

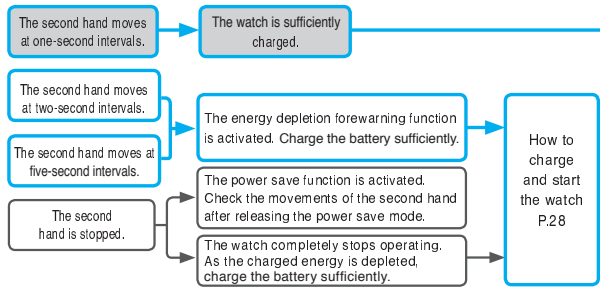
You are now the proud owner of a SEIKO Radio Sync Solar World Time Cal. 8B63. For the best results, please read the instructions in this booklet carefully before using the watch. Please keep this manual handy for ready reference.

Es usted ahora el orgulloso propietario de un Solar de Hora Mundial Radio Sincronizado SEIKO, Cal. 8B63. Para los mejores resultados, por favor, lea cuidadosamente las instrucciones de este panfleto antes utilizar su Reloj SEIKO. Por favor, guarde este manual en un lugar conveniente para su futura referencia.

**BEFORE USE**

**1. Checking the charging status**

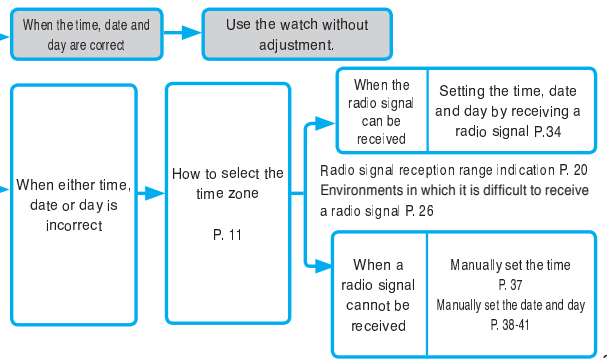
When the movement of the second hand shows an energy depletion state, the battery requires charging.



• If the second hand does not move at one-second intervals even after the battery was fully charged → "Charging the solar battery" in Troubleshooting on P.48

**2. Checking the time, date and day**

The hands of this watch cannot be moved by turning the crown. So when adjusting the time, date and day, refer to the following pages regarding the procedures.



**CONTENTS**

	Page
FEATURES .....	5
DISPLAY & BUTTONS .....	7
SCREW LOCK TYPE CROWN .....	9
WORLD TIME FUNCTION .....	10
HOW TO SELECT THE TIME ZONE .....	11
TIME ZONE DISPLAY AND TIME DIFFERENCE TABLE .....	13
ABOUT DUAL TIME DISPLAY .....	16
ABOUT SUB DIAL .....	17
SETTING THE TIME AND DATE BY RECEIVING A RADIO SIGNAL .....	18
RADIO SIGNAL RECEPTION RANGE INDICATION .....	20
HOW TO CHECK THE RECEPTION RESULTS .....	23
RECEPTION ENVIRONMENT .....	25
HOW TO CHARGE AND START THE WATCH .....	28
OVERCHARGING PREVENTION FUNCTION .....	29
GUIDELINE OF CHARGING TIME/ACCURACY .....	30
ENERGY DEPLETION FOREWARNING FUNCTION .....	31
POWER SAVE FUNCTION .....	32
NOTE ON POWER SUPPLY .....	33
HOW TO CONDUCT MANUAL RECEPTION .....	34
WHEN A RADIO SIGNAL CANNOT BE RECEIVED .....	36
PRELIMINARY POSITIONS .....	42
HOW TO CORRECT THE PRELIMINARY POSITIONS .....	43
TROUBLESHOOTING .....	47
IN CASE OF AN ABNORMAL MOVEMENT .....	51
SPECIFICATIONS .....	52

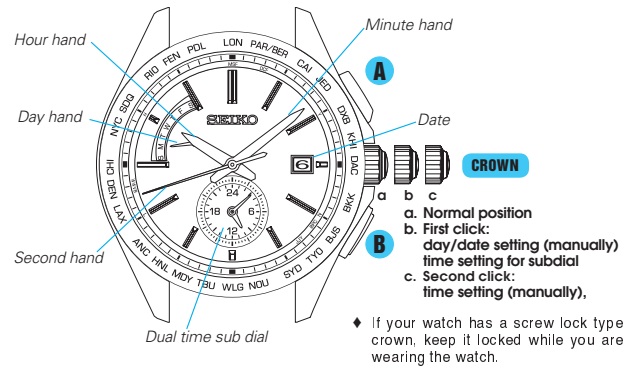
☆ For the care of your watch, see "TO PRESERVE THE QUALITY OF YOUR WATCH" in the attached Worldwide Guarantee and Instruction Booklet.

**FEATURES**

- **WORLD TIME FUNCTION**
  - By selecting a time zone, the watch can display the local time in the selected time zone area.
- **DUAL TIME DISPLAY**
  - In addition to the main display, the time in another region can be displayed in the 24-hour indication format by the sub dial located at the 6 o'clock position.
- **RADIO SIGNAL RECEIVING FUNCTION**
  - This watch adjusts the time and the date precisely by automatically receiving radio signals daily.
  - In addition, radio signals can be received with manual operation.
  - This watch can receive official standard radio signals from U.S.A., Germany, UK, China, and Japan (from 2 transmitting stations). The transmitting station for receiving radio signals can be selected using world time function.
- **DISPLAY FUNCTION OF RADIO SIGNAL RECEPTION LEVEL**
  - Only when manual reception mode
- **DISPLAY FUNCTION OF RADIO SIGNAL RECEPTION RESULTS**
- **POWERED BY LIGHT ENERGY**

- NO BATTERY CHANGE REQUIRED
- LASTS FOR 9 MONTHS AFTER FULL CHARGE
- ENERGY DEPLETION FOREWARNING FUNCTION
- OVERCHARGING PREVENTION FUNCTION
- POWER SAVE FUNCTION
- AUTOMATIC HAND POSITION ADJUSTMENT FUNCTION

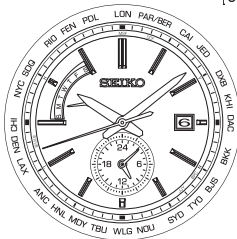
## DISPLAY & BUTTONS



The operation method of the button varies with the functions being used. Follow the instructions of each section of this booklet.

### Display of Radio Wave Reception Level

- [Manual reception]
- H.....High reception level (50-second position)
  - L.....Low reception level (40-second position)
  - N.....Unable to receive radio signals (20-second position)



### Display of Radio Wave Reception Result

- [Checking the reception results]
- Y.....Reception Successful (10-second position)
  - N.....Reception failed (20-second position)

### Standard Frequencies Transmitting Station display

- Displays time zone in the Standard Frequencies Transmitting Station.
- WWVB..... WWVB (The United States of America)
  - DCF..... DCF (Germany)
  - MSF..... MSF (The United Kingdom)
  - BPC..... BPC (China)
  - JJY..... JJY (Japan)

### Time Zone Display

- [Time zone selection]
- City names
  - .....25 regions around the world

Indication on the bezel or positions of each item on the dial may vary depending on the model (design).

## SCREW LOCK TYPE CROWN

- Some models may have a screw-lock mechanism that can securely lock the crown by screw when not in use.
- Locking the crown will help to prevent any operational errors and enhance the water resistant quality of the watch.
- It is necessary to unlock the screw lock type crown before using it. Once you have finished using the crown, make sure to relock it.

### HOW TO USE THE SCREW LOCK TYPE CROWN

Keep the crown securely locked unless you need to use it.

#### [How to unlock the screw lock type crown]

- Turn the crown counterclockwise.
- The crown is unlocked and can be used.



#### [How to lock the screw lock type crown]

- Once you have finished using the crown, turn it clockwise while gently pressing it in toward the watch body until it stops.

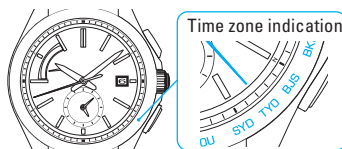


- When locking the crown, turn it slowly with care, ensuring that the screw is properly engaged.
- Be careful not to forcibly push it in, as doing so may damage the screw hole in the case.

## WORLD TIME FUNCTION

The watch can be easily set to display the local time in a different time zone by selecting a time zone among 25 regions around the world.

In the Time Zone Setting mode, the second hand indicates the selected time zone.

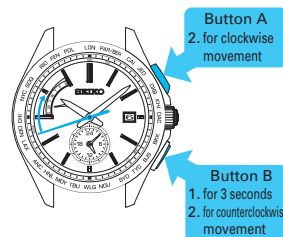


- If the time zone is set to U.S.A., Germany, U.K., China or Japan, the watch displays the precise time and date by receiving radio signals after automatic reception or manual reception, provided that the watch is within the radio signal reception range.
- ◆ The watch is unable to receive radio signals outside the reception range.

## HOW TO SELECT THE TIME ZONE (HOW TO DISPLAY THE LOCAL TIME AROUND THE WORLD)

Within 10 seconds after procedure 1. is completed, start the operation of procedure 2.

If the watch is left untouched for 10 seconds after the second hand stops, the watch automatically returns to the TIME display mode. If this happens, restart the operation from procedure 1.



1. Press and hold Button B (for 3 seconds) until the second hand stops.
  - The second hand starts to move and stops at the currently selected time zone.
2. Within 10 seconds after carrying out the procedure 1., press Button A or B to set the second hand to point at the target time zone index.
  - With each pressing of the button, the second hand moves to the adjacent time zone index.

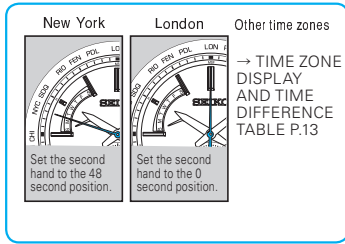
The radio signal transmitting station can be changed by selecting the time zone. When selecting a time zone for regions other than the reception ranges, the radio signal reception function will not work.

\* When setting the daylight saving time (DST), add one hour to the time zone of a desired area.

3. Wait for ten seconds after the hour and minute hands stop. (The time zone adjustment mode is complete.)

➤ The second hand starts to move. The watch automatically adjusts the date and day of the week as necessary.

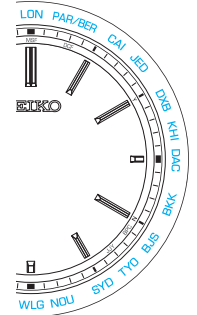
\* While the date and day of the week are moving, neither the buttons nor the crown can be operated.



### TIME ZONE DISPLAY AND TIME DIFFERENCE TABLE

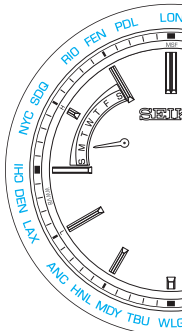
In the Time Zone Setting mode, set the second hand to point at the target time zone index referring to the table below. To set the Daylight Saving Time (DST), select the time zone index next to the target time zone (+ 1 hour).

Indication	Second hand positions	Names of representative cities (Time Zone)	Time difference from UTC	Receivable radio signals
LON	0-second position	London	±0 hours	MSF/DCF77
PAR/BER	3-second position	Paris/Berlin	+1 hour	MSF/DCF77
CAI	6-second position	Cairo	+2 hours	MSF/DCF77
JED	9-second position	Jeddah	+3 hours	DCF77
DXB	11-second position	Dubai	+4 hours	DCF77
KHI	13-second position	Karachi	+5 hours	—
DAC	15-second position	Dhaka	+6 hours	—
BKK	18-second position	Bangkok	+7 hours	—
BJS/HKG	21-second position	Beijing/Hong Kong	+8 hours	BPC
TYO	23-second position	Tokyo	+9 hours	JJY
SYD	25-second position	Sydney	+10 hours	JJY
NOU	28-second position	Nouméa	+11 hours	—



(As of March 2017)

Indication	Second hand positions	Names of representative cities (Time Zone)	Time difference from UTC	Receivable radio signals
WLG	30-second position	Wellington	+12 hours	—
TBU	32-second position	Nuku'alofa	+13 hours	—
MDY	34-second position	Midway Islands	-11 hours	—
HNL	36-second position	Honolulu	-10 hours	—
ANC	38-second position	Anchorage	-9 hours	WWVB
LAX	41-second position	Los Angeles	-8 hours	WWVB
DEN	43-second position	Denver	-7 hours	WWVB
CHI	45-second position	Chicago	-6 hours	WWVB
NYC	48-second position	New York	-5 hours	WWVB
SDQ	50-second position	Santo Domingo	-4 hours	WWVB
RIO	53-second position	Rio de Janeiro	-3 hours	WWVB
FEN	55-second position	Fernando de Noronha	-2 hours	—
PDL	57-second position	Azores	-1 hour	—



- Time differences between regions and daylight saving time may change due to circumstances of a country or region.
- Each indication may differ depending on the model (design) of the watch.

### Q&A for the world time function

Q : Will the watch be automatically set to the local time when it is moved to a place in a different time zone?

A : The watch will not be automatically set to the local time if it is just moved to a place in a different time zone. Select the time zone where you are when you are abroad. If you select the time zone, the watch is automatically set to the local time. (The time difference can be adjusted in increments of 1 hour.) After selecting the time zone, if it is within the reception range of radio signals, you can leave the watch to receive the radio signal to set it to the precise time. (The radio signal transmitting station can be changed by selecting a time zone.)

Q : Since the hands stop during operation of time zone setting, does time lag occur?

A : The internal circuit stores the time, therefore, no time lag occurs.

Q : When a time zone for regions out of the radio signal reception range is set, the watch will not receive a radio signal. How is the accuracy of the watch at that time?

A : The watch has an accuracy of a normal quartz watch in that case. (Monthly rate: ±15 seconds)

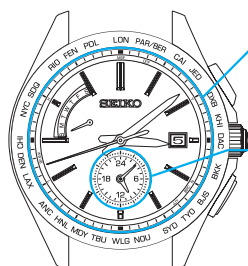
Q : How is adjustment made to a local time with a time difference of 15 minutes or 30 minutes?

A : The time can be adjusted on a 1 hour basis by use of the time difference adjustment function. When adjusting to a local time with a time difference of 15 minutes or 30 minutes. → HOW TO MANUALLY SET THE TIME P.37

### ABOUT DUAL TIME DISPLAY

Equipped with the main watch and sub dial, the watch can simultaneously indicate the local times in two regions.

**Example:** How to display the local time in Honolulu by the main watch, and the local time in Japan by the sub dial.



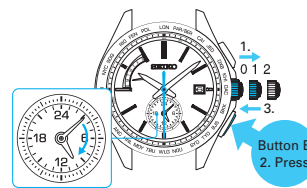
Main watch: Local time (Honolulu)  
Honolulu time (-19 hours):  
3 o'clock 8 minutes and 42 seconds  
Date: 5th.  
Day of the week: Sunday

Sub dial: Home time (Japan)  
Japan time:  
10 o'clock 8 minutes (24-hour indication format)  
→ ABOUT SUB DIAL P. 17

### ABOUT SUB DIAL

- The sub dial displays time in the 24-hour indication format.
- Even if the time zone of the main watch is changed, the time indicated on the sub dial remains unchanged. The sub dial operates independently of the main watch.

#### How to set the sub dial



\* Unlock the crown before operating it and then, relock it after completing the operation.

#### 1. Pull out the crown to the first click.

➤ The second hand rotates until it points to the 30-second position and stops. The watch enters the time setting mode for sub dial. Both the main watch and the sub dial continue to operate.

#### 2. Press Button B to set the time.

To advance one minute	Press the button once and release.
To advance rapidly	Press and hold the button for longer than 2 seconds. Press the button once again to stop.

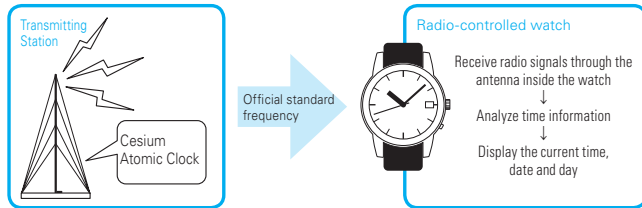
#### 3. Push the crown back to normal position.

➤ The operation is now completed.

## SETTING THE TIME AND DATE BY RECEIVING A RADIO SIGNAL

### ● Mechanism of radio signal reception

The radio-controlled watch displays the precise time, date and day by automatically receiving and synchronizing itself with the radio signal of an official standard frequency.



Time signal transmitted by a standard frequency is based on a super accurate "Cesium Atomic Clock" that may have a 1 second loss or gain per one hundred thousand years.

### ● Automatic Reception and Manual Reception

#### ◆ Automatic Reception

This watch sets the time, date and day by automatically receiving a radio signal at a fixed time.

- It automatically receives a radio signal before 2:00 AM, 3:00 AM and 4:00 AM.
- When the watch successfully receives a radio signal, it will stop automatic reception.
- It takes 12 minutes at the longest according to the receiving state of a radio signal.

When receiving radio signals, place the watch in a place where it can easily receive a radio signal and leave it untouched. → RECEPTION ENVIRONMENT P.25

#### ◆ Manual Reception

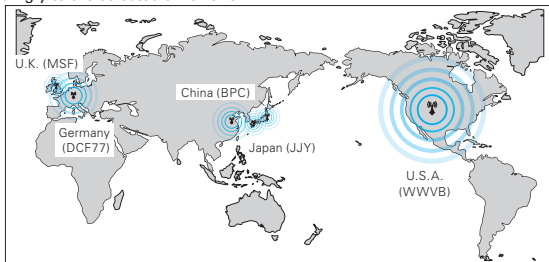
Besides automatic reception, it is also possible to receive a radio signal manually at any time. → HOW TO CONDUCT MANUAL RECEPTION P.34

- If the time zone is set to a region other than U.S.A., Germany, U.K., China or Japan, the signal reception function will not work.
  - TIME ZONE DISPLAY AND TIME DIFFERENCE TABLE P.13
- Radio signal reception results depend on a receiving condition.
  - RECEPTION ENVIRONMENT P.25
- This watch is unable to receive radio signals outside a reception range.
  - RADIO SIGNAL RECEPTION RANGE INDICATION P.20
- When the watch is not displaying the precise time and date even after successfully receiving a radio signal.
  - TROUBLESHOOTING P.47

## RADIO SIGNAL RECEPTION RANGE INDICATION

This watch receives standard radio signals from U.S.A., Germany, U.K., China, and Japan (2 stations).

When you set the watch to a time zone in U.S.A., Germany, U.K., China or Japan, the official standard frequencies the watch receives will be automatically changed accordingly to the selected time zone.



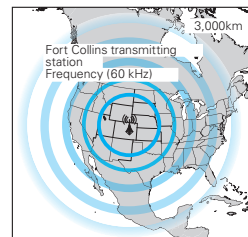
- The watch may be able to receive radio signals outside a reception range if the receiving conditions are favorable.
- The watch may fail to receive radio signals depending on the reception conditions (weather, geographic locations, radio disturbances such as tall buildings, and orientation of the watch).

### ● Radio signal reception range : the United States of America (WWVB)

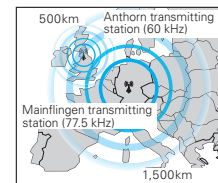
The reception range from the transmitting station is approximately 3,000 km (3,000 km radius of the transmitting station).

### ● Radio signal reception range : Germany (DCF77), U.K. (MSF)

The reception range from the transmitting station of DCF77 is approximately 1,500 km and the reception range for MSF is approximately 500 km.



WWVB is operated by NIST.  
Fort Collins transmitting station  
Frequency: 60 KHz  
\* NIST: National Institute of Standards and Technology



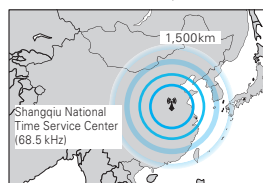
DCF77 is operated by PTB.  
Southeastern Frankfurt  
Mainflingen transmitting station : 77.5 kHz  
\* PTB: Physikalisch-Technische Bundesanstalt  
MSF is operated by NPL.  
Northwest England: Cumbria, England  
Anthorn transmitting station : 60 kHz  
\* NPL: National Physical Laboratory

### ● Radio signal reception range : the People's Republic of China (BPC)

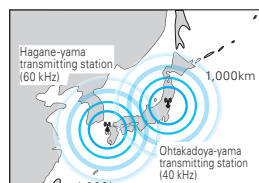
The reception range from the transmitting station is approximately 1,500 km (1,500 km radius of the transmitting station).

### ● Radio signal reception range : Japan (JJY)

The reception range from each transmitting station is approximately 1,000 km (1,000 km radius of each station).



BPC is operated by NTSC.  
Shangqiu National Time Service Center  
Frequency: 68.5kHz  
\* NTSC: National Time Service Center



JJY is operated by the National Institute of Information and Communications Technology (NICT).  
JJY is transmitted from two stations in Japan. Each station transmits JJY in a different frequency.  
Fukushima (Ohtakadoya-yama transmitting station: 40 KHz)  
Kyushu (Hagane-yama transmitting station: 60 KHz)  
\* NICT: National Institute of Information and Communications Technology

## HOW TO CHECK THE RECEPTION RESULTS

### ● About reception result display

The second hand indicates the latest radio signal reception results (Yes/No) for five seconds.



- (NOTE) When 5 seconds have elapsed or if Button A is pressed, the watch returns to the TIME display mode.

#### 1. Press Button A once and release it.

- ▶ The second hand indicates the reception results.

#### 2. Check if the reception was successful (within five seconds).

If the reception was successful: Y (the 10-second position)

When 5 seconds have elapsed, the second hand starts to move.



If the reception failed: N (the 20-second position)

When 5 seconds have elapsed or if Button A is pressed, the watch returns to the TIME display mode.



**If a reception was successful: the second hand points to Y.**

- A radio signal has been received successfully. Use the watch without any adjustments.
- \* When the watch is not displaying the precise time and date even after successfully receiving a radio signal → TROUBLESHOOTING P.47

**If reception has failed: the second hand points to N.**

- Place the watch in a place where it can easily receive a radio signal, or change its direction. Even within the radio signal reception range, this watch may fail to receive a radio signal depending on the condition (due to the influence of weather, geographical features, buildings, or direction). This watch is unable to receive radio signals outside a reception range. → RADIO SIGNAL RECEPTION RANGE INDICATION P.20
- Make sure that the time zone is correctly selected before attempting radio signal reception. If the time zone is set to a region other than U.S.A., Germany, U.K., China, and Japan, the signal reception function will not work. Check the time zone setting. → HOW TO SELECT THE TIME ZONE P.11
- Attempt to receive a radio signal in a different time period (In the case of manual reception). Receiving environments differ according to time periods even at the same place. Due to radio signal characteristics, the watch is able to easily receive radio signals during nighttime hours.
- If the watch is used in regions or places where it is unable to receive a radio signal, or if no successful reception can be made even when following the above procedures, set the time, date and day manually. → WHEN A RADIO SIGNAL CANNOT BE RECEIVED P.36

**RECEPTION ENVIRONMENT****● To Improve Radio Signal Reception**

- **Place the watch in a place where it can easily receive a radio signal such as near a window.**

The antenna is embedded at the 9 o'clock position of the watch. Turning the antenna toward the outside of a window or the direction facing transmitting stations helps improve radio signal reception.

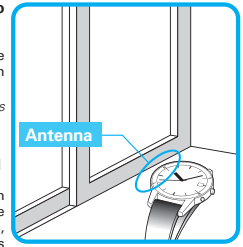
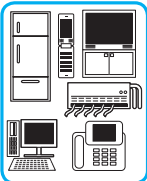
- **Do not move the watch while it is receiving radio signals.**

To enhance the reception of radio signals, do not move the watch or do not change the orientation of the watch while it is receiving radio signals.

\* If the button or crown is operated while the watch is receiving a radio signal, the reception will be cancelled.

- **The place where the watch is put before going to bed**

Place the watch next to a window facing in the direction of a transmitting station before bedtime because automatic reception is performed late at night. Also, please search for a place to easily receive radio signals when attempting manual reception.

**● Environments in which it is Difficult to Receive a Radio Signal**

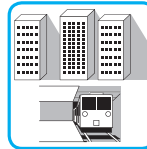
- Close to home electrical appliances such as TV's, refrigerators or air conditioners
- Close to OA devices such as mobile phones, personal computers or fax machines
- Close to steel desks or other furniture made of metal



- In places generating radio interference, such as construction sites or places with heavy traffic.



- Close to overhead power lines, TV stations, train cables.



- Inside a building, between tall buildings, underground.



- Inside a vehicle, train, or airplane.

**Avoid putting the watch in such places when it receives radio signals.**

**CAUTION**

- The watch may display the wrong time if it fails to receive radio signals properly because of interference. The watch may also fail to receive radio signals properly depending on the location or radio wave receiving conditions. In this case, move the watch to another place where it can receive radio signals.
- When the watch is out of reception range, its accurate quartz movement (loss / gain: ±15 seconds per month on average) will continue to keep the time.
- The time signal transmission may be stopped during maintenance of the facilities of the (each) transmitting station or because of a lightning strike. In such a case, see the (each) station's website for further information.

- Websites of transmitting stations (as of March 2017)

U.S.A. : NIST <http://www.nist.gov/pml/div688/grp40/wwvb.cfm>

Germany : PTB <http://www.ptb.de/cms/en.html>

U.K. : NPL <http://www.npl.co.uk/>

China : NTSC <http://www.ntsc.ac.cn/>

Japan : NICT (Japan Standard Time Group) <http://www.nict.go.jp/>

**HOW TO CHARGE AND START THE WATCH**

When you start the watch or when the energy in the rechargeable battery is reduced to an extremely low level, charge it sufficiently by exposing the watch to light.



- 1 Expose the watch to sunlight or strong artificial light.

*When the watch has stopped operating, the second hand will start moving at 2-second intervals.*

- 2 Keep the watch exposed to the light until the second hand moves at 1-second intervals.

- 3 When the watch is charged after it has completely stopped, set the date and time before wearing the watch.

**CAUTION****Caution for charging**

- When charging the watch, do not place it too close to a photoflash light, spotlight, incandescent light or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.
- When exposing the watch to sunlight to charge it, do not leave it on the dashboard of a car, etc., for a long time, as the watch temperature will become extremely high.
- While charging the watch, make sure the watch temperature does not exceed 60 °C.

**OVERCHARGING PREVENTION FUNCTION**

No matter how long the secondary battery is charged, the performance of the watch will not be degraded. When the secondary battery becomes fully charged, the overcharging prevention function will be automatically activated to prevent it from being charged further.

## GUIDELINE OF CHARGING TIME/ACCURACY

Environment/Lightsources (lux)	8B63		
	A (minutes)	B (hours)	C (hours)
General offices/ Fluorescent light (700)	240	-	-
30W20cm/ Fluorescent light (3000)	60	6	230
Cloudy weather/Sunlight (10000)	15	1.5	60
Fair weather/Sunlight (100000)	3	0.5	30
Expected life per charge from full charge to stoppage	9 months		
Loss/gain (monthly rate)	Less than 15 seconds when the watch is worn on your wrist at a normal temperature range (5 °C to 35 °C)		
Operational temperature range	-10 °C to 60 °C		

A: Time to charge 1 day of power  
B: Time required for steady operation  
C: Time required for full charge

The above table provides only a general guideline.

30

- ◆ The watch operates while charging electricity by converting light received on the dial to electrical energy. It cannot properly operate unless the remaining energy is sufficient. Place or store the watch in a location receiving light etc. to sufficiently charge electricity.
- When the watch is stopped or the second hand starts moving at 2-second intervals, charge the watch by exposing it to light.
- The time required for charging the watch varies depending on the calibres. Check the calibre of your watch engraved on the back cover.
- It is recommended that the watch be charged for as long as the charging time 'B' to assure the stable movement of the watch.

## ENERGY DEPLETION FOREWARNING FUNCTION

- When the energy stored in the rechargeable battery is reduced to an extremely low level, the second hand starts moving at 2-second intervals instead of the normal 1-second intervals. The watch remains accurate even while the second hand is moving at 2-second intervals.
- When this occurs, recharge the watch as soon as possible by exposing it to light. Otherwise, the watch switches to five-second interval movement, followed by a completely stopped state.

- Neither the buttons nor the crown can be operated while the second hand moves at two-second or five-second intervals (this is not a malfunction).
- While the second hand moves at five-second intervals, the hour and minute hands, and date stop operating.
- While the second hand moves at five-second intervals, the watch is unable to receive radio signals automatically. After the watch is charged sufficiently and the second hand returns to normal one-second interval movement, conduct the manual reception of radio signals to set the watch to the correct time.

### ◆ TO PREVENT THE ENERGY DEPLETION

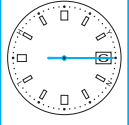

- When wearing the watch, make sure that the watch is not covered by clothing.
- When the watch is not in use, leave it in a bright place as long as possible.

31

## POWER SAVE FUNCTION

This watch is equipped with a power save function which can suppress energy consumption when it is left without receiving an adequate light source for a certain length of time.

- There are two types of power save mode.

	Power Save 1	Power Save 2
Condition	When the watch is exposed to a state without receiving an adequate light source for 72 hours or longer.	When the watch is in an insufficient charging state for a long time.
Situation	 The second hand stops pointing at the 15-second position, and the hour and minute hands also stop. The watch conducts automatic radio signal reception.	 The second hand stops pointing at the 45-second position, and the hour and minute hands also stop. The watch does not conduct automatic radio signal reception.
How to handle the situation	When the watch is exposed to an adequate light source for five seconds or longer, it displays the current time again after the second hand is rapidly advanced.	After sufficiently charging the battery, set the watch for the current time, if necessary.

◆ If the "Power Save 2" mode is prolonged, the stored power amount drops and the internal current time information stored will be lost. When the watch returns to its normal movement of one-second interval after the battery is sufficiently charged, set the current time by receiving a radio signal.

32

## NOTE ON POWER SUPPLY

- The battery used in this watch is a rechargeable battery, which is different from ordinary silver oxide batteries. Unlike other disposable batteries such as dry-cell batteries or button cells, this rechargeable battery can be used over and over again by repeating the cycles of discharging and recharging.
- The capacity or recharging efficiency of the rechargeable battery may gradually deteriorate for various reasons such as long-term use or usage conditions. Worn or contaminated mechanical parts or degraded oils may also shorten recharging cycles. If the efficiency of the rechargeable battery decreases, it will be necessary to have the watch repaired.
- When the secondary battery is fully charged, the overcharge prevention function is automatically activated to avoid further charging.

### ⚠ CAUTION

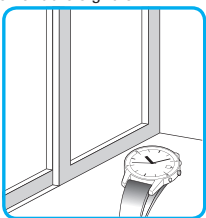
- Do not remove the rechargeable battery yourself. Replacement of the rechargeable battery requires professional knowledge and skill. Please ask a watch retailer for replacement of the rechargeable battery.
- Installation of an ordinary silver oxide battery can generate heat that can cause bursting and ignition.

33

## HOW TO CONDUCT MANUAL RECEPTION (RECEIVING A RADIO SIGNAL MANUALLY)

### 1. Put the watch down.

Place the watch where it can easily receive radio signals.



- \* This watch is unable to receive radio signals outside a reception range.
- RADIO SIGNAL RECEPTION RANGE INDICATION P.20
- RECEPTION ENVIRONMENT P.25

### 2. Press and hold Button A until the second hand moves to the 0-second position (for three seconds).

- After the second hand moves to the 0-second position and stops, the watch will start to receive radio signals.



- \* If the time zone is set to a region other than U.S.A., Germany, U.K., China and Japan, the second hand will not move to the 0-second position. (The manual reception function will not work.) Check if the time zone is correctly set. Check the time zone setting.
- HOW TO SELECT THE TIME ZONE P.11



34

3. Leave the watch untouched for several minutes. Reception takes some time. (12 minutes at the longest and depends on the radio signal conditions.)

- When the second hand starts moving in one-second intervals, the reception is completed.

<Display before completing the reception>

The second hand indicates the reception level. (Updated every minute)

Reception Level	High: (H)	Low: (L)
Display		
Radio signal condition	Easy to receive	Hard to receive

- \* In conjunction with the second hand movement, the minute hand advances by one minute.

4. When the second hand starts moving in one-second intervals, check if the signal reception was successfully conducted.

Upon completion of the signal reception, check if the reception was successful.

→ HOW TO CHECK THE RECEPTION RESULTS P.23

- \* During movement of the date or day neither the buttons nor the crown can be operated.

<If the reception has failed>

The second hand indicates the reception result by pointing to N. P. 24

Reception result: N



After five seconds, the watch returns to the TIME display mode.

35

## WHEN A RADIO SIGNAL CANNOT BE RECEIVED

When a radio signal cannot be received, refer to the following pages:

### • Not receivable within the radio signal reception range

Check that the time zone of the area where the watch is used is set.  
Although the time zone is correctly selected, the time and date are misaligned.  
→ TROUBLESHOOTING: Reception of a radio signal. P.48  
Since a radio signal cannot be received, the time and date became misaligned. In this case, set the time and date manually.  
→ HOW TO MANUALLY SET THE TIME P.37

\* For the radio signal reception ranges, refer to "RADIO SIGNAL RECEPTION RANGE INDICATION." P.20

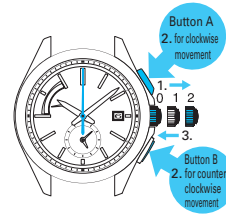
### • When the watch is used outside the radio signal reception range

Select the time zone of the area where the watch is used.  
→ HOW TO SELECT THE TIME ZONE P.11  
Although the time zone is correctly selected, the time and date may not be correct. In this case, set the time and date manually.

## ■ HOW TO MANUALLY SET THE TIME

When the watch is used continuously in conditions in which the watch may be unable to receive a radio signal, it can be manually adjusted.

- When the watch is unable to receive a radio signal, it can move depending on normal quartz movement (loss / gain:  $\pm 15$  seconds per month on average).
- When adjusting the time, the date and day will be accordingly adjusted.
- When the watch receives a radio signal after manual adjustment of the time, it displays the received time.



\* When the watch enters the manual time setting mode, the reception results will be indicated as "N," since the reception results data will be lost.

### 1. Pull out the crown to the second click.

- The Second hand moves to point to the 0-second position and the watch enters the manual time setting mode.

### 2. Press Button A or B to set the time.

One minute Advance	Press the button once and then release it.
Continuous Advance	When the button is kept pressed for two seconds or longer, the hand will start to move. Press the button again to stop.

\* Turning the crown will not move the hand.

### 3. Push the crown back to normal position.

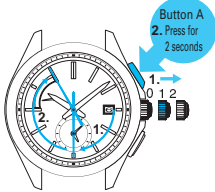
- Operation has been completed.  
The watch resumes its normal movement.

## ■ HOW TO MANUALLY SET THE DATE

If you use the watch outside the radio signal reception range or in conditions where the watch cannot receive radio signals, the date will not be automatically adjusted. In such a case, especially on the first day after a month that has less than 31 days, the watch requires manual date setting.

- The date can be adjusted independently of the time or day of the week.
- When the watch is once again able to receive radio signals, conduct automatic or manual reception to set the time.  
→ AUTOMATIC RECEPTION AND MANUAL RECEPTION P.19

\* When the watch receives radio signals after the date is manually adjusted, it displays the date received from radio signals.  
\* If the date remains incorrect even after a successful radio signal reception, the preliminary position of the date may be misaligned. → PRELIMINARY POSITIONS P.42

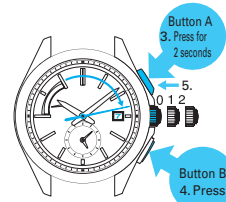


### 1. Pull out the crown to the first click.

- The second hand rotates until it points to the 30-second position and stops. Both the main watch and the sub dial continue to operate.

### 2. Press and hold Button A (for 2 seconds) until the second hand moves to point to the 55-second position.

- The watch enters the manual date setting mode.



### 3. Press and hold Button A (for 2 seconds) until the second hand moves to point to the 13-second position.

- The watch enters the manual date setting mode.

### 4. Press Button B to set the date.

To advance one day	Press the button once and release.
To advance rapidly	Press and hold the button for longer than 2 seconds. Press the button once again to stop.

\* Turning the crown will not move the hand.  
\* While the date is moving, the button cannot be operated.  
\* The date can only move forward. It cannot move backward.

### 5. Push the crown back to normal position.

- The operation is now completed.

## ■ HOW TO MANUALLY SET THE DAY OF THE WEEK

- The day of the week can be adjusted independently of the time or date.
- When the watch is once again able to receive radio signals, conduct automatic or manual reception to set the day of the week.  
→ AUTOMATIC RECEPTION AND MANUAL RECEPTION P.19

\* When the watch receives radio signals after the day of the week is manually adjusted, it displays the day of the week received from the radio signals.  
\* If the day of the week remains incorrect even after a successful radio signal reception, the preliminary position of the day hand may be misaligned.  
→ PRELIMINARY POSITIONS P.42

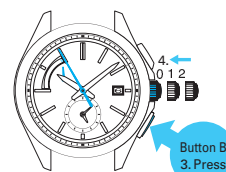


### 1. Pull out the crown to the first click.

- The second hand rotates until it points to the 30-second position and stops. Both the main watch and the sub dial continue to operate.

### 2. Press and hold Button A (for 2 seconds) until the second hand moves to point to the 55-second position.

- The watch enters the manual day of the week setting mode.



### 3. Press Button B to set the day of the week.

To advance one day	Press the button once and release.
To advance rapidly	Press and hold the button for longer than 2 seconds. Press the button once again to stop.

\* Turning the crown will not move the hand.  
\* While the day of the week is moving, the button cannot be operated.  
\* The day of the week hand can only move forward. It cannot move backward.

### 4. Push the crown back to normal position.

- The operation is now completed.

## PRELIMINARY POSITIONS

When the watch is unable to display the precise time, date or day even if it successfully receives a radio signal, the preliminary positions may be misaligned.

The preliminary positions may be misaligned due to the following reasons:

- In the case of a strong impact : Misalignment may occur when dropping or hitting the watch.
- In the case of a magnetic influence : Misalignment may occur when bringing the watch close to an object which generates magnetism.

### ■ Automatic Hand Position Adjustment Function (Function to automatically adjust the preliminary positions of the hour and minute hands)

The hour, minute, and second hands have an "Automatic Hand Position Adjustment Function," which automatically corrects an incorrect preliminary position. It activates once a minute for the second hand and at 12:00 both for the AM and PM for the hour and minute hands.

\* This function works when the preliminary positions are misaligned due to external factors such as strong impact or magnetic influence. It does not work to adjust accuracy of the watch or slight deviations which may occur during the manufacturing process.

\* The preliminary positions of the hour and minute hands can also be manually adjusted. P.43

### ■ Setting the Preliminary Positions of the Date and the Day

Since the preliminary positions of the date and the day are not automatically adjusted, it must be adjusted manually. P.43

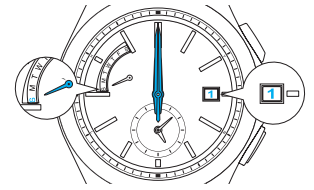
## HOW TO CORRECT THE PRELIMINARY POSITIONS

### ■ SETTING THE PRELIMINARY POSITIONS OF THE DATE, DAY HAND, HOUR AND MINUTE HANDS

The preliminary position of the date is the "1st."

The preliminary position of the day hand is "S." (Sunday)

The preliminary positions of the hour and minute hands are "0:00 AM."



When the preliminary positions are incorrect, the correct date, day of the week or time cannot be displayed even if the watch receives radio signals.

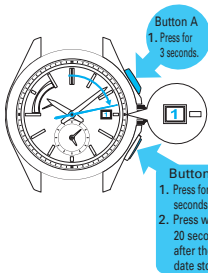
In such a case, by correcting the preliminary positions, wrong date or day indication, loss or gain of the time can be corrected.

When the numerical number of the date is not located at the center of the window, it can be corrected by the same procedures as mentioned above.

To correct the preliminary positions, perform the operation on the next page.

Within 20 seconds after procedure 1. is completed and the date stops, start the operation of procedure 2.

*If the watch is left untouched for 20 seconds after the date stops, the watch automatically returns to the TIME display mode. If this happens, restart the operation from procedure 1.*



\* Do not pull the crown out.

### 1. Press and hold Buttons A and B (for 3 seconds) at the same time until the second hand stops pointing to the 12-second position.

➤ The watch enters the preliminary position setting mode for date. The date will start to move and stop at the preliminary position.

\* First, press Button B, and subsequently press Button A while keeping holding down Button B so as to press both of them successfully.

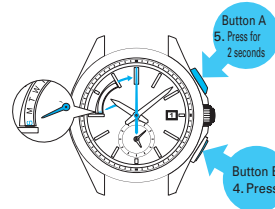
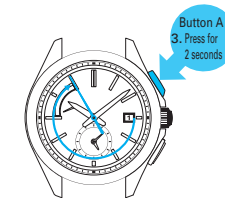
\* While the date is moving, the button cannot be operated.

### 2. Within 20 seconds after the date stops, press Button B to set the date to "1."

➤ Make sure that the numerical number "1" is located at the center of the date window.

\* If "1" is already displayed in the date window, move on to the procedure 3.

To advance rapidly	Press and hold the button for longer than 2 seconds. Press the button once again to stop.
To fine-tune	When the button is pressed intermittently, the hand will slightly advance.



### 3. Press and hold Button A (for 2 seconds) until the second hand stops pointing to the 55-second position.

➤ The watch enters the preliminary position setting mode for day of the week.

### 4. Press Button B to set the day hand to point to "S." (Sunday)

➤ Make sure that the day hand is set to point to "S."

\* If the day hand is already pointing to "S," move on to the procedure 5.

The day hand rotates clockwise.

To advance rapidly	Press and hold the button for longer than 2 seconds. Press the button once again to stop.
To fine-tune	When the button is pressed intermittently, the hand will slightly advance.

### 5. Press and hold Button A (for 2 seconds) until the second hand stops pointing to the 0-second position.

➤ The watch enters the preliminary position setting mode for hour and minute hands.

\* If the hour and minute hands are already indicating the correct time, move on to the procedure 7.



### 6. Press Button B once and release it.

➤ The hour and minute hands start to move and stop pointing at "0:00 am."

### 7. After completing the operation, leave the watch untouched for 20 seconds.

➤ The watch automatically exits the preliminary position setting mode, and the second, hour and minute hands start moving.

When the watch returns to the TIME display mode, check if the time, date and day of the week are all correct.

If the time, date and day of the week are not correct, manually set them.

Adjusting the time and date by receiving a radio signal

→ HOW TO CONDUCT MANUAL RECEPTION P. 34

When the watch is unable to receive a radio signal

→ HOW TO MANUALLY SET THE TIME P. 37

→ HOW TO MANUALLY SET THE DATE P. 38

→ HOW TO MANUALLY SET THE DAY OF THE WEEK P.40

## TROUBLESHOOTING

	Condition	Solutions
Hand Movement	The second hand moves at two-second intervals.	The energy depletion forewarning function is activated. Fully charge the watch so that the second hand may move at one-second intervals.
	The second hand moves at five-second intervals.	Be careful not to conceal the watch under a sleeve, etc., while wearing it. When taking off the watch, place it in as bright a location as possible.
	The stopped second hand pointing to the 15-second position started operating.	The power save function has been activated. Wait until the current time is displayed. No operation is needed (this is not a malfunction.)
	The stopped second hand pointing to the 45-second position started operating.	The power save function has been activated. 1. Fully charge the watch so that the second hand may move at one-second intervals. 2. After that, if the watch displays the incorrect time, receive a radio wave as needed.
	The watch hands advance rapidly unless a button is pressed. After the rapid advancement is completed, the watch resumes its normal movement.	The power save function has been activated. The automatic hand position adjustment function has been activated. No operation is needed (this is not a malfunction).



	Condition	Solutions
Reception of a radio signal	When the watch is unable to receive a radio signal	Do not move the watch while it is receiving a radio signal. Because it takes time to receive a radio signal successfully, leave the watch untouched for 12 minutes at the longest. Place the watch where it is able to easily receive a radio signal.
	The reception results have failed and the second hand points to N (the watch does not receive a radio signal).	Transmitting stations may have stopped transmitting radio signals for some reason (Transmission stop). Check the website of each transmitting station for further information concerning a transmission stop. Attempt to receive a radio signal again after a while. Reselect the time zone able to receive the radio signal.
Charging the solar battery	The stopped watch was exposed to an adequate light for longer than "the time required to fully charge the watch," however, it does not resume its normal one-second interval movements.	The time required for charging the watch depends entirely on the amount of exposed light the watch receives. Refer to "GUIDELINE OF CHAGING TIME/ACCURACY" to charge the watch.  The built-in IC of the watch has fallen into an unstable condition. Refer to "IN CASE OF AN ABNORMAL MOVEMENT" to reset the built-in IC.
Misalignment of the time and hand positions	The watch displays an incorrect time hour unit, even though it displays the precise time of minutes and seconds.	Make sure that the watch is set to the time zone that covers the place where you use the watch.

48

	Condition	Solutions
Misalignment of the time and hand positions	The watch temporarily gains or loses time.	1. Place the watch where it is able to receive a radio signal more easily. 2. Conduct manual reception if necessary.  1. In case the watch has been left in a place with an extremely high or low temperature for a long time, When the watch returns to a normal temperature, it will display the precise time as before. 2. If the watch still gains or loses the time, conduct manual reception if necessary. 3. If the watch cannot resume normal movement even after conducting the above mentioned procedures, consult the retailer from whom the watch was purchased.
	The reception results are successful, but the precise time is not displayed.	1. No crown or button operation is needed, since the automatic hand position adjustment function will be activated to align the hand positions. Automatic Hand Position Alignment Function activates once a minute for the second hand and at 12:00 both for the AM and PM for the minute and hour hands. It can be manually adjusted, when you hurry up.
	The second hand position is not correctly aligned in "the reception results display" or "the reception level display."	2. If the watch still gains or loses time, refer to "IN CASE OF AN ABNORMAL MOVEMENT" to perform procedures. 3. If the watch cannot resume normal movement even after conducting the above mentioned procedures, consult the retailer from whom the watch was purchased.

49

	Condition	Solutions
Misalignment of the date	The reception results are successful and the precise time is displayed, but the date is not correctly displayed.	Set the date to the preliminary position "1" (the 1st).
Misalignment of the day	The reception result display confirms successful reception, and the correct time is displayed, but the wrong day is displayed.	Check if the day is set to the correct preliminary position "S" (Sunday). If not, correct the preliminary position for day.
Wrong display of the sub dial	The sub dial is set to the time shown by the main watch, but the sub dial displays the wrong time.	Refer to "ABOUT SUB DIAL".
Operation	The crown or buttons cannot be operated.	Sufficiently charge the watch until it starts moving at one-second intervals. When the date hand is moving right after a setting is carried out by a crown or button operation, after the date stops, the crown and buttons can be operated.
	You get lost in the middle of the operation.	1. If the crown is pulled out, push it back in. 2. The watch will resume its normal one-second interval movements within 9 minutes. 3. Start the setting procedure from the beginning.
Others	Blur on the dial glass persists.	Contact the retailer from whom the watch was purchased.

50 \* For the solution of troubles other than the above, consult the retailer from whom the watch was purchased.

## IN CASE OF AN ABNORMAL MOVEMENT

In the case that the watch moves abnormally or that the watch does not move at one-second intervals even after the battery is fully charged, perform the procedures from 1. to 3. and then set the preliminary positions and select the time zone.

### ■ HOW TO RESET THE BUILT-IN IC



(NOTE) First, press Button B, and subsequently press Button A while holding down Button B so as to press both of them successfully.

\* After the built-in IC is reset, the watch is set to the time zone LON. After completion of a system reset, perform the following operations.

→ PRELIMINARY POSITIONS P. 42  
→ HOW TO SELECT THE TIME ZONE P.11

- 1. Pull out the crown to the second click.**
  - ▶ The second hand stops at the 0-second position.
- 2. Press and hold Buttons A and B at the same time for 3 seconds, and then release them.**
  - ▶ Within 5 seconds after releasing the buttons, the second hand makes a full rotation and stops pointing to the 0-second position. Then the hour and minute hands will start to move and stop pointing to 12 o'clock 0 minutes.
- 3. When all the hands stop pointing to 12 o'clock 0 minutes and 0 seconds, push the crown back.**
  - ▶ The second hand starts moving from 12 o'clock 0 minutes and 0 seconds.

51

## SPECIFICATIONS

- |   |   |
|---|---|
| 1 Basic function.....                             | Main time with three hands (hour, minute, and second hands), date display, Retrograde day indicator, Sub dial with 2 hands (Hour and Minute hands)  |
| 2 Frequency of crystal oscillator .....           | 32,768 Hz (Hz = Hertz ... Cycles per second)  |
| 3 Loss/gain (monthly rate) .....                  | ±15 seconds at normal temperature range (Except the case when the watch is used without an automatic time setting by receiving a radio signal and when it is worn on the wrist within a normal temperature range between 5 °C and 35°C/41 °F to 95 °F). |
| 4 Operational temperature range .....             | -10 °C to 60 °C/14 °F to 140 °F   |
| 5 Driving system .....                            | Step motor<br>(Hour and minute hands, second hand, and the date, day and hour and minute hands for sub dial)  |
| 6 Power supply.....                               | Secondary battery, 1 piece  |
| 7 Continuous operating time from full charge .... | Approximately 9 months (Fully charged, and the Power Save is not activated).<br>• If the Power Save Function is activated after the watch is fully charged, the watch continues to run for approximately two years at maximum.                          |
| 8 Time setting by receiving radio signal....      | Automatic reception (before 2:00 AM, 3:00 AM and 4:00 AM)   |

52

- |                                  |  |
|----------------------------------|--|
| 9 Additional function .....      | Energy depletion forewarning function,<br>Overcharging prevention function |
| 10 IC (Integrated Circuit) ..... | Oscillator, frequency divider and driving circuit<br>C-MOS-IC, 3 pieces    |
- The specifications are subject to change without prior notice due to product improvements.

53