SERVICE INSTRUCTIONS

SI-7BF0B

CE

SHIMANO

Nexus

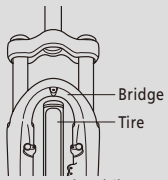
Di2

DIGITAL INTEGRATED INTELLIGENCE

For safety, be sure to read these instructions, and follow them for correct use.

⚠ WARNING

- Do not press the FLIGHT DECK (cycle computer) switches or the shift timing adjustment dial (see p.8) while riding. Holding the handlebars with only one hand while riding can cause instability and make you lose control of your bicycle and have an accident. Stop the bicycle before operating any of the switches.
- Do not pay excessive attention to the computer data while riding, otherwise you might have an accident.
- Do not disassemble the front suspension fork, otherwise the outer tube and the inner tube will come apart and serious injury may result.
- Use tires with an outside circumference of less than 730 mm, so that the tire does not touch the bridge of the front suspension fork.
  If a fender has been fitted, make sure that the tire does not touch the fender when the tire is installed.



- Install the handlebar and the handlebar stem correctly while referring to the Service Instructions for these parts. If they are not installed correctly, you might lose control of your bicycle and have an accident.
- The FS-C810 does not include a hanger on the front suspension fork, and so only cantilever brakes that are designed to be installed to the front suspension fork without a hanger can be used.
- Keep used batteries out of the reach of children, and dispose of them in accordance with local waste regulations. If batteries are swallowed by mistake, seek medical advice immediately.
- Use a neutral detergent to clean the chain. Do not use alkaline or acidic detergents that are designed to remove things such as rust, as they can damage the chain and cause the chain to break.
- Obtain and read the service instructions carefully prior to installing the parts. Loose, worn, or damaged parts may cause serious injury to the rider.
  We strongly recommend only using genuine Shimano replacement parts.
- Check that the wheels are fastened securely before riding the bicycle. If the wheels are loose in any way, they may come off the bicycle and serious injury may result.
- Check that the lamp illuminates normally when riding at nighttime.
- Read these Technical Service Instructions carefully, and keep them in a safe place for later reference.

⚠ CAUTION

- The hub dynamo generates an extremely high voltage. Never touch the connection terminal of the hub dynamo directly while riding the bicycle or while the wheel is spinning. Touching the dynamo terminal may cause an electric shock.
- The DH-3NB1-QR and DH-3RB1-QR hub dynamos are for use only with the NEXUS Di2. Do not use them with any other bicycles. In addition, do not use any hub dynamos other than these two with this bicycle.
- This system is an automatic gear shifting system in which the shifting points are determined by the speed of the bicycle (the rotating speed of the wheels). Because of this, gear shifting can occur independently of the rider's intentions, and so shocks may be felt during shifting. Make sure that you understand and become accustomed to these shifting characteristics before using the system extensively.

Note

- This system operates by automatically transferring power generated by the front hub (hub dynamo) to components such as the lamp and derailleurs.
  When starting to ride the bicycle at night, the lamp will be dim for several seconds until stable power is generated, and it will suddenly dim after shifting gears. This is not a failure of the system.
- When sufficient power is not being generated at times such as immediately after starting to ride, movement of derailleurs and suspension may be limited and the system may not accept operator instructions.
  Refer to the explanations of other functions for details.
- Check the degree of parallel of the front fork end. If the front fork end is severely out of parallel, deformation of the hub axle may cause noise from an obstruction inside the hub dynamo to be generated.
- Install the hub dynamo to the front fork so that the side with the connection terminal is on the right when facing toward the front of the bicycle. If the side with the connection terminal is facing toward the left, the hub dynamo may not turn properly while riding.
- For roller brake specifications, read the service instructions for the Front M Brake System together with these instructions. (DH-3RB1 hub dynamo)
- Use a 6 V / 2.4 W bulb for the front lamp and a 6 V / 0.6 W lamp for the tail lamp.
- If the lamp is frequently turned on when riding at high speed ranges, it will shorten the operating life of the bulbs.
- For correct operation during gear shifting, a small amount of noise might be generated between the pawl inside the hub and the ratchet.
- Do not disassemble the internal hub mechanism.
- Do not apply any lubricant to the inside of the hub, otherwise the grease will come out and it may cause problems with conductivity.
- The hub dynamo will cause the turning of the wheel to become slightly heavier because of the magnet inside the hub.
- When shifting is in automatic mode, operating the shifting switch will not shift the gears.
- Please use the recommended gears shown below in order to properly activate timing for automatic shifting.

	Recommended Gear Combinations	
Front Gear (FC-NX60)	33T	38T
Rear Gear	16T	19T

* Set gears so that front to back gear ratio is 2–2.1.

- Do not clean the bicycle with high-pressure sprays. If moisture gets into the components, it may cause operating problems or rust.
- Do not disassemble any of the units, otherwise they may not operate correctly.
- A beep will sound when gear shifting occurs.
- The various units are designed to be water-resistant so that they can be used for riding in wet weather. However, they should not be immersed in water.
- Do not leave the FLIGHT DECK exposed to extremely hot weather, and do not subject it to shocks.
- To clean the units, wipe with a dry cloth or a cloth that is lightly moistened with neutral detergent. Substances such as thinner will damage the unit surfaces.
- Roughly 1 minute after stopping the bicycle, the energy saving function is activated and the liquid crystal display turns off. The backlight turns off about 5 seconds after stopping the bicycle.
- Parts are not guaranteed against natural wear or deterioration resulting from normal use.
- For any questions regarding methods of handling or maintenance, please contact the place of purchase.

SHIMANO Nexus Di2
DIGITAL INTEGRATED INTELLIGENCE

This bicycle shifts gears and controls suspension electrically with power generated by rotation of the front hub (hub dynamo).

What is automatic shifting mode?

This is a riding mode in which the gears are selected automatically according to the riding speed.

What is manual shifting mode?

This is a riding mode in which the gears are selected according to the preferences of the rider.

Tips on use

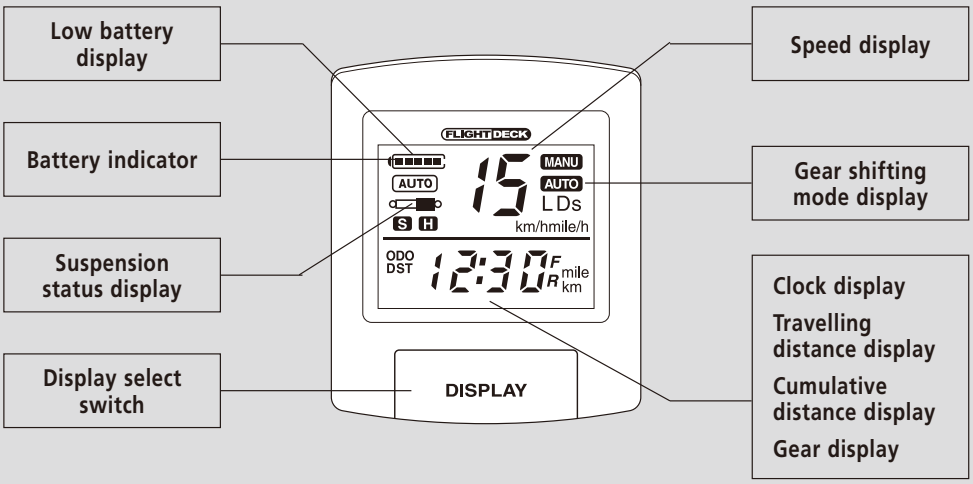
In order to get better results in automatic mode

The shift timing can be changed to one of eight steps, for earlier or later shifting. Change the setting to find the point you prefer. (Page 8)

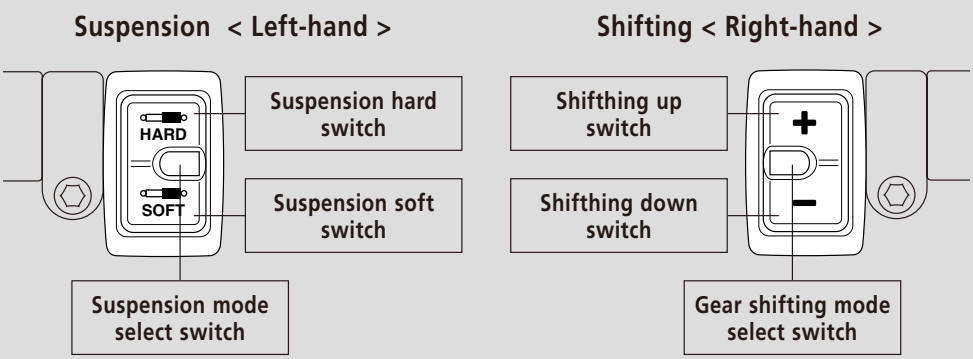
Specifications

Computer unit	AI-8S40
Rear hub	SG-8R45
Motor unit	MU-8S40
Manual shift switches	SW-8S40
FLIGHT DECK (cycle computer)	SC-8S40
Electronic wire cable	EW-AA / AB / AC / DD
Front suspension fork	FS-C810
Rear suspension	RS-C810
Chain	CN-NX10
Hub dynamo	DH-3NB1-QR / 3RB1-QR

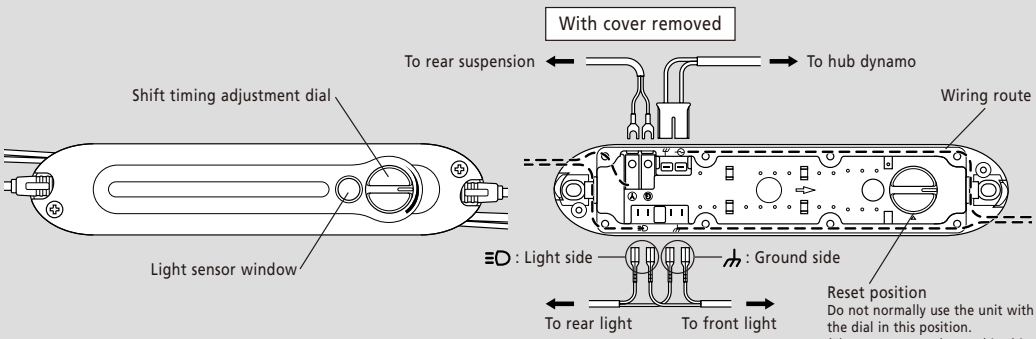
FLIGHT DECK (SC-8S40)



Manual shift switches (SW-8S40)



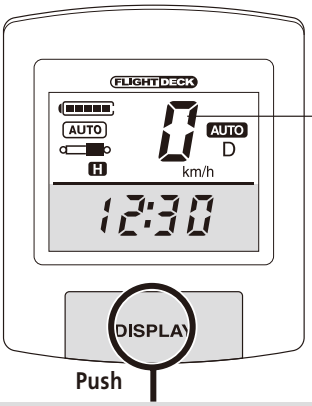
Computer unit (AI-8S40)



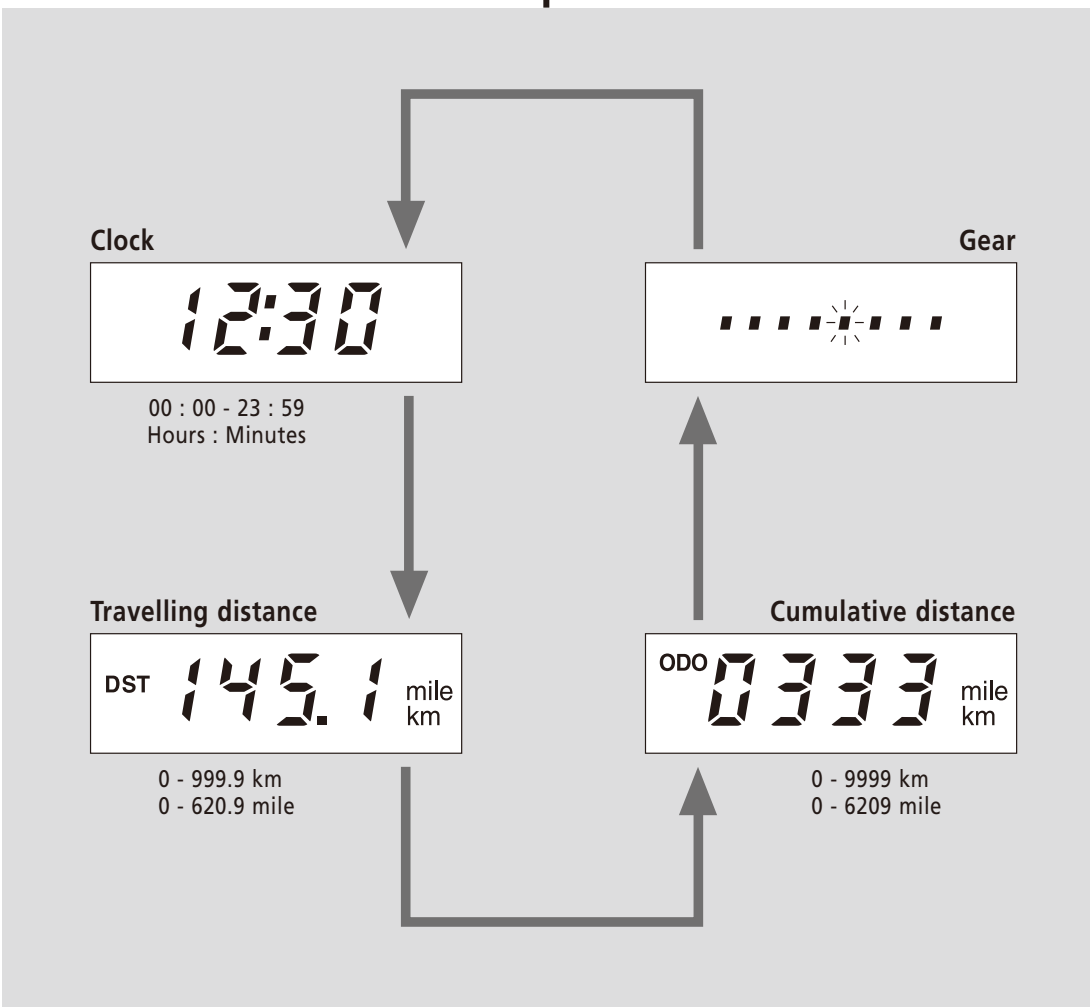
* Each cable has a separate light-side and ground-side terminal. Be sure to connect the light-side and ground-side terminals correctly.

Mode selection operations

< Display select switch >

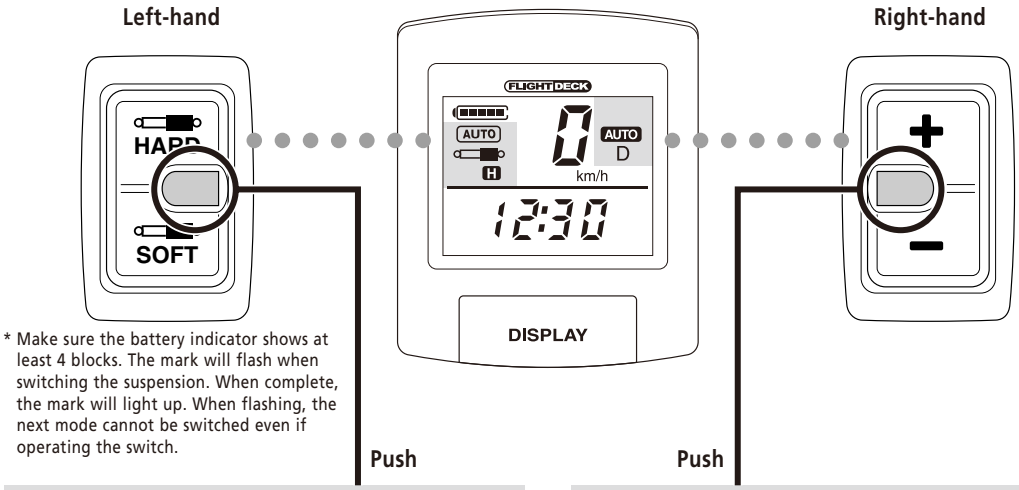


Speed display
0 - 99 km
0 - 62 mile



< Suspension mode select switch >

< Gear shifting mode select switch >

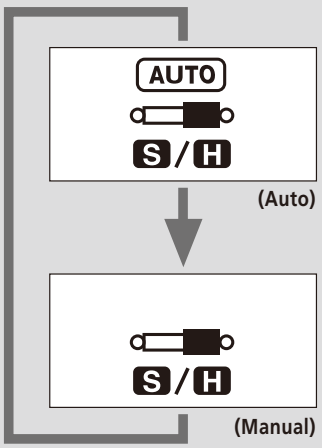


* Make sure the battery indicator shows at least 4 blocks. The mark will flash when switching the suspension. When complete, the mark will light up. When flashing, the next mode cannot be switched even if operating the switch.

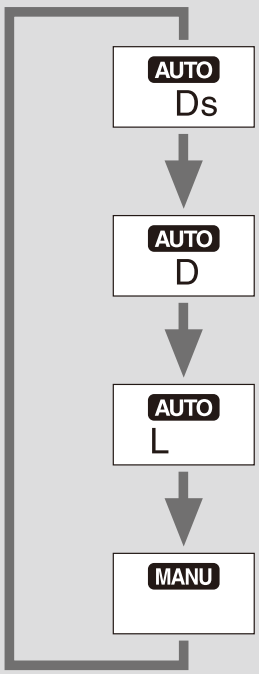
Push

Push

Select the desired suspension mode.
When the suspension is set to AUTO, the suspension switches between H (hard) mode and S (soft) mode depending on the speed and the rear gear position.
When the suspension is set to MANU, the manual mode allows selecting of the suspension by pressing the "HARD" or "SOFT" switch.

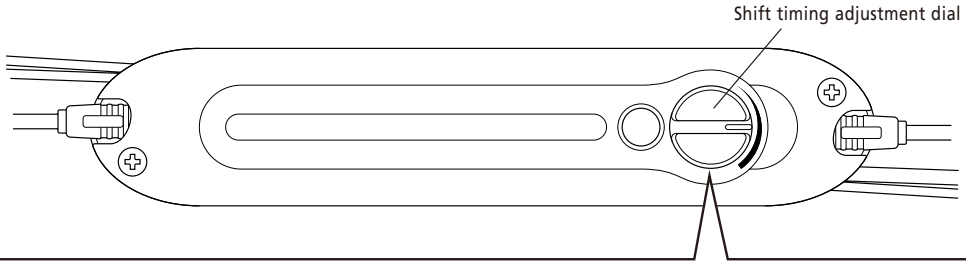


Select the desired riding mode.
When set to L, D or DS, shifting is automatically performed according to riding speed. When set to MANU, shifting by the derailleurs is manually performed when the shift switches are operated.



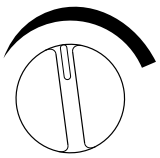
Shift timing adjustment dial (AUTO riding mode)

The timing for automatic shifting can easily be adjusted by turning the dial on the side of the computer unit (AI-8S40).



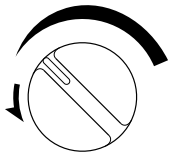
■ Using dial to adjust shift timing

(Make adjustments while the bicycle is stopped.)



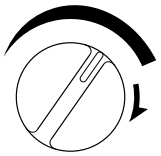
Set the dial to approximately the middle position, set the Riding mode to D, and then test ride the bicycle.
If the load on your legs feels too heavy or too light with the dial set to this position, use step (1) and step (2) below to search for the shifting point that is most suitable for you.
The dial has 8 steps of adjustment.
Be sure to make adjustments with the cover installed.

(1) If load on legs feels heavy



Turn dial to the left

(2) If load on legs feels light



Turn dial to the right

Shifting/Suspension Select Switch (Manual mode)

Rear gear shifting is basically carried out automatically, but manual shifting is also available for riders who would like to make us of it.
Press the mode select switch to set the mode to manual (MANU).

Shifting Operation

Pressing the + switch shifts to a higher gear (heavier, faster). Pedalling now has the sensation of requiring more power, but the legs turn through the rotation more slowly.

Pressing the - switch shifts to a lower gear (lighter, slower). Pedalling now has the sensation of being lighter.

Suspension can be manually changed while in either automatic mode (AUTO) or manual mode (MANU), but if a switch is used to make a change while in AUTO mode, the mode will be automatically changed to MANU mode.

Suspension Operation

Pressing the HARD switch changes the suspension to “hard”. This is best for riding up hills.

Pressing the SOFT switch changes the suspension to “soft”. This is best for regular riding.

Tips on use

Selecting automatic shifting mode

Powerful Ds mode
Select Ds mode for more dynamic riding

Basically, choose D mode

Adjust the shifting points evenly for a smoother ride.

Relaxed L mode
Select L mode for hilly terrain.

* The shift timing can be adjusted to one of 8 different points. (Page 8)

Selecting AUTO mode

Basically, use AUTO mode.

D mode is set for normal riding.

When riding up slopes or into headwinds and pedaling becomes more difficult, press the switch to shift to the L mode.
If pedaling is too fast, press the switch to shift to D or Ds mode.

Selecting the suspension

Basically, use AUTO mode.

Hard mode is set when starting to ride and going up hills.

Manual Setting

Set either S (SOFT mode) or H (HARD mode) as desired.

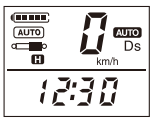
Changing the entry data

Switch the suspension to MANU from AUTO mode when inputting data. This step is not necessary when suspension is not connected to the system. Approximately 5 seconds after the bicycle stops, the battery indicator located on the FLIGHT DECK will stop displaying blocks to save energy, even if there is power remaining in the battery. The backlight is off when changing data.

Method

(1) **Preparation of Set up**

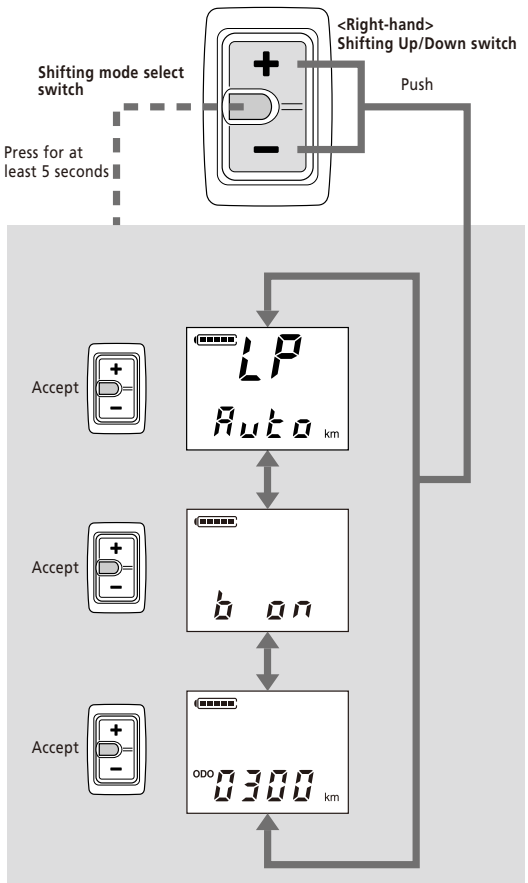
Make sure the speedometer reads 0km/h.



If battery power is low, spin the front wheel or ride the bicycle for a short time. Then confirm that speed is 0km/h (mph) and that the battery indicator is showing sufficient power. If power runs down too much while inputting data, spin the front wheel again.

(2) **Start of Set up**

After completing preparations, press and hold the shifting mode select switch on the right shifting switch for at least 5 seconds. Confirm that only the battery indicator, a number and the estimated distance are displayed. Use the right shifting switches (Up/Down) to select the items to be changed. After making the desired setting, press the shifting mode select switch to register the data.

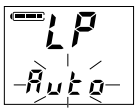


- **Lamp mode**
- **Buzzer On/Off**
- **ODOmeter clear**

■ Lamp mode

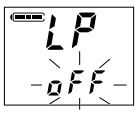
Verify that the display is flashing.
Press the right shifting switch (Up/Down) to set the desired display.

To set the lamp to AUTO



To set the lamp to always on

To set the lamp to always off



When set to AUTO, the lamp automatically turns on when the surroundings become dark.

When the desired setting appears, press the shifting mode select switch to set.

■ Buzzer On/Off

Buzzer On/Off mode is like below.
After confirming display shows Battery and "b on" or "b off", push Shifting mode select switch.
Confirm the number flashes.

Ex. In case of buzzer on.

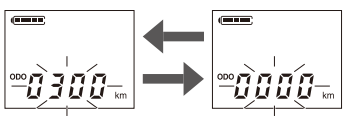
Ex. In case of buzzer off.

If you want to buzzer ➡ Set that "b on" flashes.
If you don't want to buzzer ➡ Set that "b off" flashes.
When the desired setting appears, press the shifting mode select switch to set.

■ ODOmeter clear

Verify that the display is flashing. Press the right shifting switch (Up/Down) to clear the display (km/mile).

Ex. In case of odometer is 300 km



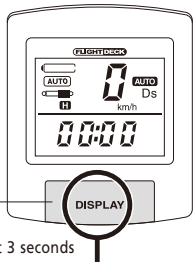
After checking the display, press the shifting mode select switch to confirm. The travelling distance will also be cleared at this time. If you do not want to clear the data, press the right shifting switch (Up/Down) to display the current cumulative distance, and then press the shifting mode select switch to confirm.

- **Clock setting**
- **Travelling distance Clear**

Clock setting

Condition of setting

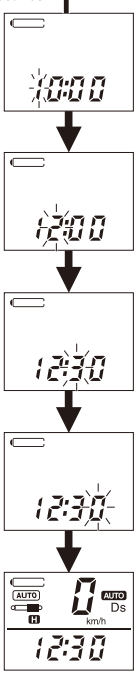
(1) Wait unit the speed indication shows "0" to remove the FLIGHT DECK from the bicycle.
(2) Verify that the low battery display is not flashing.



Method of setting

ex. Adjust to 12:30

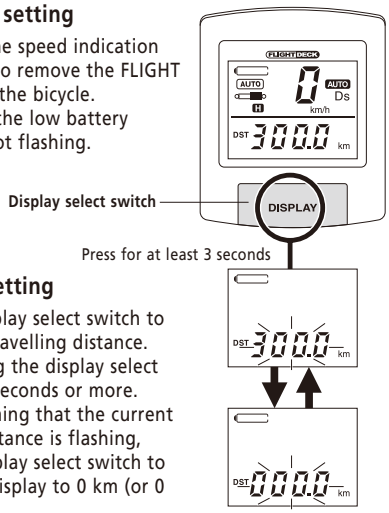
- Press the display select switch to display the clock.
- Keep pressing the display select switch for 3 seconds or more.
- After confirming that the left side digit is flashing, press the display select switch to change the display to "1".
- Keep pressing the display select switch for 3 seconds or more to confirm the setting and move to the next digit to be set.
- Set each digit in order from left to right.
- After the minutes have been set, the display will return to the normal display.
- If the setting procedure is not carried through to completion, the display will return to the normal display after about 2 minutes and any numbers that have been entered up until that point will be canceled.



Travelling distance Clear

Condition of setting

(1) Wait unit the speed indication shows "0" to remove the FLIGHT DECK from the bicycle.
(2) Verify that the low battery display is not flashing.



Method of setting

- Press the display select switch to display the travelling distance.
- Keep pressing the display select switch for 3 seconds or more.
- After confirming that the current travelling distance is flashing, press the display select switch to change the display to 0 km (or 0 miles).
- The display will change between the current travelling distance and 0 (km or miles) each time you press the display select switch.
- If you would like to clear the current travelling distance, check that the display is cleared (0 km or 0 miles) and then keep pressing the display select switch for 3 seconds or more.
- To return to the original display without clearing the current travelling distance, display the current travelling distance and then keep pressing the display select switch for 3 seconds or more.
- If the travelling distance clearing procedure is not carried through to completion, the display will return to the normal display after about 2 minutes and any numbers that have been entered up until that point will be canceled.

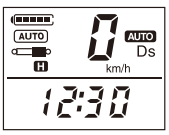
Changing the tire circumference switching the speedometer/odometer display units (km/mile)

Switch the suspension to MANU from AUTO mode when inputting data. This step is not necessary when suspension is not connected to the system. Approximately 5 seconds after the bicycle stops, the battery indicator located on the FLIGHT DECK will stop displaying blocks to save energy, even if there is power remaining in the battery. The backlight is off when changing data.

Method

(1) Preparation of Set up

Make sure the speedometer reads 0km/h.



If battery power is low, spin the front wheel or ride the bicycle for a short time. Then confirm that speed is 0km/h (mph) and that the battery indicator is showing sufficient power. If power runs down too much while inputting data, spin the front wheel again.

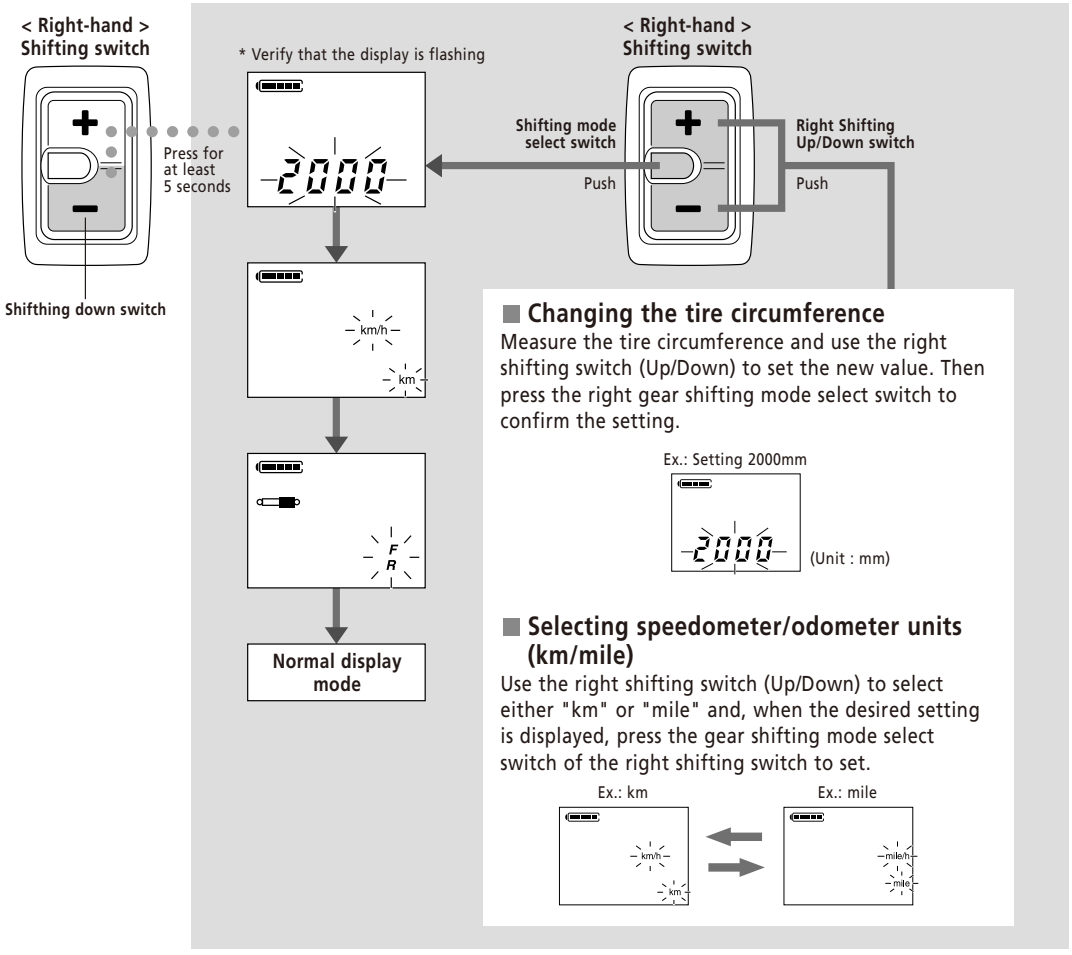
- **Tire circumference**
- **Speedometer / odometer display units (km/mile)**
- **Suspension mounting status**

Operate when changing the tire circumference (5mm steps) and switching speedometer/odometer display units (km/mile).

Note
Do not change the suspension mounting from the factory installation.

(2) Start setting

Press and hold the shifting down switch of the right side shifting switch for at least 5 seconds. Confirm that the display shows only the battery indicator and a number.



■ Changing the tire circumference

Measure the tire circumference and use the right shifting switch (Up/Down) to set the new value. Then press the right gear shifting mode select switch to confirm the setting.

Ex.: Setting 2000mm

(Unit : mm)

■ Selecting speedometer/odometer units (km/mile)

Use the right shifting switch (Up/Down) to select either "km" or "mile" and, when the desired setting is displayed, press the gear shifting mode select switch of the right shifting switch to set.

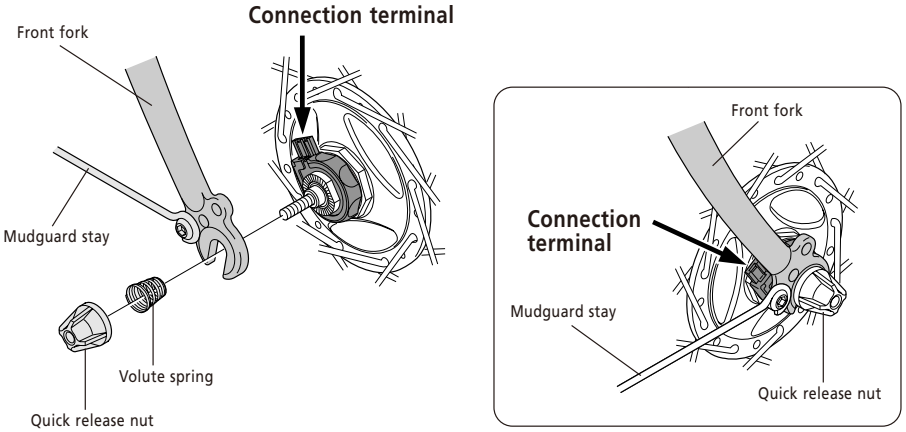
Ex.: km

Ex.: mile

Handling the hub dynamo

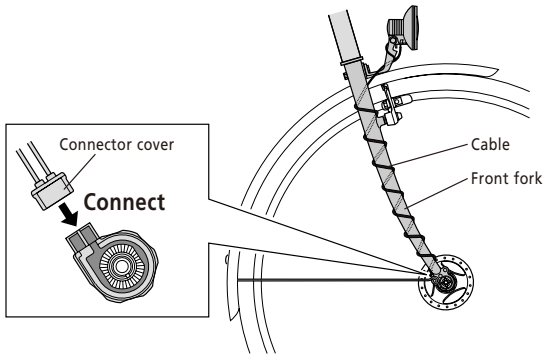
Installation of the front wheel

Install the wheel so that the side with the hub dynamo connection terminal is on the right side when looking toward the front of the bicycle, and so that the hub connection terminal is aligned with the front fork or with the basket stay. Then install by following the procedure shown in the illustration below so that the connection terminal is facing upward. Do not force the connection terminal to turn after the quick release nut or the cap nut has been secured.



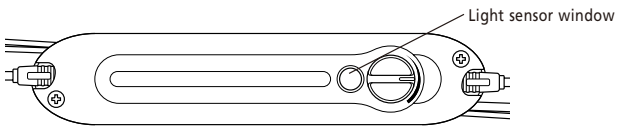
Removing and installing the front wheel

When removing the bicycle wheel, first remove the connector cover. If the cables are pulled strongly, it may break the cable wires or cause poor contacts. Furthermore, when installing the wheel, first secure the wheel to the front forks and then connect the connector cover.



Checking the lamp illumination

Check that the lamp mode is set to AUTO and that the light sensor window of the computer unit (AI-8S40) is covered to shade it from light. The rotate the front wheel and check that the lamp illuminates. (If the bicycle has not been used for a long time, it may take a short amount of time for the system to start up, and the lamp will not illuminate during that time.



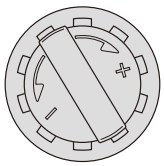
Suspension adjustment

Front suspension adjustment

< Pre-load adjuster adjustment >

(1) Press the suspension mode select switch on the FLIGHT DECK to set the suspension mode to "S".

(2) Apply the front brake or place some weight on the handlebars to move the front suspension up and down in order to check the hardness. Adjust the pre-load adjuster to obtain the desired hardness.
If turned in the reverse direction, the suspension becomes softer, and when turned in the forward direction, the suspension becomes harder.



Pre-load adjustment:
10 mm (40 clicks)
1.5 mm (67 clicks):1 cycle

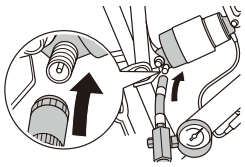
Rear suspension adjustment

< Air priming >

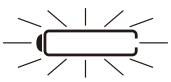
(1) Press the suspension mode select switch to set the suspension mode to "S".

(2) The air pressure varies depending on factors such as the shape and size of the frame, the rider's weight and the riding method.
Adjust the air pressure to the optimum level max.1.5 MPa. {max.15 bar}
The valve is a Schrader valve.
As a guide, in "S" (soft) mode, the bicycle should move down by 5 - 10 mm when the rider sits on it.

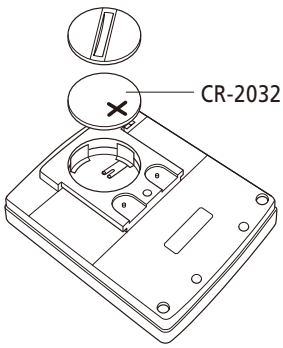
- After priming with air, securely tighten the cap, otherwise the air will leak out.
- For optimum functioning of the rear suspension, check the pressure in the rear suspension once a month.



Battery replacement

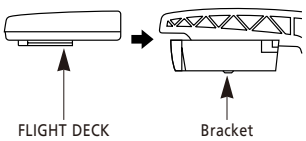


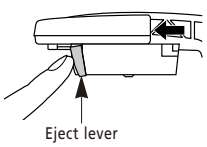
When the low battery display appears (battery indicator flashes), replace the battery (CR-2032) with a new one as soon as possible. If the battery is completely spent, the FLIGHT DECK display will appear while riding, however, it will disappear and the clock will return to 00:00 with the travelling distance reading 0 when the bicycle stops.
The battery has polarity (+ / – sides), so be sure to install the battery with the + side outward as shown in the diagram at right.



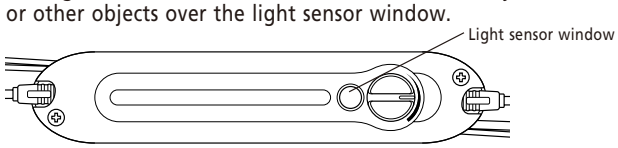
FLIGHT DECK Mounting/ Removal

As per the figure, set the FLIGHT DECK securely onto the bracket until you hear a snap.
When removing the FLIGHT DECK, pull it out while pressing firmly on eject lever at the front of the bracket.





• Auto Light (When the lamp mode is set to AUTO)
  When the surrounding area becomes dark the lamp automatically comes on.
  Brighter or dimmer light in the surrounding area is detected by a light sensor window on the computer unit (AI-8S40), and the lamp is automatically turned off or on.
  Regularly clean the light sensor window so it will not be covered by mud or dirt, and do not place seals or other objects over the light sensor window.



• When the speed has dropped to zero and the backlight and the charging indicator switch off 5 seconds later, the power save function will start operating 1 minute after that. The display turns off at this time.
  To return to normal mode, press the display select switch on the FLIGHT DECK, or rotate the front wheel.

• Buzzer operation
  The buzzer operates in the following ways to convey information.

	Condition	Type of sound	Remarks
1	Before gear shifting starts	1 short beep	Gear shifting starts immediately after the buzzer sounds.
2	Switch request cancelled	Two short beeps	A gear shifting request or other request was cancelled because the pedals were not rotating. (See *1)
3	When normal operation starts	1 long beep	Sounds when the flight deck changes from parking mode to normal mode.
4	When shifting fails	1 long beep	A rumbling sound is emitted when shifting fails.

*1 Gear shifting operations are cancelled under the following conditions:
  • When a request is made to shift to a non-existing gear
    For example, if the shifting up switch is pressed when the chain is on the smallest sprocket
  • If the battery charge is low
    (Derailleurs: 0~1 blocks [varies by situation]. Suspension: 3 blocks or less.)
  • If there is a problem with the rear derailleur
  • If the suspension select switch is pressed while suspension mode is in the process of changing

  Normally gear shifting and suspension adjustment will be possible if the above limiting conditions are resolved.

Rear gear range of AUTO mode

Shifting Mode	Rear Gear	Indicator Display
L	8 gears (1 – 8)	Example: 1st gear
D	8 gears (1 – 8)	Example: 8th gear
Ds	7 gears (2 – 8)	Example: 2nd gear

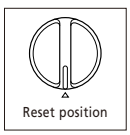
Problem solver

The following problems can be discovered and solved by the customer fairly easily, such as cases of mistaken operation or wires that have become disconnected.

Condition	Description
Speed display is incorrect.	Tire circumference setting is incorrect. Change the setting to the correct number.
Buzzer does not sound.	The buzzer has been set to off. Set it to on.
When automatic shifting is set, the derailleurs cannot be manually shifted.	Manual shifting is disabled when automatic shifting mode is in use. To enable manual shifting, change the mode to "MANU". (* Manual changing of the suspension is possible when AUTO mode is set.)
The system does not start even when the wheels are turning.	When the system has not been used for a long period of time, it may take several seconds or even half a minute to start the system. Ride the bicycle in that condition for a short while. If the system still does not start, check for broken wires, disconnected wires or loose connections between the hub dynamo and the computer unit and between the computer unit and the FLIGHT DECK.
A unit does not operate, such as one of the derailleurs.	Malfunction of the component or wiring problem ➡ Check the wiring between the computer unit and the unit that does not operate. Fix any problems such as a wire that is disconnected, not fully connected or connected to the wrong location.
The lamp for night riding does not turn on.	Is the lamp set to OFF? Check for broken wires, disconnected wires or loose connections between the hub dynamo and the computer unit and between the computer unit and the lamp. If there is no wiring problem, check that the light bulb has not burned out.

If the problem is not solved by carrying out the suggestions above, reset the system by carrying out the following steps.

- **Resetting method**
  (1) Loosen the two screws at the side of the computer unit (AI-8S40) connector, and remove the cover.
  (2) Turn the shift timing adjustment dial to the "RESET" position, and leave it there for 5 seconds.
  (3) Return the shift timing adjustment dial to its original position, and then replace the cover and tighten the screws.
  * When the shift timing adjustment dial is moved to the "RESET" position, the cover cannot be installed. The setting information will be retained even after the system is reset.



- **If the problem is not solved after the system has been reset:**
  A problem with the FLIGHT DECK, Broken internal wiring, Malfunction of component that is not operating
  Ask an authorized bicycle dealer for repairs.