

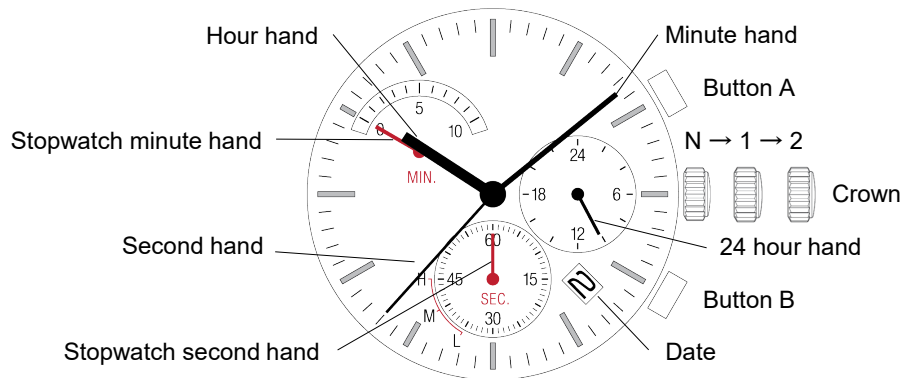
Instruction of Watch Movement

Cal. VR4GB

SOLAR SERIES

- 1/1 sec. chronograph
- 10 minutes retrograde

◆ Display



◆ Crown and button operation

	Crown position		
	N : normal	1 : 1st click	2 : 2nd click
Crown	Free	Turn counterclockwise for date change	Time setting
Button A	Stopwatch Start Stop Restart	Stopwatch Start Stop Restart	Stopwatch hand position adjustment (clockwise)
Button B	Stopwatch Reset Split Split release	Stopwatch Reset Split Split release	Stopwatch hand position adjustment (counterclockwise)
	Battery indicator (Press more than 1 second)	Battery indicator (Press more than 1 second)	

◆ How to set time

- (1) Pull the crown out to the 2nd click position when the second hand is at the 12 o'clock position.
 - When the stopwatch is measuring, if the crown is pulled out to the 2nd click position, it will automatically reset the stopwatch hands to "0" position.
- (2) Turn the crown to set the hour and minute hands.

Take a.m./p.m. into consideration when setting the hour and minute hands to the desired time.

 - The 24 hour hand moves correspondingly with the hour hand.
 - When setting the hour hand, check that the 24 hour hand is correctly set.
 - When setting the minute hand, advance it 4 to 5 minutes ahead of the desired time and then turn it back to the exact time.
- (3) Push the crown back to the normal position.

◆ How to set date

- (1) Pull the crown out to the 1st click position.
- (2) Turn the crown to set the date.
 - Do not set the date between 9:00 p.m. and 1:00 a.m..
- (3) Push the crown back to the normal position.

Tips : When the date change during daytime, it happens when a.m./p.m. is wrongly set. Advance the hour hand by 12 hours.

◆ Features of the solar watch

This watch is a solar-powered watch containing a solar cell underneath the dial to convert any form of light into "electrical energy" and store the power in a secondary battery.

Unlike conventional quartz watches, this watch does not use a silver oxide battery, thus eliminating the need for battery replacement.

■ Running time

Expected running time from full charge to stoppage will be around 5 months.

■ Over charge prevent function

If the secondary battery is charged more than predetermined voltage, over charge prevent function is operated to prevent the secondary battery deterioration and breakage.

◆ Power depletion warning function

When the energy stored in the secondary battery is reduced to an extremely low level, the second hand starts moving at two-second intervals instead of the normal one-second intervals. In that case, recharge the watch as soon as possible by exposing it to light. Otherwise, the watch may stop operating in about 2 weeks.

◆ How to charge and start the watch

■ Charging the watch

When you start the watch or when the energy remaining in the secondary battery is very low, charge it sufficiently by exposing the watch to light.

- (1) Expose the watch to sunlight or strong artificial light (of more than 1,000 Lx).

When the watch has stopped operating, the second hand will start moving at two-second intervals.

- The second hand immediately starts moving at two-second intervals, but the energy stored in the secondary battery is not yet sufficient. If the watch is turned away from the light, it may stop operating.
It is not necessary to charge the watch fully. It is important, however, to charge the watch sufficiently, especially in the case of initial charging.

- (2) Keep the watch exposed to the light until the second hand moves at one-second intervals.

- (3) When the watch is charged after it has completely stopped, set the date and time before wearing the watch.

■ Caution

When charging the watch, do not place it too close to fluorescent lamp or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.

■ To prevent energy depletion

- Avoid covering the watch face with your clothing while wearing it.
- When the watch is not in use, leave it in a brightly lit place for as long as possible.
Make sure that the watch temperature does not exceed 50°C.

◆ Guidelines for charging time

The below table provides only general guidelines.

Illuminati on (Lx)	Source of light	Environment	Dial transparency rate is 20%			Dial transparency rate is 30%		
			A (Approx. Hours)	B (*) (Approx. Hours)	C (Approx. Minutes)	A (Approx. Hours)	B (*) (Approx. Hours)	C (Approx. Minutes)
700	A fluorescent lamp	Inside the office	—	26	110	—	18	69
3,000		30W 20cm	77	6	25	52	4	15
10,000	Sunlight	Cloudy	24	2.0	7	16	1.5	5
100,000		Fine weather	8	0.7	3	5.3	0.5	2

Condition A : Time required for full charge

Condition B : Time required for steady operation

Condition C : Time required for 1 day's charge

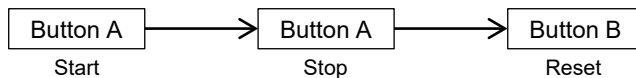
(*) The values in this column represent the charging times required until the second hand moves constantly at one-second intervals after the watch starts operating with the second hand moving at two-second intervals.

Even if the watch is not charged for the time specified in the column, the second hand may temporarily move at one-second intervals. But it will soon resume moving at two-second intervals; therefore, charge the watch for more than the specified period.

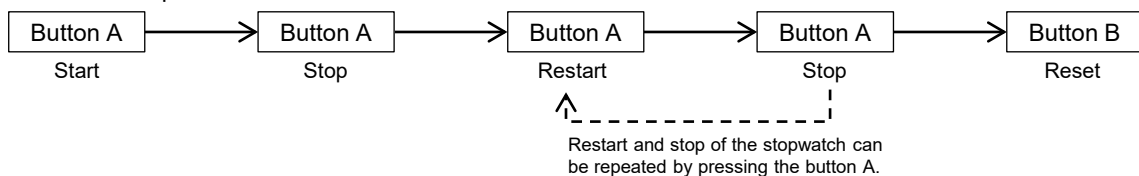
◆ How to use stopwatch function

- The stopwatch can measure up to 9'59" in one-second increments.
- When the measurement reaches 10 minutes, the stopwatch automatically stops counting and the stopwatch hands return to the "0" position.

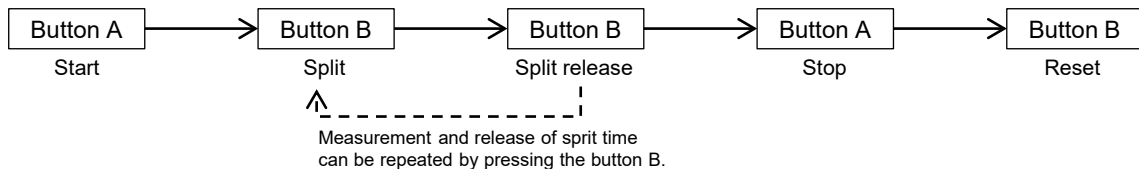
■ Standard measurement



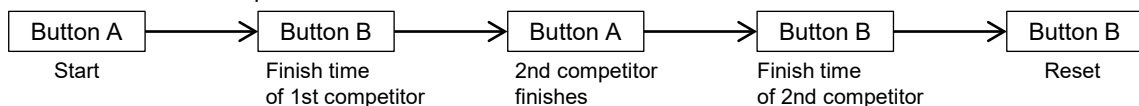
■ Accumulated elapsed time measurement



■ Split time measurement



■ Measurement of two competitors



- The stopwatch second hand is capable of timing 10 minutes. (60 seconds x 10 times)
- The stopwatch minute hand is capable of timing 10 minutes.
- Before using the stopwatch, be sure to check that the crown is set at the normal position and that the stopwatch hands are reset to the "0" position.
 - If the stopwatch hands do not return to the "0" position when the stopwatch is reset to "0", follow the procedure in "Stopwatch hand position adjustment".

◆ Stopwatch hand position adjustment

If the stopwatch hands are not in the "0" position, follow the procedures below to set them.

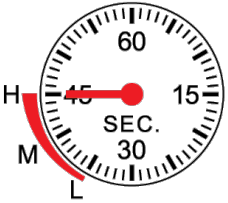
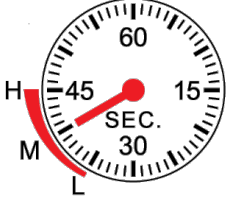
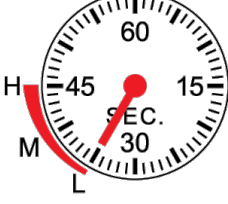
- (1) Pull the crown out to the 2nd click position.
 - When the stopwatch is measuring, if the crown is pulled out to the 2nd click position, it will be automatically reset.
- (2) Press the button A or B to set the stopwatch hands to the "0" position.

The movements of the stopwatch minute hand and the stopwatch second hand are interlocked. To set the stopwatch minute hand to the "0" position, continue to move the stopwatch second hand until the stopwatch minute hand reaches the "0" position.

 - The stopwatch hands move quickly if the button A or B is kept pressed.
- (3) Push the crown back to the normal position.

◆ Guidelines for battery indicator

- Press button B more than 1 second. The remaining battery capacity is indicated.
- Status indication is 2 seconds. Then it return automatically.

Battery level	Display	Power reserve
High	 <p>Position : 45 seconds</p>	90 days or more
Middle	 <p>Position : 40 seconds</p>	30-90 days
Low	 <p>Position : 35 seconds</p>	30 days or less