ── 2
1 ──ʜʜ11h00 +h03h50 ── 3
```
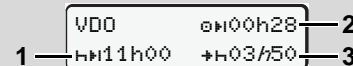
Activity "x"; "h" = active display

(1) Duration of the next daily rest period.
(2) Remaining current driving time .
(3) Remaining time till next daily rest period.
At the latest before the displayed time reaches zero, a daily rest period must begin.

Note:

The VDO counter evaluates availability activity "⌷" as break time "ʜ" during an interruption of the driving time period (but not as daily rest).

You can access further information with the keys. ⬆ / ⬇.

▶ **Display daily values**

```
    VD024h  ⊙⊩02h00
    ⊩⊩11h00  ✦⊩03⊓15
```
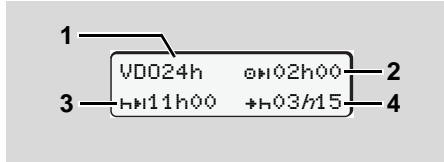
Activity "⚒⁄⊡"; "⊓" = active display

(1) Symbol for the display of the daily values.
(2) Remaining daily driving time.
(3) Duration of the next daily rest period
At the latest before the displayed time reaches zero, a daily rest period must begin.

▶ **Display weekly values**

```
    VD0I    ⊙⊩09h48
    ⊩⊩45h00  ✦⊩43⊓39
```
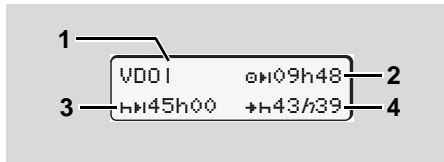
Activity "⚒⁄⊡"; "⊓" = active display

(1) Symbol for the display of the weekly values since the last weekly rest period.
(2) Remaining weekly driving time.
(3) Duration of the weekly rest period.
By the the end of six consecutive 24-hour periods from the end of the last weekly rest period there must be a new weekly rest period.
(4) At the latest before the displayed time reaches zero, the weekly rest period must begin.

▶ **Status display**

```
    VD0i    ▪▪⊙ ⊩9h 2
    Δl⊩19h58   ⊙10h 1
```
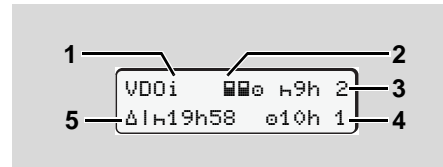
VDO Counter status display

(1) Symbol for the status display.
(2) Symbol for crew of two drivers (multi-manning)
Is displayed if crew operation takes place from the beginning of the work shift. The VDO Counter considers the respective valid rules in its calculations. The VDO Counter takes into consideration multi manning rules.
(3) During this week, a further two reduced daily rest periods can be taken (maximum 3 times per week).
(4) During this week, a further extended daily driving period (up to a max. 10 hours) can be taken (maximum 2 times per week).
(5) Reduced weekly rest compensation.
Due to a reduced weekly rest period, the time shown must be compensated together with another rest period of at least 9 hours in one block.

6

■ **Overview of the menu structure**

```
printout ▮▼ driver 1        1)
    ── 24h▮▼ day
    ── !x▮▼ event
    ── ⅼⅼ▮▼ activities
```

```
printout ▮▼ driver 2        2)
    ── 24h▮▼ day
    ── !x▮▼ event
    ── ⅼⅼ▮▼ activities
```

6

```
printout ᴀ▼ vehicle
    ── 24hᴀ▼ day
    ── !xᴀ▼ event
    ── >>▼ overspeed.
    ── Tᴏ▼ techn. data
    ── ⅼⅼv▼ v-diagram
    ── ⅼⅼD▼ status D1/D2 *
    ── %v▼ v-profiles *
    ── %n▼ n-profiles *
```

```
entry ↘ driver 1            1)
    ── ⊕⊩ begin country
    ── ⊩⊕ end country
```

```
entry ↘ driver 2            2)
    ── ⊕⊩ begin country
    ── ⊩⊕ end country
```

```
entry ᴀ↘ vehicle
    ── OUT⊣ begin / ⊣OUT end
    ── ⚓ ferry/train
    ── ⊕⊙ local time
    ── ⊙± UTC correct.
```

```
display ▮□ driver 1         1)
    ── 24h▮□ day
    ── !x▮□ event
```

```
display ▮□ driver 2         2)
    ── 24h▮□ day
    ── !x▮□ event
```

```
display ᴀ□ vehicle
    ── 24hᴀ□ day
    ── !xᴀ□ event
    ── >>□ overspeed.
    ── Tᴏ□ techn. data
    ── ⌂▮ company
```

▭   = Main menu

*   = Option

1) = Functions card slot 1

2) = Functions card slot 2

▶ **Navigating in the menu functions**

☞ The menu functions may be called only if the vehicle is stationary!

Turn on the vehicle's ignition if you plan to printout or display data in the ADR variant *.

The procedure is always the same and will be described below in detail.

1. Press the button ⊗, you will be in the first main menu.

```
      printout
 1 ── █▼ driver 1
```
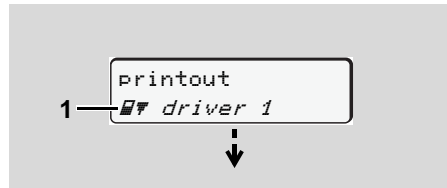
1. Main menu

The flashing action in the second line (*shown in italics*) **(1)** indicates that there are additional selection possibilities.

```
        printout
        █▼ driver 1
        █▼ driver 2
 2 ──── ▲▼ vehicle
```
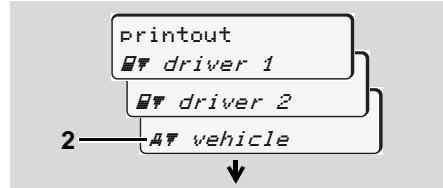
Paging in the main menu

2. Select the desired main menu with the keys ▲ / ▼, for example a printout of the vehicle data **(2)**, and confirm the selection with the key ⊗.

```
 3 ──── ▲▼ vehicle
        24h▲▼ day
                        ──── 4
        !x▲▼ event
        »▼ overspeed
```
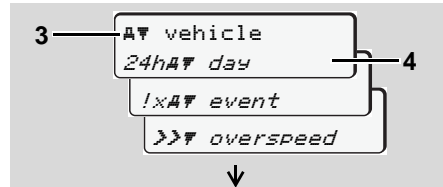
Selecting a menu function

The selected main menu **(3)** will appear, the possible functions will flash in the second line **(4)**.

3. Select the desired function with the keys ▲ / ▼, for example a daily printout **(4)**, and confirm the selection with the key ⊗.

```
        24h▲▼ day
        25.10.2013
        24.10.2013
 5 ──── 23.10.2013
```

Select desired day

4. Use the buttons ▲ / ▼ to select the desired day **(5)** and acknowledge the selection with the button ⊗.

```
        printout in
        UTC time      yes
        UTC time       no
```
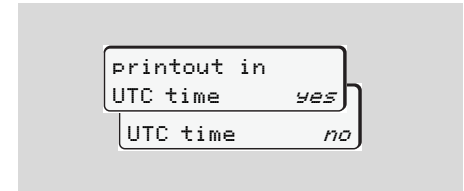
"No" = Printout in local time (from Rel. 2.0)

5. Select the desired printing type with the keys ▲ / ▼ and confirm the selection with the key ⊗.

The DTCO 1381 reports for 3 seconds that a printout has started. If necessary, you can abort the printout.

➥ *Details refer to "Cancel printout" on page 45.* ⇨⇨

6

The most recently selected menu function will then appear.

6. Select another printout with the keys ⬆ / ⬇.

7. Or press the button ⬅ and return to the next-higher menu level.

▶ **Menu access blocked!**

Example 1: The driver card is missing or a company card / control card is in the card slot.

The main menu will be shown, but nothing will be flashing in the second line.

```
printout
▮▼ driver 2
```
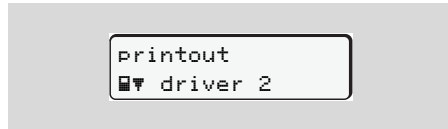
If you select this function, an operational note "▮ no data!" will be displayed.

Example 2: Data access blocked
Access to saved data is regulated by access rights in accordance with the regulations and implemented by means of the respective tachograph cards. Lack of proper authentication is indicated as follows:

```
⊙
⊙▮DK /4 6 0 2 4
  7 8
  _____
```
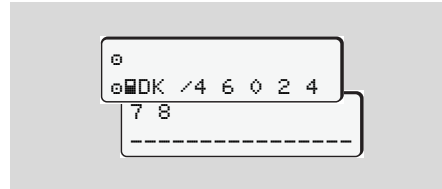
The data appears truncated. Personal data is partially or completely masked.

▶ **Leaving menu functions**

Automatically
The menu is exited automatically in the following situations:

● after a tachograph card is inserted or withdrawn

● or when driving commences.

Manually

1. Continue pressing the button ⬅, until the following question appears.

```
leave main menu
            yes
             no
```
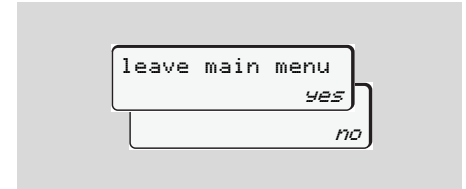
2. Use the buttons ⬆ / ⬇ to select "**Yes**" and acknowledge with the button ⊙. Or use the button ⬅ to skip the query. The standard display **(a)** appears.

■ Main menu printout driver 1 / driver 2

From this menu you can print out the data of an inserted driver card.

Select the listed functions step by step.

☞ Switch on the ignition in the ADR variant *.

Remark
The procedure for driver 2 is identical to that for driver 1 and will not be explained separately. You can select the desired printout type prior to every printout.

```
printout in
UTC time      yes
   UTC time      no
```

"No" = Printout in local time (from Rel. 2.0)

▶ Print daily value

1.
```
printout
⬛▼ driver 1
```

2.
```
⬛▼ driver 1
24h⬛▼ day
```

3.
```
24h⬛▼ day
23.10.2013
   22.10.2013
```
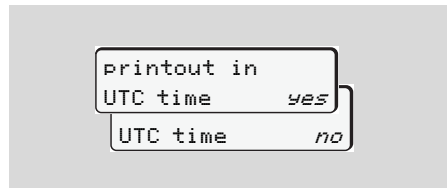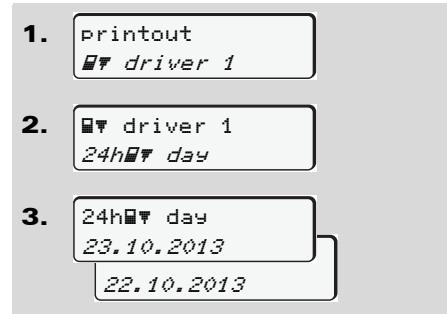
A printout of all activities on the selected day will be made, ➥ *see page 91.*

▶ Print events

1.
```
printout
⬛▼ driver 1
```

2.
```
⬛▼ driver 1
!x⬛▼ event
```
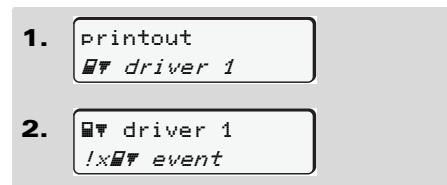
A printout of all saved or still active events and faults will be made, ➥ *see page 92.*

▶ Print activities

1.
```
printout
⬛▼ driver 1
```

2.
```
⬛▼ driver 1
⑃⬛▼ activities
```

3.
```
⑃⬛▼ activities
23.10.2013
   22.10.2013
```
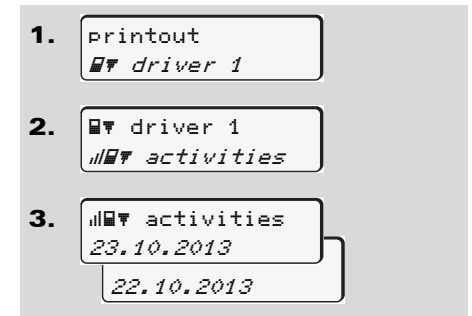
From the selected day on, there is a printout of all activities of the last 7 calendar days, ➥ *see page 96.*

6

■ Main menu, vehicle printout

From this main menu you can print data from the data memory.

Select the listed functions step by step.

☞   Switch on the ignition in the ADR variant *.

Note
You can select the desired printout type prior to every printout.

```
printout in
UTC time      yes
   UTC time      no
```

"No" = Printout in local time (from Rel. 2.0)

▶ Print daily value from the data memory

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
24hA▼ day
```

3.
```
24hA▼ day
25.10.2013
   24.10.2013
```

A printout of all driver activities in chronological order, separated by driver 1/ driver 2 will be made, ➡ *see page 93.*

▶ Print events from the data memory

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
!xA▼ event
```

A printout of all saved or still active events and faults will be made, ➡ *see page 94.*

▶ Print instances of over-speeding

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
>>▼ overspeed
```

A printout will be made of instances when the overspeed value set in the DTCO 1381 was exceeded, ➡ *see page 95.*

▶ Print technical data

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
T▼ techn. data
```

A printout of data about vehicle identification, sensor identification, and calibration will be made, ➡ *see page 95.*   ⇨⇨

6

▶ **Print v-diagram**

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
�ıllv▼ v-diagram
```

3.
```
ıllv▼ v-diagram
25.10.2013
    24.10.2013
```

From the selected day on, there is a print-out of speed data, ➥ *see page 96.*

▶ **Print D1/D2 status ***

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
ıllD▼ status D1/D2
```

3.
```
ıllD▼ status D1/D2
25.10.2013
    24.10.2013
```

From the selected day on, there is a print-out of status inputs of the last 7 calendar days, ➥ *see page 96.*

▶ **Print speed profiles ***

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
%v▼  v-profiles
```

3.
```
%v▼ v-profiles
25.10.2013
    25.10.2013
```

A profile printout of the driven speeds will be made, ➥ *see page 97.*

▶ **Print rpm profiles ***

1.
```
printout
A▼ vehicle
```

2.
```
A▼ vehicle
%n▼ n-profiles
```

3.
```
%n▼ n-profiles
25.10.2013
    25.10.2013
```

A profile printout of the engine speed rpm will be made, ➥ *see page 97.*

6

■ Main menu entry driver 1 / driver 2

You can enter the country independently
of the function of inserting or withdrawing
the driver card.

> ⚠ **According to the regulations,
> driver 1 and driver 2 must sepa-
> rately enter into the tachograph
> the country in which the respec-
> tive driver begins or ends his
> shift.**

Remark

6 The procedure for driver 2 is identical to
that for driver 1 and will not be explained
separately.

▶ **Enter Begin country**

Select the following functions step by step:

1.
```
entry
↘ driver 1
```

2.
```
↘ driver 1
•I▶ begin country
```

3.
```
•I▶ begin country
28.10 11:30 :D
 28.10 11:30 :E
```

4.
```
•I▶ begin region
11:30 E      AN
```

If necessary, you may be automatically
asked to enter the region (step 4).

▶ **Enter End country**

Select the following functions step by step:

1.
```
entry
↘ driver 1
```

2.
```
↘ driver 1
▶I• end country
```

3.
```
▶I• end country
29.10 11:30 :F
 29.10 11:30 :E
```

4.
```
▶I• end region
11:30 E      AN
```

If necessary, you may be automatically
asked to enter the region (step 4).
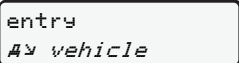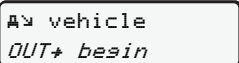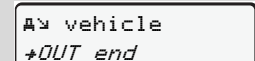
■ Main menu entry vehicle

You can perform the following entries in this main menu.

► Enter Out beginning / end

If you use the vehicle for a journey outside of the scope of the regulations, you can set the function to "Out of Scope" and/or end it again.

Select the following functions step by step.

```
1.   entry
     Ⱥↄ vehicle

2.   Ⱥↄ vehicle
     OUT+ begin

     Ⱥↄ vehicle
     +OUT end
```
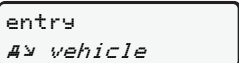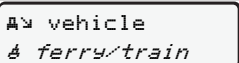
The setting "Out of Scope" ends automatically as soon as you insert a driver card into card slot 1 or withdraw a driver card from slot.

► Enter Beginning of ferry / train

Select the ferry / train specific condition, when you are about to drive on to the ferry / train or when you have just parked up on the ferry / train.

Select the following functions step by step.

```
1.   entry
     Ⱥↄ vehicle

2.   Ⱥↄ vehicle
     ⚓ ferry/train
```
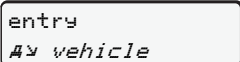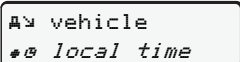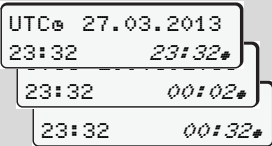
3. Then set your current activity using key [1].

The registration of this operation ends automatically as soon as the vehicle moves.

► Set Local time

☞ Read and understand the chapter "Time management" before attempting to make any changes!
➥ *Refer to "Time management" on page 82.*

Select the listed functions step by step.

```
1.   entry
     Ⱥↄ vehicle

2.   Ⱥↄ vehicle
     ⊕ local time

3.   UTC⊕ 27.03.2013
     23:32      23:32+
       23:32       00:02+
         23:32        00:32+
```

In the standard display, you may adjust the time to the local time zone as well as to the beginning or end of daylight-savings time in steps of ±30 minutes.   ➪➪

6

⚠ Please observe the legal stipula-
tions applicable in your country!

▶ **Make UTC correction**

You can correct the UTC time up to a max-
imum of ±1 minute per week. Greater de-
viations can only be corrected by an
authorised workshop.

Select the following functions step by step:

6

1.
```
entry
Aʸ vehicle
```

2.
```
Aʸ vehicle
⊙± UTC correct.
```

3.
```
⊙±       23:32UTC
correction +1min
  correction -1min
```

⚠ If the deviation of the displayed
UTC time is more than 20 minutes,
please contact an authorised work-
shop!

☞ The menu function is disabled in the
following situations:

● A correction has already taken
place within the last seven days.

or

● You are trying to correct the
UTC time between one minute
before and one minute after
midnight.

When selecting, the following note
will appear for three seconds.

```
⊙± UTC correct.
impossible!
```

■ Main menu display driver 1 / driver 2

From this menu you can display the data of an inserted driver card.

☞ In the ADR variant *, the data can be displayed only when the ignition is turned on.

Information on the display
The data will appear on the display similar to how it appears on a printout, although one printout line (24 characters) will be shown divided onto two lines.

```
▼ 23.10.2013 14:
55 (UTC)
-----------▼----
---------
```

Example for the data display

If you page backward with the ⬆ / ⬇ buttons while paging through the information, you will be able to move backward only about 20 printout lines.

Use the ⬤ button to leave the display.

Remark
Calling a function is identical to that of a printout and will not be explained separately. There is also a possibility to access any desired display in local time.

```
display in
UTC-time    yes
UTC-time    no
```

"No" = Display in local time (from Rel. 2.0)

Select the possible displays for driver 1 or driver 2 step by step.

```
▣ driver 1
24h▣ day
25.10.2013
```

or

```
▣ driver 1
!x▣ event
```
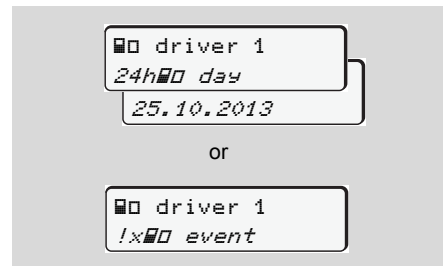
You can display all activites of the selected day or the saved or still active events and faults by paging.

6

■ Main menu display vehicle

From this main menu you can display data from the data memory.

☞ In the ADR variant *, the data can be displayed only when the ignition is turned on.

Information on the display
The data will appear on the display similar to how it appears on a printout, although one printout line (24 characters) will be shown divided onto two lines.
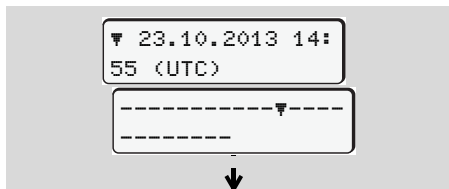
Example for the data display

If you page backward with the ▲ / ▼ buttons while paging through the information, you will be able to move backward only about 20 printout lines.

Use the ⬤ button to leave the display.

Remark
Calling a function is identical to that of a printout and will not be explained separately. There is also a possibility to access any desired display in local time.
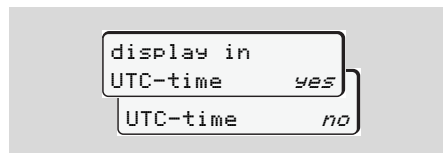
"No" = Display in local time (from Rel. 2.0)

Select the possible functions step by step.

By paging, you can:

● Display all driver activities in chronological order.

● Display of all saved or still active events and faults.

● Display the instances when the set overspeed was exceeded.

● Display data about vehicle identification, sensor identification, and calibration.

Or

● Display the number of the company card of the registered company. If no company is registered, then "---" will appear.
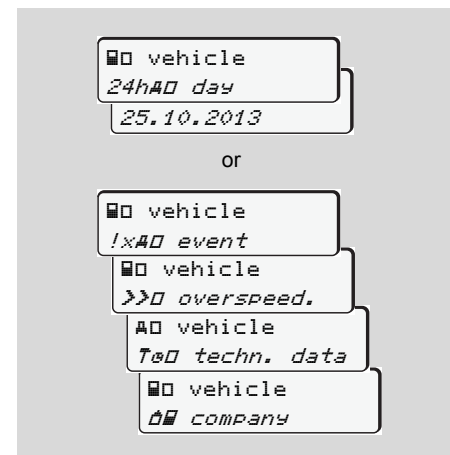
Messages

A message appears
Overview of the events
Overview of the faults
Driving time warning
Overview of the operational notes

7

■ A message appears


```
  \       |       /
┌─────────────────────┐
│ ×Ω1 internal        │
│ fault        ××     │
└─────────────────────┘
  /       |       \
  1       2       3
```
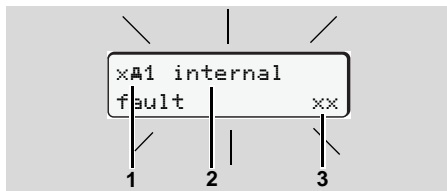
Display of a message

(1) Pictogram combination, if necessary, with card slot number
(2) Plain text of the message
(3) Memory code

> **🛑 Risk of Accident**
>
> While driving, messages can appear in the display. It is also possible that the driver card will be automatically ejected due to a security breach.
>
> **Do not be distracted by this; instead, continue to focus all of your attention on driving safely.**

The DTCO 1381 permanently records the driver-based and vehicle-based data and monitors the system's functions. Errors in a component, in the device, or in the operating procedure will be displayed immediately after occurrence and are divided functionally into the following groups:

- ! = Event
- × = Fault
- ⅃ = Driving time warning
- ⅃ = Operational notes

☞ During card-based messages, the card slot number will appear in addition to the pictogram.

► **Characteristics of the messages**

Events, faults

- The display's backlighting flashes for approximately 30 seconds. At the same time, the cause of the fault appears with a pictogram combination, plain text of the message, and memory code.
- You must acknowledge these messages using button ⊛.
- The DTCO 1381 also saves (in the driver card's data memory) data related to the event or the fault in accordance with the memory regulations contained in the directive. You can display or print this data through the menu function.

Driving time warnings

- This message warns the driver about excessive driving times.
- The message is backlighted and must be confirmed by means of button ⊛.

Operational notes

Operational notes are displayed without flashing backlighting and (with the exception of some messages) disappear automatically after 3 or 30 seconds.

⇨⇨

Instrument display
If an instrument display is built into the vehicle, the functional monitoring "❶" will refer to messages on the DTCO 1381.

📖   For detailed information refer to the vehicle's operating instructions.

▶ **Acknowledgement of messages**

1. If you press the button ⊛, the flashing of the backlighting will stop immediately.

2. Press the button ⊛ again, the message disappears and the standard display **(a)**, **(b)** or **(c)** will appear again.

Remark
The operational note disappears when pressing the button ⊛ for the first time.

☞   • If you do not acknowledge a message while driving, the message will appear every ten seconds alternately with the currently set standard display.

       • If several messages are pending, then you must acknowledge the individual messages one after the other.

⚠ If the tachograph fails to operate properly, you (as driver) will be responsible to note information about the activities which will no longer be properly recorded or printed by the tachograph on a separate sheet or on the rear side of the paper roll!
➥ *Refer to "Handwritten activity entries" on page 36.*

7

■ Overview of the events

> ⚠ **If an event repeats on a continuous basis, please contact an authorised workshop.**

Picto / reason	Meaning	Measure
`!⌂ security breach`	The following are possible causes: ● Error in the data memory, data security in the DTCO 1381 is no longer ensured. ● The data from the sensor are no longer reliable. ● The DTCO 1381 housing was opened without authorisation.	Acknowledge message.
`!⌂1 security breach`	● The card lock is disturbed or defective. ● The DTCO 1381 no longer detects a tachograph card that was previously inserted correctly. ● The identity or authenticity of the tachograph card is not proper or the data recorded on the tachograph card is not reliable.	Acknowledge message. If the DTCO 1381 recognises security breaches which do no longer ensure the correctness of the data on the tachograph card, the tachograph card is automatically ejected (even while the vehicle is moving)! Insert tachograph card once again or have it checked if necessary.
`!↯ power interruption`	The power was disconnected or the power supplied to the DTCO 1381 / sensor was too low or too high. Under certain conditions this message can also appear when the engine starts!	Acknowledge message. ➥ Refer to "Power interruption" on page 20.
`!⊓ sensor fault`	The communication with the sensor is interrupted.	Acknowledge message.
`!⊓⊓ motion conflict`	Contradiction in the evaluation of the vehicle movement between sensor and an independent signal source. Perhaps the function (ferry/train) was not set during the transport.	Acknowledge message. Contact an authorised workshop as soon as possible. ⇨⇨

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Picto / reason	Meaning	Measure
`!o driving without card`	Driving commenced without a driver card or without a valid driver card in card slot 1. The message also appears if a non-permissible card combination is caused by inserting the card while the vehicle is moving. ➥ *Refer to "Operating modes of the DTCO 1381" on page 78.*	Acknowledge message. Stop vehicle and insert valid driver card. Withdraw a possibly inserted company card / control card from the DTCO 1381.
`!o1 insertion while driving`	The driver card was inserted after driving has begun.	Acknowledge message.
`!oo1 time overlap`	The set UTC time of this tachograph is behind the UTC time of the previous tachograph. This produces a negative time difference.	Acknowledge message. Determine the tachograph with the incorrect UTC time and make sure that an authorised workshop checks and corrects the tachograph as soon as possible.
`!1 card not valid`	The tachograph card has either expired, is not yet valid, or the authentication has failed. An inserted driver card which has become invalid after a change of day will be automatically written to and ejected (without request) after the vehicle becomes stationary.	Acknowledge message. Check tachograph card and insert it again.
`! cards conflict`	The two tachograph cards must not be inserted together in the DTCO 1381! For example, the company card is inserted together with a control card.	Acknowledge message. Remove the corresponding tachograph card from the card slot.
`!A1 card not closed`	The driver card was not properly removed from the last tachograph. In some cases driver-based data will not be saved.	Acknowledge message.
`>> overspeed`	The set maximum speed was exceeded for longer than 60 seconds.	Acknowledge message. Reduce speed.

7

■ Overview of the faults

> ⚠ **If a fault repeats on a continuous basis, please contact an authorised workshop.**

Picto / reason	Meaning	Measure
x⚑ internal fault	Serious fault in the DTCO 1381, the following are possible causes: ● Unexpected program faults or processing time faults.	Acknowledge message.
	● Button elements blocked or pressed simultaneously for some time.	Check proper function of the button elements.
	● Communication fault with external devices.	Check connecting cables or function of the external devices.
	● Communication fault with the instrument display.	Check connecting cables or function of the instrument display.
	● Fault at pulse output.	Check connecting cables or function of the connected control device.
x⚑1 internal fault	● Fault in the card mechanics, e.g. card lock is not closed.	Remove tachograph card and insert it again.
x⚑ time fault	UTC time of the DTCO 1381 is not plausible or does not function properly. In order to avoid an inconsistency of data, newly inserted driver / company cards are not accepted!	Acknowledge message.
x⚑ printer fault	The printer's supply voltage has failed or the temperature sensor for the printing head is defective.	Acknowledge message. Repeat the process and, if necessary, switch off / on the ignition again. ⇨⇨

Picto / reason	*Meaning*	*Measure*
x⏚ download fault	Fault while downloading the data to an external device.	Acknowledge message. Repeat the data download once again. Check connecting cables (e.g. loose contact) or external device.
x⬚ sensor fault	The sensor has indicated an internal fault after a self-test.	Acknowledge message.
x⬚ IMS fault	IMS = Independent Motion Signal. The additional independent motion signal is missing or is not available.	Acknowledge message.
x⬚1 card fault x⬚2 card fault	A communication fault has appeared while reading / writing the tachograph card, e.g. by dirty contacts. It might not be possible to record the data completely on the driver card!	Acknowledge message. Clean the contacts of the tachograph card and insert it again. ➥ *Refer to "Disposal of the components" on page 83.*

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■ Driving time warnings

Picto / reason	Meaning	Measure
`4o1 break!` `1o04h15  ‖00h15`	This message appears after an uninterrupted driving time of 4 hours 15 minutes.	Acknowledge message. Please plan a rest break soon.
`4o1 break!` `1o04h30  ‖00h15`	Driving time exceeded! This message appears after an uninterrupted driving time of 4 hours 30 minutes.	Acknowledge message. Please take a rest break.

⚠ **Please note!**
The DTCO 1381 registers, saves and calculates the driving times on the basis of the rules established by the EU regulations. It warns the driver prematurely about exceeding his driving time!

However, these cumulative driving times do not anticipate the legal interpretation of "continuous driving time".

▶ **VDO Counter display ***
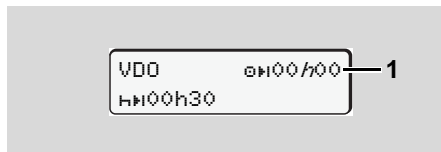
After having acknowledged the second "Driving time warning", the VDO Counter * displays your driving time **(1)** has ended (except for Out of Scope operation).

Please take a rest break at once.

■ Overview of the operational notes

Picto / reason	Meaning	Measure
4₄ please enter	This request will appear if no entry is made during the manual entry procedure.	Press button ⊛ and continue the entry.
4▼ printout not possible	A printout is not possible at the moment: ● because the ignition has been switched off (ADR variant *). ● because the temperature of the thermal printing head is too high, ● the printer interface is occupied by another active process, e.g. a printout in progress, ● or because the supply voltage is too high or too low.	You can request a printout as soon as the problem is removed.
	● No display is possible at the moment since the ignition has been switched off (ADR variant *).	Switch on ignition and call the desired display again.
4▼⊠ printout delayed	An ongoing printout is interrupted or delayed because the temperature of the thermal printing head is too high.	Wait to cool. The printout will continue automatically as soon as the permissible condition has been reached.
4▼ drawer open	When a printout is requested or a printout is in progress, the DTCO 1381 recognises that the printer drawer is open. The print request will be rejected and/or a printout in progress will be interrupted.	Close the drawer. Restart print request.
	This message also appears if you request the tachograph card from card slot 2 while the printer drawer is open.	Close printer drawer and request tachograph card again.
4▼o no paper	The printer has no paper. The print request will be rejected and/or a printout in progress will be interrupted.	If a new roll of paper is inserted within one hour, the DTCO 1381 automatically continues the printout.

⇨⇨

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Picto / reason	Meaning	Measure
`4▯ ejection not possible`	Requesting the tachograph card will be rejected: • because data might be read in or transferred, • the driver card needs to be read-in again within the registration time of one minute, • a day change (according to UTC time) is taking place, • the vehicle is moving, • or, in the ADR variant *, the ignition has been switched off.	Wait until the DTCO 1381 enables the function or remove the problem: Stop the vehicle or switch on the ignition. Then request the tachograph card again.
`4▯?1 recording inconsistent`	There is an inconsistency in the order of the dates in the data recorded on the driver card.	This message can be displayed until the incorrect recordings have been overwritten by new data! Have the tachograph card checked if the message is displayed permanently.
`4▯1 card error`	An error has occurred when processing the inserted tachograph card. The tachograph card is not accepted and is ejected.	Clean the contacts of the tachograph card and insert it again. If this message is displayed again, check whether another tachograph card can be read in correctly.
`4▯1 wrong card type`	The inserted card is not a tachograph card. The card is not accepted and is ejected.	Please insert a valid tachograph card.
`4▯1 internal fault`	Fault in the card mechanics, e.g. card lock is not closed.	Remove tachograph card and insert it again.
`4▯ internal fault`	• Fault at pulse output.	Check connecting cables or function of the connected control device. ⇨⇨

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Picto / reason	Meaning	Measure
	• The DTCO 1381 has a serious fault or a serious time error has occurred. For example, an unrealistic UTC time. The tachograph card is not accepted and is ejected.	Take care that an authorised workshop checks and, if necessary, replaces the tacho-graph as soon as possible.
continual error ⊞xxxxxxxx xxx	If this message is displayed, the DTCO 1381 will no longer func-tion!	Please observe the listed note if the tacho-graph does not operate properly, ➥ *see page 67.*

Operational notes as information

Picto / Reason	Meaning	Measure
▯ no data!	The menu function cannot be called up since, in the card slot, ... • no driver card is inserted • or a company card / control card is inserted.	These notes disappear automatically after three seconds. No steps must be taken.
⊙± UTC correct. impossible!	It is not possible to use the menu function: • The UTC time has already been corrected within the last seven days. • You are trying to correct the UTC time between one minute before and one minute after midnight.	
printout started ...	Acknowledgement of the selected function.	
entry stored	Acknowledgement that the DTCO 1381 saved the entry.	
display not possible!	No data can be displayed as long as the printing is in progress.	
please wait!	The tachograph card has not yet been read completely. It is not possible to call up menu functions.	

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Picto / Reason	Meaning	Measure
▮▮1 expires in days 15	The released tachograph card, for example, expires in 15 days! An authorised workshop can program the day as of which the notice should appear.	These notes disappear automatically after three seconds. No steps must be taken.
▮▲§ calibration in days 18	The next periodic inspection is due, for example in 18 days. Inspections required due to technical alterations cannot be taken into account! An authorised workshop can program when the the notice should start to appear. ➥ *For more details, see "Compulsory Tachograph inspections" from page 83.*	

7

Product description

Operating modes of the DTCO 1381

Tachograph cards

Data on the driver / company card

Data in the data memory

Time management

Care and maintenance

Technical data

8

■ Operating modes of the DTCO 1381

```
12:50  o     0km/h
123456.7km
```
1
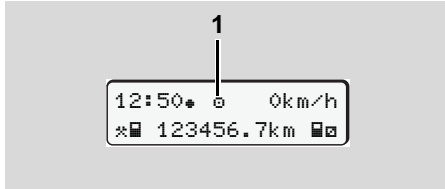
The DTCO 1381 has four operating modes:

- Operational "o"
- Company "⌂"
- Control "⊓"
- Calibration "T"

According to the inserted tachgraph card(s), the DTCO 1381 automatically changes to the following operating mode:

(1) Display of the operating mode

Operating modes		Card slot -1				
		No card	Driver card	Company card	Control card	Workshop card
Card slot -2	No card	Operational	Operational	Company	Control	Calibration
	Driver card	Operational	Operational	Company	Control	Calibration
	Company card	Company	Company	Company	Operational	Operational
	Control card	Control	Control	Operational	Control	Operational
	Workshop card	Calibration	Calibration	Operational	Operational	Calibration

In this condition, the DTCO 1381 only uses the tachograph card inserted in card slot 1.

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■ Tachograph cards

The authorities in the individual EU member states will issue the tachograph cards specified by the legislature.

► Driver card

The driver uses the driver card to identify himself to the DTCO 1381. The driver card is used for normal driving operation and permits storing, displaying, printing, or downloading (with only one inserted driver card) of activities under this identity.

► Company card

The company card identifies a company and authorises access to the data of this company. With the company card, the data saved in the data memory of the Vehicle Unit as well as in the inserted driver card can be displayed, printed, and downloaded. If necessary (once per unit), the entry of the authorising member state and the official registration number in the DTCO 1381.

It is also possible to download load data remotely with the corresponding fleet management system. This company card is intended for the owners and operators of vehicles.

► Control card

The control card identifies an official of a control body (like the police) and permits access to the data in the data memory. All saved data and the data of an inserted driver card are accessible. This data can be displayed, printed, or downloaded through the download interface.

► Workshop card

Persons of an authorised workshop who are approved to program, calibrate, activate, test, etc. will receive the workshop card.

► Locking the tachograph cards

If the DTCO 1381 accepts an inserted tachograph card, removal of the card will be mechanically blocked. It is possible to remove the tachograph card only when:

● the vehicle is stationary,
● the user requests removal,
● after the data defined by the regulations has been saved on the tachograph card.

Automatic ejection
If the DTCO 1381 recognises a fault in the card lock, it tries to transfer the existing data to the tachograph card before it is automatically ejected. In this case, the completeness and authenticity of the data on the tachograph card can no longer be guaranteed!

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► **Access rights of the tachograph cards**

The rights to access data saved in the data memory of the DTCO 1381 are regulated by law and will be released with the corresponding tachograph card only.

		Without card	Driver card	Company card	Control card	Workshop card
Print	Driver data	X	V	V	V	V
	Vehicle data	T1	T2	T3	V	V
	Parameter data	V	V	V	V	V
Displays	Driver data	X	V	V	V	V
	Vehicle data	T1	T2	T3	V	V
	Parameter data	V	V	V	V	V
Read out	Driver data	X	T2	V	V	V
	Vehicle data	X	X	T3	V	V
	Parameter data	X	X	V	V	V

Driver data = Data on the driver card

Vehicle data = Data in the data memory

Parameter data = Data for device adaptation / Calibration

V = Unlimited access rights

T1 = Driver activities of the last eight days without driver identification data

T2 = Driver identification only for the inserted card

T3 = The associated company's driver activities

X = not possible

■ Saved data

▶ Driver card

● Data for identifying the driver.

After any use of the vehicle the following data:

● Vehicles used

● Activities of the driver, during normal driving operation at least 28 days.

● Country entries

● Appearing events / faults

● Information about control activities

● Specific conditions including Out of Scope and ferry / train operations

If the memory capacity is full, the oldest data will be overwritten by the DTCO 1381.

▶ Company card

● Identifies a company and authorises access to the data of this company.

The following data regarding company activities:

● Type of activity
   – Lock-in / lock-out

– Downloading the data from the data memory
– Downloading the data from the driver card

● Period of time (from / to) for which the data was downloaded.

● Vehicle ID

● Driver Card number and card issuing Member State (when downloading a Driver Card)

▶ Data memory

● The data memory records and saves the data required according to the Council Regulation (EEC) 3821/85, annex I B, over a time period of at least 365 calendar days:

● The evaluation of activities occurs in 1 minute intervals and the DTCO 1381 will evaluate the longest continuous activity for each interval.

● Speed values are saved over a time period of 168 hours at a resolution of 1 second. The DTCO 1381 saves each

second of the driven speed with date and time.

● Saved speed values with a higher resolution (one minute before and one minute after an unusual deceleration) can be analysed in the event of a collision.

These data can be read via the download interface:

● legal download 24 hours,

● the complete mass memory by means of special download software.

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■ Time management

The DTCO 1381 saves all time entries for working time, availability time, driving time, rest time, etc. in UTC time.
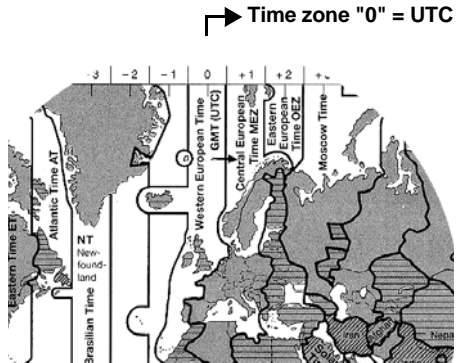
➡ Time zone "0" = UTC

Time zone in Europe

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UTC time corresponds to time zone "0" of the 24 time zones (-12 ... 0 ... +12) distributed across the globe.

In principle, the time shown in the display is set at the factory in UTC time. You can set the local time through the menu function.

➥ *Refer to "Set Local time" on page 61.*

Time zone offset	*Countries*
00:00 (UTC)	UK / P / IRL / IS
+ 01:00 h	A / B / BIH / CZ / CY / D / DK / E / F / H / HR / I / L / M / N / NL / PL / S / SK / SLO / SRB
+ 02:00 h	BG / EST / FIN / GR / LT / LV / RO / TR / UA
+ 03:00 h	RUS

▶ **Converting to UTC time**

UTC time = Local time – (ZO + SO)

ZO = Time zone offset

SO = Daylight-savings time offset
(this offset is not used after daylight-savings time ends)

(ZO + SO) = set offset in the DTCO 1381

Example:

Local time in Germany = 15:30 (daylight-savings time)

UTC time   = Local time – (ZO + SO)

= 15:30 – (01:00 h + 01:00 h)

UTC time   =   13:30 Time

■ Care and maintenance

▶ Cleaning the DTCO 1381

Clean the casing, the display and the function keys with a slightly moistened cloth or with a microfibre cleaning cloth.

> ⚠ Do not use any abrasive cleaning agents or solvents like thinner or petroleum spirits.

▶ Compulsory Tachograph inspections

Preventive maintenance work is not required for the DTCO 1381. At least every two years, the proper operation of the DTCO 1381 must be checked by an authorised workshop.

Follow-up inspections are necessary if

- changes were made to the vehicle, e.g. concerning the distance pulse or the wheel circumference,
- a repair was made to the DTCO 1381,
- the vehicle registration number of the vehicle has been changed,

- the UTC time deviates by more than 20 minutes.

> ⚠ Make sure that the calibration plaque is renewed during every 2 year inspection and contains the required data.
>
> Make sure that the supply voltage of the DTCO 1381 is not disconnected for more than 12 months at a time, for example due to disconnection of the battery from the vehicle.

▶ Behaviour when repairing / replacing the DTCO 1381

The authorised workshops can download the data from the DTCO 1381 and hand them over to the company.

If, due to a failure, the saved data cannot be downloaded, the workshops are instructed to document this with a certificate and to contact the company in writing.

> ⚠ Archive the data or carefully keep the documentation for possible requests by control bodies.

▶ Disposal of the components

☞ Please dispose of the DTCO 1381 with its associated system components in compliance with the guidelines for disposing EC recording equipment effective in the respective member states.

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■ Technical data

▶ DTCO 1381

Measurement range end value	220 km/h (according to annex I B) 250 km/h (for other vehicle deployments)
LCD	2 lines with 16 characters each
Temperature	Operation: -25 to 70 °C Storage: -40 to 85 °C
Voltage	24 or 12 Volt DC
Power supply	Standby: Typical during operat.: 30 mA (12 V) max. 3,0 A (12 V) 20 mA (24 V) max. 1,0 A (24 V)
EMV / EMC	ECE R10
Thermal printing mechanism	Character size: 2,1 x 1,5 mm Print width: 24 characters/line Speed: approx. 15-30 mm/sec. Printout of diagrams
Protection type	IP 54

▶ Paper roll

Ambient conditions	Temperature: -25 to 70 °C	
Dimensions	Diameter: approx. 27.5 mm Width: 56,5 mm Length: approx. 8 m	
Order no.	1381.90030300 You will receive original spare paper rolls from your local VDO distributor.	

☞ **Please note!**

Use (order) only paper rolls (original VDO printer paper) on which is visible the tachograph model (DTCO 1381) with approval mark "🖸84" and the valid approval mark "🖸174" or "🖸189".

Possible special equipment	• ADR variant • Customer-specific panel, illumination of display and buttons • Automatic setting of the activities after ignition on/off • Printout and download of v-/n profiles, status entry D1/D2 • VDO Counter

8

Pictograms and printout samples

Overview of the pictograms

Country symbols

Printout examples

Explanation of printout examples

Data record purpose during events or faults

9

■ Overview of the pictograms

Operating modes	
⌂	Company
☷	Control
☼	Operational
⊤	Calibration
☰	Production status

Persons	
⌂	Company
☷	Controller
☼	Driver
⊤	Workshop / inspection centre
☰	Manufacturer

Activities	
⊠	Availability time
☼	Driving time
⊢	Break and rest time
✳	Other working time
‖	Valid interruption / break
?	Unknown

Devices / functions	
1	Card slot 1; Driver 1
2	Card slot 2; Driver 2
▤	Tachograph card (read correctly)
▬	Tachograph card inserted; relevant data read.
⊙	Clock
☰	Printer / printout
↘	Entry
▯	Display
⊥	External saving Download data (copy)
∥	Data transmission running
⊥	Sensor
⊟	Vehicle / Vehicle unit / DTCO 1381
⊕	Tyre size
÷	Power supply

Miscellaneous	
!	Event
×	Fault
⁊	Operational note / Work time warnings

⊪	Shift beginning
⋄	Location
⊟	Security
❯	Speed
⊙	Time
Σ	Total / summary
⊩	Shift end
M	Manual entry of driver activities

Specific conditions	
OUT	Recording equipment not required
♣	Vehicle located on a ferry or on a train

Qualifiers	
24h	Daily
‖	Weekly
‖‖	Two weeks
⊹	From or to

► **Pictogram combinations**

Miscellaneous	
⫙⊹	Control location
⊙⊹	Start time
⊹⊙	End time
OUT⊹	Begin Out of Scope: Recording equipment not required
⊹OUT	End Out of Scope
⊹⊪	Location at beginning of work day (shift beginning)
⊪⊹	Location at end of work day (shift end)
⌼⊹	From vehicle
▤▼	Printout driver card
⌼▼	Printout vehicle / DTCO 1381
⌼↘	Entry vehicle / DTCO 1381
▤◻	Display driver card
⌼◻	Display vehicle / DTCO 1381
⊹⊙	Local time
⊙±	UTC correction

Cards	
⊙▤	Driver card
⌂▤	Company card
⫙▤	Control card
⏣▤	Workshop card
▤–––	No card

Driving	
⊙⊙	Crew
⊙ǁ	Driving time over two weeks

Printouts	
24h▤▼	Daily driver activities (daily value) from the driver card
!×▤▼	Events and faults from the driver card
24h⌼▼	Daily driver activities (daily value) from DTCO 1381
!×⌼▼	Events and faults from DTCO 1381
≫▼	Over-speeding
⏣⊙▼	Technical data
⏬▤▼	Driver's activities
⏬v▼	v-diagram
⏬D▼	Status D1/D2 diagram *

%v▼	Speed profiles *
%n▼	Rpm profiles *

Displays	
24h▤◻	Daily driver activities (daily value) from the driver card
!×▤◻	Events and faults from the driver card
24h⌼◻	Daily driver activities (daily value) from vehicle / DTCO 1381
!×⌼◻	Events and faults from vehicle / DTCO 1381
≫◻	Over-speeding
⏣⊙◻	Technical data
⌂▤	Company

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⇨⇨

Events

! ▯	Insertion of an invalid tachograph card
! ⊙⊙	Time overlap
! ▯⊙	Insertion of driver card while driving
>>	Over-speeding
! ⊔	Communication fault with the sensor
! ⊙	Time adjustment (by workshop)
! ▯▯	Cards conflict
! ⊙▯	Driving without valid driver card
! ▯⊿	Last card process not completed correctly
! ╪	Interruption of power supply
! ⊟	Security breach
>⊓	Over-speeding control
! ⊿⊔	Motion data conflict during vehicle movement

Faults

✕▯	Card fault
✕▢	Display fault
✕▼	Printer fault
✕⊿	Internal fault DTCO 1381
✕⊤	Download fault
✕⊔	Sensor fault
✕⊿⊔	IMS = Independent motion signal missing

Driving time warnings

⊣⊙	break!

Manual entry process

⊢∕✳∕▯	Entering "activities"
?	Entering "unknown activity"
⊢▶?	Entering "location" at the end of the shift
▶⊪?	Entering "location" at the beginning of the shift

Operational notes

⊣▯	Wrong entry
⊣	Menu access not possible
⊣↘	Please enter
⊣▼	Printout not possible
⊣▼	Drawer open
⊣▼⊙	No paper
⊣▼⊠	Printout delayed
⊣▯	Card defective
⊣▯	Incorrect card
⊣▯	Ejection not possible
⊣▯⊠	Process delayed
⊣▯?	Recording inconsistent
⊣⊿	Internal fault
▯▯1	Expires in days ...
▯⊿⊛	Calibration in days ...

VDO Counter *

⊙⊢	Remaining driving time
⊙⊪	Beginning of the next driving time
⊢⊙⊪	Future driving time
⊢⊢	Remaining break time / rest period
╪⊢	Remaining time until the beginning of the daily, weekly rest period

9

■ Country symbols

Value assignment	
A	Austria
AL	Albania
AND	Andorra
ARM	Armenia
AZ	Azerbaijan
B	Belgium
BG	Bulgaria
BIH	Bosnia and Herzegovina
BY	Belarus
CH	Switzerland
CY	Cyprus
CZ	The Czech Republic
D	Germany
DK	Denmark
E	Spain [1]
EC	European Community
EST	Estonia
EUR	Rest of Europe
F	France
FIN	Finland
FL	Liechtenstein

FR/FO	Faroes
GE	Georgia
GR	Greece
H	Hungary
HR	Croatia
I	Italy
IRL	Ireland
IS	Iceland
KZ	Kazachstan
L	Luxembourg
LT	Lithuania
LV	Latvia
M	Malta
MC	Monaco
MD	Republic of Moldavia
MK	Macedonia
MNE	Montenegro
N	Norway
NL	The Netherlands
P	Portugal
PL	Poland
RO	Romania

RSM	San Marino
RUS	The Russian Federation
S	Sweden
SK	Slovakia
SLO	Slovania
SRB	Serbia
TM	Turkmenistan
TR	Turkey
UA	Ukraine
UK	United Kingdom, Alderney, Guernsey, Jersey, Isle of Man, Gibraltar
UZ	Uzbekistan
V	Vatican City
WLD	Rest of the world

[1] ➥ *Refer to "Symbols of the regions" on page 90.*

9

► **Symbols of the regions**

Value assignment – Spain	
AN	Andalusia
AR	Aragon
AST	Asturias
C	Cantabria
CAT	Catalonia
CL	Castile-León
CM	Castile-La Mancha
CV	Valencia
EXT	Extremadura
G	Galicia
IB	Balearic islands
IC	Canary islands
LR	La Rioja
M	Madrid
MU	Murcia
NA	Navarra
PV	Basque Community

9
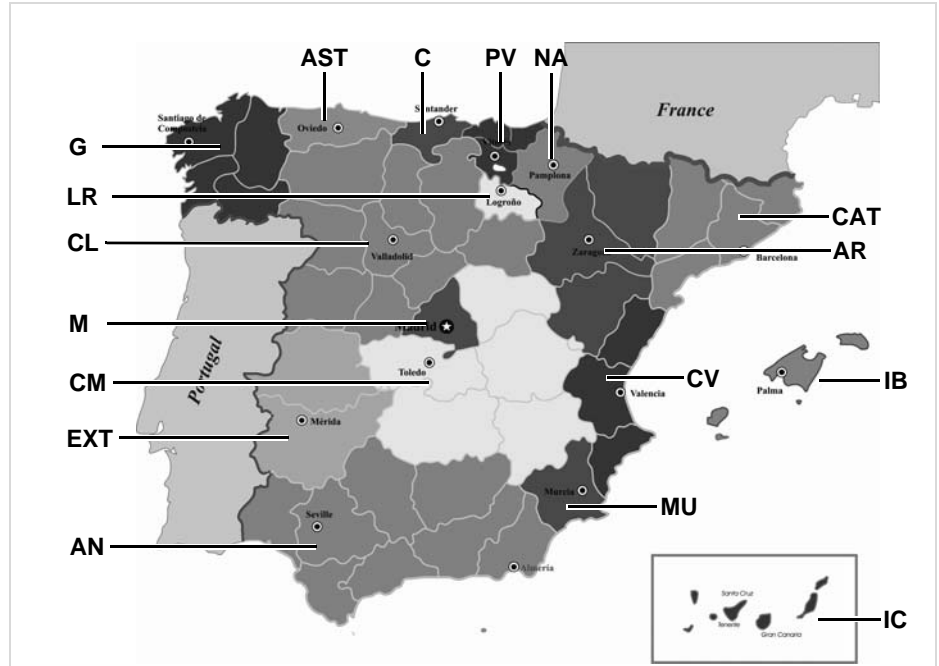
■ Printout examples

▶ Daily printout from the driver card

1   ▼ 26.11.2013 14:55 (UTC)
```
-----------▼-------------
```
2   24h▣▼
```
-----------▯-------------
```
3   ▯ Schmitt
     Peter
   ▯▣D /12345678901234 5 6
```
-----------○-------------
```
3a   ○ Rosenz
     Winfried
   ○▣DK /45678901234567 7 8
     04.01.2014
```
-----------Ａ-------------
```
4   Ａ ABC12345678901234
     D /VS VM 612
```
-----------▯-------------
```
5   ▣ Continental Automotive
     GmbH
     1381.12345678901
```
-----------▼-------------
```
6   ▼ NFZ-Profi Service & Ve
     rtrieb
   ▼▣D /87654321087654 3 2
   ▼ 02.04.2012
```
-----------▯-------------
```
   ▯▣D /12345678901234 5 6
7   ▯ 11.11.2013 11:11 ▣▼
```
-----------○-------------
```
8   25.11.2013   310
```
-------------------------
```
8a   ? 00:00 06h00
   ☒ 06:00 00h17
```
-----------1-------------
```
8b   Ａ D /VS VM 612
     95 872 km

8c   ✳ 06:17 00h45
   ✳ 07:02 00h39 ○○
   ○ 07:41 01h19 ○○
     95 958 km;   86 km
```
-------------------------
```
8a   ? 09:00 00h24
```
-----------2-------------
```
8b   Ａ S /LCR 243
     205 002 km
8c   ☒ 09:24 02h30 ○○
   ✳ 11:54 00h39
```
-------------------------
```
8a   ? 12:33 00h10
```
-----------1-------------
```
8c   ○ 12:43 02h27
   ⊢ 15:10 01h12
   ☒ 16:22 00h16
   ☒ 16:38 00h42
8d   16:38 -----Ａ-----
   ○ 17:20 00h52
   ✳ 18:12 00h24
   ⊢ 18:36 00h02
8e   205 408 km;   231 km
```
-------------------------
```
8a   ? 18:38 05h22
```
-----------Σ-------------
```
11   ◆⊩06:00 D
     95 872 km
11a   ⊩◆09:00 D
     95 958 km
   ◆⊩09:24 D
     205 002 km
   ⊩◆12:33 D
     205 177 km
   ◆⊩12:43 D
     205 177 km

   ⊩◆18:38 CH
     205 408 km
   ○ 04h54   317 km
   ✳ 02h27 ☒ 03h29
   ⊢ 01h14 ? 11h56
   ○○ 04h28
```
-----------!×▯----------
```
12   ×▯   0 10.11.2013 12:45
               00h04
   Ａ D /VS VM 612
```
-------------------------
```
12c   !▣   0 05.08.2013 09:23
   !34 (0)   00h01
   Ａ D /VS VM 612
```
-------------------------
```

   Ａ D /VS VM 612
```
-----------!×Ａ----------
```
13   ≫   5 15.11.2013 16:42
      (2)   00h12
   ○▣D /98765432109876 5 4
   ○▣F /12345678901234 5 6
```
-------------------------
```
13c   ≫   4 15.10.2013 11:10
      (95)   00h30
   ○▣DK /45678901234567 7 8
   ○▣F /12345678901234 5 6
```
-------------------------
```
   ×▯   0 10.11.2013 12:45
               00h04
   ○▣DK /45678901234567 7 8
```
-------------------------
```
21   ▯◆ *Friedrichshafen* ....
   ▯ *Schmitt Peter* ....
   ○ *Rosenz Winfried* ....

9

⇨⇨

Points to note with "Daily printout of the driver card"

```
-------------□-------------
□▣D /12345678901234 5 6
□  11.11.2013 11:11      ▼
-------------○-------------
     25.11.2013    310

---------? !∞ ? ---------

----------------------------
? 00:00 06h00
▣ 06:00 00h17
-------------1-------------
```

8f

```
▲ D  /VS VM 612
       95 872 km
⚹ 06:17 00h45
⚹ 07:02 00h39 ∞
○ 07:41
           km;        km
-------------Σ-------------
✦▮06:00 D
       95 872 km
  ○ 00h00        km
```

8g

```
-------------□-------------
-------------○-------------
     25.11.2013    310
----------------------------
-----------OUT-------------
-------------1-------------
▲ D  /VS VM 612
       95 872 km
⊢ 00:00 07h02
⚹ 07:02 00h39
```

8h

9

▶ **Events / faults from the driver card**

1

```
▼ 11.11.2013 11:11 (UTC)
-------------▼-------------
```

2

```
!×▣▼
-------------□-------------
```

3

```
□ Schmitt
  Peter
□▣D /12345678901234 5 6
-------------○-------------
```

3a

```
○ Rosenz
  Winfried
○▣DK /45678901234567 7 8
  04.01.2014
-------------▲-------------
```

4

```
▲ ABC12345678901234
  D  /VS VM 612
-------------!▣-------------
```

12a

```
!†        04.04.2013 02:14
                    06h03
▲ S  /LCR 243
```

12c

```
!▣○       04.11.2013 18:12
                    00h01
▲ D  /VS VM 612

!▣○       10.02.2013 08:12
                    00h05
▲ D  /S VD 432

!†        12.12.2012 10:15
                    00h10
▲ D  /VS VM 612

!Д        10.05.2013 08:45
                    00h01
▲ D  /VS VM 612
```

↓

↓

```
!🔒       05.08.2013 09:23
!22                 00h01
▲ D  /VS VM 612

!🔒       17.04.2013 16:04
!11                 01h02
▲ D  /VS VM 612
-------------×▣-------------
×▣        10.11.2013 12:45
                    00h04
▲ D  /VS VM 612

×▣        11.02.2013 18:02
                    00h03
▲ D  /VS VM 612

×Д        20.12.2012 01:54
                    00h04
▲ D  /S VD 432

□✦ Ulm ................
□  Schmitt Peter .........
○  Rosenz Winfried .......
```

12c

12b

12c

21

▶ **Daily printout of the vehicle**

1	▼ 27.11.2013 16:55 (UTC) ------------▼------------
2	24h△▼ ------------🗍------------
3	🗍 Schmitt Peter 🗍▊D /12345678901234 5 6 ------------△------------
4	△ ABC12345678901234 D /VS VM 612 ------------🗍------------

5	🗍 Continental Automotive
	  GmbH
	  1381.12345678901
	------------⊤------------

6	⊤ NFZ-Profi Service & Ve rtrieb ⊤▊D /87654321087654 3 2 ⊤ 02.04.2012 ------------🗍------------
7	🗍▊D /12345678901234 5 6 🗍 11.11.2013 11:11 ▊▼

9	------------⊙------------
	      25.11.2013
	  95 872 - 96 284 km
	------------1------------

10	⊙▊---
10a	⊦ 00:00 06h17 95 872 km 0 km ---------------------------

10b	⊙ Rosenz
	  Winfried
	⊙▊DK /45678901234567 7 8
	  04.01.2014

10c	△→S /LCR 243 24.11.2013 18:54
10d	95 872 km M

10e	✳ 06:17 00h45 ✳ 07:02 00h39 ⊙⊙
10g	⊙ 07:41 01h19 ⊙⊙ 95 958 km; 86 km ---------------------------

10a	⊙▊---
	  95 958 km
	✳ 09:00 00h05
	  95 958 km; 0 km
	--------------------------- 	

10b	⊙ Mustermann
	  Heinz-Dieter
	⊙▊F /12345678901234 5 6
	  16.06.2013

10c	△→D /M MS 680 24.11.2013 18:54
10d	95 958 km ✳ 09:05 00h25 ⊙ 09:30 02h55 ☒ 12:25 01h18
10f	12:25 -----△------
10e	⊙ 13:43 00h03 ✳ 13:46 00h02 ⊙⊙ ⊙ 13:48 00h45 ⊙⊙ ✳ 14:33 00h35 ⊙⊙

10g	⊦ 15:08 01h02 ⊙⊙
	  96 206 km; 248 km
	--------------------------- 	
	⊙▊---
	  96 206 km
	⊦ 16:10 00h20
	  96 206 km; 0 km
	--------------------------- 	
	⊙ Anton
	  Max
	⊙▊A /56789567895678 9 5
	  25.10.2013

```
△→D  /VS VM 612
  25.11.2013 16:30

      96 206 km
⊙ 16:30 00h56
✳ 17:26 01h11
      96 274 km;    68 km
---------------------------
⊙▊---
      96 274 km
```

10a	✳ 18:37 00h23 ⊙ 19:00 00h21 ⊦ 19:21 04h39 96 284 km; 10 km ------------2------------
10h	⊙▊--- 95 872 km
10a	⊦ 00:00 07h02 ⊦ 00:00 07h02

11	------------Σ------------ 1⊙▊---
11b	⊙ 00h21 10 km ✳ 00h28 ☒ 00h00 ⊦ 11h16 2⊙▊---
11c	✳ 00h00 ☒ 12h16 ⊦ 07h02 --------------------------- ⊙ Rosenz Winfried
11e	⊙▊DK /45678901234567 7 8 ▶◀09:00 D 95 958 km ⊙ 01h19 86 km ✳ 01h24 ☒ 00h00 ⊦ 00h00 ⊙⊙ 01h58

⇨⇨

9

```
           ↓
     ----------!×A----------
13 → !o▯  1 25.11.2013 19:01
        ( 1)       00:20
     ▯---
13c → >>   5 15.11.2013 16:42
        ( 2)       00h12
     o▯D /98765432109876 5 4
     o▯F /12345678901234 5 6
     ----------------------
     ×▯   0 10.11.2013 12:45
                    00h04
     o▯DK /45678901234567 7 8
     ----------------------
     ▯+ Lindau
     ▯  Schmitt Peter
21 → ⊕+ .....................
     +⊕ .....................
     ⊙  .....................
```

Points to note with "Daily printout of the vehicle"

```
     ----------1----------
10i →    ------OUT------
     ⊙ Rosenz
       Winfried
     o▯DK /45678901234567 7 8
       04.01.2014
     A+S /LCR 243
```

► **Events / faults from the vehicle**

```
1 →  ▼ 24.10.2013 16:07 (UTC)
     ----------▼----------
2 →  !×A▼
     ----------▯----------
3 →  ▯ Schmitt
       Peter
     ▯▯D /12345678901234 5 6
     ----------A----------
4 →  A ABC12345678901234
       D /VS VM 612
     ----------!A----------
13a → !▯▯   0 10.08.2013 08:12
        ( 0)       00h00
     ▵▯D /12345678901234 5 6
     ▯▯F /12345678901234 5 6
     ----------------------
13c → !▯▯   0 10.08.2013 08:20
        ( 0)       00h03
     ▵▯D /12345678901234 5 6
     ▯▯F /12345678901234 5 6
     ----------------------
     !o▯   1 15.10.2013 07:02
        ( 1)       00h54
     ▯---
     ----------------------
     !o▯   2 15.10.2013 07:02
        ( 1)       00h54
     ▯---
     ----------------------
     !▯o   3 15.03.2012 07:56
        ( 1)       00h01
     o▯F /12345678901234 5 6
     o▯B /22335578901234 1 2
     ----------------------
     >>    4 15.10.2013 11:10
        ( 95)       00h30
     o▯DK /45678901234567 7 8
     o▯F /12345678901234 5 6
           ↓
```

```
           ↓
     !▯   0 17.04.2013 16:04
     !17  ( 0)       01h02
     o▯DK /45678901234567 7 8
     o▯F /12345678901234 5 6
     T▯UK /54321987654321 9 8
     ----------------------
     !▯   0 05.08.2013 09:23
     !22  ( 0)       00h01
     o▯DK /45678901234567 7 8
13b → ----------×A----------
     ×▯   0 10.08.2013 07:00
                    00h02
     ▵▯D /12341234123412 3 4
     ----------------------
13c → ×⊥   0 05.05.2012 07:15
                    00h14
     ▵▯D /12345678901234 5 6
     o▯F /12345678901234 5 6
     ----------------------
     ×⊥   6 05.05.2012 07:15
                    00h14
     ▵▯D /12345678901234 5 6
     o▯F /12345678901234 5 6
     ----------------------
     ×▼   0 12.09.2013 21:00
                    00h01
     ▯---
     ----------------------
     ×??  0 02.06.2013 21:00
                    00h30
     ▵▯D /12341234123412 3 4
     ----------------------
     ▯+ Lindau
21 → ▯  Schmitt Peter
     ⊙  .....................
```

▶ **Over-speeding**

1	▼ 24.10.2013 14:50 (UTC) ------------▼------------
2	>>▼ 90 km/h ------------o------------

3	o Mustermann
	  Heinz-Dieter
	o▉F /12345678901234 5 6
	  16.06.2013
	------------Ⱥ------------

4	Ⱥ ABC12345678901234 D /VS VM 612 ------------>>------------
19	>>▯13.03.2013 14:15 >>17.04.2013 17:44 (7) -------->>▼--------------
20	>>24.05.2012 14:02 00h06 98 km/h 92 km/h (1)
20c	o Förster Thomas o▉D /98765432109876 5 4 -------->>(365)-----------

20a	>>15.10.2013 11:10 00h30
	   98 km/h 95 km/h (95)
	o Rosenz
	  Winfried
	o▉DK /45678901234567 7 8
	------------------------- 	

	o▉DK /45678901234567 7 8 -------->>(10)-----------
20b	>>16.05.2013 17:10 00h15 94 km/h 92 km/h (12)
20c	o Mustermann Heinz-Dieter o▉F /12345678901234 5 6 -------------------------
	▯* ....
21	▯ .... o *Mustermann Heinz* ....

▶ **Technical data**

1	▼ 25.10.2013 14:50 (UTC) ------------▼------------
2	▼o▼
3	⌂ Spedition Mustermüller ⌂▉D /12341234123412 3 4 ------------o------------

3a	o Mustermann
	  Heinz-Dieter
	o▉F /12345678901234 5 6
	  16.06.2013
	------------Ⱥ------------

4	Ⱥ ABC12345678901234 D /VS VM 612 ------------В------------

14	В Continental Automotive
	  GmbH
	  H.-Hertz-Str.45 78052
	  VS-Villingen
	  1381.12345678901234567
	  e1-84
	  12345678
	  2013
	  V xxxx 17.04.2013
	------------Ⰾ------------

15	Ⰾ 87654321
	  e1-175
	  08.03.2012
	------------▼------------

16	▼ Fa. Mustermann & NFZ-

16a	Hersteller
	  Schillerstr. 10 Muster
	  kirchen
	▼▉D /45678901234567 8 9
	  21.01.2013

16b	▼ 08.03.2012 (1) Ⱥ ABC12345678901234

	/??????????????
	w 8 000 Imp/km
	k 8 000 Imp/km
	l 3 050 mm
	o 315/70/R22.5
	> 90 km/h
	        0 - km
	------------------------- 	
	▼ NFZ-Profi Service & Ve
	  rtrieb
	  Hauptstr. 24-26 Muster

17	!o 08.03.2012 14:00 o 08.03.2012 15:00

17a	▼ Fa. Mustermann & NFZ-
	  Hersteller
	  Schillerstr. 10 Muster
	  kirchen
	▼▉D /45678901234567 8 9
	  21.01.2013
	------------------------- 	
	!o 28.08.2012 13:00
	o 28.08.2012 13:26
	▼ Kienzle ARGO GMBH
	  Bismarckstr. 19 Berlin
	  -Steglitz
	▼▉D /89012345678901 5 6
	  19.10.2013
	-----------!xⱭ----------

18	! 18.10.2013 06:34 x 30.09.2013 18:15 ------В ATTACHMENT-------
25	SWUM V xx.xx -----------ⱭⰆ----------
26	CAN: 1 Source: speed Gain: 0.00390625 Factor: 0.926

9

▶ **Driver's activities**

```
---------------------------
▼ 25.10.2013 14:50 (UTC)
       ----------▼----------
⑴⃫▮▼
       ----------◎----------
◎ Mustermann
  Heinz-Dieter
◎▮F ⁄12345678901234 5 6
  16.06.2013
       ----------目----------
目 Continental Automotive
     GmbH
  1381.12345678901
       ----⑴⃫▮▼----
     ?    ⊢    ⊠    ✕    ◎
```

1
2
3
5
27

```
     24.10.13
     23.10.13
     22.10.13
     21.10.13
     20.10.13
     19.10.13
     18.10.13
UTC
00:00
01:00
       ~~~~~~~~
23:00
24:00
       ---------------------------
◎ .....................
```

21

▶ **v-diagram**

```
---------------------------
▼ 25.10.2013 14:50 (UTC)
       ----------▼----------
⑴⃫∨▼
       ----------Д----------
Д ABC12345678901234
  D  ⁄VS VM 612
       ---------------------------
目 Continental Automotive
     GmbH
  1381.12345678901
       ----------◎----------
     20.10.2013
     95 872 -   96 284 km
       ----⑴⃫∨▼----
UTC          km⁄h
            30   60   90   120
00:00
01:00
02:00
03:00
       ~~~~~~~~
24:00
       ---------------------------
◎ .....................
```

1
2
4
5
28
21

▶ **Status D1/D2 diagram ***

```
---------------------------
▼ 25.10.2013 14:50 (UTC)
       ----------▼----------
⑴⃫D▼
       ----------Д----------
Д ABC12345678901234
  D  ⁄VS VM 612
       ---------------------------
目 Continental Automotive
     GmbH
  1381.12345678901
       ----⑴⃫D▼----
     ?    0    1
D1
D2
```

1
2
4
5
29

```
     24.10.13
     23.10.13
     22.10.13
     21.10.13
     20.10.13
     19.10.13
     18.10.13
UTC
00:00
```

D1
D2

```
01:00
02:00
03:00
       ~~~~~~~~
24:00
       ---------------------------
◎ .....................
```

21

9

▶ **Speed profiles ***

1	▼ 27.11.2013 17:05 (UTC) ----------▼------------
2	%v▼ ----------Ⓐ------------
3	Ⓐ Spedition Mustermüller 🖥D /12341234123412 3 4 ----------Ⓐ------------
4	Ⓐ ABC12345678901234 D /VS VM 612 ----------◎------------

	◎
	  25.11.2013 00:00
	  25.11.2013 06:17
	  --- km/h ------------

22	112 <=v< 221 00h00 ----------◎------------

	◎ Mustermann
	  Heinz-Dieter
	  25.11.2013 18:37
	  26.11.2013 00:00
	  --- km/h ------------

23	0 <=< 1 05h02
	  1 <=v< 10 00h01
	  10 <=v< 16 00h02
	  16 <=v< 24 00h04
	  24 <=v< 32 00h05
	  32 <=v< 40 00h05
	  40 <=v< 48 00h04
	  48 <=v< 56 00h00
	  56 <=v< 64 00h00
	  64 <=v< 72 00h00
	  72 <=v< 80 00h00
	  80 <=v< 88 00h00
	  88 <=v< 96 00h00
	  96 <=v< 104 00h00
	  104 <=v< 112 00h00
	  112 <=v< 221 00h00
	----------------------- 	

21	◎ ....

▶ **Rpm profiles ***

1	▼ 27.11.2013 17:05 (UTC) ----------▼------------
2	%n▼ ----------Ⓐ------------
3	Ⓐ Spedition Mustermüller 🖥D /12341234123412 3 4 ----------Ⓐ------------
4	Ⓐ ABC12345678901234 D /VS VM 612 ----------◎------------

	◎
	  25.11.2013 00:00
	  25.11.2013 06:17
	  --- rpm ------------

22	3281 <=n< ∞ 00h00 ----------◎------------

	◎ Mustermann
	  Heinz-Dieter
	  25.11.2013 18:37
	  26.11.2013 00:00
	  --- rpm ------------

24	0 <=n< 1 05h02
	  1 <=n< 234 00h00
	  234 <=n< 469 00h00
	  469 <=n< 703 00h00
	  703 <=n< 938 00h00
	  938 <=n< 1172 00h00
	  1172 <=n< 1406 00h03
	  1406 <=n< 1641 00h03
	  1641 <=n< 1875 00h04
	  1875 <=n< 2109 00h09
	  2109 <=n< 2344 00h02
	  2344 <=n< 2578 00h00
	  2578 <=n< 2812 00h00
	  2812 <=n< 3047 00h00
	  3047 <=n< 3281 00h00
	  3281 <=n< ∞ 00h00
	----------------------- 	

21	◎ ....

▶ **Printout in local time**

	----------------------- !!! No legal printout!!!
30	----------------------- ◎→ 25.11.2013 01:00
31	→◎ 26.11.2013 01:00 UTC +01h00
32	▼ 26.11.2013 15:55 (LOC) ----------▼------------
33	24h🖥▼◎ ----------◎------------

	◎ Rosenz
	  Winfried
	◎🖥DK /45678901234567 7 8
	  04.01.2014
	----------Ⓐ------------

	Ⓐ ABC12345678901234 D /VS VM 612 ----------🖥------------

	🖥 Continental Automotive
	   GmbH
	   1381.12345678901
	----------T------------

	T NFZ-Profi Service & Ve rtrieb T🖥D /87654321087654 3 2 T 02.04.2012 ----------🖥------------
	🖥D /12456789801234 5 6 🖥 11.11.2013 12:11 🖥▼

(from Rel. 2.0)

9

■ Explanations of printout examples

☞ On request, a company-specific logo can be applied to the printout.

```
    --------------!A--------------
1 ── !ЯЯ   0 10.08.2013 08:12
       ( 0)        00h01
    АЯD /12345678901234 5 6
    ОЯF /12345678901234 5 6
2 ── --------------------------
    !ЯЯ   0 10.08.2013 08:20
       ( 0)        00h03
```
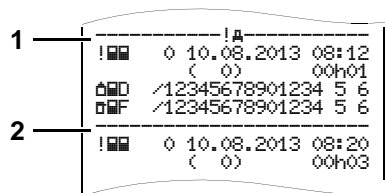
Every printout consists of a string of different data blocks that are identified by block identifiers **(1)**.

A data block contains one or several data records that are identified by means of a data record identifier **(2)**.

A data record identifier will not be printed immediately after a block identifier!

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► **Legend of the data blocks**

1	Date and time of the printout in UTC time
2	Type of printout: 24h🖩▼ = Daily printout of the driver card !×🖩▼ = Events / faults from the driver card 24hД▼ = Daily printout from the DTCO 1381 !×Д▼ = Events / faults from the DTCO 1381 ❯❯▼ = Over-speeding The value set in the speed limiter will also be printed. Т⊙▼ = Technical data ▥🖩▼ = Driver's activities ▥ᴠ▼ = v-diagram Optional printouts: ▥D▼= Status D1/D2 diagram * ×ᴠ▼ = Speed profiles * ×n▼ = Rpm profiles *

3	Information about the cardholder of the inserted tachograph card: Ⓣ = Controller ⚙ = Driver 🏠 = Company Т = Workshop / inspection centre • Last name • First name • Card identification • Card valid until ... If tachograph cards are not associated with a person, the name of the control body, the company, or the workshop will be printed instead of the person's name.
3a	Information about the cardholder of the other tachograph card
4	Vehicle identification: • Vehicle identification number • Authorising member state and vehicle registration number
5	Identification of the tachograph: • Tachograph manufacturer • Part number of the DTCO 1381 tachograph

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6	Most recent tachograph calibration: • Name of workshop • Workshop identification • Date of calibration

7	Most recent control:
	• Control card identification
	• Date, time, and type of control
	  ▤ = Downloading from the driver card
	  ⊻ = Downloading from the DTCO 1381
	  ▼ = Printing
	  ▯ = Displaying

8	List of all driver activities in the order they appear: • Calendar day of the printout and the usage counter (number of days that the card was used.)
8a	? = Time period that the card was not inserted: • Manually entered activity after insertion of the driver card, with pictogram, beginning and duration.

8b	Insertion of driver card into slot (card slot 1 or card slot 2): • Authorising member state and vehicle registration number • Odometer reading when card inserted
8c	Activities of the driver card: • Beginning and duration, and driving status ◉◉ = Crew operation
8d	Specific conditions: • Time of entry and pictogram, for example: ferry or train
8e	Withdrawal of driver card: • Odometer reading and distance travelled since most recent insertion
8f	**Attention:** Possible inconsistency in the data recording since this day was saved twice on the tachograph card.
8g	Activtiy not completed: • Duration of activity and daily summaries might be given incompletely when printouts are made while the driver card is inserted.

8h	The specific condition "OUT of scope" was switched on at start of the day.
9	Beginning of list of all driver activities in the DTCO 1381: • Calendar day of printout • Odometer readings at the times 00:00 and 23:59
10	Chronology of all activities from card slot 1
10a	Time period in which no driver card was inserted in card slot 1: • Odometer reading at the beginning of the time period • Set activity or activities in this time period • Odometer reading at the end of the time period and distance traveled
10b	Insertion of the driver card: • Last name of driver • First name of driver • Card identification • Card valid until ...

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10c	• Authorising member state and vehicle registration number of the previous vehicle • Date and time card was removed from the previous vehicle
10d	• Odometer reading when driver card inserted Ḿ = the entry was done manually
10e	List of activities: • Pictogram of the activity, beginning and duration, and driving status ᴑᴑ = Crew operation
10f	Entry of specific conditions: • Entry time and pictogram of the condition ⚓ = Ferry transfer or train transfer OUT+ = Begin (Recording equipment not required) +OUT = End
10g	Withdrawal of driver card: • Odometer reading and distance travelled
10h	Chronology of all activities from card slot 2

10i	The specific condition "OUT of scope" was switched on at start of the day.
11	Daily summary
11a	Entered locations: • ⊣⊩ = Beginning time with country and region (if applicable) • ⊢⊩ = Ending time with country and possibly region • Vehicle odometer reading
11b	Summary of times with no driver card in card slot 1: • Entered locations in chronological order (no entry in example) • Total activities from card slot 1
11c	Summary of times with "no driver card" in card slot 2: • Entered locations in chronological order (no entry in example) • Total activities from card slot 2

11d	Daily summary "Total values of activities" from the driver card: • Total driving time and distance travelled • Total work and availability time • Total rest time and unknown time • Total time in crew activities
11e	Summary of the activities, chronologically arranged by driver (cumulative for each driver for both card slots): • Last name, first name, card identification of the driver • ⊣⊩ = Beginning time with country and region (if applicable) ⊢⊩ = Ending time with country and possibly region • Activities from this driver with: Total driving time and distance travelled, total work and total availability time, total rest time, total time in crew activities.
12	List of the five most recent saved events or faults on the driver card. ⇨⇨

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12a	List of all saved events on the driver card, arranged according to type of fault and date.
12b	List of all saved faults on the driver card, arranged according to type of fault and date.
12c	Data record of the event or fault. *Line 1:* • Pictogram of the event or fault • Date and beginning *Line 2:* • Events subject to security breach are broken down with an additional code. ➥ *Refer to "Data record purpose during events or faults" on page 105.* • Duration of the event or fault *Line 3:* • Authorising member state and vehicle registration number of the vehicle in which the events or faults appeared.
13	List of the five most recent saved or still active events / faults in the DTCO 1381.
13a	List of all recorded or continuing events of the DTCO 1381.

13b	List of all recorded or continuing faults of the DTCO 1381.
13c	Data record of the event or fault. *Line 1:* • Pictogram of the event or fault • Coding of data record purpose. ➥ *Refer to "Data record purpose during events or faults" on page 105.* • Date and beginning *Line 2:* • Events subject to security breach are broken down with an additional code. ➥ *Refer to "Coding for more detailed description" on page 107.* • Number of similar events on this day. ➥ *Refer to "Number of similar events" on page 106.* • Duration of the event or fault

	Line 3: • Identification of the driver card(s) (maximum of four entries) that was inserted at the beginning or at the end of the event or fault. • "▯---" appears when no driver card is inserted.
14	Identification of the tachograph: • Tachograph manufacturer • Address of the tachograph manufacturer • Part number • Type approval number • Series number • Year of manufacture • Version and date of installation of the user software
15	Identification of the sensor: • Series number • Type approval number • Date of initial installation (first pairing with a DTCO 1381)
16	Calibration data

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16a Listing of the calibration data (in data records):
- Name and address of the workshop
- Workshop identification
- Workshop card valid until ...

16b
- Date and purpose of the calibration:
  1 = Activation; Recording of known calibration data at the time of activation
  2 = Initial installation; first calibration data after activation of the DTCO 1381
  3 = Installation after repair - replacement unit; first calibration data in current vehicle
  4 = Periodic inspection; calibration data of a periodic inspection
  5 = Entry of the vehicle registration number by the company
- Vehicle identification number
- Authorising member state and vehicle registration number
- Authorising member state and vehicle registration number

- ᴎ = Characteristic coefficient of the vehicle
- k = Set constant in the DTCO 1381 for the speed adjustment
- l = Actual circumference of tyre
- ⊕ = Tyre size
- ⟩ = Speed limiter setting
- Old and new odometer reading

17 Time settings

17a Listing of all available data about time setting:
(in data records)
- Date and time, old
- Date and time, changed
- Name of workshop that set the time
- Address of workshop
- Workshop identification
- Workshop card valid until ...

Note: In the second data record it can be seen that the UTC time was corrected by an authorised workshop.

18 The most recently recorded event and the current fault:
- ! = Most recent event, date, and time
- ✗ = Most recent fault, date, and time

19 Information on "over-speeding" control:
- Date and time of the most recent control
- Date and time of the first instance of over-speeding since the most recent control and the number of subsequent over-speeding instances.

20 First instance of over-speeding since the most recent calibration.

20a The five most severe instances of over-speeding of the last 365 days.

20b The 10 most recently recorded instances of over-speeding. For each day the most severe instance of over-speeding is recorded.

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20c	Entries during instances of over-speeding (chronologically arranged by highest average speed):
	• Date, time, and duration of over-speeding
	• Highest and average speed of the over-speeding instance, number of similar events on this day

20c	• Last name of driver
	• First name of driver
	• Card identification of the driver
	Note: If no data record for an instance of over-speeding appears in a block, then the following appears: "⟩⟩–––".

21	Handwritten information:
	• ⌂☀ = Location of control
	• ⌂ = Signature of the controller
	• ⌂☀ = Start time
	• ☀⌂ = End time
	• ☺ = Signature of the driver

22	Information about the cardholder of the recorded profile:
	• Last name of driver
	• First name of driver
	• Card identification
	Note: Missing information about the cardholder means: no driver card inserted in card slot 1.
	• Beginning of the profile recording with date and time
	• End of the profile recording with date and time
	New profiles are created:
	• by inserting / withdrawing a tachograph card into / from card slot 1
	• by a day change
	• by a correction of the UTC time
	• by a voltage interruption

23	Recording of speed profiles:
	• List of the defined speed ranges and period in this range
	• Range: 0 <=v< 1 = Vehicle stationary
	The speed profile is divided into 16 zones. During installation, the individual ranges can be adjusted individually.

24	Recording of rpm profiles:
	• List of the defined motor rpm ranges and period in this range
	• Range: 0 <=n< 1 = Engine off
	• Range: 3281 <=n< x = unlimited
	The rpm profile is divided into 16 zones. During installation, the individual ranges can be adjusted individually.

25	Manufacturer-specific data:
	• Version number of the software upgrade module (SWUM)

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26	Configuration of the "independent motion signal" (from Rel. 2.0) ● CAN: Vehicle data bus 1 or 2 ● Source: Signal source; ● speed = ABS / wheel = wheel speed / odometer (GPS) = GPS unitt ● Gain: Conversion factor for adapting the unit of measurement between "independent signal source" and sensor signal. ● Factor: Factor for adaptation to the sensor signal.
27	Recording of the activities: ● Legend of the symbols ● From the selected day on, there are profiles of the activities of the last 7 calendar days.
28	Recording of the speed data on the selected day.

29	Recording of additional statuses, such as the use of blue lights and sirens on emergency vehicles, etc.: ● Legend of the symbols ● From the selected day on, there are profiles of status inputs D1/D2 of the last 7 calendar days.
30	**Please note:** **Not a legal printout!** A printout in local time can not be used for legal purposes and is not in accordance with the relevant Regulations (e.g. retention requirements)!
31	Period of the printout in local time: ● ⊕+ = Start of recording 　+⊕ = End of recording ● UTC +01h00 = Difference between UTC time and local time.
32	Date and time of the printout in local time (LOC).
33	Type of printout e.g. "24h▉▼" in local time "⬥".

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■ Data record purpose during events or faults

For each established event or each established fault, the DTCO 1381 will register and save the data according to the specified rules.

(1) Data record purpose
(2) Number of similar events on this day

The data record purpose **(1)** indicates why the event or fault was recorded. Events of the same type appearing several times on this day are displayed at pos. **(2)**.

▶ **Coding of data record purpose**

The following overview shows the events and faults arranged according to error type (cause) and the assignment of the data record purpose:

Events		
Picto / reason		*Purpose*
!	Cards conflict [2]	0
!	Driving without valid card [2]	1 / 2 / 7
!	Insertion while driving	3
!	Card not closed	0
⟫	Over-speeding [2]	4 / 5 / 6
!	Power interruption	1 / 2 / 7
!	Sensor fault	1 / 2 / 7
!	Motion conflict [2]	1 / 2
!	Security breach	0
!	Time overlap [1]	–
!	Card invalid [3]	–

Faults		
Picto / reason		*Purpose*
✕	Card fault	0
✕	Internal fault	0 / 6
✕	Printer fault	0 / 6
✕	Display fault	0 / 6
✕	Download fault	0 / 6
✕	Independent motion signal missing [2] (IMS = Independent Motion Signal)	0 / 6

[1] This event will be saved only on the driver card.

[2] This event / fault will only be saved in the DTCO 1381.

[3] The DTCO 1381 will not save this event.

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Overview Data record purpose

0 = One of the 10 most recent (or last) events or faults.

1 = The longest event for one of the last 10 days of occurrence.

2 = One of the 5 longest events over the last 365 days.

3 = The last event for one of the last 10 days of occurrence.

4 = The most serious event for one of the last 10 days of occurrence.

5 = One of the 5 most serious events over the last 365 days.

6 = The first event or fault having occurred after the last calibration.

7 = An active / on-going event or fault.

Number of similar events

0 = For this event, it is not necessary to save "Number of similar events".

1 = One event of this type appeared on this day.

2 = Two events of this type appeared on this day, but only one was saved.

n = "n" events of this type appeared on this day, but only one was saved.

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► **Coding for more detailed description**

```
-------------------------
!🔒   0 05.08.2013 09:23
!22             00h01
🅰 D  /VS VM 612
-------------------------
!🔒   0 17.04.2013 16:04
!16             01h02
🅰 D  /VS VM 612
```

1
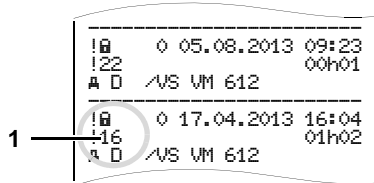
Events subject to security breach "!🔒" are broken down with an additional coding **(1)**.

Security Breach Codes relating to the DTCO 1381

10	=	No additional information
11	=	Failed authentication of the sensor
12	=	Authentication errors of the driver card
13	=	Unauthorised changes to the sensor
14	=	Integrity error, the authenticity of the data on the driver card is not assured.
15	=	Integrity error, the authenticity of the saved user data is not assured.

16	=	Internal data transmission error
17	=	Unauthorised opening of the casing
18	=	Manipulation of the hardware

Security Breach Codes relating to the impulse sensor

20	=	No additional information
21	=	Failed authentication
22	=	Integrity error, the authenticity of the memory data is not assured.
23	=	Internal data transmission error
24	=	Unauthorized opening of the casing
25	=	Manipulation of the hardware

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■ Keyword directory

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■ Automatic setting of the activities after ignition on/off

Automatically set activity ...

... after ignition on

⊢	Break time / rest period	**Driver -1**
✳	Other working time	
▣	Availability time	
–	No change	
⊢	Break time / rest period	**Driver -2**
✳	Other working time	
▣	Availability time	
–	No change	

... after ignition off

⊢	Break time / rest period	**Driver -1**
✳	Other working time	
▣	Availability time	
–	No change	
⊢	Break time / rest period	**Driver -2**
✳	Other working time	
▣	Availability time	
–	No change	

Important!

The vehicle manufacturer may have already programmed defined settings of the activity after ignition on/off!

Please mark the set functions in the table by "✓".

☞ During the "Manual input" (addition of activities on the driver card) this option is disabled! There is no change of activity after ignition on/off!

A The automatic setting after ignition on/off is only visible in the standard display **(a)**. The activity flashes for approx. 5 seconds,

then the previous display will appear again.

➥ *For details on the standard setting, see "Setting activities" as of page 35.*

Information about the DTCO 1381

Type:

No:

Year:

Settingdate:_____

Signature:_____

■ **Notes**

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C®ntinental

EG-Konformitätserklärung nach Richtlinie Nr. 94/9/EG (ATEX)
EC Declaration of Conformity under the terms of Directive No. 94/9/EC (ATEX)

Nr. HOM_001

Wir erklären hiermit als Hersteller, dass die nachstehend beschriebene Einrichtung die Anforderungen der Richtlinie Nr. 1994/9/EG vom 23. März 1994 für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen erfüllt.

We as manufacturer hereby declare that the following described equipment complies with the fundamental requirements of the Directive No. 94/9/EC of 23 March 1994 concerning equipment and protective systems intended for use in potentially explosive atmospheres.

Hersteller *Manufacturer*	Continental Automotive GmbH Heinrich-Hertz-Str. 45, 78052 Villingen-Schwenningen
Gerät *Equipment*	Digitaler Tachograph Typ DTCO 1381.x Digital tachograph type DTCO 1381.x
EG-Baumusterprüfbescheinigung *EC type examination certificate*	TÜV 03 ATEX 2324 X
Benannte Stelle *Notified body*	TÜV NORD CERT GmbH, Geschäftsstelle Hannover, Am TÜV 1, 30519 Hannover, C€ 0044
Gerätekennzeichnung *Marking of the equipment*	⟨Ex⟩ II3(2)G Ex nA [ib] IIC T6
Verwendete harmonisierte Normen *Used harmonized standards*	EN 60079-0: 2006 EN 60079-11: 2007 EN 60079-15: 2005
Andere angewandte Richtlinien *Other used directives*	VO (EWG) Nr. 3821/85, ECE R10, RL 72/245/EWG

VS-Villingen, den / *the*   2012-02-08
Continental Automotive GmbH

Winfried Rogenz	Dr. Harald Jordan
Head of Homologation	Head TTS Product and Project Quality
Unterschrift *signature*	Unterschrift *signature*
Name / *Name*	Name / *Name*
Funktion / *function*	Funktion / *function*

VDO