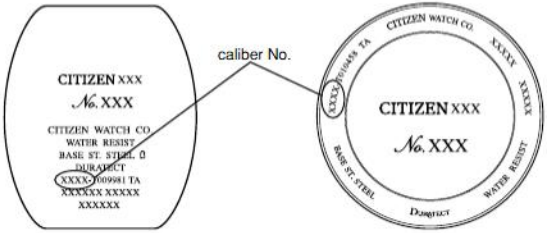
| | Name of Components | Nom des pièces | Nombre de los componentes | Bezeichnungen der Bauteile |
|---|---|---|---|---|
| ① | Hour hand | Aiguille des heures | Manecilla de hora | Stundenzeiger |
| ② | 24 hour hand | Aiguille des 24 heures | Manecilla de 24 horas | 24-Stunden-Zeiger |
| ③ | Alarm ON/OFF | Alarme ON/OFF (active/désactivée) | Alarma ON/OFF (activación/desactivación) | Alarm ON (EIN)/ OFF (AUS) |
| ④ | Second hand | Trotteuse | Manecilla de segundos | Sekundenzeiger |
| ⑤ | Mode hand | Aiguille de mode | Manecilla de modo | Moduszeiger |
| ⑥ | Button (B) | Bouton (B) | Botón (B) | Knopf (B) |
| ⑦ | Date | Date | Fecha | Datum |
| ⑧ | Crown (Normal position) | Couronne (Position normale) | Corona (Posición normal) | Krone (in Normalposition) |
| ⑨ | Minute hand | Aiguille des minutes | Manecilla de minutos | Minutenzeiger |
| ⑩ | Button (A) | Bouton (A) | Botón (A) | Knopf (A) |
| ⑪ | Function hand | Aiguille de fonction | Manecilla de función | Funktionszeiger |



| | Nome dei componenti | Nome dos componentes | 組件名稱 | 部件名称 |
|---|---|---|---|---|
| ① | Lancetta delle ore | Ponteiro das horas | 時針 | 时针 |
| ② | Lancetta delle 24 ore | Ponteiro de 24 horas | 24 小時針 | 24 小时针 |
| ③ | ON/OFF (attivazione/ disattivazione) dell'allarme | ON/OFF (ativação/ desativação) do despertador | ON（開啟）/ OFF（解除）鬧鈴 | 闹钟 ON（设定）/ OFF（取消） |
| ④ | Lancetta dei secondi | Ponteiro dos segundos | 秒針 | 秒针 |
| ⑤ | Lancetta di modalità | Ponteiro de modo | 模式針 | 模式针 |
| ⑥ | Pulsante (B) | Botão (B) | (B) 鈕 | (B) 钮 |
| ⑦ | Data | Dia | 日期 | 日期 |
| ⑧ | Corona (posizione normale) | Coroa (posição normal) | 錶冠（正常位置） | 表把（正常位置） |
| ⑨ | Lancetta dei minuti | Ponteiro dos minutos | 分針 | 分针 |
| ⑩ | Pulsante (A) | Botão (A) | (A) 鈕 | (A) 钮 |
| ⑪ | Lancetta delle funzioni | Ponteiro de função | 功能針 | 功能针 |

# Model Indication

The caliber No. (Movement No.) of your watch is engraved on the back as shown in the figure below.
Check the back of your watch for the caliber number and be sure to use your watch according to the instruction manual.






English

Instruction manual

# Cal. E81*/E82*

# Table of Contents

*About Solar Powered Watches (Eco-Drive watch)* ..... 3
*E81* Operating Instructions* ..... 11
*E82* Operating Instructions* ..... 37
*Notes on Using Eco-Drive Watch* ..... 57
*Specifications* ..... 58
*Precautions* ..... 60





## About Solar Powered Watches (Eco-Drive watch)

- This Eco-Drive watch features a solar panel under the dial and is powered by converting solar energy into electrical energy.

- This watch also features functions such as a perpetual calendar ( which automatically adjusts the date at month ends and leap years) a daily alarm (that can be set according to a 24-hour system), and a chronograph (capable of measuring up to 59 minutes, 59.95 seconds, in 1/20 second units).

## ✪ Periodically expose the watch dial to daylight

This watch uses a rechargeable cell to store electrical energy. This is an environmentally clean cell that does not use any harmful substances such as mercury.
Once the rechargeable cell is fully charged, (and the power saving feature is operative) the watch will function for approximately 8 months without additional exposure to light.

## ✪ Guide to Charging Time

Most users find that their watch receives more than enough light to keep it charged through their normal daily routine.
During normal operation, the charge necessary for the watch to operate for one day can be obtained in approximately 10 minutes per day when charged outdoors in direct sunlight, and in 4 hours per day when charged by indoor illumination.
If your watch is not exposed to light regularly and to prevent the watch from stopping due to an insufficient charge, we recommend that you charge the watch for 5 to 6 hours under direct sunlight once a month.





## ✪ Ensuring optimal operation of the watch

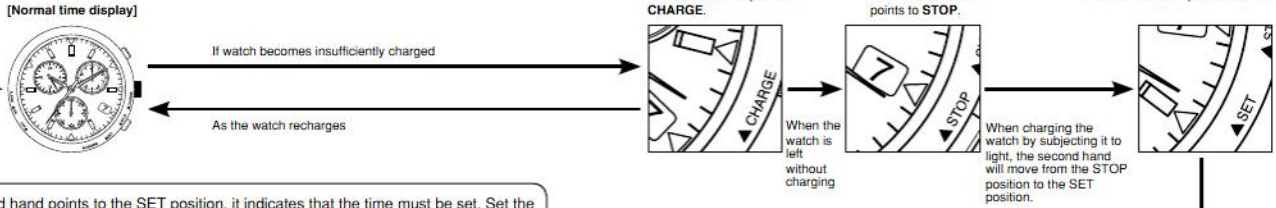
Always store the watch in a bright location for best results.

- When you take your watch off, place it in a location so that the dial (face) can receive light, such as a window sill, where sunlight can directly strike the watch dial (face).
- Wearing clothes with long sleeves may inhibit sufficient light from reaching the watch dial (face), resulting in insufficient charging.
  It is recommended that the watch is charged in direct sunlight once a month for 5 to 6 hours.

**[Charging precautions]**

- Avoid charging the watch on a car dashboard or under other high temperature conditions (60°C/140°F or more) as this may result in damage to your watch.
- Avoid charging the watch under potentially high temperature light sources such as incandescent or halogen lights as this may result in damage to your watch.

If the watch becomes insufficiently charged, the second hand will automatically move to the low charge warning, informing you of a "Charge warning" and "Time setting warning".
Always take care to charge your watch so that the charge does not become insufficient.




If the second hand points to the SET position, it indicates that the time must be set. Set the correct time.
**Note:** Normal time display will not be restored unless the time is set. (Refer to "Setting the Time and Calendar".)

**Note:** Continue to subject the watch to light until the second hand moves to the "SET" position (approximately 30 minutes or more).

## [If the charge becomes insufficient during normal time display]

- If the charge becomes insufficient, quickly charge the watch to restore normal operations (normal time display).

## <Low Power Warning>

Regardless what mode the watch is in, if the power becomes very low, the watch will switch to the time display and the second hand will move to the 'CHARGE' position indicating that recharging is necessary.

After the second hand has moved to the 'CHARGE' position, the watch will switch to display the time in the following sequence, 24-hour hand, hour hand, minute hand, date (function hand).

Although the watch is functioning properly in this low charge state, it will stop within approximately 5 days (approximately 2 days if the display switches from charge warning operations to time change movement).

Restore the 1-second interval movement of the second hand by exposing the watch to light sufficient for charging.

If the watch stops due to insufficient charge, be sure to fully charge it, perform the all reset and 0-positioning procedure and then re-set the time as well as the calendar.

### Note, during low power:

- The chronograph will stop, even during measurement, and reset.
- The time set for local time (time difference) is maintained.
- The alarm sound will not be emitted even if the alarm has been set.
- Crown (changing modes) and button operations will not function.



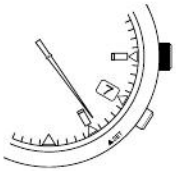
## <Time setting warning function>

As the watch is exposed to light sufficient for charging and begins re-charging after it has stopped, the second hand will move to the SET position, informing you that the time is incorrect and must be set.

Although movement of the 24-hour hand, hour hand, and minute hand will start after the second hand has moved to the SET position, the time and calendar must be set after the watch has fully charged.

**Note:** When the time setting warning function is enabled

- Crown and button operations other than those used to set the time and calendar will not function.
- The time setting warning function is cancelled when the crown is pulled out to position 2 (time correction position) while in time/calendar mode. The second hand will stop at the SET position unless the time is set after pulling the crown out to position 2.
- If the watch has stopped due to an insufficient charge, expose the watch to light sufficient for charging until the display switches to the time setting warning indication (SET position) (30 minutes or more).



## <Overcharging prevention function>

Once the rechargeable cell is fully charged, an overcharging prevention function will activate so that it is not charged any further.

**<Power saving function>**

If the watch is not exposed to light sufficient for charging and in the time/calendar mode (TME) or local time mode (L-TM), the second hand will move to the 0-position and stop, and the watch will enter power saving mode to reduce power consumption.

Even though the second hand stops, the 24-hour hand, hour hand, and minute hand will continue to keep the correct time. Also, the calendar will continue to update according to the movement of the 24-hour hand, hour hand, and minute hand.

- The Second Hand will start moving again once the watch is subjected to light sufficient for charging. However, if the watch is in insufficient charge warning mode, the second hand will stop at the CHARGE position. If the watch is in time setting warning mode, the second hand will stop at the SET position. If the watch is stopped, the second hand will stop at the STOP position.





# Operating Instructions

# E81*

# E81*/ Table of Contents

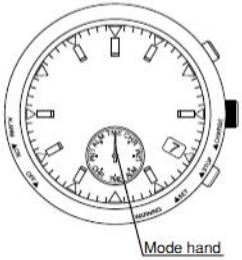

1. Switching the Mode (Display Function) ..... 13
2. Setting the Time and Calendar..... 14
   [Setting the Time] ..... 14
   [Setting the Calendar] ..... 16
   [When the date position has shifted off center in the calendar window] ..... 20
3. Using the Chronograph ..... 21
4. Setting the Local (Secondary) Time..... 24
5. Using the Alarm ..... 27
6. Checking and Correcting the Reference or 0-Position of Each Hand..... 30
   [Checking the Reference or 0-Position] ..... 30
   [Correcting the Reference or 0-Position] ..... 32
7. All-Reset Operation ..... 34



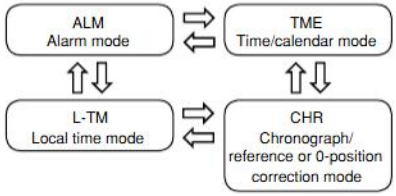



# 1. Switching the Mode (Display Function)

This watch has 4 modes: time/calendar, chronograph, local time, and alarm. The mode can be switched by rotating the crown. Check the current mode with the mode hand.



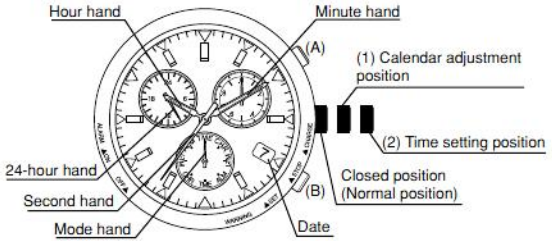

[Mode/display function]



# 2. Setting the Time and Calendar

**[Setting the Time]**

**1.** Rotate the crown to align the mode hand with time/calendar [TME] mode as indicated on the mode sub dial.






**2.** Pull the crown out two 'steps' to position 2 (time setting position). The second hand will rapidly advance to the 0-second position and stop.

**Note:**

- If the second hand does not stop at the 0-second position, be sure to perform reference or 0-position correction in reference or 0-position correction mode.
- If the crown is pulled out two 'steps' to position 2 while the date is advancing, the date and function hand will stop at that position, and after the second hand has rapidly advanced to the 0 second position, the date will advance by remaining amount.

**3.** Rotate the crown to adjust the time.

(1) Rotate the crown to the right (clockwise) by 1 'click' to move the 24-hour hand, hour hand and minute hand clockwise.

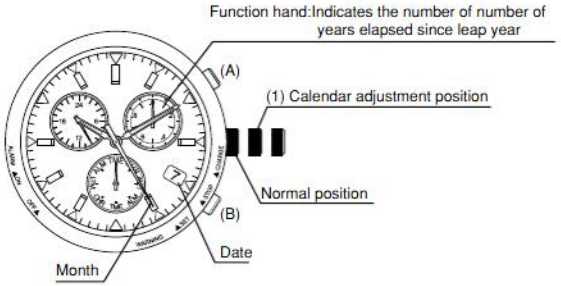
(2) Rotate the crown to the left (counterclockwise) by 1 'click' to move the 24-hour hand, hour hand and minute hand counterclockwise.

- Quickly rotate the crown 2 or more clicks consecutively to advance the hands rapidly. Rotate the crown to the left or right 1 click to stop rapid advance. If the rapid advance is not stopped, the hand will automatically stop after "12 hours" of rotation.

**4.** Adjust the watch according to a reliable time source and then return the crown to the closed position (normal position).

**[Setting the Calendar]**

Once the calendar is set, it will operate as a perpetual calendar that automatically changes the year, month, and date including leap years. Provided the watch does not stop due to an insufficient charge, once set no further setting is necessary.








1. Rotate the crown to set time/calendar [TME] mode as indicated on the mode sub dial.
2. Pull the crown out one 'step' to position 1 (calendar adjustment position). The second hand will advance rapidly to the month position set in memory and stop. The function hand will move to the year position (number of years elapsed since leap year) set in memory and stop.

   **Note:**

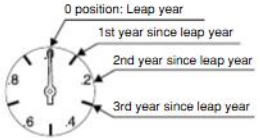
   If the crown is pulled out one 'step' to position 1 when the date is advanced, the second hand will rapidly advance after the date is changed.
3. Rotate the crown to the left (counterclockwise) to set the date.
   - Rotate the crown to the left (counterclockwise) by 1 click to rotate the function hand 4 times and advance the date by 1 day.
   - Quickly Rotate the crown 2 or more 'clicks' consecutively for continuous advance. Rotate the crown to the left or right by 1 'click' to stop rapid advance.

     If the movement of the date is not stopped, the date will automatically stop after advancing 31 days.

**4.** Press the upper right button (A) to correct the year (number of years elapsed since leap year).
Press the upper right button (A) to align the mode hand with the position corresponding to the year (number of years elapsed since leap year).

*** Year indication/function hand position ***

| | |
|---|---|
| Leap year | : 0 minute position |
| 1st year since leap year | : 6 minute position |
| 2nd year since leap year | : 12 minute position |
| 3rd year since leap year | : 18 minute position |




**Quick reference guide for years elapsed since leap year**

| Year | Years elapsed | Year | Years elapsed | Year | Years elapsed |
|---|---|---|---|---|---|
| 2008 | Leap year | 2012 | Leap year | 2016 | Leap year |
| 2009 | 1st year | 2013 | 1st year | 2017 | 1st year |
| 2010 | 2nd year | 2014 | 2nd year | 2018 | 2nd year |
| 2011 | 3rd year | 2015 | 3rd year | 2019 | 3rd year |

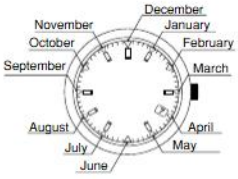




**5.** Press the lower right button (B) to correct the month.
Press the lower right button (B) to align the second hand with the position corresponding to the month.

*** Month indication/second hand position***

| | |
|---|---|
| January | : 1:00 position |
| February | : 2:00 position |
| March | : 3:00 position |
| ⋮ | |
| December | : 12:00 position |




**6.** After the calendar has been set, always return the crown to its normal position.
The second hand will catch up to the current second set and start advancing normally.

**<If a non-existent date is set>**

If the crown is returned to its close (normal) position after calendar correction mode with a non-existent date set, the displayed date will automatically change to the first day of the next month.

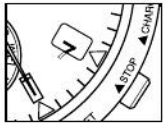
**Example:**

- Non-leap year: February 29, 30, 31 → March 1
- Leap year: February 30, 31 → March 1

**[When the date position has shifted off center in the calendar window]**

If the date position has shifted from the calendar window due to a strong impact, be sure to reset the correct reference or 0-position for each hand and the date in chronograph mode. (Refer to "Checking and Correcting the Reference or 0-Position of Each Hand".)

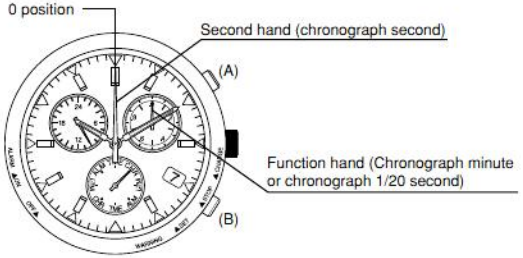
1. Rotate the crown while in its normal position to set chronograph (CHR) mode as indicated on the mode sub dial.
2. Pull the crown out one 'step' to position 1.
3. Press the upper right button (A) to move the function hand and date will move slightly.
   - Press the upper right button (A) until "1" of the date shows in the center of the calendar window.
   - After aligning the date to "1", press and release the upper right button (A) until the function hand aligns with the 0 position.
4. Press the crown back one 'step' to its closed (normal) position.






# 3. Using the Chronograph

The chronograph can measure times up to 59 minutes, 59.95 seconds in units of 1/20 (0.05) second. After this time is reached, the chronograph resets to 0.



**[Hand display during chronograph measurement]**

If the crown is turned to align the mode hand with chronograph [CHR] as indicated on the mode sub dial, the second hand and function hand will rapidly advance to the 0-position and the watch will enter chronograph mode.

- **Second hand:** Changes to a chronograph second hand
  The second hand rapidly moves 1 revolution when starting from 0-second position, and then in 1-second intervals to indicate chronograph second.
- **Function hand:** Changes to indicate chronograph minute or 1/20 second.
  This hand advances in 1-minute intervals to indicate chronograph minute. Press the lower right button (B) while the chronograph is stopped to switch to the 1/20 second display while the button is pressed.

**Note:**

The 24-hour hand, hour hand, minute hand, and date:

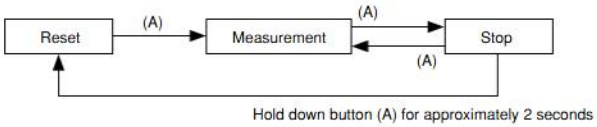
- Will continue to indicate the current time when changing from time/calendar mode.
- Will continue to display local time when changing from local time mode.
- Will continue to display the alarm set time when changing from alarm mode.





**[Chronograph measurement]**

1. Rotate the crown to align the mode hand with chronograph [CHR] mode as indicated on the mode sub dial.
2. Press the upper right button (A) to start and stop measurement. Each time the button is pressed a confirmation sound is emitted.
3. Press and hold down the upper right button (A) while the chronograph is stopped to reset the chronograph second hand and minute hand to the 0-position.

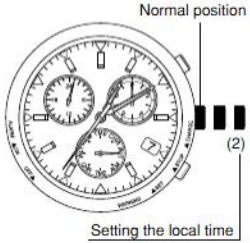


# 4. Setting the Local (Secondary) Time

Local time (secondary time) is a function that can be used to set the time for another region separately from the current time.
Local time can be adjusted as a time difference in units of hours only and is taken from the current time set (time mode/TME) .
Minutes and seconds will match the current time. The minutes and seconds cannot be adjusted in the "local" time mode.

**[Adjusting the Time Difference]**

1. Rotate the crown while in its normal position to align the mode hand with local time [L-TM] mode.
2. Pull the crown out two steps to position 2 (local time adjustment position).








3. Rotate the crown to the left (counterclockwise) or right (clockwise) to adjust the time difference.
   - Rotate the crown to the right by 1 click to move the hour hand clockwise by 1 hour.
   - Rotate the crown to the left by 1 click to move the hour hand counterclockwise by 1 hour.

**Note:**

The hour hand cannot be rapidly advanced in the local time mode even if the crown is turned two or more clicks consecutively. Adjust the time difference by 1 hour at a time.
A time difference of up to +/-23 hours can be set versus the current time.

**4.** After adjustment of the local time, push the crown in two steps to its normal position.

**Note:**

- If the hour hand passes the 12:00 midnight position, the date will be corrected by 1 day. Be sure to pay attention to AM/PM indicated by the 24-hour sub dial when setting the time difference.
- To return the time difference to original status, return the hour hand in the opposite direction of the adjustment.



# 5. Using the Alarm

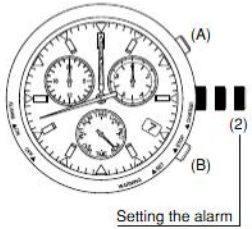


The alarm uses a 24-hour system. Once set, an alarm sound will be emitted for 15 seconds once every day at the set time.
The alarm is emitted according to the time set in time (TME) mode. It cannot be set for local time (L-TM).

**[Setting the Alarm Time]**

**1.** Rotate the crown while in its normal position to align the mode hand with alarm [ALM] mode as indicated on the mode sub dial.

- **Second hand:** The hand rapid advances to the ON or OFF position.
- **24-hour hand, hour hand, minute hand:**
  The move to indicate the alarm time last set.
- **Function hand:** Stops at the 0 position.



**2.** Pull the crown out two 'steps' to position 2 (alarm set position).
- The alarm setting is automatically turned ON.

**3.** Rotate the crown to set the alarm time.
(1) Rotate the crown to the right (clockwise) by 1 click to move the hour hand and minute clockwise.
(2) Rotate the crown to the left (counterclockwise) by 1 click to move the hour hand and minute hand counterclockwise.
- Quickly Rotate the crown 2 or more 'clicks' consecutively to advance the hands rapidly. Rotate the crown to the left (counterclockwise) or right (clockwise) by 1 click to stop rapid advance. If the rapid advance is not stopped, the hands will automatically stop after "12 hours" time advancement.
- Make sure to correctly set the alarm time in terms of AM/PM using the 24-hour hand as a guide.

**4.** After the alarm time is set, push the crown in two steps to its closed (normal) position.





**[Turning the Alarm ON/OFF]**
Pressing and releasing the upper right button (A) in alarm mode while the crown is pulled out 1step (position 1) or 2 'steps' (position 2) will switch the alarm ON/OFF each time the upper right button (A) is pressed.

**[Alarm Sound Check]**
Pressing and holding the upper right button (A) in alarm mode while the crown is in its normal position emits the alarm sound while the button is pressed.

**[Stopping the Alarm Sound]**
Press and release either the upper or lower right button (A) or (B) to stop the alarm sound while it is being emitted.

# 6. Checking and Correcting the Reference or 0-Position of Each Hand

Before using this watch, check that its functions are working correctly as described below.

### What is a Reference or 0-Position?

The term "reference or 0-position" refers to the hand and date base positions used as a reference for correct operation of the watch. If this position is not correctly set, the watch will not display its functions correctly.

### [Checking the Reference or 0-Position]

1. Rotate the crown while in its normal position to align the mode hand with chronograph [CHR] mode as shown on the mode sub dial.
2. Pull the crown out one 'step' to position 1 to set reference or 0-position confirmation (function hand and date correction mode).
   The 24-hour hand, hour hand, minute hand, second hand, function hand, and date will rapidly advance and stop at the reference or 0-positions recorded in memory.



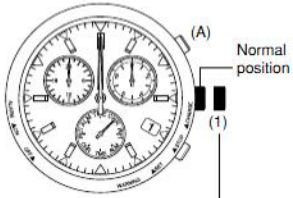


### Correct reference or 0-positions for each hand and the date

Correct reference or 0-positions are given below.

| | |
|---|---|
| **24-hour hand** | : 0:00 |
| **Hour hand, minute hand** | : 0:00 |
| **Second hand** | : 00 seconds |
| **Function hand** | : 0 position (12:00 position) |
| **Date** | : 1st |

If any of the hands or the date shows a reference or 0-position other than given above, perform the procedure in "Correcting the Reference or 0-Position".




Correcting the Reference or 0-Position

**[Correcting the Reference or 0-Position]**
**<Correcting the Reference or 0-Positions of the 24-Hour Hand, Hour Hand, Minute Hand, and Second Hand>**

1. Pull the crown out two 'steps' to position 2 while in chronograph [CHR] mode to correct the reference or 0-position of each hand.
2. Press the upper right button (A) to correct the second hand by 1-second each time the button is pressed. Hold down the upper right button (A) for rapid advance.
3. Rotate the crown to correct the 24-hour hand, hour hand, and minute hand and adjust each hand to its correct reference or 0-position.
   (1) Rotate the crown to the right (clockwise) 1 'click' to move the hour hand and minute hand clockwise.
   (2) Rotate the crown to the left (counterclockwise) 1 click to move the hour hand and minute hand counterclockwise.

• Quickly Rotate the crown 2 or more clicks consecutively to advance the hands rapidly. Rotate the crown to the left (counterclockwise) or right (clockwise) by 1 click to stop rapid advance.
If the rapid advance is not stopped, the hands will automatically stop after "12 hours" advancement.





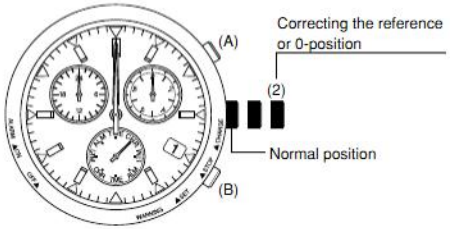
**<Correcting the Function Hand and Date Reference or 0- Position>**

1. Pull the crown out one 'step' to position 1 while in chronograph [CHR] mode to correct the function hand and date.
2. Rotate the crown to the left (counterclockwise) to set the date.
   (1) Rotate the crown 1 'click' to move the mode hand 4 revolutions and advance the date by 1 day.
   (2) Quickly rotate the crown 2 or more times consecutively for continuous advance. Rotate the crown to the left or right by 1 click to stop rapid advance.
   If the advancement is not stopped, the date will automatically stop after advancing "31 days".

• The 12:00 position immediately after the date changes to "1" is the reference or 0-position for the function hand. Rotate the crown to adjust the date to "31" and then press and release the upper right button (A) to fine adjust the function hand. When the date shows "1", adjust the function hand to the correct reference or 0-position.

# 7. All-Reset Operation

If subjected to static electricity or strong shock, the watch may cease to operate correctly.
In such cases, correct reference or 0-positions after performing the all-reset.








Before executing the all-reset, first ensure the watch is fully charged and that the second hand is moving in 1-second intervals.

**Note:**
If the all-reset is executed while the watch is insufficiently charged, subsequent operations will become impossible and the watch will completely stop.

1. Rotate the crown while in its normal position to align the mode hand with chronograph [CHR] mode as indicated on the mode sub dial.
2. Pull the crown out two steps to position 2 (reference or 0-position correction position).
   - Each hand and the date will move to their reference or 0- positions stored in memory and then stop.
3. Simultaneously press and hold the upper right and lower right buttons (A) and (B) and then release.
   - A confirmation sound will be emitted, and then a hand movement demonstration will be performed in order of function hand, 24-hour hand/hour hand/minute hand, and second hand to indicate that the all-reset has completed.

**4.** Adjust to reference or 0-positions.

(1) With the crown pulled out two 'steps' to position 2, adjust the 24-hour hand, hour hand, minute hand, and second hand.

(2) Next, adjust the function hand and date with the crown in position 1.

(3) Press the crown to the normal position. The All-reset and reference or 0-position adjustment is complete.

**Note:**

Take care to perform operations correctly as the watch will not function if the crown is returned to the normal position before adjustment is complete.

If this happens, you must repeat the all-reset operation and reset the reference or 0-positions.





# Operating Instructions

# E82*

# E82*/ Table of Contents

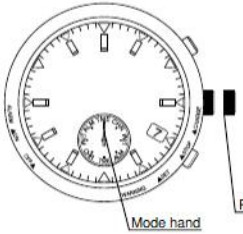

1. Switching the Mode (Display Function) ..... 39
2. Setting the Time and Calendar..... 40
   [Setting the Time] ..... 40
   [Setting the Calendar] ..... 42
3. Using the Chronograph ..... 45
4. Setting the Local (Secondary) Time..... 47
5. Using the Alarm ..... 49
6. Checking and Correcting the Reference or 0-Position of Each Hand.... 51
   [Checking the Reference or 0-Position] ..... 51
   [Correcting the Reference or 0-Position] ..... 53
7. All-Reset Operation ..... 55



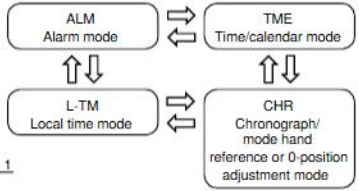



# 1. Switching the Mode (Display Function)

This watch has four modes: time/calendar, chronograph, local time, and alarm.
The mode can be switched by turning the crown while in position 1. Use the mode hand to check the current mode.




[Mode/display function]



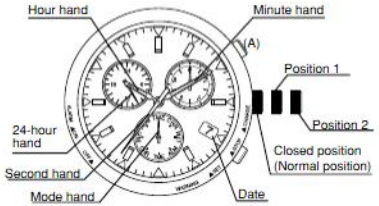

**While the crown is in position 1, the second hand points to the 30 seconds position.**

# 2. Setting the Time and Calendar

Once the calendar is adjusted, a perpetual calendar capable of automatically changing the year, month, and date, including leap years (until February 28, 2100) begins operating.

**[Setting the Time]**

**1.** Pull the crown out one step to position 1. Rotate the crown to align the mode hand with time/calendar [TME] as indicated on the mode sub dial.








**2.** Pull the crown out two steps to position 2 (time adjustment position) and press the upper right button (A).
- The second hand will rapidly advance to the 0-second position and stop.

**Note:**
- If the second hand does not stop at the 0-second position, be sure to perform reference or 0-position correction in the reference or 0-position correction mode.

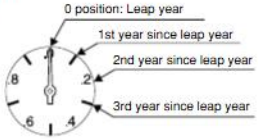
**3.** Rotate the crown to adjust the time.
(1) Rotate the crown to the right (clockwise) 1 'click' to move the 24-hour hand, hour hand and minute hand clockwise.
(2) Rotate the crown to the left (counterclockwise) by 1 'click' to move the 24-hour hand, hour hand and minute hand counterclockwise.
- Rotate the crown 2 or more 'clicks' consecutively to advance the hands rapidly. Rotate the crown to the left or right to stop rapid advance.

## [Setting the Calendar]

**4.** Press and release the upper right button (A) to correct the year (number of years elapsed since the last leap year).
Rotate the crown and align the function hand with the position corresponding to the year (number of years elapsed since the last leap year).

### * Year indication/function hand position *

Leap year : 0 minute position
1st year since leap year : 6 minute position
2nd year since leap year : 12 minute position
3rd year since leap year : 18 minute position




### Quick reference guide for years elapsed since leap year

| Year | Years elapsed | Year | Years elapsed | Year | Years elapsed |
|---|---|---|---|---|---|
| 2008 | Leap year | 2012 | Leap year | 2016 | Leap year |
| 2009 | 1st year | 2013 | 1st year | 2017 | 1st year |
| 2010 | 2nd year | 2014 | 2nd year | 2018 | 2nd year |
| 2011 | 3rd year | 2015 | 3rd year | 2019 | 3rd year |

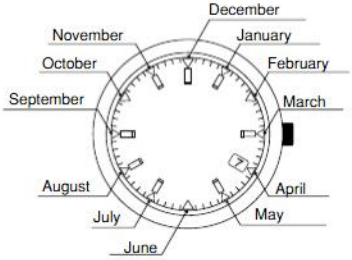




**5.** To adjust the month:
- Press and release the upper right button (A). The second hand will move slightly indicating the month of year is ready to be set.
- Rotate the crown to the right (clockwise) to align the second hand with the position corresponding to the month.
  Month correction can be made only by rotaling the crown to the right (clockwise).

### *Month indication/second hand position *

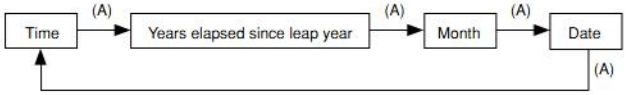
January : 1:00 position
February : 2:00 position
March : 3:00 position
⋮
December : 12:00 position



**6.** Press the upper right button (A) to adjust the date.
- Rotate the crown to the right (clockwise) 1 'click' to rotate the function hand 4 revolutions and advance the date by 1 day.
- Rotate the crown 2 or more clicks consecutively to continuously advance the date. Rotate the crown to the left or right to stop continuous advance.

**7.** After adjusting the date, return the crown to its normal position. This completes time/calendar adjustment.

The adjustment mode switches each time the upper right button (A) is pressed.




Demonstration of hand movement informs you of adjustment locations.



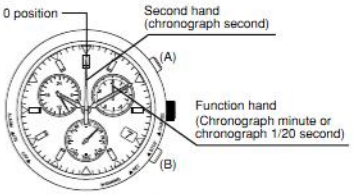
# 3. Using the Chronograph



The chronograph can measure times up to 59 minutes, 59.95 seconds in units of 1/20 (0.05) second. After this time is reached, the chronograph resets to 0.

**[Hand Display During Chronograph Measurement]**

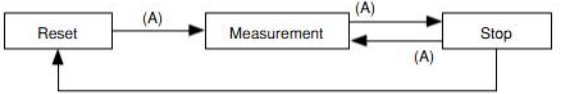
Align the mode hand with chronograph [CHR] as indicated on the mode sub dial. The second and function hands will rapidly advance to the 0 position and the watch will enter chronograph mode.




- **Second hand:** Changes to a chronograph second hand.
  The second hand rapidly moves 1 revolution when starting from 0 second position, and then advances in 1-second intervals to indicate chronograph second.
- **Function hand:** Changes to indicate chronograph minute or units of 1/20 second.
  This hand advances in 1-minute intervals to indicate chronograph minute. Press the lower right button (B) while the chronograph is stopped to switch to the 1/20 second display while the button is pressed.

**[Chronograph Measurement]**

1. With the crown one step out in position 1, rotate the crown to align the mode hand to chronograph [CHR] mode as indicated on the mode sub dial. Return the crown to the normal position to complete the adjustment.
2. Press and release the upper right button (A) to start and stop measurement. Each time the upper right button (A) is pressed a confirmation sound is emitted.
3. Pressing and holding the upper right button (A) for approximately 2-seconds while the chronograph is stopped will reset the chronograph second and minute to the 0 position.




**Note:**

Always reset the chronograph after measurement has ended as this reduces consumption of energy.





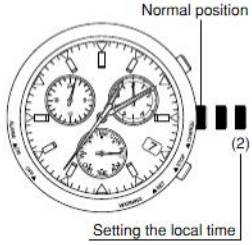
# 4. Setting the Local (Secondary) Time

Local time is a function that can be used to set the time for another region separately from the current time.

Local time can be adjusted as a time difference in units of hours, taking the current time (time mode/TME) as a reference. The minutes and seconds cannot be altered and will match the current time set in TME mode.

**[Adjusting the Time Difference]**

1. With the crown pulled out one step to position 1, rotate the crown to align the mode hand to local time [L-TM] mode as indicated on the mode sub dial.
2. Pull the crown out two 'steps' to position 2 (local time adjustment position).



**3.** Rotate the crown to the left (counterclockwise) or right (clockwise) to adjust the desired time difference (hours only).
- Rotate the crown to the right (clockwise) 1 'click' to move the hour hand, minute hand, 24 hour hand clockwise by 1 hour.
- Rotate the crown to the left (counterclockwise) 1 'click' to move the hour hand, minute hand, 24 hour hand counterclockwise by 1 hour.
- Quickly rotate the crown 2 or more clicks consecutively to advance the hour hand, minute hand, 24 hour hand rapidly. Rotate the crown to the left or right 1 'click' to stop rapid advancement.
  A time difference of up to +/-27 hours can be set versus the current time.
- Make sure to correctly set the time difference in terms of AM/PM, using the 24-hour hand as a guide.

**Note:**
- The date will adjust automatically by 1 day when the hour hand passes 12:00 midnight.
- Return the hour hand in the opposite direction of the setting to restore the time difference to original status.

**4.** After local time has been set, return the crown two steps to its normal position to complete the setting.





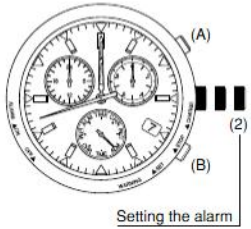
# 5. Using the Alarm

The alarm uses the 24-hour system. Once set, an alarm sound will be emitted for 15 seconds once every day at the set time.
The alarm is emitted according to the time in time (TME) mode. It cannot be set for local time (L-TM).

**[Setting the Alarm Time]**

**1.** Rotate the crown while in position 1 to align the mode hand with alarm [ALM] mode as indicated on the mode sub dial. The hands will move to the following positions:
- Second hand: This hand points to the 30 seconds position.
- 24-hour hand, hour hand, minute hand: Will move to indicate the time at which the alarm is set.

**2.** Pull the crown out two steps to position 2.
- The alarm setting is automatically turned ON.



3. Rotate the crown to adjust the time to when the alarm should sound.
   (1) Rotate the crown to the right (clockwise) 1 click to move the hour hand and minute hand clockwise.
   (2) Rotate the crown to the left 1 'click' to move the hour hand and minute hand counterclockwise.
   • Quickly Rotate the crown 2 or more clicks consecutively to advance the hands rapidly. Rotate the crown to the left or right by 1 click to stop rapid advance.
   • Make sure to correctly set the alarm time in terms of AM/PM, using the 24-hour hand as a guide.
4. After the alarm time has been set, return the crown two steps to its normal position. This completes setting the alarm.

**[Turning the Alarm ON/OFF]**

Press and release the upper right button (A) in alarm mode while the crown is in position 2 turns the alarm ON/OFF each time the upper right button (A) is pressed.

**[Alarm Sound Check]**

Press and hold the upper right button (A) in alarm mode while the crown is in its normal position emits the alarm sound while the button is pressed.

**[Stopping the Alarm Sound]**

The alarm is emitted for 15 seconds when the crown is in its normal position. Press and release either the upper or lower right button (A) or (B) to stop the alarm sound.





# 6. Checking and Correcting the Reference or 0-Position of Each Hand

Before using this watch, be sure to check that the functions of the watch all operate correctly.

**What is a Reference or 0-Position?**

The term "reference or 0-position" refers to those hand and date positions used as a datum point for the correct operation of the watch.

**[Checking the Reference or 0-Position]**

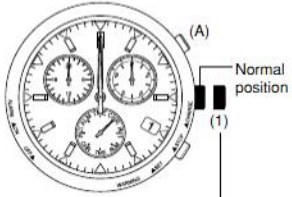
1. With the crown pulled out one step to position 1, rotate the crown to align the mode hand with chronograph [CHR] mode as indicated on the mode subdial.
2. Pull the crown out two steps to position 2 and confirm the reference or 0-positions. The 24-hour hand, hour hand, minute hand, second hand, function hand, and date will rapidly advance and then stop at their current reference or 0-positions.
3. Confirm that they are showing the correct reference or 0-positions.

## Correct reference or 0-positions for each hand and the date

Correct reference or 0-positions are given below.

| | |
|---|---|
| **24-hour hand** | : 0:00 |
| **Hour hand, minute hand** | : 0:00 |
| **Second hand** | : 00 seconds |
| **Function hand** | : 0 position (12:00 position) |
| **Date** | : 1st |

If any of the hands or the date shows a reference or 0-position other than given above, perform the procedure given in "Correcting the Reference or 0-Position" (See next page).




Correcting the Reference or 0-Position



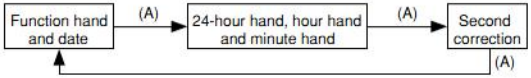


## [Correcting the Reference or 0-Position]

### <Correcting Reference or 0-Positions of the Function Hand and Date>

1. In chronograph [CHR] mode, pull the crown out two steps to position 2 and hold down button (A) for 2 or more seconds to correct the reference or 0-positions of the function hand and date.
2. Rotate the crown to the left or right to adjust the date.
   (1) The function hand moves 1 step at a time for each click of the crown.
   (2) Quickly Rotate the crown 2 or more clicks consecutively to move the function hand 4 revolutions and advance the date by 1 day. Rotate the crown to the left or right by 1 click to stop rapid advance.
   - The correct reference or 0-position for the function hand is the 12:00 position immediately after it changes to "1", while that for the date is the position immediately after it changes to "1".
     After setting the date to "1", Rotate the crown 1 click to adjust so that the function hand points to the 12:00 position.

The correction mode changes each time the upper right button (A) is pressed while the crown is pulled out two steps to position 2 in chronograph [CHR] mode.



### <Correcting the Reference or 0-Positions of the 24-hour Hand, Hour Hand and Minute Hand>

1. Press and release the upper right button button (A) to correct the reference or 0-positions of the 24-hour hand, hour hand and minute hand.
2. Rotate the crown one click at a time to adjust the 24-hour hand, hour hand and minute hand.
   (1)Rotate the crown to the right 1 click to move the hour hand and minute hand clockwise.
   (2) Rotate the crown to the left (counterclockwise) 1 click to move the hour hand and minute hand counterclockwise.
   • Quickly rotate the crown 2 or more clicks consecutively to advance the hands rapidly. Rotate the crown to the left or right by 1 click to stop rapid advance.

### <Correcting the Reference or 0-Position of the Second Hand>

1. Press and release the upper right button (A) to correct the reference or 0-position of the second hand.
   (1) Rotate the crown to the right 1 'click' to move the second hand 1 step at a time.
   (2) Quickly rotate the crown 2 or more 'clicks' consecutively to advance the second hand rapidly. Rotate the crown 1 'click' at a time to adjust so the second hand stops just before the 12:00 position.
   • Return the crown to its normal position to complete the correction.

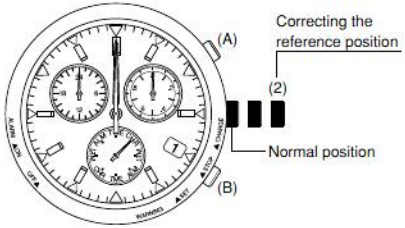
**Note:**

The second hand cannot be moved in the reverse direction.



# 7. All-Reset Operation

If subjected to static electricity or strong shock, the watch may cease to operate correctly.
In such cases, perform the all-reset and adjust the reference or 0-positions.



Before executing the all-reset, first check that the watch is fully charged and that the second hand is moving in 1-second intervals.
If the all-reset is executed while the watch is insufficiently charged, subsequent operations will become impossible and the watch will completely stop.

1. Rotate the crown while in position 1 to align the mode hand with chronograph [CHR] mode.
2. Pull the crown out two steps to position 2 (reference or 0-position correction mode).
   - Each hand and the date will move to their recorded reference or 0-positions and then stop.
3. Simultaneously press and hold both the upper and lower right buttons (A) and (B) for approximately 2 seconds, then release.
   - A confirmation sound will be emitted, and then a hand movement demonstration will be performed in order of second hand, hour hand/minute hand/24-hour hand, and function hand/date to indicate that the all-reset has completed.

**Note:**
After the all-reset, always correct the reference or 0-positions for each hand.
Then correctly adjust each mode before using the watch.





# Notes on Using Eco-Drive Watch

**WARNING Handling the rechargeable cell**

- Do not remove the rechargeable cell from the watch yourself. This is a specialized cell with contacts that must be placed correctly to the movement for correct operation.
- If you must remove the rechargeable cell, store it out of reach of children to avoid accidental ingestion. If the rechargeable cell is ingested, consult a doctor immediately.

**CAUTION Charging precautions**

- Do not charge the watch in a high-temperature environment (about 60°C / 140 F° or more). Overheating while charging can cause the watch exterior to become discolore. Additionally the watch, the movement and other vital components may become deformed or damaged rendering them unusable.

**Example:**

- Charging close to incandescent lighting, halogen lamps, or other lighting sources that easily become hot enough to melt certain components on the interior of the watch.
- Charging on surfaces that can easily become hot, such as a car dashboard.

# Specifications

## ✪ Cal. No.:

E81*/E82*

## ✪ Type:

Analogue solar powered watch

## ✪ Time accuracy:

Average monthly deviation:+/-15 seconds

When used in normal temperature (+5°C to +35°C/41F°to95F°)

## ✪ Acceptable temperature range:

Operational temperature range of the watch: -10°C to +60°C/14F°to140F°

## ✪ Display functions

Time: 24-hour, hour, minute and second

Calendar:Perpetual calendar

Date display

Second hand-based month display

Function hand-based year display (number of years elapsed since leap year)



## ✪ Additional functions:

Power saving function

Insufficient charge warning function

Time setting warning function

Overcharging prevention function

Chronograph (60 minutes, in units of 1/20 second)

Local time (time difference correction: in units of 1 hour)

Alarm (24-hour system)

## ✪ Duration of continuous operation:

Time until stop from fully charged status:

(When the power saving function is activating):

Cal.No.E81*:Approx. 9 months / Cal.No.E82*:Approx.8 months

Time until stop from activation of insufficient charge warning function:

(When the insufficient charge warning function switches to the time: Approx. 2 days)

Cal.No.E81*:Approx. 5 days / Cal.No.E82*:Approx. 11days

## ✪ Battery:

Rechargeable cell 1 pc.

* Specifications are subject to change without prior notice.

# Precautions

### WARNING Water-resistance performance

There are several types of water-resistant watches, as shown in the following table.
The unit "bar" is roughly equal to 1 atmosphere.
*WATER RESIST(ANT) xx bar may also be indicated as W.R. xx bar.

| Indication | | Specifications | Examples of use | | | | |
|---|---|---|---|---|---|---|---|
| Dial | Case (case back) | | Minor exposure to water (washing face, rain, etc.) | Moderate exposure to water (washing, kitchen work, swimming, etc.) | Marine sports (skin diving) | Scuba diving (with air tank) | Operation of the crown or button with moisture visible |
| WATER RESIST or no indication | WATER RESIST(ANT) | Water-resistant to 3 atmospheres | OK | NO | NO | NO | NO |
| WR 50 or WATER RESIST 50 | WATER RESIST(ANT) 5 bar or WATER RESIST(ANT) | Water-resistant to 5 atmospheres | OK | OK | NO | NO | NO |
| WR 100/200 or WATER RESIST 100/200 | WATER RESIST(ANT) 10bar/20 bar or WATER RESIST(ANT) | Water-resistant to 10/20 atmospheres | OK | OK | OK | NO | NO |

For correct use within the design limits of the watch, confirm the level of water-resistance of your watch, as indicated on the dial and case, and consult the table.

English

**WARNING Water-resistance performance**

- Water-resistance for daily use (to 3 atmospheres): This type of watch is water-resistant to minor exposure to water. For example, you may wear the watch while washing your face; however, it is not designed for use underwater.
- Upgraded water-resistance for daily use (to 5 atmospheres): This type of watch is water-resistant to moderate exposure to water. You may wear the watch while swimming; however, it is not designed for use while skin diving.
- Upgraded water-resistance for daily use (to 10/20 atmospheres): This type of watch may be used for skin diving; however, it is not designed for scuba or saturated diving using helium gas.

**CAUTION**

- Be sure to use the watch with the crown pressed in (normal position). If your watch has a screw lock crown, be sure to tighten the crown completely.
- Do NOT operate the crown or button with wet fingers or when the watch is wet. Water may enter the watch and compromise water-resistance.
- If the watch is used in seawater, rinse with fresh water afterward and wipe with a dry cloth.
- If moisture has entered the watch, or if the inside of the crystal is fogged up and does not become clear within a day, immediately take the watch to your dealer or Citizen Service Center for repair. Leaving the watch in such a state will allow corrosion to form inside.





- If seawater enters the watch, place the watch in a box or plastic bag and immediately take it in for repair. Otherwise, pressure inside the watch will increase, and parts (crystal, crown, buttons, etc.) may come off.

**CAUTION Keep your watch clean**

- Leaving dust and dirt deposited between the case and crown may result in difficulty in pulling the crown out. Rotate the crown while in its normal position, from time to time, to loosen dust and dirt and then brush it off.
- Dust and dirt tend to be deposited in gaps in the back of the case or band.
  Deposited dust and dirt may cause corrosion and soil your clothing. Clean the watch occasionally.

**Cleaning the Watch**

- Use a soft cloth to wipe off dirt, perspiration and water from the case and crystal.
- Use a soft, dry cloth to wipe off perspiration and dirt from the leather band.
- To clean a metal, plastic, or rubber watchband, wash away dirt with mild soap and water.
  Use a soft brush to remove dust and dirt jammed in the gaps in the metal band. If your watch is not water-resistant, take it to your dealer.

**Note:** Avoid using solvents (thinner, benzine, etc.), as they may damage the finish.

**CAUTION Operating environment**

- Use the watch within the operating-temperature range specified in the instruction manual.
  Using the watch where temperatures are outside the specified range, may result in deterioration of functions or even stoppage of the watch.
- Do NOT use the watch in places where it is exposed to high temperature, such as in a sauna.
  Doing so may result in a skin burn.
- Do NOT leave the watch in a place where it is exposed to high temperature, such as the glove compartment or dash-board of a car.
  Doing so may result in deterioration of the watch, such as deformation of plastic parts.
- Do NOT place the watch close to a magnet.
  Timekeeping will become inaccurate if you place the watch close to magnetic health equipment such as a magnetic necklace or a magnetic latch of a refrigerator door or handbag clasp or the earphone of a mobile phone. If this has occurred, move the watch away from the magnet and reset the time.
- Do NOT place the watch close to household appliances that generate static electricity.
  Timekeeping may become inaccurate if the watch is exposed to strong static electricity, such as is emitted from a TV screen.
- Do NOT subject the watch to a strong shock such as dropping it onto a hard floor.
- Avoid using the watch in an environment where it may be exposed to chemicals or corrosive gases.
  If solvents, such as thinner and benzine, or substances containing such solvents come in contact with the watch, discoloration, melting, cracking, etc. may result. If the watch comes in contact with mercury used in thermometers, the case, band or other parts may become discolored.



**Periodical inspections**

Your watch needs inspection once in every two or three years for safety and long use.
To keep your watch water-resistant, the packing needs to be replaced regularly.
Other parts need to be inspected and replaced if necessary.
Ask for Citizen geuine parts upon replacement.