

Cal. V176

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You are now the proud owner of a SEIKO Solar Cal. V176. 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 Solar Cal. V176. 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 solaire SEIKO Cal. V176. 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 solar Cal. V176. 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.

Muchas gracias por la adquisición de nuestro reloj solar SEIKO Cal. V176. Para obtener el óptimo rendimiento de su reloj, sírvase leer detenidamente las instrucciones de este manual antes del uso. Por favor, guarde este manual en un lugar conveniente y accesible para las futuras consultas.

Agora pode sentir-se orgulhoso de possuir um SEIKO Solar Cal. V176. Para obter os melhores resultados, leia atentamente as instruções contidas neste opúsculo antes de usá-lo. Conserve este manual para consultas futuras.

Вы стали счастливым обладателем кварцевых часов Seiko Solar калибра V176. Перед их использованием и для достижения лучших результатов, пожалуйста, внимательно ознакомьтесь с данной инструкцией и обязательно сохраните её.

歡迎購買 V176 機型精工太陽能手錶。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。

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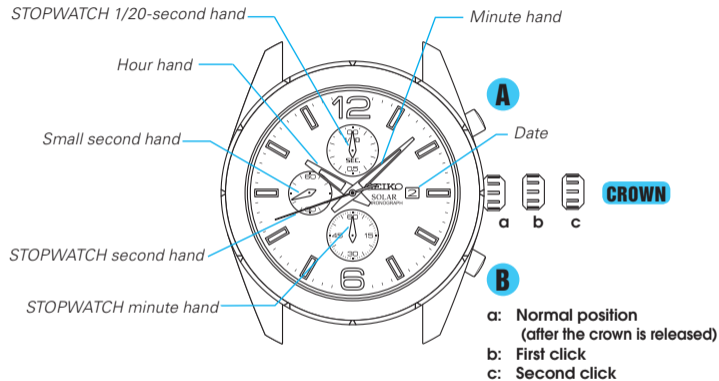
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SEIKO CAL. V176

FEATURES

- TIME/CALENDAR
- 60-MINUTE STOPWATCH IN 1/20-SECOND INCREMENTS WITH SPLIT TIME MEASUREMENT FUNCTION
- POWERED BY LIGHT ENERGY
- NO BATTERY CHANGE REQUIRED (Please refer to page 18 "NOTE ON POWER SUPPLY")
- LASTS FOR 6 MONTHS AFTER FULL CHARGE
- ENERGY DEPLETION FOREWARNING FUNCTION
- OVERCHARGING PREVENTION FUNCTION

DISPLAY AND BUTTONS



- Some models may have a screw-lock-type crown. If your watch does, refer to the "SCREW DOWN CROWN" section on the next page.
- Simplified illustrations may be used in the following sections of this manual.

SCREW DOWN CROWN

(for models with screw down crown)

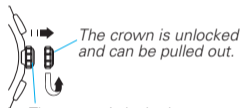
- Your watch has a screw down crown to prevent accidental operation and help maintain water-resistant quality.
- To use the crown, it is necessary to unlock the crown first before pulling it out, and it is important to securely screw the crown in after each use.

HOW TO OPERATE THE SCREW DOWN CROWN

The crown must be securely locked in the case except when you use it to set the watch.

<How to unlock the crown>

Turn the crown counterclockwise to unscrew it. The crown is released and projected outward from its original position.



The crown is locked.

<How to lock the crown>

Turn the crown clockwise while pressing it to the case until it is screwed all the way in and locked.



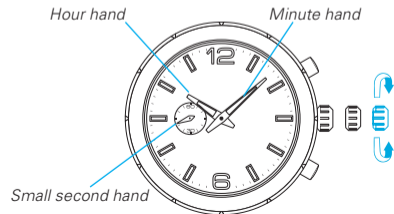
- Do not operate the crown when the watch is wet or in water.
- When screwing the crown in, ensure that the crown is correctly aligned and turn it gently. If it is hard to turn, unscrew it first, and then rewind it. Do not screw it in by force as it may damage the thread of the screw or the case.

SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION

- This watch is designed so that the following adjustments are made **with the crown at the second click position**:
 - main time setting
 - stopwatch hand position adjustment
 Once the crown is pulled out to the second click, be sure to check and adjust 1) and 2) at the same time.

CROWN Unlock, and then pull out to the second click when the second hand is at the 12 o'clock position.

1. MAIN TIME SETTING

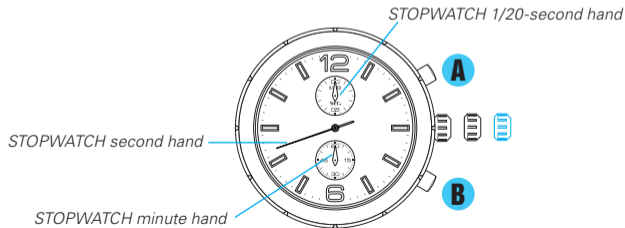


CROWN Turn to set the hour and minute hands.

1. When the stopwatch is or has been measuring, if the crown is pulled out to the second click, it will automatically reset the STOPWATCH hands to "0."
2. It is recommended that the hands be set to the time a few minutes ahead of the current time, taking into consideration the time required to adjust the STOPWATCH hand position if necessary.
3. When setting the hour hand, be sure to check that AM/PM is correctly set. The watch designed so that the date changes once in 24 hours.
4. 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 minute.

2. STOPWATCH HAND POSITION ADJUSTMENT

- ☆ If the STOPWATCH hands are not in the "0" position, follow the procedure below to set them to the "0" position.



Press for 2 seconds to select the STOPWATCH hand to be adjusted.

- Selection of the hand can be made in the following order by pressing button **A** for 2 seconds.



* The selected hand turns a full circle.

Press repeatedly to set the selected STOPWATCH hand to the "0" position.

* The hand moves quickly if button B is kept pressed.

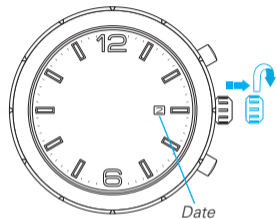
* After all the adjustments are completed, check that the hour and minute hands for time display indicate the current time.

Push back into normal position in accordance with a time signal.

Screw all the way in until it is locked.

SETTING THE DATE

- Before setting the date, be sure to set the main time.



CROWN

Unlock.



Pull out to the first click.



Turn clockwise until the desired date appears.



Push back into the normal position.

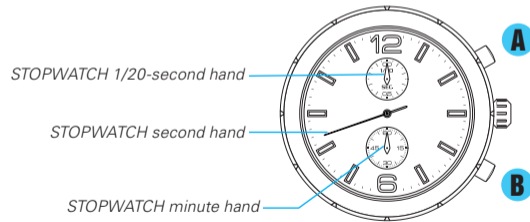


Screw all the way in until it is locked.

1. It is necessary to adjust the date at the end of February and 30-day months.
2. Do not set the date between 9:00 p.m. and 1:00 a.m. Otherwise, the date may not change properly.

STOPWATCH

- The stopwatch can measure up to 60 minutes in 1/20-second increments. When the measurement reaches 60 minutes, the stopwatch automatically stops.
- Split time measurement is available.
- After 1 minute of timing from a start, the STOPWATCH 1/20-second hand remains pointing to the "0" position until the watch is stopped or split time measurement is made, at such a time, it moves to display the measured time. It starts to move for a maximum of 2 minutes after the watch is restarted or the split time display is released.



- ☆ Before using the stopwatch, be sure to check that the crown is set at the normal position and that the STOPWATCH hands are reset to the "0" position.

- If the STOPWATCH hands do not return to the "0" position when the stopwatch is reset to "0," follow the procedure in "SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION".
- While the second hand is moving at 2-second intervals, the stopwatch cannot be activated. This is not a malfunction. See "ENERGY DEPLETION FOREWARNING FUNCTION" and "HOW TO CHARGE AND START THE WATCH".

<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.

WHILE THE STOPWATCH HANDS ARE STOPPED

One of the following stopwatch operations has been made. Reset the stopwatch accordingly.

[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. The stopwatch hands move quickly, and then indicate the measurement in progress.
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. The stopwatch hands move quickly, and then stop.
2. Press Button B to reset the stopwatch.

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.

Measurement of two competitors



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.

See "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.

GUIDELINE OF CHARGING TIME/ACCURACY

Environment/Lightsource (lux)	V176		
	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.
- While the second hand is moving at 2-second intervals, the stopwatch cannot be activated.
- 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.
- When this occurs, recharge the watch as soon as possible by exposing it to light. Otherwise, the watch may stop operating in a few days. (For recharging the watch, see "HOW TO CHARGE AND START THE WATCH")

❖ 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

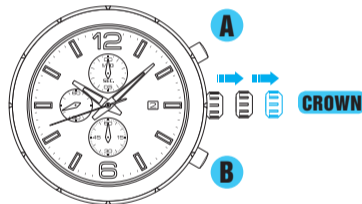
- Do not remove the rechargeable battery yourself. Replacement of the rechargeable battery requires professional knowledge and skill. Please ask a watch retailer for replacement of the rechargeable battery.
- Installation of an ordinary silver oxide battery can generate heat that can cause bursting and 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. Unlock the crown and buttons.
2. Pull out the crown to the second click.
3. Keep pressing down Button A and B for 3 seconds or longer.
4. Push the crown back into the normal position and check if the small second hand moves as normal.
5. Screw all the way in until it is locked.



- *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 "SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION" section of this manual.*

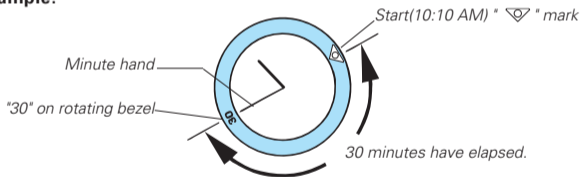
ROTATING BEZEL

(for models with rotating bezel)

The rotating bezel can show the elapsed time up to 60 minutes.

1. Turn the rotating bezel to align its "▽" mark with the minute hand.
 - * The rotating bezel rotates with clicks. With each click, it turns half a minute.
2. To know the elapsed time, read the number on the rotating bezel that the minute hand points to.

Example:



TACHYMETER

(for models with tachymeter scale on the dial)

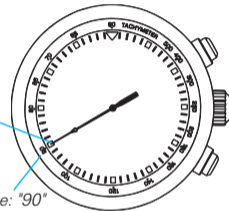
TO MEASURE THE HOURLY AVERAGE SPEED OF A VEHICLE

- 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 second hand gives the average speed per hour.

Ex. 1

STOPWATCH
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 second hand indicates "90" on tachymeter scale:

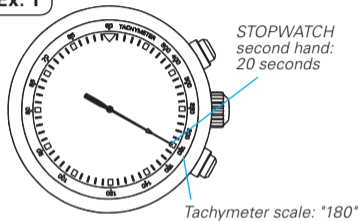
"90" (tachymeter scale figure) x 2 (km or mile) = 180 km/h or mph

"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 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

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)*



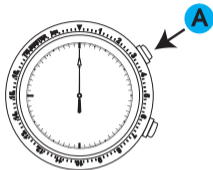
The telemeter provides only a rough indication of the distance to the place where lightning struck, and therefore, the indication cannot be used as the guideline to avoid the danger of lightning. It should also be noted that the speed of the sound differs depending on the temperature of the atmosphere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

HOW TO USE THE TELEMETER

Before beginning, check that the stopwatch has been reset.

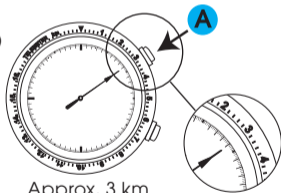
START

(Flash of light)



STOP

(Crash of thunder)



Approx. 3 km

- 1 Press Button A to start the stopwatch as soon as you see light.
- 2 When you hear the sound, press Button A to stop the stopwatch.
- 3 Read the telemeter scale that the STOPWATCH second hand points to.

- Please note that the STOPWATCH second hand moves in 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.

TO PRESERVE THE QUALITY OF YOUR WATCH

■ TEMPERATURES

The key components in mechanical watches are made of metals, which expand or contract depending on temperatures due to metal properties. This exerts an effect on the accuracy of the watches. Mechanical watches tend to lose time at high temperatures while they tend to gain time at low temperatures.

■ MAGNETISM



Your watch will be adversely affected by strong magnetism. Keep it away from close contact with magnetic objects.

■ CARE OF CASE AND BRACELET



To prevent possible rusting of the case and bracelet, wipe them periodically with a soft dry cloth.

■ CHEMICALS



Be careful not to expose the watch to solvents, mercury, cosmetic spray, detergents, adhesives or paints.

Otherwise, the case, bracelet, etc. may become discolored, deteriorated or damaged.

■ SHOCKS & VIBRATION



Be careful not to drop your watch or hit it against hard surfaces.

■ PERIODIC CHECK



It is recommended that the watch be checked once every 2 to 3 years by an AUTHORIZED SEIKO DEALER or

SERVICE CENTER to ensure that the case, crown, gasket and crystal seal remain intact.

■ PRECAUTION REGARDING CASE BACK PROTECTIVE FILM



If your watch has a protective film and/or a sticker on the case back, peel them off before using your watch.

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.
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 "SETTING THE TIME AND ADJUSTING STOPWATCH HAND POSITION"
Contact the retailer from whom the watch was purchased.
Reset the time correctly, referring to "SETTING THE TIME AND ADJUSTING STOPWATCH HAND POSITION"

- *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/calendar	Hour, minute and small second hands Date is displayed in numerals.
	Stopwatch.....	STOPWATCH 1/20-second, STOPWATCH second and STOPWATCH minute hands
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
8	Additional function	Energy depletion forewarning function, overcharging prevention function
9	IC (Integrated Circuit)	C-MOS-IC, 1 piece

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