Cal. 8B92

- The instructions are also available on SEIKO website. For instructions in Portuguese, Russian and Arabic, please visit the website below.
- As instruções estão também disponíveis no website SEIKO. Para as instruções em português, russo e árabe, queira visitar o website abaixo indicado.
- Руководство по эксплуатации также доступно на сайте SEIKO. С руководством по эксплуатации на португальском, русском и арабском языках можно ознакомиться на сайте, указанном ниже.
- التعليمات موجودة ايضا على موقع سيكو الالكتروني. بالنسبة للتعليمات بالبرتغالية، الروسية والعربية يرجي زيارة الموقع التالي.

http://www.seikowatches.com/support/ib/index.html

You are now the proud owner of a SEIKO Radio Sync Solar World Time Chronograph Cal. 8B92. For the best results, please read the instructions in this booklet carefully before using the watch. Please keep this manual handy for ready reference.

Wir gratulieren Ihnen zum Kauf des Funk Solar World Time Chronographen Kalibers 8B92. Lesen Sie diese Bedienungsanleitung vor der Verwendung der Uhr aufmerksam durch, um eine einwandfreie Bedienung und Funktion Ihrer Uhr zu gewährleisten. Heben Sie diese Bedienungsanleitung gut auf, um jederzeit wieder nachlesen zu können.

Vous voici l'heureux propriétaire d'un Chronomètre solaire mondial radiopiloté SEIKO Cal. 8B92. Pour en obtenir des performances optimales, veuillez lire attentivement cette brochure avant d'utiliser la montre. Conservez ce manuel pour vous y référer en cas de besoin.

Grazie di aver acquistato questo orologio SEIKO Analogico al Quarzo, Solar Cal. 8B92. Per poter utilizzare l'orologio al massimo delle sue prestazioni leggere attentamente questo manuale di istruzioni prima di passare all'uso dell'orologio stesso, e conservarlo poi per qualsiasi eventuale futura consultazione.

Es usted ahora el orgulloso propietario de un Cronógrafo Solar de Hora Mundial Radio Sincronizado SEIKO, Cal. 8B92. 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.

Você pode agora sentir-se orgulhoso de possuir um Cronógrafo Hora Mundial Solar Rádio Sincronizado SEIKO Cal. 8B92. Para obter os melhores resultados, leia atentamente as instruções contidas neste opúsculo antes de usá-lo. Conserve este manual para consultas futuras.

您已經驕傲的成為了精工錶（SEIKO）萬年曆太陽能電波錶 8B92 的擁有者。為能更有效地利用本錶，使用本錶前，請仔細閱讀本手冊內的各項使用説明，並妥善保管本手冊，以便今後參考。

English

BEFORE USE

■ Make sure to keep the watch sufficiently charged

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 in a location receiving light, etc., to sufficiently charge electricity.

■ To receive radio signals

The watch automatically receives radio signals to adjust the time every day.

Automatic radio signal reception is carried out before two and four o'clock during the night.

During this period of time, place the watch in a location that easily receives radio signals without wearing it and do not move it.

ENGLISH

CONTENTS

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

English

English

FEATURES

■ **WORLD TIME FUNCTION**
- By selecting a time zone, the watch can display the local time in the selected time zone area.

■ **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, 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

■ **STOPWATCH FUNCTION**
- 60 minutes stopwatch in 1/5-second increments.
- Split time measurement on demand.
- When the measurement reaches 6 hours, the stopwatch automatically stops and is reset.

■ **DISPLAY FUNCTION OF RADIO SIGNAL RECEPTION RESULTS**

■ **POWERED BY LIGHT ENERGY**

■ **NO BATTERY CHANGE REQUIRED**

■ **LASTS FOR 6 MONTHS AFTER FULL CHARGE**

■ **ENERGY DEPLETION FOREWARNING FUNCTION**

■ **OVERCHARGING PREVENTION FUNCTION**

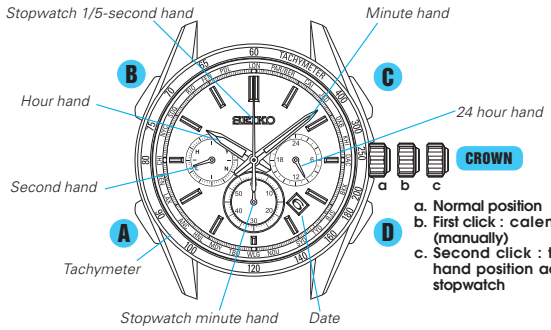
■ **POWER SAVE FUNCTION**

■ **AUTOMATIC HAND POSITION ADJUSTMENT FUNCTION**

English

English

DISPLAY & BUTTONS

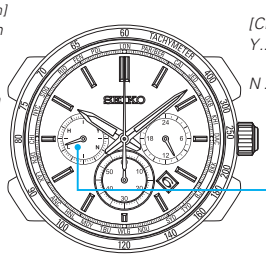


a. Normal position
b. First click : calendar setting (manually)
c. Second click : time setting, hand position adjustment of stopwatch

** Some models may not have a tachymeter.*
** Indication on the bezel or positions of each item on the dial may vary depending on the model (design).*

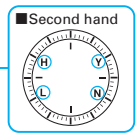
◆ Display of Radio Wave Reception Level

[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)



◆ Radio signal transmitting station display

Display (country with radio signal transmitting station)	Stopwatch 1/5-second hand position
W / WWVB (U.S.A.)	43 second position
D / DCF77 (Germany)	3 second position
B / BPC (China)	21 second position
J / JJY (Japan)	23 second position

** Each position of above displays may differ depending on the watch.*

◆ Time Zone Display

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

English

English

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.

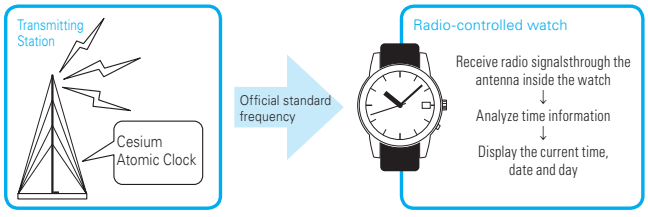
[How to lock the screw lock type crown]
Once you have finished using the crown, turn it clockwise while gently pressing it in toward the watch body until it stops.

• 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.

SETTING THE TIME AND DATE BY RECEIVING A RADIO SIGNAL

● Mechanism of radio signal reception

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.

English

English

● Automatic Reception and Manual Reception

• Automatic Reception

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

It automatically receives a radio signal at 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.
- If the stopwatch hands are not reset to the 0-position, the watch will not receive a radio signal to set the time.

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

• Manual Reception

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

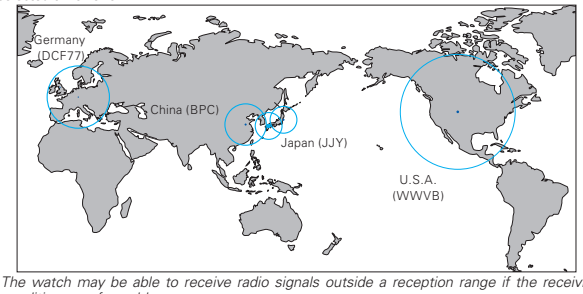
- Radio Signal reception results depend on a receiving condition. → RECEPTION ENVIRONMENT
- This watch is unable to receive radio signals outside a reception range. → RADIO SIGNAL RECEPTION RANGE INDICATION
- When the watch is not displaying the precise time and date even after successfully receiving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

RADIO SIGNAL RECEPTION RANGE INDICATION

English

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

When you set the watch to a time zone in U.S.A., Germany, 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).*

English

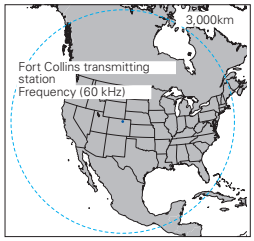
● Radio signal reception range : the United States of America (WWVB)

The reception range from the transmitting station is approximately 3,000 km (3,000 km radius of the transmitting station). There are four time zones within the reception range.

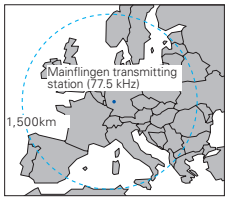
● Radio signal reception range : Germany (DCF77)

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

There are three time zones within the reception range.



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 Bundes-anstalt

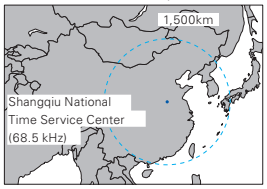
English

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

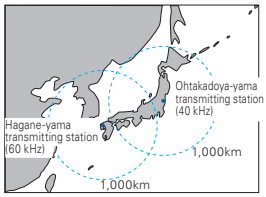
The reception range from the transmitting station is approximately 1,500 km (1,500 km radius of the transmitting station).

● 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

English

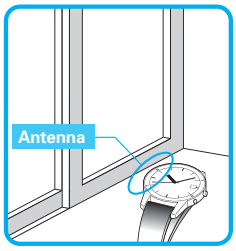
RECEPTION ENVIRONMENT

● 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.

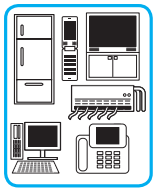
- **Do not move the watch while it is receiving radio signals.**
  To enhance the reception of radio signals, do not move the watch or do not change the orientation of the watch while it is receiving radio signals.

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



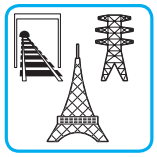
English

● 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

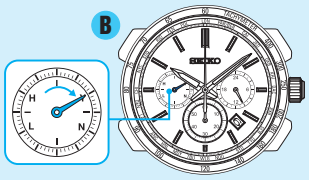
- The watch may display the wrong time if it fails to receive radio signals properly because of interference. The watch may also fail to receive radio signals properly depending on the location or radio wave receiving conditions. In this case, move the watch to another place where it can receive radio 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 2016)
  U.S.A. : NIST http://www.nist.gov/pml/div688/grp40/wwvb.cfm
  Germany : PTB http://www.ptb.de/cms/en.html.
  China : NTSC http://www.ntsc.ac.cn/
  Japan : NICT (Japan Standard Time Group) http://www.nict.go.jp/

HOW TO CHECK THE RECEPTION STATUS

◆ **How to Display the Reception Results**
The second hand indicates the latest reception results (Yes/No) of a radio signal for five seconds.

① Press Button B once and then release it.



* When Button B is kept pressed, the watch starts manual reception.

② The second hand indicates the reception results.

If a reception was successful: The second hand points to Y
(Yes ; the 10 second position)

If a reception has failed: The second hand points to N
(No ; the 20 second position)

* If Button B is pressed while the second hand is moving to display the reception results, the display function is cancelled and the second hand resumes its normal movement.

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*

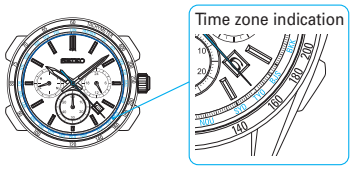
If reception has failed: The Second Hand points to N.

- 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
- 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, China, and Japan, the signal reception function will not work. Check the time zone setting. → HOW TO SELECT THE TIME ZONE
- 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 and date manually.

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 stopwatch 1/5-second hand indicates the selected time zone.

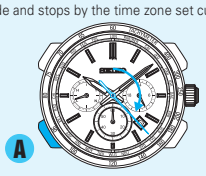


- If the time zone is set to U.S.A, Germany, China or Japan, the watch displays the precise time and date by receiving radio signals after automatic reception or manual reception, provided that the watch is within the radio signal reception range.
  *The watch is unable to receive radio signals outside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

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

① Continue to press Button A (for 3 seconds), and when the stopwatch 1/5-second hand starts to move clockwise, release it.

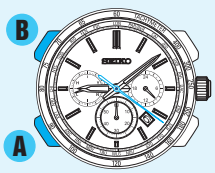
▶ The watch switches to the time zone adjustment mode and stops by the time zone set currently.



* When a no movement state of the stopwatch 1/5-second hand is kept for ten seconds or more, the watch automatically switches to the time display state. When it is in the middle of operation, re-attempt the operation from procedure 1.
* If the stopwatch hands are not reset to the 0-postion, it is not possible to set the time zone (the second hand does not stop). Reset the stopwatch and re-attempt procedure 1.

② Press Button A or Button B to set the stopwatch 1/5-second hand to the local time zone of a desired area.

▶ With each pressing of the button, the stopwatch 1/5-second hand moves to the adjacent time zone index. The position of stopwatch 1/5-second hand indicates the time zone.



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 hand stops. (The time zone adjustment mode is finished.)

▶ After ten seconds, the stopwatch 1/5-second hand automatically switches to the 0-position.

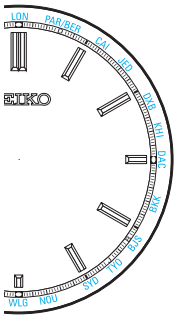
* In case the date changes, the watch adjusts automatically after the stopwatch 1/5-second hand switches to the 0-position.

English

TIME ZONE DISPLAY AND TIME DIFFERENCE TABLE

In the Time Zone Setting mode, set the stopwatch 1/5-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).

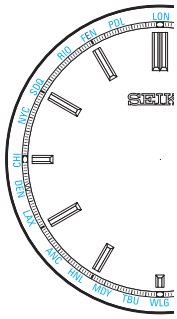
Indication	Stopwatch 1/5-second hand positions	Names of representative cities (Time Zone)	Time difference from UTC	Receivable radio signals
LON	0-second position	London	±0 hours	DCF77
PAR/BER	3-second position	Paris/Berlin	+1 hour	DCF77
CAI	6-second position	Cairo	+2 hours	DCF77
JED	8-second position	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	—



English

(As of March 2016)

Indication	Stopwatch 1/5-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.

English

■ 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 : The hands stop during operation of time zone setting, therefore, does time lag occur?
A : The internal circuit stores the time, therefore, no time lag occurs.

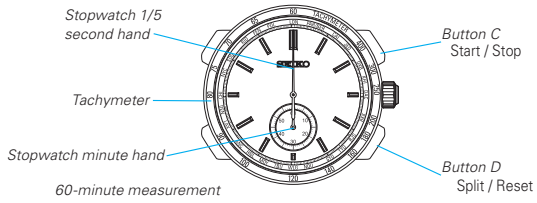
Q : When a time zone for regions out of the radio signal reception range is set, the watch will not receive a radio signal. How is the accuracy of the watch at that time?
A : The watch has an accuracy of a normal quartz watch in that case. (Monthly rate: ±15 seconds)

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

HOW TO USE THE STOPWATCH

- The measured time can be read up to 60 minutes in 1/5-second increments.
- When the measurement reaches 6 hours, the stopwatch automatically stops counting and is reset.
- Split time measurement function is available.

• If the stopwatch minute and hour hands do not return to the "0" position when the stopwatch is reset to "0," it will be necessary to adjust the positions of the stopwatch hands. →PRELIMINARY POSITION



* Position of the tachymeter scale may differ depending on the model.
* Some models may not have a tachymeter.

English

● How to use the stopwatch

<STANDARD MEASUREMENT>

C ▶ C ▶ D
START STOP RESET

<ACCUMULATED ELAPSED TIME MEASUREMENT>

C ▶ C ▶ C • • • • ▶ C ▶ D
START STOP RESTART STOP RESET

** Restart and stop of the stopwatch can be repeated by pressing button C.*

<SPLIT TIME MEASUREMENT>

C ▶ D ▶ D • • • • ▶ C ▶ D
START SPLIT SPLIT RELEASE STOP RESET

** Measurement and release of split time can be repeated by pressing button D.*
** If the time measured reaches 6 hours while the split time is being displayed, the stopwatch automatically stops counting and releases the split time display, showing "00' 00."*

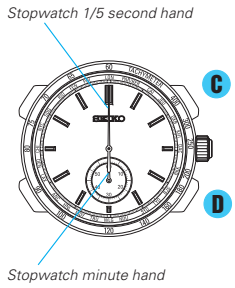
<MEASUREMENT OF TWO COMPETITORS>

C ▶ D ▶ C ▶ D ▶ D
START FINISH TIME OF 1ST COMPETITOR 2ND COMPETITOR FINISHES FINISH TIME OF 2ND COMPETITOR RESET

● How to reset the stopwatch

While the STOPWATCH hands are moving

1. Press Button C to stop the stopwatch.
2. Press Button D to reset the stopwatch.



While the STOPWATCH hands are stopped

[When the stopwatch is stopped]
1. Press Button D to reset the stopwatch.

[When the split time measurement is displayed while the stopwatch is measuring.]
1. Press Button D to release the split time display and return to the normal display.
2. Press Button C to stop the stopwatch.
3. Press Button D to reset the stopwatch.

[When the split time measurement is displayed and the stopwatch is stopped]
1. Press Button D to release the split time display.
2. Press Button D to reset the stopwatch.

English

TACHYMETER

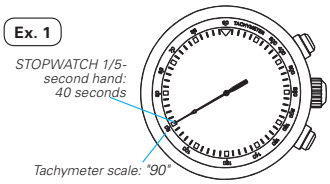
(for models with tachymeter scale on the dial)

To measure the hourly average speed of a vehicle

1 Use the stopwatch to determine how many seconds it takes to go 1 km or 1 mile.

2 Tachymeter scale indicated by the STOPWATCH 1/5-second hand gives the average speed per hour.

Ex. 1



"90" (tachymeter scale figure) x 1 (km or mile) = 90 km/h or mph

- Tachymeter scale can be used only when the time required is less than 60 seconds.

Ex. 2: **If the measuring distance is extended to 2 km or miles or shortened to 0.5 km or miles and the STOPWATCH 1/5-second hand indicates "90" on tachymeter scale:**

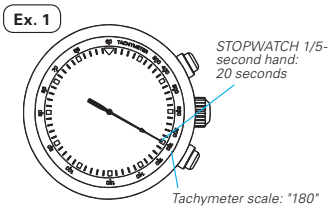
"90" (tachymeter scale figure) x 2 (km or mile) = 180 km/h or mph
"90" (tachymeter scale figure) x 0.5 (km or mile) = 45 km/h or mph

To measure the hourly rate of operation

1 Use the stopwatch to measure the time required to complete 1 job.

2 Tachymeter scale indicated by the STOPWATCH 1/5-second hand gives the average number of jobs accomplished per hour.

Ex. 1



"180" (tachymeter scale figure) x 1 job = 180 jobs/hour

Ex. 2: **If 15 jobs are completed in 20 seconds:**

"180" (tachymeter scale figure) x 15 jobs = 2700 jobs/hour

English

TELEMETER

(for models with telemeter scale on the dial)

- The telemeter can provide a rough indication of the distance to the source of light and sound.
- The telemeter indicates the distance from your location to an object that emits both light and sound. For example, it can indicate the distance to the place where lightning struck by measuring the time elapsed after you see a flash of lightning until you hear the sound.
- A flash of lightning reaches you almost immediately while the sound travels to you at a speed of 0.33 km/second. The distance to the source of the light and sound can be calculated on the basis of this difference.
- The telemeter scale is graduated so that the sound travels at a speed of 1 km in 3 seconds.*

**Under the condition of temperature of 20° C(68° F)*

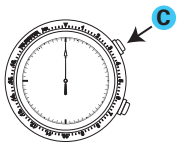
⚠ CAUTION

The telemeter provides only a rough indication of the distance to the place where lightning struck, and therefore, the indication cannot be used as the guideline to avoid the danger of lightning. It should also be noted that the speed of the sound differs depending on the temperature of the atmosphere where it travels.

HOW TO USE THE TELEMETER

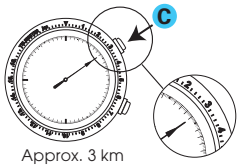
Before beginning, check that the stopwatch has been reset.

START
(Flash of light)



1 Press Button C to start the stopwatch as soon as you see light.

STOP
(Crash of thunder)



2 When you hear the sound, press Button C to stop the stopwatch.

3 Read the telemeter scale that the STOPWATCH 1/5-second hand points to.

Please note that the STOPWATCH 1/5-second hand moves in 1/5-second increments and does not always point exactly to the graduations of the telemeter scale. The telemeter scale can be used only when the measured time is less than 60 seconds.

English

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/Lightsource (lux)	8B92		
	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	6 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.

◆ 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.

POWER SAVE FUNCTION

This watch is equipped with a power save function (Power Saving) 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 receiving.	 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 receiving.
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 sufficiently charging the battery, set the current time by receiving a radio signal.*

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.

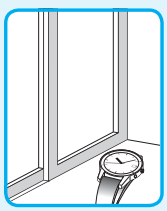
⚠ CAUTION

- 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.

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

① Place the watch.

▶ When receiving a radio signal, place the watch where it can easily receive a signal.



→ RECEPTION ENVIRONMENT

② Check that the stopwatch is reset and the time zone is set.

* If the stopwatch is not reset or the time zone is set to a region other than receivable area, the watch will be unable to receive a radio signal.

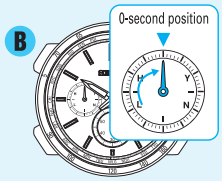
→HOW TO USE THE STOPWATCH

→HOW TO SELECT THE TIME ZONE.

③ Keep pressing Button B until the second hand has finished its movement to the 0-second position (for 3 seconds).

▶ When the second hand has moved to the 0-second position, the watch will start to receive a radio signal.

* If the second hand does not stop at the 0-second position, manual reception cannot be conducted. Re-attempt the operation from procedure 2.



④ Place the watch down and leave it untouched for several minutes.

* If the watch is moved or any operation is conducted during a radio signal reception attempt, the watch will be unable to receive a radio signal.

It takes 12 minutes at the longest according to the receiving state of a radio signal.

▶ When the second hand starts moving in 1-second increments, the reception is completed.

Reception level is updated by moving the second hand every one minute.

Display During Reception

Receiving Level High(H): 50-second position

Receiving Level Low (L): 40-second position

If the Reception has failed

Receiving Level Reception Failed(N): 20-second position

After five seconds, the watch will resume displaying the time.

* It is difficult to receive the signals in some receiving conditions. → RECEPTION ENVIRONMENT
* This watch is unable to receive a radio signal outside a reception range. → RADIO SIGNAL RECEPTION RANGE
* If the second hand points to "L," the watch may not be able to receive a radio signal.

⑤ When radio signal reception is completed, the second hand starts moving in 1-second increments.

▶ Check whether the receiving a radio signal has been successful.
→ HOW TO CHECK THE RECEPTION STATUS

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.
Since a radio signal cannot be received, the time and date became misaligned. In this case, set the time and date manually.

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

• 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
Although the time zone is correctly selected, the time and date are not correct. In this case, set the time and date manually.

HOW TO MANUALLY SET THE TIME

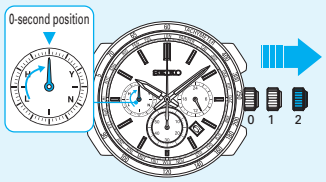
When the watch is used continuously in conditions in which the watch may be unable to receive a radio signal, it can be manually adjusted.

* When the watch is unable to receive a radio signal, it can move depending on normal quartz movement (loss / gain: ±15 seconds per month on average).

- **When adjusting the time, the 24-hour hand and date will be accordingly adjusted.**
- **When the watch receives a radio signal after manual adjustment of the time, it displays the received time.**

① When pulling the crown to the second click, the second hand stops at the 0-second position.

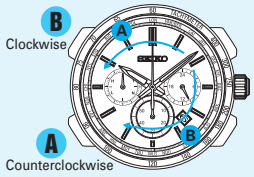
▶ The watch enters the manual time setting mode.
(If the stopwatch is moving, the stopwatch hands also stop at the 0-second position.)



* 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.

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

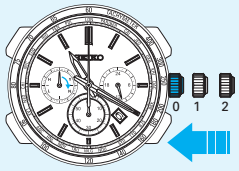
One minute Advance	Press Button A or Button B once and then release it.
Continuous Advance	When either of Button A or Button B is kept pressed for two seconds or longer, the hand will start to move. Press Button A or Button B again to stop.



* The hand will not move by turning the crown.

③ Push the crown back in according to the time signal.

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



HOW TO MANUALLY SET THE DATE

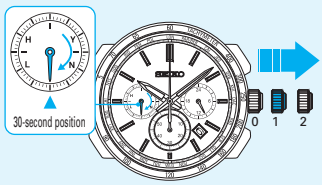
When the date is not automatically changed in which the watch is unable to receive a radio signal, the date can be adjusted manually.

- The date can be adjusted independently regardless of the time.
- When the watch receives a radio signal after conducting manual adjustment of the time, it displays the time based on the information of time received.
- When using the watch again in regions in which the watch is able to receive the radio signals, it is recommended to perform "Manual Reception."
  → HOW TO CONDUCT MANUAL RECEPTION

* When the date is not correct even if the watch successfully receives a radio signal, the preliminary position of the date may be misaligned.
→ PRELIMINARY POSITION

① When pulling the crown to the first click, the second hand stops at the 30-second position.

▶ The watch enters the manual date setting mode.
(If the stopwatch is moving, the stopwatch hands also stop at the 0-second position.)

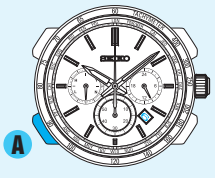


*The watch operates while it enters the mode. (The second hand remains stopped.)

② Press Button A to set the date.

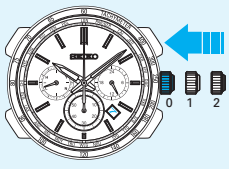
* If not correcting the date, go to procedure 3.

One day Advance	Press Button A once and then release it.
Continuous Advance	When Button A is kept pressed for two seconds or longer, the date will start to move. Press Button A again to stop.



③ Push the crown back in.

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



PRELIMINARY POSITION

When the watch is unable to display the precise time or date even if it successfully receives a radio signal, or when the stopwatch hands do not stop at the 0-position even after resetting the stopwatch, the preliminary position may be misaligned.
The preliminary hand position 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 position of the hand)

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 hand position is 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 position of the hour and minute hands can also be manually adjusted.

■ Setting the Preliminary Position of the Date/Stopwatch Hands

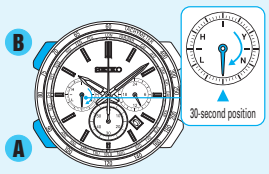
Since the preliminary position of the date and stopwatch hands is not automatically adjusted, it must be adjusted manually.

■ Setting the Preliminary Position of the Date / Hour and Minute Hands

The preliminary position of the date is "1" (1st).
The preliminary position of the hour and minute hands is "0:00 AM."

① Press and hold Button A and Button B simultaneously until the second hand stops at the 30-second position (for 3 seconds).

▶ The watch enters the mode to adjust the preliminary position of the date. And then the date numeral starts moving and stops at the preliminary position.



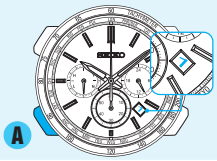
* During movement of the date numeral, the buttons cannot be operated.

② Press Button A to set the date to "1."

▶ Adjust the date so that "1" will locate at the center of the date window.

* When "1" is displayed in the date window, go to procedure 3.

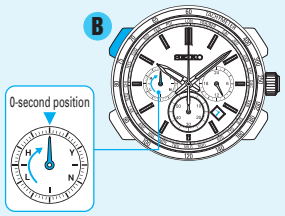
Continuous Advance	When Button A is kept pressed for 2 seconds or longer, the date starts to move. Press Button A again to stop.
Fine Adjustment	Each pressing of Button A slightly advances the date.



③ Press and hold Button B until the second hand stops at the 0-second position (for 3 seconds).

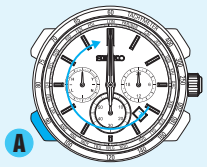
▶ The watch enters the mode to adjust the preliminary position of the hour and minute hands.

* When the correct time is displayed, go to procedure 5.



④ Press Button A once and release it.

▶ The minute and hour hands move to stop at "0:00 AM."



⑤ After the procedures are completed, leave the watch for 20 seconds.

▶ The preliminary position adjustment mode is automatically terminated and the second hand starts moving.

Confirm whether the time and date are correct after the watch resumes displaying time.

In the case that the time and date are not correct, adjust the time and date.

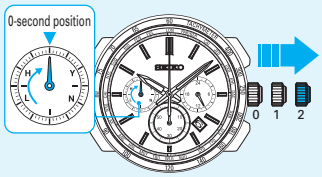
** In procedures 1 to 5, when no operation is conducted after the date numeral and second hand stop, and the watch has no movement of the date or the second hand for 20 seconds or longer, it automatically displays the time again. When it is in the middle of operation, reattempt the operation from procedure 1.*

■ Setting the Preliminary Position of the Stopwatch 1/5-Second and Minute Hands

The preliminary position of the stopwatch 1/5-second hand is the 0-second position, and that of the minute hand is the 0-minute position.

By setting the preliminary position, the correct measured result is displayed.

① When pulling the crown to the second click, the second hand stops at the 0-second position.



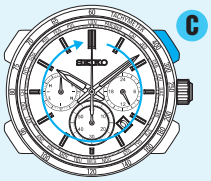
* The date and stopwatch hands also stop.

* If procedure 1 is conducted, the watch gains or loses time.

Set the time in procedure 6 (set the time by receiving a radio signal).

② Press Button C until the stopwatch 1/5-second hand starts moving (for 2 seconds).

▶ The stopwatch 1/5-second hand makes a full rotation, and the watch enters the mode to adjust the preliminary position of the stopwatch 1/5-second hand.

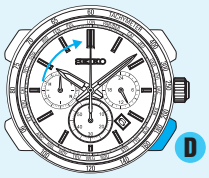


③ Press Button D to set the stopwatch 1/5-second hand to the 0-second position.

▶ Set the stopwatch 1/5-second hand to the 0-second position.

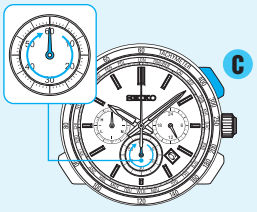
* When the stopwatch 1/5-second hand is set to the 0-second position, go to procedure 4.

Continuous Advance	When Button D is kept pressed for two seconds or longer, the hand will start to move. Press Button D again to stop.
Fine Adjustment	Each pressing of Button D slightly advances the hand.



④ Press Button C until the stopwatch minute hand starts moving (for 2 seconds).

▶ The stopwatch minute hand makes a full rotation, and the watch enters the mode to adjust the preliminary position of the stopwatch minute hand.

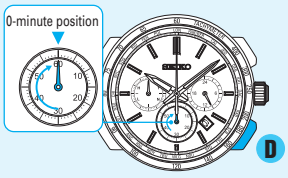


⑤ Press Button D to set the stopwatch minute hand to the 0-minute position.

▶ Set the stopwatch minute hand to the 0-minute position (60-minute position).

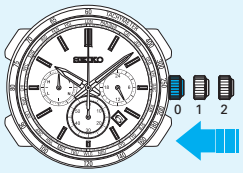
* When it is already set, go to procedure 6.

Continuous Advance	When Button D is kept pressed for two seconds or longer, the hand will start to move. Press Button D again to stop.
Fine Adjustment	Each pressing of Button D slightly advances the hand.



6 Push the crown back in to the normal position to set the time by receiving a radio signal.

▶ The preliminary position adjustment mode is automatically terminated and the watch starts moving.



▶ Conduct manual reception.

→ HOW TO CONDUCT MANUAL RECEPTION

*Because the crown has been pulled out to the second click (procedure 1), the watch gains or loses time. Set the watch to the correct time.

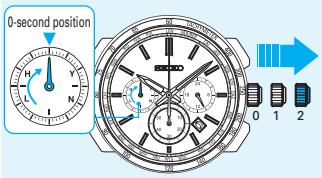
When the watch is used in conditions in which the watch may be unable to receive a radio signal, set the time and date manually.

The operation has been completed when the time and date is correctly set.

IMPROPER FUNCTION

When an abnormal display appears, follow the procedures below to reset the built-in IC. The watch will resume its normal operation.

1 When pulling the crown to the second click, the second hand stops at the 0-second position.

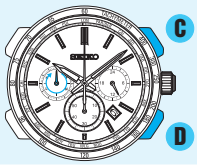


* The date and stopwatch hands also stop.

Resetting the IC will initialize the watch. Before starting to use the watch, it will be necessary to set the time and adjust the STOPWATCH hands to the "0" position.

2 Press and hold Button C and Button D simultaneously for 3 seconds, and then release them.

▶ In five seconds after releasing the buttons, the second hand makes a full rotation and stops at the 0-second position. Then the hands of the hour and minute will start to move toward the 0-second position.



3 Push the crown back into the normal position and check if the small second hand moves as normal.

TROUBLESHOOTING

Troubles		Possible causes	Solutions
Hand Movement	The second hand moves at two-second intervals.	The energy is running short.	Fully charge the watch so that the second hand may move at one-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 second hand moves at five-second intervals.		
	The stopped second hand pointing to the 15-second position started operating.	The power save function has been activated. When the watch is not exposed to adequate light for a certain period of time, the power save function to limit energy consumption is automatically 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. When the watch is not exposed to adequate light for a certain period of time, the power save function to limit energy consumption is automatically activated.	①Fully charge the watch so that the second hand may move at one-second intervals. ②After 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 alignment function was activated. When the hand positions deviate to display incorrect time as a result of external influences, etc., the watch automatically corrects the hand misalignment by the automatic hand position alignment function.	No operation is needed (this is not a malfunction).

Troubles		Possible causes	Solutions
Reception of a radio signal	When the watch is unable to receive a radio signal The reception results have failed and the second hand points to N (the watch does not receive a radio signal).	The watch was moved while it was receiving 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.
		The watch was left where the radio signal was weak or where it was unable to receive a radio signal.	Place the watch where it is able to easily 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.
		The stopwatch 1/5-second and minute hands are not reset.	Reset the stopwatch 1/5-second and minute hands.
		The watch is set to a time zone other than receiving range.	① Check the time zone that the watch is currently set for, and select the time zone. ② When the watch is not displaying the precise time, receive a radio signal again if necessary.
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 amount of exposed light is too weak. The time for charging the watch is not sufficient.	The time required for charging the watch depends entirely on the amount of exposed light the watch receives. Refer to "GUIDELINE OF CHARGING TIME" to charge the watch.
		The built-in IC of the watch has fallen into an unstable condition.	Refer to "IMPROPER FUNCTION" to reset the built-in IC.

Troubles		Possible causes
Misalignment of the time and hand positions	The watch temporarily gains or loses time.	The watch fails to receive a radio signal correctly as a result of external influence (incorrect reception).
		The watch has been left in an extremely high or low temperature place for a long time.
	The watch displays an incorrect time hour unit, even though it displays the precise time of minutes and seconds	The watch may be set to a time in a different time zone from the region where the watch is currently used.
	The reception results are successful, but the precise time is not displayed.	The hand positions were misaligned as a result of external influence. →PRELIMINARY POSITION
	The second hand position is not correctly aligned in "the reception results display" or "the reception level display."	The second hand is out of the preliminary position as a result of external influence. →PRELIMINARY POSITION

Solutions
① Place the watch where it is able to receive a radio signal more easily. ② Conduct manual reception if necessary.
① 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.
Check the time zone that the watch is currently set for, and select the correct time zone.
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 Adjustment 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. ② If the watch still gains or loses time, refer to "IMPROPER FUNCTION" to perform procedures.

Troubles		Possible causes
Misalignment of Date	Even if the watch receives a radio wave successfully, it displays the incorrect date (the time is correct).	The preliminary position of the date is misaligned. This happens when the date is out of preliminary position as a result of external influences or system reset.
Misalignment of the stopwatch hands	After resetting the stopwatch, the stopwatch hands do not stop at the 0-second position.	The stopwatch hands are out of the preliminary position. This happens when the stopwatch hands are out of the preliminary position as a result of external influence or system reset.
Time difference	Time zone cannot be set.	The stopwatch hands are moving.
Operation	The buttons or crown cannot be activated (operated).	The stored energy is running short.
		Date numeral in the date window or the day hand is moving right after the various crown or button operations for setting.
	Forget step in the middle of the setting procedures.	————————————————
Others	The innersurface of the glass is clouded.	Moisture has entered the watch due to the deterioration of the packing.

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

Solutions
Set the preliminary position of the date to "1" (1st).
Adjust the preliminary position of the stopwatch hands to "0."
Reset the stopwatch before setting the time zone.
Fully charge the watch so that the second hand may move at one-second intervals.
Wait with the watch untouched. When the movement of the date numeral stops, the crown and buttons can be operated.
①When the crown is pulled out, push it back in. ②Leave the watch untouched for a while. The watch will resume its normal movement. ③Then start the setting procedure from the beginning.
Contact the retailer from whom the watch was purchased.

SPECIFICATIONS

1	Basic function	Main time with three hands (hour, minute, and second hands), 24-hour hand, date display, stopwatch hands (1/5-second and minute)
2	Frequency of crystal oscillator	32,768 Hz (Hz = Hertz ... Cycles per second)
3	Loss/gain (monthly rate)	±15 seconds at normal temperature range (5 °C to 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 Hour and minute hands/24-hour hand, second hand, date, stopwatch 1/5-second hand, stopwatch minute hand
6	Power supply	Secondary battery, 1 piece
7	Continuous operating time from full charge	Approximately 6 months • 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 (at 2:00 AM, 3:00 AM and 4:00 AM) • Reception results depend on the radio signal receiving conditions. • After having received a radio signal, the watch will start to move depending on the quartz movement until the next reception. • Manual reception is also possible
9	Additional function	Energy depletion forewarning function, Overcharging prevention function
10	IC (Integrated Circuit)	Oscillator, frequency divider and driving circuit C-MOS-IC, 3 pieces

• *The specifications are subject to change without prior notice due to product improvements.*