



SEIKO WATCH CORPORATION
www.grand-seiko.com

BSJ9SCDC-2606

GS
Grand Seiko

Mechanical
Operating Instructions
9SA5, 9SA4, 9SC5

Thank you very much for choosing a Grand Seiko watch.
For proper and safe use of your Grand Seiko watch, please
read the instructions carefully in this booklet before using it.

Bracelet sizing is available at the retailer from whom the watch was purchased. If you cannot have your watch band sized by the retailer from whom the watch was purchased because you received the watch as a gift, or you moved to a distant place, please contact Grand Seiko international service network mentioned on our website. The service may also be available on a chargeable basis at other retailers, however, some retailers may not undertake the service.

If your watch has a protective film for preventing scratches, make sure to peel it off before using the watch. If the watch is used with the film on it, dirt, sweat, dust, or moisture may be attached to the film and may cause rust.

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■ INTRODUCTION -About mechanical watch-

Thank you very much for purchasing the Grand Seiko mechanical watch.

Take hold of your watch softly.
 Hear the watch ticking,
 tick tock, tick tock, tick tock,
 soft and faint, a dignified sound can be heard.

The sound can be called
 the crystal of the craftsmen's spirit and skill.
 Handpicked parts assembled one by one,
 carefully, with craftsmanship,
 giving life to a mechanical watch.
 This is proven by the sound.

Talking about accuracy,
 mechanical watches cannot be compared to
 quartz watches, that is for certain.
 However, the accuracy of a mechanical watch
 is pursued by human hands.
 Full of spirit and know-how of craftsmen.

A mechanical watch - complicated, sensitive,
 and having a human touch.
 We would like to let all of you know
 the charm of a mechanical watch, which has no bounds.
 So we made this handbook, mainly detailing the accuracy.
 Wishing you will have a nice time
 with your Grand Seiko for a long, long time.

SEIKO WATCH CORPORATION

Quartz watches and mechanical watches - what is the difference?

We will explain by example Quartz watches that you have come to be familiar with. These are just like airplanes, controlled by computers. A battery, IC, and crystal make quartz watches work accurately, electrically. Some loss or gain may occur while the watch is worn. However, this will be too small to notice in your daily life. If a quartz watch resembles an airplane, a mechanical watch is like a bicycle.	All watch parts work together mechanically to make it tick. Thus, a mechanical watch is easily affected by the outside environment. If it is hot, the watch tends to lose time. When power driving the watch becomes short (when the amount the spring is wound is short), accuracy becomes unstable. If the resting position of the watch is changed, accuracy is also affected. The rate of loss/gain could be significant that you will notice in your daily life.
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The accuracy is shown by the daily rate

The measured loss/gain of the watch per day.
 This is called the daily rate.

The accuracy of a mechanical watch is usually shown in this daily rate.

The accuracy of a mechanical watch changes delicately day by day, depending on the condition in which the watch is used or the outside environment.

Thus, by only observing loss/gain in one day, you cannot judge how accurate the watch works.

If you check the average of the daily loss/gain rates for one week to ten days, you can judge the accuracy of the watch.

In the case of quartz watches, the accuracy is usually shown by the monthly/yearly rate.
 Total losses/gains for a month/year are called the loss/gain rate of quartz watches.

Mean daily rate / Normal usage accuracy

The accuracy of a mechanical watch varies depending on many things, such as the amount the spring is wound, temperature, or resting position of the watch.

Thus, to show the accuracy of a mechanical watch evenly, not depending on the environment, loss/gain of a mechanical watch is measured before the movements of the watch are put in the case, under controlled conditions, with many days of tests. And the measured rate is called "mean daily rate".

In both the ISO3159 and the Grand Seiko Standard*, the standard rate is mean daily rate.

* "THE GRAND SEIKO STANDARD" P. 25

This rate is the data measured in an environment that is artificially controlled, in order to fairly evaluate/show the abilities of mechanical watches without being influenced by environmental changes.

So it is different from "normal usage accuracy" when you are actually wearing the watch.

The accuracy of a mechanical watch varies delicately day by day, depending on the environment.

This is like a living thing, one of the charms that a mechanical watch has.

This watch has a precision rate of -1 to +8 seconds a day. If the average of the daily rates exceeds this level, we recommend adjusting the watch accordingly.

To adjust the accuracy as accurately as possible, information such as the rate of loss/gain of your watch and how you use it, are very important. Please let us know the following when you ask for adjustment of your watch by our service center.

- (1) The average daily loss/gain rates for one week to ten days
Ex. an average of +11 seconds
- (2) Approximate hours of wearing the watch in one day in the above period
Ex. Approximately 10 hours
- (3) The resting position of the watch while you don't wear it
Ex. Horizontal - Dial up
Vertical - the crown up

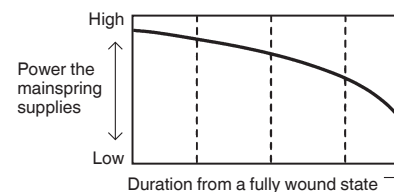
For lifelong use of your mechanical watch rule No.1

Wind the mainspring of your mechanical watch at a fixed time.

As there are rules for everything, there is a rule for winding the spring.

You have not heard this before?
Please keep it in mind.

The mainspring - the source of energy for a mechanical watch.
When it is fully wound, it can supply the most stable energy to every part of the watch movement, and the accuracy of the watch becomes most stable.



Even if your watch is a self-winding type, when you feel the accuracy is not stable, turn the crown to wind the mainspring further.

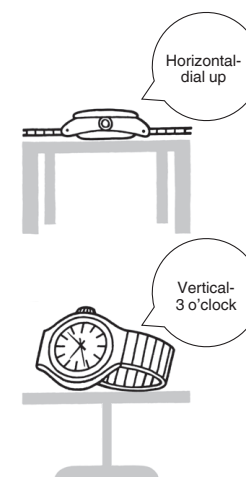
If you work at a desk, etc., and do not move enough, the spring will not be wound sufficiently. If your watch is a hand-winding mechanical type, turn the crown every day, at a fixed time to wind the mainspring sufficiently.

To use the watch with better accuracy, wind the mainspring every day, at a fixed time. Please keep to this rule as best as possible.

For instance,
You may make it a rule to wind the spring
When you wake up, or at lunchtime.

For lifelong use of your mechanical watch rule No.2

Place your watch correctly, like this.



Half of one day, twenty-four hours, when you do not wear your watch.

The accuracy while you do not wear the watch is included in "normal usage accuracy".

The mechanical watch that you take off.
Which position should the watch be put in?

The loss/gain of a mechanical watch depends on the resting position of the watch. In one position, the watch tends to gain, in another position, it doesn't.

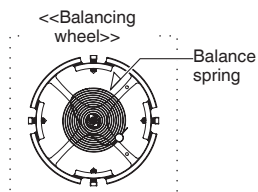
For instance, while you are sleeping at night, when you do not wear your watch, put the watch in various positions for seven to eight hours, such as placing it with its face turned up, or with the crown up, to find the best resting position for the watch for reducing the loss/gain that occurs while you are wearing your watch.

For lifelong use of your mechanical watch rule No.3

Accuracy will vary depending on the temperature.

A piece of metal of about 0.1 mm, as thin as a hair, is wound.

That is the key that controls the accuracy of all mechanical watches.



Metals expand and contract depending on the temperature.

This characteristic of all metals also applies to the balance spring.

This affects the accuracy of a mechanical watch. In other words,

When it is hot, the balance spring expands and the watch tends to lose.

When it is cold, the balance spring contracts and the watch tends to gain. This is typical.

For lifelong use of your mechanical watch rule No.4

Keep your mechanical watch away from magnetic objects.

After you take off your watch,
do you leave it by your cell phone?
Or put it on a television or next to your PC?
Do you put it in your bag with your cell phone?

Watches do not like magnetism.
They may lose or gain when affected by magnetism.

To make your mechanical watch work more accurately,
it is important not to leave the watch close to magnetic objects for a long time.

In particular, cell phones, televisions and speakers of PCs have strong magnetism.
A magnetic necklace, a clasp of a handbag, magnetic parts of refrigerators,
there are many magnetic objects around us.
Please be careful.

For lifelong use of your mechanical watch rule No.5

Do not give your mechanical watch a strong shock.

When you play golf, tennis or baseball.

When you play a sport that gives your arm a strong impact.

Please take off your mechanical watch.

There are reasons for this.

For instance,
at the moment you hit a golf ball with a club,
the impact of the ball against the club is about 1 ton.

The impact is given to your wrist,
and this will affect very small parts inside your mechanical watch.

Sometimes, the impact will deform or break a watch part.
“Good shot” for you becomes “bad shock” for your watch.

For lifelong use of your mechanical watch rule No.6

Overhaul, once every three to four years

Love your watch, once every three to four years.
Talk about an overhaul.

In the case of a mechanical watch, there is no need to change the battery.

However,
maintenance of your watch is also necessary.

Once every three to four years,
please take your watch to our service center for examining and cleaning every part of your watch.

Once you start using it,
your watch never takes a rest.

And in the case of a mechanical watch, power given to its gear is stronger,
compared to a quartz watch.
So parts may wear,
oil may dry or be insufficient in some parts.

Especially,
the first three to four years after you start using your watch is the period when each part gets used to one another,
and contacting each other causes additional metal powder.

The first overhaul is
the key to the life of your mechanical watch.

Please keep in mind
an overhaul, once every three to four years

can be considered
love for your watch.

■ CAUTIONS FOR ACCURACY

- Normal usage accuracy of a mechanical watch varies depending on individual customer's use conditions such as winding state of the mainspring by movement amount of the customer's arm per day, temperature environment, and position (orientation of a watch). Accordingly, the actual normal usage accuracy when the watch is used by a customer may differ from the numerical value of each item specified in the Grand Seiko Standard.
- The target range of normal usage accuracy when the watch is actually used by a customer is set to -1 to +8 seconds per day.
To correctly judge the normal usage accuracy, please use the watch for not only one day, but also approximately one week to 10 days under normal use conditions to check loss or gain of time. If the average value per day exceeds the target range, we recommend adjusting the watch. (For more details, please refer to P. 25.)
- The enclosed Grand Seiko Standard Inspection Certificate certifies the values of a movement single unit before assembly in a case which are measured under an artificially controlled environment in the production factory passed the Grand Seiko Standard Inspection. Should the certificate be lost or after repair or adjustment, it cannot be reissued.

■ HANDLING CAUTIONS

⚠ WARNING To avoid the imminent risks of serious consequences such as severe injuries be sure to strictly observe the following safety regulations.

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 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.

⚠ CAUTION To avoid the risks of light injuries or material damages be sure to strictly observe the following safety regulations.

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

- Adjustment of the metallic band requires professional knowledge and skill.
Please ask the retailer from whom the watch was purchased for replacement of the metallic band, as there is a risk of hand or finger injury and fear of losing parts.
- 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.
- If your watch is of the fob or pendant type, the strap or chain attached to the watch may damage your clothes, or injure the hand, neck, or other parts of your body.
- 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

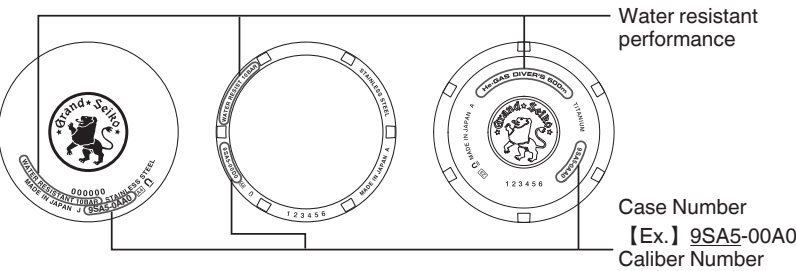
About the caliber number

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 movement, and the mechanical caliber number starts with "9S", the spring drive caliber number starts with "9R" and the quartz caliber numbers are indicated with 4 digits starting with "9F", "8J" and "4J".

How to check the caliber number

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

<Regular case back> <See-through case back> <Diver's watch case back>



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

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
WATER RESISTANT	Water resistance for everyday life	The watch withstands accidental contact with water in everyday life WARNING Not suitable for swimming
WATER RESISTANT 10 · 20 BAR	Water resistance for everyday life at 10 or 20 barometric pressures.	The watch is suitable for diving not using an air cylinder.
DIVER'S WATCH 200 · 300m	The watch can be worn for diving using a compressed air cylinder and can withstand water pressure to a depth of 200 or 300 meters.	The watch is suitable for genuine scuba diving use.
DIVER'S WATCH 600 m FOR SATURATION DIVING	The watch can be worn for diving using helium gas and can withstand water pressure to a depth of 600 meters.	The watch is suitable for saturation diving.

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

CAUTIONS ON WATER RESISTANCE

CAUTION



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 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, or the development of rust on stainless steel.



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.

If water-resistant level of your watch is defined as "WATER RESISTANT"

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. For diving, use watches specifically designed for diving.

CAUTION

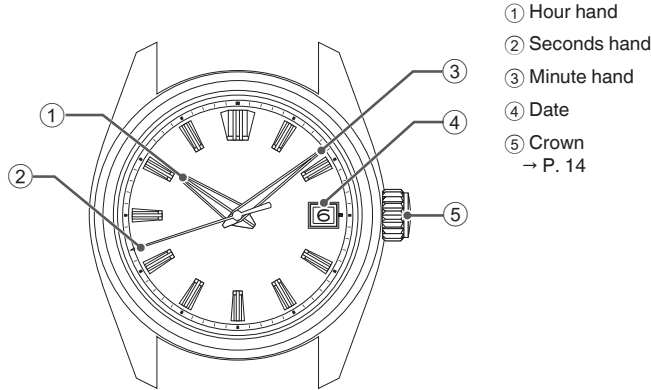


Do not pour running water directly from faucet.

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.

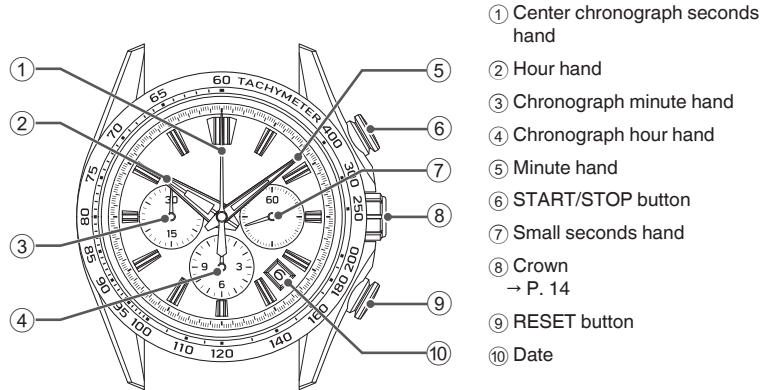
■ NAMES OF THE PARTS

9SA5



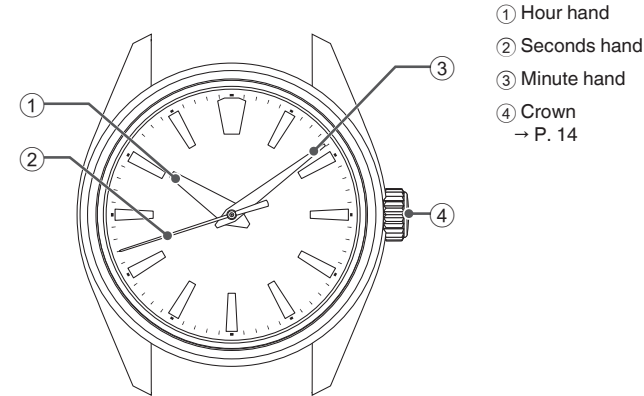
How to set the time and date→ P. 17

9SC5



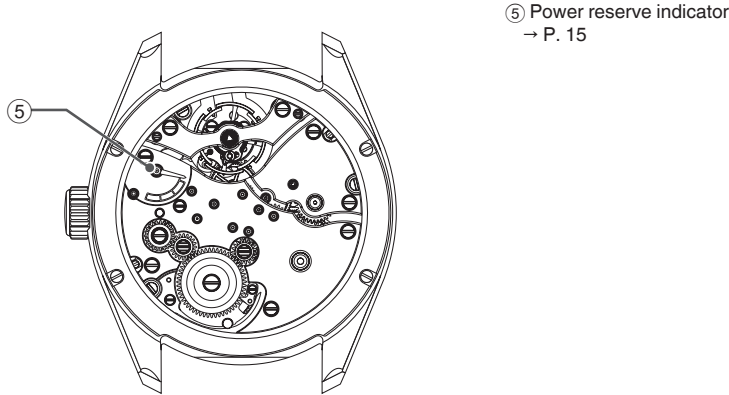
How to set the time and date→ P. 17
Chronograph (For Cal. 9SC5)→ P. 21

9SA4 <Dial side>



How to set the time→ P. 20

<Case back side>



HOW TO USE

Crown

There are two types of crowns, the regular one and one that can be locked. Please confirm the crown of the watch that you are using.

While pressing the crown in, turn it in the direction indicated by the arrow.

The crown turns.

Normal crown

Pull out the crown and operate it.

The crown does not turn.

Screw down crown

Unlock the crown before operating it.

Unscrew

After operating the crown, lock it.

Rotate while pressing the crown in.

- * 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.

* Turn the crown from time to time. → P. 33

Screw down crown

The screw down crown features a mechanism that can securely lock the crown when it is not being operated in order to prevent any operational errors and to improve its water resistant performance.

- It is necessary to unlock the screw down crown before operating it.
- Once you have finished operating the crown, make sure to relock it.

【To unlock the crown】

Turn the crown counterclockwise (6 o'clock direction) to unscrew it. Now the crown can be operated.

【To lock the crown】

Turn the crown clockwise (12 o'clock direction) while gently pressing it in toward the watch body until it stops.

Unlock the crown before operating it.

Unscrew

Crown locked

Crown unlocked

After operating the crown, lock it.

Rotate while pressing the crown in.

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

Power reserve indicator (9SA4)

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

After 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.)

How to read the power reserve indicator

Power reserve indicator				
Winding state of the mainspring	Fully wound	Two-thirds wound	One-third wound	Unwound
Number of hours the watch can run	Approximately 80 hours	Approximately 56 hours	Approximately 32 hours	The watch either stops or is running down.

* This watch is configured so that when the crown is turned and the mainspring becomes fully wound, the mainspring cannot be wound further. Refrain from forcefully winding the mainspring as this may damage the watch.
If the power reserve indicator shows that the watch is fully wound but the seconds hand does not start moving, pull the crown out slightly and then push it back in to get the seconds hand in motion.

14

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How to Use (For Cal. 9SA5, 9SC5)

How to wind the mainspring

- This watch is an automatic winding type (with manual winding function).
- The mainspring can be sufficiently wound automatically by natural movement of the arm while normally worn on the wrist. In addition, it can be wound by turning the crown.
- Before wearing the watch that has stopped, turn the crown to wind the mainspring sufficiently and set the time and date. When winding 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.
The mainspring is sufficiently wound when the crown is turned approximately 60 times. When the mainspring is in the full-winding state, it is designed so that the mainspring slips if it is overwound. Therefore, it is not necessary to worry about breaking the mainspring, however, please refrain from excessive operation.

- * It is recommended that you wear the watch on your wrist more than 10 hours a day to keep the mainspring wound up. If the mainspring is not wound up sufficiently, the watch may lose or gain time. If you use the watch without wearing on your wrist, wind the mainspring up sufficiently by turning the crown by hand every day at a fixed time.
- * When the watch is used from a state in which the mainspring is unwound to a stop, it does not move initially even after the mainspring is wound with the winding crown. This is because of the mechanical watch's feature that the mainspring torque (force) is weak at the beginning of mainspring winding. The seconds hand starts moving when the mainspring is wound to reach a certain degree of torque strength. However, to start it moving sooner, wind the mainspring a certain amount (about 20 turns of the crown), then pull the crown out slightly and push it back in to get the seconds hand in motion.

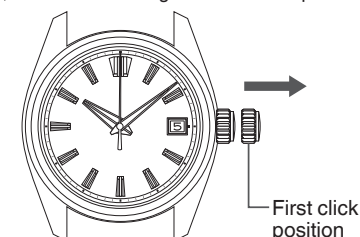
⚠ CAUTION

- Do not set the date between 9:00 p.m. and 1:00 a.m. (between 8:00 p.m. and 2:00 a.m. for Cal. 9SC5).
If the date is set during this period of time, the date may not change when the next day comes, or this may cause damage.
- If the time you want to set is between 7:00 p.m. and 1:00 a.m., first return the time to 6:00 p.m., and then turn the crown counterclockwise (6 o'clock direction) so the hands advance in the clockwise direction to set the time.
- Due to its gear train mechanism, for setting the time of the mechanical watch correctly, the hands should be set back once slightly and then set forward to the correct time.
Due to its gear train mechanism, if you set the time on your chronograph (9SC5) counterclockwise, there may be a delay of several seconds before the minute hand starts moving.

How to set the time and date

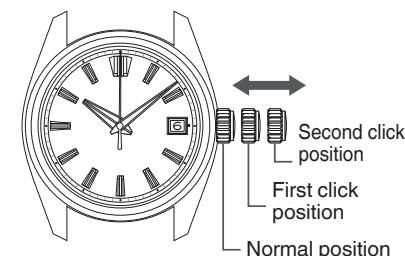
This watch is equipped with the date display function. The date changes once every 24 hours at around midnight.
Therefore, if the a.m./p.m. is incorrectly set, the date will change around 12:00 p.m.

- ① Pull out the crown to the first click.
(If the watch is equipped with the screw down crown, unscrew the crown before pulling it out.)
- ② The date can be adjusted by turning the crown counterclockwise (6 o'clock direction) for Cal. 9SA5, or by turning the crown clockwise (12 o'clock direction) for Cal. 9SC5.
First turn the crown until the previous day's date from the desired date appears.



[Ex.] If you want to set the date to "6," set the date to "5" by turning the crown.

- ③ Pull out the crown to the second click when the seconds hand is at the 12 o'clock position. (The seconds hand stops.)
Turn the crown counterclockwise (6 o'clock direction) to rotate the hands clockwise until the desired date appears. When the date changes, the time is a.m. Turn the crown further to set the current time.
- ④ Push the crown back into the normal position. The watch starts operating.



⚠ CAUTION

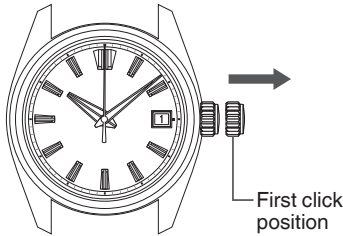
For models with a screw down crown, remember to screw the crown in.

Date adjustment at the end of the month

It is necessary to adjust the date after February (which has 28 days, 29 days in a leap year) and a 30 day month.

【Ex.】 To adjust the date in the a.m. period on the first day of a month following a 30-day month

“31” is displayed instead of “1”. Pull out the crown to the first click. Turn the crown to set the date to “1”, and push the crown back in to the normal position.



CAUTION

For models with a screw down crown, remember to screw the crown in.

How to Use (For Cal. 9SA4)

How to wind the mainspring

- This watch is a manual winding type.
- In order to wind it up completely, please refer to the following table;

<u>In case the power reserve indicator shows that the watch has not been wound recently</u>	About 54 turns of the crown will wind up the watch fully.
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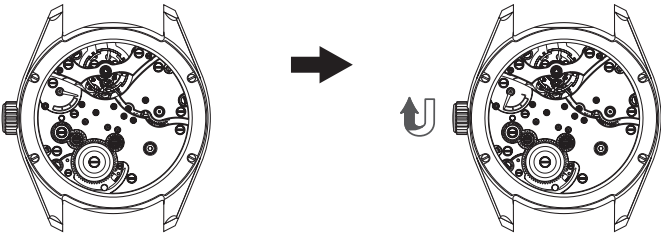
- Please see the power reserve indicator to check the level of the remaining power.
“Power reserve indicator (9SA4)”→ P. 15
- From the state of the mainspring being sufficiently wound, it continuously operates for approximately 80 hours or more.
- If the mainspring is not wound up sufficiently, the watch may lose or gain time. To attain a high accuracy, we suggest that the mainspring is wound so that the power reserve indicator shows a fully wound state once a day at a fixed time.

This watch is configured so that when the crown is turned and the mainspring becomes fully wound, the mainspring cannot be wound further. Refrain from forcefully winding the mainspring as this may damage the watch.

* When the watch is used from a state in which the mainspring is unwound to a stop, it does not move initially even after the mainspring is wound with the winding crown. This is because of the mechanical watch's feature that the mainspring torque (force) is weak at the beginning of mainspring winding. The seconds hand starts moving when the mainspring is wound to reach a certain degree of torque strength. However, to start it moving sooner, wind the mainspring a certain amount (about 20 turns of the crown), then pull the crown out slightly and push it back in to get the seconds hand in motion.

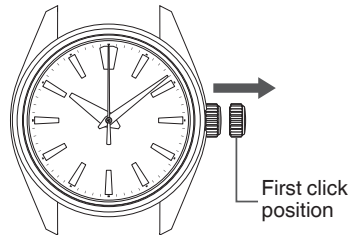
Do not pull out the crown.

Slowly turn the crown clockwise (12 o'clock direction) to wind the mainspring.



How to set the time

- ① Pull out the crown when the seconds hand is at the 12 o'clock position.
(The seconds hand stops.)
Turn the crown to set the hour and minute hands to the desired time.



- ② Push the crown back in to the normal position in accordance with a time signal. The watch starts operating.

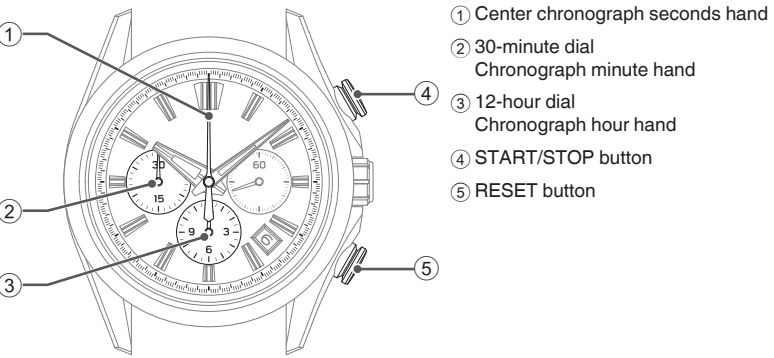
Chronograph (For Cal. 9SC5)

A **chronograph** is a watch that has a stopwatch function in addition to a time display function. This watch features a stopwatch function which can measure time up to 12 hours.

Before using the stopwatch function

- ① Make sure that the mainspring is sufficiently wound.
When using the stopwatch, ensure that the watch is working.
- ② Make sure that the center chronograph seconds hand is pointing at the 0 position.
If it is not pointing at the 0 position, press the RESET button.
* Do not pull out the crown while the stopwatch function is operating, as doing so will stop the measurement.

Names of the chronograph parts and their function



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

How to use the chronograph (stopwatch) function

① Make sure that the mainspring is sufficiently wound and the watch is working.

② Start measuring time.
Upon pressing of the START/STOP button, the chronograph hands start moving and the stopwatch starts measuring time.



③ Stop measuring time.
At the moment you want to finish the measurement, press the START/STOP button again to stop the chronograph hands.

【Ex.】 6 hours 20 minutes 10 seconds and 8

* The chronograph minute hand on the 30-minute dial completes two full rotations in an hour.
To read the 30-minute dial, see the display of the 12-hour dial as a rough indication.



④ Reset the chronograph hands.
After stopping the chronograph hands, press the RESET button to return all the chronograph hands to the 0 position.



Accumulated elapsed time measurement

① Make sure that the mainspring is sufficiently wound and the watch is working.

② Start measuring time.
Upon pressing of the START/STOP button, the chronograph hands start moving and the stopwatch starts measuring time.



③ Stop measuring time.
At the moment you want to stop the first measurement, press the START/STOP button again to stop the chronograph hands. The measured time will be displayed.



④ Restart measuring time.
Upon pressing of the START/STOP button again, the chronograph hands restart moving from the position they had previously stopped.



⑤ Stop measuring time.
At the moment you want to stop the second measurement, press the START/STOP button again to stop the chronograph hands. The measured time displayed at this time will be the total of the first and the second measurements (accumulated elapsed time).



⑥ Repeat measuring time cumulatively.
Step ④ and ⑤ above can be repeated as required. As you repeat pressing of the START/STOP button, the measurement will stop and restart and each elapsed time measurement will be accumulated.



⑦ Reset the chronograph hands.
After stopping the chronograph hands, press the RESET button to return all the chronograph hands to the 0 position.

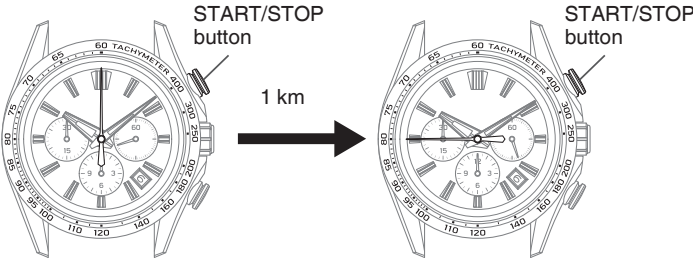
How to use the tachymeter

The tachymeter can be used to measure average speed or productivity rate per unit time.

How to measure average speed of your vehicle

【Ex.】 Measure the time taken by your vehicle to go one kilometer

- ① When the car passes the start line, press the START/STOP button to start the stopwatch.
- ② When the car crosses the 1-kilometer mark, press the START/STOP button to stop the stopwatch. Read the number on the tachymeter scale to which the center stopwatch seconds hand is pointing.

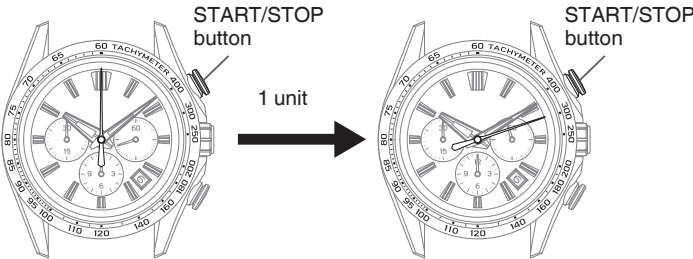


The measured result shows that the average speed of the vehicle is 80 km/h.

How to compute productivity rate per hour

【Ex.】 Measure the time required to produce one unit

- ① At the start of production, press the START/STOP button to start the stopwatch.
- ② When the production is completed, press the START/STOP button to stop the stopwatch. Read the number on the tachymeter scale to which the center stopwatch seconds hand is pointing.



The measured result shows that the average productivity rate is 300 units/h.

THE GRAND SEIKO STANDARD

Normal usage accuracy of a mechanical watch varies due to the structural characteristics of its movement, and is affected by the environmental conditions such as winding state of the mainspring, temperature and position (orientation) of the watch.

The “Grand Seiko Standard” is our own accuracy standard, established to ensure exceptional performance of Grand Seiko timepieces.

“The Grand Seiko Standard defined”→ P. 26

The movement in your Grand Seiko watch has been tested in our facilities for a period of 17 days (20 days for the chronograph), in six different positions and at three different temperatures. It has achieved or surpassed the standards of accuracy shown on page 26, with the accuracy being defined as a gain or loss per day (the “mean daily rate”).

We specify “target values” for actual use and it is -1 second to +8 seconds per day. To judge the precision of your watch against these values, please measure the gain or loss over a week to ten days, and not just for one day, and in normal conditions. If the mean daily rate is outside these levels, we recommend adjusting the watch. Adjustment will be chargeable even within the warranty period if the watch has been subject to any of the conditions below.

- The watch has been used in ways that are not in line with the recommendations in this booklet, such as allowing it to be magnetized.
- It has been opened or tampered with by anyone other than a Grand Seiko repair center.
- It has been damaged as a result of a natural disaster such as a flood, fire or earthquake.
- Warranted conditions have been altered.

The Grand Seiko Standard defined

Item	Unit	Standard	Standard for Chronograph
Mean daily rate in six positions	Second(s)/day	-3.0 ~ +5.0	-3.0 ~ +5.0
Mean variation of daily rate	Second(s)/day	Less than 1.8	Less than 1.8
Maximum daily rate between two consecutive daily rates in the same position	Second(s)/day	Less than 4.0	Less than 4.0
Variation of rate between positions horizontal and vertical	Second(s)/day	-6.0 ~ +8.0	-6.0 ~ +8.0
Maximum daily rate between mean daily rate and any individual rate	Second(s)/day	Less than 8.0	Less than 8.0
Variation of daily rate per 1 °C between 8 °C and 38 °C	Second(s)/day/ °C	-0.5 ~ +0.5	-0.5 ~ +0.5
Variation of daily rate per 1 °C between 23 °C and 38 °C	Second(s)/day/ °C	-0.5 ~ +0.5	-0.5 ~ +0.5
Rate-resumption	Second(s)/day	-5.0 ~ +5.0	-5.0 ~ +5.0
Number of positions in inspection		6 positions	6 positions without chronograph running
			3 positions with chronograph running
Condition of temperature in inspection		8, 23, 38 °C	
Length of tests		17 days	20 days

Description of Grand Seiko Standard Terminology

Item	Meaning
Position in inspection	Five orientations are specified by the International Standard ISO3159 so as to carry out various kinds of tests for time keeping. In addition thereto, in the GS inspection, 12 o'clock Up position in the state where a watch taken off the wrist is placed, is added, six orientations are specified. (Dial Up, Dial Down, 12 o'clock Up, 3 o'clock Up, 6 o'clock Up, and 9 o'clock Up)
Mean daily rate in six positions	Mean value of a total of 12 daily rates measured in six different positions, respectively, for two days. This is a target value indicating basic loss/gain per day of a watch, however, it is required to comprehensively judge the actual accuracy performance in consideration of other items.
Mean variation of daily rate	Mean value of a total of six variations of daily rates between the first day and second day when measured in six different positions for two days each. It indicates the degree which daily accuracy stabilizes in each position.
Maximum daily rate between two consecutive daily rates in the same position	Maximum value of a total of six variations of daily rates between the first day and second day when measured in six different positions for two days each. It indicates the degree which accuracy per day changes at maximum according to positions.
Variation of rate between positions horizontal and vertical	Indicates loss/gain in two positions at which a watch is most frequently used in daily life. It is a difference between mean daily rates for two days when a watch is placed in the Dial Up position and mean daily rates for two days when a watch is placed in the 6 o'clock Up position.
Maximum daily rate between mean daily rate and any individual rate	Maximum difference value between daily rates for 12 days in the test initial stage and mean daily rates. It indicates the degree at which the daily rate varies according to the manner for placing a watch.
Variation of daily rate per 1 °C between 8 °C and 38 °C	Variation in daily rates per 1 °C between 38 °C and 8 °C in the same position (Dial Up position). It indicates loss/gain in the temperature environment (taken-off state from the wrist) where a watch is used.
Variation of daily rate per 1 °C between 23 °C and 38 °C	Variation in daily rates per 1 °C between 38 °C and 23 °C in the same position (Dial Up position). It indicates loss/gain in the temperature environment (worn state of the wrist) where a watch is used.
Rate-resumption	Value obtained by subtracting mean daily rates of initial two days from daily rate of the last inspection day. It indicates the degree at which daily rate stabilizes after usage for a predetermined period.

Description of Grand Seiko Standard Terminology (Chronograph)

Item	Meaning
Position in inspection	Five orientations are specified by the International Standard ISO3159 so as to carry out various kinds of tests for time keeping. In addition thereto, in the GS inspection, 12 o'clock Up position in the state where a watch taken off the wrist is placed, is added, six orientations are specified. (Dial Up, Dial Down, 12 o'clock Up, 3 o'clock Up, 6 o'clock Up, and 9 o'clock Up) When testing the movement of your chronograph, measurements are also taken in three orientations (Dial Up, 6 o'clock Up, and 9 o'clock Up) during a state of chronograph operation.
Mean daily rate in six positions	Mean value of a total of 15 daily rates measured in six different positions, respectively, for two days during a state of chronograph non-operation, and in three different positions, respectively, for one day during a state of chronograph operation. This is a target value indicating basic loss/gain per day of a watch, however, it is required to comprehensively judge the actual accuracy performance in consideration of other items.
Mean variation of daily rate	Mean value of a total of nine variations, consisting of six variations of daily rates between the first day and second day when measured in six different positions for two days each during a state of chronograph non-operation and three variations of daily rates between the daily rates and the aforementioned second day when measured in three different positions for one day each during a state of chronograph operation. It indicates the degree which daily accuracy stabilizes in each position.
Maximum daily rate between two consecutive daily rates in the same position	Maximum value of a total of nine variations, consisting of six variations of daily rates between the first day and second day when measured in six different positions for two days each during a state of chronograph non-operation and three variations of daily rates between the daily rates and the aforementioned second day when measured in three different positions for one day each during a state of chronograph operation. It indicates the degree which accuracy per day changes at maximum according to positions.
Variation of rate between positions horizontal and vertical	Indicates loss/gain in two positions at which a watch is most frequently used in daily life. It is a difference between mean daily rates for two days when a watch is placed in the Dial Up position and mean daily rates for two days when a watch is placed in the 6 o'clock Up position.
Maximum daily rate between mean daily rate and any individual rate	Maximum difference value between daily rates for 15 days in the test initial stage and mean daily rates. It indicates the degree at which the daily rate varies according to the manner for placing a watch.
Variation of daily rate per 1 °C between 8 °C and 38 °C	Variation in daily rates per 1 °C between 38 °C and 8 °C in the same position (Dial Up position). It indicates loss/gain in the temperature environment (taken-off state from the wrist) where a watch is used.
Variation of daily rate per 1 °C between 23 °C and 38 °C	Variation in daily rates per 1 °C between 38 °C and 23 °C in the same position (Dial Up position). It indicates loss/gain in the temperature environment (worn state of the wrist) where a watch is used.
Rate-resumption	Value obtained by subtracting mean daily rates of initial two days from daily rate of the last inspection day. It indicates the degree at which daily rate stabilizes after usage for a predetermined period.

The Grand Seiko Standard Inspection Certificate

- This certificate accompanies your watch. It shows the precision values achieved by the movement before it was cased and that the movement met the Grand Seiko Standard. The precision tests were conducted in an artificially controlled environment in our facility. The certificate shows the caliber number, the movement's individual number and the case's individual number.
- Normal usage accuracy of a mechanical watch varies depending on individual customer's use conditions such as winding state of the mainspring by movement amount of the customer's arm per day, temperature environment, and position (orientation of a watch). Accordingly, the actual normal usage accuracy when the watch is used by a customer may differ from the numerical value of each item specified in the Grand Seiko Standard.

CAUTION

Your Grand Seiko Inspection Certificate is unique and cannot be replaced or reissued if lost or after maintenance or adjustment.

Cautions for accuracy of mechanical watch

Mechanical watches have a mechanism that is moved by power generated when the mainspring is unwound, and small metal parts physically work together to control the accuracy. Fragile metal parts of a mechanical watch are easily influenced by external environment such as temperature, gravity, and shock. Also, conditions of use such as normal usage time and winding state of the mainspring can influence the loss/gain of the watch.

① Accuracy of mechanical watch is “mean daily rate.”

Accuracy of the quartz watch is indicated monthly or annually such as a monthly rate of ± 15 seconds or annual rate of ± 10 seconds. This indicates the degree of total difference in accuracy when the quartz watch is continuously used for a month or a year.

To the contrary, accuracy of the mechanical watch is normally indicated as a “mean daily rate.”

Accuracy of the mechanical watch slightly varies each day as it is influenced by various conditions of use, and it is normally unstable. Then it is required to judge whether the accuracy is satisfactory or not by checking the mean values in the case of use for a week to ten days, but not for only one day.

For normal usage accuracy of Grand Seiko mechanical watch, -1 to +8 seconds per day is specified as target values. If the mean value exceeds the abovementioned target value in the normal usage condition when the watch is used for a week to ten days, we recommend adjusting it.

* Please note that the parts that are age-deteriorated due to long duration of use may not be adjusted to your desired accuracy. For details, refer to P. 31.

② Factor influencing accuracy (1): Wound amount of the mainspring

In order to use the mechanical watch at better accuracies, it is required to supply a constant strong energy wherever possible to respective parts.

In the state where the mainspring is fully wound, accuracy is stable, however, when the mainspring is unwound to weaken energy to be supplied, the parts controlling accuracy tends to be externally influenced, and accuracy becomes unstable.

In order to use a mechanical watch at a steady accuracy, it is recommended to use it in a condition where the mainspring is sufficiently wound.

③ Factor influencing accuracy (2): Temperature influence

Mechanical watch parts are metal which slightly elongate and contract by change in temperature, and this influences accuracy. Normally, under high temperatures, it tends to lose time, and under low temperatures, it tends to gain time.

④ Factor influencing accuracy (3): Difference by position (orientation of a watch)

Parts related to accuracy of a mechanical watch are also influenced by the earth's gravity. For example, gain or loss differs when a watch is horizontally placed and when it is vertically placed in the 12 o'clock up position.

When the watch is not worn on the wrist, accuracy errors that occur while wearing can also be compensated to some extent according to the position. Try to place it in various positions to find the position appropriate to your watch.

■ TO PRESERVE THE QUALITY OF YOUR WATCH

After-sale service

Notes on warranty and repair

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

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 longtime 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.

Warranty

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

Warranty coverage

- The watch body (movement, case) and metallic band.

Exceptions from warranty

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

- Exchange of leather, silicone, or fabric band.
- Scratches or grime to the case, glass, or band, caused by use.
- Troubles or damage caused by accidents or improper usage.
- Troubles and damage caused by acts of God, natural disasters including fire, floods or earthquakes.
- Warranted conditions have been altered.
- No valid warranty card is presented.

Procedure to claim free repair services

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

Others

- For the watch case, dial plate, hands, glass, band etc., some alternative parts may be used for repair if necessary.
- For length adjustment service of metallic band, ask the retailer from whom the watch was purchased or Grand Seiko international service network mentioned on our website. Other retailers may undertake the service on a chargeable basis or may not undertake the service.
- Free repair services are warranted only under the period and conditions specified in the warranty booklet.
It does not affect specific legal rights of a consumer.

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. Do not pour running water directly from a faucet onto the watch. Put some water into a bowl first, and then soak the watch in the water to wash it.

* 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. 10

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 down crown.
“Crown”→ P. 14

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.

Metallic band

- Moisture, sweat or soil will cause rust even on a stainless steel band if they are left for a long time.
- Lack of care may cause a yellowish or gold stain on the lower sleeve edge of shirts.
- Wipe off moisture, sweat or soil with a soft cloth as soon as possible.
- To clean the soil around the joint gaps of the band, wipe it out in water and then brush it off with a soft toothbrush. (Protect the watch body from water splashes by wrapping it up in plastic wrap etc.)
Wipe off the remaining moisture with a soft cloth.
- Because some titanium bracelets use pins made of stainless steel, which has outstanding strength, rust may form in the stainless steel parts.
- If rust advances, pins may poke out or drop out, and the watch case may fall off the bracelet, or the clasp may not open.
- If a pin is poking out, personal injury may result. In such a case, refrain from using the watch and request repair.

Leather band

- A leather band is susceptible to discoloration and deterioration from moisture, sweat and direct sunlight.
- 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.
- Refrain from wearing a leather band watch other than Aqua Free bands while swimming, and when working with water even if the watch itself is water-resistant enforced for daily use.

Silicone band

- As for material characteristics, the band is easily dirtied, and may be stained and discolored. Wipe off dirt with a wet cloth or wet tissue.
- Unlike bands of other materials, cracks may result in the band being cut. Take care not to damage the band with an edged tool.

Rubber band

- As for material characteristics, the band is easily dirtied, and may be stained and discolored. Wipe off dirt with a wet cloth or wet tissue.

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)

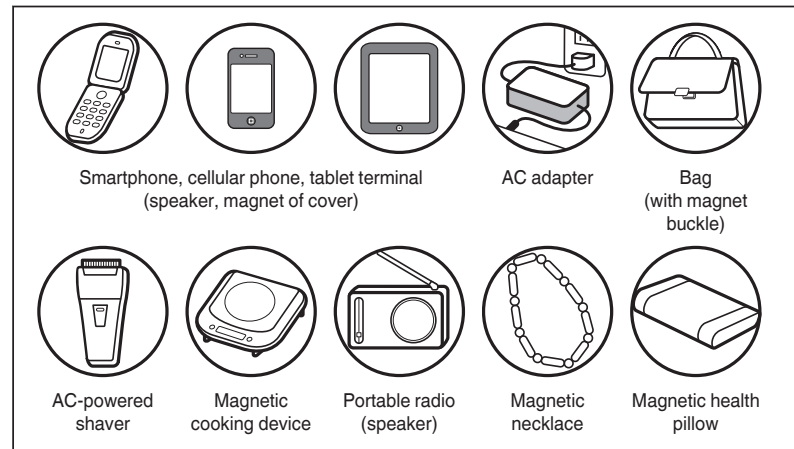
Affected by nearby magnetism, a watch may temporarily gain or lose time or stop operating.

Indication on the case back	Conditions of use	Certified level
	Keep the watch more than 5 cm away from magnetic products.	4,800 A/m
	Keep the watch more than 1 cm away from magnetic products.	16,000 A/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 environment.	40,000 A/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 warranty period.

Examples of common magnetic products that may affect watches



The reason why this watch is affected by magnetism

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

Troubleshooting

Troubles	Possible causes	Solutions
The watch stops operating.	The mainspring has not been wound.	Wind the mainspring or swing the watch for a few times so that the watch will start operating. If this action does not correct the condition, consult the retailer from whom the watch was purchased.
The watch loses/gains time.	The watch has been left in extremely high or low temperatures for a long time.	Normal accuracy will resume when the watch returns to normal temperature.
	The watch was brought into close contact with a magnetic object.	Accuracy cannot be recovered. Restoring the original accuracy requires demagnetization (repair). Consult the retailer from whom the watch was purchased.
	The watch was dropped, worn while playing active sports, hit against hard surfaces, or exposed to strong vibrations.	Accuracy cannot be recovered. Consult the retailer from whom the watch was purchased.
	Inspection, adjustment, and overhaul cleaning have not been performed for the watch for more than 3 years.	Consult the retailer from whom the watch was purchased.
The date changes during daytime.	A.m./p.m. is not correctly set.	Advance the hour hand for 12 hours and reset the time and date.
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.

SPECIFICATIONS (Movement)

Caliber no.	9SA5
Features	Hour hand, minute hand, seconds hand, date indicator (Instant Date Change)
Vibrations	36,000 vph (5 Hz)
Loss/gain	Mean daily rate*: -3 to +5 seconds
Driving system	Automatic winding type with manual winding function
Power reserve	For approximately 80 hours. *From the state of the mainspring being sufficiently wound.
Jewels	47 jewels

Caliber no.	9SA4
Features	Hour hand, minute hand, seconds hand
	Power reserve indicator
Vibrations	36,000 vph (5 Hz)
Loss/gain	Mean daily rate*: -3 to +5 seconds
Driving system	Manual winding type
Power reserve	For approximately 80 hours. *From the state of the mainspring being sufficiently wound.
Jewels	47 jewels

Caliber no.	9SC5
Features	Hour hand, minute hand, seconds hand, date indicator
	Stopwatch function: Center chronograph seconds hand
	Chronograph hour and minute hands
Vibrations	36,000 vph (5 Hz)
Loss/gain (Grand Seiko Standard, Chronograph)	Mean daily rate*: -3 to +5 seconds
Driving system	Automatic winding type with manual winding function
Power reserve*	For approximately 72 hours. *From the state of the mainspring being sufficiently wound.
Jewels	60 jewels

Mean daily rate* : A mean value of daily rates in a condition where the movement before assembly in a case are measured in 6 positions in a fixed manner under artificially controlled environment for 17 days (20 days for the chronograph).

Power reserve* : The power reserve for 9SC5 is with the chronograph running. The power reserve without the chronograph running will differ.

Caution: Depending on conditions of use (such as normal usage time, temperature environment, and winding state), accuracy may exceed the abovementioned range. Therefore, for normal usage accuracy when it is actually used, -1 to +8 seconds per day is specified as target values.

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