

Cal. V198

INSTRUCTIONS	(P. 3)
BEDIENUNGSANLEITUNG	(S. 50)
INSTRUCTIONS	(P. 99)
ISTRUZIONI	(P. 147)
INSTRUCCIONES	(P. 194)
INSTRUÇÕES	(P. 241)
ИНСТРУКЦИИ	(C. 288)
用法説明	(337 頁)

You are now the proud owner of a SEIKO Analogue Quartz Solar Cal. V198. 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 der SEIKO Analog-Quarzuhr mit Solarzelle Kal. V198. Lesen Sie diese Bedienungsanleitung vor der Verwendung aufmerksam durch, um ihre optimale Nutzung zu gewährleisten. Heben Sie diese Bedienungsanleitung gut auf, um jederzeit wieder nachlesen zu können.

Vous êtes maintenant l'heureux propriétaire d'une montre à quartz solaire et analogique SEIKO Cal. V198. 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. V198. 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.

Usted es ahora un orgulloso propietario de un SEIKO Cuarzo Analógico Solar Cal. V198. 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.

Agora pode sentir-se orgulhoso de possuir um Seiko Solar Quartz Analógico Cal. V198. Para obter os melhores resultados, leia atentamente as instruções contidas neste opúsculo antes de usá-lo. Conserve este manual para consultas futuras.

Теперь вы являетесь обладателем аналоговых кварцевых часов Сейко Соляр (Seiko Solar) Калибра V198. Перед использованием их, для достижения лучших результатов, пожалуйста, внимательно ознакомьтесь с данной инструкцией и обязательно сохраните ее.

歡迎購買 V198 機型精工石英指針式太陽能錶。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說明，並妥善保管本手冊，以便今後參考。

BEFORE USE

It may be necessary to perform the initial settings such as hand position adjustment and time/calendar setting. Set the watch according to the procedure "TIME SETTING AND HAND POSITION ADJUSTMENT" on page 11 before use.

CONTENTS

	Page
FEATURES	5
DISPLAY & BUTTONS	7
SCREW LOCK TYPE CROWN	9
HOW TO CHANGE THE DISPLAY MODE	10
TIME SETTING AND HAND POSITION ADJUSTMENT	11
PERPETUAL CALENDAR	18
HOW TO USE THE STOPWATCH	24
HOW TO USE THE ALARM	27
HOW TO CHARGE AND START THE WATCH	31
OVERCHARGING PREVENTION FUNCTION	32
POWER RESERVE INDICATOR	33
GUIDELINE OF CHARGING TIME/ACCURACY	35
ENERGY DEPLETION FOREWARNING FUNCTION	36
NOTE ON POWER SUPPLY	37
IMPROPER FUNCTION	38
ROTATING BEZEL	39
TACHYMETER	40
TELEMETER	42
TROUBLESHOOTING	44
SPECIFICATIONS	48

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

FEATURES

■ TIME

- Hour, minute and small second hands.

■ STOPWATCH

- 24-hour stopwatch in 1/5-second increments.
- Split time measurement on demand.
- When the measurement reaches 24 hours, the stopwatch automatically stops and is reset.

■ SINGLE-TIME ALARM

- The alarm can be set to sound only once at a designated time within 24 hours.
- Sound demonstration function is available.

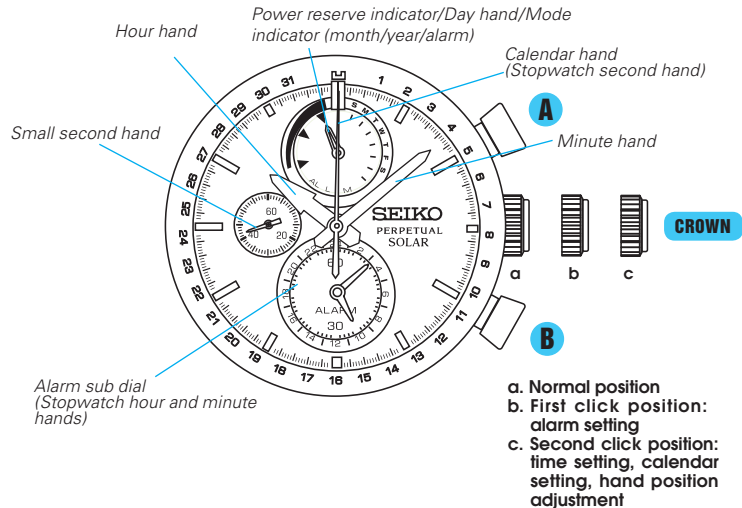
■ PERPETUAL CALENDAR

- Date is indicated by the center hand in the CALENDAR/ALARM mode.
- Day of the week is indicated by the day hand at the 12 o'clock position.
- There is no need to adjust the date at the end of the month up to February 28, 2100.
- Month and year can be checked on demand.

■ POWERED BY LIGHT ENERGY

- NO BATTERY CHANGE REQUIRED (Please refer to page 37 "NOTE ON POWER SUPPLY")
- LASTS FOR 6 MONTHS AFTER FULL CHARGE
- POWER RESERVE INDICATOR
- ENERGY DEPLETION FOREWARNING FUNCTION
- OVERCHARGING PREVENTION FUNCTION

DISPLAY & BUTTONS



◆ The center hand has dual functions:

- In the CALENDAR/ALARM mode, it indicates the date, month and year.
- In the STOPWATCH mode, it indicates the second.

- *Some models may have a screw lock type crown. If your watch has a screw lock type crown, refer to "SCREW LOCK TYPE CROWN."*
- *Simplified illustrations may be used in the following sections of this manual.*

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.

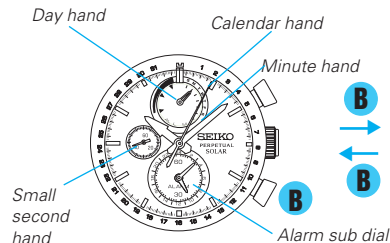


- *When locking the crown, turn it slowly with care, ensuring that the screw is properly engaged.*
- *Be careful not to forcibly push it in, as doing so may damage the screw hole in the case.*

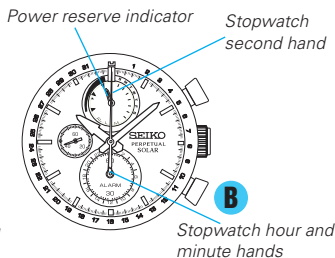
HOW TO CHANGE THE DISPLAY MODE

- ◆ With each press of button B, the display mode changes between the CALENDAR/ALARM mode and the STOPWATCH mode alternately.

CALENDAR/ALARM MODE



STOPWATCH MODE

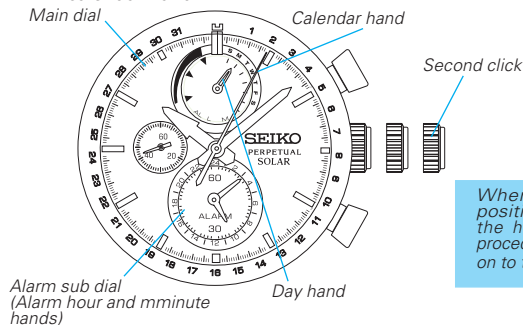


- When the display mode is switched, the function of the hands will change accordingly.
- Before switching the display mode from the STOPWATCH mode to the CALENDAR/ALARM mode, make sure that the stopwatch has been reset.
- While the stopwatch is counting, button B is used for "SPLIT," "SPLIT RELEASE," or "RESET" functions.

TIME SETTING AND HAND POSITION ADJUSTMENT

- ◆ This watch is designed so that the following adjustments are made with the crown at the second click position.

- 1) Time settings for main dial and alarm sub dial.
- 2) Calendar setting
- 3) Hand position adjustment for alarm hour and minute hands, day hand and calendar hand.



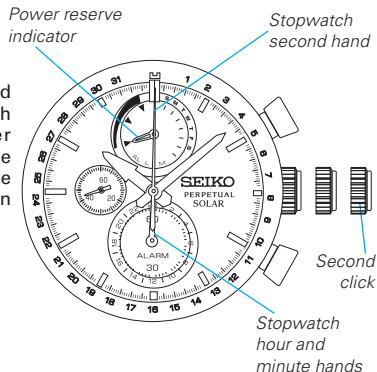
When any hand requires a position adjustment, complete the hand position adjustment procedure first, and then move on to the time setting procedure.

● How to check the position of the hands

- ◆ Check that the second hand moves at normal one-second intervals when the crown is at the normal position. When the watch is stopped or the second hand is moving at 2-second intervals, charge the watch by exposing it to light. See "HOW TO CHARGE AND START THE WATCH."

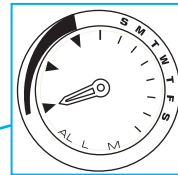
CROWN Pull out to second click.

- A** Press for 2 seconds or longer. The stopwatch hour and minute hands, the stopwatch second hand, and the power reserve indicator move to the preliminary position. The watch is now in hand position adjustment mode.



Check that the position of each hand is at the preliminary position by referring to the table below.

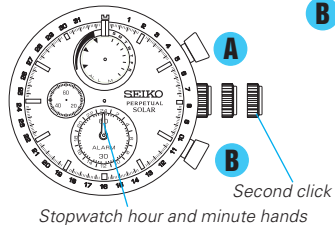
Name of hand	Preliminary position
Stopwatch hour and minute hands (Alarm hour and minute hands)	0:00
Stopwatch second hand (Calendar hand)	0 second position
Power reserve indicator (Day hand/Mode indicator)	Low level



- ◆ If any hand is not correctly positioned, adjust it by carrying out the procedure on the following page.
- ◆ When all hands are correctly positioned, move on to the procedure for "Time settings for main dial and alarm sub dial."

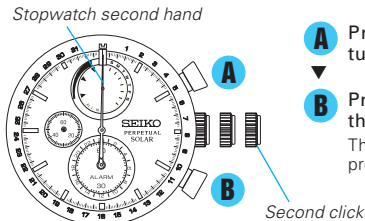
- If the crown is pulled out while the stopwatch is counting, the stopwatch will be automatically reset.
- If the crown is pulled out while the alarm is set, the alarm will be automatically canceled.
- This operation can be performed both in the CALENDAR/ALARM mode and STOPWATCH mode.

● How to adjust the position of the hands



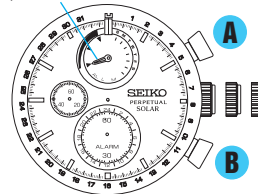
- B** Press to set the stopwatch hour and minute hands to the 0:00 position.
The hands move quickly if button B is continuously pressed.

When adjusting the position of the hand, the hands can only be advanced in the clockwise direction.



- A** Press once. The stopwatch second hand turns a full circle.
▼
B Press to set the stopwatch second hand to the 0 position.
The hand moves quickly if button B is continuously pressed.

power reserve indicator



- A** Press once. The power reserve indicator turns a full circle.
▼
B Press to set the power reserve indicator pointing at the low level.
The hand moves quickly if button B is continuously pressed.



The position of each hand can be readjusted in the following order by pressing button A.

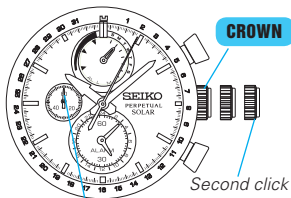


CROWN After all the adjustments are complete, push in to normal position.

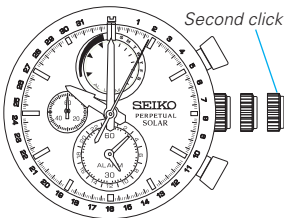
[IMPORTANT]

After the positions of the hands are adjusted, make sure that the main dial time and the alarm sub-dial time are both reset.

● Time settings for main dial and alarm sub dial



Small second hand



CROWN

Pull out to second click when the small second hand is at the 12 o'clock position.

The small second hand will stop immediately.

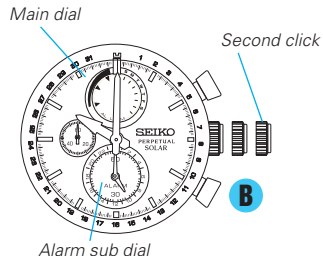
- If the crown is pulled out while the stopwatch is counting, the stopwatch will be automatically reset.
- If the crown is pulled out while the alarm is set, the alarm will be automatically canceled.
- This operation can be performed both in the CALENDAR/ALARM mode and STOPWATCH mode.

CROWN

Turn to set the main dial time.

It is recommended that the hands be set to a time a few minutes ahead of the current time, taking into consideration the time required to complete the time setting for alarm sub dial, after which the crown is to be pushed in.

- ◆ The main dial time should be set in the 12-hour format, regardless of whether it is AM or PM.
- ◆ When setting the minute hand, first advance it 4 to 5 minutes ahead of the desired time, and then turn it back to the exact time.



B

Press to set the alarm sub-dial time to the current time in the 24-hour format.

- With each press of button B, the alarm sub-dial time is advanced by one minute.
- The hands move quickly if button B is continuously pressed.
- Make sure that the alarm sub-dial time is set to exactly the same time as the main dial time, which has been previously set, in the 24-hour format.

CROWN

After time settings for main dial and alarm sub dial are complete, push in to normal position.

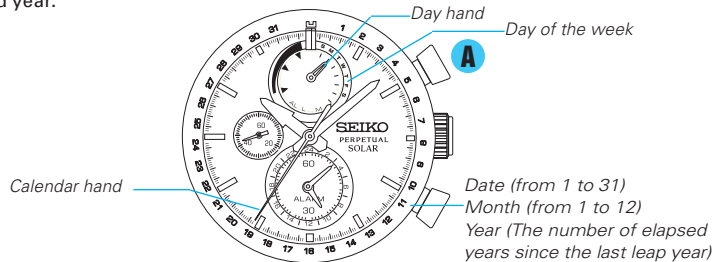
At the moment when the alarm sub-dial time indicates 12 o'clock midnight, the date changes.

PERPETUAL CALENDAR

- ◆ The date is indicated by the calendar hand.
- ◆ The day of the week is indicated by the day hand.
- ◆ The calendar hand can also be used to check the year and month.
- ◆ There is no need to adjust the date at the end of the month up to February 28, 2100.

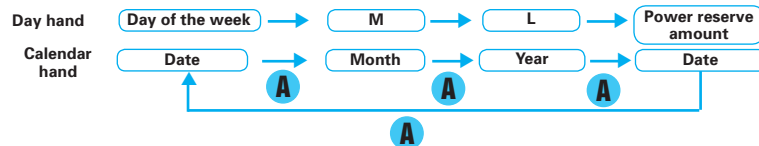
● How to read the calendar

In the CALENDAR/ALARM mode, the day hand indicates the day of the week and the calendar mode (month/year), and the calendar hand indicates the date, month, and year.



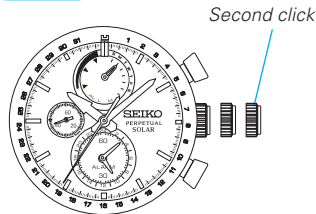
● How to check the year and month

In the CALENDAR/ALARM mode, with each press of button A, the calendar hand turns to indicate the date, month and year successively.



● How to adjust the calendar

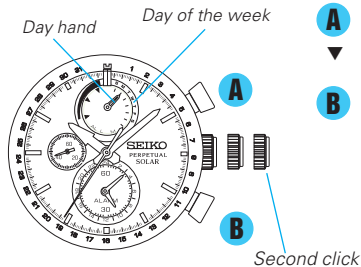
CROWN Pull out to second click.



[IMPORTANT]

It is essential that all the hands are correctly positioned, otherwise the watch may not show the calendar correctly.

- If the crown is pulled out while the stopwatch is counting, the stopwatch will be automatically reset.
- If the crown is pulled out while the alarm is set, the alarm will be automatically canceled.
- This operation can be performed both in the CALENDAR/ALARM mode and STOPWATCH mode.

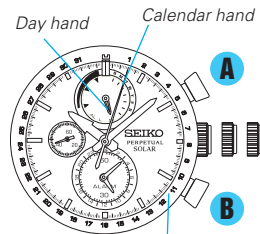


A Press once.
▼ The day hand turns a full circle.

B Press to set the day of the week.

- The day of the week can be set to any day of the week from Sunday to Saturday.
- If button B is pressed after the day hand points to Saturday, the day hand swings back and stops pointing to Sunday.

Second click



Date (from 1 to 31)
Month (from 1 to 12)

A Press again.

▼ The day hand indicates "M" (Month), and the calendar hand moves forward and stops pointing to the month.

B Press to set the month.

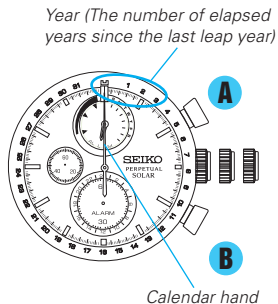
- The month can be set to any month from January (1) to December (12).
- If button B is pressed after the calendar hand points to 12, the calendar hand swings back and stops pointing to 1.

A Press once.

▼ The calendar hand turns a full circle.

B Press to set the date.

- The date can be set to any numeral between 1 and 31.
- If button B is pressed after the calendar hand points to "31," the calendar hand moves forward and stops pointing to "1".



- A** Press again.
 ▼ The day hand indicates "L" (Leap year), and the calendar hand moves forward and stops, pointing to the year.

- B** Press to set the year.

Year Indication		1	2	3
The number of elapsed years since the last leap year	Leap year	One year	Two years	Three years
Year	2012 2016 ⋮ 2096	2013 2017 ⋮ 2097	2014 2018 ⋮ 2098	2015 2019 ⋮ 2099

- A** Press again.

▼ If button A is pressed again, the watch returns to the for the time setting mode for the alarm sub-dial.

With each press of button A, the calendar can be readjusted in the following order.

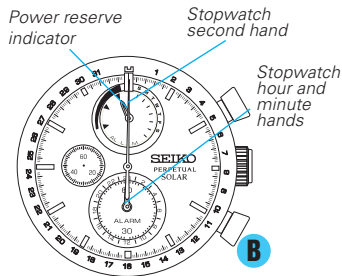


- CROWN** After all the adjustments are complete, push in to normal position.

When the date is set to a nonexistent day such as February 30 or November 31 etc., the date will automatically advance to the first date of the following month.

HOW TO USE THE STOPWATCH

- ◆ The measured time can be read up to 24 hours in 1/5- second increments.
- ◆ When the measurement reaches 24 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.
 - Refer to "TIME SETTING AND HAND POSITION ADJUSTMENT."



B Press to enter the STOPWATCH mode.

- While the stopwatch is counting, pressing button B will not change the display mode.
- While the stopwatch is counting, if the crown is pulled out to the first or second click position, the stopwatch will be automatically cancelled.

• Refer to HOW TO CHANGE THE DISPLAY MODE.

STOPWATCH OPERATION

<STANDARD MEASUREMENT>



<ACCUMULATED ELAPSED TIME MEASUREMENT>



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

<SPLIT TIME MEASUREMENT>



- Measurement and release of split time can be repeated by pressing button B.
- If the time measured reaches 24 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>

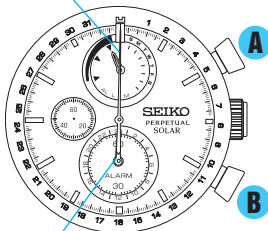


● How to reset the stopwatch

While the STOPWATCH hands are moving

1. Press Button A to stop the stopwatch.
2. Press Button B to reset the stopwatch.

Stopwatch
second hand



Stopwatch hour
and minute hands

While the STOPWATCH hands are stopped

[When the stopwatch is stopped]

1. Press Button B to reset the stopwatch.

[When the split time measurement is displayed while the stopwatch is measuring.]

1. Press Button B to release the split time display and return to the normal display.
2. Press Button A to stop the stopwatch.
3. Press Button B to reset the stopwatch.

[When the split time measurement is displayed and the stopwatch is stopped]

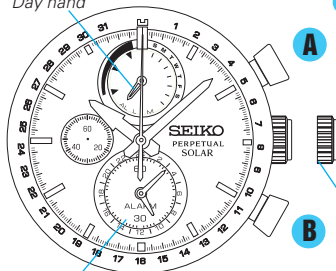
1. Press Button B to release the split time display.
2. Press Button B to reset the stopwatch.

HOW TO USE THE ALARM

- ◆ The alarm sounds only once at the designated alarm time and it is automatically disengaged.
- ◆ The alarm time can be set within 24 hours from the current time in 1-minute increments.
- ◆ The alarm sound can be previewed.

● How to set the alarm time

Day hand



Alarm sub dial

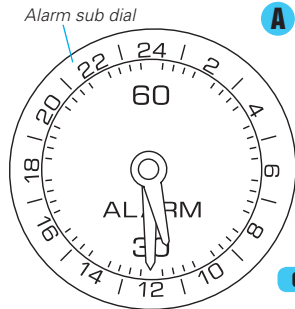
CROWN

Pull out to first click in the CALENDAR/ALARM mode.

- Upon doing this, the day hand points to "AL."
- If the crown is pulled out while the alarm is set, the alarm will be automatically canceled.
- If the watch is in the STOPWATCH mode, press the button B to change to the CALENDAR/ALARM mode.

• Refer to HOW TO CHANGE THE DISPLAY MODE.

First click



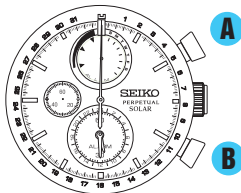
A OR **B** Press to set the alarm time.

- With each press of button A, the alarm sub-dial time advances by one minute.
- With each press of button B, the alarm sub-dial time moves back by one minute.
- The hands move quickly if button A or B is continuously pressed.
- The alarm hands stop when they indicate the current time.
- If the alarm time is set to the current time, the alarm cannot be set.

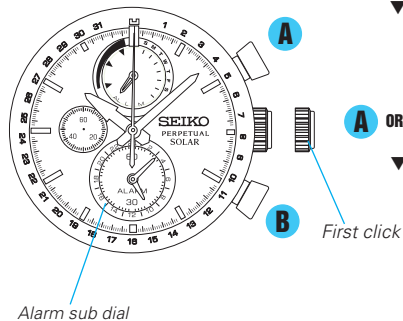
CROWN After alarm time setting is complete, push in to normal position.

● How to manually silence the alarm

- ◆ The alarm sounds for 20 seconds at the designated time.
- ◆ To silence the alarm, press either button A or B.
 - The alarm will be automatically canceled once it sounds at the designated time.



● How to change the alarm time, once it has already been set



CROWN Pull out to first click in the CALENDAR/ALARM mode.

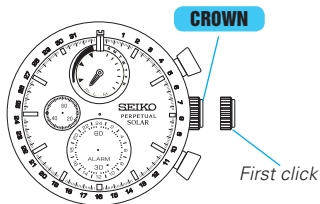
Upon doing this, the set alarm time is automatically canceled, and the alarm sub-dial time changes to indicate the current time.

A OR **B** Press to set a new alarm time.

- With each press of button A, the alarm sub-dial time advances by one minute.
- With each press of button B, the alarm sub-dial time moves back by one minute.
- The hands move quickly if button A or B is continuously pressed.

CROWN After alarm time setting is complete, push in to normal position.

● How to cancel the alarm time

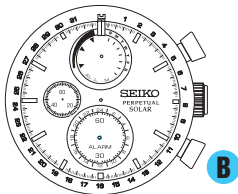


CROWN Pull out to first click in the CALENDAR/ALARM mode.

Upon doing this, the set alarm time is automatically canceled, and the alarm sub-dial time changes to indicate the current time.

CROWN Push back in to normal position.

● Sound demonstration function



B Press for 3 seconds in the CALENDAR/ALARM mode.

The alarm sound can be heard while button B is continuously pressed.

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.

If the watch is charged by exposing it to strong light such as sunlight, the power reserve indicator may not show the remaining power reserve amount properly. Make sure to charge the watch sufficiently by referring to "GUIDELINE OF CHARGING TIME/ACCURACY."

**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.

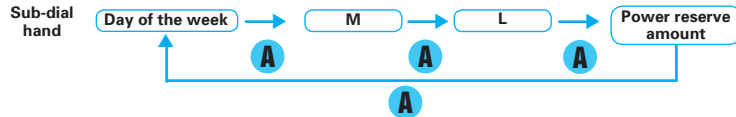
POWER RESERVE INDICATOR

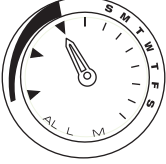
The power reserve indicator can be used to check the power reserve amount (continuous operating time).

- **How to check the power reserve amount**

In the STOPWATCH mode, the sub-dial hand at the 12 o'clock position indicates the power reserve amount.

In the CALENDAR/ALARM mode, it indicates the day of the week, M (Month), L (Leap year), and then the power reserve amount. Press button A until the hand indicates power reserve amount.



			
Level of power reserve amount	Low	Middle	High
The approximate time until the watch stops operating	0 to 2 days	2 to 100 days	100 days or longer

- The power reserve indicator provides only a general guideline of the duration within which the watch keeps operating without needing to be charged.
- When the power reserve indicator indicates Low level, the second hand moves at two-second intervals, and will stop within 48 hours.
- If the watch is charged by exposing it to strong light such as sunlight, the power reserve indicator may not show the remaining power reserve amount properly. Make sure to charge the watch sufficiently by referring to "GUIDELINE OF CHARGING TIME/ACCURACY."

GUIDELINE OF CHARGING TIME/ACCURACY

Environment/Lightsource (lux)	V198		
	A (minutes)	B (hours)	C (hours)
General offices/ Fluorescent light (700)	150	60	-
30W20cm/ Fluorescent light (3000)	33	13	110
Cloudy weather/Sunlight (10000)	9	3.5	30
Fair weather/Sunlight (100000)	2	0.6	5
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 will stop operating within 48 hours. (For recharging the watch, see “HOW TO CHARGE AND START THE WATCH”)

- *While the second hand is moving at 2-second intervals, the stopwatch cannot be activated. This is not a malfunction.*
- *If the second hand starts to move at 2-second intervals while the stopwatch is operating, the stopwatch will be automatically stopped and the stopwatch hands will return to the “0” position.*
- *While the second hand is moving at 2-second intervals, the alarm time cannot be set.*
- *If the time reaches the alarm time while the second hand is moving at 2-second intervals, the alarm will not sound, and the alarm will be automatically cancelled.*

❖ 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.

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.



CAUTION

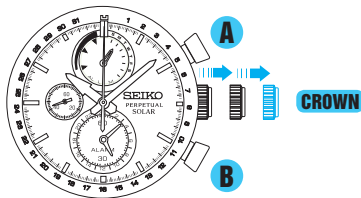
- Do not remove the rechargeable battery yourself. Replacement of the rechargeable battery requires professional knowledge and skill. Please ask a watch retailer for replacement of the rechargeable battery.
- Installation of an ordinary silver oxide battery can generate heat that can cause bursting and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

IMPROPER FUNCTION

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

<HOW TO RESET THE IC>

1. Pull out the crown to the second click.
2. Keep pressing down Button A and B for 3 seconds or longer.
3. Push the crown back into the normal position and check if the small second hand moves as normal.

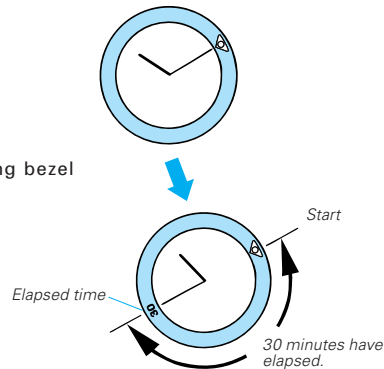


Resetting the IC will initialize the watch. Before starting to use the watch, it will be necessary to set the time and adjust the STOPWATCH hands to the "0" position. Refer to "TIME SETTING AND HAND POSITION ADJUSTMENT" section of this manual.

ROTATING BEZEL (for models with rotating bezel)

- The rotating bezel can show up to 60 minutes of elapsed time.
 - 1 Turn the rotating bezel to align its " " mark with the minute hand.

- 2 Read the number on the rotating bezel that the minute hand points to.



Note: For some models, the rotating bezel rotates only counterclockwise.

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

STOPWATCH 1/5-second hand: 40 seconds

Tachymeter scale: "90"

"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:

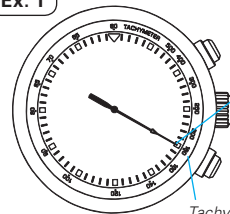
"90" (tachymeter scale figure) x 2 (km or mile) = 180 km/h or mph

"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



STOPWATCH 1/5-second hand: 20 seconds

Tachymeter scale: "180"

"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

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

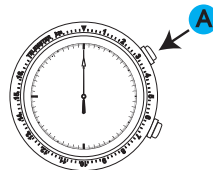
The telemeter provides only a rough indication of the distance to the place where lightning struck, and therefore, the indication cannot be used as the guideline to avoid the danger of lightning. It should also be noted that the speed of the sound differs depending on the temperature of the atmosphere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

HOW TO USE THE TELEMETER

Before beginning, check that the stopwatch has been reset.

START

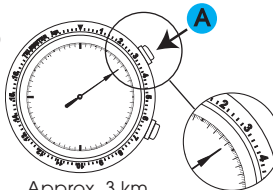
(Flash of light)



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

STOP

(Crash of thunder)



Approx. 3 km

- 2 When you hear the sound, press Button A 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.

TROUBLESHOOTING

Troubles	Possible causes
The watch stops operating.	The energy has been depleted.
The small second hand moves at two-second intervals.	The energy is running short.
The stopped watch has been charged for longer than the time required for full charge, but the second hand does not resume one-second interval movement.	The light the watch has been exposed to was too weak.
	The built-in IC has fallen into an unstable condition.
The watch temporarily gains or loses time.	The watch has been left or worn in extremely high or low temperatures.
	The watch has been left close to an object with a strong magnetic field.
	You have dropped the watch, hit it against a hard surface or worn it while playing active sports. The watch was exposed to strong vibrations.

Solutions
If you often encounter this problem even though you wear the watch everyday, the watch may not be exposed to sufficient light while you wear it. For example, the watch may be covered by the cuff of clothing. Recharge the watch sufficiently by exposing it to light.
The time required for charging will vary depending on the intensity of light. Recharge the watch referring to "GUIDELINE OF CHARGING TIME/ACCURACY."
Reset the watch by following the instructions in "IMPROPER FUNCTION."
Return the watch to a normal temperature so that it works accurately as usual, and then reset the time. The watch has been adjusted so that it works accurately when it is worn on your wrist under a normal temperature range between 5 °C and 35 °C.
Correct this condition by moving and keeping the watch away from the magnetic source. If this action does not correct the condition, contact the retailer from whom the watch was purchased.
Reset the time. If the watch does not return to its normal accuracy after resetting the time, contact the retailer from whom the watch was purchased.

Troubles	Possible causes
The STOPWATCH hands do not return to the "0" position when the stopwatch is reset.	Affected by external sources, or because the internal IC had been reset, the stopwatch hand positions have moved out of correct alignments.
Although the alarm time has not been set, the time on the alarm sub dial and the time on the main dial are not the same.	The watch has been left close to an object with a strong magnetic field. The watch has been exposed to strong vibrations.
The inner surface of the glass is clouded.	Moisture has entered the watch because the gasket has deteriorated.
The date changes during the day.	The time is set 12 hours ahead of or behind the correct time.

Solutions
Adjust the STOPWATCH hands to the "0" position by following the instructions in "TIME SETTING AND HAND POSITION ADJUSTMENT"
Reset the time for main dial and alarm sub dial.
Contact the retailer from whom the watch was purchased.
Reset the time correctly, referring to "TIME SETTING AND HAND POSITION ADJUSTMENT"

- In the event of any other problem, please contact the retailer from whom the watch was purchased.

SPECIFICATIONS

1	Frequency of crystal oscillator	32,768 Hz (Hz = Hertz ... Cycles per second)
2	Loss/gain (monthly rate)	±15 seconds at normal temperature range (5 °C to 35 °C/41 °F to 95 °F)
3	Operational temperature range.....	−10 °C to 60 °C/14 °F to 140 °F
4	Driving system.....	Step motor 4 pieces
5	Display system	
	Time.....	Hour, minute and small second hands in 1-second increments
	Stopwatch	Stopwatch second hand in 1/5-second in- crements (60 seconds/360 degrees) Stopwatch minute hand in 1-minute increments (60 minutes/360 degrees) Stopwatch hour hand synchronizes with the minute hand (24 hours/360 degrees)
	Alarm	Alarm minute hand in 1-minute increments (60 minutes/360 degrees) Alarm hour hand synchronizes with the minute hand (24hours/360 degrees)

Calendar.....	Date indication by the calendar hand (month & year can be checked on demand) Day indication by the day hand
6 Power supply.....	Manganese titanium-lithium rechargeable battery
7 Continuous operating time from full charge	Approximately 6 months if the stopwatch is used for shorter than 1 hour per day and the alarm sounds for shorter than 20 seconds per day
8 Additional function	Energy depletion forewarning function, overcharging prevention function
9 IC (Integrated Circuit)	C-MOS-IC, 1 piece
<i>The specifications are subject to change without prior notice due to product improvements.</i>	