Digital Tachograph

Operating instructions Company & Driver ⒼⒷ

DTCO 1381

SIEMENS VDO

```
12:50♣  ⊙     75km/h
⊡  123456.7km  ▯⊡
```

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SIEMENS VDO

Dear user,

The **DTCO 1381 d**igital **tacho**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, most recently modified by directive (EC) No. 1360/2002 and directive (EC) No. 432/2004.

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.

We wish you happy motoring.

Your friends at Siemens VDO Automotive

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Means of depiction

Handling the DTCO 1381

Legal requirements

Handling the tachograph cards

■ Means of depiction

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You will find the following emphases in these operating instructions:

> **STOP** **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 features / options.
 Note: Especially in the case of the ADR variant, some functions are possible only while the ignition is switched on!

➡ 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
```
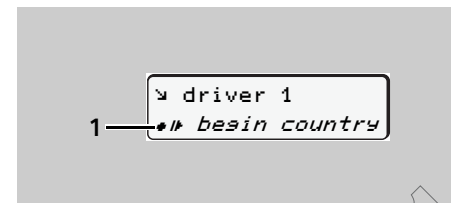
Flashing lines or characters in the menu display are shown in *italics* **(1)** in these operating instructions.

Definitions

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

Driver 2 = The person who is not driving the vehicle.

■ Handling the DTCO 1381

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. Otherwise, make sure that the printer drawer is always closed.

Depending on the volume of information printed, the thermal printing head may be very hot!

Wait until the printing head has cooled before you insert a new roll of paper.

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.

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 cables.**

- Do not insert any other cards, such as credit cards, cards with relief printing, or metallic cards, etc. into the card slot. You will damage the card slot of the DTCO 1381!

- According to the regulations, only type-approved paper rolls may be used in the DTCO 1381!
  Only use paper rolls recommended by the manufacturer (original Siemens VDO printer paper). Make sure that it contains the approval mark.
  ➥ Details refer to "Paper roll" on page 98.

- Do not activate the button elements with sharp-edged or pointed objects such as a ballpoint pen, etc.

- When cleaning the device, do not use any abrasive cleaning agents or solvents like thinner or petroleum spirits.
  ➥ Refer to "Care and maintenance" on page 95.

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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 respectively valid version of the EC regulations 3821/85 in combination with EC regulations 3820/85 and the relevant national laws. They transfer to the driver and the holder of the vehicle (company) a number of obligations and responsibilities. The following list is not guaranteed to be complete or legally valid. It serves only as a guide!

▶ **Obligations of the driver**

- The driver must take care that the driver card and the tachograph will be used properly. For example, attention must be paid that, when changing the displayed time (factory setting = UTC time), the current local time will be set.
  ➥ *Refer to "Set Local time" on page 64.*

- 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! The sheet must bear personal information.
    ➥ *Refer to "Handwritten activity entries" on page 43.*
  – If the return to the company location cannot be made within one week, the repair of the tachograph must be carried out by an authorised workshop on the way.

- During mixed tachograph operation (use of vehicles with analogue [chart based] and digital tachographs), the necessary documents must be carried.
  ➥ *Refer to "Driver/vehicle change during operation" on page 46.*

- If the driver card is lost, stolen, damaged, or if the driver card malfunctions, at the beginning and at the end of the trip the driver must generate a daily printout from the DTCO 1381 and add his personal information. If necessary, the availabilty and other working times must be amended by handwritten entries.
  ➥ *Refer to "Handwritten activity entries" on page 43.*

- 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.

- A journey may be continued without driver card for a period of 15 calendar days or longer if necessary, for the return of the vehicle 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 seven calender days.

▶ **Obligations of the company**

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

- Make sure that the company card is used correctly. Lock the company in the DTCO 1381 at the beginning of the vehicle deployment, and lock it out again at the end.

- 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 and store the data according to the legal stipulations.

- Have repair and calibration work done by authorised workshops only.

- 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 printouts for at least two years.

1

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■ Handling the tachograph cards

Possession of a tachograph card authorises the holder to use the DTCO 1381. Areas of activity and access rights are prescribed by law.
➥ *Refer to "Tachograph cards" on page 85.*

⚠ The white driver card is person-spe-cific. The driver uses this card to identify himself to the DTCO 1381. **The driver card is not transfera-ble!**

⚠ The yellow company card is de-signed for owners and operators of vehicles with installed digital tacho-graph and must not be transferred to "Others". **The company card must not be used for driving!**

Handle your tachograph card carefully in order to avoid loss of data and observe the instructions of the card manufacturer.

● 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.

Introduction

2

2

■ First operating steps

With the DTCO 1381, information about driver activities and vehicle use are for the first time electronically stored in a data memory incorporated in the device and on the driver-based driver card.

The new "medium" as well as the requirements caused by the regulation enlarged the scope of functions compared with the analogue tachograph types.

☞ The following overview shows you the operating steps you should carry out in order to use the DTCO 1381 properly. Detailed operating steps for the special functions are described in the individual chapters.

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

▶ **For the company**

1. Register your company within the DTCO 1381. Insert the company card into any card slot and follow the menu guidance.
➥ *For details refer to "Company card insertion" page 25 cf.*

2. The company card gives you authorisation to access the company's saved data.
➥ *For details refer to "Functions of the company card" page 24 cf.*

3. Withdraw the company card at the end of the registration from the card slot.
➥ *For details refer to "Company card withdrawal" page 28 cf.*

☞ The company card must not be used for driving!

▶ **For the driver**

1. Insert your driver card into the card slot at the beginning of the shift (start of working day) and follow the menu guidance.
➥ *For details refer to "Inserting driver card(s)" page 32 cf.*

2. You can add activities using the "Manual entry".
➥ *For details refer to "Manual entries" page 34 cf.*

3. Use the activity button to adjust that activity you want to carry out at that moment. When driving, the DTCO 1381 switches automatically to driving time "ʘ" for driver 1.
➥ *For details refer to "Setting activities" page 41 cf.*

4. Adjust the time in the display to the current local time.
➥ *For details refer to "Set Local time" page 64 cf.*

The DTCO 1381 is ready for operation! ⇨⇨

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5. **Important!** During a pause or break time, always set the activity to "ʜ".
    ➨ *For details refer to "Setting activities" page 41 cf.*

6. Possible faults in the device or the system components will appear in the display. Acknowledge the message.
    ➨ *For details refer to "A message appears" page 70 cf.*

7. At the end of the shift (end of the working day) or vehicle change, you request your driver card from the card slot and follow the menu guidance.
    ➨ *For details refer to "Withdrawing the driver card(s)" page 44 cf.*

8. You can display or print activities from preceding days as well as saved events, etc. by means of the menu functions.
    ➨ *For details refer to "Retrieving menu functions" page 54 cf.*

■ Display and operational elements
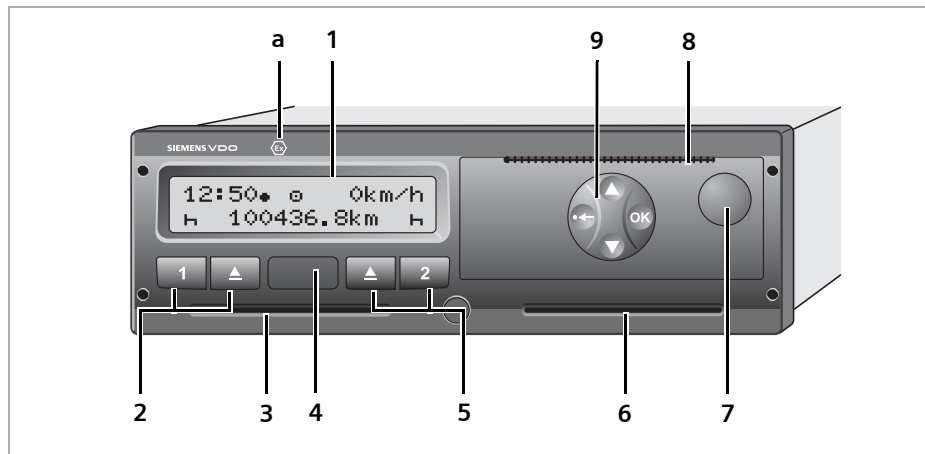
(1) Display
(2) Driver 1 keypad
(3) Card slot 1
(4) Download interface / calibration inter-
      face
(5) Driver 2 keypad
(6) Card slot 2
(7) Unlock button printer drawer
(8) Tear-off edge
(9) Menu button

(a) Symbol " ⊗ " for ADR variant *
      (ADR = European **A**greement concern-
      ing the international carriage of **d**an-
      gerous 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 18.*

Driver 1 keypad (2)

1   Activity button for driver 1

▲   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.   ⇨⇨

Download interface / calibration interface (4)

The download interface is located under a cover. This interface is enabled only if a company card, control card, or workshop card is inserted.
➥ *For details refer to "Access rights of the tachograph cards" page 86 cf.*

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 printer drawer (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 button (9)

Use the following menu button 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.

◖   Leave menu one step at a time or cancel the entry of the country.

➥ *For details refer to "Retrieving menu functions" page 54 cf.*

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
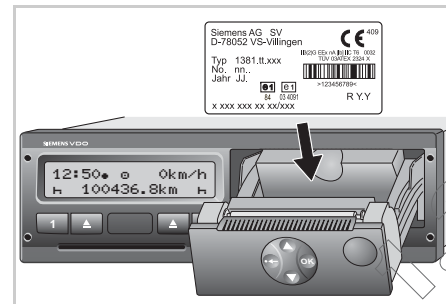
Model plate

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.

2

■ 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.
➥ *Refer to "Setting the language" on page 55.*

▶ Standby mode
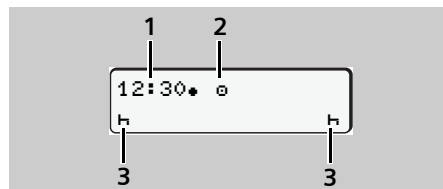
Display of standby mode

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 operational mode **(2)**. The display disappear after another 3 minutes (customer-specific value).

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
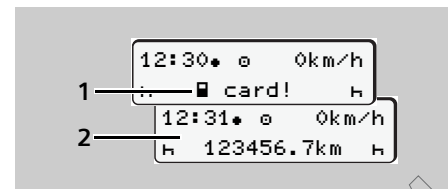
Display after ignition on

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.

▶ **Standard display**
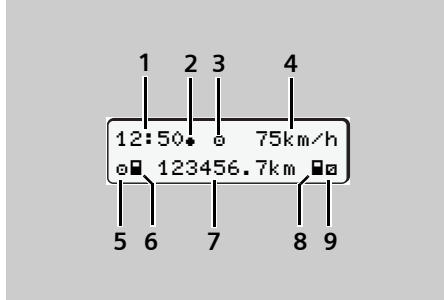
Standard display

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

(1) Time; the example shows the set local time
(2) Symbol of the local time "●"
with symbol "●" = set local time
without symbol = UTC time
➥ *Refer to "Time management" on page 93.*
(3) Symbol of the operating mode; example shows "Operational", symbol "☺"
➥ *For details refer to "Operating modes of the DTCO 1381" page 84 cf.*

(4) Speed
(5) Activity, driver 1
(6) Card symbol, driver 1
The card symbol will be displayed only if the tachograph card inserted in card slot 1 was read correctly by the DTCO 1381.
(7) Total odometer
(8) Card symbol, driver 2
The card symbol will be displayed only if the tachograph card inserted in card slot 2 was read correctly by the DTCO 1381.
(9) Activity, driver 2

▶ **Data display during trip**

Press any menu key while driving and the following times will appear when the driver card is inserted.
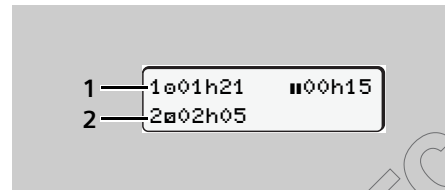
Data display during trip

(1) Times of driver 1:
Driving time "☺" since a break of 45 minutes and ...
valid break "❚❚" (cumulative break time in break periods of at least 15 minutes).
(2) 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.

The standard display will appear again after any key is pressed again or after 10 seconds.

2

2

▶ **Data display if the vehicle is stationary**

```
    1         2

  1◎03h46   ▮▮00h15
  1◎▮▮25h57  ✳00h21

    3         4
```
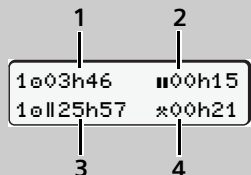
Data display of driver 1

When the vehicle is not moving and driver card is inserted, you can display the current times of driver 1 by pressing the menu button ◓.

(1) Driving time since a break of 45 minutes
(2) Sum of the valid breaks in periods of at least 15 minutes
(3) Driving time over two weeks
(4) Duration of the set activity

If you press menu button ◓ once again, the times of driver 2 will appear.

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

You can call up other data via the menu functions.
➥ *Refer to "Retrieving menu functions" on page 54.*

▶ **Menu selection**

```
  ⌂⇆▲ lock-out
  company?      no
    printout
    ▲▼ vehicle
```
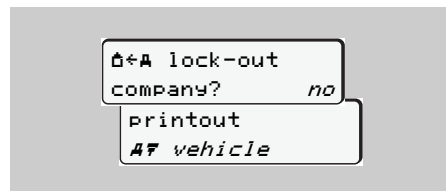
Display of a menu selection

Possible functions or variations which can be selected by you will be shown by flashing in the 2nd line of the menu display.

Use the buttons ◔ / ◓ to select the desired function or variation step by step and acknowledge with the button ⓞⓚ.

▶ **Display of messages**

```
  ✕▲ time fault
               ✕✕

  1        2        3
```
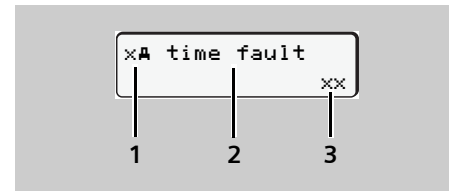
Display of a message

Regardless of which display currently appears or whether the vehicle is moving or stationary, messages will be displayed with priority.

(1) Pictogram combination
(2) Plain text of the fault (or event)
(3) Memory code
➥ *Refer to "A message appears" on page 70.*

■ Special displays

▶ Production status

```
10:30 Ⴈ⊙   0km/h
⚹     56.7km  ⊠
```

1
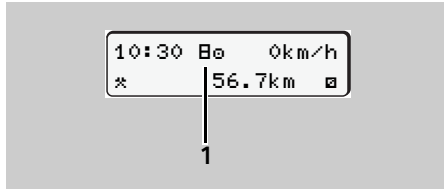
Display of production status

If the DTCO 1381 has not yet been activated as a recording device, then "Production status", symbol "Ⴈ" **(1)** will appear. The DTCO 1381 will not accept any other 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

```
12:10. ⊙    0km/h
OUT 123456.7km
```

1
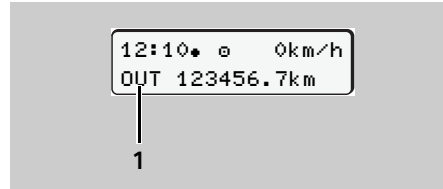
Out of Scope display

The vehicle is driving outside the scope of the regulations, symbol "OUT" **(1)**.

You can set this function through the menu.
➥ *Refer to "Enter Out beginning / end" on page 64.*

▶ Ferry transfer or train transfer

```
12:40. ⊙       ⛴
⚹ 123456.7km ▯▮
```

1
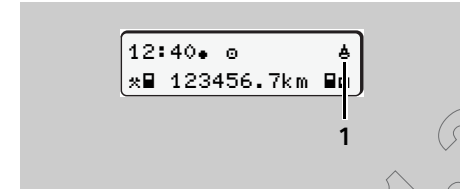
Display of ferry transfer or train transfer

The vehicle is travelling on a ferry or on a train, Symbol "⛴" **(1)**.

You can set this function through the menu.
➥ *Refer to "Enter Beginning of ferry / train" on page 64.*

2

2

> ▶ **Behaviour during low voltage**

1 — `12:10  ⊙÷ 45km/h`
    `⊙▯ 123456.7km ▮⊠`

2 — `12:10  ÷`
    `    123456.7km`
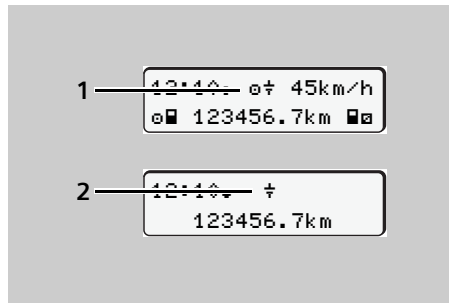
Display Supply voltage too low

If the supply voltage of the DTCO 1381 is too low, an indication is shown as follows:

Case 1: Symbol Operation "⊙" and Low voltage "÷" **(1)**
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 2: Symbol Low voltage "÷" **(2)**
This case corresponds to a power interruption. The DTCO 1381 cannot fulfill its role as a recording device! The driver's activities will not be recorded.

The display does not indicate:

● the symbol of the operational mode,

● the speed,

● the symbols of the inserted card(s) and of the set activities.

> ▶ **Display after low voltage or power interruption**

`▮▮xx.xx.xx        ▮`
`▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮`
`!÷ power-`
`interruption  xx`
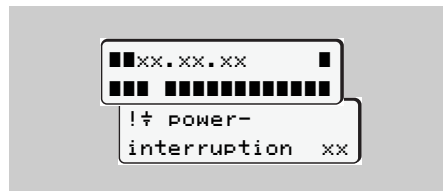
Display of the "Power interruption" message

As soon as the voltage is present again, the version of the operating software will appear for approximately 5 seconds and then the DTCO 1381 will indicate "Power interruption".

⚠ If, with correct onboard 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 43.*

Company mode

3

■ Functions of the company card

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,

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

- to access data from an inserted driver card,

- to display, print out or download data via the download interface.

> ⚠ 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 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 and the event will be saved in the DTCO 1381.

■ Company card insertion
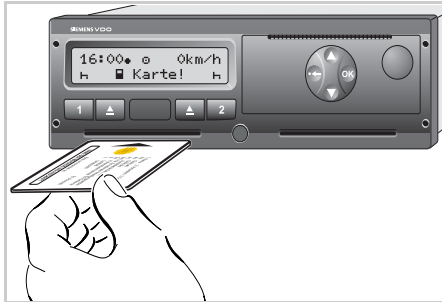
Insert company card
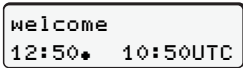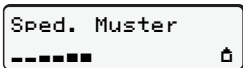
1. Turn on the vehicle's ignition. (Required only for ADR variant *.)

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

   The subsequent procedure is menu-guided.

☞ The company card has a higher value than the driver card and determines the language of the display.

As an alternative, you can individually set a preferred language.
➥ *Refer to "Setting the language" on page 55.*

3

▶ Menu guidance after inserting company card

Step / menu display	Explanation / meaning
1. `welcome` `12:50●  10:50UTC`	Greeting text; the set local time (12:50:00) and the UTC time (10:50:00) will appear for approximately 3 seconds.
2. `Sped. Muster` `------■■`	The name of the company appears. A progress bar indicates that the company card is being read.

3

Step / menu display	Explanation / meaning
3. ⌂→A company locked-in or ⌂ already locked-in	If the company card is inserted the first time, the company will automatically be locked-in within the DTCO 1381. The company lock function is activated. Thus, the protection of company-specific data is ensured!
4. Sped. Muster ----■■■■■■■ ⌂	Continues reading company card.
5. 12:50○ ⌂ 0km/h ⊢■ 123456.7km ■⊢ **1**	After reading is complete, the standard display will appear. The DTCO 1381 is in the "Company" mode, symbol "⌂" **(1)**.

▶ **Menu functions in the company mode**

In principle, follow the same procedure when navigating in the menu functions:
➥ *Refer to "Retrieving menu functions" on page 54.*

If, however, the company card is in card slot 2, all main menus assigned to card slot 2 will remain blocked. 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 59.*

■ Prepare data download

In the following situations a download of data from the data memory is recommended:

- Sale of the vehicle,
- Immobilisation of the vehicle,
- Replacement of a defective DTCO 1381.

⚠ Downloading of data is compulsory in some member states. Please observe the legal stipulations applicable in your country!

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.

▶ **Connection to the download interface**
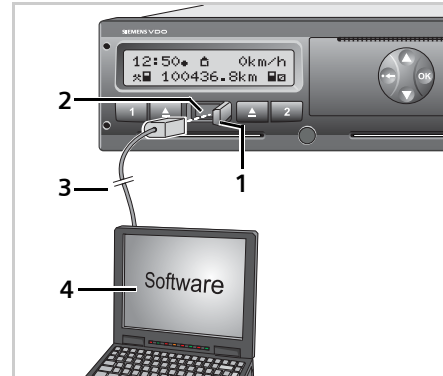
Connection to download interface

☞ Data can only be downloaded if the company card is inserted!

1. Open the covering cap **(1)** to the right.

2. Insert data cable **(3)** into the download interface **(2)** and the laptop **(4)**.

3. Start the reading software.
The data in the data memory and on the driver card will only be copied (not deleted) by downloading them.

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

4. After reading the data, make sure you always close the covering cap **(1)**.

3

■ Company card withdrawal

☞ You can only withdraw the company card from the card slot when the vehicle is not moving!
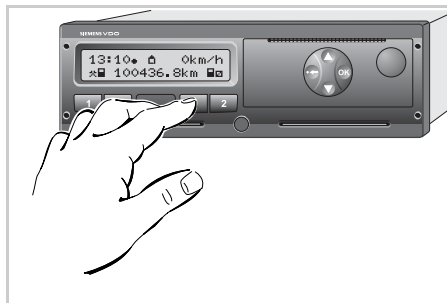
Request company card
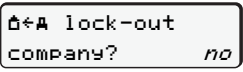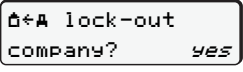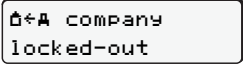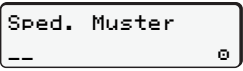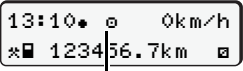
1. Turn on the vehicle's ignition. (Required only for ADR variant *.)

2. Press the appropriate ejection button ▲ of the card slot in which the company card is located.
The subsequent procedure is menu-guided.
➥ Refer to "Menu guidance after requesting company card" on page 29.

☞ **Please note:** 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.

▶ **Menu guidance after requesting company card**

Step / menu display	Explanation / meaning
1. `Sped. Muster` `_____████ ░`	The name of the company appears. A progress bar shows that the DTCO 1381 is transferring data to the company card.
2. `░←A lock-out` `company?    no` `░←A lock-out` `company?    yes` `░←A company` `locked-out`	**No company Lock-out** • Select "**No**" and acknowledge with the button ⓞⓚ. Menu display 3 will appear. **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 third company!
3. `Sped. Muster` `--          ⊙`	Continues writing data on the company card.
4. `13:10● ⊙   0km/h` `✳▯ 123|56.7km  ▫` **1**	The company card is released; the standard display appears. The DTCO 1381 is in the "Operational" mode again, symbol "⊙" **(1)**.

3

Operational mode

Inserting driver card(s)

Setting activities

Withdrawing the driver card(s)

Driver / vehicle change during operation

4

■ Inserting driver card(s)

> ⚠ **In accordance with proper driving habits described in the directive and in the general interest of traffic safety, please never attempt to insert the driver card(s) while the vehicle is moving!**

It is possible to insert the driver card while the vehicle is moving, but this will be shown as an event and saved on your driver card and in the DTCO 1381!
➥ *Refer to "Overview of the events" on page 72.*

1. Turn on the vehicle's ignition. (Required only for ADR variant *.)
If no driver card is found in card slot 1 after the ignition is turned on, you will be asked to insert the driver card!
➥ *Refer to "Display after ignition on" on page 18.*
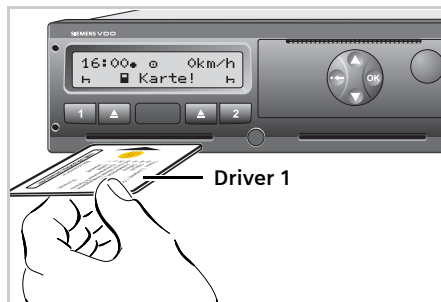
Operational note: Driver card in slot 1 missing

2. **Driver 1**, who will drive the vehicle, first inserts his driver card (with the chip facing upward and the arrow pointing forward) into card slot 1. The subsequent procedure is menu-guided.
➥ *Refer to "Menu guidance after inserting driver card" on page 33.*

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

☞ Wait until the standard display appears before inserting the next card. Otherwise, the entry procedure of the previously inserted driver card will be aborted!
➥ *Refer to "Aborting the entry procedure" on page 40.*
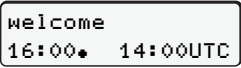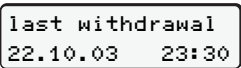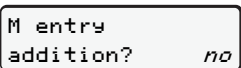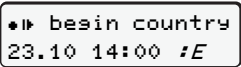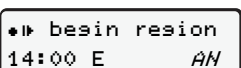
Remark
The menu procedures for driver 1 and driver 2 are identical. Menu guidance is carried out in the language stored on the driver card. As an alternative, you can individually set a preferred language.
➥ *Refer to "Setting the language" on page 55.*

☞ In **single-driver mode**, card slot 2 will remain empty!

▶ **Menu guidance after inserting driver card**

Step / menu display	Explanation / meaning
1. `welcome` `16:00● 14:00UTC`	Greeting text; the set local time (4 pm) and the UTC time (2 pm) will appear for approximately 3 seconds.
2. `Maier` `----        ⊚`	The driver's last name appears. A progress bar indicates that the driver card is being read.
3. `last withdrawal` `22.10.03   23:30`	The date and time of the most recent card withdrawal will be displayed in UTC time for approximately four seconds.
4. `M entry` `addition?    no`	If you do not want to add any activities: ● Select "**No**" and acknowledge. If you want to add activities: ● Select "**Yes**" and acknowledge. ➥ *Refer to "Manual entries" on page 34.*
5. `●▪▶ begin country` `23.10 14:00 :E`	● Select country at the beginning of the shift and acknowledge. ● You can abort the entry of a country with the button ⬅. The standard display appears, step 7.
6. `●▪▶ begin region` `14:00 E     AN`	You may be automatically asked to enter the region: ● Select and acknowledge the region.
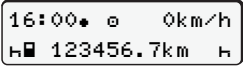
Use the buttons ⏶ or ⏷ to select the desired function and confirm your selection with the ⊛ button.
➥ *Refer to "Entry request" on page 40.*

Use the buttons ⏶ or ⏷ to select the country and confirm your selection with the ⊛ button.
➥ *Refer to "Selecting the countries" on page 40.*

Step / menu display	Explanation / meaning
7. ` 16:00⊕ ⊙    0km/h ` ` ⊢▪ 123456.7km  ⊢ `	The standard display will appear. The card symbol will be displayed only if the data of the driver card have been read completely. Symbols 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.

As long as the card symbol is missing in the display, the following functions are not possible at the moment:

● Calling up menu functions.

● Requesting a tachograph card.

➥ *Refer to "Reading the driver card" on page 40.*

▶ **Manual entries**

Manual entry enables you to enter any additional activities on the driver card. The following entries are possible after each time the driver card is inserted:

● You can continue a work shift and amend activities on the driver card which were carried out between withdrawing and inserting the card, see example 1, page 35.

● You can continue a work shift, end a work shift, and/or prefix activities to a work shift, see example 2, page 37.
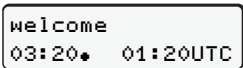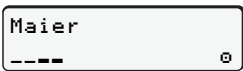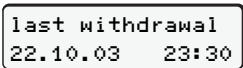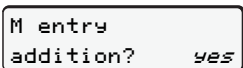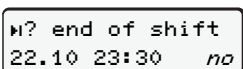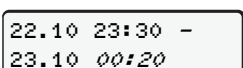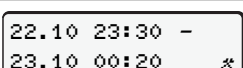
> ⚠ According to the ordinance, activties which cannot be recorded by the DTCO 1381 (driver is not in the vehicle) must be added on the driver card by means of manual entries.
>
> All time-based entries that you make on the DTCO 1381 when completing entries manually must be made in UTC time!
> ➥ *Refer to "Converting local time to UTC time" on page 94.*

▶ **Continuing the work shift**

Step / menu display	Explanation / meaning
1. `welcome` `03:20●  01:20UTC`	Greeting text; the set local time (03:20) and the UTC time (01:20) will appear for approximately 3 seconds.
2. `Maier` `----      ◙`	The driver's last name appears. A progress bar indicates that the driver card is being read.
3. `last withdrawal` `22.10.03    23:30`	The date and time of the most recent card withdrawal will be displayed in UTC time for approximately four seconds.
4. `M entry` `addition?    yes`	• Select "**Yes**" and acknowledge.
5. `⋈? end of shift` `22.10 23:30    no`	• If you want to continue this work shift, select "**No**" and acknowledge.
6. `22.10 23:30 -` `23.10 00:20`	• Use the button ▲ to set the desired time and then acknowledge.
7. `22.10 23:30 -` `23.10 00:20    ✳`	• Set the desired activity "✳" and acknowledge.

Example 1
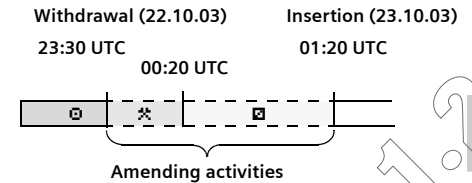
Withdrawal (22.10.03) Insertion (23.10.03)

23:30 UTC   01:20 UTC

   00:20 UTC

Amending activities

Use the buttons ▲ or ▼ to select the desired function and confirm your selection with the OK button.
➥ *Refer to "Entry request" on page 40.*

Alternatively, you can set the activities with the corresponding activity buttons **1** or **2**. ⇨⇨

4

Step / menu display	Explanation / meaning
8. `м? end of shift` `23.10 00:20    no`	• The work shift continues: Select "**No**" and acknowledge.
9. `23.10 00:20 –` `23.10 01:20`	• Use the button ⬢ to set the desired time and then acknowledge.
10. `23.10 00:20 –` `23.10 01:20    ⊠`	• Set the desired activity "⊠" and acknowledge.

11. `M confirm entry?`
`              yes`
`               no`
	• Accept entries: Select "**Yes**" and acknowledge.
	or
	• Select "**No**", back to step 4. You can repeat the entry/entries.

12. `03:20. ⊙   0km/h` `⊠▪ 123456.7km  ⊠`	The standard display will appear. The card symbol will be displayed only if the data of the driver card have been read completely. Symbols 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.

As long as the card symbol is missing in the display, the following functions are not possible at the moment:

• Calling up menu functions.

• Requesting a tachograph card.

➡ Refer to "Reading the driver card" on page 40.

4
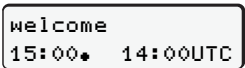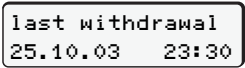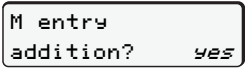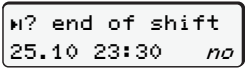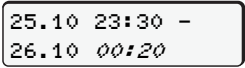
▶ **Prefixing activities to a shift**

Step / menu display	Explanation / meaning
1. `welcome` `15:00●  14:00UTC`	Greeting text; the set local time (15:00) and the UTC time (14:00) will appear for approximately 3 seconds. **Note:** For this DTCO 1381, the local time has already been set to the end of daylight savings time between "Last withdrawal" and "Inserting" the driver card.
2. `Rosenz` `----      ⊠`	The driver's last name appears. A progress bar indicates that the driver card is being read.
3. `last withdrawal` `25.10.03    23:30`	The date and time of the most recent card withdrawal will be displayed in UTC time for approximately four seconds.
4. `M entry` `addition?    yes`	• Select "**Yes**" and acknowledge.
5. `M? end of shift` `25.10 23:30    no`	• If you want to continue this shift, select "**No**" and acknowledge.
6. `25.10 23:30 -` `26.10 00:20`	• Use the button ▲ to set the desired time and then acknowledge.

Example 2
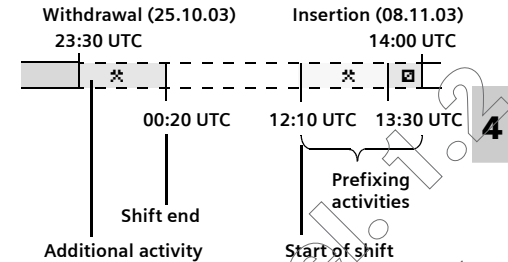
Withdrawal (25.10.03) Insertion (08.11.03)
23:30 UTC 14:00 UTC

00:20 UTC 12:10 UTC 13:30 UTC

4

Prefixing activities

Shift end

Additional activity Start of shift

Use the buttons ▲ or ▾ to select the desired function and confirm your selection with the ⓞⓚ button.
➥ *Refer to "Entry request" on page 40.*
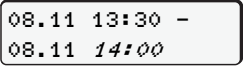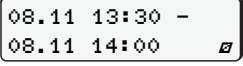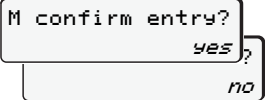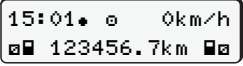
Step / menu display	Explanation / meaning
7. `25.10 23:30 -` `26.10 00:20   ⁂`	• Set the desired activity "⁂" and acknowledge.
8. `⊮? end of shift` `26.10 00:20   yes`	• The preceding work shift is ended: Select "**Yes**" and acknowledge.
9. `⊮•? end country` `26.10 00:20 :D`	• Select the country at the end of the shift and acknowledge the end of this shift with the button ⊛. • You can skip the entry of a country with the button ⬅.
10. `⊛⊮? begin` `08.11 12:10`	• Use the button ⬇ to retrospectively set the beginning of the new shift; then acknowledge.
11. `•⊮? beg. country` `08.11.12:10 :D`	• Select country at the beginning of the shift and acknowledge. • You can skip the entry of a country with the button ⬅.
12. `08.11 12:10 -` `08.11 13:30`	• Use the button ⬆ to set the desired time of the completed activity and then acknowledge.
13. `08.11 12:10 -` `08.11 13:30    ⁂`	• Set the desired activity "⁂" and acknowledge.

Alternatively, you can set the activities with the corresponding activity buttons **1** or **2**.

➥ *Refer to "Selecting the countries" on page 40.*
If necessary, you may be asked to enter the region after having entered the country.

Step / menu display	Explanation / meaning
14. `08.11 13:30 -` `08.11 14:00`	• Use the button ⊘ to set the desired time of the additional activity and then acknowledge.
15. `08.11 13:30 -` `08.11 14:00    ▨`	• Set the desired activity "▨" and acknowledge.

16. `M confirm entry?`
`            yes`
`            no`
	• Accept entries: Select "**Yes**" and acknowledge.
	or
	• Select "**No**", back to step 4. You can repeat the entry/entries.

17. `15:01  ⊙   0km/h` `▨▯ 123456.7km ▯▨`	The standard display will appear. The card symbol will be displayed only if the data of the driver card have been read completely. Symbols 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.

As long as the card symbol is missing in the display, the following functions are not possible at the moment:

• Calling up menu functions.

• Requesting a tachograph card.

➥ *Refer to "Reading the driver card" on page 40.*

4

▶ **Things to note when completing entries**

Entry request

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

```
4↘ please
enter
```
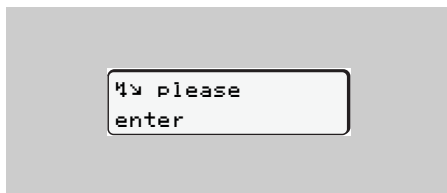
If the button ⓞ is pressed within an additional 30 seconds, then the entry can be continued. Otherwise, the driver card will be read to completion and the standard display will appear.
The DTCO 1381 saves any entries that have already been acknowledged with the button ⓞ.

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 103.*

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

Aborting the entry procedure

The DTCO 1381 will cancel the entry procedure in the following cases:

- Driving begins
- A second driver card is inserted.
  In both situations, the driver card will be read to completion. The DTCO 1381 saves any entries that have already been acknowledged with the button ⓞ.

Reading the driver card

☞ While the driver card is being read, some functions on the DTCO 1381 are not possible.

If a menu button or the ejection button is pressed, a message will be displayed.

```
please wait!
```

or

```
4▯ ejection not
possible    xx
```

■ Setting activities

▶ Manual setting

☞ The driver sets his activity according to the current activity.
The activities may be set only if the vehicle is stationary!

```
12:50• ⊙   0km/h
☆▯ 100436.8km ▮▯
```

1 —
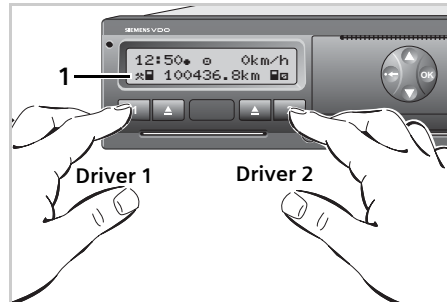
Driver 1   **Driver 2**

1. Driver 1 presses the button **1**.
Continue pressing the button until the desired activity (⊢ ▯ ☆) appears in the display **(1)**.

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

▶ Automatic setting

While driving, the DTCO 1381 switches automatically to the following activities:

```
18:01• ⊙   75km/h
⊙▯ 123456.7km ▮▯
```
1   **2**
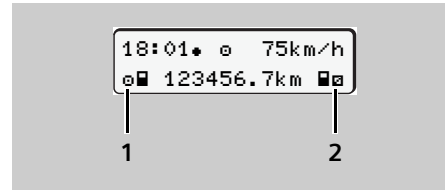
● for driver 1 activity "⊙" **(1)**.
● for driver 2 activity "▯" **(2)**.

Regardless of which activities were set before driving commenced, when the vehicle stops, the DTCO 1381 switches automatically to the following activities:

```
18:45• ⊙    0km/h
☆▯ 123506.2km ▮▯
```
3   **4**
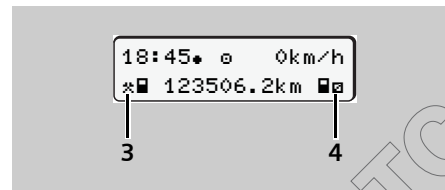
● for driver 1 activity "☆" **(3)**.
● for driver 2 activity "▯" **(4)**.

> ⚠ **Important!**
> At the end of a shift or during a break, always set the activity to "⊢". Otherwise, the DTCO 1381 will save other working time "☆" for driver 1 and availability time "▯" for driver 2!

Overview of the activities

⊙ = Driving time (automatic when driving)

☆ = Other work times

▯ = Availability (waiting times, co-driver time, driver 2 sleeper-cab time during the trip)

⊢ = Break times and rest periods

4

4

▶ **Monitoring the activities**

When the vehicle becomes stationary storage of an activity is dependent on whether the driving continues or if another activity is selected.

Saving after the vehicle stops

If the driver sets another activity within two minutes, such as "▨", then the DTCO 1381 will save the set activity starting from the moment when the vehicle stops. See example 1.

Example 1

13:30　　　13:31　　　13:32 (UTC)

automatic

= ⊙　　　　= ▨
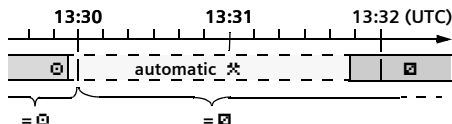
DTCO 1381 memory behavior

Saving during stop-and-start operations

The DTCO 1381 saves all activities every minute, whereby the beginning of a driving time is set retroactively to the full minute. Examples 2 and 3 show you how the DTCO 1381 saves the driving times during stop-and-start operations.

Example 2

13:30　　　13:31　　　13:32 (UTC)

automatic

= ⊙　　= ⊙　　　= ⊙
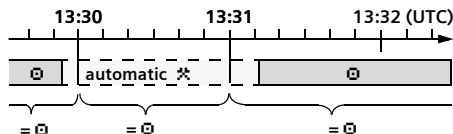
Stops under two minutes are stored by the DTCO 1381 as driving time "⊙".

Example 3

13:30　　　13:32　　　13:34 (UTC)

automatic

= ⊙　　= ⚒　　　= ⊙
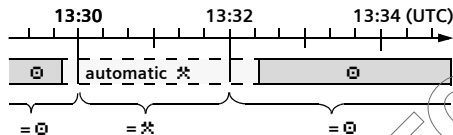
Stops being longer than two minutes are stored by the DTCO 1381 as working time "⚒".

⚠ **Please note!**
The DTCO 1381 calculates on the basis of the actually determined driving times and warns the driver if he will exceed the driving time (before a statutory break)!
However, these cumulative driving times do not anticipate the legal interpretation of "continous driving time".

▶ **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 trip. If necessary, you must amend the availabilty and other working times by handwritten entries.

The rear side of the paper roll can be used to make handwritten entries of your activities **(2)** 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!

■ Withdrawing the driver card(s)

☞ In principle, the driver card can remain in the card slot at the end of the work shift. However, it is best to withdraw the driver card from the DTCO 1381 in order to prevent misuse!

⚠ 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 46.

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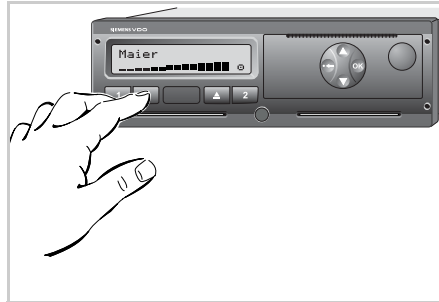
Driver card request

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 "⊦".

3. Press the ejection button ⬆ for card slot 1 or card slot 2. The subsequent procedure is menu-guided.
➥ Refer to "Menu guidance after withdrawing driver card" on page 45.

☞ **Please note:** 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.

▶ **Menu guidance after withdrawing driver card**

	Step / menu display	Explanation / meaning
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` `26.10 14:00 E`	• Select country at the end of the shift and acknowledge. • Or you can skip the entry of a country with the button ⊖.
3.	`Maier` `_ _ _ _ _ ■ ■ ■ ■ ☉`	Continues writing driver card

4.	`24h■▼ day`
	`26.10.03      yes`
	`  26.10.03      no`
		• If you need a printout, select "**Yes**" and acknowledge.
		• If you do not need a printout, select "**No**" and acknowledge.

5.	`printout` `started ...`	When the function is selected, the continuation of the action will appear in the display.
6.	`Maier` `_ _              ☉`	Continues writing driver card
7.	`15:05● ☉   0km/h` `├  123456.7km  ├`	The driver card is released; the standard display appears.

The procedures for driver 1 and driver 2 are identical.

Use the buttons ⊙ or ⊙ to select the country and confirm your selection with the ⊙ button.

If necessary, you may be asked to enter the region after having entered the country.

4

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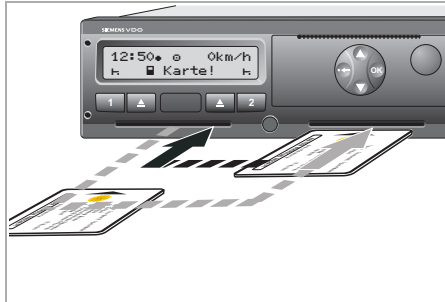
Exchanging the driver card(s)

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

1. Withdraw the driver cards from their respective 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.

▶ Set the desired activity.
The new driver 1 presses the button **1**, driver 2 presses the button **2**.

Case 2:
Driver 1 or driver 2 leaves 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. The daily printout is necessary in case the next journey is in a vehicle with an analogue tachograph (mixed tachograph operation, see next page).

2. The new driver 1 first inserts his driver card into card slot 1.
Or:
The new driver 2 inserts his driver card into card slot 2.

Case 3:
Driver 1 and driver 2 leave the vehicle

1. Both make their daily printouts and take their driver cards from 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 4 – Mixed tachograph operation: Vehicle usage with different tachograph types

- For example, analogue tachographs such as KTCO 1318, FTCO 1319, and MTCO 1324.
  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 week and for the last 15 days:

- the driver card **(1)**,
- the relevant daily printouts from the digital tachograph **(2)**,
- the charts covered with data **(3)** and, if necessary, handwritten information concerning the activities.

> ⚠️ Please observe the legal stipulations applicable in your country!

4
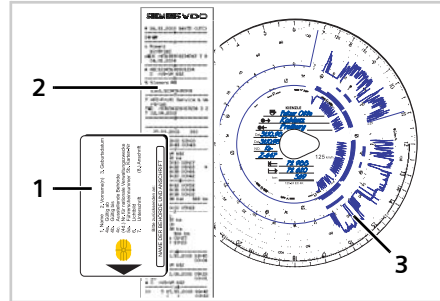
Printer Handling

Insert paper roll

Printout of data

DTCO 1381 Rel. 1.2
Service Only

■ Insert paper roll

☞ **Please note!**
Use (order) only paper rolls (original Siemens 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.
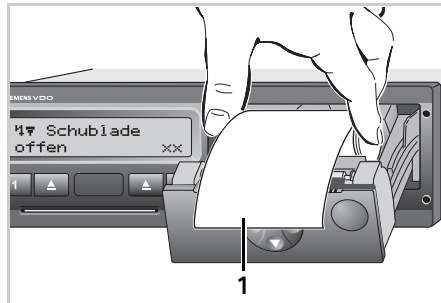
Insert paper roll

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.

■ 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
26.10.03      yes            1

◼▼ driver 1
!x◼▼ event                   2
```
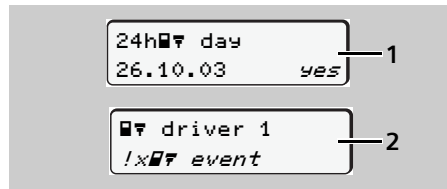
1. Either the menu guidance will command you to make a daily printout after "Withdraw driver card" **(1)**, or you request the corresponding printout through the menu **(2)**.
➥ *Refer to "Retrieving menu functions" on page 54.*

2. Acknowledge the menu display with the ❺ button, the printout will start.

3. Wait until the printout is complete.
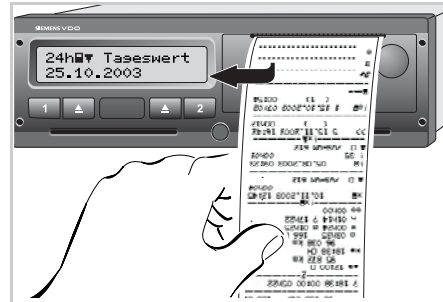
Tear off the printout from the paper roll

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

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

▶ **Cancel printout**
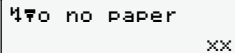
1. While the printout is running, press the button ❺ and the following question will appear.

```
cancel printout
            no

            yes
```

2. Use the buttons ▲ / ▼ to select the desired functions and confirm your choice with the button ❺. The printout will be either continued or cancelled.
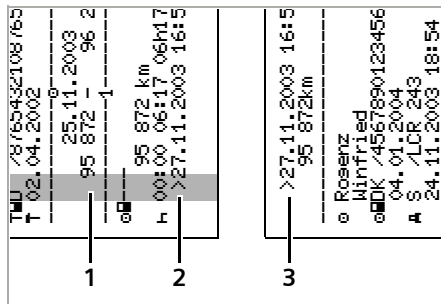
▶ **Things to note when printing**

- If the shift started before 00:00 UTC time, after "Withdraw 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.

```
ꜜꚜo no paper
                          xx
```

- After you insert a new paper roll, the DTCO 1381 will automatically continue the printout. A notice will be shown on the final line **(2)** of the first printout and in the first line **(3)** of the second printout.

Continuing the printout at the end of the paper roll

(1) Coloured mark (on the rear side)
(2) End of printout
(3) Continuation of 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 50.*

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 50.*

Menu functions

6

■ Retrieving menu functions

▶ When driving

1. Press any menu key while driving and current times of the inserted driver card will appear.

2. The standard display will appear again after any key is pressed again or after 10 seconds.

```
12:40. ⊙  75km/h
⊙▯ 123456.7km ▯▯
⋮
1⊙01h21   ▯▯00h15
2▯02h05
```

1
2
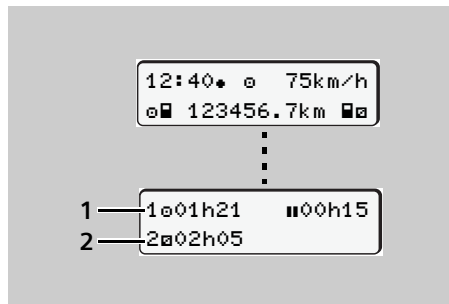
(1) Times from driver 1:
(2) Times from driver 2:

➥ *Refer to "Data display during trip" on page 19.*

▶ When the vehicle is stationary


```
12:40. ⊙    0km/h
⋇▯ 123456.7km ▯▯
```

```
1⊙03h46    ▯▯00h15
1⊙▯25h57   ⋇00h21
```

```
2⊙01h10    ▯▯00h36
2⊙▯15h00   ▯00h21
```

```
select
language?
```

```
call main menu?
```
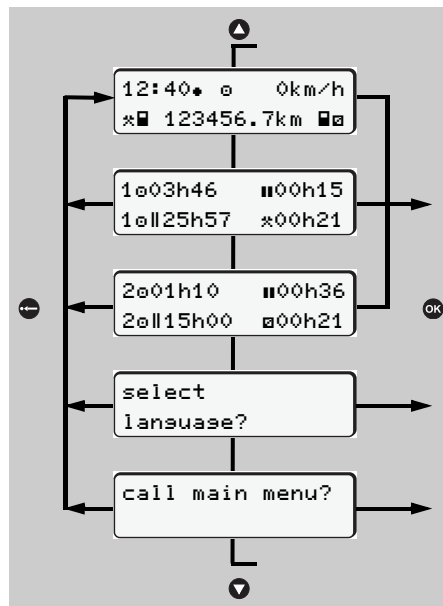
Navigating in the standard display

1. Starting from the standard display, you can press the buttons ⊙ / ⊙ to display detailed time of the inserted driver card(s).
➥ *Refer to "Displaying the times of the driver card" on page 55.*
or

2. You can change the language of the display / menu guidance.
➥ *Refer to "Setting the language" on page 55.*
or

3. You can call up the extensive menu functions by pressing the button ⊛.
➥ *Refer to "Overview of the menu structure" on page 59.*

4. Use the buttons ⊙ / ⊙ to page up or the button ⊏ to return directly to the standard display.

▶ **Displaying the times of the driver card**

1
2
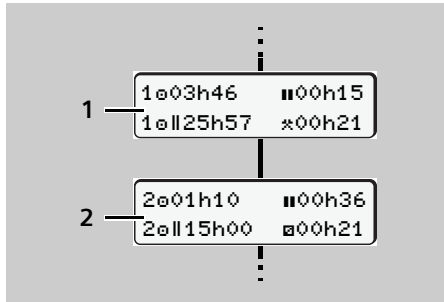
Data display of driver 1 and driver 2

(1) Times of driver 1
(2) Times of driver 2

➥ *Refer to "Data display if the vehicle is stationary" on page 20.*

☞ If the driver card is missing, times 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 display "select language?" and press the button ❿.

2. Use the buttons ✿ / ❖ to select the desired language and confirm your selection with the button ❿.
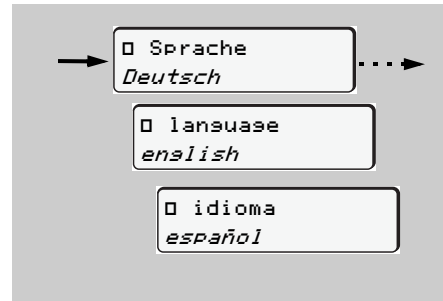
Select the desired language

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 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.

6

▶ **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 *.**

You can navigate within the menu structure by means of these four menu buttons.

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

As soon as you call up the menu functions, you will be in the first main menu.

```
printout
🖪📨 driver 1
```
1 ——
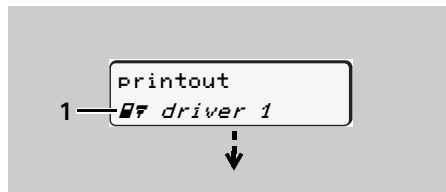
1. Main menu

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

```
printout
🖪📨 driver 1
🖪📨 driver 2
🖪📨 vehicle
```
2 ——
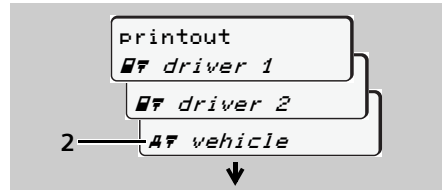
Paging in the main menu

1. You can use the buttons ⊙ / ⊙ to page through the available main menus and to select the one you need, such as a printout of the vehicle data **(2)**.

2. Confirm your selection with the ⊙ button.

```
🖪📨 vehicle
24h🖪📨 day                 4
!x🖪📨 event
》📨 overspeed
```
3 ——
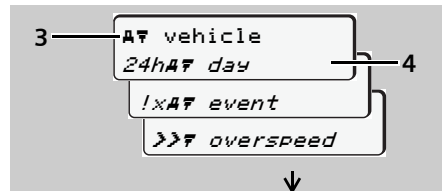
Selecting a menu function

The selected main menu **(3)** will appear in the first line. The menu functions available in this main menu will flash in the second line.

3. Use the buttons ⊙ / ⊙ to select the desired function, such as a daily printout **(4)**.

4. Use the ⊙ button to confirm your selection.

```
24h🖪📨 day
25.10.2003
24.10.2003
23.10.2003
```
5 ——
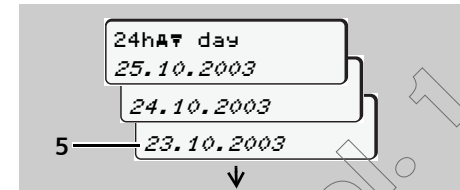
Select desired day

5. Use the buttons ⊙ / ⊙ to select the desired day **(5)** ...

6. and acknowledge the selection with the button ⊙.

The DTCO 1381 will indicate the selected action for about three seconds, e.g. ...

```
printout
started ...
```
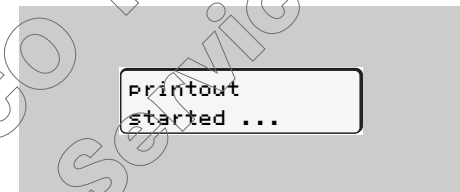
Note for the ADR variant *:

If the ignition is switched off, the following message will appear.

```
4▼ printout not
possible      xx
```
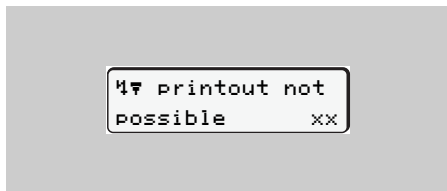
Only after the ignition is "on" and selection is made again, the printout will start and / or data will be displayed.

The most recently selected menu entry will then appear.

```
24h▲▼ day
23.10.2003
    22.10.2003
```
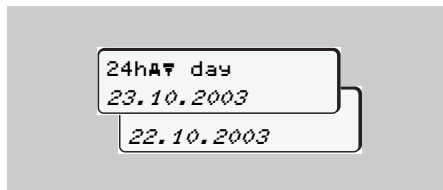
7. Use the buttons ▲ / ▼ to select another day for a printout.

8. Or press the button ⏎ and return to the next-higher menu level.

▶ **Cancel printout**

1. If you select the current printout once again with the button ⊙ while the printout is already running, then the following question will appear.

```
cancel printout
        yes
        no
```
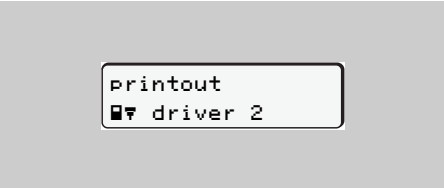
2. Select "**Yes**" and acknowledge. The printout is cancelled and the most-recently selected menu entry appears.

6

▷ **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
```

6

If you select the function with the button Ⓞ, the following message will appear.
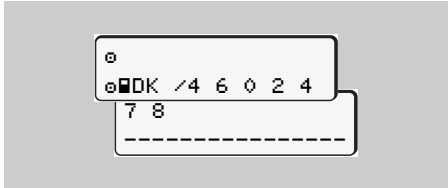
```
▪ no data!
```

You can return to the main menu by pressing the button Ⓞ or it returns automatically after three seconds.

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 requested

• 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 will appear.

■ Overview of the menu structure

```
printout ▪▼ driver 1          1)
├── 24h▪▼ day
├── !x▪▼ event



printout ▪▼ driver 2          2)
├── 24h▪▼ day
├── !x▪▼ event



printout A▼ vehicle
├── 24hA▼ day
├── !xA▼ event
├── >>▼ overspeed.
├── T©▼ techn. data
├── %v▼ v-profiles *
├── %n▼ n-profiles *
```

```
entry ⅏ driver 1             1)
├── •⊪ begin country
├── ⊪• end country



entry ⅏ driver 2             2)
├── •⊪ begin country
├── ⊪• end country



entry A⅏ 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 A□ vehicle
├── 24hA□ day
├── !xA□ event
├── >>□ overspeed.
├── T©□ techn. data
├── ⌂▪ company
```

▢	= Main menu
*	= Option

1) = Functions card slot 1
2) = Functions card slot 2

6

■ Main menu printout driver 1 / driver 2

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

☞ Switch on the ignition in the ADR variant *. Otherwise, the following operational note will appear when selecting a printout. The printout will start only after the ignition is "on" and selection is made again.

```
4̄ printout not
possible      xx
```

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

▶ **Print daily value**

Select the following functions step by step.

1.
```
printout
▉̄ driver 1
```

2.
```
▉̄ driver 1
24h▉̄ day
```

3.
```
24h▉̄ day
23.10.2003
    22.10.2003
```

A printout of all activities on the selected day will be made.
➥ *Refer to page 105*.

▶ **Print events**

Select the following functions step by step.

1.
```
printout
▉̄ driver 1
```

2.
```
▉̄ driver 1
!x▉̄ event
```

A printout of all saved or still active events and faults will be made.
➥ *Refer to page 107*.

■ Main menu, vehicle printout

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

▷ Print daily value from the data memory

Select the following functions step by step.

1.
```
printout
🚛 vehicle
```

2.
```
🚛 vehicle
24h🚛 day
```

3.
```
24h🚛 day
25.10.2003
     24.10.2003
```

A printout of all driver activities in chronological order, separated by driver 1/ driver 2 will be made.
➡ *Refer to page 108.*

▷ Print events from the data memory

Select the following functions step by step.

1.
```
printout
🚛 vehicle
```

2.
```
🚛 vehicle
!x🚛 event
```

A printout of all saved or still active events and faults will be made.
➡ *Refer to page 110.*

▷ Print instances of over-speeding

Select the following functions step by step.

1.
```
printout
🚛 vehicle
```

2.
```
🚛 vehicle
≫🚛 overspeed
```

A printout will be made of instances when the speed value set in the DTCO 1381 was exceeded.
➡ *Refer to page 111.*

6

▶ **Print technical data**

Select the following functions step by step.

1.
```
printout
A vehicle
```

2.
```
A vehicle
T techn. data
```
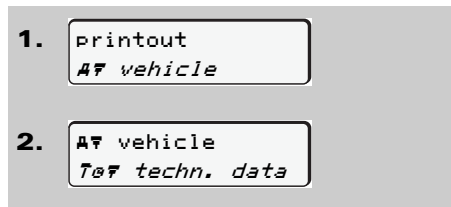
A printout of data about vehicle identification, sensor identification, and calibration will be made.

➥ *Refer to page 112.*

▶ **Print speed profiles ***

Select the following functions step by step.

1.
```
printout
A vehicle
```

2.
```
A vehicle
%v v-profiles
```

3.
```
%v v-profiles
25.10.2003
    24.10.2003
```
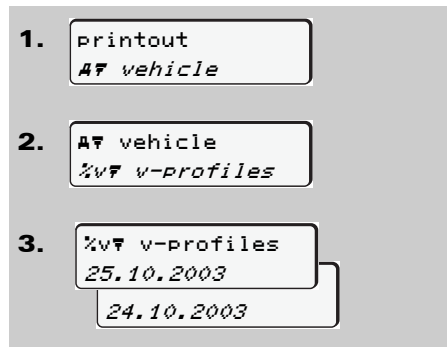
A profile printout of the driven speeds will be made.

➥ *Refer to page 113.*

▶ **Print rpm profiles ***

Select the following functions step by step.

1.
```
printout
A vehicle
```

2.
```
A vehicle
%n n-profiles
```

3.
```
%n n-profiles
25.10.2003
    24.10.2003
```
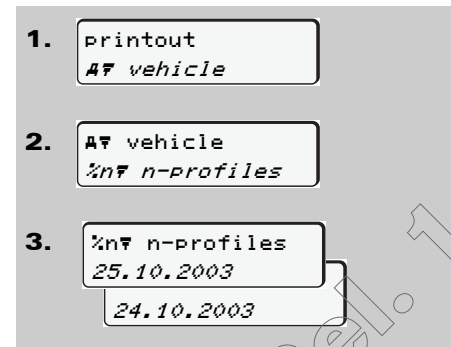
A profile printout of the engine speed rpm will be made.

➥ *Refer to page 114.*

6

■ Main menu entry driver 1 / driver 2

You can enter the country independently of the function of driver card insertion or withdrawal.

⚠ **According to the regulations, driver 1 and driver 2 must separately enter into the tachograph the country in which the respective driver begins or ends his shift.**

Remark
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
    ●|▶ begin country

3.  ●|▶ begin country
    28.10 11:30  :D
      28.10 11:30  :E

4.  ●|▶ 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
    ▶|● end country

3.  ▶|● end country
    29.10 11:30  :F
      29.10 11:30  :E

4.  ▶|● end region
    11:30 E       AN
```

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

6

■ 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
    ▲↘ vehicle

2.  ▲↘ vehicle
    OUT→ begin

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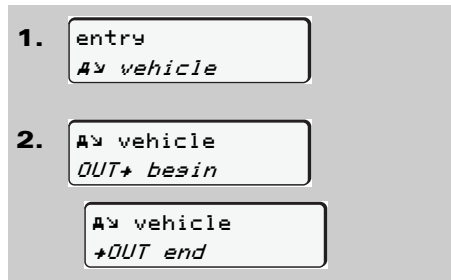
The setting "Out of Scope" ends automatically as soon as you insert a driver card into card slot or withdraw a driver card from slot.

▶ Enter Beginning of ferry / train

You can mark the time, the vehicle is located on a ferry or on a train.

Select the following functions step by step.

```
1.  entry
    ▲↘ vehicle

2.  ▲↘ vehicle
    ♨ ferry/train
```
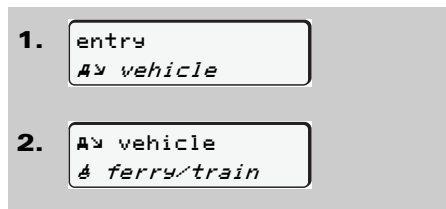
The registration of this operation ends automatically as soon as the vehicle moves.

▶ Set Local time

The time shown in the display of the DTCO 1381 is set to UTC time at the factory.

☞ Read and understand the chapter "Time management" before attempting to make any changes!
➡ Refer to "Time management" on page 93.

Select the following functions step by step.

```
1.  entry
    ▲↘ vehicle

2.  ▲↘ vehicle
    •⊙ local time

3.  UTC⊙ 31.03.2003
    23:32      23:32.
       23:32      00:02.
       23:32      00:32.
```

~~6~~
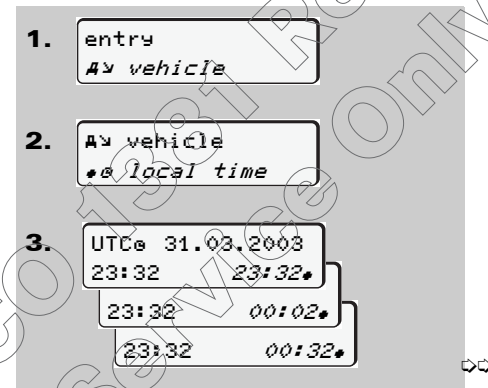
In the standard display, you may adjust the time to the local time zone as well as to the beginning or end of daylight-savings time in steps of ±30 minutes.

> ⚠ Please observe the legal stipulations applicable in your country!

Independent of the displayed time, the DTCO 1381 calculates all time entries on the basis of the UTC time.

▶ **Make UTC correction**

You can correct the UTC time up to a maximum of ±1 minute per week. Greater deviations can only be corrected by an authorised workshop.

Select the following functions step by step.

1.
```
entry
A↘ vehicle
```

2.
```
A↘ 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 workshop.

☞ It is not possible to use the menu function:

- The UTC time has already been corrected 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!
```

6

■ 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.

```
⊤ 23.10.2003 14:
55 (UTC)
-----------⊤----
--------
              ↓
```
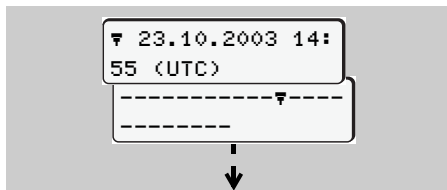
If you page backward with the ⬥ / ⬦ buttons while paging through the information, you will be able to move backward only about 20 printout lines.

Use the ⬅ button to leave the display.

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

▶ **Display daily value**
Select the following functions step by step.

```
1.  display
    ▣▢ driver 1

2.  ▣▢ driver 1
    24h▣▢ day

3.  24h▣▢ day
    23.10.2003
        22.10.2003

4.  * 06:17 07:02 00
    h45
       * 07:02 07:41 00
       h39 ⊙⊙
```

You can display all activities of the selected day by paging.

▶ **Display events**
Select the following functions step by step.

```
1.  display
    ▣▢ driver 1

2.  ▣▢ driver 1
    !x▣▢ event

3.  !▣    05.08.20
    03 09:23
       ! 35
          00h01
```

You can display the saved or still active events and faults by paging.

■ Main menu display vehicle

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

➥ *Refer to "Information on the display" on page 66.*

▶ **Display daily value from the data memory**

Select the following functions step by step.

1.
```
display
A0 vehicle
```

2.
```
A0 vehicle
24hA0 day
```

3.
```
24hA0 day
26.11.2003
      25.11.2003
```

4.
```
A+S  /LCR 243
      24.11.2003 18:
54
```

You can display all driver activities in chronological order by paging.

▶ **Display events from the data memory**

Select the following functions step by step.

1.
```
display
A0 vehicle
```

2.
```
A0 vehicle
!xA0 event
```

3.
```
>>    4 15.10.20
03 11:10
        ( 95)
      00h30
```

You can display the saved or still active events and faults.

6

▶ **Display instances of over-speeding**

Select the following functions step by step.

1.
```
display
A0 vehicle
```

2.
```
A0 vehicle
>>0 overspeed.
```

3.
```
>>▼   90 km/h

    -----------0-----
    --------
```

You can display the instances when the set speed was exceeded by paging.

▶ **Display technical data**

Select the following functions step by step.

1.
```
display
A0 vehicle
```

2.
```
A0 vehicle
T80 techn. data
```

3.
```
8 Siemens AG

    SV
```

You can display data about vehicle identification, sensor identification, and calibration by paging.

▶ **Display company**

Select the following functions step by step.

1.
```
display
A0 vehicle
```

2.
```
A0 vehicle
68 company
```

3.
```
68D /12341234123
412 3 4
```

The number of company card of the registered company will appear.

If no company is registered, then "___" will appear.

Messages

7
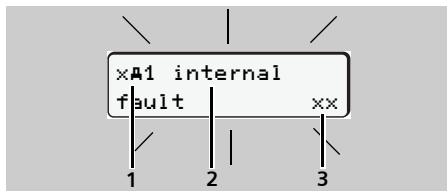
■ A message appears

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
- ⋈ = Work 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, and work time warnings
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 ⊙.

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

Saving
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.   ⇨⇨

Instrument display

If a instrument display is built into the vehicle, the functional monitoring 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 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 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 43.*

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 recognizes 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. Under certain conditions this message can also appear when the engine starts!	Acknowledge message. ➥ Refer to "Behaviour during low voltage" on page 22.
!🗓 sensor fault	The communication with the sensor is interrupted.	Acknowledge message. ⇨⇨

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 84.	Acknowledge message. Stop vehicle and insert valid driver card.
!▯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
×Δ 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.
×Δ1 internal fault	• Fault in the card mechanics, e.g. card lock is not closed.	Remove tachograph card and insert it again.
×Δ 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.
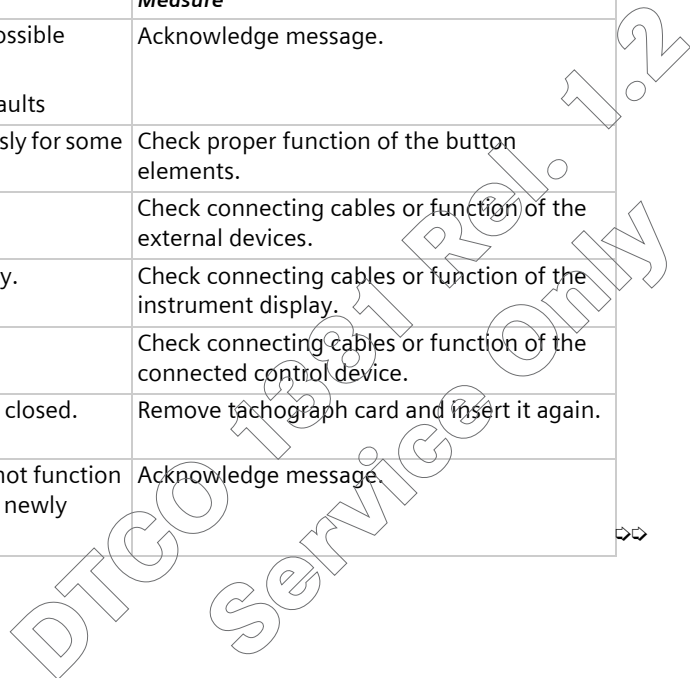
Picto / reason	Meaning	Measure
x☰ printer fault	The printer's supply voltage has failed or the temperature sensor for the printing head is defective.	Acknowledge message. Repeat the process and, if necessary, switch off / on the ignition again.
x☐ display fault	Display fault, possibly no display.	Acknowledge message.
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▯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 "Cleaning tachograph cards" on page 96.*

7

■ Working time warnings

Working time warnings warn the driver about excessive driving times.

In this connection, please note the DTCO 1381 memory behavior during stop-and-go operation.
➥ *Refer to "Monitoring the activities" on page 42*.
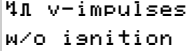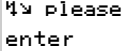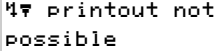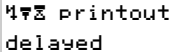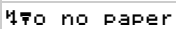
> ⚠ The DTCO 1381 can only calculate on the the basis of the actually determined driving times and rest periods.
> **However, these cumulative driving times do not anticipate a legal interpretation!**

Picto / reason	Meaning	Measure
ʬⱺ1 break! 1ⱺ04h15 ▮▮00h15	This message appears after an uninterrupted driving time of 4 hours 15 minutes.	Acknowledge message. Please plan a rest break soon.
ʬⱺ1 break! 1ⱺ04h30 ▮▮00h15	Driving time exceeded! This message appears after an uninterrupted driving time of 4 hours 30 minutes.	Acknowledge message. Please take a rest break.

7

■ Overview of the operational notes

Most of the operational notes disappear
automatically after 30 seconds without
pressing the button ⊛.

Picto / reason	Meaning	Measure
ᵘⱿ v-impulses w/o ignition	The DTCO 1381 recognises speed pulses without having switched on the ignition.	Press button ⊛.
ᵘⱿ please enter	This request will appear if no entry is made during the manual entry procedure.	Press button ⊛ and continue the entry.
ᵘ▼ 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, • or because the supply voltage is 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.
ᵘ▼⊠ 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.
ᵘ▼o no paper	The printer has no paper. The print request will be rejected and/ or a printout in progress will be interrupted.	Insert paper. An interrupted printout will automatically continue.

7

Picto / reason	Meaning	Measure
`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▣ 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.

7

Picto / reason	Meaning	Measure
`4⊟1 wrong card type`	The inserted card is not a tachograph card. The tachograph card is not accepted and is ejected.	Please insert a valid tachograph card.
`4A internal fault`	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 tachograph as soon as possible.
`continual error ⊞xxxxxxxx   xxx`	If this message is displayed, the DTCO 1381 will no longer function.	Please observe the listed note if the tachograph does not operate properly, page 71.

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. or • 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.	

Picto / reason	Meaning	Measure
display impossible!	No data can be displayed as long as the printing is in progress.	These notes disappear automatically after three seconds. No steps must be taken.
please wait!	The tachograph card has not yet been read completely. It is not possible to call up menu functions.	

7

Product description

8

■ Functions of the DTCO 1381
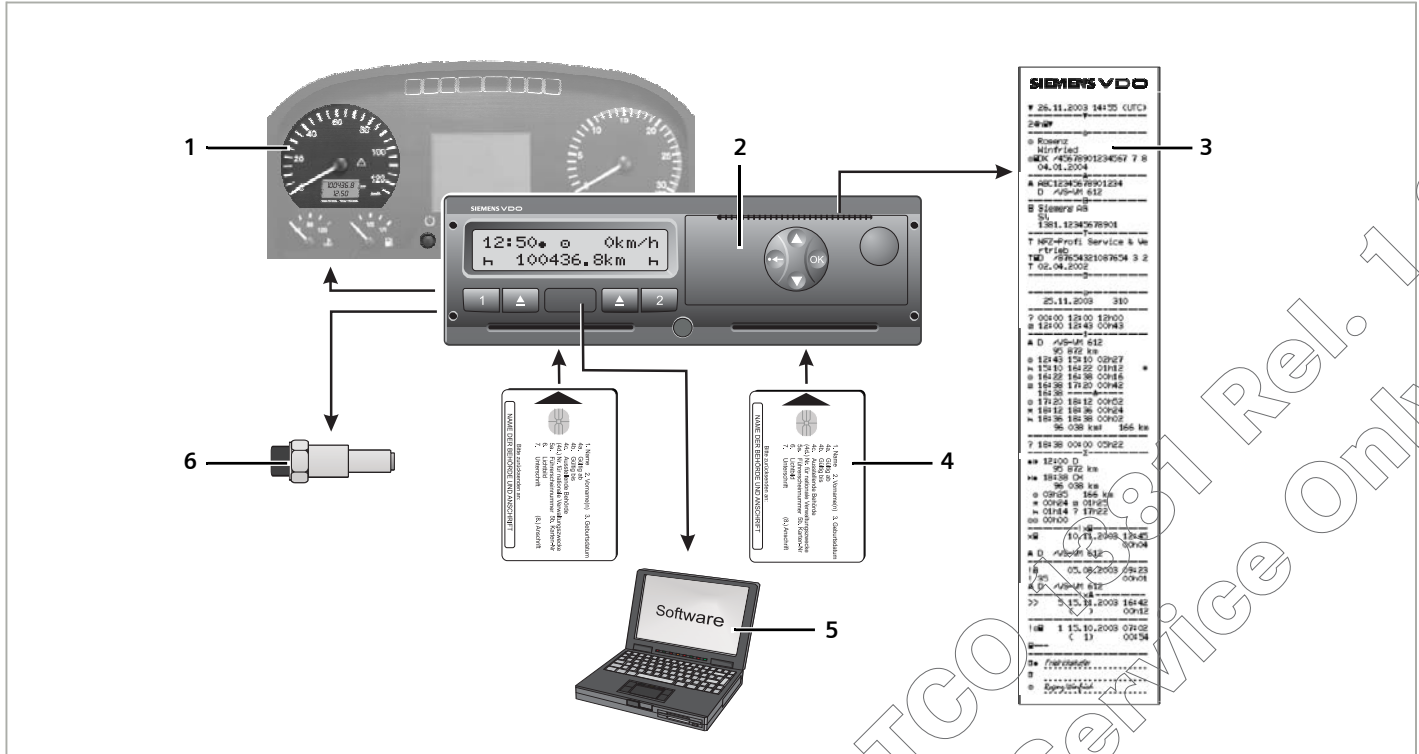
Overview of the system components

(1) Display instrument
(2) DTCO 1381
(3) Printout
(4) Tachograph cards
(5) Software selection
(6) Sensor KITAS 2171

▶ **Recording and saving**

- In addition to the recording of distance and speed data, the DTCO 1381 also saves activities and events on the personal driver card as well as in a data memory.

- The data memory contains a number of drivers who were driving the vehicle. The memory is designed for a period of 365 days. The most important faults and events, e.g. "Driving without valid tachograph card", etc. are saved, too.

▶ **Displays**

- Additionally to time, speed and distance, the set activities and symbols of the inserted tachograph card(s) will be displayed.

- Driver-based data as well as vehicle-based data can be displayed via the menu functions.

- The prepared data helps the driver to observe the driving times and rest periods. The DTCO 1381 automatically warns about excessive driving times.

- Events or faults in the device or in the system components are displayed when they occur.

- Operational notes for correct handling will also be displayed.

▶ **Printout and data output**

- Upon request, the integrated printer generates a printout of daily activities or of vehicle-based data, for example.

- The types of printout, the format, arrangement, and data contents correspond to the specifications legally prescribed in the CR (EEC) 3821/85, annex I B.
➥ *Refer to "Printout examples" on page 105.*

- Downloading (copying) the saved data is possible via the download interface.

8

▶ **Operating modes of the DTCO 1381**

```
                1
        ┌─────────────────┐
        │ 12:50♦ ⊙   0km/h │
        │ ☀▊ 123456.7km ▊▨ │
        └─────────────────┘
```

The DTCO 1381 has four operating modes:

● Operational "⊙"

● Company "⌂"

● Control "⊡"

● Calibration "⊤"

Acccording 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.

8

■ Tachograph cards

The authorities in the individual EU member states will issue the tachograph cards specified by the legislature. There are Colour-marked tachograph cards, arranged according to access rights and areas of activity, for the following groups of users:

▶ **Driver card** (white)

The driver uses the driver card to identify himself to the DTCO 1381. The driver card is used for normal driving and permits storing of data, displaying, or printing of activities under this identity.

▶ **Company card** (yellow)

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. This company card is intended for the owners and operators of vehicles.

▶ **Control card** (blue)

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** (red)

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 and the ignition is switched on (required only for ADR variant *),
- 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!

8

▶ **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	X	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

■ Brief description of the system components

▶ Sensor KITAS 2171

Together with the Kienzle tachograph sensor, KITAS 2171, the system forms a reliable and manipulation-resistant unit:

- The sensor KITAS 2171 provides real-time signals and encodes data for recording the distance and speed.
- The DTCO 1381 can detect external interferences and influences by monitoring the data communications and comparing this to the real-time signal.

▶ Instrument display

If an instrument display is located directly in the driver's field of vision, the functional monitoring, like symbol " ❶ " or another symbol, will refer to messages on the DTCO 1381.

▶ Software

Downloading data (copying)

The company card, control card, or workshop card make is possible to download vehicle-based and driver-based data via the download interface, e.g. by means of the PC, laptop, or download key.

Software for fleet management

This software enables the company to manage data on the vehicle, logistics, and drivers.

Your Siemens VDO distributor will give you more detailed information concerning comprehensive fleet systems.

Software for the control bodies

This software is used during road-side or company controls or for generating an expert report.

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■ Data on the driver card
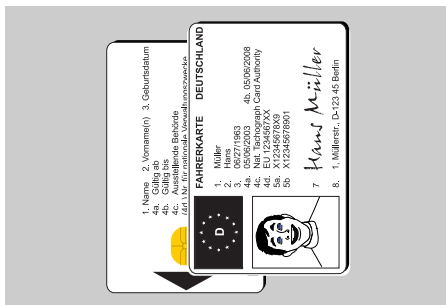
Driver card (white)

- The driver card shows surname, first name, issuing authority, date of issue, etc.
- All data defined according to the regulations will be saved electronically.
- After the driver card is inserted, use the company card to print, display or download the data from this driver and vehicle for archive purposes.

▶ **Fixed data on the driver card**

Additional to the general data and security data, data for identifying the driver are saved once on the driver card:

- Driver card identification
  – Card number, issuing member state, issuing authority,
  – Date of issue, validity period, etc.
- Cardholder identification
  – Name, date of birth, preferred language, etc.
- Information on the driving licence.

▶ **Variable data on the driver card**

After any use of the vehicle, the DTCO 1381 updates the following data on the driver card.

Vehicles used
A chronological list of the most recently used vehicles is kept:

- First insertion / final removal during a period of use
- Odometer reading at the beginning and end of the usage

- Vehicle ID

The driver's activities
The following data is stored on a daily basis:

- Date and number of kilometres driven on this day
- any change of status, such as ...
  – Single-driver mode / crew operation,
  – Driver card in card slot 1 / card slot 2,
  – Driver card inserted / not inserted,
  – All set activities,
  – and the time of the change.

During normal driving operation, the driver's daily activities are saved on the driver card for at least 28 days.

Country entries

The following storage is made for each country entry:

- Date and time of the entry
- Entry at the beginning or end of the shift as well as each country entry via the menu function.
- Country / region entered
- Odometer reading at the time of the entry

Appearing events

The following events (a maximum of 72) are saved with the beginning and end as well as a message displayed on the vehicle in which the event occurred:

- Time overlap
- Inserting the driver card while driving
- Driver card not correctly closed when the vehicle was used the last time
- Interruption of the voltage supply of the DTCO 1381 or of the sensor
- Sensor faults
- Security breaches

Appearing system faults

The following system faults (a maximum of 48) are saved with the beginning and end as well as a message displayed on the vehicle in which the disturbance occurred:

- Driver card fault
- Internal device faults

Information about the control

The following data of the last control is stored:

- Date and time of the control
- Identification of the control card
- Kind of control carried out
  – Reading the driver card data
  – Reading the device data
  – Printout
  – Display
- Period of time from which the data was downloaded.
- Identification of the vehicle in which the control took place.

Special entries

The 56 most recently entered conditions are stored with the following data:

- Date and time of the entry
- Type of special condition (Special conditions are periods of time where the vehicle is on a ferry, on a train or in the "Out of Scope" status).

Storage capacity on the driver card

Depending on the card type, the available storage area of the "Variable data" differs in size. The amount of data that can be saved is stored on the respective card.

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

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■ Data on the company card
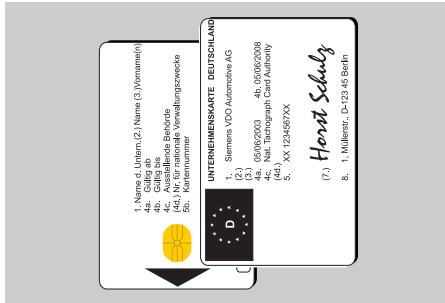
Company card (yellow)

The company card identifies the company. It also allows for the display, printout, and reading of data from the data memory and an inserted driver card. The data assigned to the company are blocked against the access of other companies.

▶ **Fixed data on the company card**

Additional to the general data and security data, data for identifying the company are saved once on the company card:

- Card identification
  - Card number, issuing member state, issuing authority,
  - Date of issue, validity period
- Cardholder identification
  - Name and address of the company

▶ **Variable data on the company card**

The following data is stored with reference to company activities:

- Date and time of the activity
- Type of activity
  - Lock-in / lock-out
  - Downloading the data from the data memory
  - Downloading the data from the driver card
- Time period (from / to) from which the data was downloaded.
- Vehicle ID
  - Registration number and approval authority of the vehicle from which a data download was executed.
- Card number and issuing member state of the driver card from which the data was downloaded.

■ Data in the data memory

The data memory records and saves the following data over a time period of at least 365 calendar days:

Activities driver 1	Activities driver 2	Speed 24 h
List driver 1	List driver 2	Speed / rpm profiles *
Country entries Driver 1	Country entries Driver 2	System faults, events
Special entries	Lock-in / Lock-out procedures by the company card	Saving data that is not subject to the regulations
Recording control activities	Identification of the DTCO 1381	Reading-out procedures (downloading)
Recording of time adjustments	Device calibrations	Installation data
Buffer for speed recording		

Data in data memory, schematic diagram

▶ **Short explanation about the saved data**

Activities driver 1/2
When the vehicle is stationary (no speed signal) the evaluation of activities occurs in 1 minute intervals and the DTCO 1381 will evaluate the longest lasting activity for each interval (up to the point of a speed signal).

Detailed speed data over 24 hours
Speed values are saved over a time period of 24 hours. The DTCO 1381 saves each second of the driven speed exactly with date and time (average of several measurements).
- Resolution of the stored values: 1 km/h
- Maximum speed value: 220 km/h

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Speed / rpm profiles *

After any use of the vehicle (from insertion to removal of the driver card), the DTCO 1381 assesses driven profiles. The DTCO 1381 saves the time intervals, i.e. how long the vehicle was moved in a defined speed or rpm range.

- Assessment interval: three seconds.
- Storage time: a period of 28 days will be stored with an average of six drivers per day.

Buffer for speed recording

For speed recording, the DTCO 1381 stores detailed speed data in two special cases:

- Excessive deceleration (such as hard braking, or a collision with an obstacle)
  – The detected speed values will be saved each second for the time period of one minute before and one minute after the event.
- Vehicle stationary
  – The detected speed values will be saved each second for the time period of one minute before and one minute after the vehicle became stationary.

The oldest events will be overwritten.

These data can only be read via the download interface.

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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. The entries on the tachograph cards are saved in the same way. Time information on the printouts also reflects the UTC time.

Time zone "0" = UTC
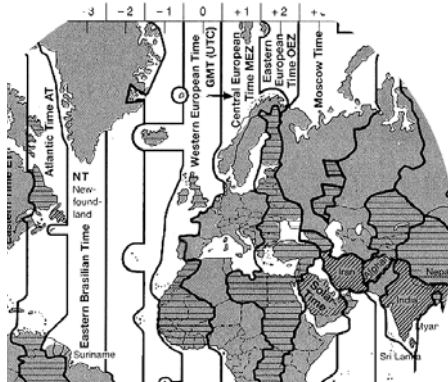
Time zone in Europe

UTC time – what is it?

UTC time = universal time coordinated.

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

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

▶ Depiction of the time in the display

The time shown in the display is set at the factory to reflect UTC time. Use the "Local time" menu function to adjust the displayed time to the local time.

You can determine which time is currently shown in the standard display as follows:
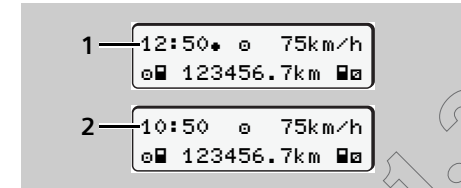
Depiction of the time in the standard display

(1) Set local time
The symbol "•" appears after the time.
(2) UTC time
The time appears without the symbol "•".

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▶ **Converting local time to UTC time**

⚠ **All time information must be entered in UTC so that the DTCO 1381 correctly calculates the time entries.**

The following parameters must be taken into consideration:

- The relative time zone offset
- The valid changeover times for the beginning and end of daylight-savings time.

Formula:

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

Recognizing the set offset

```
 welcome
15:30●  13:30UTC
```
   1   2
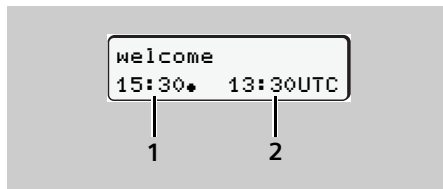
Greeting text

After a tachograph card is inserted, the set local time **(1)** and the UTC time **(2)** will appear for about three seconds. The difference between local time and UTC time corresponds to the set offset of the DTCO 1381.

Or:

```
UTC◉ 31.03.2003
13:30     15:30●
```
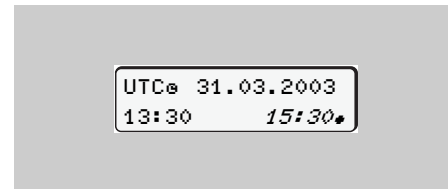
Menu function "Local time"

In the "Local time" menu function, you can see and alter the set offset of the DTCO 1381.
➥ *Refer to "Set Local time" on page 64.*

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■ Care and maintenance

▶ **Compulsory Tachograph inspections**

Preventive maintenance work is not required for the DTCO 1381. The holder of the vehicle is obliged to submit the installed DTCO 1381 to periodical inspections.

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 official 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 within the specified test obligation 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 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.

▶ **Cleaning the DTCO 1381**

If necessary, clean the casing, the display and the function keys using a slightly moistened cloth. Should this not be enough, you may also use special cockpit cleaning agents.

> ⚠ When cleaning the DTCO 1381, do not use any abrasive cleaning agents or solvents like thinner or petroleum spirits.

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▶ **Cleaning tachograph cards**

☞ Please observe the instructions of the issuing authority for the tachograph cards.

Clean dirty contacts of the tachograph card with a slightly moistened cloth. Should this not be enough, soak the cloth slightly with a cleaning concentrate for windscreen wipers or a glass cleaning agent.

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

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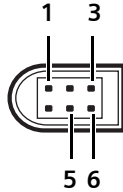
☞ Please dispose of the DTCO 1381 with its associated system components in compliance with the guidelines for disposing EC recording equipment effective in the respective member states.

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■ Technical data

▶ DTCO 1381

Measurement range end value	220 km/h
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 operation: 70 mA (12 V) max. 5,0 A (12 V) 50 mA (24 V) max. 5,0 A (24 V)
Buffer battery	Lithium cell
EMV / EMC	RL 95/54/EEC ISO 7637 1-3 ISO 11452-5 CISPR 25
Dimensions	178 x 150 x 50 (without panel and plug trough)
Protection type	IP 54
Possible special equipment	● ADR variant ● Customer-specific panel ● Customer-specific illumination of display and buttons ● Printout of v- / n-profiles

Download interface	Pin	Function
	1	0 Volt reference potential
1 3	3	RxD Data interface input
	5	24 or 12 Volt onboard voltage
5 6	6	TxD Data interface output
Printer (integrated)		Thermal printing mechanism Character size: 2.1 x 1.5 mm Print width: 24 characters/line (approx. 48 mm) Printing speed: approx. 15 – 30 mm/sec.
Weight		approx. 1300 g

▶ **Paper roll**

Paper type	Special thermal paper
Dimensions	Diameter: approx. 27,5 mm Width: 56.5 mm Length: approx. 8 m
Ambient conditions	Temperature: -25 to 70 ℃
Ordering	Order no. 1381.90030300 You will receive original spare paper rolls from your local Siemens VDO distributor. ☞ **Please note!** Use (order) only paper rolls (original Siemens VDO printer paper) on which is visible the tachograph model (DTCO 1381) with approval mark "⊞84" and the valid approval mark "⊞174" or "⊞189".

▶ **Tachograph cards**

Chip card	Specification: as specified by the directive, according to ISO/IEC 7816-3 Dimensions: according to ISO/IEC 7816-2
Colour identification	Driver card: white Company card: yellow Control card: blue Workshop card: red
Card issuing	Card issuing authorities of the EU member states

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Pictograms and printout samples

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■ 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
2	Card slot 2
	Tachograph card
	Clock
	Printer / printout
	Entry
	Display
	External saving Download data (copy)
	Sensor
	Vehicle / Vehicle unit / DTCO 1381
	Tyre size
	Power supply

Miscellaneous	
!	Event
	Fault
	Operational note / Work time warnings
	Shift beginning (Start of work day)

	Location
	Security
	Speed
	Time
Σ	Total / summary
	Shift end (End of work day)
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
‖	two weeks
	from or to

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▶ **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
☺‖	Driving time for 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
T☺▯	Technical data
%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
T☺▯	Technical data

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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

Faults

×▯	Card fault
×◻	Display fault
×▼	Printer fault
×▲	Internal fault DTCO 1381
×⊥	Download fault
×⊥	Sensor fault

Work time warnings

| ⅄◉ | break! |

Manual entry process

▶?	Shift end?
▶◆?	Acknowledgement or entry of the "location" at the end of the shift
◉▶?	Beginning of the new 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
⅄⊥	v-impulses without ignition

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■ 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	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
N	Norway
NL	The Netherlands
P	Portugal
PL	Poland

RO	Romania
RSM	San Marino
RUS	The Russian Federation
S	Sweden
SK	Slovakia
SLO	Slovania
TM	Turkmenistan
TR	Turkey
UA	Ukraine
UK	United Kingdom, Alderney, Guernsey, Jersey, Isle of Man, Gibraltar
UNK	Unknown
V	Vatican City
WLD	Rest of the world
YU	Yugoslavia

([1] ➡ *Refer to "Symbols of the regions" on page 104.*

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▶ **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

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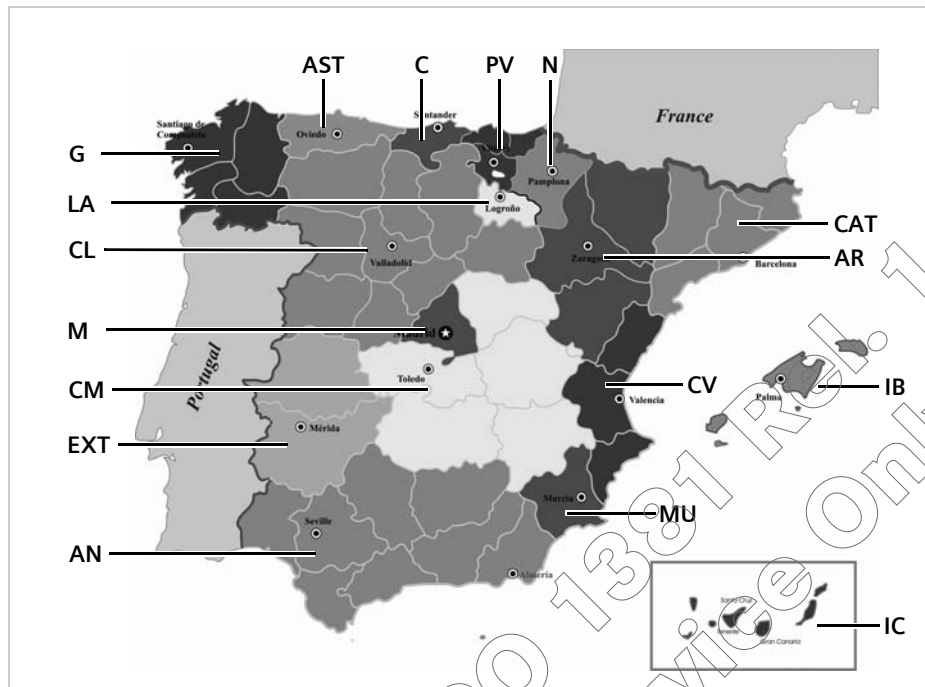
■ Printout examples

▶ **Daily printout: Activities of the driver card**

```
1     ▼ 26.11.2003 14:55 (UTC)
      -------------▼------------
2     24h▣▼
      -------------▣------------
3     ▯ Schmitt
        Peter
      ▯▤D /12345678901234 5 6
      -------------o------------
3a    o Rosenz
        Winfried
      o▣DK /45678901234567 7 8
        04.01.2004
      -------------A------------
4     A ABC12345678901234
        D /VS-VM 612
      -------------▣------------
5     ▣ Siemens AG
        SV
        1381.12345678901
      -------------T------------
6     T NFZ-Profi Service & Ve
        rtrieb
      T▤D /87654321087654 3 2
      T 02.04.2002
      -------------▣------------
      ▯▤▤D /12345678901234 5 6
7     ▯ 11.11.2003 11:11 ▼
      -------------o------------
8       25.11.2003    310
      -------------▣------------
8a    ? 00:00 06:00 06h00
      ▨ 06:00 06:17 00h17
      -------------1------------
8b    A D /VS-VM 612
          95 872 km
```

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

```
          205 177 km
      ●⊪ 12:43 D
          205 177 km
      ⊪● 18:38 CH
          205 408 km
       o 04h54    317 km
       ✳ 02h27 ▨ 03h29
11d    ⊢ 01h14 ? 11h56
      oo 04h28
      -----------!x▣---------
12    x▣        10.11.2003 12:45
                         00h04
12c   A D /VS-VM 612
      -------------------------
      !▣        05.08.2003 09:23
      ! 35                 00h01
12c   A D /VS-VM 612
      -------------------------
      !▣o       04.08.2003 18:12
                         00h01
      A D /VS-VM 612
      -------------------------
      !⋔        10.05.2003 08:45
                         00h01
      A D /VS-VM 612
      -------------------------
      !▣        17.04.2003 16:04
      ! 17                 01h02
      A D /VS-VM 612
      -----------!x A---------
13    ≫       5 15.11.2003 16:42
13c           ( 2)         00h12
```

```
oⒹD  /98765432109876 5 4
oⒻF  /12345678901234 5 6
--------------------------
x▯     0 10.11.2003 12:45
                     00h04
oⒹDK /45678901234567 7 8
--------------------------
!o▯    1 15.10.2003 07:02
         ( 1)        00:54
▮---
--------------------------
>>     4 15.10.2003 11:10
         ( 95)      00h30
oⒹDK /45678901234567 7 8
oⒻF  /12345678901234 5 6
--------------------------
x▯     0 10.11.2003 12:45
                     00h04
oⒹDK /45678901234567 7 8
--------------------------
▯•  Friedrichshafen
    · · · · · · · · · · · · · · · · ·
▯   Schmitt Peter
    · · · · · · · · · · · · · · · · ·
☉   Rogeng Winfried
    · · · · · · · · · · · · · · · · ·
```

13c

21

```
⊤ NFZ-Profi Service & Ve
  rtrieb
⊤▯D  /87654321087654 3 2
⊤ 02.04.2002
-------------□----------
▯▯D  /12345678901234 5 6
▯   11.11.2003 11:11    ▼
-------------○----------
    25.11.2003    310
--------? !oo ? --------
? 00:00 06:00 06h00
▣ 06:00 06:17 00h17
-----------1------------
Ⓐ D  /VS-VM 612
        95 872 km
☀ 06:17 07:02 00h45
☀ 07:02 07:41 00h39 oo
☉ 07:41 09:00 01h19 oo
        95 958 km;    86 km
--------------------------
```

8f

```
-----------□------------
-----------○------------
    26.11.2003    310
? 00:00 06:00 06h00
▣ 06:00 06:17 00h17
-----------1------------
Ⓐ D  /VS-VM 612
        95 872 km
☀ 06:17 07:02 00h45
☀ 07:02 07:41 00h39 oo
☉ 07:41
           km;        km
-----------Σ------------
●⊩ 06:00 D
        95 872 km
 ☉ 00h00        km
 ☀ 01h24 ▣ 00h17
 ⊢ 00h00 ? 06h00
oo 00h39
```

8g

9

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

1	▼ 11.11.2003 11:11 (UTC)
	------------▼------------
2	!×▯▼
	------------▯------------
3	▯ Schmitt
	Peter
	▯▮D /12345678901234 5 6
	------------⊙------------
3a	⊙ Rosenz
	Winfried
	⊙▮DK /45678901234567 7 8
	04.01.2004
	------------Δ------------
4	Δ ABC12345678901234
	D /VS-VM 612
	------------!▮------------
12a	!⊙⊙ 04.04.2003 02:14
12c	06h03
	Δ S /LCR 243
	!▮⊙ 04.08.2003 18:12
	00h01
	Δ D /VS-VM 612
	!▮⊙ 10.02.2003 08:12
	00h01
	Δ D /S-VD 432
	!‡ 12.12.2002 10:15
	00h10
	Δ D /VS-VM 612
	!Л 10.05.2003 08:45
	00h01
	Δ D /VS-VM 612

12c	!▯ 05.08.2003 09:23
	! 35 00h01
	Δ D /VS-VM 612

	!▯ 17.04.2003 16:04
	! 17 01h02
	Δ D /VS-VM 612
12b	------------×▯------------
12c	×▮ 10.11.2003 12:45
	00h04
	Δ D /VS-VM 612
	×▮ 11.02.2003 18:02
	00:03
	Δ D /VS-VM 612
	×Л 20.12.2002 01:54
	00h04
	Δ D /S-VD 432

	▯• *Ulm* ....
21	▯ *Schmitt Peter* ....
	⊙ *Rosenz Winfried* .....
	....

9

▶ **Daily printout: Driver activities from the vehicle**

1 | ▼ 27.11.2003 16:55 (UTC)
------------▼------------
2 | 24h▲▼
------------□------------
3 | □ Schmitt
　　Peter
　□■D　/12345678901234 5 6
------------▲------------
4 | ▲ ABC12345678901234
　　D　/VS-VM 612
------------目------------
5 | 目 Siemens AG
　　SV
　　1381.12345678901
------------T------------
6 | T NFZ-Profi Service & Ve
　　rtrieb
　T■D　/87654321087654 3 2
　T 02.04.2002
------------□------------
7 | □■D　/12345678901234 5 6
　□　11.11.2003 11:11 ▼
------------○------------
9 | 　　　25.11.2003
　　95 872 -　 96 284 km
------------1------------
10 | ○■---
　　　　95 872 km
10a | ⊢ 00:00 06:17 06h17　　*
　　　95 872 km;　　　0 km

10b | ○ Rosenz
　　Winfried
　○■DK /45678901234567 7 8
　　04.01.2004
10c | ▲→S　/LCR 243
　　24.11.2003 18:54

10d | 　　　95 872 km　　　　M

10e | ✳ 06:17 07:02 00h45
10e | ✳ 07:02 07:41 00h39 ○○
　○ 07:41 09:00 01h19 ○○
10g | 　　95 958 km;　　 86 km

○■---
10a | 　　　95 958 km
　✳ 09:00 09:05 00h05
　　　95 958 km;　　　0 km

10b | ○ Mustermann
　　Heinz-Dieter
　○■F　/12345678901234 5 6
　　16.06.2004
10c | ▲→D　/M-MS 680
　　24.11.2003 18:54

10d | 　　　95 958 km
　✳ 09:05 09:30 00h25
　○ 09:30 12:25 02h55
　☒ 12:25 13:43 01h18
10f | 　　12:25 -----▲-----
　○ 13:43 13:46 00h03
　✳ 13:46 13:48 00h02 ○○
10e | ○ 13:48 14:33 00h45 ○○
　✳ 14:33 15:08 00h35 ○○
　⊢ 15:08 16:10 01h02 ○○ *
10g | 　　96 206 km;　 248 km

○■---
　　　96 206 km
　⊢ 16:10 16:30 00h20
　　　96 206 km;　　　0 km

○ Anton
　Max
　○■A　/56789567895678 9 5
　　25.10.2005

▲→D　/VS-VM 612
　　25.11.2003 16:30

　　　96 206
○ 16:30 17:26 00h56
✳ 17:26 18:37 01h11
　　96 274 km;　　 68 k

○■---
　　　96 274 km
10a | ✳ 18:37 19:00 00h23
　○ 19:00 19:21 00h21
　⊢ 19:21 00:00 04h39　　*
　　96 284 km;　 10 km
10h | ------------2------------
○■---
10a | 　　　95 872 km
　⊢ 00:00 07:02 07h02　　*
　　95 872 km;　　　0 km

10b | ○ Förster
　　Thomas
　○■D　/98765432109876 5 4
　　22.12.2004
10c | ▲→S　/LCR 243
　　24.11.2003 14:12
10d | ------------------------
10e | ✳ 07:02 07.41 00h39 ○○
　☒ 07:41 09:00 01h19 ○○
10g | 　　95 958 km;　　 86 km

○■---
　　　95 958 km
　☒ 09:00 13:46 04h46
　　12:25 -----▲-----
　　96 156 km;　 198 km

▷▷

9

```
--------------------------
⊙ Anton
  Max
⊙▯A  /56789567895678 9 5
   25.10.2005
A↦A  /BL-7680
   19.11.2003 23:54
      96 156 km

☑ 13:46 14:33 00h47 ⊙⊙
⚒ 14:33 15:08 00h35 ⊙⊙
Ⱶ 15:08 16:10 01h02 ⊙⊙ *
Ⱶ 16:10 16:30 00h20
      95 206 km;     50 km
--------------------------
⊙▯---
      96 206 km
☑ 16:30 16:30 07h30
      96 284 km;     78 km
-----------Σ------------
1⊙▯---
   ⊙ 00h21     10 km
   ⚒ 00h28  ☑ 00h00
   Ⱶ 11h16
2⊙▯---
   ⚒ 00h00  ☑ 12h16
   Ⱶ 07h02
--------------------------
⊙ Rosenz
  Winfried
⊙▯DK /45678901234567 7 8
↦▯ 09:00 D
      95 958 km
   ⊙ 01h19     86 km
   ⚒ 01h24  ☑ 00h00
   Ⱶ 00h00
⊙⊙ 01h58
--------------------------
```

11
11b
11c
11e

```
⊙ Förster
  Thomas
⊙▯D  /98765432109876 5 4
↤▯ 07:03 D
      95 872 km
↦▯ 09:00 D
      95 958 km
   ⊙ 00h00     86 km
   ⚒ 00h39  ☑ 01h19
   Ⱶ 00h00
⊙⊙ 01h58
--------------------------
⊙ Mustermann
  Heinz-Dieter
⊙▯F  /12345678901234 5 6
↤▯ 09:01 D
      95 872 km
↦▯ 16:10 CH
      96 206 km
   ⊙ 03h43    248 km
   ⚒ 01h02  ☑ 01h18
   Ⱶ 01h02
⊙⊙ 02h24
--------------------------
⊙ Anton
  Max
⊙▯A  /56789567895678 9 5
   25.10.2005
A D  /VS-VM 612
↤▯ 13:47 CH
      96 156 km
↦▯ 16:30 CH
      96 284 km
↤▯ 16:31 CH
      96 284 km
↦▯ 18:37 A
      96 274 km
   ⊙ 00h56    118 km
   ⚒ 01h46  ☑ 00h47
   Ⱶ 01h22
```

13
13c
21

```
⊙⊙ 02h24
-----------!×A-----------
!⊙▯    1 25.11.2003 19:01
      ( 1)       00:20
▯---
--------------------------
>>     5 15.11.2003 16:42
      ( 2)       00h12
⊙▯D  /98765432109876 5 4
⊙▯F  /12345678901234 5 6
--------------------------
×▯     0 10.11.2003 12:45
               00h04
⊙▯DK /45678901234567 7 8
!⊙▯    1 15.10.2003 07:02
      ( 1)       00:54
▯---
--------------------------
>>     4 15.10.2003 11:10
      ( 95)      00h30
⊙▯DK /45678901234567 7 8
⊙▯F  /12345678901234 5 6
--------------------------
▯✦ Lindau
▯  Schmitt Peter
 ✦ ......................
↦⊙ .....................
⊙ .......................
--------------------------
```

9

▶ **Printout: Events / faults from the vehicle**

```
▼ 24.10.2003 16:07 (UTC)
-------------▼-------------
!×Δ▼
-------------□-------------
□ Schmitt
  Peter
□■D  /12345678901234 5 6
-------------Δ-------------
Δ ABC12345678901234
  D  /VS-VM 612
-------------!Δ-------------
!■■    0 10.08.2003 08:12
      ( 0)       00h01
Δ■D  /12345678901234 5 6
□■F  /12345678901234 5 6

!■■    0 10.08.2003 08:20
      ( 0)       00h03
Δ■D  /12345678901234 5 6
□■F  /12345678901234 5 6

!○■    1 15.10.2003 07:02
      ( 1)       00:54
■---
-------------------------
!○■    2 15.10.2003 07:02
      ( 1)       00:54
■---
-------------------------
!○○    3 15.03.2002 07:56
      ( 1)       00h01
○■F  /12345678901234 5 6
○■B  /22335578901234 1 2
-------------------------
≫      4 15.10.2003 11:10
      ( 95)      00h30
○■DK /45678901234567 7 8
○■F  /12345678901234 5 6
```

```
-------------------------
≫      5 15.10.2003 11:10
      ( 95)      00h30
○■DK /45678901234567 7 8
○■F  /12345678901234 5 6
-------------------------
≫      5 15.11.2003 16:42
      ( 10)      00h12
○■D  /98765432109876 5 4
○■F  /12345678901234 5 6
-------------------------
≫      5 16.05.2003 17:10
      ( 12)      00h15
○■F  /12345678901234 5 6
-------------------------
≫      6 24.05.2002 14:02
      ( 1)       00h06
○■D  /98765432109876 5 4
-------------------------
!÷     1 12.12.2002 10:15
      ( 4)       00h10
○■DK /45678901234567 7 8
○■F  /12345678901234 5 6
-------------------------
!÷     2 12.12.2002 10:15
      ( 1)       00h10
○■DK /45678901234567 7 8
○■F  /12345678901234 5 6
-------------------------
!Π     1 10.05.2003 08:45
      ( 3)       00h01
○■DK /45678901234567 7 8
-------------------------
!Π     2 10.05.2003 08:45
      ( 1)       00h01
○■DK /45678901234567 7 8
```

```
!□     0 17.04.2003 16:04
! 17   ( 0)      01h02
○■DK /45678901234567 7 8
○■F  /12345678901234 5 6
T■UK /54321987654321 9 8
-------------------------
!□     0 05.08.2003 09:23
! 35   ( 0)      00h01
○■DK /45678901234567 7 8
-------------×Δ-------------
×■     0 10.08.2003 07:00
                 00h02
Δ■D  /12341234123412 3 4
-------------------------
×↓     0 05.05.2002 07:15
                 00h14
Δ■D  /12345678901234 5 6
○■F  /12345678901234 5 6
-------------------------
×↓     6 05.05.2002 07:15
                 00h14
Δ■D  /12345678901234 5 6
○■F  /12345678901234 5 6
-------------------------
×▼     0 12.09.2003 21:00
                 00:01
■---
-------------------------
×▼     0 12.09.2003 21:00
                 00:01
■---
-------------------------
□•   ············
□    Lindau
     Schmitt Peter
○    ············
```

▶ **Printout: Over-speeding**

1 — ▼ 24.10.2003 14:50 (UTC)
```
----------▼------------
```
2 — >>▼ 90 km/h
```
----------□------------
```
3 — □ Schmitt
    Peter
  □▪D /34563456345634 5 6
```
----------○------------
```
3a — ○ Mustermann
    Heinz-Dieter
  ○▪F /12345678901234 5 6
    16.06.2004
```
----------A------------
```
4 — A ABC12345678901234
    D /VS-VM 612
```
--------->>------------
```
19 — >>□13.03.2003 14:15
20 — >>17.04.2003 17:44 (7)
```
--------->>T------------
```
>>24.05.2002 14:02 00h06
    98 km/h 92 km/h (1)
20c — ○ Förster
    Thomas
  ○▪D /98765432109876 5 4
```
--------->>(365)----------
```
20a — >>15.10.2003 11:10 00h30
    98 km/h 95 km/h (95)
○ Rosenz
   Winfried
○▪DK /45678901234567 7 8
```
------------------------
```
>>15.11.2002 16:42 00h12
    97 km/h 93 km/h (10)
○ Förster
   Thomas
○▪D /98765432109876 5 4

```
------------------------
```
>>16.05.2003 17:10 00h15
    94 km/h 92 km/h (12)
○ Mustermann
   Heinz-Dieter
○▪F /12345678901234 5 6
```
--------->>(10)----------
```
20b — >>15.10.2003 11:10 00h30
    98 km/h 95 km/h (95)
20c — ○ Rosenz
   Winfried
○▪DK /45678901234567 7 8
```
------------------------
```
>>15.11.2002 16:42 00h12
    97 km/h 93 km/h (10)
○ Förster
   Thomas
○▪D /98765432109876 5 4
```
------------------------
```
>>16.05.2003 17:10 00h15
    94 km/h 92 km/h (12)
○ Mustermann
   Heinz-Dieter
```
------------------------
```
21 — □● *Hausen im Tal* . . . .
□ *Schmitt Peter* . . . .
○ *Mustermann Heinz* . . . .
. . . .

9

111

▶ **Printout: Technical data**

```
------------------------------
▼ 25.10.2002 14:50 (UTC)
------------▼-----------
T⊙▼
------------⌂-----------
⌂ Spedition Mustermüller
⌂▣D  /12341234123412 3 4
------------⊙-----------
⊙ Mustermann
  Heinz-Dieter
⊙▣F  /12345678901234 5 6
16.06.2004
------------A-----------
A ABC12345678901234
  D  /VS-VM 612
------------B-----------
B Siemens AG
  SV
  Heinrich-Hertzstr. 45
  Villingen
  1381.12345678901234567
  e1 84
  12345678
  2002
  V xx.xx 11.02.2002
------------Л-----------
Л 87654321
  e1 175
  08.03.2002
------------T-----------
T Fa. Mustermann & NFZ-
  Hersteller
  Schillerstr. 10 Muster
  kirchen
T▣D  /45678901234567 8 9
  21.01.2003
T 08.03.2002  (1)
```

1	
2	
3	
3a	
4	
14	
15	
16	
16a	
16b	

```
A ???????????????????
     /???????????????
w  8 000 Imp/km
k  8 000 Imp/km
l  3 050 mm
⊙ 315/70/R22.5
〉  90 km/h
          0 -        km
------------------------------
T NFZ-Profi Service & Ve
  rtrieb
  Hauptstr. 24-26 Muster
  stadt
T▣D  /87654321087654 3 2
  12.03.2003

T 02.04.2002  (2)
A ABC12345678901234
  D  /VS-VM 612
w  8 000 Imp/km
k  8 000 Imp/km
l  3 050 mm
⊙ 315/70/R22.5
〉  90 km/h
    1 015 -          km
------------------------------
T NFZ-Profi Service & Ve
  rtrieb
  Hauptstr. 24-26 Muster
  stadt
T▣D  /87654321087654 3 2
  12.03.2003

T 02.04.2002  (3)
A ABC12345678901234
  D  /VS-VM 612
```
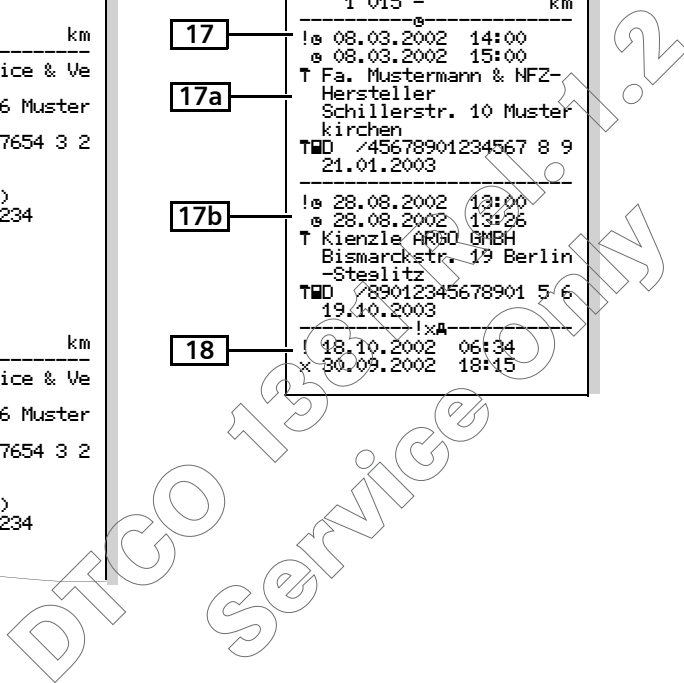
16a	
16b	
16a	
16b	

```
w  8 000 Imp/km
k  8 000 Imp/km
l  3 050 mm
⊙ 315/70/R22.5
〉  90 km/h
    1 015 -          km
------------⊙-----------
!⊙ 08.03.2002  14:00
 ⊙ 08.03.2002  15:00
T Fa. Mustermann & NFZ-
  Hersteller
  Schillerstr. 10 Muster
  kirchen
T▣D  /45678901234567 8 9
  21.01.2003
-----------------------
!⊙ 28.08.2002  13:00
 ⊙ 28.08.2002  13:26
T Kienzle ARGO GMBH
  Bismarckstr. 19 Berlin
  -Steglitz
T▣D  /89012345678901 5 6
  19.10.2003
------〉!x⌂-----------
 ! 18.10.2002  06:34
 x 30.09.2002  18:15
```

17	
17a	
17b	
18	

9

▶ **Printout: Speed profiles ***

1
```
▼ 27.11.2003 17:05 (UTC)
----------▼-----------
```

2
```
%v▼
----------⌂-----------
```

3
```
⌂ Spedition Mustermüller
⌂▪D  /12341234123412 3 4
----------⊙-----------
```

3a
```
⊙ Mustermann
  Heinz-Dieter
⊙▪F  /12345678901234 5 6
  16.06.2004
----------⌷-----------
```

4
```
⌷ ABC12345678901234
D  /VS-VM 612
----------⊙-----------
⊙
```

22
```
  25.11.2003 00:00
  25.11.2003 06:17
  --- km/h -----------
```

23
```
    0 <=v<      1 06h17
    1 <=v<     10 00h00
    8 <=v<     16 00h00
   16 <=v<     24 00h00
   24 <=v<     32 00h00
   32 <=v<     40 00h00
   40 <=v<     48 00h00
   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
```

22
```
⊙ Rosenz
  Winfried
⊙▪DK /45678901234567 7 8
  25.11.2003 06:17
  25.11.2003 09:00
  --- km/h -----------
```

23
```
    0 <=v<      1 01h24
    1 <=v<     10 00h01
   10 <=v<     16 00h01
   16 <=v<     24 00h01
   24 <=v<     32 00h01
   32 <=v<     40 00h01
   40 <=v<     48 00h02
   48 <=v<     56 00h09
   56 <=v<     64 00h15
   64 <=v<     72 00h17
   72 <=v<     80 00h16
   80 <=v<     88 00h14
   88 <=v<     96 00h01
   96 <=v<    104 00h00
  104 <=v<    112 00h00
  112 <=v<    221 00h00
----------⊙-----------
⊙
```

22
```
  25.11.2003 09:00
  25.11.2003 09:05
  --- km/h -----------
```

23
```
    0 <=v<      1 00h05
    1 <=v<     10 00h00
   10 <=v<     16 00h00
   16 <=v<     24 00h00
   24 <=v<     32 00h00
   32 <=v<     40 00h00
   40 <=v<     48 00h00
   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
----------⊙-----------
```

22
```
⊙ Mustermann
  Heinz-Dieter
⊙▪F  /12345678901234 5 6
  25.11.2003 09:05
  25.11.2003 16:10
  --- km/h -----------
    1 <=v<      1 03h22
```
```
  112 <=v<    221 00h00
----------⊙-----------
⊙
```

22
```
  25.11.2003 18:37
  26.11.2003 00:00
  --- km/h -----------
```

23
```
    0 <=v<      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
```
⊙  ....................
```

9

▶ **Printout: Rpm profiles ***

1
```
▼ 27.11.2003 17:05 (UTC)
```
2
```
----------▼----------
%n▼
```
3
```
----------⌂----------
⌂ Spedition Mustermüller
⌂■D  /12341234123412 3 4
```
3a
```
----------⊙----------
⊙ Mustermann
  Heinz-Dieter
⊙■F  /12345678901234 5 6
  16.06.2004
```
4
```
----------▲----------
▲ ABC12345678901234
  D  /VS-VM 612
```
22
```
----------⊙----------
⊙
  25.11.2003 00:00
  25.11.2003 06:17
  --- rpm -----------
```
24
```
     0 <=n<       1 06h17
     1 <=n<     234 00h00
   234 <=n<     469 00h00
   469 <=n<     703 00h00
   703 <=n<     938 00h00
   938 <=n<    1172 00h00
  1172 <=n<    1406 00h00
  1406 <=n<    1641 00h00
  1641 <=n<    1875 00h00
  1875 <=n<    2109 00h00
  2109 <=n<    2344 00h00
  2344 <=n<    2578 00h00
  2578 <=n<    2812 00h00
  2812 <=n<    3047 00h00
  3047 <=n<    3281 00h00
  3281 <=n<       × 00h00
```

22
```
⊙ Rosenz
  Winfried
⊙■DK /45678901234567 7 8
  25.11.2003 06:17
  25.11.2003 09:00
  --- rpm -----------
```
24
```
     0 <=n<       1 00h45
     1 <=n<     234 00h00
   234 <=n<     469 00h00
   469 <=n<     703 00h39
   703 <=n<     938 00h01
   938 <=n<    1172 00h01
  1172 <=n<    1406 00h08
  1406 <=n<    1641 00h06
  1641 <=n<    1875 00h25
  1875 <=n<    2109 00h10
  2109 <=n<    2344 00h19
  2344 <=n<    2578 00h07
  2578 <=n<    2812 00h01
  2812 <=n<    3047 00h01
  3047 <=n<    3281 00h00
  3281 <=n<       × 00h00
```
22
```
----------⊙----------
⊙
  25.11.2003 09:00
  25.11.2003 09:05
  --- rpm -----------
```
24
```
     0 <=n<       1 00h00
     1 <=n<     234 00h00
   234 <=n<     469 00h00
   469 <=n<     703 00h00
   703 <=n<     938 00h05
   938 <=n<    1172 00h00
  1172 <=n<    1406 00h00
  1406 <=n<    1641 00h00
  1641 <=n<    1875 00h00
  1875 <=n<    2109 00h00
  2109 <=n<    2344 00h00
```

```
  2344 <=n<    2578 00h00
  2578 <=n<    2812 00h00
  2812 <=n<    3047 00h00
  3047 <=n<    3281 00h00
  3281 <=n<       × 00h00
```
22
```
----------⊙----------
⊙ Mustermann
  Heinz-Dieter
⊙■F  /12345678901234 5 6
  25.11.2003 09:05
  25.11.2003 16:10
  --- rpm -----------
     0 <=n<       1 01h32
  ...
  3281 <=n<       × 00h00
```
22
```
----------⊙----------
⊙
  25.11.2003 18:37
  26.11.2003 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
```
----------⊙----------
⊙ ....................
```

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■ Explanations of printout examples
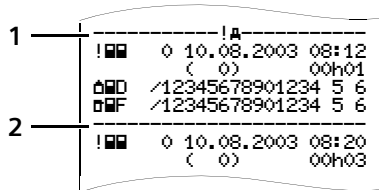
Every printout consists of a string of different data blocks that are identified by block identifiers **(1)**.

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!

▶ **Legend of the data blocks**

1	Date and time of the printout in UTC time
2	Type of printout: **24h■⊤** = Daily printout driver activities of the driver card **!×■⊤** = Events and faults from the driver card **24h▲⊤** = Daily printout, driver activities from DTCO 1381 **!×▲⊤** = Events and faults from DTCO 1381 **>>⊤** = Over-speeding When "Over-speeding" is printed, the value set in the speed limiter will also be printed. **T⊕⊤** = Technical data of the DTCO 1381 **%v⊤** = Daily printout Speed profiles * **%n⊤** = Daily printout rpm profiles *

3	Information about the cardholder of the inserted tachograph card: **⊓** = Controller **⊙** = Driver **⌂** = Company **T** = Workshop / inspection centre • Last name of official (or the authority) • First name of official • Card identification If a tachograph is 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: • Last name of driver • First name of driver • Card identification • Card valid until ...
4	Vehicle identification: • Vehicle identification number • Authorising member state and vehicle registration number

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5	Identification of the DTCO 1381: • Tachograph manufacturer • Part number of the DTCO 1381 tachograph
6	Most recent calibration of the DTCO 1381: • 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 • Beginning, end, and duration • For example: manually entered activity after insertion of the driver card, with pictogram, beginning, end, 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 while driver card inserted: • Beginning, end, duration, and driving status ⊕⊕ = Crew operation, * = Rest periods of at least one hour
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.
9	Beginning of list of all driver activities in the DTCO 1381: • Calendar day of printout (date of inquiry) • 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 ...
10c	• Authorising member state and official registration number of the previous vehicle • Date and time card was removed from the previous vehicle
10d	• Odometer reading when driver card inserted М = the entry was done manually

10e	List of activities: • Pictogram of the activity, beginning and end times, duration, and driving status ⊙⊙ = Crew operation * = Rest periods greater than 1 h
10f	Entry of specific conditions: • Start and end times and pictogram of the condition ⚓ = Transfer by ferry or train OUT = Recording equipment not required
10g	Withdrawal of driver card: • Odometer reading and distance travelled
10h	Chronology of all activities from card slot 2
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

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- ⬛⫴⊩ = 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

Note: In this sample printout, the driver Anton Max is initially active as driver 2, then as driver 1. The sum of the activities is derived from both card slots.

| 12 | List of the five most recent saved events or faults on the driver card. |

| 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 122.*
- Duration of the event or fault

Line 3:
- Authorising member state and official 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 |

| 13c | - Coding of data record purpose.
  ➥ *Refer to "Data record purpose during events or faults" on page 122.*
- 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 124.*
- Number of similar events on this day.
  ➥ *Refer to "Number of similar events" on page 123.*
- 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 DTCO 1381:
	• 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
16	Calibration data
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)
	• Vehicle identification number
	• Authorising member state and official registration number
	Note: In the example, this data is available only in the next data record.
	• ʍ = 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
	• x = Most recent fault, date, and time
19	Information on "over-speeding" control:
	• Date and time of the most recent control

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• 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.
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 • 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. |

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| 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. |

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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 —
2 —

(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	0
! ⊙⊟ Driving without valid card	1 / 2 / 7
! ⊟⊙ Insertion while driving	3
! ⊟△ Card not closed	0
≫ Over-speeding	4 / 5 / 6
! ⊹ Power interruption	1 / 2 / 7
! ⊓ Sensor fault	1 / 2 / 7
! 🔒 Security breach	0
! ⊙⊙ Time overlap ([1]	–
! ⊟ Card invalid ([2]	–

Faults	
Picto / reason	*Purpose*
✕⊟ Card fault	0
✕△ Internal fault	0 / 6
✕⊤ Printer fault	0 / 6
✕□ Display fault	0 / 6
✕⊥ Download fault	0 / 6
✕⊓ Sensor fault	0 / 6

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

([2] The DTCO 1381 will not save this event ⇨⇨

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**

```
-----------------------------
!🔒     05.08.2003 09:23
! 35             00h01
A D  /VS-VM 612
-----------------------------
!🔒     17.04.2003 16:04
! 22             01h02
  D  /VS-VM 612
```

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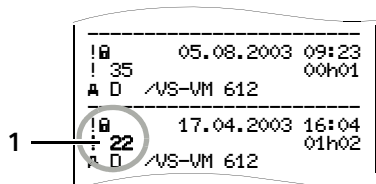
Events subject to security breach "!🔒" are broken down with an additional coding **(1)**.

Security Breach Codes relating to the DTCO 1381

16 = No additional information

17 = Failed authentication of the sensor

18 = Authentication errors of the driver card

19 = Unauthorised changes to the sensor

20 = Integrity error, the authenticity of the data on the driver card is not assured.

21 = Integrity error, the authenticity of the saved user data is not assured.

22 = Internal data transmission error

23 = Unauthorised opening of the casing

24 = Manipulation of the hardware

Security Breach Codes relating to the KITAS 2171 impulse sensor

32 = No additional information

33 = Failed authentication

34 = Integrity error, the authenticity of the memory data is not assured.

35 = Internal data transmission error

36 = Unauthorized opening of the casing

37 = Manipulation of the hardware

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■ Keyword directory

A

A