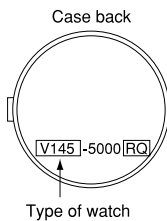


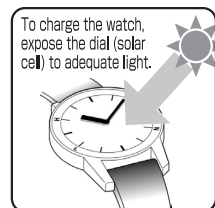
CHARACTERISTICS

- Driven by light energy: A solar cell under dial is used to convert light energy into electrical energy to power the watch.
- The charging time required depends on your type of watch. Check the case back of your watch to identify the type of watch.



HOW TO CHARGE AND START THE WATCH

- Make sure to keep the watch sufficiently charged
  - The watch operates while charging electricity by converting light received on the dial to electrical energy. It cannot properly operate unless the remaining energy is sufficient. Place or store in a location receiving light, etc., to sufficiently charge electricity.
  - When you start the watch, expose the watch to light to recharge it.
  - Expose the watch to sunlight or strong artificial light (of more than 3,000 lux).



If the watch is concealed under a long sleeve shirt, or if it is used or stored continually under conditions where it cannot receive sufficient light, the power stored in the solar cell may be easily depleted because the watch cannot be sufficiently charged.

※A leather band is susceptible to discoloration and deterioration from light and direct sunlight

CAUTION (Caution for charging)

- When charging the watch, do not place it too close to a photoflash light, spotlight, incandescent light or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.
- When exposing the watch to sunlight to charge it, do not leave it on the dashboard of a car, etc. for a long time, as the watch temperature becomes extremely high.
- While charging the watch, make sure that the watch temperature does not exceed 50°C.

CHARGING TIME

The charging time required depends on the type of watch and intensity of the light. Refer to the chart below for charging times.

Environment/ Lightsource (lux)	V110			V111			V145			V181/V182		
	A (min)	B (hours)	C (hours)	A (min)	B (hours)	C (hours)	A (min)	B (hours)	C (hours)	A (min)	B (hours)	C (hours)
General offices/Flourescent light (700)	50	16	140	180	60	—	50	11	175	75	6	82
30W20cm/Flourescent light (3000)	11	3.5	30	35	10	180	10	2	40	18	1.3	20
Cloudy weather/Sunlight (10000)	3	0.9	8	12	4	60	3	0.5	10	5	0.3	5
Fair weather/Sunlight (100000)	1	0.3	2	2	0.5	10	1	0.1	3	2	0.1	2.1
Expected life per charge from full charge to stoppage	5 months			6 months			6 months			2 months		
Loss/gain (monthly rate)	Less than 20 seconds when the watch is worn on your wrist at a normal temperature range (5°C~35°C)			Less than 15 seconds when the watch is worn on your wrist at a normal temperature range (5°C~35°C)			Less than 20 seconds when the watch is worn on your wrist at a normal temperature range (5°C~35°C)			Less than 20 seconds when the watch is worn on your wrist at a normal temperature range (5°C~35°C)		
Operational temperature range	-5°C~+50°C			-10°C~+60°C			-5°C~+50°C			-5°C~+50°C		

A: Time to charge 1 day of power B: Time required for steady operation C: Time required for full charge  
 ※The required charging time slightly varies depending on the model.

WARNING

- Notes on charging the watch
  - When recharging the watch, do not place it too close to incandescent light or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.
  - When exposing the watch to sunlight to recharge it, do not leave it on the dashboard of a car, etc. for a long time, as the watch temperature becomes extremely high.
  - Always keep the watch temperature under 50°C.

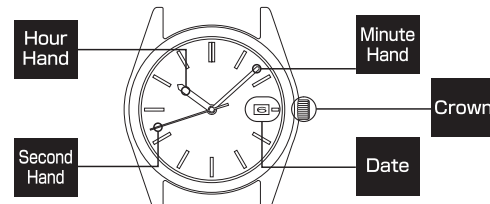
NOTE ON THE SECONDARY BATTERY

The battery used in this watch is a special secondary battery, which is totally different from ordinary silver oxide batteries. Unlike other disposable batteries such as dry-cell batteries or button cells, this secondary battery can be used over and over again by repeating the cycles of discharging and recharging. However, for various reasons such as long-term use or usage conditions, the capacity or recharging efficiency of the secondary battery may gradually deteriorate. Worn or contaminated mechanical parts or degraded oils may also shorten recharging cycles. If the efficiency of the secondary battery decreases, have the watch repaired.

WARNING

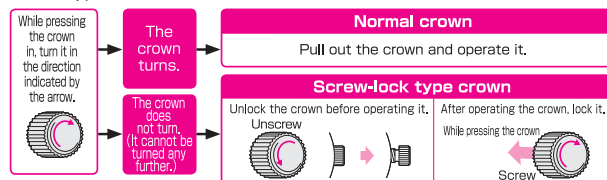
- Remarks on replacing the secondary battery
  - Do not remove the secondary battery yourself. Replacement of the secondary battery requires professional knowledge and skill. Please ask a watch retailer for repair.
  - Installation of an ordinary silver oxide battery can generate heat that can cause bursting or ignition.

Names of the parts



CROWN

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



※If your watch has a screw-lock crown, the crown screws into the watch to 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.

HOW TO USE TO SET THE CALENDAR

After you charge the watch, please set the calendar and the time.



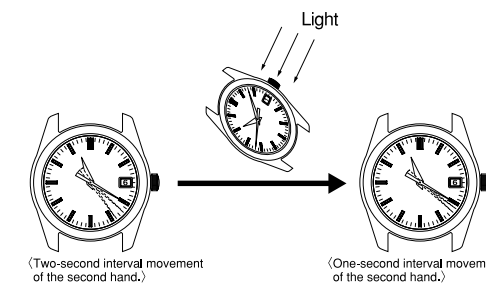
- Pull out the crown to the first click.  
 ※The crown can be pulled out all the way to the second click.
- Turn the crown to set the date
- Push the crown back in to its normal position.

- When date adjustment is required
  - The date makes one round in a 31-day period.
  - It is necessary to adjust the date at the end of a month that has less than 31 days.
- Note
  - Time period that is not good for setting the date (day of the week) Between 9:00 PM and 1:00 AM (The date (day of the week) may not change.)

Problem: Date changing by itself during the daytime  
 The reason this happens is AM/PM setting is incorrectly done.  
 Solution: Advance the hour hand by twelve hours. (Refer to TO SET THE TIME\*)

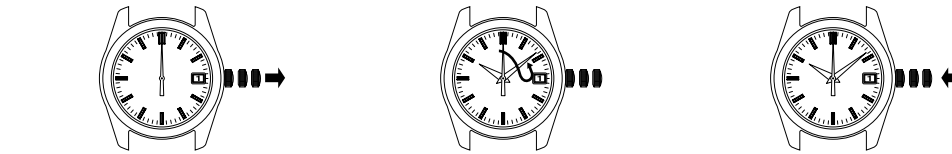
When the second hand moves at two-second intervals. (V111, V145, V181, V182)

- Energy depletion forewarning function
  - When the energy depletion forewarning function is activated, the second hand starts moving at two-second intervals. In that case, charge the watch as soon as possible.
  - To charge the watch sufficiently, refer to "CHARGING TIME".
  - Immediately expose your watch to light, when the second hand starts moving at two-second intervals.



- When the watch is stopped or the second hand starts moving at two-second intervals (for models with a second hand), charge the watch by exposing it to light. (The two-second interval movement of the second hand is a signal of energy depletion.)
- The time required for charging the watch varies depending on the calibers. Check the caliber of your watch engraved on the back cover.
- Even if the watch is partially charged for a period shorter than the time specified on the page on the left, it will start moving. However, it is recommended that the watch be charged as seen in column B CHARGING TIME to assure the stable movement of the watch.

TO SET THE TIME



- Pull out the crown to the second click position when the second hand is at the 12 o'clock position and the second hand stops.
- Turn the crown to set the time.
- Push in the crown all the way in accordance with a time signal.

- While setting the time, be sure to check that the correct A.M. or P.M. period is set. (The date will change automatically once every 24 hours.)
- When you set the time, first set the minute hand to a properly advanced time, then return the minute hand to the correct time.
- Telephone time casting service (tel. 117) might be helpful when you set the time.

HOW TO USE TWO HANDS · THREE HANDS WATCH

After you charge the watch, please set the time.



- Pull out the crown. If your watch has a second hand, pull out the crown, when the second hand is at the 12 o'clock position, and the second hand stops.
- Turn the crown to set the time.
- Push in the crown in accordance with a time signal. With a screw-lock type crown model, adjust the time first, and then turn the crown clockwise while depressing it until it locks in place.

※When you set the time, first set the minute hand to a properly advanced time, then return the minute hand to the correct time.  
 ※Telephone time casting service (tel. 117) might be helpful when you set the time.

TO PRESERVE THE QUALITY OF YOUR WATCH

CAUTION

WATER RESISTANCE

Check the dial or case back of your watch for the water resistant quality, and then see the table below.

Indication for water resistance a: Indication on the dial b: Indication on the case back	Degree of water resistance	Condition of use					
		Designed and manufactured to withstand accidental contact with water such as splashes and rains.	Suitable for swimming, yachting and other aquatic sports as well as for works closely associated with water such as kitchen work, washing and fishing.	Suitable for shallow diving without a heavy breathing apparatus and scuba.	Genuine diving using scuba.	Genuine diving using helium gas.	
a: No indication b: No indication	No water resistance	×	×	×	×	×	
a: No indication b: WATER RESIST (3 bar)	Water resistance (3 bar)	○	×	×	×	×	
a: No indication b: WATER RESIST or WATER RESIST 5 BAR	Water resistance (5 bar)	○	○	×	×	×	
a: No indication, or WATER RESIST 10 BAR b: WATER RESIST or WATER RESIST 10 BAR	Water resistance (10 bar)	○	○	○	×	×	
a: No indication, or WATER RESIST 20 BAR b: WATER RESIST 20 BAR	Water resistance (20 bar)	○	○	○	×	×	

- Do not turn or pull out the crown when the watch is wet, as water may get inside the watch.
- 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.
- 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.

WARNING

- If your watch is 3 bar water resistant, do not use it in water.
- If your watch is 5 bar water resistant, do not use it in any type of diving including skin diving.
- If your watch is 10 or 20 bar water resistant, do not use it in saturation diving or scuba diving.

CARE OF YOUR WATCH

CAUTION

CARE OF YOUR WATCH

- The case and bracelet touch the skin directly just as underwear. If they are left dirty, the edge of a sleeve may be stained with rust of those who have a delicate skin may have a rash.
- Please wipe away moisture, sweat or dirt with a soft cloth.
- To clean the clearances (around the metal bracelet, crown or case back), a soft toothbrush is convenient.
- After soaking the watch in seawater, be sure to wash the watch in clean pure water and wipe it dry carefully.
- 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. (No need to pull out the screw lock type crown.)
- METAL BRACELET
  - Clean the watch bracelet with a soft toothbrush dipped in water or soapy water. If your watch is not water-resistant, be careful not to get the case wet when cleaning.
- LEATHER BAND
  - When removing moisture from a leather band, do not rub the band with the cloth as this may discolor it or reduce its gloss. Be sure to blot up the moisture using a soft dry cloth.
- SOFT PLASTIC BRACELET
  - The bracelet made of soft plastics does not require special care. If it gets dirty, however, it may cause trouble to the skin. Rinse it with soapy water from time to time. Since it is a chemical product, it may deteriorate by the use of solvents. The band will become hardened or discolored after several years of use. In that case, replace it with a new one.

CAUTION

RASH AND ALLERGY

- Adjust the bracelet or band so that there will be a little clearance between the bracelet or band and your wrist to avoid accumulation of perspiration.
- If you are constitutionally predisposed to rash, the band may cause you to develop a rash or an itch depending on your physical condition.
- The possible causes of the rash are as follows:
  - Allergy to metals or leathers
  - Rust, dust or perspiration on the watch or band
- If you develop any skin reactions, take off the watch and consult a doctor immediately.

PLACES TO KEEP YOUR WATCH

- This watch is so adjusted that it will maintain stable time accuracy in normal temperatures. (5°C~35°C) It will lose or gain slightly, but it will regain high time accuracy when it returns to normal temperature.
- Affected by nearby magnetism, a quartz watch may temporarily gain or lose time or stop operating. ※This defective condition caused by magnetism will be corrected soon after the watch is removed from the magnetic source. Reset the time once again before using the watch.



- Do not leave the watch where there is strong vibration.
- Do not leave the watch in a dusty place.
- Do not expose the watch to gases or chemicals. (Ex.: Organic solvents such as benzene and thinner, gasoline, nail polish, cosmetic spray, detergent, adhesives, mercury, and iodine antiseptic solution.)
- Do not leave the watch in a hot spring, or do not keep it in a drawer having insecticides inside.

PRECAUTIONS ON WEARING YOUR WATCH

- Take utmost care in the following cases:
  - When clasping and unclasping the band, you may damage your nail, depending on the type of clasp used with the band.
  - In case you tumble and fall or bump into others with the watch worn on your wrist, you may be injured by the reason of the fact that you wear the watch.
  - When you make contact with children, especially with infants, they may get injured or develop a rash caused by allergy.

NOTES ON OVERHAUL



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

CAUTION

- 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.

SPECIFICATIONS

- Frequency of crystal oscillator ..... 32,768Hz (Hz=Hertz=Cycles per second)
- Driving system..... Step motor
- Battery..... Secondary battery, 1 piece.
- Overcharge prevention function
- IC ..... C-MOS-IC ..... 1 Unit

※The above specifications are subject to change without notice.

Overcharge prevention function

When the secondary battery is fully charged, the overcharge prevention function is automatically activated to avoid further charging. There is no need to worry about damage caused by overcharging no matter how much the secondary battery is charged in excess of the "time required for fully charging the watch".

AFTER-SALE SERVICE

- If the watch requires service, take it to the retailer from whom the watch was purchased. If the trouble occurs within the guarantee period, submit the certificate of guarantee together with the watch. Guarantee coverage is spelled out in the certificate of guarantee. Please read it carefully and keep the certificate for ready.
- SEIKO makes it a policy to usually keep a stock of spare parts for its watches for 7 years. In principle, your watch can be reconditioned within this period if used normally.
- The number of years that a watch is considered repairable may vary greatly depending on the condition under which used, and normal accuracy may not be achieved in some cases. We recommend, therefore, that you consult the retailer from whom the watch was purchased when having them repair your watch.
- The case, dial, hands, glass and bracelet, or parts thereof may be repaired with substitutes if the originals are not available. If necessary, movements will be replaced. Depending on the condition of the watch, the complete set of the watch body may be replaced with a new one or substitute product.
- For repair after the guarantee period or for any other information regarding the watch, contact the retailer from whom the watch was purchased or the "CUSTOMER SERVICE DEPARTMENT" of SEIKO WATCH CORPORATION.