


You are now the proud owner of a SEIKO Radio Wave Controlled Worldtimer Cal. 7B26. For best results, please read the instructions in this booklet carefully before using your SEIKO Analogue Quartz Watch. Please keep this manual handy for ready reference.

Sie sind jetzt stolzer Besitzer einer SEIKO Funk-Weltzeituhr Kal. 7B26. Bitte lesen Sie diese Bedienungsanleitung vor der Verwendung der Uhr sorgfältig durch und heben Sie sie gut auf.



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

FEATURES

This solar radio-controlled watch is equipped with a time zone adjustment function. The watch can automatically display local time in a different time zone by selecting the time zone. It can receive official standard frequencies of Germany, the United States and Japan to adjust the time.

■ AUTOMATIC TIME SETTING

The watch maintains the precise time by automatically receiving radio signals on an official standard frequency. The watch can receive official standard frequencies of Germany, the United States, and Japan (from either of two transmitting stations) by selecting the time zone.

Manual reception is also possible (the watch is unable to receive radio signals outside of the reception range of each standard frequency).

■ DISPLAY OF RADIO SIGNAL RECEPTION LEVEL

During reception attempts, the watch displays the reception level of radio signals.

■ DISPLAY OF RADIO SIGNAL RECEPTION RESULT

Reception result (succeeded or failed) can be confirmed following reception of radio signals.

■ AUTOMATIC CALENDAR

The calendar adjusts odd and even months including February in leap years.

■ TIME ZONE ADJUSTMENT

The watch can be set to local time in a different time zone by selecting a time zone.

■ AUTOMATIC HAND ALIGNMENT

When the hand positions display incorrect time as a result of the influence of various external sources, the watch automatically corrects the hand alignment itself.

■ SOLAR RECHARGEABLE BATTERY

A solar cell underneath the dial converts any form of light into "electrical energy" to power the watch and the power is stored in a secondary battery. Once fully charged, the watch continues to run for approximately six months.

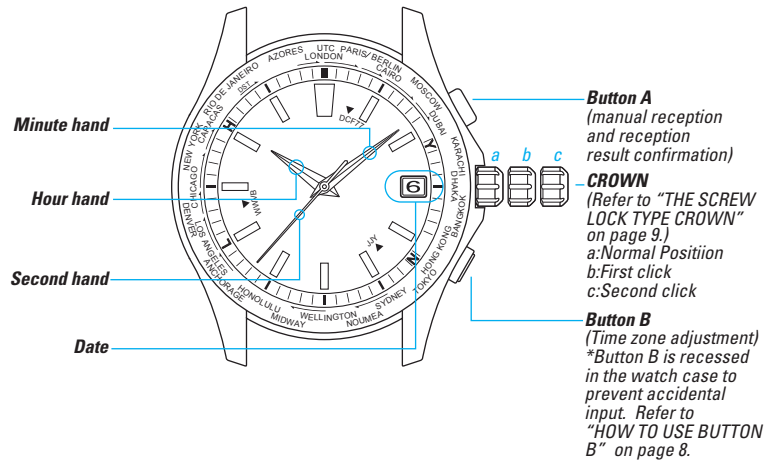
■ ENERGY DEPLETION FOREWARNING FUNCTION

The movement of the second hand indicates that the battery should be charged.

■ POWER SAVE

The Power Save mode can be activated when the watch is left without an adequate light source.

DISPLAY AND BUTTON OPERATION

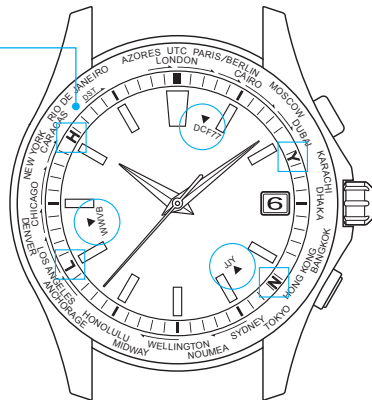


Time Zone Display

[Time zone selection]
City names: 24 cities around the world
UTC: Universal Coordinated Time
DST, arrow mark: Daylight Saving Time
* Refer to "24 TIME ZONES AND TIME DIFFERENCES FROM UTC" on page 35.

Reception Level Display

[Automatic Reception and Manual Reception]
H: High reception level
L: Low reception level
N: Unable to receive radio signals
* Refer to "MANUAL RECEPTION" on pages 26-27.



* Positions of above displays may differ depending on the model.

Transmitting Stations of Standard Frequencies

[Reception Result Confirmation]
DCF77 (Germany)
WWVB (The United States)
JY (Japan)
* Refer to "HOW TO CHECK THE RECEPTION RESULT" on pages 28-29.

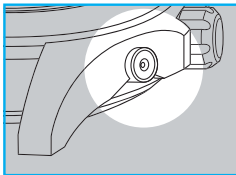
Reception Result Display

[Confirmation of reception result]
Y: Reception Successful
N: Reception Failed
* Refer to "HOW TO CHECK THE RECEPTION RESULT" on pages 28-29.

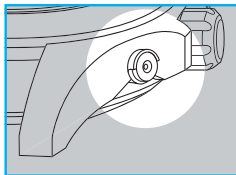
HOW TO USE BUTTON B

Button B is recessed in the watch case to prevent accidental input. Types of buttons differ depending on the design of the watch.

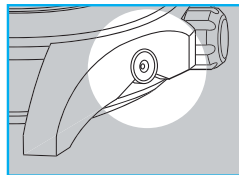
HOW TO PRESS BUTTON B



Button B is covered except for the hollow in the middle of the button. Press the hollow using an object with a long tapered tip.



The upper half of Button B is covered. Press the lower half of Button B or press the hollow in the middle of the button using an object with a long tapered tip.



Button B is recessed in the watch case. Press the hollow in the middle of the button using an object with a long tapered tip.

THE SCREW LOCK TYPE CROWN

The crown can be locked to prevent operating errors.

HOW TO OPERATE SCREW LOCK TYPE CROWN

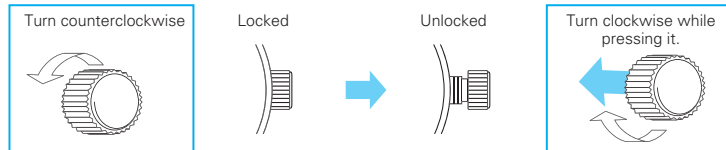
- Unscrew the crown before the crown operation.
- Screw in the crown when the operation is over.

[To unscrew the crown]

Turn the crown counterclockwise. The crown can be pulled out.

[To screw in the crown]

Turn the crown clockwise until it stops while pressing it.



*The crown can be pulled out after it is unscrewed.

CHARGING THE SOLAR BATTERY

HOW TO CHARGE THE WATCH

This watch is a solar-powered watch containing a solar cell underneath the dial to convert any form of light into "electrical energy" and store the power in a secondary battery.

To enjoy optimal performance of this watch, it is recommended that the watch be kept sufficiently charged at all times.

**Before initially using the watch or when the watch has stopped as a result of complete depletion of stored power, charge the watch sufficiently.*

To charge the watch, expose the dial (solar cell) to adequate light as illustrated below.



STANDARD CHARGING TIME

Illumination 1 x (LUX)	Light source	Condition (Example)	Time required for fully charging the watch	Time required for charging the watch to start moving at one-second intervals ★	Time required for charging the watch to run for one day
500	Incandescence light	60W 60cm	—	—	5 hours
700	Fluorescent light	General offices	—	—	3 hours
1000	Fluorescent light	30W 70cm	—	120 hours	2 hours
3000	Fluorescent light	30W 20cm	90 hours	30 hours	30 minutes
5000	Fluorescent light	30W 12cm	70 hours	24 hours	24 minutes
10000	Fluorescent light	30W 5cm	25 hours	8 hours	9 minutes
10000	Sunlight	Cloudy day	25 hours	8 hours	9 minutes
100000	Sunlight	Sunny day (Under direct sunlight on a summer day)	8 hours	2 hours	3 minutes

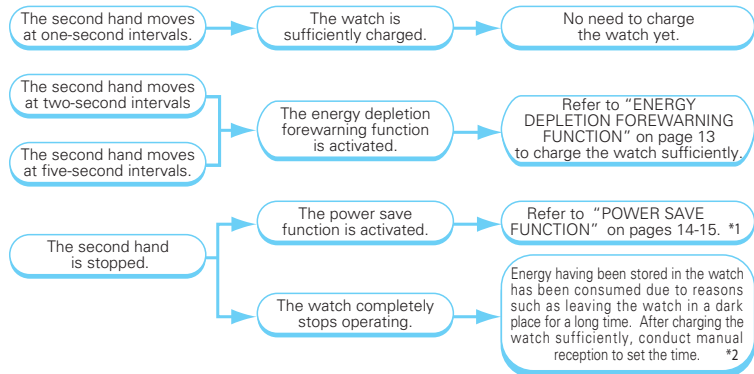
**The table above is only provided as an approximation.*

★ *The figures in the table above refer to the time required to charge the stopped watch by exposure to light until the watch moves at steady one-second intervals, through two-second intervals and five-second intervals.*

Even if the watch is partially charged for a period shorter than the time provided in the above table, it will resume one-second interval movement; however the one-second interval movement will change to two-second interval movement shortly. To avoid this and charge the watch to a sufficient level, use the charging time mentioned above as a measure.

**The required charging time slightly varies depending on the model of the watch.*

CHECKING THE CHARGING STATUS BY THE MOVEMENT OF THE SECOND HAND



*1. If the second hand is stopped even after the watch is sufficiently charged, refer to "TROUBLESHOOTING" on pages 64-65.

*2. After the watch receives a radio signal, when the date is incorrect even if the correct time is displayed, check that the calendar is set to the preliminary position (refer to "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59).

ENERGY DEPLETION FOREWARNING FUNCTION

The energy depletion forewarning function is activated when the energy stored in the watch runs low. In such a case, the second hand moves at two-second intervals. If the watch continues to be in the state of two-second interval movement, the watch switches to five-second interval movement, followed by a completely stopped state.

If the energy depletion forewarning function is activated, charge the watch sufficiently.

HOW TO CHARGE THE WATCH...page 10

STANDARD CHARGING TIME...page 11

**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 calendar 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. After completing the radio signal reception, when the date is incorrect even if the correct time is displayed, check that the calendar is set to the preliminary position (refer to "RADIO SIGNAL RECEPTION" on page 20 and "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59).*

POWER SAVE FUNCTION

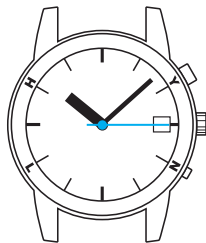
When the watch is not exposed to an adequate light source, the power save function is automatically activated in order to reduce unnecessary energy consumption.

When this state continues for 72 hours or longer, the watch enters "the Power Save One" mode.

If the watch continues to be insufficiently charged, and the stored power falls below a certain level, the watch automatically switches to "the Power Save Two" mode.

[POWER SAVE 1]

- When this state continues for 72 hours or longer, the watch enters "the Power Save One" mode.
- When the watch is in "the Power Save One" mode, the second hand rotates to point to the 15-second position and stops.
- In this state, movement of the hour and minute hands and calendar operation will cease, but the watch will continue to conduct automatic reception.
- To reset the watch to display the current time, expose it to adequate light for five seconds or longer.



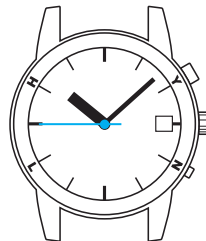
**When the watch returns to its normal movement, the watch hands rotate rapidly to display the current time. After the watch hands are set to the current time, the correct date is displayed.*

[POWER SAVE 2]

- If the watch continues to be insufficiently charged, and the stored power falls below a certain level, the watch automatically switches to "the Power Save Two" mode, to limit further energy consumption. When the watch is in "the Power Save Two" mode, the second hand rotates to point to the 45-second position and stops.
- In this state, movement of the hour and minute hands and calendar operation will cease and the watch will also stop conducting automatic reception.
- When the watch enters "the Power Save Two" mode, immediately charge the watch.

**While the watch is being charged, the second hand moves at five-second intervals. During the five-second interval movement, neither the buttons nor the crown can be operated (this is not a malfunction).*

**If "the Power Save Two" mode is prolonged, the amount of stored power drops and the internal time settings will be lost. In such a case, after completing battery charging, conduct the manual reception to set the watch to the correct time. After completing the radio signal reception, when the date is incorrect even if the correct time is displayed, check that the calendar is set to the preliminary position (refer to "RADIO SIGNAL RECEPTION" on page 20 and "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59).*



OVERCHARGE PREVENTION FUNCTION

The solar cell underneath the dial converts light into "electrical energy" and stores the power in a secondary battery. When the secondary battery is fully charged, the overcharge prevention function is automatically activated to avoid further charging. There is no need to worry about damage caused by overcharging no matter how much the secondary battery is charged in excess of the "time required for fully charging the watch."

**Refer to "STANDARD CHARGING TIME" on page 11 to check the time required for fully charging the watch.*

▲ WARNING

(Notes on charging the watch)

When charging the watch, do not place the watch in close proximity to an intense light source such as lighting equipment for photography, spotlights or incandescent lights, as the watch may be excessively heated resulting in damage to its internal parts.

When charging the watch by exposure to direct sunlight, avoid places that easily reach high temperatures, such as a car dashboard.

Always keep the watch temperature under 60°C.

POWER SOURCE

- The battery used in this watch is a special secondary battery, which is different from ordinary batteries. Unlike an ordinary silver oxide battery, the secondary battery does not require periodic replacement.
- The secondary battery is an environmentally friendly, clean energy storage device.

▲ WARNING

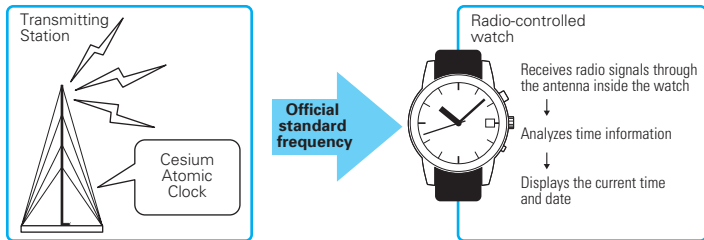
When replacing the secondary battery, make sure that the exclusive secondary battery for this watch is used. Installation of an ordinary silver oxide battery can generate heat that can cause bursting or ignition.

Even when a silver oxide battery is substituted, electrical continuity cannot be obtained.

SETTING THE TIME BY RECEIVING RADIO SIGNAL

WHAT IS A RADIO-CONTROLLED WATCH?

The radio-controlled watch displays the precise time and date 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 HAND ALIGNMENT

Under normal operation, periodic checks of each hand position are performed once every one-minute for the second hand position, and once every twelve hours for the hour and minute hand positions.

<When the hand positions move out of alignment >

- Strong shocks can cause misalignment of the hand positions

The hand positions may move out of alignment due to strong shocks to the watch when the watch is dropped or hits against a hard surface.

- Strong magnetism can cause misalignment of the hand positions.

The hand positions may move out of alignment due to strong magnetism generated by mobile phones, speakers, magnetic therapy devices, or other magnetized objects.

- When the watch is stopped due to complete depletion of stored power

The radio-controlled watch automatically sets itself to the precise time. However, if the preliminary hand positions are misaligned when the time is set, the watch will be unable to display the precise time even after it receives a radio signal properly. It is like a scale which cannot display the correct weight because its hand is not set to the 0 position before weighing.

Be assured that all hand positions of this watch are automatically corrected as long as the watch receives radio signals properly, omitting complicated procedures.

RADIO SIGNAL RECEPTION

The watch can receive a radio signal either automatically or manually.

- Automatic reception: The watch receives radio signals automatically at least once a day. It automatically receives radio signals at 2:00 AM, 3:00 AM, and 4:00 AM. When the watch receives a proper radio signal, the reception is completed. The watch can continue to display the precise time as long as the automatic reception is successful.
- Manual reception: The manual reception of radio signals can be conducted.
MANUAL RECEPTION ...pages 26-27

This radio-controlled watch enables the wearer to check the reception result of radio signals.

- HOW TO CHECK THE RECEPTION RESULT...pages 28-29

**If the watch is set to a time zone outside radio signal reception range, manual reception cannot be conducted (refer to "TIME ZONE DISPLAY" on pages 36-39).*

**Whether the watch succeeds in receiving radio signals or not depends on the receiving conditions (refer to "APPROPRIATE PLACE TO KEEP A RADIO-CONTROLLED WATCH" on page 30).*

**The watch cannot receive radio signals outside a reception range (refer to "RADIO SIGNAL RECEPTION RANGE" on pages 22-25).*

This watch can receive official standard frequencies from transmitting stations in Germany, the United States, and Japan (2 stations). The standard frequency to be received can be changed by selecting the time zone.

- TIME ZONE ADJUSTMENT...page 33.

[Official standard frequency in Germany: DCF77]

DCF77 is operated by Physikalisch-Technisch Bundesanstalt(PTB).
Mainflingen transmitting station (77.5 KHz) in southeastern Frankfurt

[Official standard frequency in the United States: WWVB]

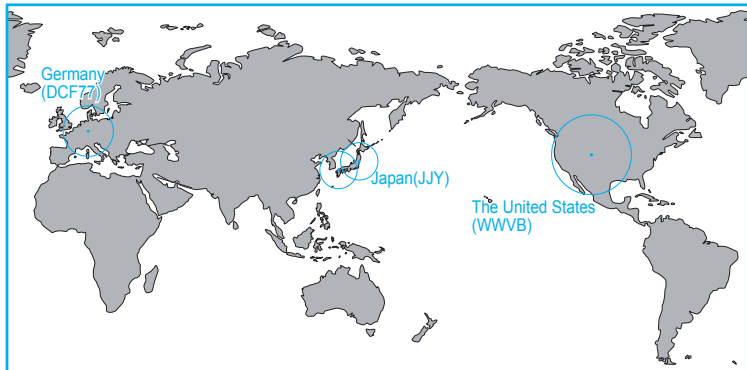
WWVB is operated by National Institute of Standards and Technology (NIST).
Fort Collins radio station (60KHz), Denver, Colorado

[Official standard frequency in Japan: JJY]

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)

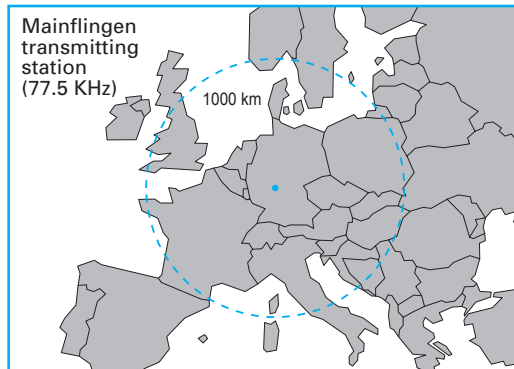
RADIO SIGNAL RECEPTION RANGE

This watch can receive official standard frequencies of Germany, the United States, and Japan.



EUROPE (DCF77 from Germany)

The reception range from the transmitting station is approximately 1,000 km (1,000 km radius of Mainflingen transmitting station). There are three time zones within the reception range.

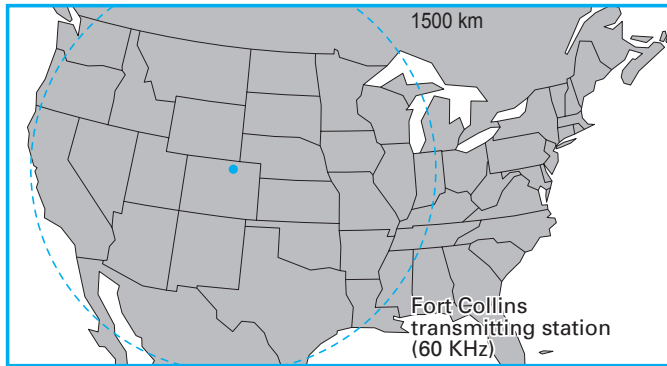


* The watch may fail to receive radio signals depending on the reception conditions (weather, geographic locations, radio disturbances such as tall buildings, and orientation of the watch). Refer to "APPROPRIATE PLACE TO KEEP A RADIO-CONTROLLED WATCH" on page 30.

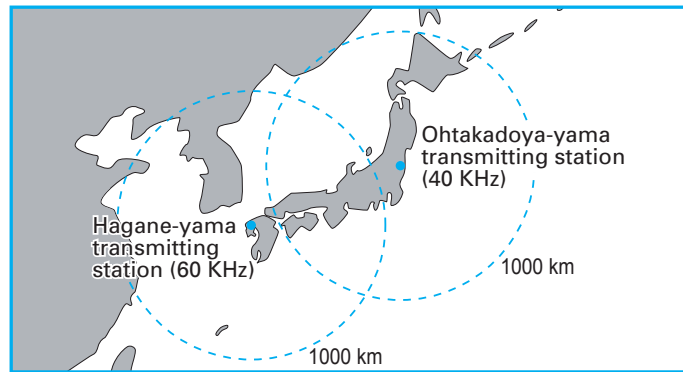
THE UNITED STATES (WWVB)

The reception range from the transmitting station is approximately 1,500 km (1,500 km radius of Fort Collins radio station). There are four time zones within the reception range.

**If the reception conditions are good, the watch may be able to receive radio signals outside the reception range.*

**JAPAN (JJY)**

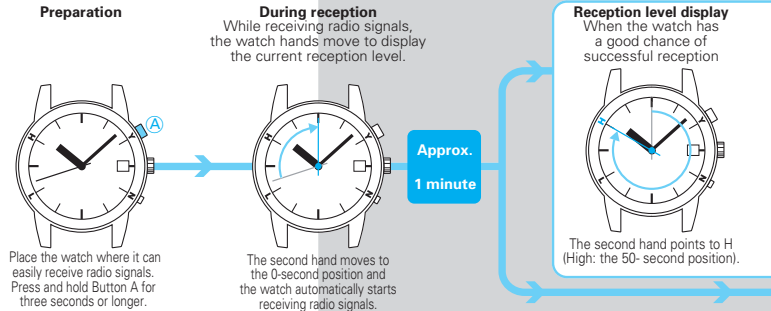
The reception range from each transmitting station is approximately 1,000 km (1,000 km radius of each station).



** 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). Refer to "APPROPRIATE PLACE TO KEEP A RADIO-CONTROLLED WATCH" on page 30.*

MANUAL RECEPTION

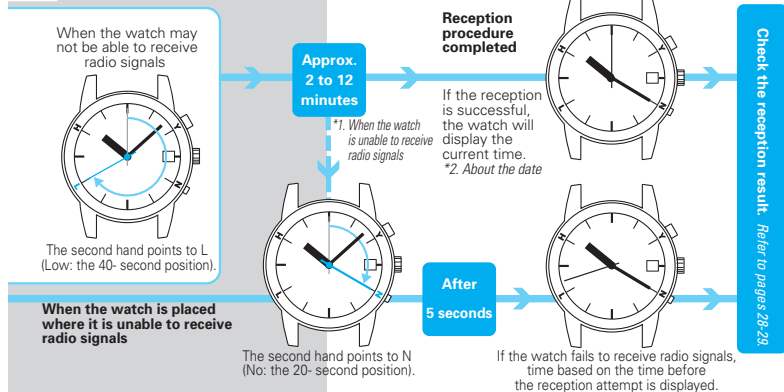
It is possible to make the watch receive radio signals manually by keeping Button A pressed for three seconds or longer.



*1. Please note that, depending on the environment in which the watch is placed, it may not receive radio signals successfully even though the second hand points to "H" or "L." Displayed reception level should be treated as a rough guide (refer to "APPROPRIATE PLACE TO KEEP THE WATCH" on page 30).

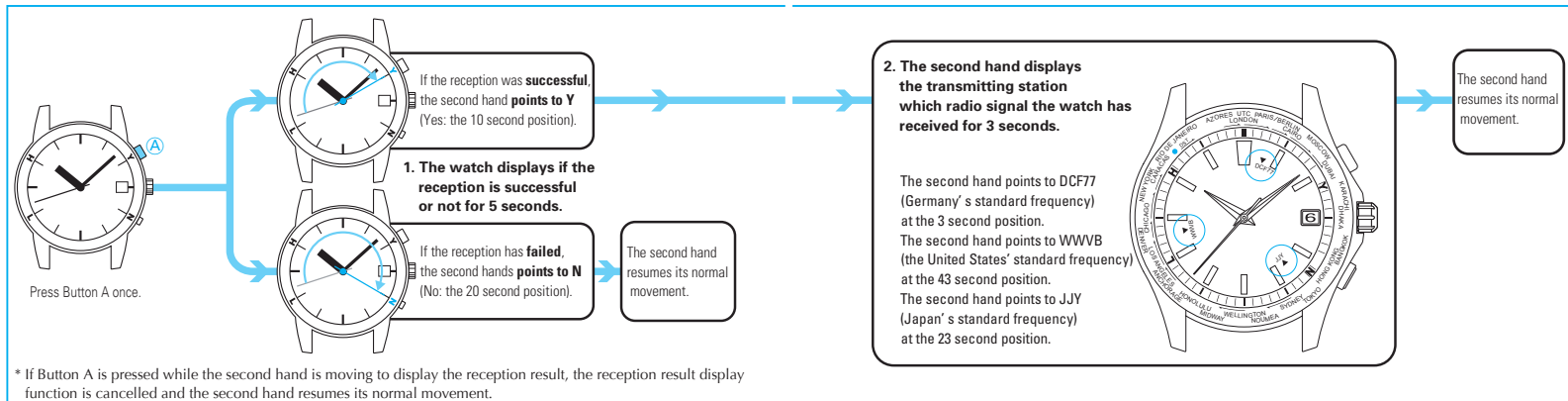
*2. After the watch receives a radio signal, when the date is incorrect even if the correct time is displayed, the calendar may be out of the preliminary position (refer to "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59).

If Button A is pressed during reception, the watch will stop receiving radio signals and time based on the time before the reception attempt is displayed.



HOW TO CHECK THE RECEPTION RESULT

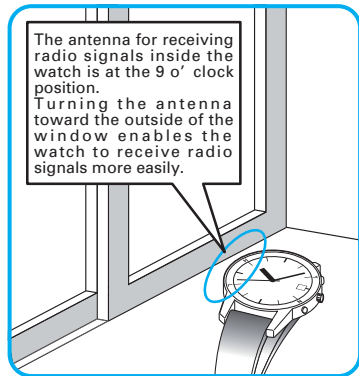
The second hand moves to display the reception result, and then it moves to display which radio signal the watch has received.



The result of the last reception attempt of either automatic or manual reception is displayed.

APPROPRIATE PLACE TO KEEP A RADIO-CONTROLLED WATCH

TO ENABLE THE WATCH TO RECEIVE RADIO SIGNALS EASILY



Place the watch where it can easily receive radio signals.

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

The watch is unable to receive radio signals outside a reception range.

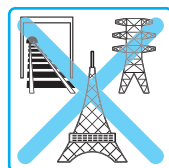
RADIO SIGNAL RECEPTION RANGE...pages 22-25

Whether the watch succeeds in receiving radio signals or not depends on the weather or receiving conditions.

CONDITIONS IN WHICH THE WATCH MAY BE UNABLE TO RECEIVE RADIO SIGNALS



- Inside a building, between tall buildings, underground



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



- Close to construction sites or in heavy traffic



- Inside a vehicle, train, airplane, etc.



- Close to home electrical appliances or OA devices
- Close to furniture made of steel, such as a steel desk

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

⚠ WARNING

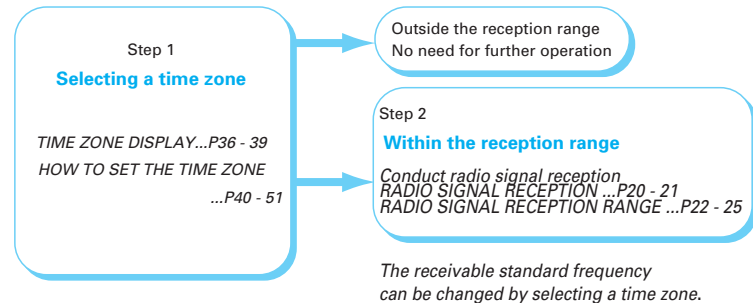
- The watch may display the incorrect time if it fails to receive radio signals properly because of interference. The watch may fail to receive radio signals depending on the location or reception conditions. In such a case, change the location of the watch.
- Radio signals can easily be received during nighttime hours due to its characteristics.
- The watch moves depending on the quartz movement (loss/gain: ± 15 seconds per month) when it is unable to receive radio signals.
- The time signal transmission may be stopped during maintenance of the facilities of each transmitting station or because of a lightning strike. In such a case, see each station's website for further information.

Websites of transmitting stations (as of June, 2006)

- Germany: PTB http://www.ptb.de/en/org/4/44/442/dcf77_1_e.htm
http://www.ptb.de/de/org/4/44/442/_index.htm (German)
- The United States: NIST <http://tf.nist.gov/stations/wwwvb.htm>
- Japan: NICT (Japan Standard Time Group) <http://jty.nict.go.jp/index-e.html> (English)

TIME ZONE ADJUSTMENT**HOW TO USE THE TIME ZONE ADJUSTMENT FUNCTION**

The watch can be set to local time in a different time zone easily by selecting a time zone. The watch can receive the standard frequencies of Germany, the United States, and Japan to set the precise time and date.



WHAT IS A TIME ZONE?

TIME ZONE AND TIME DIFFERENCE

Time zone means the region where the common standard time is used. There are 24 time zones around the world based on time differences from UTC (Universal Coordinated Time). In some regions daylight saving time (DST) is adopted.

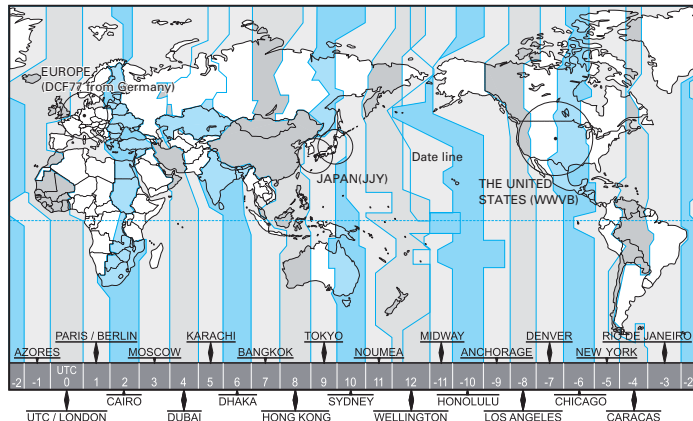
[What is UTC (Universal Coordinated Time)?]

UTC is the universal standard time coordinated through international agreement. It is used as the official time around the world. UTC is determined by adding a leap second to GMT (Greenwich Mean Time), which is determined through astronomical measurement, in order to keep the precise time.

[What is summer time (DST)?]

Summer time is daylight saving time. Advancing the watch one hour to prolong daytime during longer daylight hours in summer. Daylight saving time has been adopted in about 80 countries, mainly in Europe and North America. The adoption and duration of daylight saving time vary depending on the country.

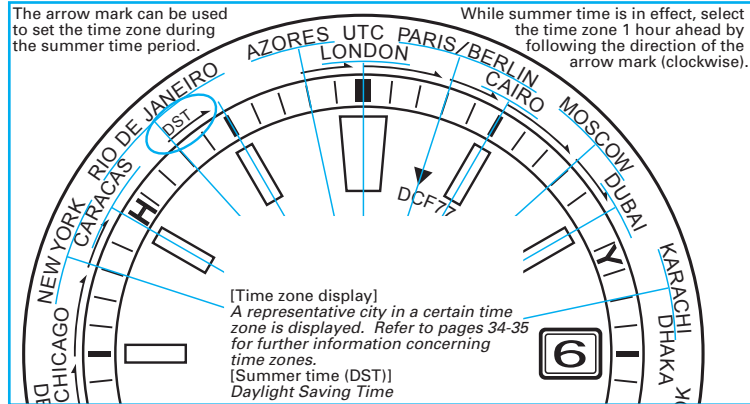
24 TIME ZONES AND TIME DIFFERENCES FROM UTC



TIME ZONE DISPLAY

Position that the second hand indicates	Time zone / Names of representative cities (City with ★ mark: DST adopted) Standard Time		Time difference from UTC	Receivable radio signal
48-second position	NEW YORK	New York★	-5 hours	WWVB
50-second position (10 o' clock position)	CARACAS	Caracas	-4 hours	WWVB◎
53-second position	RIO DE JANEIRO	Rio de Janeiro★	-3 hours	-
55-second position (11 o' clock position)	RIO DE JANEIRO	Rio de Janeiro★	-2 hours	-
58-second position	AZORES	Azores★	-1 hour	-
0-second position (12 o' clock position)	UTC/LONDON	UTC/London★	±0 hour	DCF77
3-second position	PARIS/BERLIN	Paris★/Berlin★	+1 hours	DCF77
5-second position (1 o' clock position)	CAIRO	Cairo★	+2 hours	DCF77◎
8-second position	MOSCOW	Moscow★	+3 hours	-
10-second position (2 o' clock position)	DUBAI	Dubai	+4 hours	-
13-second position	KARACHI	Karachi	+5 hours	-

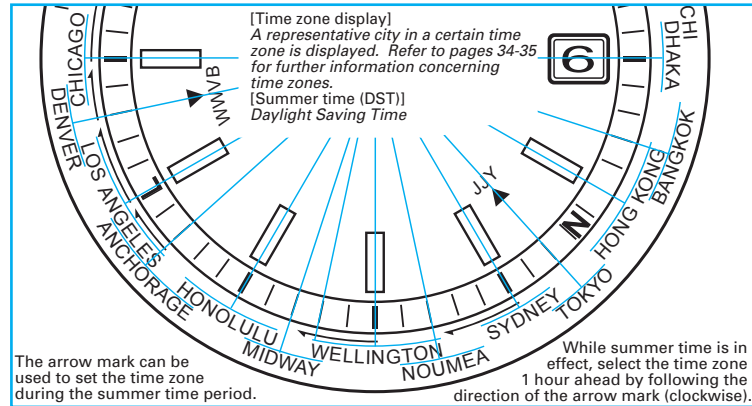
*If daylight saving time is in effect in the time zone within the radio signal reception range, the time zone with "◎" mark which is 1 hour ahead can be selected to set the precise time. Either automatic or manual reception is also available in these time zones if the watch is within the reception range (refer to "HOW TO SET SUMMER TIME" on page 42).



*If daylight saving time is in effect in the time zone "RIO DE JANEIRO," set the second hand at the 55-second position, not to the "AZORES" at the 58-second position.

Position that the second hand indicates	Time zone / Names of representative cities (City with ★ mark: DST adopted)		Time difference from UTC	Receivable radio signal
15-second position (3 o' clock position)	DHAKA	Dhaka	+6 hours	-
18-second position	BANGKOK	Bangkok	+7 hours	-
20-second position (4 o' clock position)	HONG KONG	Hong Kong	+8 hour	JJY
23-second position	TOKYO	Tokyo	+9 hour	JJY
25-second position (5 o' clock position)	SYDNEY	Sydney★	+10 hour	JJY ◎
28-second position	NOUMEA	Nouméa	+11 hours	-
30-second position (6 o' clock position)	WELLINGTON	Wellington★	+12 hours	-
32-second position (6 o' clock position)	WELLINGTON	(Wellington)*	+13 hours	
33-second position	MIDWAY	Midway Islands	-11 hours	-
35-second position (7 o' clock position)	HONOLULU	Honolulu	-10 hours	-
38-second position	ANCHORAGE	Anchorage★	-9 hours	-
40-second position (8 o' clock position)	LOS ANGELES	Los Angels★	-8 hours	WWVB
43-second position	DENVER	Denver★	-7 hours	WWVB
45-second position (9 o' clock position)	CHICAGO	Chicago★	-6 hours	WWVB

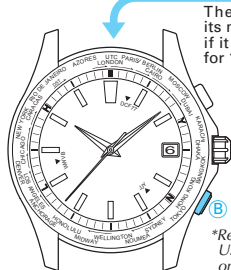
*If daylight saving time is in effect in the time zone within the radio signal reception range, the time zone with "◎" mark which is 1 hour ahead can be selected to set the precise time. Either automatic or manual reception is also available in these time zones if the watch is within the reception range (refer to "HOW TO SET SUMMER TIME" on page 42).



**If daylight saving time is in effect in the time zone "WELLINGTON," set the second hand at the 32 -second position, not to the "MIDWAY" at the 33-second position.

HOW TO SET THE TIME ZONE

HOW TO SELECT THE TIME ZONE



The watch resumes its normal movement if it is left untouched for 10 seconds.

*Refer to "HOW TO USE BUTTON B" on page 8.



The second hand points to the time zone currently selected.

*Refer to "TIME ZONE DISPLAY" on pages 36-39.

If the watch is left untouched for 10 seconds

Proceed to the next operation within 10 seconds.

Press Button A or B to select a time zone.



When the button is pressed once, the second hand advances by one hour.

When the button is pressed, the hour and minute hands move correspondingly with the second hand.



When the button is pressed once, the second hand moves back by one hour.

*While the date numerals in the calendar window are moving, the buttons and crown cannot be operated.

After 10 seconds

The current time of the selected time zone is displayed. The watch corrects the date automatically if necessary.

Select the time zone to set the watch to the local time in the desired area. While summer time is in effect, select the time zone 1 hour ahead.

HOW TO SET SUMMER TIME

Summer time is daylight saving time. Advance the watch one hour to prolong the daytime during the longer daylight hours in summer.

While summer time is in effect, select the time zone 1 hour ahead.

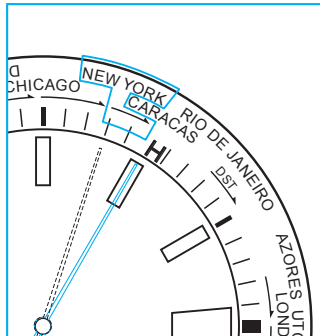
Follow the direction of the arrow mark (clockwise) to advance the second hand for the length of one arrow mark.

** Refer to "TIME ZONE DISPLAY" on pages 36-39.*

** Refer to "HOW TO SELECT THE TIME ZONE" on pages 40-41.*

In an environment where German standard radio signals (DCF77) can be continuously received, SUMMER TIME automatic change can be made (refer to "SUMMER TIME automatic change").

** The time differences and use of daylight saving time in each area are subject to change according to the governments of the respective countries or regions.*



SUMMER TIME AUTOMATIC CHANGE FUNCTION

As long as your watch is used in an environment where German standard radio signals (DCF77) can be continuously received, the time zone can automatically be changed by receiving the standard radio signals indicating "entering summer time" or "returning to normal time from summer time" to display the changed time.

**Refer to "In the case where the summer time change function cannot be automatically reset" on page 44.*

In the case where a summer time change automatically functions

<Ex. 1>

In Germany, your watch is used in an environment where the reception state is good. (Automatic reception, etc., can be made.)

After automatically changing to summer time, reception was successful.

Your watch displays summer time for which 1 hour is added to normal time. Checking the time zone, you find that it displays "CAIRO."

<Ex. 2>

During summer time in Germany, you used your watch with the time zone adjusted for "CAIRO." As reception failed and the time remained indicating summer time when summer time had ended, when manual reception was attempted, reception was successful.

The time indicates the correct time after summer time. Checking the time zone, you find that it displays "PARIS/BERLIN."

In the case where a summer time change cannot be automatically reset

<Ex.>

You move to Germany during summer time from an area that differs in time zone. After changing time zone and selecting "PARIS/BELRIN," reception was successful by manual reception; however, your watch did not display summer time.

In the case of summer time, select "CAIRO" not "PARIS/BELRIN."

QUESTIONS AND ANSWERS ABOUT THE TIME ZONE ADJUSTMENT FUNCTION

Q: When the watch is moved to a different time zone, is the time automatically changed to the time of the area?

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 travel.

If you select the time zone, the watch is automatically set to the local time.

(Adjust the time zone by one hour units according to the original time.)

If the time zone 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.

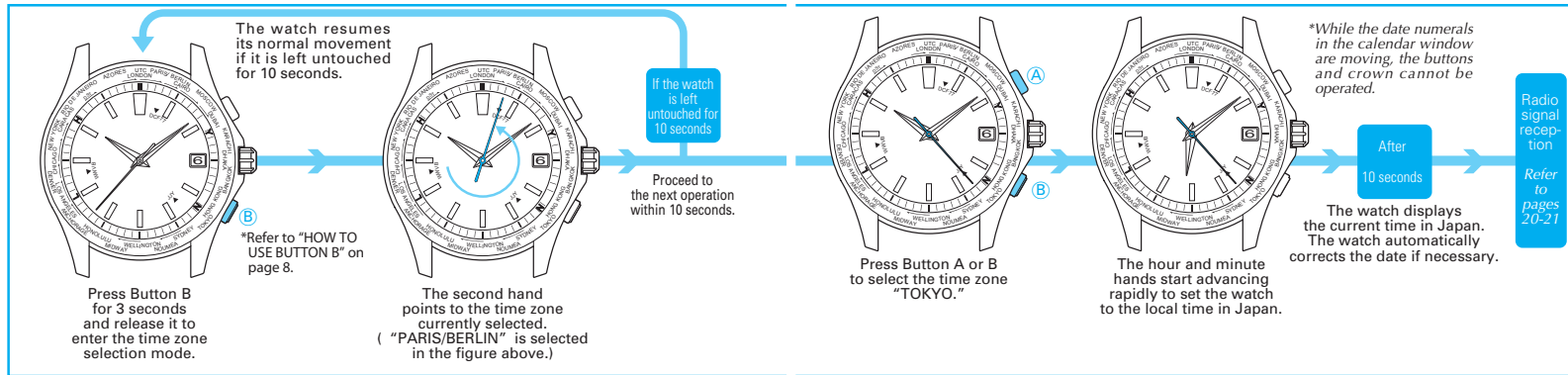
(The receivable standard frequency can be changed by selecting a time zone.)

Q: Summer time information should be contained in a standard frequency. Isn't it necessary to set summer time manually if the time zone within the radio signal reception range is properly selected?

A: Some areas or countries in a time zone may not have adopted summer time. Therefore, the watch is designed so that summer time can be manually selected. However, a summer time automatic change can be made as long as your watch is used in an environment where German standard radio signals (DCF77) can be continuously received.

EXAMPLES OF TIME ZONE ADJUSTMENT

IN AN AREA WITHIN THE RECEPTION RANGE ABROAD: ex. Japan (Tokyo)

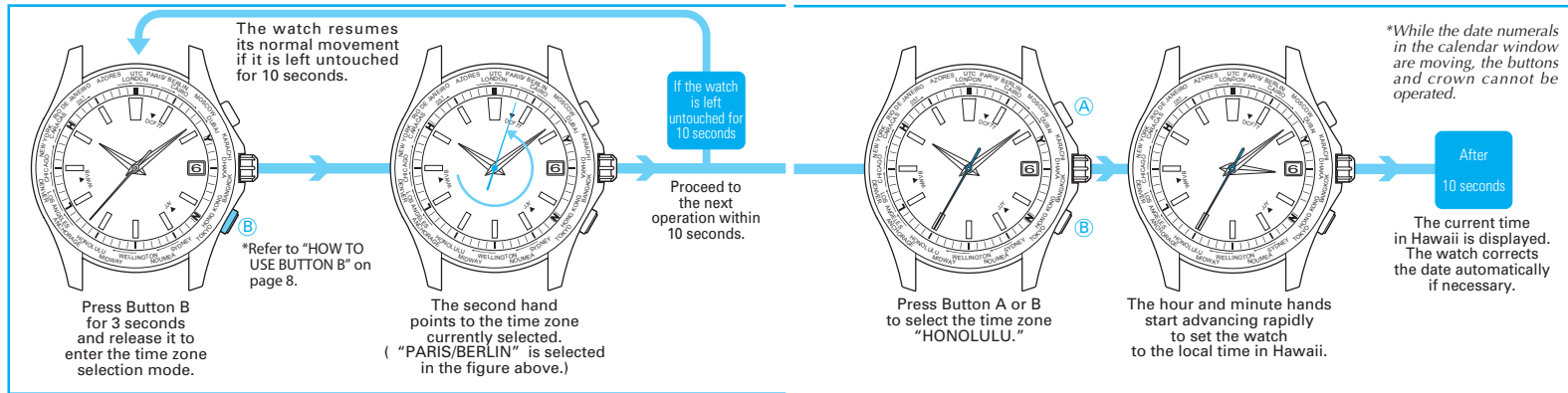


Select the time zone "TOKYO" which belongs to the Japan Standard Time.

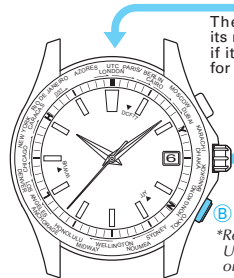
The watch can receive the standard frequency of Japan. Leave the watch to receive radio signals to set it to the precise time.

IN AN AREA OUTSIDE THE RECEPTION RANGE ABROAD: ex. Hawaii (Honolulu)

Select the time zone "HONOLULU" which belongs to the standard time in Hawaii.
 Since Hawaii is outside the reception range, the watch cannot receive radio signals to set it to the precise time automatically.



WHEN YOU RETURN FROM A COUNTRY THAT HAS A DIFFERENT TIME ZONE



Press Button B for 3 seconds and release it to enter the time zone selection mode.

The watch resumes its normal movement if it is left untouched for 10 seconds.

*Refer to "HOW TO USE BUTTON B" on page 8.



The second hand points to the time zone currently selected. ("TOKYO" is selected in the figure above.)

If the watch is left untouched for 10 seconds

Proceed to the next operation within 10 seconds.



Press Button A or B to select the time zone "PARIS/BERLIN."



The hour and minute hands start advancing rapidly to set the watch to the local time in Germany

*While the date numerals in the calendar window are moving, the buttons and crown cannot be operated.

After
10 seconds

The watch displays the current time in Germany. The watch automatically corrects the date if necessary.

Radio signal reception
Refer to pages 20-21.

Select the time zone of your own country. For example, select "PARIS/BERLIN" when

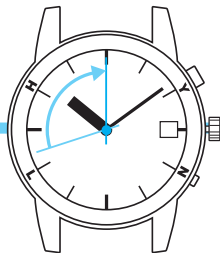
HOW TO MANUALLY SET THE TIME AND DATE

MANUAL TIME SETTING

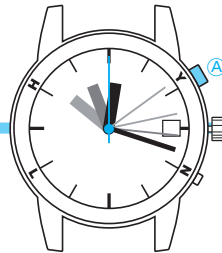


Pull out the crown to the second click.

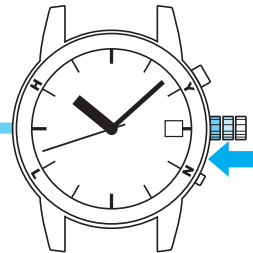
**Refer to "THE SCREW LOCK TYPE CROWN" on page 9.*



The second hand rotates until it points to the 0 second position (12 o' clock position) and stops to enter the manual time setting mode.



Press Button A to set the time. Each pressing of Button A advances the hour and minute hands by one minute. If Button A is kept pressed for one to two seconds, the hands advance rapidly. The hands keep advancing if Button A is released. Press Button A again to stop.



Push the crown back in. The watch resumes its normal movement.

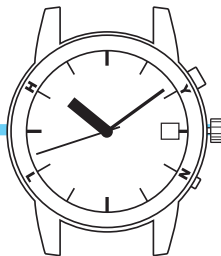
The watch moves depending on the quartz movement (loss/gain: ± 15 seconds per month). After the manual time setting, if the watch successfully receives a time signal, the watch displays the time based on the time information it receives.

**The watch hands do not move if the crown is turned. Pressing Button A advances the hands clockwise only.*

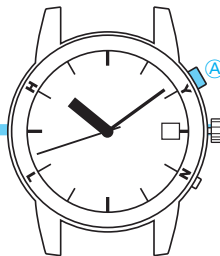
MANUAL DATE SETTING

Pull out the crown to the first click.

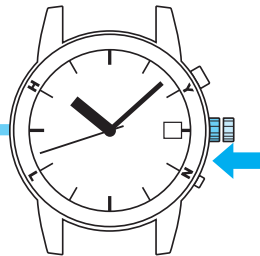
**Refer to "THE SCREW LOCK TYPE CROWN" on page 9.*



The watch enters the date setting mode while the watch hands continue to show the current time.



Press Button A to set the date. Each pressing of Button A advances the date by one day. If Button A is kept pressed for one to two seconds, the date numerals advance rapidly. The hands keep advancing if Button A is released. Press Button A again to stop.



After the date setting is completed, push the crown back in.

**When the date numerals are misaligned in the calendar window, the position of the date numerals can be adjusted. Refer to "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59.*

**The date numerals cannot be advanced or moved back by turning the crown. Pressing of Button A only advances the date. If Button A is kept pressed for one to two seconds, the date advances rapidly until 31 days have advanced.*

ABNORMAL DISPLAY OR IMPROPER FUNCTION

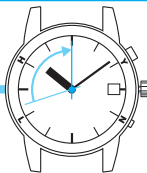
HOW TO RESET THE BUILT-IN IC

When the watch shows an abnormal display or does not properly function, or it does not move at one-second intervals even after being sufficiently charged, follow the instructions below to reset the built-in IC. Then the watch will resume its normal operation.

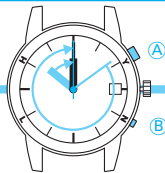


Pull out the crown to the second click.

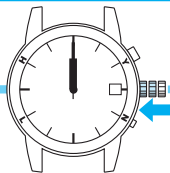
**Refer to "THE SCREW LOCK TYPE CROWN" on page 9.*



The second hand moves to the 0 second position (12 o'clock position).



Press Button A and Button B simultaneously for 3 seconds and release. After the second hand rotates a full circle, the hour and minute hands advance rapidly until they point to the 12 o'clock position and stop. Therefore all watch hands are set to the 12 o'clock position and stop.



Push the crown back in. The watch hands start moving. Reset of the built-in IC is completed.



Operations after resetting the built-in IC

- ① Set the calendar to the preliminary position ... refer to pages 58 to 59.
- ② Select the time zone (if necessary) ... refer to pages 40 to 41.
- ③ Set the time by receiving radio signals ... refer to pages 20 to 32.

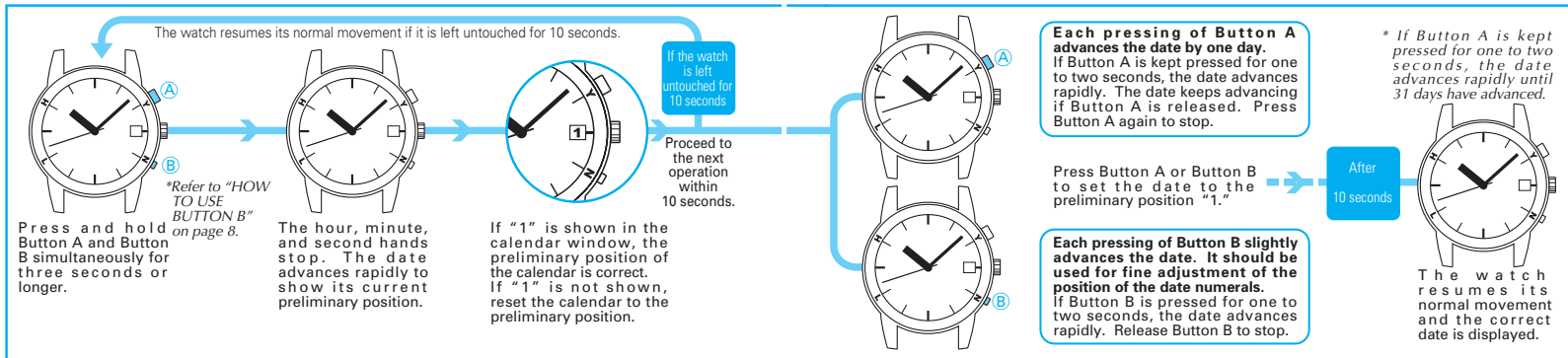
**After resetting of the built-in IC, be sure to set the calendar to the preliminary position.
After the built-in IC is reset, the watch is set to the time zone "PARIS/BERLIN."**

** If the second hand moves at two-second or five-second intervals, the energy depletion forewarning function should be activated; thus, it is not a malfunction (refer to "CHECKING THE CHARGING STATUS BY THE MOVEMENT OF THE SECOND HAND" on page 12). The watch hands may rotate rapidly because the automatic hand alignment function is activated; however, it is also not a malfunction (refer to "AUTOMATIC HAND ALIGNMENT" on page 19).*

PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR

If the date is incorrect after the built-in IC is reset or the watch succeeds to receive a proper radio signal, the calendar may be out of the preliminary position.

It is recommended to stop the date at "30" or "31" before setting it to "1" in order to check the alignment of the date numerals in the calendar window. After stopping the date at "30" or "31," advance the date to "1" by pressing Button B.



SPECIFICATIONS

- | | | |
|---|--|--|
| 1 | Frequency of crystal oscillator | 32,768 Hz (Hz = Hertz ... Cycles per second) |
| 2 | Loss/gain (monthly rate) | Less than ±15 seconds (Except during automatic time setting, when worn on the wrist within a normal temperature range between 5°C and 35°C.) |
| 3 | Operational temperature range | Between -10°C and +60°C |
| 4 | Driving systems | Step motor (hour and minute hands)
Step motor (second hand)
Step motor (calendar) |
| 5 | Power source | Secondary battery, 1 piece |
| 6 | Duration of operation | Approximately 6 months (Fully charged, the Power Save is not activated)
<i>*If the Power Save is activated after it is fully charged, the watch continues to run for approximately one year and a half.</i> |
| 7 | Time setting by receiving a radio signal | Automatic reception (2:00 AM, 3:00 AM, and 4:00 AM; attempts of reception depend on radio wave receiving conditions.)
<i>*After having received a radio signal, the watch moves depending on the quartz movement until the next reception. Manual reception is also possible.</i> |
| 8 | IC (Integrated Circuit) | Oscillator, frequency divider and driving circuit C-MOS-IC: 3 pieces |

TROUBLESHOOTING

Trouble		Possible cause
Hand movement	The second hand moves at two-second intervals.	The energy depletion forewarning function is activated. If the second hand moves at two or five-second intervals while you wear the watch everyday, the watch is in a condition where it cannot get sufficient light, for instance, the watch is concealed under a long sleeve shirt.
	The second hand moves at five-second intervals.	
	The stopped second hand pointing to the 15-second position or 45-second position started moving.	The power save function has been activated while the second hand stopped pointing to the 15-second position or 45-second position. The power save function is automatically activated when the watch is not exposed to adequate light for a certain period of time, to limit energy consumption.
	The watch hands advance rapidly unless a button is pressed. After the rapid advancement is completed, the watch resumes its normal movement.	The automatic hand alignment function was activated. When the hand positions deviate to display incorrect time as a result of the influence of various external sources, the watch automatically corrects the hand alignment itself.

Solution
Refer to "STANDARD CHARGING TIME" on page 11 to recharge the watch. Be careful not to conceal the watch under a sleeve. When taking the watch off, place the watch in as bright a location as possible. (Make sure that the watch temperature is always kept below 60 °C.)
Refer to "POWER SAVE FUNCTION" on pages 14-15. If the watch moves at five-second intervals, immediately charge the watch. For details, refer to "CHECKING THE CHARGING STATUS BY THE MOVEMENT OF THE SECOND HAND" on page 12.
No operation is needed (this is not a malfunction). For details, refer to "AUTOMATIC HAND ALIGNMENT" on page 19.

Trouble		Possible cause
Reception of radio signals	The watch is unable to receive radio signals. The second hand points to N (reception failed).	The watch was moved while it was receiving radio signals.
		The watch was left where radio signals were weak or where it could not receive radio signals.
		Transmitting stations may have stopped transmitting time signals for some reasons.
		The watch is set to the time zone outside of a radio signal reception range.
Charging the solar battery	The stopped watch was exposed to adequate light for a longer time than "the time required for fully charging the watch," however, it does not resume its normal one-second interval movements.	The light is too weak or the manner of lighting the watch has been altered while the watch is being charged.
		The built-in IC has fallen into an unstable condition.

Solution
Do not move the watch while it is receiving radio signals. For details, refer to "TO ENABLE THE WATCH TO RECEIVE RADIO SIGNALS EASILY" on page 30.
Place the watch where it can easily receive radio signals. For details, refer to "CONDITIONS IN WHICH THE WATCH MAY BE UNABLE TO RECEIVE RADIO SIGNALS" on page 31.
See the website of each transmitting station for further information concerning the transmission of time signals. The websites of transmitting stations are listed on page 32. For details, refer to "CONDITIONS IN WHICH THE WATCH MAY BE UNABLE TO RECEIVE RADIO SIGNALS" on page 31.
Check the time zone that the watch is currently set for, and select the time zone where you want to set the watch. For details, refer to "TIME ZONE ADJUSTMENT" on page 33.
Charge the watch in an environment where the watch can be exposed to an adequate intensity of light in a stable condition.
Reset the built-in IC. For details, refer to "ABNORMAL DISPLAY OR IMPROPER FUNCTION" on pages 56-57.

Trouble		Possible cause
Time misalignment of hand position	The watch temporarily gains or loses time.	The watch fails to receive radio signals properly as a result of the influence of various external sources.
		The watch has been left in extremely high or low temperatures for a long time.
	The time displayed on the watch is several hours before or ahead of the current time.	The watch may be set to a time in a different time zone from the area where the watch is currently used.
	The reception result display confirms successful reception but the wrong time is displayed.	The hand positions were misaligned as a result of the influence of various external sources.
	The second hand is not correctly positioned while in the reception result display or reception level display.	The second hand is out of the preliminary position as a result of the influence of various external sources.

Solution

<p>Place the watch where it can receive radio signals more easily. Conduct manual reception if necessary. For details, refer to "CONDITIONS IN WHICH THE WATCH MAY BE UNABLE TO RECEIVE RADIO SIGNALS" on page 31 and "MANUAL RECEPTION" on pages 26-27.</p>
<p>When the watch returns to normal temperature, the condition will be corrected. Conduct manual reception if necessary. For details, refer to "MANUAL RECEPTION" on pages 26-27. If the watch hands are not set to current time even after conducting manual reception, consult the retailer from whom the watch was purchased.</p>
<p>Check the time zone that the watch is currently set for, and select the time zone where you want to set the watch. For details, refer to "TIME ZONE ADJUSTMENT" on page 33.</p>
<p>No crown or button operation is needed. Automatic hand alignment will be activated to correct the hand positions. For details, refer to "AUTOMATIC HAND ALIGNMENT" on page 19. If the hand positions are not corrected automatically or if you want to adjust the hand positions immediately, reset the built-in IC. For details, refer to "ABNORMAL DISPLAY OR IMPROPER FUNCTION" on pages 56-57. If the hand positions are not corrected even after resetting the built-in IC, consult the retailer from whom the watch was purchased.</p>

Trouble		Possible cause
Wrong date	The reception result display confirms successful reception but the wrong date is displayed.	The calendar is out of preliminary position. This happens when the calendar is out of preliminary position as a result of influence of various external sources or after the built-in IC is reset.
Crown and button operation	The crown or buttons cannot be operated.	The stored electric power is running short causing the watch to move at two-second intervals or five-second intervals.
		Date numerals in the calendar window are moving right after the various crown or button operations.
	I get lost in the middle of the setting procedures.	-----
Others	Blur on the dial glass persists.	Small amount of water has got inside the watch due to deterioration of the gasket, etc.

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

Solution
After checking whether the calendar is set to the preliminary position, perform the preliminary position settings for calendar. For details, refer to "PRELIMINARY POSITION CHECKING AND SETTING FOR THE CALENDAR" on pages 58-59.
Refer to "ENERGY DEPLETION FOREWARNING FUNCTION" on page 13 to charge the watch.
Wait until the date numerals in the calendar window stop. After the date numerals stop, the crown and buttons can be operated.
Leave the watch untouched for a while. The watch will resume its normal movement. Then start the setting procedure from the beginning.
Consult the retailer from whom the watch was purchased.