

## **Cal. 6S28, 6S37**

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You are now the proud owner of a SEIKO Automatic Chronograph Cal. 6S28/6S37. To ensure its optimum performance, please read the instructions in this booklet carefully before using it. Please keep this manual handy for ready reference.

Sie sind jetzt stolzer Besitzer eines SEIKO Chronografen Kal. 6S28/6S37. Lesen Sie diese Bedienungsanleitung vor der Verwendung aufmerksam durch, um Ihre Uhr optimal zu nutzen. Heben Sie diese Bedienungsanleitung gut auf, um jederzeit wieder nachlesen zu können.

Vous voici l'heureux propriétaire d'une chronomètre automatique SEIKO Cal. 6S28/6S37. Pour en obtenir des performances optimales, veuillez lire attentivement cette brochure avant d'utiliser la montre. Conservez ce manuel pour vous y référer en cas de besoin.

Grazie di aver acquistato questo nuovo Cronografo Automatico SEIKO Cal. 6S28/6S37. Per poter utilizzare l'orologio al massimo delle sue prestazioni leggere attentamente questo manuale di istruzioni prima di passare all'uso dell'orologio stesso, e conservarlo poi per qualsiasi eventuale futura consultazione.

Usted es ahora el orgulloso propietario de un Cronógrafo Automático de SEIKO Cal. 6S28/6S37. Para asegurar el óptimo rendimiento de su reloj, sírvase leer cuidadosamente las instrucciones contenidas en este manual antes de su uso. Guarde este manual en un lugar muy accesible para la rápida referencia.

Você poderá sentir-se orgulhoso de possuir um Cronógrafo Automático SEIKO Cal. 6S28/6S37. Para garantir o seu excelente movimento, leia atentamente as instruções contidas neste opúsculo antes de usá-lo. Conserve este manual para consultas futuras.

Вы стали гордым обладателем Автоматического Хронографа SEIKO калибра 6S28/6S37. Чтобы использовать часы оптимальным образом, внимательно прочитайте эту инструкцию, прежде чем приступить к пользованию. Сохраните эту брошюру, чтобы обратиться к ней в случае необходимости.

歡迎購買精工 6S28/6S37 機型自動計時器。為保證在最佳狀態下操作手錶，請在使用手錶之前仔細閱讀本手冊內的各項使用說明。並妥善保管本使用手冊以備今後參考。

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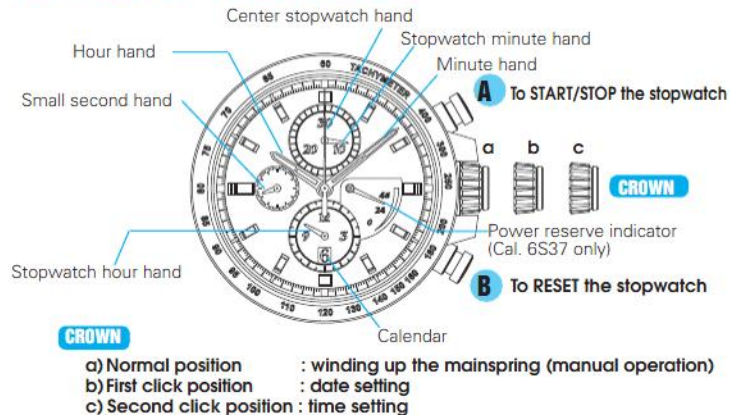
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# SEIKO CAL. 6S28/6S37

## CHARACTERISTICS OF A MECHANICAL WATCH (self-winding type, automatic winding type)

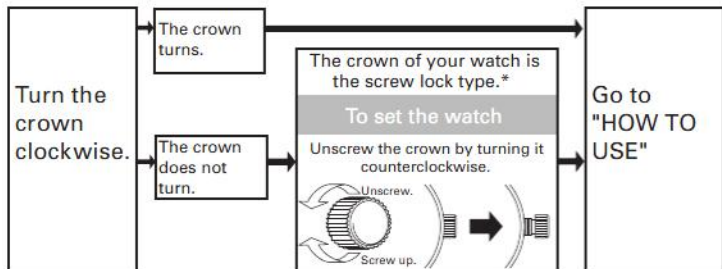
- This mechanical watch operates using power obtained from a mainspring.
- If the watch is completely stopped, manually turn the crown approximately 20 times to wind up the mainspring to start the watch.
- While loss/gain of a quartz watch is indicated by a monthly or annual rate, accuracy of a mechanical watch is normally indicated by a daily rate (loss/gain per day).
- Normal usage accuracy of a mechanical watch varies according to conditions of use (time period that the watch is worn on the wrist, temperature environment, hand movement, and winding state of the mainspring).
- When the watch is affected by strong magnetism, it temporarily gains or loses time. If the watch encounters a strong magnetic field, the parts of the watch may be magnetized. In this case, repairs such as removal of magnetism are required. Contact the retailer from whom the watch was purchased.

## NAMES OF THE PARTS



\* The position or design of the displays may differ depending on the model.

## ● Check the type of the crown of your watch



\* If your watch has a screw-lock crown, the crown will screw into the watch case for added protection.

- After completing all settings of the watch, screw the crown in again by turning it clockwise while pressing it.
- If the crown is too stiff to be screwed in, turn the crown counterclockwise once and then give another try.
- Do not screw it in by force as it may damage the slots of the crown.

## HOW TO USE

This watch is an automatic watch equipped with a manual winding mechanism.

- When the watch is worn on the wrist, the motion of the wearer's arm winds the mainspring of the watch.
- If your watch is completely stopped, it is recommended that you manually wind the mainspring by turning the crown.

### ● How to manually wind the mainspring by turning the crown



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

\* Turning the crown counterclockwise (the 6 o'clock direction) does not wind the mainspring.

2. Continue to turn the crown until the mainspring is sufficiently wound. The small second hand will start moving.
3. Set the time and date before putting the watch on your wrist.

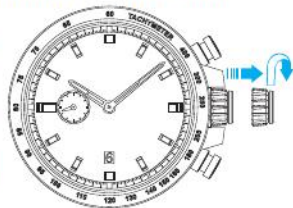
- \* There is no need to turn the crown further when the mainspring is fully wound. But the crown can be turned without damaging the watch mechanism.
- \* Once the watch is wound up fully, it operates for about 50 hours. However, when the stopwatch is used continuously for a certain period, the watch may not operate for as long as 50 hours.
- \* If the watch is used without being wound up fully, gain or loss of the watch may result. To avoid this, wear the watch for more than 8 hours a day. If the watch is used without being worn on the wrist (if it is used on the desk like a clock, for example), make sure to wind it up fully every day at a fixed time.
- \* If the watch has stopped with the mainspring unwound, winding the mainspring with the crown will not start the watch immediately. This is because the mainspring torque (force) is low at the beginning of its winding due to the characteristics of mechanical watches. The small second hand starts to move when a certain degree of strong torque is reached after the mainspring has been wound up. However, swinging the watch from side to side to forcibly turn the balance can start the watch sooner.

## HOW TO SET THE TIME AND DATE

- Check that the watch is operating, and then set the time and date.
- The watch is provided with a date function and is designed so that the date changes once every 24 hours. The date changes around 12 o'clock midnight. If AM/PM is not properly set, the date will change around 12 o'clock noon.

1. Pull out the crown to the first click. (The small second hand continues moving and the accuracy of the watch is unimpaired.)
2. The date can be set by turning the crown clockwise. Turn it until the previous day's date appears.

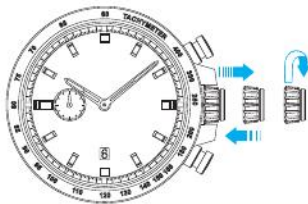
Ex.) If today is the 6th of the month, first set the date to "5" by turning the crown clockwise.



### CAUTION

- Do not set the date between 8:00 p.m. and 2:00 a.m. If you do so, the date may not change properly on the following day or malfunction of the watch may occur.

3. Pull out the crown to the second click when the small second hand is at the 12 o'clock position. (The small second hand stops on the spot.)  
Turn the crown to advance the hands until the date changes to the next. The time is now set for the a.m. period. Advance the hands to set the correct time.
4. Push the crown back in to the normal position in accordance with a time signal.

**CAUTION**

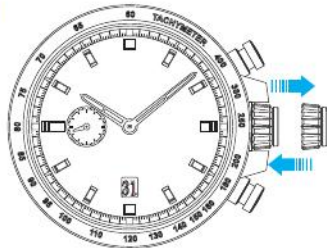
- The mechanism of mechanical watches is different from that of quartz watches.  
When setting the time, make sure to turn back the minute hand a little behind the desired time and then advance it to the exact time.

### ● Date adjustment at the beginning of the month

It is necessary to adjust the date on the first day after a month that has less than 31 days.

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

1. The watch displays "31" instead of "1". Pull out the crown to the first click.
2. Turn the crown to set the date to "1" and then push the crown back in to the normal position.

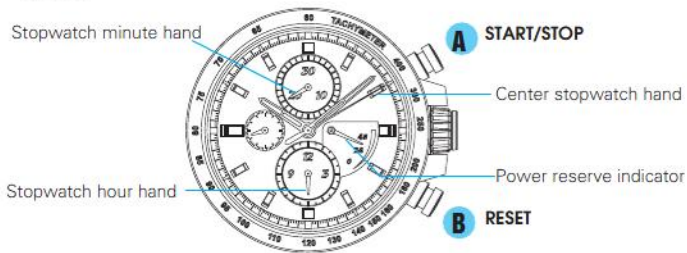
**CAUTION**

- Do not set the date between 8:00 p.m. and 2:00 a.m. If you do so, the date may not change properly on the following day or malfunction of the watch may occur.

## HOW TO USE THE STOPWATCH

This watch features a stopwatch function which can measure up to 12 hours.

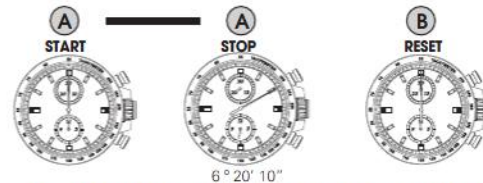
- A chronograph refers to a watch that has a stopwatch function in addition to a time display function.
- Before using the stopwatch, make sure that the center stopwatch hand is pointing at the 0 position. If it is not pointing at the 0 position, press the Button B to correct the position of the center stopwatch hand.
- Before using the stopwatch, make sure that the mainspring is sufficiently wound.



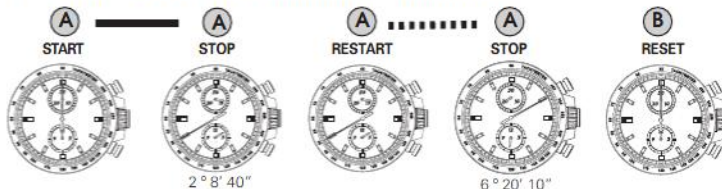
Current time indication: 10 o'clock 8 minutes and 42 seconds  
 Stopwatch time indication: 6 hours 20 minutes and 10 seconds

## STOPWATCH OPERATION

### <STANDARD MEASUREMENT>



### <ACCUMULATED ELAPSED TIME MEASUREMENT>



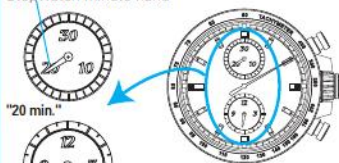
\* Restart and stop can be repeated as many times as required by pressing Button A.

### How to read the stopwatch minute hand

The stopwatch minute hand completes a full rotation in 30 minutes. The correct indication of the stopwatch minute hand is determined in connection with the position of the stopwatch hour hand.

#### <Between 0 and 29 minutes>

Stopwatch minute hand



"20 min."

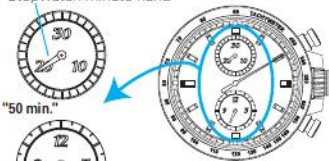
Stopwatch hour hand

#### 0.5 hour index

When the stopwatch hour hand is pointing at a position before a short indication (0.5 hour index), read the minutes the stopwatch minute hand is indicating. In the case illustrated above, the measured time should be read as "6 hours 20 minutes and 10 seconds."

#### <Between 30 and 59 minutes>

Stopwatch minute hand



"10 min."

Stopwatch hour hand

#### 0.5 hour index

When the stopwatch hour hand is pointing at a position after a short index (0.5 hour index), 30 minutes should be added to the minutes that the stopwatch minute hand is indicating. In the case illustrated above, the measured time should be read as "6 hours 50 minutes and 10 seconds."

## TACHYMETER

(for models with tachymeter scale on the dial)

### TO MEASURE THE HOURLY AVERAGE SPEED OF A VEHICLE

- 1 Use the stopwatch to determine how many seconds it takes to go 1 km or 1 mile.
- 2 Tachymeter scale indicated by the STOPWATCH second hand gives the average speed per hour.

Ex. 1

STOPWATCH  
second hand:  
40 seconds

Tachymeter scale: "90"

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



- Tachymeter scale can be used only when the time required is less than 60 seconds.

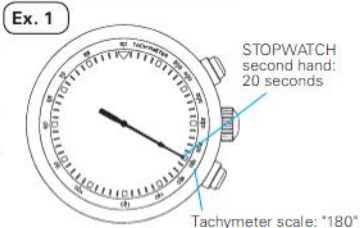
Ex. 2: If the measuring distance is extended to 2 km or miles or shortened to 0.5 km or miles and the STOPWATCH second hand indicates "90" on tachymeter scale:

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

"90" (tachymeter scale figure) x 0.5 (km or mile) = 45 km/h or mph

## TO MEASURE THE HOURLY RATE OF OPERATION

- 1 Use the stopwatch to measure the time required to complete 1 job.
- 2 Tachymeter scale indicated by the STOPWATCH second hand gives the average number of jobs accomplished per hour.



"180" (tachymeter scale figure) x 1 job  
= 180 jobs/hour

**Ex. 2:** If 15 jobs are completed in 20 seconds:

"180" (tachymeter scale figure) x 15 jobs = 2700 jobs/hour

## TELEMETER

(for models with telemeter scale on the dial)

- The telemeter can provide a rough indication of the distance to the source of light and sound.
- The telemeter indicates the distance from your location to an object that emits both light and sound. For example, it can indicate the distance to the place where lightning struck by measuring the time elapsed after you see a flash of lightning until you hear the sound.
- A flash of lightning reaches you almost immediately while the sound travels to you at a speed of 0.33 km/second. The distance to the source of the light and sound can be calculated on the basis of this difference.
- The telemeter scale is graduated so that the sound travels at a speed of 1 km in 3 seconds.\*

\*Under the condition of temperature of 20 °C(68 °F.)



### CAUTION

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

## HOW TO USE THE TELEMETER

Before beginning, check that the stopwatch has been reset.

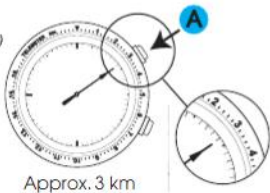
### START

(Flash of light)



### STOP

(Crash of thunder)



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

- The telemeter scale can be used only when the measured time is less than 60 seconds.

## HOW TO READ THE POWER RESERVE INDICATOR (CAL. 6S37 ONLY)

- 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 enough power stored 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.)

Power Reserve Indicator			
Winding state of the mainspring	Fully wound	Half wound	Unwound
Number of hours the watch can run	Approximately 50 hours	Approximately 20 hours	The watch either stops or is running down.

\* The position or design of the displays may differ depending on the model.

- \* When the mainspring is fully wound, the crown can be turned further, or the mainspring may wind without damaging the mainspring itself. The mainspring of the watch employs a slipping mechanism, an automatic watch specific mechanism, to prevent the mainspring from overwinding.

#### ● Remarks on the automatic mechanism of the mainspring

The mainspring of the watch becomes fully wound when it is worn for twelve hours for three to five consecutive days. However, the winding state of the mainspring may vary depending on actual use conditions, such as the number of hours you wear the watch or the extent of your movement while wearing it. It is recommended that you observe the power reserve indicator to check the level of remaining power of your watch.

- \* In a case where you wear the watch for a short period of time each day, observe the power reserve indicator to check the level of the remaining power. If necessary, manually wind the mainspring.

## TO PRESERVE THE QUALITY OF YOUR WATCH



### CAUTION

#### ● CARE OF YOUR WATCH

- The case and band touch the skin directly. Keep the case and band clean at all times. This will help to extend the life of the watch and will reduce the risk of skin irritations.
- When you take the watch off, wipe off moisture, sweat or soil with a soft dry cloth as soon as possible. This will help to extend the life of the case, band and gasket.

#### <Leather strap>

- Gently blot up the moisture using a soft dry cloth. Do not rub the leather, as this may cause abrasions or discoloration.

#### <Metal bracelet>

- To keep the bracelet clean, use a soft toothbrush dipped in clean or soapy water. Be careful not to get water on the case.

**CAUTION****● RASH AND ALLERGIC REACTION**

- Adjust the band to allow a little clearance around your wrist to ensure proper airflow.
- Prolonged and/or repeated contact with the band may cause skin irritation or dermatitis for those susceptible.
- Possible causes of dermatitis
  - Allergic reaction to metals or leathers
  - Rust, contamination or perspiration accumulated on the watch case or band.
- If you should develop any allergic symptoms or skin irritation, immediately stop wearing the watch and seek medical attention.

**● WATER RESISTANCE****● Non-water resistance**

If "WATER RESISTANT" is not inscribed on the case back, your watch is not water resistant, and care should be taken not to get it wet as water may damage the movement. If the watch becomes wet, we suggest that you have it checked by the retailer from whom the watch was purchased or your SERVICE CENTER.

**● Water resistance (3 bar)**

If "WATER RESISTANT" is inscribed on the case back, your watch is designed and manufactured to withstand up to 3 bar, such as accidental contact with splashes of water or rain, but it is not designed for wearing while swimming or diving.

**● Water resistance (5 bar)\***

If "WATER RESISTANT 5 BAR" is inscribed on the case back, your watch is designed and manufactured to withstand up to 5 bar and is suitable for wearing while swimming, yachting and taking a shower.

**● Water resistance (10 bar/15 bar/20 bar)\***

If "WATER RESISTANT 10 BAR", "WATER RESISTANT 15 BAR" or "WATER RESISTANT 20 BAR" is inscribed on the case back, your watch is designed and manufactured to withstand up to 10 bar/15 bar/20 bar, respectively, and is suitable for wearing while taking a bath or shallow diving, but not for scuba diving. We recommend that you wear a SEIKO Diver's watch while scuba diving.

- \* Before using a water resistant 5, 10, 15 or 20 bar watch in water, make sure the crown is pushed in completely. Do not operate the crown when the watch is wet or in water. If used in sea water, rinse the watch in fresh water and dry it completely.

- \* When taking a shower while wearing a water resistant 5 bar watch, or taking a bath while wearing a water resistant 10, 15 or 20 bar watch, make sure to observe the following:
  - Do not operate the crown when the watch is wet with soapy water or shampoo.
  - If the watch is left in warm water, a slight time loss or gain may be caused. This condition, however, will be corrected when the watch returns to normal temperature.

**NOTE:**

Pressure in bar is a test pressure and should not be considered as corresponding to an actual diving depth since swimming movements tend to increase the pressure at a given depth. Care should also be taken when diving with the watch into water.

**PRECAUTIONS ON WEARING YOUR WATCH**

- Exercise care when you hold an infant or small child while wearing the watch on your wrist, as the infant or child may be injured or develop an allergic reaction caused by direct contact with the watch.
- Avoid undue shocks such as dropping or scratching against hard surfaces or playing active sports, which may cause temporary malfunctions.
- There is a possibility of injury caused by wearing the watch on your wrist especially if you fall down or bump into other people or objects.

**LUMIBRITE™**

LumiBrite is a luminous paint that is completely harmless to human beings and the natural environment, containing no noxious materials such as radioactive substances.

LumiBrite is a newly-developed luminous paint that absorbs the light energy of sunlight or artificial light 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 5 to 8 hours.

Please note, however, that as 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.

When you make a dive in dark water, LumiBrite may not emit light unless it has absorbed and stored light sufficiently.

Before diving, therefore, be sure to expose the watch to light under the conditions specified above, so that it fully absorbs and stores light energy. Otherwise, use the watch together with an underwater flashlight.

**< Reference data on luminance >**

- |   |  |                                      |
|---|--|--------------------------------------|
| (A) Sunlight  | [Fine weather]: 100,000 lux                                    | [Cloudy weather]: 10,000 lux         |
| (B) 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                           |                                      |
| (C) Lighting apparatus (40-watt daylight fluorescent light) | [Distance to the watch: 1 m]: 1,000 lux                        |                                      |
|   | [Distance to the watch: 3 m]: 500 lux (average room luminance) |                                      |
|   | [Distance to the watch: 4 m]: 250 lux                          |                                      |

\* "LUMIBRITE" is a trademark of SEIKO HOLDINGS CORPORATION.

## PLACES TO KEEP YOUR WATCH

- Do not leave the watch in a place where the temperature drops below 5 °C (41 °F) or rises above 35 °C (95 °F) for a long time.
- Do not leave the watch in a place where it will be subjected to strong magnetism (for example, near television sets, loudspeakers or magnetic necklaces) or static electricity.
- Do not leave the watch where there are strong vibrations.
- Do not leave the watch in dusty places.
- Do not expose the watch to chemical substances or gases.  
(Ex.: Organic solvents such as benzine and thinner, gasoline, nail polish, cosmetic sprays, detergents, adhesives, mercury, and iodine antiseptic solution.)
- Do not leave the watch in close contact with hot spring water.

## NOTES ON OVERHAUL

- The watch is a precision device with many moving parts lubricated with special oils. If the parts run short of oil or get worn out, the watch may lose time or stop operation. In such a case, have the watch overhauled.

## NOTES ON GUARANTEE AND REPAIR

- Please contact the retailer the watch was purchased from or SEIKO CUSTOMER SERVICE CENTER for repair or overhaul.
- Within the guarantee period, please present the certificate of guarantee to receive repair services.
- Guarantee coverage is provided in the certificate of guarantee. Please read carefully and retain it.

## TROUBLESHOOTING

Problem	Possible causes	Solutions
The watch stops operating.	The power supplied by the mainspring has been consumed.	Turn the crown or swing the watch to wind it up. The watch will start operating. If the watch does not start, consult the retailer from whom the watch was purchased.
Even though you wear the watch every day, it soon stops operating.	The watch is worn on your wrist only for a short period of time, or the amount of arm movement is small.	Wear the watch for an extended period of time, or when taking off the watch, turn the crown to wind the mainspring.
The date changes at 12 o'clock noon.	AM/PM is not properly set.	Advance the hands by 12 hours.

Problem	Possible causes	Solutions
The watch gains/loses time temporarily.	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.	Normal accuracy will resume when the watch is kept away from close contact with the magnetic source. If this condition persists, consult the retailer from whom the watch was purchased.
	You dropped the watch, hit it against a hard surface or wore it while playing active sports. The watch was exposed to strong vibrations.	Normal accuracy will not resume. Consult the retailer from whom the watch was purchased.
	The watch has not been overhauled for more than 3 years.	Consult the retailer from whom the watch was purchased.
The glass is blurred and the blur persists for a long time.	Water got inside the watch due to the deterioration of the gasket, etc.	Consult the retailer from whom the watch was purchased.
The stopwatch minute hand and stopwatch hour hand move while you are setting the watch to the current time.	Time setting is done while the stopwatch is operating.	Push the crown back in to the normal position. And then, stop and reset the stopwatch. After that, if you wish to set the time, follow the procedures in "HOW TO SET THE TIME AND DATE" section of this booklet.

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

## ACCURACY OF MECHANICAL WATCHES

- The accuracy of mechanical watches is indicated by the daily rates of one week or so.
- The accuracy of mechanical watches may not fall within the specified range of time accuracy because of loss/gain changes due to the conditions of use, such as the length of time during which the watch is worn on the wrist, arm movement, whether the mainspring is wound up fully or not, etc.
- The key components in mechanical watches are made of metals which expand or contract depending on temperatures due to metal properties. This exerts an effect on the accuracy of the watches. Mechanical watches tend to lose time at high temperatures while they tend to gain time at low temperatures.
- In order to improve accuracy, it is important to regularly supply energy to the balance that controls the speed of the gears. The driving force of the mainspring that powers mechanical watches varies between when it is fully wound and immediately before it is unwound. As the mainspring unwinds, the force weakens.  
Relatively steady accuracy can be obtained by wearing the watch on the wrist frequently for the self-winding type and winding up the mainspring fully everyday at a fixed time to move it regularly for the wind-up mechanical type.
- When affected by strong external magnetism, a mechanical watch may loss/gain time temporarily. The parts of the watch may become magnetized depending on the extent of the effect. In such a case, consult the retailer from whom the watch was purchased since the watch requires repair, including demagnetizing.

## SPECIFICATIONS

1	Display system	
	Time/Calendar .....	Hour, minute and small second hands Date is displayed in numerals
	Stopwatch .....	Measures up to 12 hours Stopwatch hour, Stopwatch minute and Stopwatch second hands
	Power reserve indicator (for Cal. 6S37 only)	
2	Vibrations per hour .....	28,800
3	Loss/gain (daily rate)	
	6S28 .....	Between +25 and -15 seconds at normal temperature range (between 5 °C and 35 °C or between 41 °F and 95 °F)
	6S37 .....	Between +15 and -10 seconds at normal temperature range (between 5 °C and 35 °C or between 41 °F and 95 °F)
4	Continuous operating time .....	Approx. 50 hours
5	Driving system .....	Automatic winding type with manual winding mechanism
6	Number of jewels	
	6S28 .....	34 jewels
	6S37 .....	40 jewels

- The accuracy above is factory adjusted.
- Due to the characteristics of mechanical watches, any actual daily rate may not fall within the range of time accuracy specified above dependent on the conditions of use, such as the length of time during which the watch is worn on the wrist, temperature, arm movement, and whether the mainspring is wound up fully or not, etc.