

Cal. V172

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You are now the proud owner of a SEIKO Analogue Quartz Solar Cal. V172. 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. V172. Lesen Sie diese Bedienungsanleitung vor der Verwendung aufmerksam durch, um ihre optimale Nutzung zu gewährleisten. Heben Sie diese Bedienungsanleitung gut auf, um jederzeit wiedernachlesen zu können.

Vous êtes maintenant l'heureux propriétaire d'une montre à quartz solaire et analogique SEIKO Cal. V172. 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. V172. 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. V172. 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. V172. 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 V172. Перед использованием их, для достижения лучших результатов, пожалуйста, внимательно ознакомьтесь с данной инструкцией и обязательно сохраните ее.

歡迎購買 V172 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。

CAL. V172

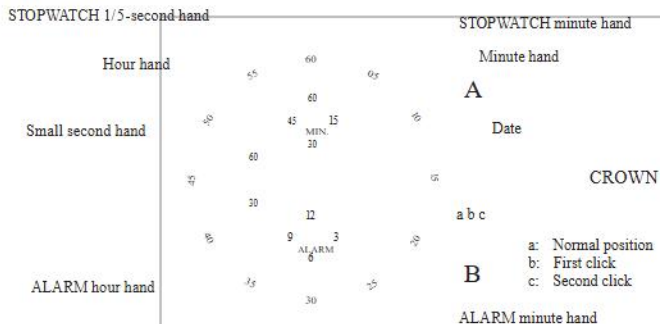
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FEATURES

- TIME/CALENDAR
- 60-MINUTE STOPWATCH IN 1/5-SECOND INCREMENTS WITH SPLIT TIME MEASUREMENT FUNCTION
- SINGLE-TIME ALARM WITHIN 12 HOURS
- POWERED BY LIGHT ENERGY
- NO BATTERY CHANGE REQUIRED (Please refer to page 23 "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-LOCK-TYPE CROWN" section on the next page.
- Simplified illustrations may be used in the following sections of this manual.

SCREW-LOCK-TYPE CROWN

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

1 How to use the screw-lock-type crown

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

[How to unlock it]

Turn the crown counterclockwise.

The crown is unlocked and can then be operated.

[How to lock it]

Once you have finished operating 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. If there is any resistance, unscrew it and try again. Be careful not to forcibly push it in, as doing so may damage the screw hole in the case.

SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION

1 This watch is designed so that the following adjustments are made with the crown at the second click position:

- 1) main time setting
- 2) alarm hand adjustment
- 3) 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. If needed, 3) should also be adjusted then.

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

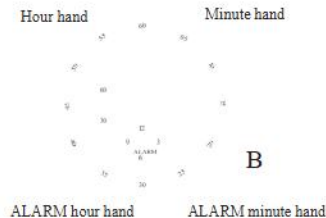
1. MAIN TIME SETTING



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. If the alarm has been set and the crown is pulled out to the second click, the ALARM hands will turn to indicate the current time.
3. 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 set the ALARM hands and to adjust the STOPWATCH hand position if necessary.
4. When setting the hour hand, be sure to check that AM/PM is correctly set. The watch is designed so that the date changes once in 24 hours.
5. 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. ALARM HAND ADJUSTMENT

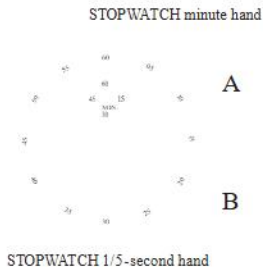


I Set the ALARM hands to the time the main time hands indicate.

B Press repeatedly to set the ALARM hands to the time indicated by the main time hands.

The ALARM hands move quickly if Button B is kept pressed.

3. STOPWATCH HAND POSITION ADJUSTMENT



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

A Press for 2 seconds.

The STOPWATCH minute hand turns a full circle.

B Press repeatedly to set the STOPWATCH minute hand to the "0" position.

The hand moves quickly if Button B is kept pressed.

A Press for 2 seconds.

The STOPWATCH 1/5-second hand turns a full circle.

B Press repeatedly to set the STOPWATCH 1/5-second hand to the "0" position.

The hand moves quickly if Button B is kept pressed.

I The ALARM and STOPWATCH hands can be readjusted in the following order by pressing Button A for 2 seconds.

ALARM hands

* The ALARM hands advance 12 hours.

STOPWATCH minute hand

* The STOPWATCH minute hand turns a full circle.

STOPWATCH 1/5-second hand

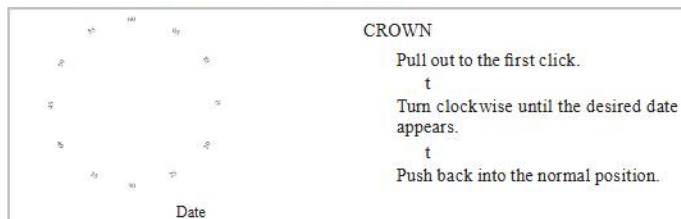
* The STOPWATCH 1/5-second hand turns a full circle.

After all the adjustments are completed, check that the main time and alarm hands indicate the same time.

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

SETTING THE DATE

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

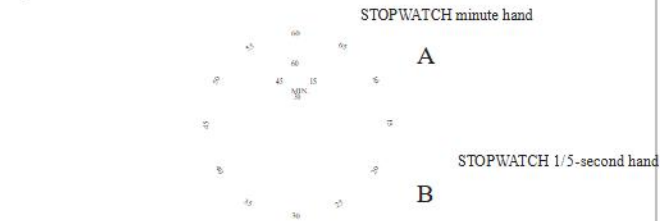


1. It is necessary to adjust the date at the end of February and 30-day months.
2. Do not set the date between 9:00 p.m. and 1:00 a.m. Otherwise, the date may not change properly.
3. Do not press Button B when the crown is at the first click position, as this will move the ALARM hands.

STOPWATCH

- 1 The stopwatch can measure up to 60 minutes in 1/5-second increments. When the measurement reaches 60 minutes, the stopwatch automatically stops.

- 1 Split time measurement is available.



- 1 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".

<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

A	-	A	-	B
START		STOP		RESET

Accumulated elapsed time measurement

A	-	A	-	A	-	A	-	B
START		STOP		RESTART		STOP		RESET

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

Split time measurement

A	-	B	-	B	-	A	-	B
START		SPLIT		SPLIT RELEASE		STOP		RESET

Measurement and release of split time can be repeated by pressing Button B.

Measurement of two competitors

A	-	B	-	A	-	B	-	B
START		FINISH TIME OF 1ST COM- PETITOR		2ND COMPETI- TOR FINISHES		FINISH TIME OF 2ND COM- PETITOR		RESET

SINGLE-TIME ALARM

- 1 The alarm can be set to ring only once at a designated time within the coming 12 hours.
- 1 The alarm time can be set in one minute increments.
- 1 You can preview the alarm sound by using the sound demonstration function.

ALARM TIME SETTING

- 1 Before using the alarm, check that the ALARM hands are adjusted to the current time. (See "SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION")



ALARM hour hand

ALARM minute hand

CROWN Pull out to the first click.

t

B Press repeatedly to set the desired alarm time.

The ALARM hands move quickly if Button B is kept pressed.

t

CROWN Push back into the normal position.

The alarm is automatically engaged.

- 1 The single-time alarm cannot be set for a time more than 12 hours ahead of the current time. While you keep Button B pressed to advance the ALARM hands quickly, they stop when they indicate the current time and the alarm is disengaged. In that case, release Button B, and then, press and hold the button again to set the ALARM hands to the desired time.
- 2 While the crown is at the normal position, the ALARM hands indicate the current time when the alarm is disengaged and the designated alarm time when it is engaged.

1 HOW TO STOP THE ALARM

At the designated time the alarm rings for 20 seconds, and it is automatically disengaged as it stops. To stop it manually, press Button A or B.

- 1 While the stopwatch is measuring, the alarm rings differently than usual. However, this is not a malfunction.
- 2 While the alarm is ringing, pressing Button A or B will only stop the alarm, and no stopwatch operation can be made.

ALARM SOUND DEMONSTRATION FUNCTION



CROWN Pull out to first click.

t

A Press for longer than 3 seconds. The alarm sound can be heard while Button A is kept pressed.

1 HOW TO CANCEL THE ALARM TIME YOU HAVE SET



CROWN Pull out to the first click.

t

B

Press and hold until the ALARM hands stop and indicate the current time.

t

CROWN Push back into the normal position.

- To correct the alarm time you have set, follow the procedure described in "ALARM TIME SETTING."

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.

- 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.

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

- 1 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.
- 1 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.
- 1 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

	V172		
	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
	6 months		
	Less than 15 seconds when the watch is worn on your wrist at a normal temperature range (5 °C to 35 °C)		
	-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

v The above table provides only a general guideline.

u 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

- 1 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.
- 1 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")

- 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

- 1 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.
- 1 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

- 1 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.
- 1 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 "SETTING THE TIME AND ADJUSTING THE STOPWATCH HAND POSITION" section of this manual.

ROTATING BEZEL (for models with rotating bezel)

1 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.

Elapsed time

30 minutes have elapsed.

Start

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

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

Ex. 1

STOPWATCH 1/5-second hand: 40 seconds

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

Tachymeter scale: "90"

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

1 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

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

Ex. 1

STOPWATCH 1/5-second hand: 20 seconds

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

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)

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

STOP

(Crash of thunder)

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

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

Approx. 3 km

- 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	Solutions
The watch stops operating.	The energy has been depleted.	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 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 time required for charging will vary depending on the intensity of light. Recharge the watch referring to "GUIDELINE OF CHARGING TIME/ACCURACY."
	The built-in IC has fallen into an unstable condition.	Reset the watch by following the instructions in "IMPROPER FUNCTION."
	The watch has been left or worn in extremely high or low temperatures.	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.
The watch temporarily gains or loses time.	The watch has been left close to an object with a strong magnetic field.	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.
	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.	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	Solutions
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.	Adjust the STOPWATCH hands to the "0" position by following the instructions in "SETTING THE TIME AND ADJUSTING STOPWATCH HAND POSITION"
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.	Reset the time for main dial and alarm sub dial.
The inner surface of the glass is clouded.	Moisture has entered the watch because the gasket has deteriorated.	Contact the retailer from whom the watch was purchased.
The date changes during the day.	The time is set 12 hours ahead of or behind the correct time.	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 1/5-second and STOPWATCH
minute hands |
| | Alarm..... | Alarm hour and 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 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 |

•□□ The□ speci□cations□ are□ subject□ to□ change□ without□ prior□ notice□ due□ to□ product□ improvements.