



INSTRUCTION MANUAL FOR WATCH CALIBRE  
9R01



SEIKO WATCH CORPORATION

[www.grand-seiko.com](http://www.grand-seiko.com)

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GS  
Grand Seiko

Spring Drive

Operating Instructions

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## ■ INTRODUCTION - Spring drive watch –

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Thank you for purchasing the Grand Seiko Spring Drive Model.

The Spring Drive is Seiko's unique mechanism in which the accuracy is controlled by a microelectronics quartz mechanism while using the unwinding power of the mainspring to move the hands.

The Spring Drive can be called a watch that strongly combines and connects the user with the latest advancements in technology.

A mechanical watch of taste and refinement with an accuracy equivalent to a quartz watch, this sophisticated and innovative watch ticks in step with the pace of a person's life.

This is a watch that creates a lifestyle for modern individuals who seek affluence and convenience in their life.

That is what the Grand Seiko Spring Drive model is all about.

SEIKO WATCH CORPORATION

## History of Spring Drive

### Decades-long dream lives in the Grand Seiko

Grand Seiko's history symbolizes the culmination of efforts and development aiming for better practical watches.

The Grand Seiko watch was born in 1960, reached the very top in the mechanical watch field around the world at the end of the 1960's. After a hiatus of dozen years or so, in 1993, the Grand Seiko 9F series equipped with world-class quartz movement was released.

In 1998, the 9S series mechanical movement that combined traditional craftsmanship and advanced technology was developed to reintroduce the Grand Seiko mechanical caliber. While using the unwinding power of the mainspring as its sole power source, the Spring Drive realizes an average monthly rate of  $\pm 15$  seconds (for Cal. 9R01,  $\pm 10$  seconds), substantially exceeding the accuracy of conventional mechanical watches. The watch also embodies the concepts of Grand Seiko that continues the challenge of creating the best practical watch.

## Spring Drive Mechanism ①

### Taste of a Mechanical Watch

+

### High accuracy equivalent to a Quartz Watch

### That is the concept of the Spring Drive.

Let's start from the drive method of a watch.

The method for driving a watch is divided into two types.

They are mechanical type and quartz type.

In a mechanical watch, the mainspring is wound and its unwinding power moves the hands.

Amazing mechanism created by high quality workmanship, and admiration goes to skilled craftsmen with passion.

You can feel the appreciation and personal touch of the craftsmen in the ticking sound.

On the other hand, with quartz watches, the quartz is oscillated by a battery and the hands are turned by a motor.

It is characterized by accuracy using state-of-the-art technology.

- 1960 ● Released the first Grand Seiko.
- 1964 ● Participated in the Neuchatel Observatory Competition in Switzerland for the first time.
- 1968 ● Released Japan's first automatic winding 10-beat model, 61GS.
- 1968 ● Won the first prize in the mechanical wrist chronometer category of the Geneva Observatory Competition in Switzerland.
- 1978 ● Filed a patent for the Spring Drive mechanism for the first time.
- 1982 ● Filed a patent for the Spring Drive mechanism (registered). Started initial development.
- 1988 ● Released the first Grand Seiko quartz caliber.
- 1993 ● Started the second development of the Spring Drive.  
● Released the Grand Seiko 9F series equipped with world-class quartz movement.
- 1997 ● Started the third development of the Spring Drive.  
● Released technological announcement of the Spring Drive at the Swiss Society of Chronometry (SSC).
- 1998 ● Exhibited the Spring Drive at BASELWORLD.  
● Released the Grand Seiko 9S series mechanical caliber combining traditional craftsmanship and advanced technology.
- 1999 ● Released the manual-winding Spring Drive (CAL.7R68) limited edition from SEIKO.
- 2000 ● Started the fourth development of the Spring Drive.
- 2002 ● Released the manual-winding Spring Drive (CAL.7R88) from CREDOR.
- 2004 ● Released the Grand Seiko automatic winding Spring Drive (CAL.9R65).

What is the Spring Drive like?

This is not a mechanical watch or a quartz watch.

In one word, this is a "mechanical watch having accuracy equivalent to a quartz watch."

The Spring Drive is a self-contained drive system that realizes accuracy equivalent to a quartz watch with only the power of the mainspring and has no battery, motor, or secondary battery.

Accuracy of monthly rate of  $\pm 15$  seconds (daily rate of  $\pm 1$  second)\* equivalent to a quartz watch is achieved while using a mainspring.

The Spring Drive is Seiko's proprietary mechanism which is made available only by SEIKO's unique combination of skills in both mechanical and electronic micro-engineering.

Then, how could it be possible to achieve such a degree of accuracy?

That is explained on the next page.

\* For Cal. 9R01, the average monthly rate is  $\pm 10$  seconds (equivalent to daily rate of  $\pm 0.5$  second).

## Spring Drive Mechanism ②

**The power of the mainspring is regulated by electronic control.  
That is the essence of the Spring Drive.**

What controls the accuracy of a mechanical watch is the balance spring, a part of the speed-regulating unit, called the balance.

This part influences the accuracy to some extent because it is made of metal which expands and contracts with changes in temperature.

The Spring Drive is completely different from a mechanical watch in this speed-regulating unit.

The Spring Drive is powered by a mainspring, but adopts an electronic speed-regulating unit comprising a generator, IC circuit, and crystal oscillator.

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## Spring Drive Mechanism ③

**Here is the step-by-step description of the Spring Drive in an easy-to-understand manner.  
This is how the Spring Drive works.**

1

**Mainspring**  
The mainspring is wound by rotation of the oscillating weight (or by turning of the crown), and its unwinding power is the sole power source.

2

**Gear train • hands**  
The unwinding power of the mainspring is transmitted via the gear train to move the hands. No motor or battery is mounted.

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In a little more detail, at the end of the train wheel that moves the hands, a series of speed increasing wheels with a glide wheel are provided.

The unwinding power of the mainspring rotates the glide wheel, generating electricity in the coil to drive the crystal oscillator and IC.

The IC controls the spinning speed of the glide wheel by applying and releasing the electromagnetic brake, while comparing the accuracy of the electric signals generated by the crystal oscillator and the spinning speed of the glide wheel.

In addition, by making the energy transfer of the train wheel efficient and adopting an IC that drives with low power consumption, power reserve far exceeding normal mechanical watches is realized.

An unprecedented drive system which offers quartz accuracy.

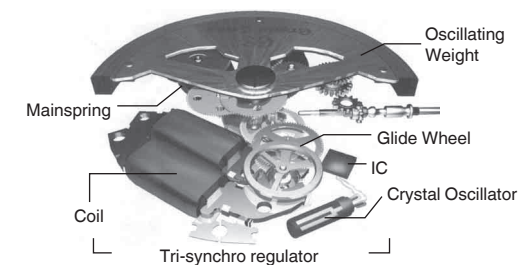
This is the Spring Drive.

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### Tri-synchro regulator

The unwinding power of the mainspring also rotates the glide wheel. This generates small electricity in the coil to drive the IC and crystal oscillator. At the same time, an electric magnetic field is generated on the glide wheel. The IC detects the spinning speed of the glide wheel based on the accuracy of the electric signals of the crystal oscillator, and adjusts the spinning speed of the glide wheel while applying and releasing the electromagnetic brake.



\* The illustration above is a schematic diagram showing a standard spring drive mechanism.

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## Differences between the Spring Drive and mechanical watch

**For the Spring Drive, the mainspring is wound and the unwinding power of the mainspring moves the hands in the same manner as the mechanical watch.**

**It differs from the mechanical watch only in the speedregulating unit (mechanism for controlling accuracy).**

### ● Temperature change

Accuracy of mechanical watches depends on a balance spring attached to a part called the balance. This part has properties for expanding and contracting with temperature changes, and influences the accuracy of a watch. Accuracy of the Spring Drive is never largely influenced by temperature changes like that of mechanical watches since the crystal oscillator controls it.

(Note) Accuracy of the Spring Drive

Average monthly rate of  $\pm 15$  seconds (equivalent to daily rate of  $\pm 1$  second)\* is the accuracy of a watch when it is worn on a wrist at a temperature range between 5°C and 35°C.

\* For Cal. 9R01, the average monthly rate is  $\pm 10$  seconds (equivalent to daily rate of  $\pm 0.5$  second).

## ■ HANDLING CAUTIONS

**⚠ WARNINGS** To indicate the risks of serious consequences such as severe injuries unless the following safety regulations are strictly observed.

### Immediately stop wearing the watch in the following cases.

- If the watch body or band becomes edged by corrosion etc.
- If the pins protrude from the band.

\* Immediately consult the retailer from whom the watch was purchased or Grand Seiko international service network mentioned on CERTIFICATE OF GUARANTEE or our website.

### Keep the watch and accessories out of the reach of babies and children.

Care should be taken to prevent a baby or a child accidentally swallowing the accessories.

If a baby or child swallows the battery or accessories, immediately consult a doctor, as it will be harmful to the health of the baby or child.

### ● Difference in position

For mechanical watches, the accuracy is influenced even by a difference in position or direction of a watch. This is also caused by the balance that controls the accuracy of mechanical watches. Due to the difference in position, the area where the shaft of the balance contacts with other parts differs, and such differences in resistance influence the accuracy. As the Spring Drive adopts a crystal oscillator not a balance, the accuracy is not influenced by a difference in position.

### ● Impact

Mechanical watches are susceptible to impacts. If a mechanical watch was subject to impact, amplitude of vibration of the balance (angle for which the balance rotates right and left) is changed, and even the form of the balance spring is changed. In this regard, the Spring Drive is superior to mechanical watches in impact resistance because it adopts a crystal oscillator not a balance.

### ● Overhaul

Parts that become worn or severely damaged are the balance, pallet fork, and escape wheel & pinion which are collectively called the speed-regulating unit or escapement. These parts "come into contact or collide" mutually and control unwinding of the mainspring.

For the Spring Drive, wear and damage occur less than mechanical watches since the spinning speed of the glide wheel is adjusted by a "contact-free" electromagnetic brake. However, as the structure of gear train is the same as mechanical watches, abrasion powder may be generated by contact of the wheels & pinions. An overhaul is recommend every three to four years.

**⚠ CAUTIONS** To indicate the risks of light injuries or material damages unless the following safety regulations are strictly observed.

### Avoid wearing or storing the watch in the following places.

- Places where volatile agents (cosmetics such as polish remover, bug repellent, thinners, etc.) are vaporizing
- Places where the temperature drops below 5°C or rises above 35°C for a long time
- Places affected by strong magnetism or static electricity
- Places affected by strong vibrations
- Places of high humidity
- Dusty places

### If you observe any allergic symptoms or skin irritation

Stop wearing the watch immediately and consult a specialist such as a dermatologist or an allergist.

### Other cautions

- Do not disassemble or tamper with the watch.
- Keep the watch out of the reach of babies and children. Extra care should be taken to avoid risks of any injury or allergic rash or itching that may be caused when they touch the watch.
- Please keep in mind that if a watch is taken off and placed down as it is, the case back, the band and the clasp will rub against each other possibly causing scratches on the case back. We recommend placing a soft cloth between the case back, the band and the clasp after taking off your watch.

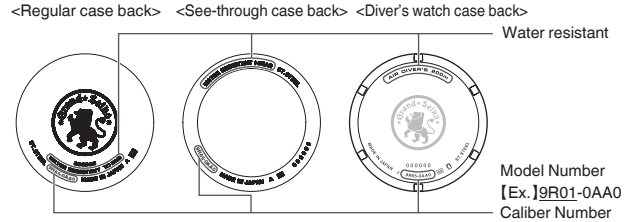
## ■ CHECK THE CALIBER NUMBER AND WATER-RESISTANT LEVEL

### About the caliber number

The caliber number is a four-digit number that indicates the model of a movement (mechanical part of a watch). The Grand Seiko watch is mounted with an exclusive caliber. The mechanical caliber number starts with "9S", the spring drive caliber number starts with "9R" and the quartz caliber number starts with "9F" and "4J".

### How to check the caliber number

The four-digit model number on the case back is the caliber number.



\* The above illustrations are examples and may differ from the case back of the watch you purchased.

## ■ CAUTIONS ON WATER RESISTANCE

### ⚠ CAUTIONS



#### Do not turn or pull out the crown when the watch is wet.

Water may get inside of the watch.

\* If the inner surface of the glass is clouded with condensation or water droplets appear inside of the watch for a long time, the water resistant performance of the watch is deteriorated. Immediately consult the retailer from whom the watch was purchased or Grand Seiko international service network mentioned on CERTIFICATE OF GUARANTEE or our website.



#### Do not leave moisture, sweat and dirt on the watch for a long time.

Be aware of a risk that a water resistant watch may lessen its water resistant performance because of deterioration of the adhesive on the glass or gasket.



#### Do not wear the watch while taking a bath or a sauna.

Steam, soap or some components of a hot spring may accelerate the deterioration of water resistant performance of the watch.

## Water resistance

Refer to the table below for the description of each degree of water resistant performance of your watch before using.

Indication on the case back	Water resistant performance	Conditions of Use
No indication	Non-water resistance	Avoid drops of water or sweat The watch withstands accidental contact with water in everyday life
WATER RESISTANT	Water resistance for everyday life	<b>⚠ WARNINGS</b> Not suitable for swimming
WATER RESISTANT 5 BAR	Water resistance for everyday life at 5 barometric pressures	The watch is suitable for swimming.
WATER RESISTANT 10 (20) BAR	Water resistance for everyday life at 10 (20) barometric pressures	The watch is suitable for diving not using an air cylinder.
AIR DIVER'S 200 m	The watch can be worn for diving using a compressed air cylinder and can withstand water pressure to a depth of 200 meters.	The watch is suitable for genuine scuba diving use.

### ⚠ WARNING



#### Do not use the watch in scuba diving or saturation diving.

The various tightened inspections under simulated harsh environment, which are usually required for watches designed for scuba diving or saturation diving, have not been conducted on the water-resistant watch with the BAR (barometric pressure) display. For diving, use watches specifically designed for diving.

### ⚠ CAUTIONS

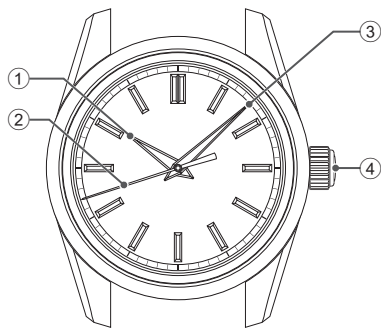


#### Do not pour running water directly from faucet.

The water pressure of tap water from a faucet is high enough to degrade the water resistant performance of a water resistant watch for everyday life.

## ■ NAMES OF THE PARTS

9R02, 9R01  
<Dial side>



- ① Hour hand
- ② Seconds hand
- ③ Minute hand
- ④ Crown  
→ P. 24

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<Case back side>



- ⑤ Power reserve indicator  
→ P. 25

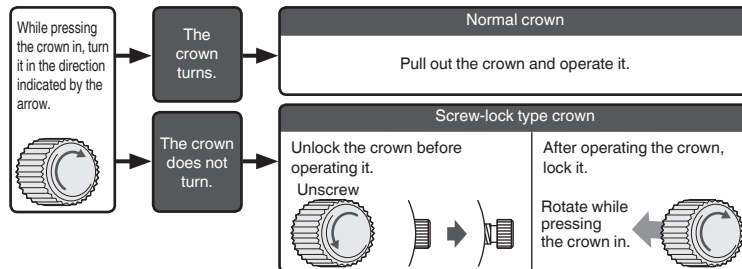
\* The orientation and design of the display may vary depending on the model.

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## ■ HOW TO USE

### Crown

There are two types of crowns, a normal crown and a screw-lock crown.



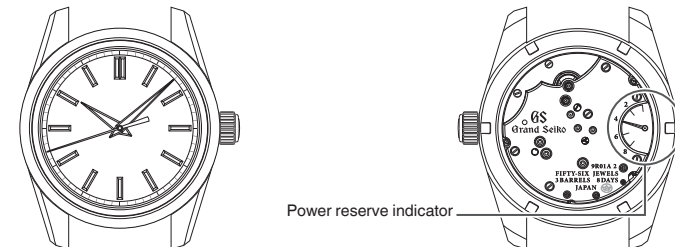
- \* By locking the crown by screw, a screw down crown can prevent malfunction and increase water resistance.
- \* Be careful not to screw the crown in by force as it may damage the slots of the crown.

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### Power reserve indicator

The power reserve indicator lets you know the winding state of the mainspring.

Before removing the watch from your wrist, observe the power reserve indicator to check if the watch has stored enough power to keep running until the next time you wear it. If necessary, wind the mainspring. (To prevent the watch from stopping, wind the mainspring to store the excess power that will allow the watch to run for extra time.)





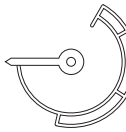
\* The orientation and design of the display may vary depending on the model.

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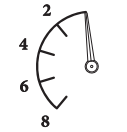
## How to read the power reserve indicator

### 9R02

Power reserve indicator			
Winding state of the mainspring	Fully wound	Half wound	Unwound
Number of hours the watch can run	Approximately 84 hours (3.5 days)	Approximately 48 hours (2 days)	The watch either stops or is running down.

\* This watch is configured so that the spring cannot be over-wound.  
When the mainspring is wound 50 times and becomes fully wound, the crown cannot be turned further to prevent overwinding of the mainspring. Do not try to forcefully turn the crown as this may damage the watch.  
When winding the mainspring, turn the crown slowly to the right (12 o'clock direction) from the 0 level position. Note that turning the crown to the left (6 o'clock direction) has no effect.

### 9R01

Power reserve indicator			
Winding state of the mainspring	Fully wound	Half wound	Unwound
Number of hours the watch can run	Approximately 192 hours (8 days)	Approximately 96 hours (4 days)	The watch either stops or is running down.

\* This watch is configured so that the spring cannot be over-wound.  
When the mainspring is wound 107 times and becomes fully wound, the crown cannot be turned further to prevent overwinding of the mainspring. Do not try to forcefully turn the crown as this may damage the watch.  
When winding the mainspring, turn the crown slowly to the right (12 o'clock direction) from the 0 level position. Note that turning the crown to the left (6 o'clock direction) has no effect.

## How to use (For Cal. 9R02)

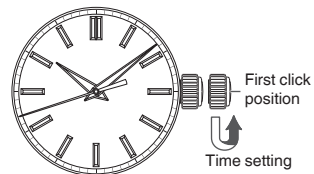
### How to wind the mainspring

○ When starting to use a stopped watch, you need to turn the crown to wind the mainspring. To wind the mainspring, turn the crown at the normal position clockwise (12 o'clock direction) slowly. If you turn the crown counterclockwise (6 o'clock direction), it will turn free.

\* Under a low-temperature condition (below 0°C), always keep at least one-sixth of the watch power shown by the power reserve indicator.

### How to set the time

- 1 Pull out the crown to the first click when the seconds hand is at the 12 o'clock position. The seconds hand stops on the spot.
- 2 Turn the crown to the left (6 o'clock direction) to set the hour and minute hands to the desired time.
- 3 Complete the procedure by pushing the crown back into the normal position in accordance with a time signal.



### Tips for more accurate time setting

To ensure effective operation of the Spring Drive mechanism, observe the following instructions when you set the time.

- 1 Before setting the time, make sure to wind the mainspring sufficiently. (Ensure that the power reserve indicator is showing a full-wound state.)
- 2 When starting to use a watch after it stops, wind the mainspring sufficiently. To set the time after that, wait for **approximately 30 seconds after the seconds hand starts moving**, then pull the crown out to the first click.
- 3 The seconds hand will stop moving when the crown is pulled out to the first click. Do not stop the movement of the seconds hand for longer than 30 minutes. If the stoppage of the seconds hand movement exceeds 30 minutes, push the crown back in, and wait for **approximately 30 seconds after the seconds hand restarts moving**, and then set the time.

## How to use (For Cal. 9R01)

This watch features a time difference adjustment function. The hour hand can be easily adjusted in one-hour increments without stopping the minute and seconds hands. This function is convenient especially when traveling abroad.

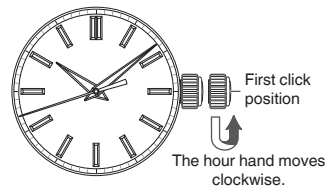
### How to wind the mainspring

○ When starting to use a stopped watch, you need to turn the crown to wind the mainspring. To wind the mainspring, turn the crown at the normal position clockwise (12 o'clock direction) slowly. If you turn the crown counterclockwise (6 o'clock direction), it will turn free.

\* Under a low-temperature condition (below 0°C), always keep at least one-sixth of the watch power shown by the power reserve indicator.

### How to use the independent hour-hand adjustment function

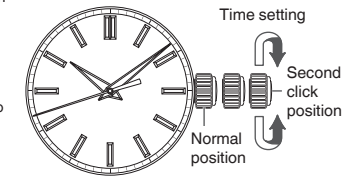
- ① Pull out the crown to the first click.  
The seconds hand keeps moving.
- ② Turn the crown counterclockwise to advance the hour hand. The hour hand moves in one-hour increments.



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### How to set the time

- ③ After adjusting the hour hand position, pull out the crown to the second click when the seconds hand is at the 12 o'clock position. The seconds hand stops on the spot.
- ④ Turn the crown to set the hour and minute hands to the desired time.
- ⑤ Complete the procedure by pushing the crown back into the normal position in accordance with a time signal.



### Tips for more accurate time setting

To ensure effective operation of the Spring Drive mechanism, observe the following instructions when you set the time.

- ① Before setting the time, make sure to wind the mainspring sufficiently.  
(Ensure that the power reserve indicator is showing a full-wound state.)
- ② When starting to use a watch after it stops, wind the mainspring sufficiently. To set the time after that, wait for approximately 30 seconds after the seconds hand starts moving, then pull the crown out to the second click.
- ③ The seconds hand will stop moving when the crown is pulled out to the second click. Do not stop the movement of the seconds hand for longer than 30 minutes. If the stoppage of the seconds hand movement exceeds 30 minutes, push the crown back in, and wait for approximately 30 seconds after the seconds hand restarts moving, and then set the time.

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## ■ TO PRESERVE THE QUALITY OF YOUR WATCH

### After-sale service

#### Notes on guarantee and repair

- Contact the retailer from whom the watch was purchased or Grand Seiko international service network mentioned on CERTIFICATE OF GUARANTEE or our website for repair or overhaul.
- Within the guarantee period, present the certificate of guarantee to receive repair services.
- Guarantee coverage is provided in the certificate of guarantee.  
Read carefully and retain it.
- For repair services after the guarantee period has expired, if the functions of the watch can be restored by repair work, we will undertake repair services upon request and payment.

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### Replacement parts

- Please keep in mind that if original parts are not available, they may be replaced with substitutes whose outward appearance may differ from the originals.

### Inspection and adjustment by disassembly and cleaning (overhaul)

- Periodic inspection and adjustment by disassembly and cleaning (overhaul) is recommended approximately once every 3 to 4 years in order to maintain optimal performance of the watch for a long time.
- The movement of this watch has a structure that consistent pressure is applied on its power-transmitting wheels. To ensure these parts work together properly, periodic inspection including cleaning of parts and movement, oiling, adjustment of accuracy, functional check and replacement of worn parts is needed. Inspection and adjustment by disassembly and cleaning (overhaul) within 3 to 4 years from the date of purchase is highly recommended for long-time use of your watch. According to use conditions, the oil retaining condition of your watch mechanical parts may deteriorate, abrasion of the parts may occur due to contamination of oil, which may ultimately lead the watch to stop. As the parts such as the gasket may deteriorate, water-resistant performance may be impaired due to intrusion of perspiration and moisture. Please contact the retailer from whom the watch was purchased for inspection and adjustment by disassembly and cleaning (overhaul). For replacement of parts, please specify "GRAND SEIKO GENUINE PARTS". When asking for inspection and adjustment by disassembly and cleaning (overhaul), make sure that the gasket and push pin are also replaced with new ones.
- When your watch is inspected and adjusted by disassembly and cleaning (overhauled), the movement of your watch may be replaced.

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## Guarantee

Within the guarantee period, we guarantee free repair/adjustment service against any defects according to the following guarantee regulations, provided that the watch was properly used as directed in this instruction booklet.

### Guarantee coverage

- The watch body (movement, case).

### Exceptions from guarantee

In following cases, repair/adjustment services will be provided at cost even within the guarantee period or under guarantee coverage.

- Exchange of leather band.
- Troubles or damage to the case, glass, or band, caused by accidents or improper usage.
- Failure or damage caused through accidents or improper use.
- Troubles and damage caused by acts of God, natural disasters including fire, floods or earthquakes.
- Text in certificate has been altered.
- No certificate is presented.

## Daily care

### The watch requires good daily care

- Do not wash the watch when its crown is at the extended position.
- Wipe away moisture, sweat or dirt with a soft cloth.
- After soaking the watch in seawater, be sure to wash the watch in clean pure water and wipe it dry carefully.
- \* If your watch is rated as "non-water resistant" or "water resistant for daily use", do not wash the watch.  
"CHECK THE CALIBER NUMBER AND WATER-RESISTANT LEVEL" → P. 18

### Turn the crown from time to time

- In order to prevent corrosion of the crown, turn the crown from time to time.
- The same practice should be applied to a screw lock type crown.  
"Crown" → P. 24

## Procedure to claim free repair services

- For any defects under guarantee, submit the watch together with the attached certificate of guarantee to the retailer from whom the watch was purchased.
- In the case where you cannot accept the guarantee from the retailer from whom the watch was purchased due to gift-giving or relocation, etc., ask Grand Seiko international service network mentioned on CERTIFICATE OF GUARANTEE or our website by attaching the certificate without fail.

### Others

- For the watch case, dial plate, hands, glass, band etc., some alternative parts may be used for repair if necessary.
- Free repair services are guaranteed only under the period and conditions specified in the certificate of guarantee. It does not affect specific legal rights of a consumer.

## Band

The band touches the skin directly and becomes dirty from sweat or dust. Therefore, lack of care may accelerate deterioration of the band or cause skin irritation or stain on the sleeve edge. The watch requires a lot of attention for long usage.

### Leather band

- Wipe off moisture and sweat as soon as possible by gently blotting them up with a dry cloth.
- Do not expose the watch to direct sunlight for a long time.
- Please take care when wearing a watch with light-colored band, as dirt is likely to show up.

### Notes on skin irritation and allergy

Skin irritation caused by a band has various reasons such as allergy to metals or leathers, or skin reactions against friction on dust or the band itself.

### Notes on the length of the band

Adjust the band to allow a little clearance with your wrist to ensure proper airflow. When wearing the watch, leave enough room to insert a finger between the band and your wrist.



## Magnetic resistance (Magnetic influence)

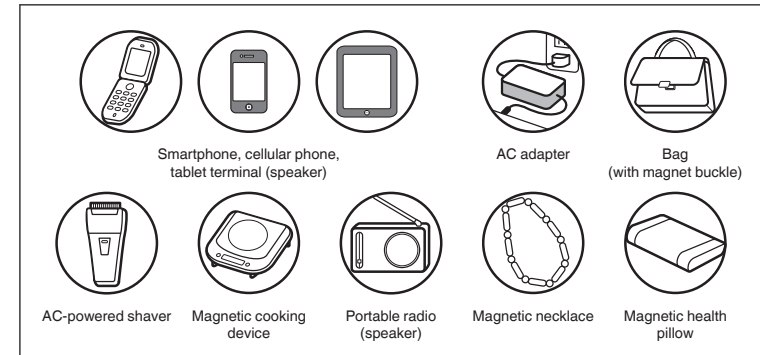
Affected by nearby magnetism, a watch may temporarily gain or lose time or stop operating.

Indication on the case back	Conditions of use	Certified level
	Keep the watch more than 5 cm away from magnetic products.	4,800A/m
	Keep the watch more than 1 cm away from magnetic products.	16,000A/m
MAGNETIC RESISTANT 40000A/m	The watch can maintain its performance in most cases where it is brought close to (at least 1 cm spaced from) magnetic products not only in normal daily life circumstances but also in a special work environments.	40,000A/m
MAGNETIC RESISTANT 80000A/m		80,000A/m

\* A/m (ampere meter) is the International unit (SI unit) for indicating the magnetic field.

If the watch becomes magnetized and its accuracy deteriorates to an extent exceeding the specified rate under normal use, the watch may need to be demagnetized. In this case, you will be charged for demagnetization and accuracy readjustment even if it happens within the guarantee period.

## Examples of common magnetic products that may affect watches



## The reason why this watch is affected by magnetism

The built-in speed-regulating mechanism is provided with a magnet, which may be influenced by a strong external magnetic field.

## Lumibrite

### If your watch has Lumibrite

Lumibrite is a newly-developed luminous paint that absorbs light energy of the sunlight and lighting apparatus in a short time and stores it to emit light in the dark. For example, if exposed to a light of more than 500 lux for approximately 10 minutes, Lumibrite can emit light for 3 to 5 hours. Please note, however, Lumibrite emits the light it stores, the luminance level of the light decreases gradually over time. The duration of the emitted light may also differ slightly depending on such factors as the brightness of the place where the watch is exposed to light and the distance from the light source to the watch.

\* In general, when you enter a dark place from a bright environment, your eye cannot adapt to the change in light levels quickly. At first, you can hardly see anything, but as time passes, your vision gradually improves. (Dark adaptation of the human eye)

\* Lumibrite is a luminous paint that is completely harmless to human beings and the natural environment; containing no noxious materials such as radioactive substance.

### Reference data on the luminance

Condition		Illumination
Sunlight	Fine weather	100,000 lux
	Cloudy weather	10,000 lux
Indoor (Window-side during daytime)	Fine weather	more than 3,000 lux
	Cloudy weather	1,000 to 3,000 lux
	Rainy weather	less than 1,000 lux
Lighting apparatus (40-watt daylight fluorescent light)	Distance to the watch: 1 m	1,000 lux
	Distance to the watch: 3m	500 lux (average room luminance)
	Distance to the watch: 4m	250 lux

## Troubleshooting

Troubles	Possible causes	Solutions
The watch stops operating.	The mainspring has not been wound.	Turn the crown to wind the mainspring and reset the time. If this action does not correct the condition, consult the retailer from whom the watch was purchased.
The watch stops even though the power reserve indicator is not showing "0".	The watch has been left at a low temperature (below 0°C).	Turn the crown to wind the mainspring and reset the time. At a temperature below 0°C, the watch may stop if the power reserve indicator is showing less than one-sixth of the power reserve.
The watch temporarily gains/loses time.	The watch has been left in extremely high or low temperatures for a long time.	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 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, and reset the time. If this action does not correct the condition, contact the retailer from whom the watch was purchased.
	You drop the watch, hit it against a hard surface, or wear it while playing active sports. The watch is exposed to strong vibrations.	If accuracy does not return after setting the time, consult the retailer from whom the watch was purchased.

Troubles	Possible causes	Solutions
Right after starting the watch, it seems that the seconds hand moves more quickly than usual when setting the time.	When the watch starts moving, it takes a little time before the speed-regulating unit starts operating. (This is not a malfunction.)	It takes several seconds before the speed-regulating unit starts operating. To set the time correctly, wait for approximately 30 seconds after the seconds hand starts to move, and set the time.
Blur in the display persists.	Small amount of water has got inside the watch due to deterioration of the gasket, etc.	Consult the retailer from whom the watch was purchased.

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

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## グランドセイコー専用ダイヤル (通話料無料)

0120-302-617

受付時間：月曜日～金曜日 9：30～21：00

土曜・日曜・祝日・年末年始 9：30～17：30

## お客様相談室

〒100-0005 東京都千代田区丸の内 3-1-1 国際ビル

〒550-0013 大阪市西区新町 1-4-24 大阪四ツ橋新町ビルディング

営業時間：9：30～17：30（土曜・日曜・祝日・年末年始を除く）

セイコーウォッチ株式会社

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## ■ SPECIFICATIONS (Movement)

Caliber no.	9R01	9R02
Features	Hour, minute, seconds, power reserve indicator, independent hour-hand adjustment function (For Cal. 9R01 only).	
Frequency of crystal oscillator	32,768 Hz	
Loss/gain	Average monthly rate of $\pm 10$ seconds (equivalent to daily rate of $\pm 0.5$ second) <sup>*1</sup>	Average monthly rate of $\pm 15$ seconds (equivalent to daily rate of $\pm 1$ second) <sup>*1</sup>
Operational temperature range	-10°C to +60°C <sup>*2</sup>	
Driving system	Manual winding type	
Hand movement	Glide motion	
Continuous operating time	Approx. 192 hours (Approx. 8 days) <sup>*3</sup>	Approx. 84 hours (Approx. 3.5 days) <sup>*3</sup>
IC (Integrated Circuit)	Oscillator, frequency divider, and spring drive control circuit (C-MOS-IC): 1 piece	
Number of jewels	56 jewels	39 jewels

\*1 The average rate is estimated in a condition when the watch is worn on your wrist within a temperature range between 5°C and 35°C.

\*2 Under a low-temperature condition (below 0°C), always keep at least one-sixth of the watch power shown by the power reserve indicator.

\*3 When the power reserve indicator shows the power supplied by the mainspring is full  
Continuous operating time may be shortened depending on the how the product is used.

\* The specifications are subject to change without prior notice due to product improvement.

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