

**TAKO2000**  
**ELECTRONIC TACHOGRAPH**  
**USER'S GUIDE**

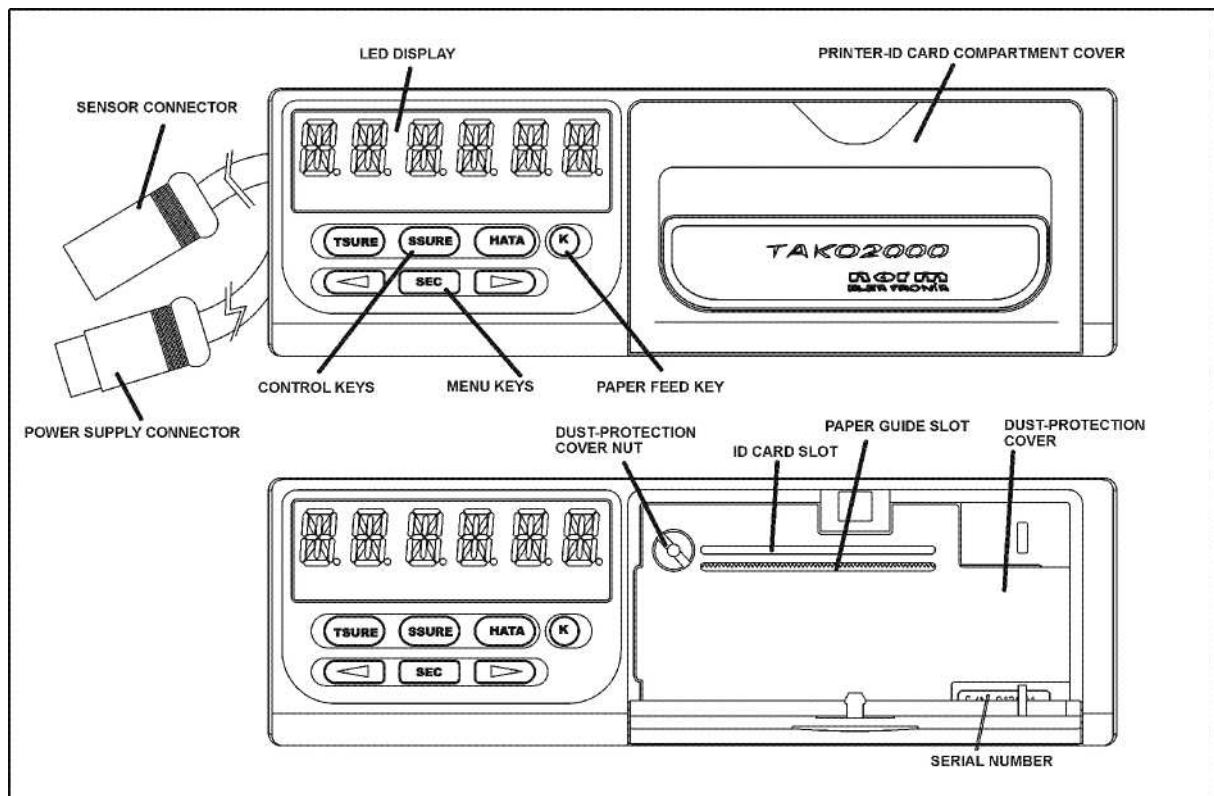
It complies with 02.09.2004 – 25571 Motorways Traffic Legislations and  
TSE UBM-03-BK-006/02.01.2006 Digital Tachograph Devices Criteria.

<b>CONTENTS</b>	<b>Page</b>
Important Warnings .....	3
General Outlook .....	4
1 Electronic Driver Card .....	5
2 Use of the Driver Card .....	5
3 Driving without Driver Card .....	5
4 Legal Speed Limit .....	5
5 Power Supply Interruption .....	5
6 Continuous Driving Period .....	5
7 Cumulative Driving Period .....	6
8 Daily Rest Period .....	6
9 Number of Daily Resting Period Reductions .....	6
10 Weekly Rest Period .....	7
11 Combined Week .....	7
12 Combined Weekly Holiday .....	7
13 Combined Week Total Driving Period .....	7
14 Week Start Time .....	7
15 Display .....	8
16 Keypad .....	8
16.1 "K" Paper Feed Key .....	8
16.2 "SSURE" Key .....	8
16.2.1. Continuous Driving Period .....	8
16.2.2 Last Break Period .....	8
16.2.3 Number of Daily Rest Period Reductions .....	9
16.2.4 Combined Week Driving Period .....	9
16.3 "TSURE" Key .....	9
16.3.1 Cumulative (daily) Driving Period .....	9
16.3.2 Daily Rest Period .....	10
16.3.3 Maximum uninterrupted rest periods within last 24 hours .....	10
16.4 "HATA" Key .....	10
16 Menu Functions .....	11
17.1 Speed .....	11
17.2 Clock .....	11
17.3 Date .....	11
17.4 Odometer .....	12
17.5 Adjustment (Setting the clock for $\pm 1$ minute) .....	12
17.6 Reports .....	13
18. Short Report .....	13
19 Daily Report .....	14
20. Speed Graphic .....	16
21. Speed Limited Graphic .....	16
22. Displacement limited Graphic .....	16
23. Time Limited Graphic .....	17
24. Installation of a new paper roll .....	17
25. Replacing the Printer Ribbon .....	18
26. Technical Specifications .....	19

### **Important Warnings:**

1. Do not forget to have a rest of 45 minutes after a continuous driving period of 4,5 hours.
2. You can complete the 45 minutes rest period with short breaks of 15 minutes. Please note that stops of less than 15 minutes are added into the continuous driving period and they are summed up into the cumulative driving period.
3. Daily driving period is maximum 9 hours.
4. Follow the daily resting period rules. In case your vehicle is driven by more than one driver, then daily resting period for each driver is reduced to 8 hours (for each 30 hours working period).
5. Do not forget that you shall have a 1 full day of rest within one week (or after 6 working days).

## General Outlook



Your tachograph is an electronic device which records the velocity of the vehicle and driving durations of the drivers who drive the vehicle together with their IDs.

## **1 Electronic Driver Card:**

It is a card which includes an electronic unit that stores the licence number and driver's driving durations together with his name and surname according to the rules specified in the legislations.

It is mandatory that the drivers install their electronic driver cards into the tachograph while they drive the vehicle.

## **2 Use of the Driver Card**

You must install your driver card into the card slot at the back of the card cover so that the electronic module will be located at the top before you move your vehicle.

When driver card is installed into the tachograph, name and surname of the driver will be shown on the display (sliding from right to left). After the vehicle moves, name of the driver will be displayed again and display will pass to the speed mode. After a displacement of 100m is completed, a new driver record is opened together with an audible warning tone. Each driver record will be summarized in 24 hours report which begins with driver's name row and ends with weekly driving duration row. Driver record is ended automatically when driver card is uninstalled or before the rest period (45 minutes) is over.

## **3 Driving without Driver Card**

If the driving licence is not installed (or the cover is not closed) when the vehicle is moved, then user will be warned with an audible tone and with a "KIMLIK TAKIN" message that will be shown on the display for a distance of 100 metres. If the driver card will be installed and cover is closed within this distance, then a driving without driver card fault will not occur. If not, then a driving without driver card fault will be recorded.

## **4 Legal Speed Limit:**

When you exceed 110% of the legal speed limit of the vehicle (e.g. for buses legal speed limit is 80 km/h and warning limit is 88 km/h), tachograph will warn you audibly and if you will drive over the speed limit for more than 15 seconds, then it will record this as a speed limit violation fault into its memory.

## **5 Power Supply Interruption**

According to the law, drivers shall keep the tachograph device operational continuously. Tachograph reports power supply interruptions as faults and they report these in the following 24 hours. The maintenance documents of the vehicle shall be kept in the vehicle so as not to have any problems resulting from the mandatory power supply interruptions which result from the maintenance of the vehicle.

## **6 Continuous Driving Period**

It is the driving periods between breaks as stated in the law and legislations. According to the law, after four and a half hours' driving, the driver shall observe a break of at least forty five minutes. This break may be replaced by breaks of at least fifteen minutes each distributed over the driving period or immediately after this period.

Stops for less than 15 minutes are considered as continuous driving. It is not necessary to uninstall the driver card during the break.

Break Options (minimum values)

	<b>1st Break</b>	<b>2nd Break</b>	<b>3rd Break</b>	<b>Total Break Duration</b>
1	-	-	45	45
2	15	15	15	45
3	-	25	20	45
4	-	30	15	45

When the total break period reaches at least 45 minutes, continuous driving period is reset on the tachograph display (refer to the Control keys and their functions)

If the continuous driving period exceeds four hours and thirty minutes, tachograph will warn the driver audibly and it will record a continuous driving period violation.

## **7 Cumulative Driving Period**

Cumulative driving period is the total driving duration within last 24 hours as specified by laws. Legal cumulative driving period is 9 hours. If you drive your vehicle more than 9 hours within last 24 hours, tachograph will record this as a cumulative driving period violation fault.

## **8 Daily Rest Period**

In each period of 24 hours a driver must have a minimum daily rest of 11 consecutive hours.

Daily rest period can be completed partially: it can be used in two or three parts where one of them being 8 hours continuous. But, in this case, total daily rest parts must be at least 12 hours.

If the vehicle is driven by more than one drivers, driver shall have a rest of at least 8 continuous hours within each 30 hours periods.

Tachograph does not consider driving without driver card as the second driver, i.e. if there is one driver and another without a driver card on that day, then, calculation of the daily resting period will be performed according to the rules valid for single driver.

According to the law: Daily resting period can be completed in special vehicles with bed and special resting compartments where the drivers can sleep comfortably, and when the vehicles are parked at the parking lots, in the garage or out of the platform outside the motorways while observing the necessary precautions.

In case daily resting periods are not observed, device will give a warning and it will record this as a violation.

## **9 Number of Daily Resting Period Reductions**

Drivers can shorten daily resting periods as per special rules.

Daily rest period may be reduced to 9 hours not more than 3 times a week.

Namely, the driver can have a rest of continuous 9 hours 3 times in a week (between 9 hours and 10 hours and 59 minutes). On the other days of the week, the driver shall rest as explained in the daily rest period paragraph.

In case the vehicle is driven by more than one drivers, daily rest period can not be reduced (in this case, it is enough that driver take a continuous rest of 8 hours).

Tachograph records these reductions and rests automatically. If the number of daily reductions is more than 3, then tachograph gives a daily restin violation.

## **10 Weekly Rest Period**

According to the law, drivers shall take 1 day of weekly holiday after a 6 days driving period. Weekly holiday is at least 24 hours. If the weekly rest is not used, this will be recorded as a violation.

## **11 Combined Week**

12 days of driving between weekly holidays of the drivers is defined as combined week in the law. Combined week is valid only when international passenger transportation (international transportation license is required) out of regular times is performed.

## **12 Combined Weekly Holiday**

After a driving period of 12 days, drivers must have a weekly holiday of at least 48 hours (2 days). Tachograph will give a weekly rest period violation when a combined week is used but, since the driver has an internation transportation license, traffic authority will not take this into account. In case a combined weekly holiday is not taken, it will give a combined weekly holiday violation together with weekly holiday violation and this violation will be taken into account during inspection.

## **13 Combined Week Total Driving Period**

The total driving period within a combined week is 90 hours and exceeding this limit will be recorded as a violation. Driver shall take a vacation before this period is over. In 24 hour reports, weekly driving period is printed starting from the beginning of the week.

## **14 Week Start Time**

After the weekly holiday, time when the driver has started driving is recorded as the week start time.

At the week start time, total weekly (combined) driving period of the driver , and the number of daily rest period reductions are reset.

Driver must have a 24 hours rest (without driving), at the end of 6 working days starting this moment. Duration starting from the week start and start time of the week are printed on the 24 hours report.

## 15 Display

Tako200= has a 6 digit LED display which can display all letters. By this way, tachograph can be used more efficiently with the aid of more readable, understandable and longer (>6 digits) Turkish messages.

## 16 Keypad

Tako2000 has a backlighted elastomer keypad. In addition to the longlife and zero error conventional functions, it changes its color during driving without card and over speed limit driving.

“SSURE”, “TSURE”, “HATA” control keys and “K” key are above and ► (left arrow) and ► (right arrow) menu keys are located below.

### 16.1 “K” Paper Feed Key

When “K” Paper Feed Key is depressed, if the cover is closed, user will be warned with an audible tone and an instantaneous message which will be displayed on the screen. When paper feed key is pressed for a short while, paper will be advanced in order to install a new paper roll and to feed out the paper as required.

When “K” key is pressed while the report is printed, printing operation will be cancelled.

### 16.2 “SSURE” key

By pressing this key consecutively, continuous driving period, Last Break Period, Number of Daily Resting Period Reductions and (combined) Weekly Total Driving Period information are accessed.

#### 16.2.1. Continuous Driving Period

When SSURE key is pressed for the first time, “SUREKLI KULLANIM SURESI” message will be shown in a sliding format on the display and then continuous driving period of the last driver of the vehicle will be displayed. Example:

**SS. 4.26** (4 minutes left to the legal continuous driving limit. Driver shall have a rest)

**SS. 4.42** (continuous driving limit has been exceeded. Driver must complete 45 minutes break)

**SS. 0.00** (it has been reset since resting period is 45 minutes or more)

#### 16.2.2 Last Rest Period

When SSURE key is pressed two times, last rest period, i.e. time since the vehicle has been stopped, is shown on the display. If the driver has stopped to have a rest, before he moves again, he shall make sure that the last rest period he sees on the display is 15 minutes or more.

Eventhough the driver did not uninstall his driver card, rest period of the last driver of the vehicle will continue to count. If another driver has driven the vehicle before you,



you must install your driver card into the tachograph and check the rest period.

Examples:

- “ML. 0.15”** (last rest is 15 minutes and he can drive the vehicle again)
- “ML. 0.45”** (last rest is 45 minutes and he can drive the vehicle again)
- “ML. 0.12”** (rest period of 15 minutes is not over. If the vehicle moves again, total continuous driving period of the driver will be added to this stop duration)
- “ML. 1.23”** (rest is 1 hour and 23 minutes and driver can drive the vehicle again)
- “ML. 24.00”** (rest period has exceeded 1 whole day and week holiday has been completed)

Driver can check the week holiday by following the rest period. For this, after he installs his driver card into the device (while vehicle is not moving), when he sees that his last rest is 24 hours or more, he verifies that he has used his 1 day weekly holiday. When he starts driving the vehicle after this, tachograph will record the weekly holiday information and new week start moment.

### 16.2.3 Number of Daily Rest Period Reductions

Number of daily rest period reductions is displayed when SSURE key is pressed 3 times. This information belongs to the installed driver card (or if the driver card is uninstalled to the last driver). Examples:

- 9KS 0** (no reductions have been performed since the beginning of the week)
- 9KS 3**
- 9KS 4** (more than three reductions have been performed. Driver must have a weekly holiday)

### 16.2.4 Combined Week Driving Period

Combined driving period which is explained in item xx is displayed when SSURE key is pressed 4 times. This information belongs to the installed driver card (or if the driver card is uninstalled to the last driver). Examples:

- KHK. 1.46** (Driver has driven the vehicle for 1 hour and 46 minutes since the first movement of the vehicle after the weekly holiday)
- HK.89:04** (combined week driving period is near the limit value. Driver must have a weekly holiday)
- HK 92:38** (90 hours limit has been exceeded. Driver must have a weekly holiday)

## 16.3 “TSURE” key

By pressing this key consecutively, Total Driving Period, Daily Rest Period and maximum resting durations which are used for daily resting period calculation are accessed.

### 16.3.1. Cumulative (Daily) Driving Period

When TSURE key is pressed for the first time, “TOPLAM KULLANIM SURESI” message will be shown in a sliding format on the display and then total driving period of the last driver of the vehicle (or if a new driver card is installed, this driver’s) within last 24 hours will be displayed. Example:

- TS. 8.56** (4 minutes left to the legal cumulative driving limit.)

**TS. 9.02** (cumulative driving limit has been exceeded.)

### **16.3.2 Daily Rest Period**

When TSURE key is pressed two times, daily rest period is shown on the display. This information belongs to the installed driver card (or if the driver card is uninstalled to the last driver). Examples:

**GD. 12.47**

**GD.07.48**

**GD.24.00** (at least he rest for a 1 whole day)

Driver can check the week holiday by following the daily rest period. For this, after he installs his driver card into the device (while vehicle is not moving), when he sees that his daily rest period is 24 hours (GD.24.00) or more, he verifies that he has used his weekly holiday. When he starts driving the vehicle after this, tachograph will record the weekly holiday information and new week start moment.

### **16.3.3 Maximum uninterrupted rest periods within last 24 hours**

These periods (D1, D2 and D3) are displayed when TSURE key is pressed 3, 4, and 5 times respectively.

If only one driver has driven the vehicle within last 30 hours, daily rest period is calculated as specified in item xx. If there is no a minimum 11 hours uninterrupted rest period, sum of maximum 3 rest sections within last 24 hours shall be higher than 12 hours where one of them being longer than at least 8 hours. Maximum three uninterrupted rest sections which are included in this calculation can be seen on the display as D1, D2, and D3 from longest to shortest.

Example

**D1. 8.28**

**D2 2.54**

**D3 0.20**

### **16.4 “HATA” key**

With “HATA” key, the last rule violations made within last 24 hours can be seen (together with number of violations, if it is zero it means that there is no violation).

By pressing on the HATA key consecutively (or if it is not pressed, display will pass to the next information in each 3 seconds), the following violations can be shown:

<b>HH</b>	:	Number of Speed limit violations (speed over 88 km/h)
<b>ID</b>	:	Driving without driver card violation
<b>SS</b>	:	Continuous Driving Period violation
<b>TS</b>	:	Cumulative Driving Period Violation
<b>AC</b>	:	Electric Power Supply Interruption Violation
<b>SD</b>	:	Daily Rest Period Rule Violation
<b>HT</b>	:	Weekly Holiday Violation (including combined weekly holiday)
<b>HS</b>	:	Exceeding Combined Week Driving Period Limit

Example:

HH = 01 (violation for 1 time)  
SS = 00 (continuous driving period is not violated)  
HT = 01 (weekly holiday is not used)

These violations can be seen on the Short Report.

## 16 Menu Functions

You can access the functions you would like to use on the tachograph via a menu system which is similar to the menu system used on the mobile phones. Menu keys are right “▶” and left “◀” arrow keys and “SEC” keys. Menu preferences can be changed via arrow keys and new preferences are displayed on the display when left or right arrow keys are depressed.

It is possible to select the preferences in the menu with a circular logic. It is possible to start the circle in one direction and end up with the beginning of the circle via arrow keys.

The order of the function in the (upper) menu are: HIZ (SPEED), SAAT (CLOCK), TARIH (DATE), TOPTOL (Cum. Disp.), AYAR (ADJUSTMENT) and RAPOR (Report).

### 17.1 Speed (“HIZ”)

When the driver card is installed on the tachograph and after the vehicle starts moving, vehicle’s speed is displayed on the display automatically. Bu when you need to display the speed while in a different mode on the display, right arrow or left arrow keys must be pressed until “HIZ” (SPEED) message is displayed on the display. When “SEC” key is pressed, speed value of the vehicle is displayed on the screen (e.g HIZ 78).

### 17.2 Clock (“SAAT”)

Pressing on the SEC key while there is “SAAT” message on the display, tachograph’s actual clock can be seen on the display (e.g. 18:09:37).

### 17.3 Date (“TARIH”)

Left or right arrow keys are pressed until “TARIH” message is displayed, and then date (day, month and year) can be displayed by pressing on SEC key.

### 17.4 Odometer (“TOPLAM YOL”)

With the aid of arrow keys “TOPLAM YOL” message is shown on the menu titles in a sliding format. When “TOP.YOL” abbreviation is shown, by pressing on the SEC key odometer value is shown with 100m resolution. The total odometer value of your vehicle’s speed gauge when the tachograph has been installed on your vehicle will be loaded on the tachograph by the authorized service. After an odometer value of 99999.9km, it starts from zero automatically.

## 17.5 Adjustment (Setting the clock for ±1 minute)

When SEC key is pressed while “AYAR” menu title is displayed, adjustment submenu is activated. First “1 DAKIKA ILERİ” message slides and then “1 DAK+” fixed message is displayed on the display. When right arrow is pressed once again “1 DAKIKA GERİ” (“1 DAK-“) is displayed. With the aid of arrow keys, these two options are displayed one-by-one.

When SEC key is pressed while “1 DAK+” is displayed, tachograph’s clock is advanced one minute with “KAYDEDİLDİ” message. While “1 DAK-“ is displayed tachograph’s clock is set back one minute. Display will go back to the upper menu after KAYDEDİLDİ message.

These operations can be performed while the vehicle is not moving at any time of day and once in a day. It will not be possible to advance the minute within 24 hours after this operation has been performed and if SEC key is pressed within this 24 hours while in “1 DAK+” or 1 DAK-“, KAYDEDİLDİ message will not be displayed. At this point in order to go to the upper menu, one of the arrow keys must be pressed after SSURE, TSURE or HATA keys.

## 17.6 REPORTS

With Tako2000 printer, driving information of the vehicle within last 24 hours can be taken in six different formats.

If SEC key is pressed in the upper menu while “RAPOR” message is displayed, then, RAPOR submenu is displayed. In the Report submenu, first, long report titles are shown sliding from right to left. When the title is finished, 6 digit abbreviation is shown. The required report can be selected in the report submenu via arrow keys. The vehicle must not be moving and printer door shall be open in order to get a report.

	<b>Report type</b>	<b>Long Title</b>	<b>6 digit Abbreviation</b>
1	Short report	“KISA RAPOR”	“K.RAPOR”
2	daily report or 24 hours report	“24 SAAT RAPORU”	“24.S.RAP”
3	speed vs. time graphic	“HIZ-ZAMAN GRAFIGİ”	“GRAFIK”
4	Speed limited graphic	“HIZ SINIRLI GRAFIK”	“H.S.GRAF”
5	Distance limited graphic	“YOL SINIRLI GRAFIK”	“Y.S.GRAF”
6	Time limited graphic	“ZAMAN SINIRLI GRAFIK”	“Z.S.GRAF”

After you come to the required report title, a printout can be taken from the printer by pressing the SEC key. Short report, 24 hours report and velocity vs time graph reports start as soon as SEC key is pressed. Other three reports are explained in the corresponding sections. When SEC key is pressed to get a reports, if the door is closed, a “KAPAK KAPALI” warning will be given.

To exit the report menu, one of the arrow keys must be pressed after TSURE or HATA keys.

In all the reports, vehicle information (plate number, vehicle owner, vehicle brand/model, traffic serial number), vehicle's calibration coefficient and short code of the service which has loaded the calibration information are printed out.

## 18. SHORT REPORT ("KISA RAPOR")

Short report, lists all the rule violations and their numbers of the vehicle within last 24 hours. In addition, it includes legal duration values, service adjusted speed limit value and service values.

```
=====
98.MADDE UYUMLU          ---> Legal text
KATSAYI: 3600 M          ---> Vehicle constant (impulse/km)
BAYI NO: NRM1           ---> Service attribute
=====
NORM ELEKTRONIK
21/03/2006 14:57        ---> Date of report
KISA HATA RAPORU        ---> type of report (short report)
=====
PLAKA: 06 AB 234        ---> vehicle's plate number
ARAC SAHIBI:            ---> vehicle's owner (company or person)
TRANSPORT INC           ---> name of owner
TRF.SNO: A-95362        ---> official registration attribute of vehicle
ARACIN MARKASI:         ---> brand/model
DAF 3641 2006
=====
List of violations (faults)
--- HATA YOK ---        ---> means no fault
SURUCU KAYDI YOK        ---> means there is no driver record in last 24
hours
=====
YASAL SINIRLAR:         ---> legal limits
HIZ SIN. 88 KM/S        ---> speed limit (88 km/h)
MOLA SURE.45 DAK        ---> minimum break time (45 min.)
SSURE 4 SAAT 30D        ---> maximum continuous driving period(4h30m)
TSURE 9 SAAT            ---> maximum daily driving period(9 h)
== RAPOR SONU ==        ---> means "end of report"
BAYI NO: NRM1           ---
NORM FAB ANKARA         -----> Detailed information about the service
TLF:0 3123977994       --- (address tlf)
```

If there is any rule violation within last 24 hours, in the violation list of the report, only the current faults are printed. In the below example, all the possible violations are listed:

```
=====
                                List of violations (faults)
IHLALLER:                        ---> means "faults"
HIZ IHL.  02 KEZ                  ---> 2 times of overspeed driving
BESLEME   01 KEZ                  ---> power supply interruption
EHL.SIZ   01 KEZ                  ---> driving without driver card
SUR.SURE  02 KEZ                  ---> exceeding continuous driving limit (>4h30m)
TOP.SURE  01 KEZ                  ---> exceeding daily driving limit (>9h)
HAF.TATIL 01 KEZ                  ---> weekly rest violation
GUN.DINL. 01 KEZ                  ---> daily rest violation
BH.K.SURE 01 KEZ                  ---> exceeding two weekly driving limit (>90h)
=====
```

As the time goes, tachograph deletes the violations more than 24 hours old and updates the number of violations.

The number of speed violations, is the general sum of speed limit violations the drivers who have driven the vehicle within the last 24 hours (including driving without card).

Violations like cumulative driving period, not using the weekly holiday, not obeying the daily rest periods are counted for once per each driver. If more than one driver, e.g two drivers, exceed the cumulative driving period, total number of violations is printed as 2. A driver can exceed the total (daily) driving period more than once. But, tachograph counts the continuous driving period violation as one until 45 minutes rest is completed. After the legal rest is completed, new continuous driving violations will increase the number.

### **19 DAILY REPORT ("24 SAAT RAPORU")**

In this report, records of the drivers who have driven the vehicle within the last 24 hours are given in detail starting from the last reporting period.

If more than one driver has driven the vehicle within last 30 hours, the list of the drivers between 24 and 30 hours is also included at the end of the list.

Record of each driver is given in different sections which start with the name of the driver and which ends with the weekly driving period in the daily report.

Example:

```
=====
98.MADDE UYUMLU                  ---> Legal text
KATSAYI: 3600 M                   ---> Vehicle constant (impulse/km)
BAYI NO: NRM1                     ---> Service attribute
=====
NORM ELEKTRONIK
21/03/2006 14:57                  ---> Date of report
24 SAAT ÖZETĐ                     ---> type of report (daily report)
=====
PLAKA: 06 AB 234                  ---> vehicle's plate number
```

```

ARAC SAHIBI:          ---> vehicle's owner (company or person)
  TRANSPORT INC       ---> name of owner
TRF.SNO: A-95362     ---> official registration attribute of vehicle
ARACIN MARKASI:      ---> brand/model
  DAF 3641 2006
=====
AKU KESILDI:
12/01/2006 12:11     ---> Date&Time of Power interrupton
AKU BAGLANDI:
12/01/2006 13:13     ---> Date&Time of Power reconnection
( 3 KEZ KESILDI)    ---> number of interruptions between these time stamps
=====
SURUCU:
AHMET KAHRAMAN       ---> name of driver
06-00012737708V1    ---> licence reg.number of driver
INME ZAMANI:
12/01/2006 16:31     ---> Ending time of movement (end of record)
BINME ZAMANI:
12/01/2006 16:19     ---> start of movement
AL.YOL: 0024.7KM     ---> distance taken

T.SURE: 09s12        ---> total daily driving time regarding end time
TOP.SURE IHLALI      ---> exceeding daily driving limit
S.SURE: 04s50        ---> last continuous driving period
  KULLANIM 01s00      ---> drive and break periods of the last
    MOLA 00s16        cont.driv.period
  KULLANIM 02s00
    MOLA 00s22        ---> break
KULLANIM 01s50      ---> driving
SUR.SURE IHLALI     ---> indicates cont. driving limit violation

  88 KM/S IHLALI     ---> overspeed fault. (%110 of legal limit 80km/h)
002 KEZ 0004.9KM    ---> number of overspeeding and distance
 104 KM/S IHLALI     ---> exceeding %130 of legal limit
001 KEZ 0001.4KM    ---> number of exceed.%130 and distance
GUN.DINL. IHLALI    ---> violation of daily rest rules
GUN.DINL. 08S12     ---> daily rest < 12h
h (04:08) 08s12    ---> longest three rest part.s in the last 24 hours
h (12:56)> 01s22    ---> these data are printed only when daily rest
h (14:20)> 02s00    ---> fault occurred.
  9 SAAT KIS. 00     ---> number of reducing daily rest to 9 hours
HAFTA BASLANGICI
10/01/2006 12h00    ----> weekly working period start time

```

```

HU. 01 GUN 04s31          ----> time period between start of week and record
                             end (in day hour and min)
HAF.K.SUR 18s12          ----> (combined) weekly driving period
-----
KIMLIKSIZ SURUCU        2. record
                             Driver w/o driver card
INME ZAMANI:
12/01/2006 16:31        --> movement(record) end
BINME ZAMANI:
12/01/2006 16:19        ---> movement(record) start
AL.YOL: 0033.7KM        ---> total displacement
T.SURE: 02s12
S.SURE 04s50
.....
there are any            ---> other drivers' records are also printed if
== RAPOR SONU ==        --> end of report

```

## 20 SPEED GRAPHIC (HIZ ZAMAN GRAFIGI)

In this report, different velocity graphs for each record of the driver who has driven the vehicle within the last 24 hours are printed. They are real time and historical. The legal speed limit line, time labels and half hour marks on the below axis 25, 50 and 100 km marks which belong to the displacement on the upper axis and displacement values for each 100km are printed on the graphic.

## 21 SPEED LIMITED GRAPHIC(HIZ SINIRLI GRAFIK)

This report is the same with the previous velocity vs speed graph. Only by changing the velocity, line it is possible to check whether you are moving above a certain speed limit or not (e.g suburban area speed limit 50 km/h).

If SEC key is pressed while "H.S:GRAF" is seen on the report submenu, first "HIZ SINIRINI GIRIN" message is displayed and then "HS=88" is shown. Here, when the required velocity value is selected with the aid of the arrow keys, graphic printout is taken by pressing on the SEC key.

## 22 DISPLACEMENT LIMITED GRAPHIC(YOL SINIRLI GRAFIK )

In this graphical report, you can take take the velocity records belonging to the driver's records between two displacement values. The value to be entered shall be in the order of 100 km. If SEC key is depressed while "Y.S. GRAF" is displayed, first "YOL BASLANGICI" and then with "YB. 0" screen the displacement values are asked. The required value is accessed via the arrow keys (e.g. 200) and then SEC is pressed. First "YOL SONU" and then second displacement value is asked by "YS. 300" screen. Last value is 100km more than the first by default. If SEC key is pressed after the second value is set, then report is taken.

If there is no velocity record between the required displacement values, this is shown by "ISTENILEN ARALIKTA KAYIT YOK" message.



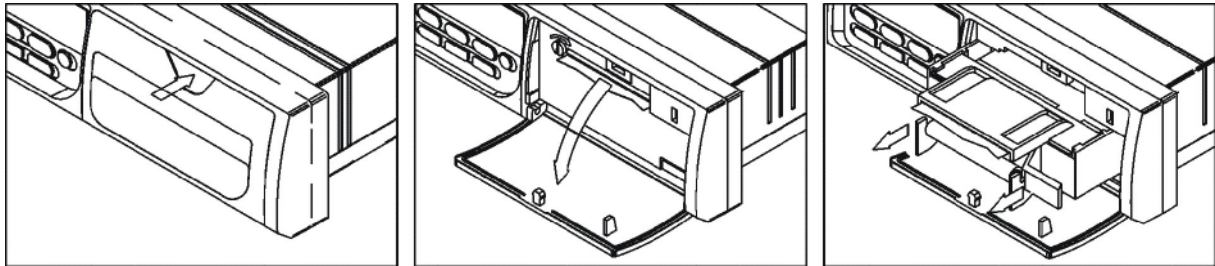
## 23 TIME LIMITED GRAPHIC(“ZAMAN SINIRLI GRAFIK”)

In this graphical report, you can take the velocity records belonging to the driver's records between two instant values. The value to be entered has minute resolution. If SEC key is depressed while “Z.S.GRAF” is displayed, first “BITIS ZAMANI” and then with “S. hss” screen, first time values are asked. The required value is accessed via the left (or right) arrow key (e.g. S. 18:12) and then SEC is pressed. First “BASLANGIC ZAMANI” and then second time value is asked by “B.17.12” screen. Last value is 1 hour before the first by default. If SEC key is pressed after the second value is set, then report is taken.

If there is no record within the required interval, this is shown by “ISTENILEN ARALIKTA KAYIT YOK” message.

## 24. Installation of a new paper roll

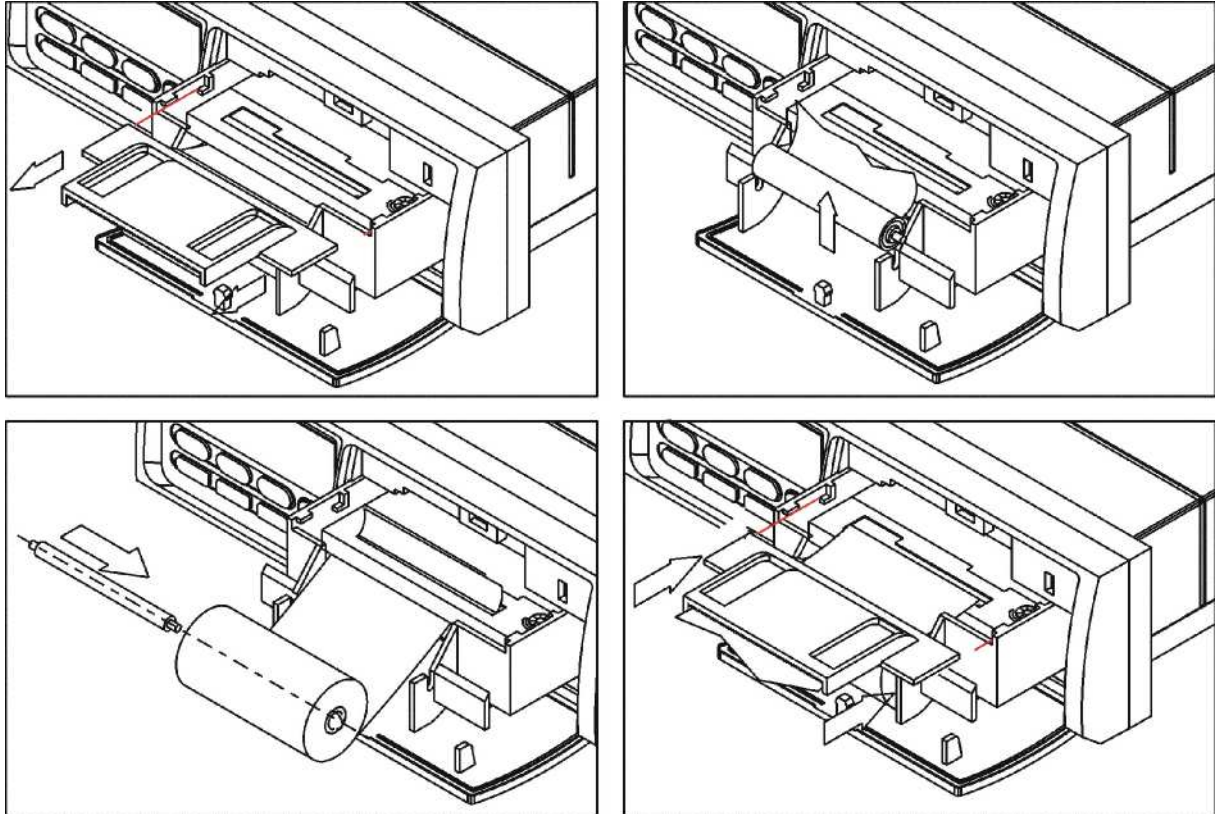
In order to change the paper roll, open the printer-driving licence cover by pushing on it. And then release the dust protection cover screw and take it out.



Pull out the printer drawer by holding the role slot from its sides. Pull out the paper forwarding cover.

Take out the paper roll by holding its spindle from the sides.

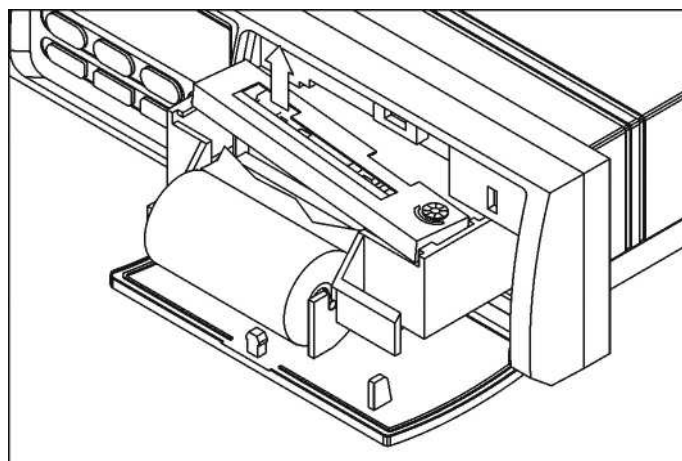
Open up the new paper roll and cut its edge smoothly. Place the edge of the paper at the paper entrance point of the printer and advance the paper by pressing “K” key. It will be enough to press “K” key once, device will stop automatically after it will take the paper in. Install the roll spindle into the paper roll and install the new paper roll into the device.



Install the paper forwarding cover while placing the paper in it. Press “K” key once more and tear out excess paper. Push in the printer drawer until it will settle in its location. Install the paper inside the dust cover paper slot and place the dust cover screw.

## 25. Replacing the Printer Ribbon

First, release the dust protection cover screw and take it out  
Pull out the printer drawer and take the paper forwarding cover out from its slot.



Pull out the printer ribbon cassette by pulling it up from the point marked with “pull”. Install the new printer ribbon instead of the old one and turn the wheel at right handside towards the direction of the arrow in order to make it lock into its position.

Place the edge of the paper roll into the printer and press onto the “K” key and install the paper forwarding cover into its position.

Push in the printer drawer until it will settle in its location, and replace the dust cover into its place.

## 26. Technical Specifications

Display	6 Digits, Alphanumerical LED Display
Keypad	Backlight Elastomeric Keypad
Audible Warning	Audible Warning tone for Velocity and Time Violation
Sensor	Electronic or Magnetic Sensor
Sensor Pulse Range	500.. 20000 pulse / km ( 0..24V pk-pk )
Speed Measurement Error	Max. $\pm 2$ Km/h
Time Measurement Error	Max. $\pm 5$ secs in 24 h
Distance Measurement Error	Max 4% in 1 km
Operating Temperature	-10°C, +70°C
Storage Temperature	-40°C, +70°C
Supply Voltage	8-28 VDC (inverse battery connection and 100% surge protection)
Supply Current	60 mA at 24VDC
Weight	907 gr.
Installation Dimensions	174mm x 50mm x 158mm