# CATEYE
# VELO 9 / VELO 7



CYCLOCOMPUTER
## CC-VL820 / CC-VL520

U.S. Pat. No. 6957926 & Design Patented
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CCVL82/52-150206 **1**

⚡ **Before using the computer, please thoroughly read this manual and keep it for future reference.**

## Warning / Caution

- Do not concentrate on the computer while riding.
  Ride safely!
- Install the magnet, sensor, and bracket securely.
  Check these periodically.
- If a child swallows a battery, consult a doctor immediately.
- Do not leave the computer in direct sunlight for a long period of time.
- Do not disassemble the computer.
- Do not drop the computer to avoid malfunction or damage.
- When cleaning the computer, bracket and sensor, do not use thinners, benzene, or alcohol.
- Risk of explosion if battery is replaced by an incorrect type.
  Dispose of used batteries according to local regulations.
- LCD screen may be distorted when viewed through polarized sunglass lenses.

## Maintenance

- To clean the computer or accessories, use diluted neutral detergent on a soft cloth, and wipe it off with a dry cloth.
- If the gaps between the buttons and the unit get clogged with mud or sand, wash them away with water.

## Replacing the battery

When the display becomes dim, replace the battery. Install a new lithium battery (CR2032) with the (+) side facing upward.

* After replacing the battery, be sure to set the unit again according to the procedure specified in "Preparing the computer" (page 3).



Close

Open          CR2032
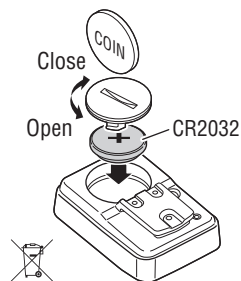
## Troubleshooting

**No display.**

Is battery in the computer run down?

Replace with new batteries according to the procedure specified in the section "Replacing the battery".

**Incorrect data appear.**

Follow the procedure described "Preparing the computer" (page 3).

**Current speed does not appear.**
(First, short-circuit the contact of the computer a few times with a piece of metal. If current speed appears, the computer is working fine and the cause should be attributed to the bracket or the sensor.)

Is the wire broken?

Even if the outside of the wire looks normal, there could be damage. Replace the bracket sensor kit with a new one.

Is the clearance between the sensor and the magnet too large?
Are the magnet's center and the sensor's marking line aligned?

Re-adjust the positions of the magnet and the sensor.
(The clearance should be less than 5 mm.)

Is there anything sticking on the contact of the computer or the bracket?

Clean the contact with a cloth.

## Specification

| | |
|---|---|
| Battery / Battery life | Lithium battery (CR2032) x 1 / Approx. 3 year |
| * The factory-loaded battery life might be shorter than the above-mentioned specification. | |
| Controller | 4 bit, 1-chip microcomputer (Crystal controlled oscillator) |
| Display | Liquid crystal display |
| Sensor | No contact magnetic sensor |
| Tire size to be selected | 26", 700c, 27", 16", 18", 20", 22" and 24", or tire circumference of 100 cm - 299 cm (initial value: 26 inch) |
| Working temperature | 32 °F - 104 °F (0 °C - 40 °C) (This product will not display appropriately when exceeding the Working Temperature range. Slow response or black LCD at lower or higher temperature may happen respectively.) |
| Dimensions/weight | 2-3/16" x 1-15/32" x 5/32" (55.5 x 37.5 x 18.5 mm) / 1.06 oz (30 g) |

* The specifications and design are subject to change without notice.

## Limited warranty

**2-Year: Computer only**
          **(Accessories/Bracket sensor and Battery Consumption excluded)**
CatEye cycle computers are warranted to be free of defects from materials and workmanship for a period of two years from original purchase. If the product fails to work during normal use, CatEye will repair or replace the defect at no charge. Service must be performed by CatEye or an authorized retailer. To return the product, pack it carefully and enclose the warranty certificate (proof of purchase) with instruction for repair. Please write or type your name and address clearly on the warranty certificate. Insurance, handling and transportation charges to CatEye shall be borne by person desiring service. For UK and REPUBLIC OF IRELAND consumers, please return to the place of purchase. This does not affect your statutory rights.

Please register your CatEye product on the website.
http://www.cateye.com/en/support/regist/

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**CATEYE AMERICA, INC.**
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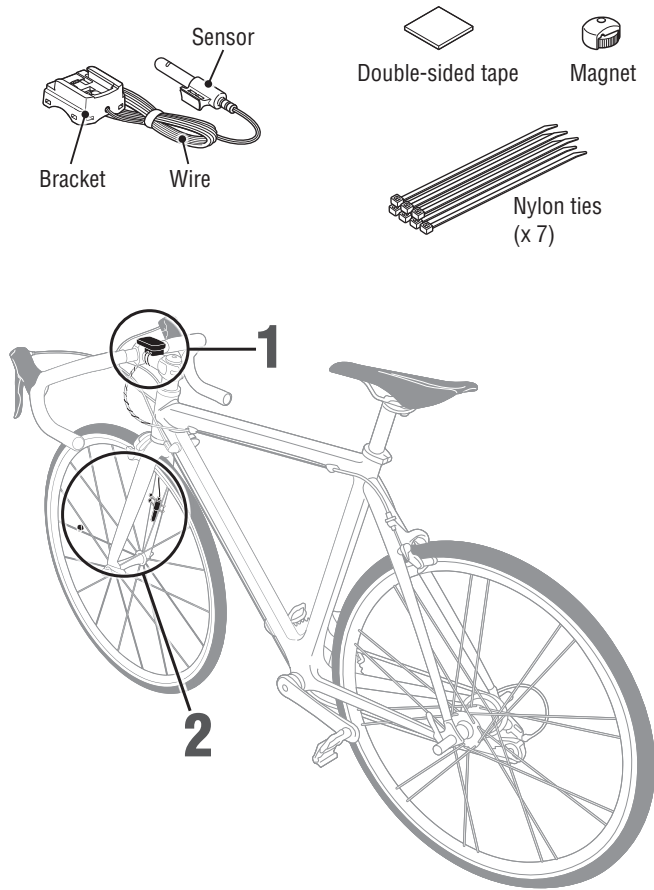Fax        : 303.473.0006                        E-mail      : service@cateye.com

## Spare accessories

### Standard accessories

| 1603390 | 1603391 | 1699691N | 1665150 |
|---|---|---|---|
|  |  |  |  CR2032 |
| Parts kit | Bracket sensor kit | Wheel magnet | Lithium battery |

### Optional accessories

**1603491**

 Heavy duty bracket sensor kit

Sensor

Double-sided tape     Magnet

Bracket    Wire

Nylon ties (x 7)

**1**

**2**

## ☀ Install the sensor and magnet

### A
The magnet passes through the sensor zone.

Magnet     Sensor

**SENSOR ZONE**

### B
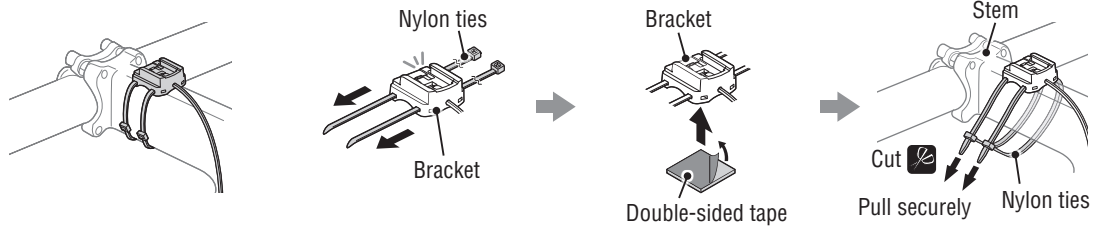The clearance between the sensor and magnet is 5 mm (3/16") or less.
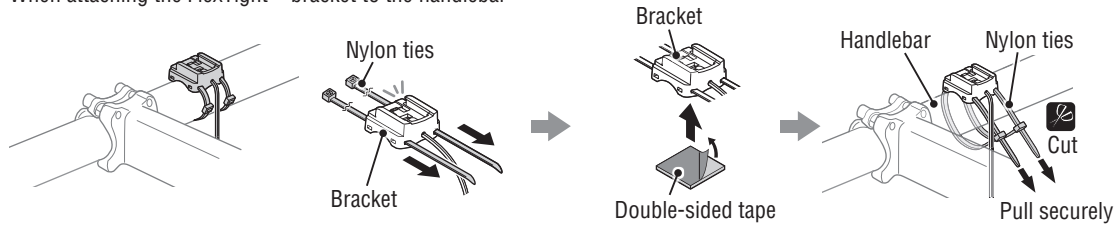
Magnet

Sensor

**5 mm**
(3/16")

## 1 Attach the bracket to the stem or handlebar

The FlexTight™ bracket can be attached to either the stem or the handlebar, depending on how the bracket fits into the bracket band.
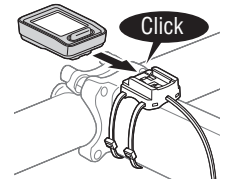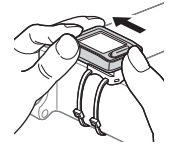
When attaching the FlexTight™ bracket to the stem

Nylon ties     Bracket     Stem

Bracket

Cut ✂

Double-sided tape     Pull securely     Nylon ties

When attaching the FlexTight™ bracket to the handlebar

Nylon ties     Bracket     Handlebar     Nylon ties

Cut ✂

Bracket     Double-sided tape     Pull securely

## Remove/Install the computer

Click

While supporting it by hand,
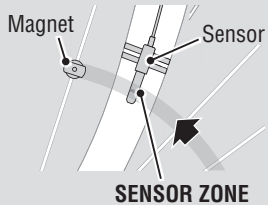
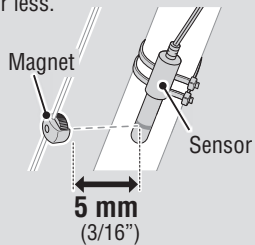Push it out as if lifting the front up

## 2 Install the sensor and magnet
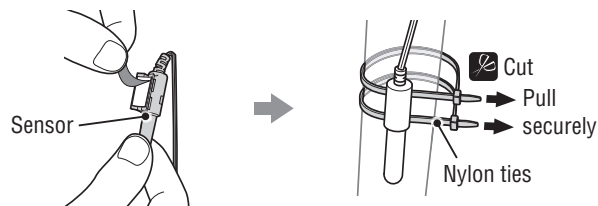
Spoke

Magnet

To the **SENSOR ZONE**

* The magnet may be installed anywhere on the spoke if the above installation conditions are satisfied.

Magnet

Sensor

**SENSOR ZONE**

Sensor

✂ Cut
→ Pull securely

Nylon ties

## 3 Route the wire

**OK**

**NO!**

Nylon ties

**Caution:
Adjust the wire length so that it may not be pulled when the handle is operated.**

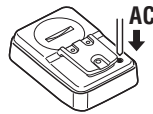Perform the clear all data operation as shown below, when you use the unit for the first time or restore the unit to the condition checked at the factory.

## 1 Clear all data (initialization)
Press the **AC** button on the back of the computer.

**AC**

## 2 Select the speed unit
Select "**km/h**" or "**mph**".

**km/h**

| **MODE** | km/h ↔ mph | **SET** | Register the setting |

## 3 Set the tire size
Set the tire size by either one of the following methods.

### Simple setting (select from the tire size)

Pressing the **MODE** button changes **26" → 700c → 27" → 205[] → 16" → 18" → 20" → 22" → 24" → 26"** in order. Select the tire size (inch) of your bicycle, and then press the **SET** button.

**km/h**

**26"**

\* Generally, the tire size is indicated on the side of the tire.

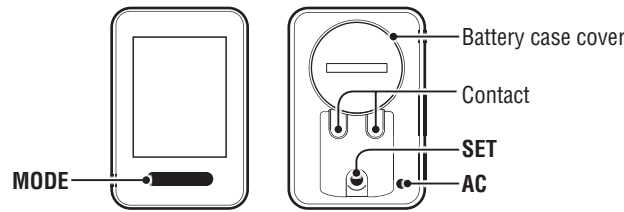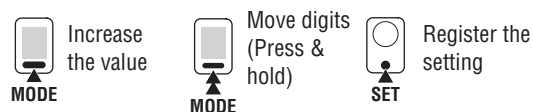| **MODE** Switching size | **SET** Register the setting | **MODE** Press and hold to the **MODE** button with "**205[]**" displayed to change to the wheel size entry screen. |

### Detailed setting (enter the numeric value of the tire circumference)

\* Entering the tire circumference ensures more accurate measurements.

❶ With **205[]** displayed on the screen, press and hold the **MODE** button.

❷ Pressing the **MODE** button increases the numeric value flashing, whereas pressing and holding the **MODE** button moves the digit. Enter any value of the circumference in cm, and then press the **SET** button.
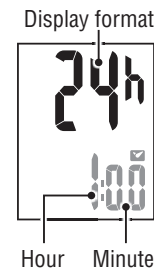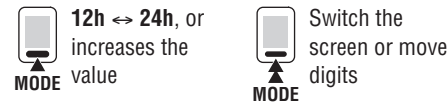
**km/h**

**205[]**

\* Use "Tire circumference reference table" as a guide.

| **MODE** Increase the value | **MODE** Move digits (Press & hold) | **SET** Register the setting |

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**MODE** — (computer front) Battery case cover, Contact, **SET**, **AC**

## 4 Set the Clock
Pressing and holding the **MODE** button switches the display to "Display format", "Hour", and "Minute" in order.

| **MODE** 12h ↔ 24h, or increases the value | **MODE** Switch the screen or move digits |

Display format

**24h**

**1:00**

Hour    Minute

## 5 Press the SET button to complete setting
Press the **SET** button with the current clock displayed. Then, the unit setting is completed, and the unit changes to the Measuring screen.

**SET** Register the setting (Finish)
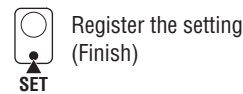
## Operation test
After installed, check that the computer displays the speed by turning the front wheel. When it is not displayed, check the installation conditions **A** and **B** again (page 2).

**0.0 km/h** → **8.1 km/h**

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## Tire circumference
You can find the tire circumference (L) of your tire size in the chart below, or actually measure the tire circumference (L) of your bicycle.
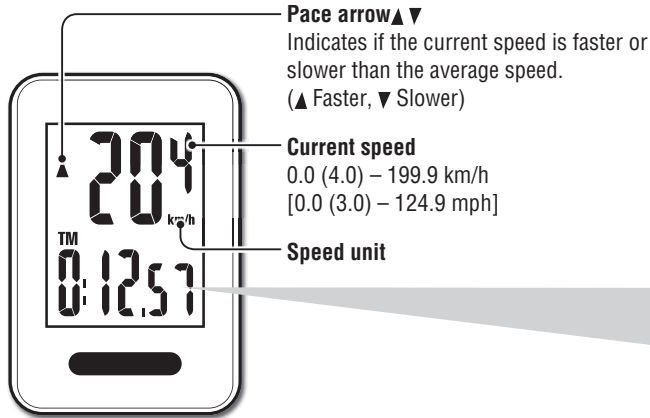
- **How to measure the tire circumference (L)**
  For the most accurate measurement, do a wheel roll out. With the tires under proper pressure, place the valve stem at the bottom. Mark the spot on the floor and with the rider's weight on the bike, roll exactly one wheel revolution in a straight line (until the valve comes around again to the bottom). Mark where the valve stem is and measure the distance.
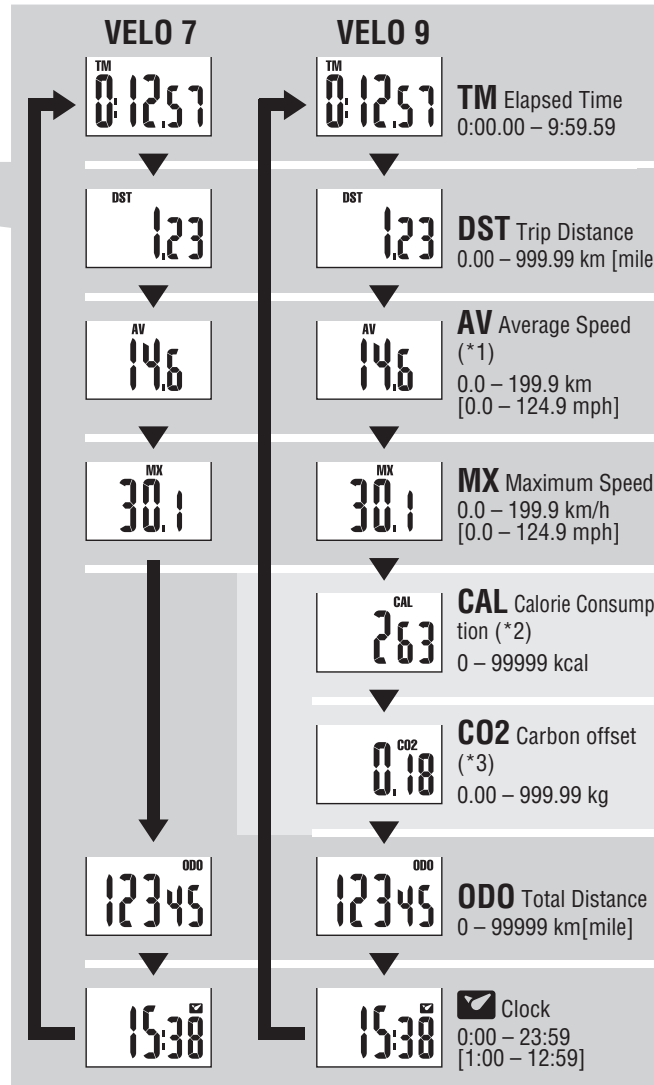
  **L cm**

- **Tire circumference reference table**
  \* Generally, the tire size or ETRTO is indicated on the side of the tire.

| ETRTO | Tire size | L (cm) | ETRTO | Tire size | L (cm) |
|---|---|---|---|---|---|
| 40-254 | 14x1.50 | 102 | 37-590 | 26x1-3/8 | 207 |
| 47-254 | 14x1.75 | 110 | 37-584 | 26x1-1/2 | 210 |
| 40-305 | 16x1.50 | 119 | | 650C Tubular 26x7/8 | 192 |
| 47-305 | 16x1.75 | 120 | | | |
| 54-305 | 16x2.00 | 125 | 20-571 | 650x20C | 194 |
| 28-349 | 16x1-1/8 | 129 | 23-571 | 650x23C | 194 |
| 37-349 | 16x1-3/8 | 130 | 25-571 | 650x25C 26x1(571) | 195 |
| 32-369 | 17x1-1/4 (369) | 134 | | | |
| 40-355 | 18x1.50 | 134 | 40-590 | 650x38A | 213 |
| 47-355 | 18x1.75 | 135 | 40-584 | 650x38B | 211 |
| 32-406 | 20x1.25 | 145 | 25-630 | 27x1(630) | 215 |
| 35-406 | 20x1.35 | 146 | 28-630 | 27x1-1/8 | 216 |
| 40-406 | 20x1.50 | 149 | 32-630 | 27x1-1/4 | 216 |
| 47-406 | 20x1.75 | 152 | 37-630 | 27x1-3/8 | 217 |
| 50-406 | 20x1.95 | 157 | 40-584 | 27.5x1.50 | 208 |
| 28-451 | 20x1-1/8 | 155 | 50-584 | 27.5x1.95 | 209 |
| 37-451 | 20x1-3/8 | 1625 | 54-584 | 27.5x2.1 | 215 |
| 37-501 | 22x1-3/8 | 177 | 57-584 | 27.5x2.25 | 218 |
| 40-501 | 22x1-1/2 | 179 | 18-622 | 700x18C | 207 |
| 47-507 | 24x1.75 | 189 | 19-622 | 700x19C | 208 |
| 50-507 | 24x2.00 | 193 | 20-622 | 700x20C | 209 |
| 54-507 | 24x2.125 | 197 | 23-622 | 700x23C | 210 |
| 25-520 | 24x1(520) | 175 | 25-622 | 700x25C | 211 |
| | 24x3/4 Tubular | 179 | 28-622 | 700x28C | 214 |
| 28-540 | 24x1-1/8 | 180 | 30-622 | 700x30C | 215 |
| 32-540 | 24x1-1/4 | 191 | 32-622 | 700x32C | 216 |
| 25-559 | 26x1(559) | 191 | | 700C Tubular | 213 |
| 32-559 | 26x1.25 | 195 | 35-622 | 700x35C | 217 |
| 37-559 | 26x1.40 | 201 | 38-622 | 700x38C | 218 |
| 40-559 | 26x1.50 | 201 | 40-622 | 700x40C | 220 |
| 47-559 | 26x1.75 | 202 | 42-622 | 700x42C | 222 |
| 50-559 | 26x1.95 | 205 | 44-622 | 700x44C | 224 |
| 54-559 | 26x2.10 | 207 | 45-622 | 700x45C | 224 |
| 57-559 | 26x2.125 | 207 | 47-622 | 700x47C | 227 |
| 58-559 | 26x2.35 | 208 | 54-622 | 29x2.1 | 229 |
| 75-559 | 26x3.00 | 217 | 56-622 | 29x2.2 | 230 |
| 28-590 | 26x1-1/8 | 197 | 60-622 | 29x2.3 | 233 |

**Pace arrow▲▼**
Indicates if the current speed is faster or slower than the average speed.
(▲ Faster, ▼ Slower)

**Current speed**
0.0 (4.0) – 199.9 km/h
[0.0 (3.0) – 124.9 mph]

**Speed unit**

## Starting/Stopping measurement

Measurements start automatically when the bicycle is in motion.
During measurement, **km/h** or **mph** flashes.

**START** | **STOP**

Start measurement | Stop measurement
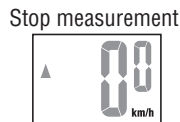
## Resetting data

Pressing and holding **MODE** on the measuring screen returns the measurement data to 0.

* The total distance (**ODO**) is not reset.

**MODE**
(Press & hold)

## Power-saving function

If the computer has not received a signal for 10 minutes, power-saving screen will activate and only the clock will be displayed. When the computer receives a sensor signal, the measuring screen reappears.

**Measuring screen** | **Power-saving screen**

10 minutes

or

**MODE**

## Switching computer function

Pressing the **MODE** button switches the measurement data at the bottom in the order shown in the following figure.

**VELO 7** | **VELO 9**

**TM** Elapsed Time
0:00.00 – 9:59.59

**DST** Trip Distance
0.00 – 999.99 km [mile]

**AV** Average Speed (*1)
0.0 – 199.9 km
[0.0 – 124.9 mph]

**MX** Maximum Speed
0.0 – 199.9 km/h
[0.0 – 124.9 mph]

**CAL** Calorie Consumption (*2)
0 – 99999 kcal

**CO2** Carbon offset (*3)
0.00 – 999.99 kg

**ODO** Total Distance
0 – 99999 km[mile]

Clock
0:00 – 23:59
[1:00 – 12:59]

*1 : When **TM** exceeds about 27 hours, or **DST** exceeds 999.99 km, **.E** will appear.
Reset the data.
*2, *3 : To be displayed only with VL820.

**SET**

## How to change the total distance

Display **DST**, and then press the **SET** button to switch to the total distance manual input screen. Press the **MODE** button to increase the value. Press and hold the **MODE** button to move to the next digit.
Press the **SET** button to confirm the value.
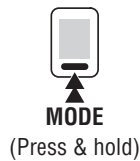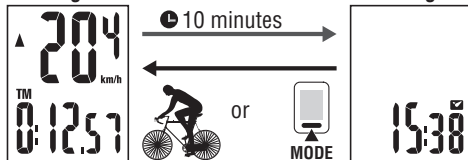* Only whole numbers can be entered. (0 – 99999 km [miles])

km/h
ODO

## Calorie Consumption (VL820) *2

This computer measures the calorie consumption by integrating the value calculated from the speed in every second. Check it as a reference value.

| Speed | 10 km/h [mph] | 20 km/h [mph] | 30 km/h [mph] |
|---|---|---|---|
| Kcal per hour | 67.3 kcal [155.2 kcal] | 244.5 kcal [768.2 kcal] | 641.6 kcal [2297.2 kcal] |

## How to calculate the Carbon offset (VL820) *3

The Carbon offset are calculated as follows.
Trip distance (km) x 0.15 = Carbon offset (kg)

* This factor of 0.15 is determined by applying the average value of the overall gasoline-powered passenger cars in 2008 to the equation of the "Carbon offset from 1 km drive of a gasoline-powered car" described on the website of the Ministry of Land, Infrastructure and Transport and Tourism.

## How to change tire size

Display the Total Distance (**ODO**) and press the **SET** button to change the tire size.
The setting method is the same as for "Preparing the computer-3" (page 3).

km/h
26"

**SET**

## How to set clock

In the clock mode, press **SET** button on the back, and the display enters clock setting mode.
The setting method is the same as for "Preparing the computer-4" (page 3).

24h
1:00

**SET**