

PULSAR

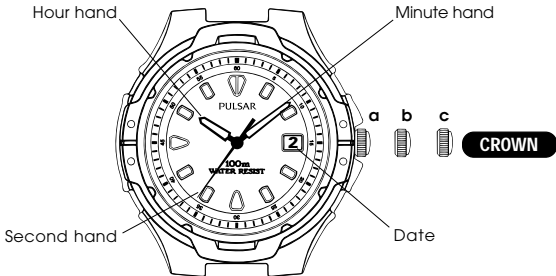
CAL. V145, V182 SOLAR WATCH

- POWERED BY LIGHT ENERGY
- NO NEED FOR BATTERY CHANGE
- LASTS FOR 6 MONTHS (Cal. V145) / 2 MONTHS (Cal. V182)
AFTER FULL CHARGE
- ENERGY DEPLETION FOREWARNING FUNCTION
- QUICK-START FUNCTION
- OVERCHARGING PREVENTION FUNCTION

ENGLISH

DISPLAY AND CROWN OPERATION

English



- a) Normal position : Free**
- b) First click : Date setting**
- c) Second click : Time setting**

☆ *The solar cell is installed under the dial.*

SCREW DOWN CROWN

[for models with screw down crown]

Unlocking the crown

- 1 Turn Crown counterclockwise until you no longer feel the threads turning.
- 2 Crown can be pulled out.



Locking the crown

- 1 Push Crown back in to normal position.
- 2 Turn Crown clockwise while pressing it lightly until tight.



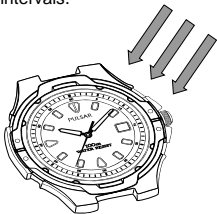
HOW TO CHARGE AND START THE WATCH

TO CHARGE THE WATCH

- When you start the watch or when the energy in the rechargeable battery is reduced to an extremely low level, charge it sufficiently by exposing the watch to light.

- **Quick-start function:**

When the watch is exposed to sunlight or strong artificial light (of more than 1,000 lux), it will start operating immediately with Second hand moving at 2-second intervals.



- 1 Expose the watch to sunlight or strong artificial light.

** When the watch has stopped operating, Second hand will start moving at 2-second intervals.*



- 2 Keep the watch exposed to the light until Second hand moves at 1-second intervals.



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

* See "GUIDELINE OF CHARGING TIME" on page 6 (Cal. V145) / on page 7 (Cal. V182).

NOTES:

- 1 *When the quick-start function is activated by exposing the watch to light, Second hand starts moving at 2-second intervals immediately, but the energy stored in the rechargeable battery is not sufficient. If the watch is turned away from the light, it may stop operating.*
- 2 *It is not necessary to charge the watch fully. It is important, however, to charge the watch sufficiently, especially in case of initial charge.*



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 the watch temperature does not exceed 50° C.

GUIDELINE OF CHARGING TIME

(Cal. V145)

Illumination (lux)	Light source	Environment	Time required (approx.)		
			A	B ☆	C
500	60-watt incandescent light	Distance of 60 cm (2 ft.)	250 hours	15 hours	60 minutes
700	Fluorescent light	Office, overhead	175 hours	11 hours	50 minutes
1,000	30-watt fluorescent light	Distance of 70 cm (2 ft. 4 in.)	120 hours	6 hours	30 minutes
3,000	30-watt fluorescent light	Distance of 20 cm (8 in.)	40 hours	2 hours	10 minutes
5,000	30-watt fluorescent light	Distance of 12 cm (5 in.)	22 hours	80 minutes	6 minutes
10,000	30-watt fluorescent light	Distance of 3 cm (1 in.)	10 hours	30 minutes	3 minutes
10,000	Sun	Cloudy weather	10 hours	30 minutes	3 minutes
100,000	Sun	Fair weather	3 hours	8 minutes	1 minute

(Cal. V182)

Illumination (lux)	Light source	Environment	Time required (approx.)		
			A	B ☆	C
500	60-watt incandescent light	Distance of 60 cm (2 ft.)	110 hours	8 hours	100 minutes
700	Fluorescent light	Office, overhead	82 hours	6 hours	75 minutes
1,000	30-watt fluorescent light	Distance of 70 cm (2 ft. 4 in.)	60 hours	4 hours	55 minutes
3,000	30-watt fluorescent light	Distance of 20 cm (8 in.)	20 hours	1.3 hours	18 minutes
5,000	30-watt fluorescent light	Distance of 12 cm (5 in.)	10 hours	33 minutes	9 minutes
10,000	30-watt fluorescent light	Distance of 3 cm (1 in.)	5 hours	15 minutes	5 minutes
10,000	Sun	Cloudy weather	5 hours	15 minutes	5 minutes
100,000	Sun	Fair weather	2.1 hours	7 minutes	2 minutes

- A: for full charge
- B: for 1-second intervals
- C: to maintain 1-day usage

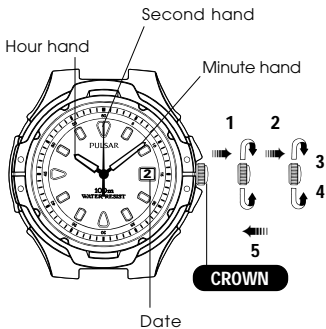
☆ *The values in this column represent the charging times required until Second hand moves constantly at 1-second intervals after the watch starts operating with Second hand moving at 2-second intervals. Even if the watch is not charged for the time specified in the column, Second hand may temporarily move at 1-second intervals. But, it will soon resume moving at 2-second intervals, and therefore, charge the watch for more than the specified period.*

- The above tables provide only general guidelines.
- When the watch is fully charged, it will keep operating for approximately 6 months (Cal. V145) / 2 months (Cal. V182) .

TIME/CALENDAR SETTING

CROWN

- 1 Pull out to first click and turn to set the previous day's date.
- 2 Pull out to second click when Second hand is at the 12 o'clock position.
- 3 Turn until the desired date appears.
- 4 Turn to set Hour and Minute hands to the desired time.
- 5 Push back in to normal position in accordance with a time signal.



NOTES:

- 1 *Do not set the date between 9:00 p.m. and 1:00 a.m. Otherwise, it may not change properly.*
 - * *If it is necessary to set the date during that time period, first change the time to any time outside it, set the date and then reset the correct time.*
- 2 *When setting Hour hand, check that AM/PM is correctly set.*
 - * *The watch is so designed that the date changes once in 24 hours. Turn the hands past the 12 o'clock marker to determine whether the watch is set for the A.M. or P.M. period. If the date changes, the time is set for the A.M. period. If the date does not change, the time is set for the P.M. period.*
- 3 *When setting Minute hand, first advance it 4 to 5 minutes ahead of the desired time and then turn it back to the exact minute.*
- 4 *It is necessary to adjust the date at the end of February and 30-day months.*

ENERGY DEPLETION FOREWARNING FUNCTION

- When the energy stored in the rechargeable battery is reduced to an extremely low level, Second hand starts moving at 2-second intervals instead of the normal 1-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 3 days (Cal. V145) / 1 day (Cal. V182). (For recharging the watch, see “HOW TO CHARGE AND START THE WATCH”)

TO PREVENT THE ENERGY DEPLETION

- Wear the watch so that it is not covered by your clothes.
- When the watch is not in use, leave it in a bright place as long as possible.

** Make sure that the watch temperature does not exceed 50° C.*

NOTE ON POWER SUPPLY

- This watch is provided with a rechargeable battery for exclusive use with the watch. Unlike conventional battery-powered watches, therefore, battery replacement is not necessary.
- The solar cell is a clean energy source, having no adverse effect on the natural environment.



CAUTION

- Never insert a conventional silver oxide battery in your watch as it may explode, generate an intense heat or catch fire. The watch is so designed that even if the battery is installed in the watch, the watch will not operate.

TO PRESERVE THE QUALITY OF YOUR WATCH

WATER RESISTANCE

● Non-water resistant



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 an AUTHORIZED PULSAR DEALER or 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 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 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 and is suitable for taking a bath, shallow diving, but not for scuba diving. We recommend that you wear a PULSAR Diver's watch for scuba diving.

- * *Before using the water resistance 5, 10, 15 or 20 bar watch in water, be 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 with the water resistance 5 bar watch, or taking a bath with the water resistance 10, 15 or 20 bar watch, be 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 actual diving depth since swimming movement tends to increase the pressure at a given depth. Care should also be taken on diving into water.

TEMPERATURES

Your watch works with stable accuracy within a temperature range of 5° C and 35° C (41° F and 95° F).

Temperatures over 50° C (122° F) may cause battery leakage or

shorten the battery life. Do not leave your watch in very low temperatures below -5° C (+23° F) for a long time since the cold may cause a slight time loss or gain.

However, the above conditions will be corrected when the watch returns to normal temperature.

CARE OF CASE AND BRACELET



To prevent possible rusting of the case and bracelet caused by dust, moisture and perspiration, wipe them periodically with a soft dry cloth.

SHOCKS & VIBRATION



Light activities will not affect your watch, but be careful not to drop your watch or hit it against hard surfaces, as this may cause damage.

CHEMICALS



Be careful not to expose the watch to solvents, mercury, cosmetic spray, detergents, adhesives or paints. Otherwise, the case, bracelet, etc. may become discolored, deteriorated or damaged.

MAGNETISM



Your watch will be adversely affected by strong magnetism. Keep it away from close contact with magnetic objects.

PERIODIC CHECK



It is recommended that the watch be checked once every 2 to 3 years. Have your watch checked by an **AUTHORIZED PULSAR DEALER** or **SERVICE CENTER** to ensure that the case, crown, buttons, gasket and crystal seal remain intact.

PRECAUTION REGARDING CASE BACK PROTECTIVE FILM



If your watch has a protective film and/or a sticker on the case back, be sure to peel them off before using your watch.