SI-7AP1E

SERVICE INSTRUCTIONS

Cycle Computer

FLIGHT DECK

SC-6502/SC-6501/SC-M500

Specifications

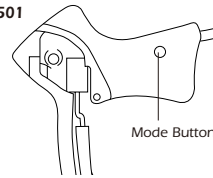| Meter	SC-6502	SC-6501 / SC-M500		
Bracket/Sensor unit	SM-SC70	SM-6501	SM-6501-MD	SM-6501-M
STI lever	ST-7800	ST-7700-C ST-6510 ST-5500-CA ST-4400 ST-3300/3303	ST-M510 SL-M510	ST-M952 SL-M952 ST-M750 SL-M750 ST-M570 SL-M570

NOTE;

* The all clear (AC) button is used to clear the main unit memory.
* Never disassemble the main unit, as it cannot be reassembled.
* The main unit is fully waterproofed to withstand wet weather conditions; however, do not deliberately place it into water.
* Avoid leaving the main unit exposed to extremely hot weather conditions.
* Handle the main unit carefully, and avoid subjecting it to any shocks.
* Do not use thinner or other solvents to clean parts such as the main unit and sensor, as they may dissolve the part casings.
* To clean these parts, wipe them with a cloth soaked in a weak mixture of neutral detergent and water.
* If using the SM-6501/M/MD together with an LED lamp from another manufacturer, the speed measurement function may not work correctly. If using an LED lamp from another manufacturer, it is recommended that you use the SM-6500-RS.

1. Display Modes

"Current speed" and "Gear indicator (bar)" are always displayed

mode 1 ⟷ **mode 2**

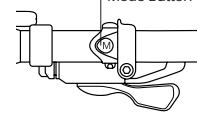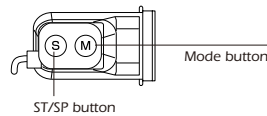| mode 1		mode 2	
CLK	Clock	Cadence	rpm
TIM	Trip time	Main display cadence	VEL
DST	Trip distance	Maximum speed	MAX
ODO	ODO meter	Average speed	AVE
STW	Stop watch	Lap counter	CNT
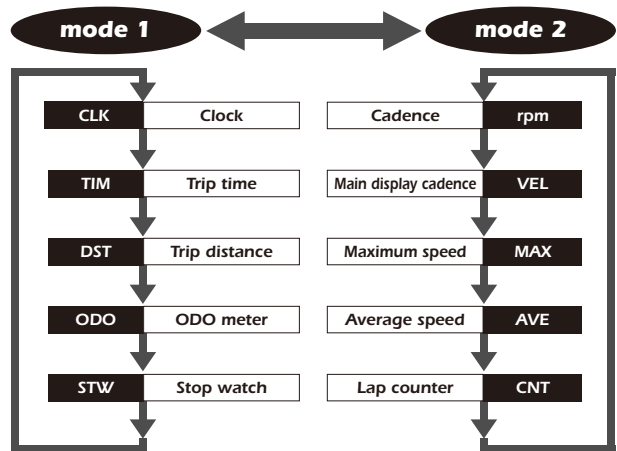
SM-SC70
SM-6501

Mode Button

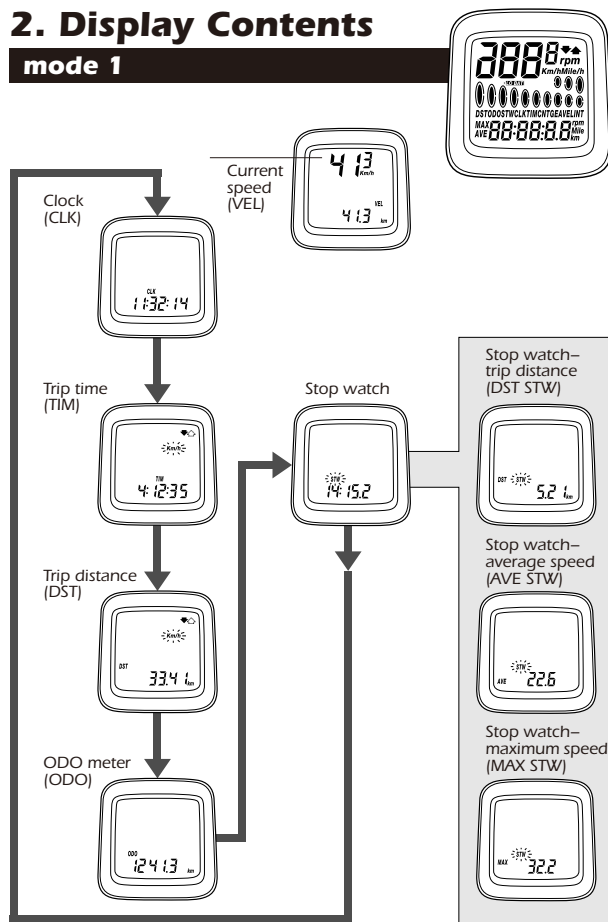SM-6501-MD

Mode Button

SM-6501-M

Mode button

ST/SP button

↓ Press mode button once

⟷ Press mode button continuously for 2 seconds or more

2. Display Contents

Current speed (VEL)

41.3 Km/h

41.3 km VEL

Clock (CLK)

11:32:14 CLK

Trip time (TIM)

4:12:35 TIM

Trip distance (DST)

33.4.1 km DST

ODO meter (ODO)

12.41.3 km ODO

Stop watch

14:15.2 STW

Stop watch– trip distance (DST STW)

5.2.1 km DST STW

Stop watch– average speed (AVE STW)

22.6 STW AVE

Stop watch– maximum speed (MAX STW)

32.2 STW MAX

Cadence (rpm)

72.9 rpm

Main display cadence

72.9 rpm

41.2 VEL

Maximum speed

42.1 Km/h MAX

Average speed

32.1 Km/h AVE

Lap counter

115 CNT

No. of gear teeth (digital)

53 - 15

Gear indicator (bar)

Pace Arrow

Low battery display

LO BAT

3. Name and function of each part

Front

Main Display
1. Current speed (VEL)
8. Cadence

2. Gear indicator (bar)

Sub Display
3 – 7, 9 -10

Rear

Switch B

Switch A

Battery cap

AC All clear Switch

STI Brake Bracket

< ST-7800, ST-7700-C, ST-6510,
ST-5500-CA, ST-4400, ST-3300/3303 >

R.H. side lever :
Mode button

L.H. side lever :
ST/SP button

< ST-M510, SL-M510 >

ST/SP button

Mode button

< ST-M952, ST-M750, ST-M570,
SL-M952, SL-M750, SL-M570 >

Mode button

ST/SP button

(1) Current speed (VEL)   km/h, mph

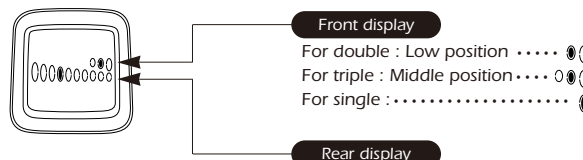When main display cadence appears on top

Current speed will appear in the sub - display
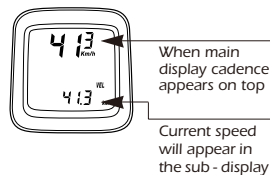
0.0 (2.0) - 130.0km/h
0.0 (1.2) - 80.0mph   (Range)
The current speed will appear at the top of the main display.

(2) Gear indicator (bar)

Front display

For double : Low position ····· ◑◯
For triple : Middle position ···· ◯◑◯
For single : ····················· ◑

Rear display

Gear indicator bar will not appear if the sensor wire is not connected or it has been turned off.

Displays; Top for smallest sprocket
Low for largest sprocket

7th sprocket for 10-sprocket set ········ ◯◯◯◑◯◯◯◯◯
7th sprocket for 9-sprocket set ········· ◯◯◑◯◯◯◯◯
7th sprocket for 8-sprocket set ········· ◯◑◯◯◯◯◯
7th sprocket for 7-sprocket set ········· ◑◯◯◯◯◯◯

(3) Time display (CLK)   24 -hours clock

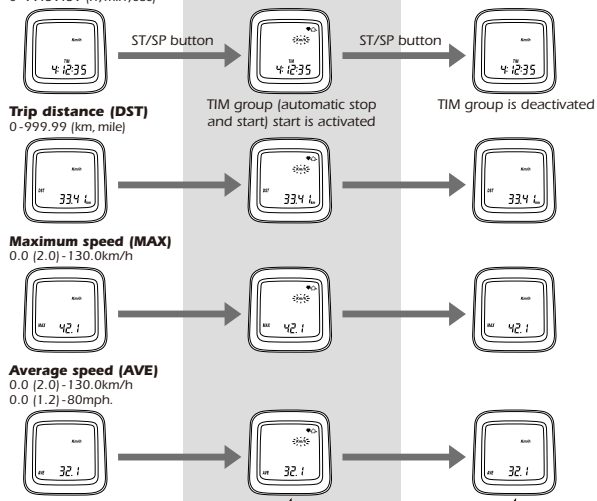Clock will appear when changing mode 2 to mode 1 and during power saver function.

(4) Trip distance group (TIM, DST, MAX, AVE)

The trip distance group includes the trip time (TIM), trip distance (DST), maximum speed during the trip (MAX) and the average speed during the trip (AVE). To activate the trip distance group, press the Mode button until "TIM" is displayed, and then press the ST/SP button.

Trip time (TIM)
0-99:59:59 (h ; min ; sec)

km/mile flashes

ST/SP button → TIM group (automatic stop and start) start is activated → ST/SP button → TIM group is deactivated

Trip distance (DST)
0-999.99 (km, mile)

Maximum speed (MAX)
0.0 (2.0) - 130.0km/h

Average speed (AVE)
0.0 (2.0) - 130.0km/h
0.0 (1.2) - 80mph.

< Reset to zero >   Press the ST/SP button and the Mode button simultaneously while this group is active.

Pace Arrow

Moves when distance time is operating.
The upward arrow indicates that the current speed is faster and the downward arrow indicates that the current speed is slower than the average speed for the trip.

Note;
- To calculate the average speed, You must travel for more than 10 seconds or more.
- If the trip time exceeds 100hours or the trip distance exceeds 1,000kilometers (620miles), "ER" will be displayed and the pace arrow comparison will disappear. However, TIM and DST measurements will start again from zero and the MAX speed will be retained.

(5) ODO meter (ODO)   0-99999.9 km, mile

Displays the cumulative distance travelled.
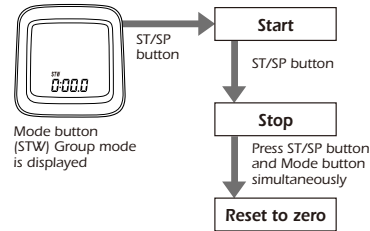
(6) Stopwatch (STW) group

This group includes stopwatch trip distance average speed and maximum speed. The stopwatch is activated by pressing ST/SP button. While the stopwatch group is operating the stopwatch (STW) display will flash.
Stopwatch trip distance (DST,STW) records total during STW function.
Stopwatch average speed (AVE,STW) records the average speed during STW function.
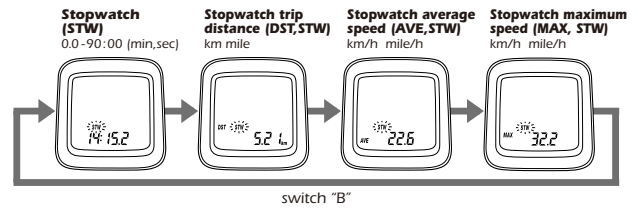Maximum speed (MAX,STW) records the Maximum speed during the stopwatch function.

< Starting and stopping >

Mode button (STW) Group mode is displayed

ST/SP button → **Start**

ST/SP button ↓

Stop

Press ST/SP button and Mode button simultaneously ↓

Reset to zero

Note;
The functions of this group are only available when stopwatch is activated.
If the trip distance mode is also activated simultaneously, it is not possible to view at the distance. However the trip distance, average speed and maximum speed will still be recorded during this time.

Stopwatch (STW)
0.0 - 90:00 (min,sec)

Stopwatch trip distance (DST,STW)
km mile

Stopwatch average speed (AVE,STW)
km/h mile/h

Stopwatch maximum speed (MAX, STW)
km/h mile/h

switch "B"

(7) Cadence (rpm)

Cadence is calculated from the F-R gear tooth numbers and current speed.

Note;
Cadence always appears during bicycle movement regardless if the crankarms are rotating.
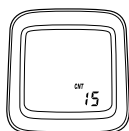
(8) Main display cadence (VEL)

Cadence (rpm) can also be shown in main display. Current speed will move to sub-display.

Cadence on main display

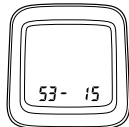Current speed on sub-display

(9) Lap counter (CNT)

This function is used to count laps, etc. (range 0 - 99)
Lap counter is activated by pressing the ST/SP button.
To reset the counter to zero, press mode and ST/SP button simultaneously.

(10) Digital number of gear teeth (F-R)

Gear combinations are displayed when a shift has been made. This will show for approx 2 seconds then original screen will return.

(11) Low battery display (LO BAT)

This flashes when the remaining battery power is low. The battery should be replaced with a new one as soon as possible.
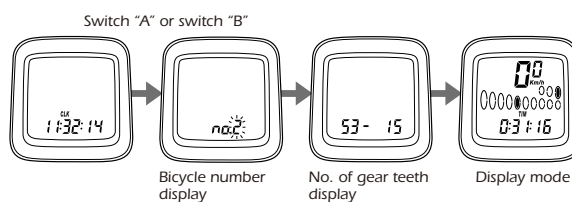
LO BAT

(12) Power saver function

When the computer does not receive a signal or no button is pressed during a 30-minute period, the unit will change to power saver function, and only the clock will appear on the display.
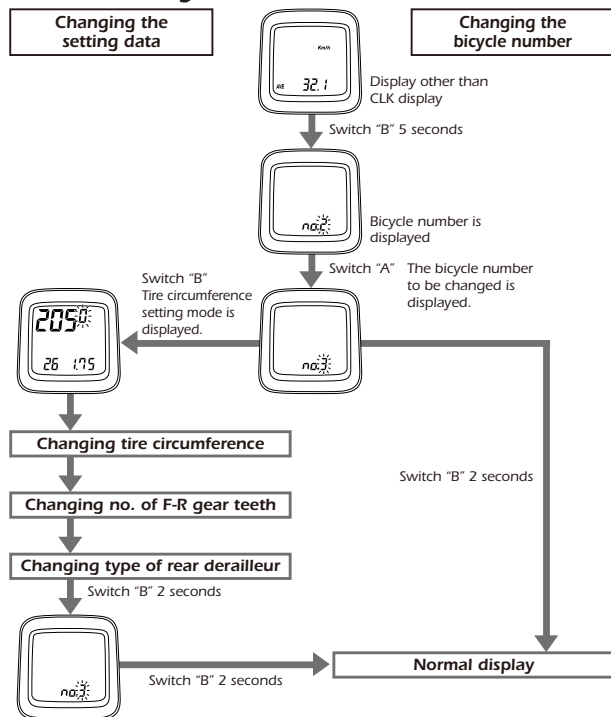
Canceling power save mode
The normal display will return as soon as switch "A" or switch "B" is pressed.

Note;
During the stopwatch function the stopwatch will continue to operate even when the power saver function has been activated. The stopwatch will stop automatically after 90minutes have passed.
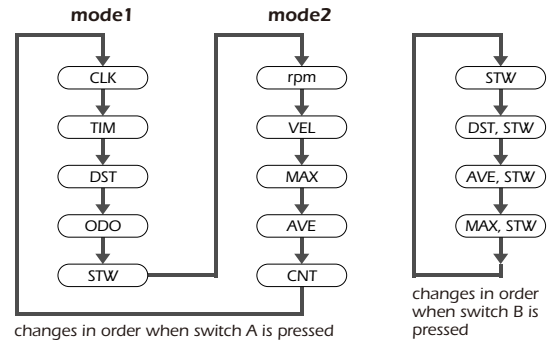
Switch "A" or switch "B"

Bicycle number display

No. of gear teeth display

Display mode

4. Changing the setting data and the bicycle number

Changing the setting data		Changing the bicycle number

32.1 — Display other than CLK display

Switch "B" 5 seconds

Bicycle number is displayed

Switch "A"   The bicycle number to be changed is displayed.

Switch "B" Tire circumference setting mode is displayed.

2050 / **26 175**

Changing tire circumference

Changing no. of F-R gear teeth

Changing type of rear derailleur

Switch "B" 2 seconds

Switch "B" 2 seconds → Normal display

Switch "B" 2 seconds

- Refer to "8. Data input".
- To change the time setting, change the sub-display to show the CLK display, and then press switch "B" for 5 seconds or more and then enter the new time setting.
- This function lets you reset input data without losing any data that has been recorded up to that point (such as total distance and trip distance).

5. Viewing data after removing the computer from the bracket mount

The data can still be viewed even when the computer has been removed from the handlebar bracket.

mode1

CLK → TIM → DST → ODO → STW

mode2

rpm → VEL → MAX → AVE → CNT

STW → DST, STW → AVE, STW → MAX, STW

changes in order when switch A is pressed

changes in order when switch B is pressed

6. Setting tolerances

VEL .... ±1%

DST, ODO 0.05%

CLK .... 30ppm   (5minutes or less per month)

STW, TIM 50ppm

7. Installation to the bicycle

Install the levers to the handlebars. Then connect and adjust the brake and shifting cables. Refer to the STI Lever Service Instructions for details on these procedures.

(1) Installing the signal cable (SM-SC70/SM-6501)

Install the signal cable as shown in Figure No1.

Fig.1
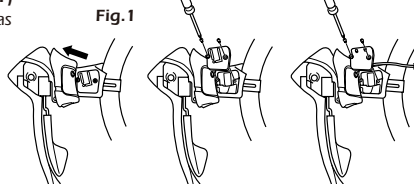
Tightening torque:
0.3 - 0.5 N·m
{2 - 4 in. lbs.}

* For the SM-6501-M, SM-6501-MD refer to the Service Instructions included.

(2) Installing the computer

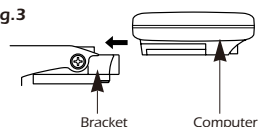Install the band and the bracket as shown in Figure No2.

SM-SC70/SM-6501
Tape the signal cable to the handlebars.

Fig.2

Bracket

Band

Tightening torque:
1 N·m
{8 in. lbs.}

(3) Slide the computer onto the bracket until it clicks into its place.

as shown in Figure No3.

Fig.3

Bracket   Computer

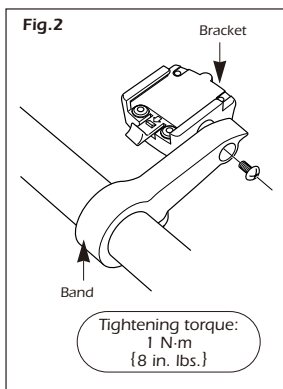**SM-SC70/SM-6501**
After this, wrap handlebar with finishing tape around the handlebars to secure both the signal cable and the brake cable.

(4) Installing the magnet and sensors

Use a screwdriver to temporarily secure the magnet to a spoke on the right hand side of the front wheel as shown in fig4.

Put a rubber shim between the fork and the sensor as shown in fig5.
(Fork diameter range is 11-35mm)
Place the magnet on the sensor line as shown in the illustration.
Adjust the position of the magnet so that the distance between the magnet and the sensors is 1–5 mm. Secure the magnet and the sensors firmly in these positions.

Set the positions so that the distance between the meter and the sensor are within the following:
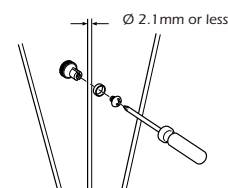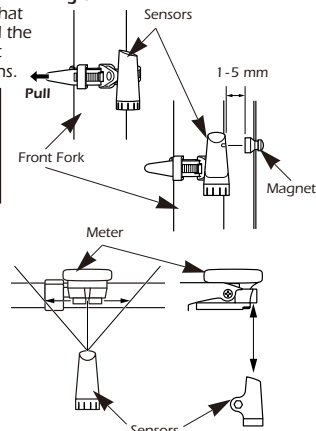Vertical: 50 cm
Horizontal: 10 cm

Fig.4

Ø 2.1mm or less

Fig.5

Sensors

1 - 5 mm

Pull

Front Fork

Magnet

Meter

Sensors

Speed sensor

8. Data input (*data for up to 4 bicycles can be entered)

1. Km or Miles
2. ODOmeter data
3. Tire circumference*
4. No. of chainring and sprocket teeth*
5. Type of rear derailleur*
6. Current time

First measure the tire circumference and check the number of chainring and sprocket teeth.

To measure the tire circumference, first ensure that the tire is inflated to the standard tire pressure. Make a mark on the tire and the ground at the point where the tire touches the ground, and move the bicycle forward one full revolution of the front wheel while seated on the bicycle, Mark the point where the marking on the tire touches the ground again. Measure the distance between the two points in millimeters. Round the distance to the nearest multiple of 5mm.

Example

| 2028 - 2032mm ••••••• 2030mm |
| 2033 - 2037mm •••••• 2035mm |
| 2038 - 2042mm •••••• 2040mm |

Roll forward

Wheel circumference

Check whether the front chainwheel is a single, double or triple chainwheel.

Example

53 •••••• Single   53x39 •••••• Double   48x38x28 •••••• Triple
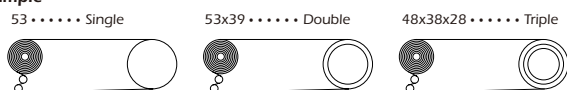
Check whether the cassette has 7, 8, 9, or 10 sprockets.

Example

| 12,13,14,15,16,17,18,19,21,23 •••• 10 sprocket |
| 12,13,14,15,16,17,19,21,23 ••••••• 9 sprocket |

(1) Selecting Km or Miles

When switch "AC" (All Clear) is pressed, the display as shown in fig6 appears and the k/h setting starts flashing. Select your choice for Km/h or Mile/h by pressing switch "A". Once your choice is displayed, press switch "B" continuously for 2 seconds or more to set.

Fig.6

Switch "B": Accept

Switch "A": Select

All clear (AC) switch

Km/h ←→ Mile/h
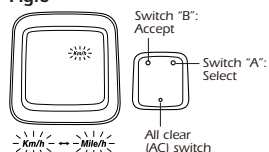
(2) Entering odometer data

The display will change as shown in Fig. 7. For each column, press switch "A" so that a numeral is displayed, and then press switch "B" to accept the setting. After entering the single decimal place numeral, press switch "B" for 2 seconds or more.
If not entering odometer data, press switch "B" for 2 seconds or more when the display appears as shown in Fig. 7.

Fig.7

Switch "B": Accept

Switch "A": Change value
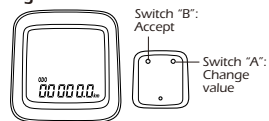
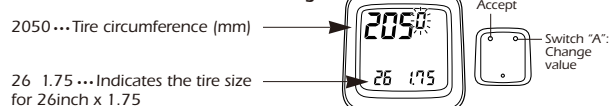### (3) Entering the tire circumference

The display will change as shown in Fig. 8. Press switch "A" to display the bicycle number that you would like to change, and press switch "B" for 2 seconds or more. Because of the preset chainring and sprocket tooth configurations used, bicycle numbers 1 and 2 are recommended for road bicycles and bicycle numbers 3 and 4 are recommended for MTB bicycles.

Fig.8

Switch "B": Accept

Switch "A": Change bicycle number

no.
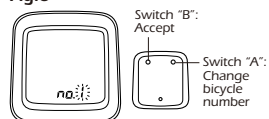
The display will appear as shown in fig9, Enter the value which was measured previously.

Fig.9

2050 ••• Tire circumference (mm)

26 1.75 ••• Indicates the tire size for 26inch x 1.75

Switch "B": Accept

Switch "A": Change value

The value will increase by 5mm each time switch "A" is pressed.
The value will change rapidly when switch "A" is pressed continuously.
Once the desired value is displayed, press switch "B" for 2 seconds or more to set.
In the case of tires which have circumference of less than 2050mm, press switch "A" continuously. After the value increases to 2400, it will change to 1300.
Continue pressing switch "A" until the desired value is reached, and then press switch "B" 2 seconds or more to set.
The tire size display can appear as any one of the following 18 displays, in addition to 26 x 1.75 (2050mm)
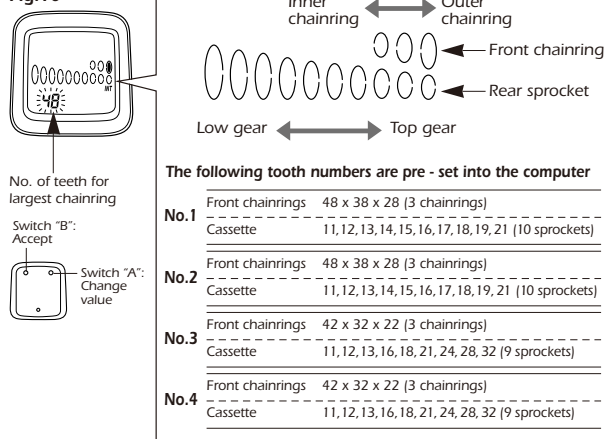
Tires with sizes other that these are not displayed

ETRTO	Main Display	Sub Display	ETRTO	Main Display	Sub Display
23-571	1970	26 1.00	57-559	2095	26 2.20
32-584	2005	26 1.40	40-584	2100	26 1-1/2
40-559	2030	26 1.50	54-571	2100	26 2.35
47-559	2050	26 1.75	20-622	2100	700 20
18-622	2070	700 18	23-622	2105	700 23
50-559	2070	26 1.90	25-622	2115	700 25
37-590	2075	26 1-3/8	28-622	2135	700 28
47-559	2075	26 1.95	57-559	2260	26 2-1/8
54-559	2085	26 2.00			
19-622	2090	700 19			
54-559	2090	26 2.10			

* If the tire circumference matches one of those in this list, the tire size is displayed alternately.

(4) Entering the number of chainring and sprocket teeth
The display will then change to that shown in fig10.

Fig.10

No. of teeth for
largest chainring

Switch "B":
Accept

Switch "A":
Change
value

Inner chainring ⟷ Outer chainring		

Front chainring

Rear sprocket

Low gear ⟷ Top gear

The following tooth numbers are pre - set into the computer

|		
No.1	Front chainrings	48 x 38 x 28 (3 chainrings)
	Cassette	11,12,13,14,15,16,17,18,19,21 (10 sprockets)
No.2	Front chainrings	48 x 38 x 28 (3 chainrings)
	Cassette	11,12,13,14,15,16,17,18,19,21 (10 sprockets)
No.3	Front chainrings	42 x 32 x 22 (3 chainrings)
	Cassette	11,12,13,16,18,21,24,28,32 (9 sprockets)
No.4	Front chainrings	42 x 32 x 22 (3 chainrings)
	Cassette	11,12,13,16,18,21,24,28,32 (9 sprockets)

Enter the values staring from the outer chainring. "48" (or "42" if no. 3 or 4 has been selected) will flash on the display. Press switch "A" until the desired setting is displayed, and then press switch "B" to accept the new setting. (Setting range: 60-40)
The "--" is displayed once for every five times the value is changed.
If this value is set for the outer chainring by switch "B", all gear indicator related screen display will be eliminated.

When switch "A" is pressed for 2 seconds or more, the value will change rapidly.
After the value for the largest chainring has been set, the display will change to that shown in Fig. 1. For single chainwheel, press switch "A" until "--" is displayed and then press switch "B".

Fig.11

Switch "B":
Accept

Switch "A":
Change
value

No. of middle
chainring teeth
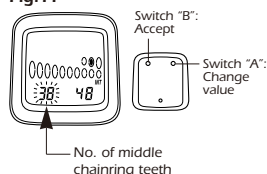
Enter the number of teeth for the inner chainring (for double front chainwheel) or the middle chainring (for triple front chainwheel).
"38" (or "32" if no. 3 or 4 has been selected) will flash on the display. This position can be set from 20 - 50 by the same procedure of setting outer chainring. After setting the inner chainring or the middle chainring, the display will change to that shown in fig12.

Fig.12

Switch "B":
Accept

Switch "A":
Change value

No. of inner chainring teeth
"28" (or "22" if no. 3 or 4
has been selected)
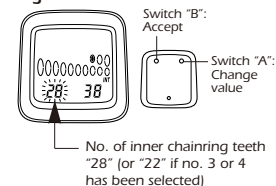
When using a double front chainwheel, press switch "A" once so that "--" is displayed, and then press switch "B" once to set, the front chainwheel will then be registered as a double front chainwheel and the display will change to show the rear sprocket settings. **(Note: Switch "B" should be pressed and released immediately. If you press it for more than 2 seconds, the next rear derailleur type will be displayed for data entry.)**
When using a triple front chainwheel, the value can be set from 15 to 34 by the same procedure of setting middle chainring.
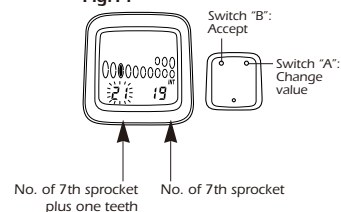
Enter the number of sprocket teeth.

The display will then change to that shown in fig13.
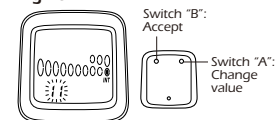
Enter the number of teeth for each sprocket by the same procedure as that used for the chainrings. Press switch "A" to set the desired number of teeth, and then press switch "B" to accept the setting. The value can be set from 11 to 42. Once the setting for smallest sprocket through to the 7th sprocket have been made, the display will change to that shown in fig14.

Fig.13

Switch "B":
Accept

Switch "A":
Change value

Fig.14

Switch "B":
Accept

Switch "A":
Change value

No. of 7th sprocket
plus one teeth

No. of 7th sprocket

If the cassette has seven sprockets, press switch "A" once to change the flashing "21" to "--", and then press switch B once. This will indicate that there is no 8th sprocket, and the operation for entering the number of sprocket teeth will be complete.

If the cassette has 8 sprockets, enter the number of teeth for this position and follow the same procedure as above to enter "--" in the 9th position otherwise enter the number of teeth for the 9th sprocket. If the cassette has 10 sprockets, enter the number of teeth for the 10th sprocket.

Checking the number of teeth entered
Once the setting of number of sprocket teeth is completed, the display will return to the initial input display. Re check all values by repeatedly pressing switch "B" to confirm each number of teeth. Press switch "B" once each time and check whether the entered number of teeth are matching with the sprocket position on the display.

If all values entered are correct, press switch "B" for 2 seconds or more to continue the next entry procedure.

Indicated Section

This Value
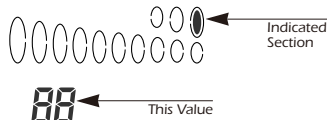
(5) Entering the type of rear derailleur
The display will change to that shown in fig 15. The display will change from "111" to "222" each time switch "A" is pressed.

| 111 ...... for Traditional rear derailleur |
| 222 ...... for Rapid Rise Rear derailleur (reverse spring type) |

Fig.15

Switch "B": Accept

Switch "A": Select

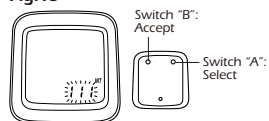Press switch "B" for 2 seconds or more to continue the next entry procedure.

(6) Setting the time (24 hour format)
The display will change to that shown in fig 16.

Fig.16

Set the time to one minute later than the current time.

Example
If the time is 10:46:23 ..... 10:47: - -
If the time is 13:59:16 ..... 14:00: - -

The hours will advance when switch "A" is pressed. If switch "A" is pressed continuously, the hours will advance rapidly. Press switch "B" once to set the hour.
The minutes section will then start flashing as shown in Fig 17.
Set the minutes in the same procedure as for setting the hours. The clock will then start.

Fig.17

To continue entering data for a different bicycle number, change the sub-display to a display other than the CLK display, and then press switch "B" for 5 seconds or more. The press switch "A" until the bicycle number to be entered is displayed and then press switch "B" again. Refer to "4. Changing the setting data" for details on entering new data.

Note; To reset clock

Get a display where CLK appears on the sub - display. Press switch "B" for 5 seconds or more to change the time setting.

Replacing the battery

- **Meter** (CR-2032 battery)
  Insert the battery so that the (+) side is visible as shown in Fig. 18, and then tighten the battery cap.
  The battery which is installed at the time of purchase is for monitoring purposes. If the **LO BAT** low battery indicator appears, replace the battery as soon as possible.
- **Sensor** (LR44 battery)
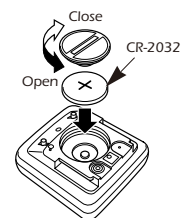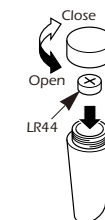 Insert the battery so that the (+) side is visible as shown in Fig. 19, and then tighten the battery cap.

Note;
If the speed does not display correctly even though the LO BAT low battery indicator does not appear, replace the sensor battery.

Fig.18

Close
CR-2032
Open

Fig.19

Close
Open
LR44

Trouble Shooting

*   **Speed is not displayed.**
    *   Check that the speed sensor and the main unit are positioned correctly (distance and facing direction).
    *   Check that the positions of the speed sensor and magnet are correct.
    *   Check that the main unit is fixed correctly to the bracket.

*   **Display does not appear or is faint.**
    *   Poor main unit contact, or battery is depleted. Replace the main unit battery with a new one.

*   **Incorrect data is displayed.**
    *   Press the A/C button to re-enter the data.

*   **Display is dark.**
    *   This is because the main unit has become hot and has been affected by long-term exposure to direct sunlight, such as can occur during hot weather.
        Store the main unit in a cool, shady place so that it can cool down and return to normal.

*   **Data display movement is slow.**
    *   The computer operating temperature range is –10°C to 50°C. Check that the temperature is not lower than –10°C.

*   **Gear indicator (bar) does not display correctly.**
    *   Lift up the plate spring that the sensor is mounted on as shown in the illustration.

Plate spring

Rubber sensor pad