Introduction

The Tachograph is a control device recording and storing drivers’ activities, as well as related data like vehicle speed, location, events and faults, etc.

What type of vehicles should be equipped with the device?

The following types of vehicles shall be equipped with a tachograph:

- Vehicles used for the carriage of goods where the maximum permissible weight of the vehicle including any trailer or semi-trailer exceeds 3.5 tonnes.
- Vehicles used for the carriage of passengers which, by virtue of their construction and equipment, are suitable for carrying more than 9 persons, including the driver.

When and where should a driver use it?

Any person who drives these types of vehicles even for a short period of time – or who is present in a vehicle in order to be available for driving – shall use a tachograph.

The legislation in force:

- The tachograph is required by law at the European Union and International level as a result of the following legislation:
- At the European Union level:
  > The Regulation (EEC) n° 3820/85 of December 1985 on the harmonisation of certain social legislation relating to road transport.
  > The Regulation (EEC) n° 3821/85 on recording equipment in road transport.

1 OJEC n° L370, 31.12.1985, p. 1
2 OJEC n° L370, 31.12.1985, p. 8
3 OJEC n° L325, 29.11.1988, p.55
4 OJEC n°L274, 09.10.1998, p.1
• At the international level:

  > AETR: European Agreement concerning the work of Crews of Vehicles engaged in International Road Transport.

Countries regulated by the legislation:

- EU Countries
- AETR Countries
- Other Countries
Which type of tachograph to use?

Where shall a specific type of tachograph be used?

When will the use of the tachograph be mandatory?

In the European Union:

• The mechanical tachograph by all vehicles already registered at the date of entry into force of the Regulation (EC) n° 2135/98.

• The digital tachograph by all vehicles registered after the date of entry into force of the Regulation (EC) n° 2135/98.

N.B.: after the date of entry into force of the Regulation (EC) n° 2135/98, any mechanical tachograph in need of repair will be required by law to be replaced by a digital one.

In the rest of the AETR contracting parties:

• The mechanical tachograph: by all vehicles already registered at the date of entry into force of the Regulation (EC) n° 2135/98.

• The digital tachograph at the end of a transitional period to be negotiated by the contracting parties in Geneva (UNO – AETR) and/or with the European Union for the accession countries.
When will the use of the tachograph be mandatory?

In the European Union:

- The use of the digital tachograph will become mandatory 24 months after the publication in the Official Journal of the European Community of the technical annex (numbered Ib) of the Regulation (EC) n° 2135/98, probably during the first half of 2004 (*).

In the rest of the AETR contracting parties:

- The potential date of entry into force of the AETR as modified by the introduction of the digital tachograph is 2009, depending on the transitional period to be agreed in Geneva (UNO – AETR) by the AETR contracting parties.

The digital tachograph may be required sooner depending on the accession negotiations with the European Union for some countries.

(*) When this brochure went to print, the technical specifications had not yet been published.
Presentation of the device

A digital tachograph is a control device to be used in a specific environment.

According to the Regulation (EC) n° 2135/98 the digital tachograph is composed of:

- a Vehicle Unit (VU), essentially containing a printer, two slots for the tachograph cards and a display
- a sensor connected to the gearbox

It functions with smart cards (such as driver, company, control and workshop cards).
**How to use the device?**

Drivers of vehicles containing a digital tachograph are required to use a driver card and a Vehicle Unit (VU).

**A driver uses a Driver Card which:**

- is allocated to him/her
- constitutes the personal file of the driver
- contains (depending of his/her activity) 28 days of activities in which the latest data overwrites the oldest one
- must be at his/her disposal at all times even when a vehicle is equipped with a mechanical tachograph
- records the activities performed when away from a vehicle. These activities have to be manually entered by the driver

**A driver uses a Vehicle Unit (VU) which:**

- is allocated to a vehicle and a company
- contains 365 days of activities (depending on the types of activities performed in this vehicle)
- can host the driver card
- records activities, performed without a driver card (if the card is lost, stolen, not issued, or faulty...)

N.B.: driving time is recorded as soon as the vehicle is moving, even if no driver card is inserted in the VU
Main data recorded

The following type of data is recorded on a Driver Card:

- **Card identification, i.e.:**
  - card number
  - issuing Member State
  - issuing authority name
  - date of issue

- **Card holder identification:**
  - surname and first name of the holder
  - date of birth
  - preferred language

- **Driving licence information:**
  - issuing Member State
  - issuing authority name
  - driving licence number

- **Vehicles-used data:**
  - data and time of first use of the vehicle (insertion of card)
  - vehicle odometer at that time
  - date and time of last use of the vehicle or 23 h 59 if the period of use is on going at that time (withdrawal)
  - vehicle odometer at that time
  - VRN (Vehicle Registration Number) and registering Member State of the vehicle

- **Driver activity data (including data entered manually by the driver):**
  - date and total distance travelled by the driver on this date
  - changes of activity (driving, availability, work, break/rest)
  - changes of driving status (crew, single) indicating time at change of status

- **Location where daily work periods start and/or end:**
  - date and time of the entry
  - type of entry (begin or end)
  - country and region (when applicable)
  - vehicle odometer value

- **Events and faults data:**
  (time overlap, security breach attempt, power supply interruption, card faults, etc ...)

- **Control activity data:**
  - date and time of control
  - control card number and card issuing Member State
  - type of control (displaying, printing, downloading)
  - downloaded period (in case of downloading)
  - VRN and registering Member State of the vehicle in which the control happened
A Vehicle Unit (VU) records the following types of data:

- **Equipment identification data:**
  - Vehicle Unit identification data (name and address of the manufacturer, serial part and approval numbers, etc ...)
  - motion sensor identification number (name of the manufacturer, part, serial and approval numbers, etc ...)
  - security elements (European and equipment public keys, Member State and equipment certificates)

- **Driver card insertion and withdrawal data:** At each insertion and withdrawal cycle of a driver or workshop card in the equipment, the card holders’ first and last names, his/her card number, the insertion and withdrawal data and times, the vehicle odometer at card insertion and withdrawal, etc ...

- **Driver activity data:** i.e., the activities (driving, availability, work, break/rest, the driving status (crew, single), etc ...

- **Location:** Where daily work periods start and/or end, with the driver card number, the date and time of the entry, the type of entry (begin or end), the country and region (if applicable) entered and the vehicle odometer value

- **Odometer data:** Every calendar day at midnight

- **Detailed speed data:** Over the last 24 hours (second per second)

- **Events and faults data:** (card conflicts, speed abuse, power supply interruption, card and recording equipment faults, etc...)

- **Calibration data:** i.e. parameters of the vehicle (type size, setting of speed limit...), date and time of the 5 most recent calibrations with details of the workshops which did the calibrations

- **Time adjustment data:** i.e. the 5 largest time adjustments, with details of the workshops which performed these adjustments

- **Control activity data:** date and time of the control, type of control, control card number and card issuing Member State

- **Company locks data:** i.e. lock-in/lock-out dates and times, company card number and card issuing Member State, company name and address

- **Download activity data:** i.e. date and time of downloading, company or workshop card number and card issuing Member State, company or workshop name
How to access information: The company

A company may access information via one of the following means:

• Via a secured downloading of data recorded in the Vehicle Unit: This operation can be performed with a company card.

• Via the print-outs

• Via the display of the Vehicle Unit

The company shall also make regular checks to ensure that the provisions of this Agreement are complied with. If breaches are found, a transport company shall take the necessary measures to prevent future occurrence.

How to access information: The driver

Drivers can access information on the tachograph in the following ways:

• Via print-outs:
  Available at any time (for detailed information on the printouts, please see overleaf).

• Via the display:
  Characteristics of the display:
  > Shows a maximum of two lines
  > Contains characters of 5 mm high and 3.5 mm wide
  > Lists the data in the same order as on the print-outs

• Via a secured downloading:
  Performed by any authorised person such as:
  > A company using a company card
  > A control officer using a control card
  > An approved workshop using a workshop card

• Via a non-secured copy:
  Through a card reader and a PC.
The Digital Tachograph

PRINT-OUTS

- From driver card (available to the driver/police)
- Of drivers’ activities from the Vehicle Unit with driver card inserted (available to the driver/police)
- Of drivers’ activities from the Vehicle Unit without driver card inserted (available to the driver/police)
- From the Vehicle Unit with control card inserted (available to the police only)

N°1 Print-out from the driver card

Full access to driver data as the source of information is the driver card.
Activity totals of the co-driver - Co-driver card not inserted

Rest symbol indicating here that vehicle is motionless

Activity totals of other drivers

N°2 Print-out of drivers' activities from the Vehicle Unit with driver card inserted

Access to the drivers' activities through the Vehicle Unit. It enables, by comparison, to proceed to a countercheck of printout N°1 - thus notably identifying all unknown activities recorded under the "?" symbols.
N°3 Print-out of drivers' activities from the Vehicle Unit without driver card inserted

Enables access to all activities performed in this particular vehicle. Drivers remain anonymous as no driver card is inserted.
**N°4 Print-out from the Vehicle Unit with control card inserted**

Enables full access to all activities performed in this particular vehicle as well as to all drivers' identity data.

<table>
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<tr>
<th>Control Officer Name - Control Card Number</th>
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<tr>
<td>Jan Smet</td>
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<th>Co-driver Name</th>
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<td>P0LORI</td>
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How to access information: The police

When a driver is driving a vehicle equipped with a digital tachograph and has only used this kind of equipment in the last eight days, a police officer can have access to the information by the following means:

• Via a laptop and a card reader:
  A dedicated software can then analyse the driver’s activities and point out potential infringements.

• Via print-outs related to:
  The activities performed by a particular driver (for detailed information on the printouts, please see overleaf).

Documents to be provided by a driver in case of police control:

If a driver is driving a vehicle equipped with a mechanical tachograph but has driven a vehicle equipped with a digital tachograph during the previous 8 days, (s)he has to produce the following material if requested by a police officer:

> Record sheets for the current week and the sheet for the last day on which (s)he drove during the previous week
> The driver card if (s)he holds one
> And, print-outs from the recording equipment defined in Appendix I of AETR and in Annex IB of Regulation n° 2135/98, if (s)he drove a vehicle fitted with such recording equipment during this period

If the driver is driving a vehicle equipped with a digital tachograph but has driven a vehicle equipped with a mechanical tachograph during the previous 8 days, (s)he has to produce the following information if requested by a police officer:

> The driver card of which (s)he is the holder,
> And, record sheets corresponding to the length of time during which (s)he drove a vehicle fitted with a mechanical tachograph
The Driver Card

- **Specifications:**
  - is white in colour
  - contains an average of 28 days of driver activity (depending on the nature of the activities of the driver)
  - has a maximum administrative validity of 5 years (which can vary according to the issuing national authorities). A driver may hold only one card
  - is issued to drivers having his/her normal residence in a State where the use of the digital tachograph is mandatory (in the European Union starting from 2004, in the rest of the AETR contracting parties starting from ± 2009)
  - has an area where the driver can manually enter data (activities performed when away from a vehicle, places where daily work periods begin and/or end, and other specific working conditions)
  - is personal to the driver and may not, during its official period of validity, be withdrawn or suspended for whatever reason unless the competent authority of a State finds that the card has been forged, or that the driver is using a card which does not belong to him/her, or that the card held has been obtained on the basis of false declarations and/or forged documents

The Company Card

- **Specifications:**
  - is yellow in colour
  - has no administrative expiry date
  - is used to download recording equipment and driver card data
  - is used to lock-in/lock-out data recorded in the Vehicle Unit
  - is issued by the Member State where the company has its headquarters
  - can store 230 records related to the locking and the downloading performed
  - a company may hold several company cards
The Control Card

- Specifications:
  > is blue in colour
  > has no administrative expiry date
  > is used to access any driver and recording equipment data
  > can be issued to an enforcement officer or a national enforcement authority
  > is able to store 230 records of control activity data

The Workshop Card

The workshop card is used by an authorised repair and calibrating centre.

- Specifications:
  > is red in colour
  > has an administrative validity of one year
  > is used to calibrate and repair tachographs
  > is delivered to approved workshops
  > is delivered by the Member State where the workshop is established and authorised
  > a workshop can hold several workshop cards
Card Issuing

The issuing process of the tachograph cards is ruled by the Regulation (EC) n° 2135/98 and the AETR agreement and is placed under the responsibility of the Member States/Contracting parties.

Thus, the Member States/Contracting parties shall decide upon their own issuing procedures, which may vary from one country to the next.

To ensure that an applicant driver is not already in the possession of a valid driver card, the European Commission is supporting Member States – at European Union level – to establish a network between the issuing national authorities. The aim is to exchange data concerning the cards issued, stolen, lost or withdrawn.

Downloading of Data

Downloading of data, from the Vehicle Unit and the driver card, to company premises – or any other place – is not mandatory.

Nevertheless, efficient company checks would only be possible if the European Union Member States/Contracting parties decide to adopt national laws – thus making the downloading process mandatory.

In the absence of any national laws making the downloading process mandatory, the necessary data will most probably not be available for company checks.

Recommended frequency of downloading:

- **Data recorded and stored in the Vehicle Unit (VU):** As the memory capacity of the Vehicle Unit is 365 days (on average), the frequency of its downloading may, for example, vary from one to eleven months.

- **Data recorded in the driver card:** As the memory capacity of the driver card is 28 days (on average), the downloading frequency of the card could be, for example, every 15 days so as to ensure that no data is overwritten.

(1) 365 days being an average, it is advised not to wait for one year before downloading the Vehicle Unit.
Type Approval Procedure

The type approval procedure of the digital tachograph and the tachograph cards is very specific to this new technology.

This procedure will be divided in three consecutive parts:

- **The Functional Certificate:**
  Every manufacturer will have to prove to the national authorities in charge of the type approval procedures, that its product respects the technical requirements defined in the Annex IB of the Regulation (EEC) n° 3821/85 as last amended, or in Appendix I of the AETR.

- **The Security Certificate:**
  Every manufacturer will also have to prove that the security requirements defined in the afore mentioned legal texts are respected. To do so, it will have to apply to an ITSEC authority (2).

- **The Interoperability Certificate:**
  Every manufacturer will have to prove the interoperability of its products with those already type-approved (a card manufacturer will have to prove that its tachograph card is readable by any other type approved digital tachograph and vice versa. These tests shall be performed by the European Commission itself in its Joint Research Centre (JRC) in Ispra, Italy.

The joint combination of these three certificates shall allow a manufacturer to finally get a type-approval certificate, which will then mutually be recognised by each European Union Member State, as well as by each AETR Contracting Party.


Today, only three ITSEC organisations exist throughout Europe (France, Germany, UK).
Acknowledgement

SIEMENS VDO
Automotive

Product Line
KIENZLE Tachograph Systems

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A videotape on the digital tachograph is available upon request