

Control Manual



SE5000 Digital Tachograph



Important

The Stoneridge tachograph SE5000 Rev 7.4 has full type approval for use in the European union according with Commission Regulation (EC) No. 1360/2002 of 13 June 2002 and other related legislatives.

The Approval Certificate number is e5-0002. This number will be indicated on all Stoneridge tachograph.

The tachograph fulfils the requirements of UNECE regulation number 10, revision 03, approval No 03XXX, in respect of electromagnetic compatibility.

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Tachograph Version

Digital Tachograph SE5000 Rev 7.4.

Internet Information

Further information about Stoneridge Digital Tachograph SE5000 and about Stoneridge Electronics Ltd can be found at:

www.se5000.com

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Introduction

This manual concerns the control mode of operation. However, knowledge of the operational mode of the unit is also required in case of driving a tachograph fitted vehicle.

A Stoneridge tachograph can be operated in one of four modes of operation:

- Operational (driver card or no card inserted)
- Control (control card inserted)
- Calibration (workshop card inserted)
- Company (company card inserted)

Company Lock-in/Lock-out details can be used to identify the true owners of blocks of stored tachograph data. Enforcement officers should encourage companies to Lock-in tachograph data as it not only identifies their company as the owner of the data, but also prevents third party company card owners from viewing or downloading their data.

Also, when transferring ownership of a tachograph to another company, the current tachograph owner must Lock-out the data before transfer of the tachograph. Thus any future data stored after the Lock-out would be clearly identified as not applying to them.

Due to data protection laws, care must be taken to ensure that the tachograph data is not downloaded and passed on to third parties without the permission of the tachograph owner.

The control card can be inserted in either of the trays. If control cards are inserted in both trays the card in tray 1 will be used for the control operation and the card in tray 2 will be ignored.

The Control Card

- Must be obtained via an application to the relevant authorities.
- Is valid for 2 years only.
- Will only be issued to enforcement officers or enforcement authorities.
- Are personal to the enforcement officer and authority and is not transferable.
- Allows read-only access to data stored in the driver card or in the tachographs internal memory respectively.
- Can store a minimum of 230 records of displaying and/or printing and/or VU downloading and/or card downloading. The maximum number of records is dependent on the card type. When the upper limit is reached the oldest data will be overwritten.

Note!

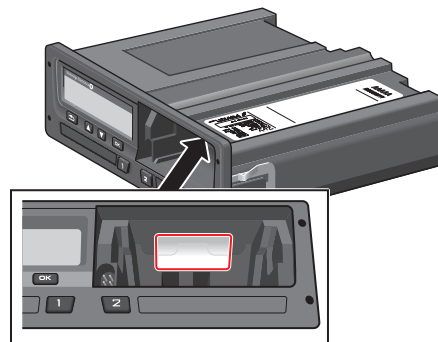
Extra care must be taken to ensure that only the authorised owner of a control card has access to it at all times.

Don't open the Case

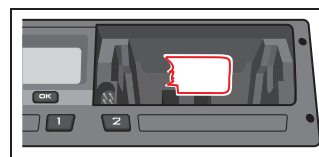
The tachograph has been installed by authorised personnel.

A tachograph case must never be opened. No tampering with or modifications to the tachograph system are permitted. A tamper label is placed inside the printer housing. The tamper label must not be torn apart.

Here you can see where the tampering label is placed and how it looks when it is untouched.



A tampered label might look like this.

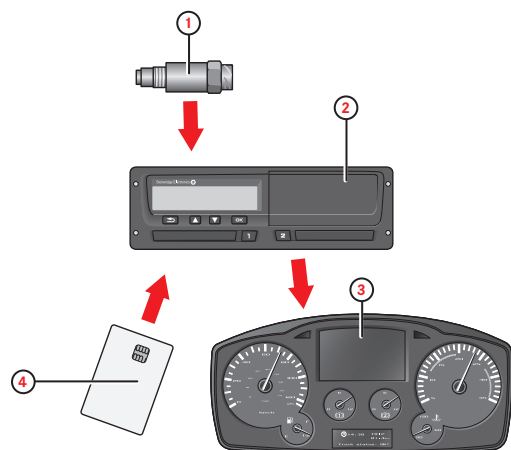


Note!

Unauthorized persons that modify this equipment are committing a punishable offence, depending on the legislation in the country concerned.

Overview

The Tachograph installation.



1. Encrypted motion sensor
2. Digital tachograph, with integrated display and printer
3. Display in vehicle's instrument cluster
4. Card

Encrypted Motion Sensor (1)

Used to provide the tachograph with speed signal pulses from the vehicle gearbox. To ensure the integrity of the speed sensor signal, the speed signal is transferred between the sensor and the tachograph in an encrypted form. Encrypting the speed signal ensures that any tampering with the signal will be detected and recorded.

Digital Tachograph (2)

The tachograph records and stores various data:

- Workshop or driver card data.
- Warnings and malfunctions relating to tachograph, driver, company and workshop.
- Vehicle information, odometer data and detailed speed.
- Tampering the tachograph. For more information on the tachograph, see the Driver & Company Manual.

Display in Instrument Cluster (3)

The display in the instrument cluster can be used to display information passed from the tachograph, such as speed (speedometer) and distance travelled (trip and odometer).

Control and Driver Card (4)

The following cards dedicated for specific usage can be used in the tachograph:

- Driver card - records the drivers activities.
- Control card - authority control and inspection.
- Workshop card - calibration mode.
- Company card - hauliers and vehicle owners, down loading and storage of data.

Note!

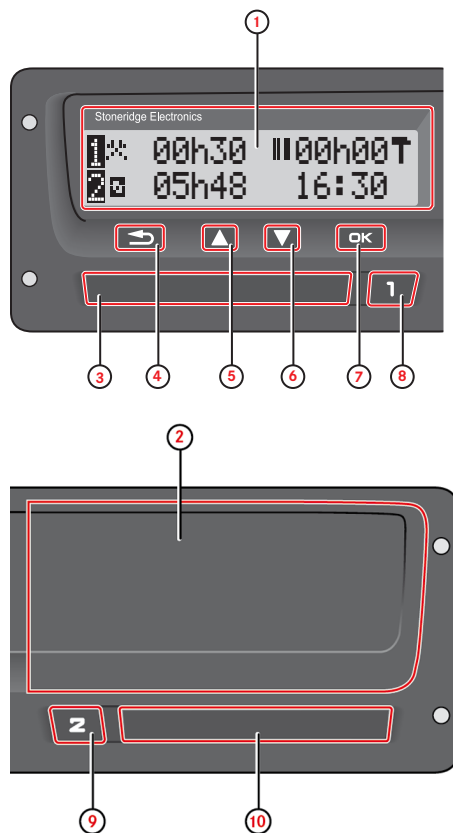
All cards are personal and may not be used by anyone else but the rightful card holder.

User Interface

The tachograph detailed within this manual comprises two card tray mechanisms, a printer, an LCD display, a calibration/download interface (6-pin connector located behind paper cassette) and user controls, located in an ISO standard radio enclosure. This type of enclosure enables mounting in a variety of locations, ensuring that insertion and removal of the driver cards and operation of the controls can be easily achieved by an operator.

The tachograph complies with EU Regulations and displays and records speed and distance in metric units (kilometres per hour and kilometres respectively).

The tachograph also incorporates an internal clock, which is used to indicate the current time on the tachograph display. The tachograph is available for use in both 12 and 24 V vehicle systems.



1. Display
2. Printer, 6-pin calibration/download connector, behind the paper cassette
3. Driver card tray
4. Cancel button
5. Up button
6. Down button
7. Enter button
8. Driver button
9. Co-driver button
10. Co-driver card tray

Downloading Data

General

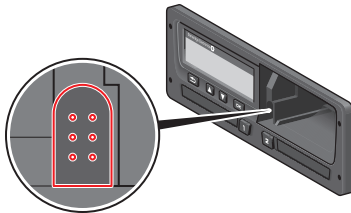
An enforcement officer can download data from a digital tachograph system. Downloading means the copying, together with a security digital signature, of a partial or a complete set of data that is stored in the memory of a tachograph or on a driver card.

The download must be done to aid investigations into “Drivers Hours” legislation checks and to aid determination of the validity of the digital tachograph systems. When carrying out “Drivers Hours” investigations, care must be taken to identify the true owners of blocks of stored tachograph data.

Dedicated download equipment or a valid control card is essential for the downloading of the data stored in the tachograph or on the driver card.

Download Equipment

Behind the paper cassette is a 6-pin connector located. This is where the required downloading equipment is connected.



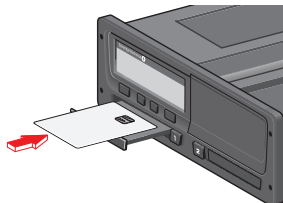
Control Card

A valid control card is required to download or to view driving data stored on either an inserted driver card or in the tachograph's data memory. The control card provides read-access to the entire tachograph data memory contents whether or not the data has been company locked using a valid company card.

Inserting a Control Card

Insert the control card in either of the trays (No. 1 in our example).

1. Press and hold button **1** on the tachograph until the tray is opened.
2. Insert the card with the chip facing forward and upwards.
3. Close the tray by pushing it carefully forward.



The control card must be inserted to identify the controller/user.

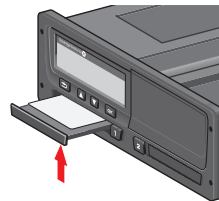
4. Close the tray by pushing it in carefully. The tachograph now processes the control card data.

If the control card authentication fails, see heading **Display Messages** on page 25.

The card tray is locked when the vehicle is in motion, while the tachograph is busy processing the control card and if the power supply to the tachograph is interrupted.

Eject a Control Card

1. Press button **1** or **2** on the tachograph and hold it until the tray opens.
2. Press the card up slightly from underneath through the opening on the tray, or push the edge of the tray down until the card pops out.
3. Close the tray by pushing it carefully forward.



Note!

Withdrawal of the Control Card is not possible in all menus.

Storing Data

When a control card is inserted into a tachograph in order to perform a control activity, a record of the control activity is stored on the control card and in the tachograph as described below. The type of controls that can be performed are displaying, downloading or printing data from the tachograph and/or the card.

Storing Data on the Control Card

On the control card a single record will be stored. This record contains the following:

- The card number.
- The issuing Member state, issuing authority name and the issue date.
- The card validity date.
- The control body name and address.
- The surname and forename of the card holder.
- The preferred language.

Each time a control card is used to carry out a control activity the following data is stored on the control card:

- The date and time of the control activity.
- The type of control activity performed.
- The period downloaded, if applicable.
- The VRN (Vehicle Registration Number) and Member State registering authority of the controlled vehicle.
- The card number and card issuing Member State, in case of controlling a card.

Storing Control Activities in the Tachograph

Each time a control card is used to carry out a control activity a record of the activity is stored in the tachograph. The data in each record is:

- Date and time of the control.
- The control card number and card issuing Member State.
- The type of control.

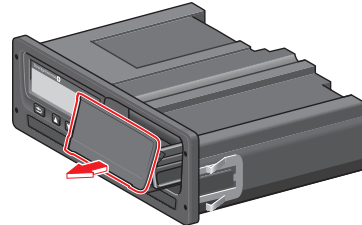
Note!

In case of downloading, the date of the oldest and most recent days downloaded must also be recorded.

Downloading Data

To download data do the following:

1. Remove the paper cassette.



2. Attach the download equipment to the tachograph through the 6-way front download connector.
3. Start downloading data according to the instruction on the download equipment.

When the download is completed, the following message will be displayed.

`Download complete`

If the download process has failed and is incomplete the following message will be displayed:

`Download failed`

If the download fails:

4. Remove the control card.
5. Check the connections.
6. Check the download equipment.
7. Re-insert the control card and redo the process until downloading is made.

If the data download cannot be completed and the following message is displayed:

`Download fault`

The tachograph is found to be the cause or if it is unsure whether the card or the tachograph is faulty, the vehicle must be taken to a Tachograph Workshop for investigation.

System Inspection

General

The control function involves a number of different functions associated with the digital tachograph system. A tachograph inspection is done to ensure that it still meets the EU legislation requirements.

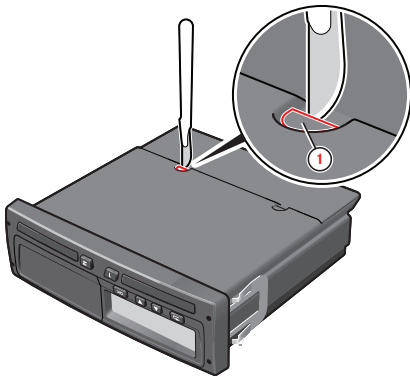
For example, downloading and checking the data stored on either the driver card or in the tachograph internal memory, and an inspection of the tachograph system.

Note!

If any unit fails the inspection the vehicle must be taken to a Workshop for further investigation.

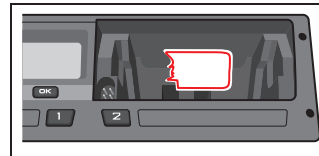
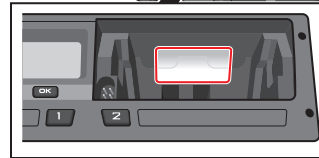
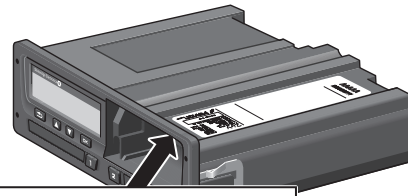
Visual Check

1. Ensure that there is no damage to or drill-holes in the entire exterior casing including underneath rubber acorn, which would imply a tampering attempt.
2. Check for evidence of tampering with the seals and labels.
3. Check for additional seals and labels that do not belong to the tachograph, as they might cover drill-holes. There should be only one label on the tachograph.
4. Check that the heat seals is present.
5. Check the tachograph type approval mark.
6. Check that the predetermined breakpoints are unbroken.



1. Predetermined breakpoint.

7. Check that all tachograph system seals are intact.
8. Confirm the presence of the installation plaque.
9. Check that the label and Stoneridge logotype hologram is present and in one piece. The position of the label is shown in the illustration below. Two different seals are used.



Inspection Procedure

Follow this procedure to confirm that the function of the recording equipment is correct:

1. Check that the operation of the recording equipment including data storage on cards is satisfactory.
2. Determine that the tachograph operates within maximum tolerances for both speed and distance.
3. Compare that the actual circumference and tyre size corresponds with the information on the installation plaque.
4. Check the internally stored calibration factors according to the installation plaque with a technical printout.
5. Check the internally stored vehicle parameters, VIN (Vehicle Identification Number) and VRN (Vehicle Registration Number) and compare to the actual vehicle data with a technical printout.
6. Check the correctness of the UTC time.

Note!

If the UTC time is inaccurate by more than 20 minutes, the vehicle must be taken to a workshop for recalibration.

Installation Plaque

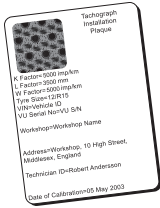
The final part of the digital tachograph system installation procedure is the completion and fitment of an installation plaque.

The installation plaque must be clearly visible and easily accessible. The installation plaque is normally placed on the recording equipment, the vehicle's "B" pillar or the doorframe on the driver's side of the vehicle.

The installation plaque state the following:

- Constant of the tachograph, K factor (imp/km).
- Effective circumference of the wheel tyres, L factor (mm).

- Characteristic coefficient of the vehicle, W factor (imp/km).
- Tyre size.
- Vehicle Identification Number (VIN).
- Name, address or trade name of the approved fitter or workshop.
- Date of calibration.

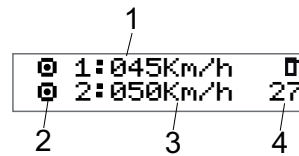


Checking Second Source Motion Sensor

If the tachograph system is required to have a second motion sensor this section describes how this shall be checked. Checking can be carried out by viewing the Motion Sensor View.

With the control card inserted, press the arrow down button several times until you reach the last view, which is the Motion Sensor View. See position (3) below to check if a second source motion sensor is present.

Note!
If second source of motion function is disabled this view will not be shown.



1. Primary Motion Sensor speed.
2. Indicates motion. If this pictogram is shown (-), no motion is detected.
3. Second source of motion speed. The digits shows the speed indication of the second source.
If these characters (- -) are shown instead of the digits, the tachograph does not receive signals from a second source motion sensor.
4. Fault number.

Pictograms

Symbols

This is a list of the most frequently shown symbols on the display and on the printouts.

Symbol	Description
⊖	Function not available
1	Driver or slot
2	Co-driver or slot
☑	Card
⬆	Eject
✂	Work
⊞	Driving/driver (mode of Operation)
⌂	Rest/break
☑	Available
⚓	Ferry / train crossing
OUT	Out of scope, -i.e. no recording is required
●	Local time/location
▶	Start of daily work period
⏪	End of daily work period
⏸	Break
↔	From or to
▼	Printer, printout
📄	Paper
📺	Display
⌘	Processing, please wait
🕒	Time, clock
UTC	UTC time
24h	Daily
	Weekly
	Two weeks
Σ	Total/summary
>	Speed
>>	Over speeding
×	Faults
!	Events
?	Pre-warning/question/unknown activity
🏠	Workshop
🏢	Company
👤	Controller
🏭	Manufacturer
🔒	Security
↓	External storage/download
⌨	Buttons
✓	Finished
🚗	Tachograph (VU), vehicle
⊙	Tyre size
⌚	Sensor
⚡	Power supply
🖨	Print
☰	Print, submenu
🔒	Company lock
🗝	Places
🗝	Places, sub menu
⚙	Settings

Symbol Combinations

The following combination of symbols are the most common.

Symbols	Description
●▶	Location start of daily work period
▶●	Location end of daily work period
☑→	From time (UTC)
→☑	To time (UTC)
●☑	Local time
⊙⊙	Crew driving
⊙	Driving time for two weeks
OUT▶	Out of scope - begin
▶OUT	Out of scope - end
⊙▶	Cumulative driving time of current day
↓⊙	Printer low temperature
↑⊙	Printer high temperature
☑--	No card
⊙☑	Driver card
🏠☑	Workshop card
🏢☑	Company card
👤☑	Control card
👤●	Control place
🚗→	From vehicle

Printouts

The information stored on the tachograph and on the driver cards can be printed. There are a number of different printouts available, see below.

1. Press **OK** to show the menu and select:

`PRINT`

1. Press **OK** and select the type of printout to make. Then press **OK**.

Some types of printouts require specification of the driver card and a date. If so the following is displayed:

`Select card 1 or 2`

2. Select **1** to make a printout for the current driver's card or **2** to make a printout for a co-driver's card. The following is displayed:

`Select date`

3. Select the desired date by using the arrow buttons and press **OK**.
4. Now you select whether to view the data on the display only or to make a printout on paper.

- To view the data on the display only, select:

`display`

- Press **OK** and scroll through the data using the arrow buttons and then press **OK** to return.

- To make a printout on paper, select

`printer`

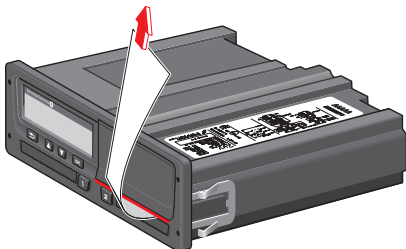
- Press **OK**. The display will show:

`Printer busy`

- If you would like to cancel the process, press and hold the **Back** button. Wait until the message is cleared and then pull the printout upwards to tear it off.

Note!

To avoid paper jam make sure the slot on the paper cassette is not blocked.



Printout Examples

On the following pages there are a number of printout examples that can be selected from the **PRINT** menu:

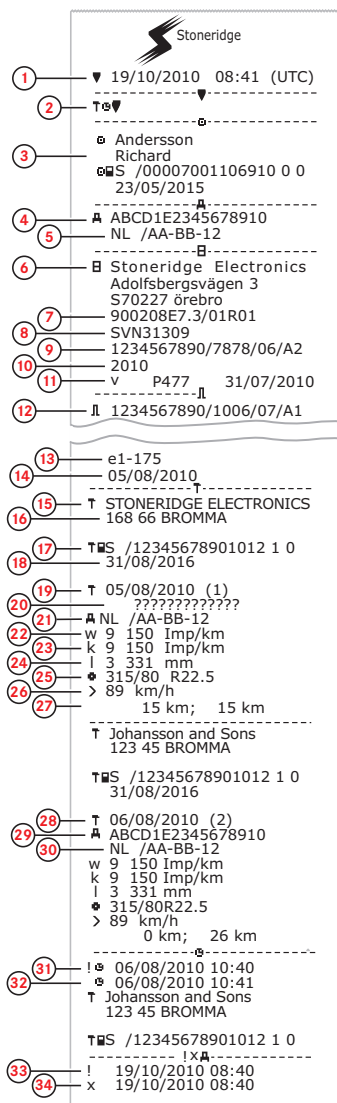
- Daily printout (card) `24h card` (including local time).
- Event and faults (card) `event card`.
- Event and faults (VU) `event vu`.
- Drive Time Info `drive time info`
- Technical data `technical data`.
- Overspeeding `overspeeding`.
- Vehicle speed `vehicle speed`.
- Engine speed (rpm) `engine speed`.
- Status D1/D2 `status D1/D2`.
- Manual Entry Sheet `man entry sheet`.

Technical Data

This printout list data as speed settings, tyre size, calibration data and time of adjustments.

The display shows the following (on the second line):

technical data



1. Date and time.
2. Type of printout (technical data).
3. Cardholder ID.
4. Vehicle Identification Number (VIN).
5. Vehicle Registration Number (VRN) and country of registration.
6. Tachograph manufacturer.
7. Tachograph part number.
8. Tachograph approval number.
9. Tachograph serial number, date of manufacture, type of equipment and code of manufacturer.
10. Year of manufacture.
11. Software version and installation date.
12. Motion sensor serial number.
13. Motion sensor approval number.
14. Date of first installation of motion sensor.
15. Workshop having performed the calibration.
16. Workshop address.
17. Workshop card identification.
18. Workshop card expiry date.
19. Calibration date and purpose.
20. VIN
21. VRN and country of registration.
22. Characteristic coefficient of vehicle.
23. Constant of the recording equipment.
24. Effective circumference of wheel tyres.
25. Vehicle tyre size.
26. Authorized speed setting.
27. Old and new odometer values.
28. Calibration date and purpose.
29. VIN.
30. VRN and country of registration.
31. Old date and time (Before time adjustment).
32. New date and time (After time). adjustment
33. Most recent event time.
34. Most recent fault date time.

Events and Faults (VU)

This printout lists all warnings and faults stored in the tachograph or vehicle unit (legal requirement). UTC time is used.

The display shows the following (on the second line):

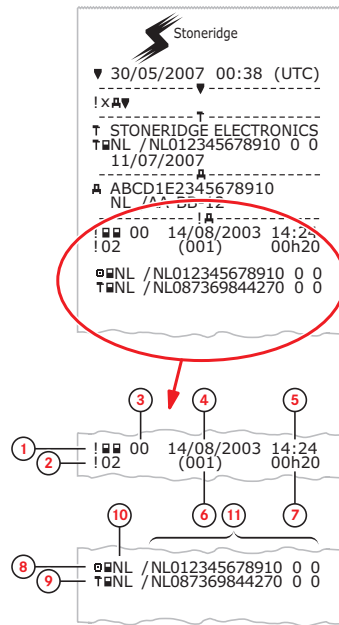
event vehicle

```

Stoneridge
1 30/05/2007 00:38 (UTC)
2 !xA▼
3 T STONERIDGE ELECTRONICS
  TUK / K 0 0 0 0 0 0 0 0
  11/07/2007
4 A ABCD1E2345678910
  NL /AA-BB-12
5 !00 14/08/2003 14:24
  !02 (001) 00h20
  00NL /NL012345678910 0 0
  00NL /NL087369844270 0 0
6 !01 27/01/2007 08:57
  !04 (003) 00h14
  0--
7 !03 08/12/2006 18:52
  !05 (001) 00h00
  00NL /NL012345678910 0 0
8 !00 14/08/2003 14:22
  !06 (001) 12h50
  00NL /NL012345678910 0 0
9 !01 01/03/2007 09:30
  !08 (001) 99h59
  0--
10 !00 02/04/2007 09:24
  !15 (001) 00h00
  0--
11 x00 04/04/2007 14:37
  x40 (000) 00h00
  0--
12 x01 02/04/2007 11:36
  x35 (000) 01h38
  -----
13 0* .....
14 0 .....
15 0 .....
  
```

1. Date and time of the printout.
2. Type of printout (events and faults, VU).
3. Control card identification.
4. Vehicle Identification Number (VIN) Vehicle Registration Number (VRN) and country of registration.
5. Card conflict (event).
6. Driving without valid card (event).
7. Card inserted while driving (event).
8. Last card session not correctly closed (event).
9. Power supply interruption (event).
10. Data integrity error (event).
11. Card fault (fault).
12. Sensor fault (fault).
13. Control place.
14. Controller signature.
15. Driver signature.

Details of Events and Faults (VU)



1. Type of event or fault (card conflict).
2. Event or fault code (card conflict).
3. Event or fault record purpose (All purposes are not saved for each event):
 - 00 - one of the 10 most recent (or last) events or faults.
 - 01 - the longest event for one of the last 10 days of occurrence.
 - 02 - one of the 5 longest events over the last 365 days.
 - 03 - the last event for one of the last 10 days of occurrence.
 - 04 - the most serious event for one of the last 10 days of occurrence.
 - 05 - one of the 5 most serious events over the last 365 days.
 - 06 - the first event or fault having occurred after the last calibration.
 - 07 - an active/on-going event or fault.
4. Date of event or fault.
5. Start time of event or fault.
6. Number of events of the same type during the day.
7. Duration of event or fault.
8. Card inserted in slot 1 at the beginning of event or fault (Driver card).
9. Card inserted in slot 2 at the end of the event or fault (Workshop card).
10. Card issue country.
11. Card number (shown with every second number replaced with a space if not in calibration or company mode or if no card is inserted).

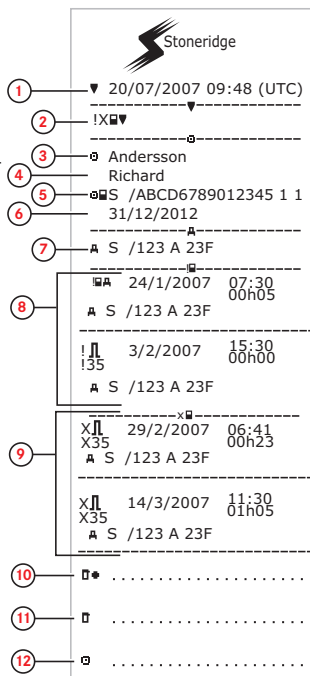
For a detailed list of all events and faults, see heading **Event, Fault and Diagnostic Trouble Codes** on page 1.

Events and Faults (card)

This printout lists all warnings and faults stored on the card (legal requirement). UTC time is used.

The display shows the following (on the second line):

event card



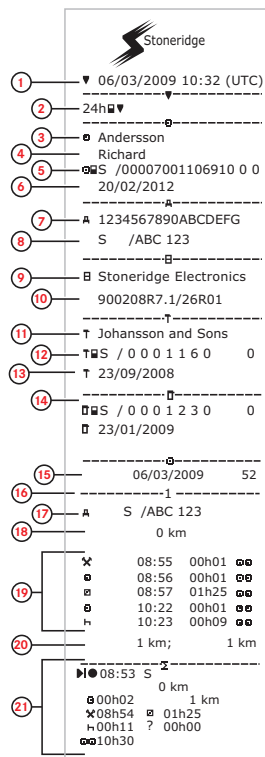
1. Date and time.
2. Type of printout. (event and faults, card).
3. Card holder's surname.
4. Card holder's first name.
5. Card and country identification number.
6. Expiry date of the card.
7. Vehicle registration number VRN.
8. List of all events stored on the card.
9. List of all faults stored on the card.
10. Control place.
11. Controller's signature.
12. Driver's signature.

Daily Printout (card)

This printout lists all activities stored on the driver card (or co-driver card) for the selected date (legal requirement). UTC time is used.

The display shows the following (on the second line):

24h card



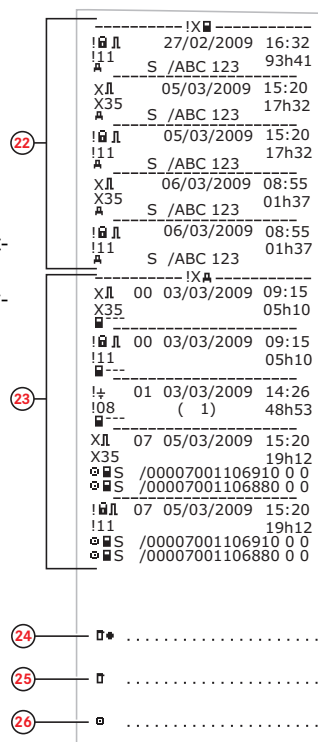
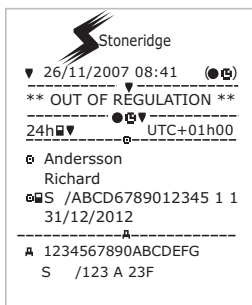
1. Printout date and time.
2. Type of printout (24h, card).
3. Card holder's surname.
4. Card holder's first name.
5. Card and country identification number.
6. Expiry date of the driver card.
7. Vehicle identification, VIN.
8. Registering member state and Vehicle Registration Number, VRN.
9. Tachograph manufacturer.
10. Tachograph part number.
11. Responsible workshop for last calibration.
12. Workshop card number.
13. Date of last calibration.
14. Last control the inspected driver has been subjected to.
15. Enquiry date and daily card presence counter.
16. Tray where card was inserted
17. VRN, Vehicle Registration Number, for the vehicle where the driver card was inserted.
18. Vehicle odometer at card insertion.
19. Activities with driver card inserted, start and duration time.
20. Card withdrawal: Vehicle odometer and distance travelled since last insertion for which odometer is known.
21. Daily summary of activities.

Daily Printout (card) continued

To make it easier to check the activities on the printout you can select local time instead of UTC. The printout contains in all other respect the same information.

Note!

The text OUT OF REGULATION indicates that this printout doesn't comply with any regulation.



22. Last five events and faults from the driver card.
23. Last five events and faults from the VU, vehicle unit.
24. Control place.
25. Controller's signature.
26. Driver's signature.

Daily Printout (VU)

This printout lists all activities stored in the tachograph (VU) for the selected date (legal requirement). UTC time is used. The printout is dependent of the following:

- If no card is inserted, select either the current day or any of the eight recent days.
- When a card is inserted, select any day stored in the tachograph, out of a maximum of typically the recent 28 days. If no data is available for the selected date, the printout will not be initiated.

The display shows the following (on the second line):

24h vehicle

Stoneridge

1 06/03/2009 10:39 (UTC)

2 24h A

3 Andersson

4 Richard

5 S /00007001106910 0 0

6 20/02/2012

7 Schmidt

8 Magnus

9 S /00007001106880 0 0

10 20/02/2012

11

12 06/03/2009

13 0 - 1 km

14 Andersson

Richard

S /00007001106910 0 0

20/02/2012

15 S /ABC 123

16 03/03/2009 11:45

17 0 km

18 00:00 08h53

0 km; 0 km

08:53 00h02

0 km; 0 km

Andersson

Richard

S /00007001106910 0 0

20/02/2012

S /ABC 123

06/03/2009 10:26

0 km

08:55 00h01

08:56 00h01

08:57 01h25

10:22 00h01

10:23 00h16

1 km; 1 km

1. Printout date and time.
2. Type of printout (24h, VU).
3. Card holder's surname (driver).
4. Card holder's first name (driver).
5. Card and country identification number.
6. Expiry date of the driver card.
7. Card holder's surname (co-driver).
8. Card holder's first name (co-driver).
9. Card and country identification number.
10. Expiry date of the co-driver card.
11. Drivers activities stored in the VU per slot in chronological order.
12. Enquiry date.
13. Vehicle odometer at 00:00 and 24:00.
14. Driver
15. Registration member state and vehicle registration number of previous vehicle used.
16. Date and time of card withdrawal from previous vehicle.
17. Vehicle odometer at card insertion.
18. Activities with start and duration time

Daily Printout (VU) continued

M=Manual entries of driver activities.

To make it easier to check the activities on the printout you can select local time instead of UTC. The printout contains in all other respect the same information.

Note!

The text OUT OF REGULATION indicates that this printout doesn't comply with any regulation.

Stoneridge

26/11/2007 08:41 (UTC)

** OUT OF REGULATION **

24h A UTC+01h00

Andersson

Richard

S /ABCD6789012345 1 1

31/12/2012

A 1234567890ABCDEF

S /123 A 23F

19 Schmidt

Magnus

S /00007001106880 0 0

20/02/2012

20 S /ABC 123

21 05/03/2009 14:40

22 0 km

00:00 08h53

0 km; 0 km

08:53 00h02

0 km; 0 km

Schmidt

Magnus

S /00007001106880 0 0

20/02/2012

S /ABC 123

06/03/2009 10:25

0 km

08:55 00h01

08:56 01h43

1 km; 1 km

23 00h00 0 km

00h02 00h00

00h00

24 00h00 00h02

00h00

Andersson

Richard

S /00007001106910 0 0

08:53 S

00h02 0 km 1 km

08h54 01h25

00h16

00h37

Schmidt

Magnus

S /00007001106880 0 0

08:53 S

00h00 0 km 1 km

00h00 08h54

01h43

00h37


19. Co-driver.
20. Registration member state and vehicle registration number of previous vehicle used.
21. Date and time of card withdrawal from previous vehicle.
22. Vehicle odometer at card insertion.
- M = Manual entries of driver activities.
- * = Rest period of at least one hour.
23. Summary of periods without card in driver slot.
24. Summary of periods without card in co-driver slot.
25. Daily summary of activities (driver).
26. Daily summary of activities (co-driver).

Overspeeding

This printout lists overspeeding events together with duration and the name of the driver.

The display shows the following (on the second line):

overspeeding



1. 20/07/2007 09:48 (UTC)
 2. >> 89 km/h
 3. Andersson
 4. Richard
 5. S /ABCD6789012345 1 1
 6. 31/12/2012
 7. 1234567890ABCDEFGH
 S /123 A 23F
 8. > 9/02/2007 11:31
 > 17/01/2007 (008)
 9. >> 12/02/2007 19:24 00h05
 98 km/h 94 km/h (1)
 Andersson
 Richard
 S /ABCD6789012345 1 1



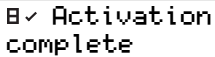
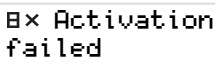



10. >>(365)-----
 > 9/02/2007 11:31 00h10
 99 km/h 97 km/h
 S /EFGH123456786 2 2
 Bertil
 S /EFGH123456786 2 2
 11. >>(10)-----
 > 12/02/2007 19:24 00h05
 98 km/h 94 km/h (1)
 Andersson
 Richard
 S /ABCD6789012345 1 1
 12. >>-----
 13. >-----
 14. >-----

1. Date and time.
2. Type of printout. (overspeeding). Speed limiting device setting.
3. Card holder's surname.
4. Card holder's first name.
5. Card and country identification number.
6. Expiry date of the driver card.
7. Vehicle identification. VIN, registering member state and VRN.
8. Date and time of the last overspeeding control.
9. Date and time of first overspeeding and number of overspeeding events.
First overspeeding after the last calibration.
Date time and duration. Max and average speed.
Driver and drivers card identification.
10. Five most serious overspeeding over the last 365 days. Date time and duration. Max and average speed. Driver and drivers card identification.
11. Most serious overspeeding events over the last ten days. Date time and duration. Max and average speed. Driver and drivers card identification.
12. Control place.
13. Controller's signature.
14. Driver's signature.

Display Messages

There are four type of messages that can be seen on the display.

- **Messages** - contains information on processes or reminders to the driver. Messages are not stored and can not be printed. Press the **Back** button to clear the message.
- **Pre-warnings** - appear as early reminders to the warnings. Pre-warnings are stored and can be printed. Press the **OK** button twice to clear the Pre-warning.
- **Warnings**- appear in the event of e.g. overspeeding or violations of the law or if tachograph not can be recording. Warnings are stored and can be printed. Press the **OK** button twice to clear the Warning.
- **Faults** - are more critical than warnings and are displayed if there is a fault detected in the tachograph, in the sensor or driver card. In addition faults are presented if tampering with the equipment is detected. Faults are stored and can be printed. Press the **OK** button to acknowledge the Fault.

Display	Description	Action
	Message Entry not possible while driving. Related to the operator.	Stop the vehicle and try the entry again. If the symbol still is present when vehicle stopped, disconnect and reconnect the tachograph and retry. If the symbol still is present after reconnect, tachograph must be decommissioned.
	Message The tachograph is being activated for use (Workshop card).Related to the tachograph	Wait until the automatic activation is completed.
	Message The tachograph activation process has been completed (Workshop card).Related to the tachograph	
	Message The tachograph activation process has failed (Workshop card). Related to the tachograph	Eject the workshop card from the tachograph. Check system connections. Re-insert the workshop card to retry the activation. Disconnect the tachograph for 30 seconds and retry. If the tachograph will not activate it must be decommissioned and replaced.
	Message Two workshop cards inserted. The second card will be ejected without being processed (authenticated). Related to the operator.	Insert only one Workshop card.
	Fault The card in tray 1 is defective. Similar message for tray 2. Related to the card.	Eject the card and check it visually. Check the tachograph with a functional card.
	Warning The last withdrawal time of the inserted driver card is later than the date/time of the tachograph. Related to the tachograph.	Check the date/time of the tachograph and change if necessary. Wait for the overlap period to elapse. If UTC time differs more than 20 minutes, a calibration has to be performed.

Display Messages

Display	Description	Action
!001 Card 1 auth.failure	Fault The tachograph security check for the card in tray 1 failed. Similar message for tray 2. Related to the tachograph.	Check that the inserted card is valid and correctly inserted. Check if the card works in another tachograph. Try to insert another card.
!00 Card conflict	Warning An invalid card combination has been detected. Related to the card.	Withdraw the offending card.
!0+02 Card integrity error	Fault Corrupt data detected when reading data from the card in tray 2 to the tachograph. Similar message for tray 1. Related to the card.	Clean the card with a soft damp cloth and try again. In case of a faulty card, contact the responsible authority in the country in which you are located.
!0→x2 Card eject without saving	Message Data could not be stored on the card withdrawn from tray 1 due to an error. Similar message for tray 2. Related to the card.	Clean the card with a soft damp cloth and try again. In case of a faulty card, contact the responsible authority in the country in which you are located.
001 Card expired	Message The card in tray 1 has expired. Similar message for tray 2. Related to the operator.	Remove the card and replaced it with a valid one.
!00 Card expiry	Message The card in tray 1 will expire (Day/Month) . Similar message for tray 2. Related to the operator.	Contact the responsible authority to get a new card.
1 Card expires in xx days	Message The card inserted in tray 1 expires in xx days, where xx is a number between 0 and 30. Similar message for tray 2. Related to the operator.	Contact the responsible authority to get a new card. The message disappears automatically after 5 seconds or when a button is pressed.
!00 Card ins. while driving	Warning A tachograph card is inserted in any slot while driving. Related to the operator.	No further action required.
!0A/A Data integrity error	Fault Corrupted files have been detected in the tachograph. These files will not have a valid signature when downloaded. Related to the tachograph.	Check for evidence of tampering with the tachograph. If there is evidence of tampering the tachograph must be decommissioned and replaced.
?0!▶ daily drive time	Pre-warning - 9h daily drive time Warning - 9h daily drive time Pre-warning - daily drive time Warning - end of daily driving time Four different warnings for reaching the allowed driving time.	
!0!↓ d/m download card	Message Indicates the time to next download of the card (Day/Month).	Prepare for download.
!A↓ d/m download vehicle	Message Indicates the time to next download from the tachograph (Day/Month).	Prepare for download.
↓↓ Download complete	Message The tachograph download process has been completed successfully.	No further action required.
↓x↓ Download failed	Warning	Retry the download.

Display	Description	Action
	The tachograph download process has failed and is incomplete. [Workshop card]	<p>Check the connections and the download equipment.</p> <p>Re-insert the card and retry the download.</p> <p>Replace or repair the download equipment if required.</p> <p>If the tachograph is faulty beyond repair it must be decommissioned and replaced.</p>
☐☐/☐x Driving can't open slot	<p>Message</p> <p>An attempt was made to open the slot while the vehicle was in motion. Related to the operator.</p>	Stop the vehicle. The card tray can be opened only when the vehicle is stationary.
!☐☐ Driving w/o valid card	<p>Warning</p> <p>Driving without an appropriate card, or with an inappropriate card combination. Related to the operator.</p>	Stop and remove inappropriate card.
!☐▶ end of daily drive	<p>Warning</p> <p>Maximum daily driving time</p>	
!☐ end of weekly drive	<p>Warning</p> <p>Maximum weekly driving time</p>	
!☐ end of 2-week drive	<p>Warning</p> <p>Maximum 2-week driving time</p>	
fnx Function not possible	<p>Message</p> <p>The desired function cannot be carried out. Related to the tachograph.</p>	No further action required.
!☐A Hardware sabotage	<p>Fault</p> <p>Authenticated card has been removed by force or a tampering with the hardware has been detected. Related to the operator.</p>	Check for evidence of tampering with the tachograph. If there is evidence of tampering the tachograph must be decommissioned and replaced.
!☐ Insertion of a non valid card	<p>Warning</p> <p>A non-valid card has been inserted to a slot. Related to the operator.</p>	Check that the card has not been inserted upside down or is expired.
!☐A1 Last sess. not closed ok	<p>Warning</p> <p>The driver card in tray 1 was ejected incorrectly during the last session.</p> <p>The previous card withdrawal in tray 1 was not completed correctly by the tachograph. Similar message for tray 2. Related to the card.</p>	<p>Eject the card and check it visually.</p> <p>Clean the card with a soft damp cloth and try again.</p> <p>In case of faulty card, contact the responsible authority in the country in which you are at present in.</p>
M.....! Memory full!	<p>Message</p> <p>Manual entries memory full. Related to the operator.</p>	Modify the manual entries so that the total number of entries is less.
New time? ●☐ ☐3:☐1	<p>Message</p> <p>Daylight saving time changes.</p>	<p>Answer YES to start or end daylight saving time.</p> <p>Answer NO or press the Back button to cancel.</p>
!ATd/m next calibration	<p>Warning</p> <p>Next mandatory calibration has to be carried out (d/m = Day/Month)</p>	Plan for the calibration.
!☐/T☐ No driver/workshop card	<p>Message</p> <p>A function has been selected that requires an inserted driver or workshop card. Related to the operator.</p>	Insert a driver or workshop card.

Display Messages

Display	Description	Action
!⊗! No further details	Fault An unknown type of sensor error occurred. Related to the motion sensor.	Replace the motion sensor.
>> Over speeding	Warning The vehicle speed has exceeded the speed limit set for 1 minute and will be stored. Related to the operator.	Find out the maximum speed allowed for the vehicle.
>>? Overspeeding pre-warning	Message The vehicle is exceeding the over speed limit set. After 1 (one) minute of continuous over speeding the warning will be stored. Related to the operator.	Driver related message. Observe the specified speed limit
!→A...✓ Pairing complete	Message The motion sensor - tachograph pairing process has been completed successfully. [Workshop card]. Related to the tachograph or motion sensor.	No further action required.
!→A...× Pairing failed	Message The motion sensor - tachograph pairing process has failed. [Workshop card]. Related to the tachograph or motion sensor.	Remove the workshop card from the tachograph. Check the system connections. Re-insert the workshop card to retry pairing. Replace the sensor if required. If the message is shown repeatedly the tachograph might be faulty beyond repair and must be decommissioned and replaced.
PIN?	Message Enter a PIN code to: <ul style="list-style-type: none"> • Activate a tachograph • Enter the tachograph calibration mode [Workshop card]. Related to the tachograph.	Enter a valid PIN code.
!⊕ Power supply interruption	Warning The power supply to the tachograph has been interrupted for more than 200 milliseconds. Cranking voltage should not cause this event. The event is not generated in calibration mode. Related to the vehicle.	Check the vehicle and tachograph power supply levels. Check the power supply cables. Check the vehicle's battery and replace if necessary.
▼↑□ Printer high temperature	Message The printing could not start, or the ongoing printing has been interrupted, because the temperature of the printer is too high. Related to the printer.	Wait until the printer temperature is in allowable range and try to print again.
▼↓⊕ Printer low power	Message The ongoing printing has been interrupted because the tachograph input voltage is too low. Related to the vehicle.	Check that the ignition is on. Check the vehicle battery voltage, connections, etc.
▼↓□ Printer low temperature	Message The printing could not start because the tem-	Wait until the printer temperature is in allowable range and try to print again.

Display	Description	Action
	perature of the printer is too low. Related to the printer.	
▼E× Printer out of paper	Message The ongoing printing has been interrupted because the printer is out of paper.	Replace paper. If fault remains active for no apparent reason the tachograph must be decommissioned and replaced.
▼×▼ Printing cancelled	Message The ongoing printing has been cancelled.	No further action required.
>4 1/2h? Quarter left reminder	Message The driver has 15 minutes left until the legal maximum continuous driving time of 4½ hours will be exceeded.	Find a suitable place to take a break in the next 15 minutes.
?▶lh reminder daily rest	Pre-warning A reminder for the daily rest.	
!▶lhh reminder weekly rest	Pre-warning A reminder for the weekly rest.	
×A! secondary sensor fault	Fault No or erroneous data from the second source motion sensor. Related to the motion sensor.	Check second source sensor operation and wiring.
!@!A Sensor auth. failure		Check motion sensor operation and all wiring. Check for evidence of tampering. Pair the motion sensor and tachograph again. Perform a new calibration of the tachograph system. Replace the sensor if found faulty.
!l=0 Sensor cable fault	Warning Sensor data error. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary.
!l>0 Sensor cable fault	Warning Motion sensor data error. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary.
!@!/? Sensor comms error	Fault Motion sensor communication error. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary.
!l Sensor data error	Warning Signal failure between motion sensor and tachograph. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary. Check for evidence of tampering. If the error remains active for no apparent reason, decommission and replace the tachograph.
×l Sensor fault	Fault A data link error between the motion sensor and the tachograph. Related to the motion	Check the motion sensor operation and all wiring. - replace sensor if faulty

Display Messages

Display	Description	Action
	sensor.	Check for evidence of tampering. Pair the motion sensor and the tachograph again.
!0L/L Sensor data integrity error	Fault Internal motion sensor error, stored data integrity failure. Related to the motion sensor	Replace the motion sensor if necessary.
xLvx Sensor no acknowledge	Fault Motion sensor communication error. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary.
xAL←L Sensor no answer	Fault Motion sensor communication error. Related to the motion sensor.	Check the motion sensor operation and wiring. Replace the motion sensor if necessary.
L→A... Sensor pairing	Message The motion sensor and tachograph is in the process of pairing. Related to the motion sensor.	Wait until the automatic pairing is completed.
xAL↑+ Sensor power high	Fault Motion sensor power too high. Related to the motion sensor.	Check the vehicle battery voltage, wiring, etc. Replace the motion sensor if necessary.
xAL↓+ Sensor power low	Fault Motion sensor power too low. Related to the motion sensor.	Check the vehicle battery voltage, wiring, etc. Replace the motion sensor if necessary.
!L+ Sensor no power signal	Fault Motion sensor has no power. Related to the motion sensor.	Check the vehicle battery voltage, wiring, etc. Replace the motion sensor if necessary.
A→T? Service pre-warning	Message Next calibration, pre-warning.	Perform a calibration.
>4 1/2h Time for break	Message The legal maximum continuous driving time of 4½ hours has elapsed.	
!A→T Time for service	Message The tachograph is out of calibration.	Perform a calibration.
!▶h time for daily rest	Warning A warning for start of daily rest.	
!▶hh time for weekly rest	Warning A warning for start of weekly rest.	
■→Ⓞ Timeout no key pressed	Message The tachograph is waiting for input.	Press the appropriate buttons and complete the process.
! UTC Time adjust not allowed	Message UTC time adjustment more than +/- 1 (one) minute once a week is not allowed.	If the UTC time in the tachograph has deviated by more than 20 minutes, it must be calibrated by a digital tachograph workshop.
x□/□Zx Unable to open slot	Message The card tray concerned cannot be opened. Related to the tachograph.	Check that the ignition is on. If the tray is still faulty - Visit a digital tachograph workshop to have the equipment checked.

Display	Description	Action
!@[] Unauth. change of sensor	Fault The sensor has been changed since last pairing. Related to the motion sensor.	Check the motion sensor operation and all wiring. - replace sensor if faulty Check for evidence of tampering. Pair the motion sensor and the tachograph again. Perform a new calibration of the tachograph system. Replace the sensor if found faulty.
x[] [] internal fault	Fault The tachograph has detected an internal fault. Related to the tachograph.	
! Wrong PIN! Attempts left:2	Message Wrong PIN entered but still attempts left. [Workshop card]. Related to the card	Press OK and try again.
x[] [] Vehicle Motion Conflict	Message 2nd source of motion sensor and primary motions sensor data contradicts. Related to the motion sensor.	Check second source sensor operation and wiring. Check for evidence of tampering. Use reference cables.
Wrong PIN! Card locked 1	Message Wrong PIN entered too many times. [Workshop Card] Related to the card	Eject the card and replace it with a valid one.

STONERIDGE - EVERY ANGLE COVERED

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