TECHNICAL INFORMATION
INFORMACION TECNICA

CITIZEN QUARTZ
Cal. No. 8410

CITIZEN

ENGLISH

Contents

ESPAÑOL

Índice

§1. SPECIFICATIONS

Caliber No.	8410-09M
Type	Multi-hand analog quartz watch
Oscillation	32768 Hz (Hz = Vibrations in 1 sec)
Accuracy	Average error at normal temperature (5 °C ~ 35 °C): ±15 sec/month
Effective temperature range	−10 °C ~ 60 °C (14 °F ~ 140 °F)
Additional functions	• Automatic receiving function – Automatically receives radio wave at 2 o'clock in the midnight every even-number day of each month and at 4 o'clock in the morning every odd-number day to correct the time and date (EUR, UK, JPN mode). Date is not corrected, however, in JPN mode. • Forced receiving function – (EUR, UK, JPN modes) • Function to confirm receiving result – (EUR, UK, JPN mode) • Directivity check function – (EUR, UK, JPN, LTM mode) • One-touch summer time changing function – (EUR, UK, JPN, LTM mode) • Summer time monitor function – (EUR, UK, JPN, LTM mode) • Local time function – Time difference is corrected by 1 hour. Second hand and date cannot be corrected.
Power cell	280-206 (Power cell code CR2016)
Power cell lifetime	Approx. 2 years (Automatic receiving: 1 time/day, forced receiving: 1 time/week, alarm: 1 time/day)

* The power cell lifetime depends on the using frequency of each function.
<The specifications are subject to change without prior notice for product improvement.>

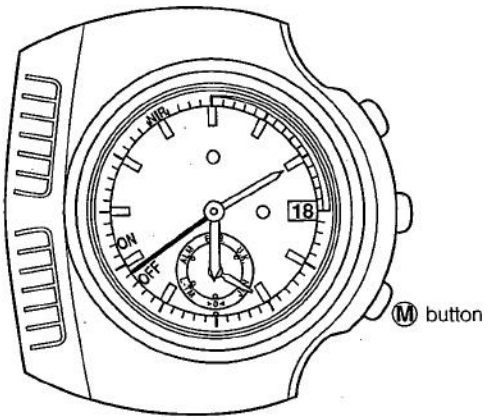
§2. CONCRETE USAGE OF THIS WATCH

The basic functions of this watch will be explained below so that you will easily understand how to use it.

(1) See in which receiving area of Europe, United Kingdom and Japan you are now, then select the corresponding mode.

For the detail, see "How to change the mode". For the areas where receiving is possible, see "Rough borders of areas where receiving is possible".

For example, if you are in Japan, press the Ⓜ button to select the JPN mode.



(2) Find out a place where you can receive the radio wave easily.

For higher efficiency of the receiving functions of this watch, set its antenna in the direction to receive the radio wave the most efficiently.

For convenience, you should find a place in your house at which your watch can receive the radio wave efficiently.

For the detail, see "Receiving functions of this watch".

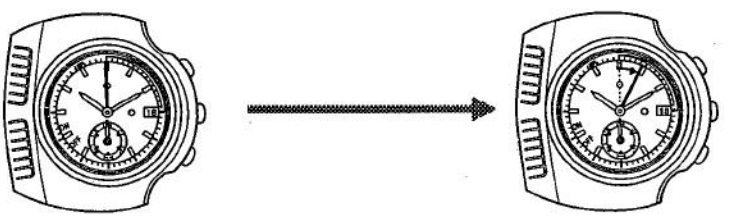
For example,

It is difficult to receive the radio wave in a metal box or near an electric device which blocks the radio wave.

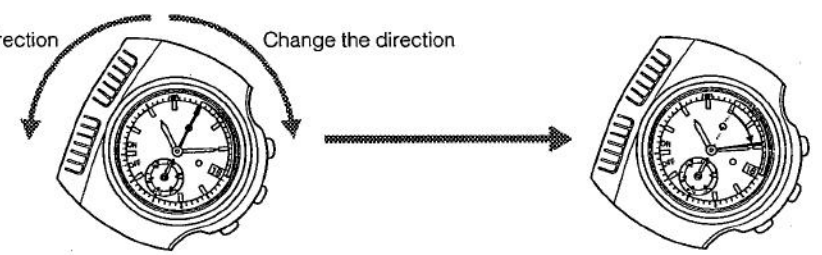
You should receive the radio wave by a window near which there are less electric devices.

Find out the best place to receive the radio wave by using the "directivity check function".

Do not widely change the direction of the antenna while receiving, for stable receiving.



Turn on the forced receiving function several times with the watch in different directions to find out a place and a direction of the antenna at which the second hand moves the most widely.



- After the directivity check function is executed, if the receiving condition is stabilized, the LED flashes at the interval of 3 seconds.
  After the receiving is stabilized, it may become unstable and receiving may be stopped for some reasons.
  In this case, find out a place again where the radio wave can be received efficiently.
- In a place where the radio wave cannot be received at all, even the directivity check function does not work and receiving is turned off.

(3) How to set the time every day

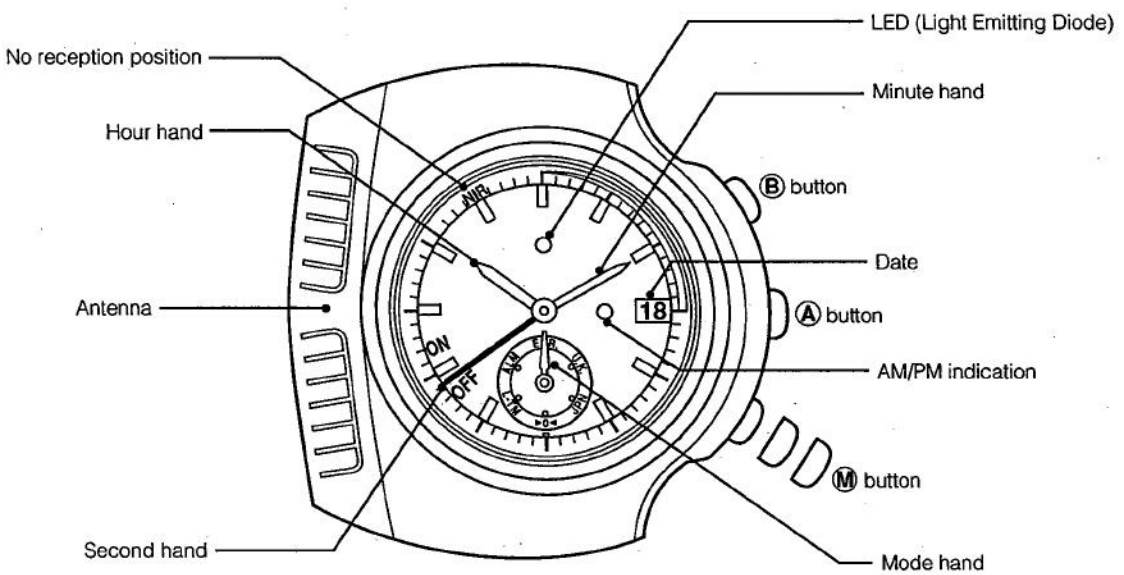
No particular operation is required. This watch receives the radio wave automatically once a day, at midnight or early morning to set the time. For this purpose, place the watch in the place to receive the radio wave efficiently which was found out in (2) above.

For the detail, see "automatic receiving function".

Even if the watch cannot receive the radio wave at the automatic receiving time, you can receive the radio wave in a better place.

For the detail, see "forced receiving function".

§3. NAME OF EACH PART

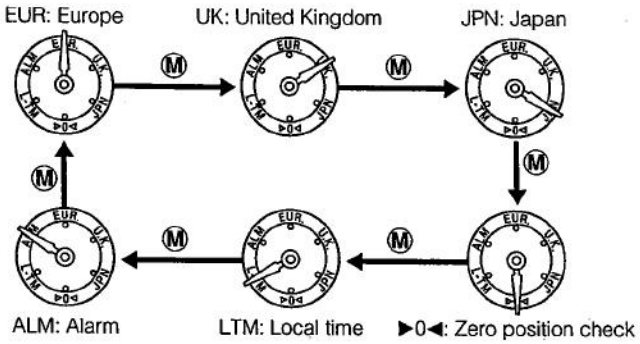


§4. HOW TO CHANGE THE MODE

This watch has six functions, each of which is selected with the push button.

How to use

(1) The functions can be switched by pressing the Ⓜ button in the following sequence.



§5. RECEIVING FUNCTIONS OF THIS WATCH

1) Automatic receiving function

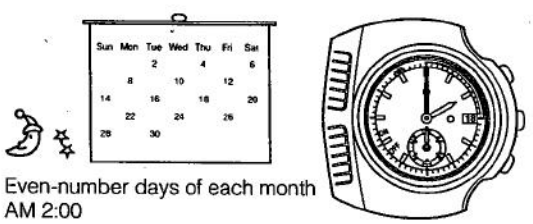
This watch sets itself to the correct time automatically.

This watch receives the radio wave to correct itself automatically at midnight or early morning when the radio wave is relatively stabilized.

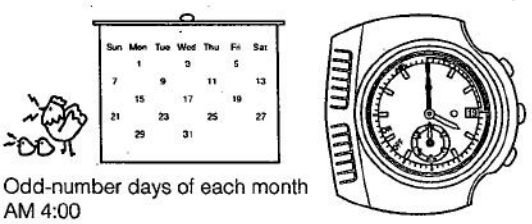
How to use

(1) This function is effective in the EUR, UK or JPN modes. Press the Ⓜ button to select the correct area.

(2) This watch automatically receives the radio wave at 2 o'clock in the midnight every even-number day of each month and at 4 o'clock in the early morning every odd-number day.



Even-number days of each month
AM 2:00

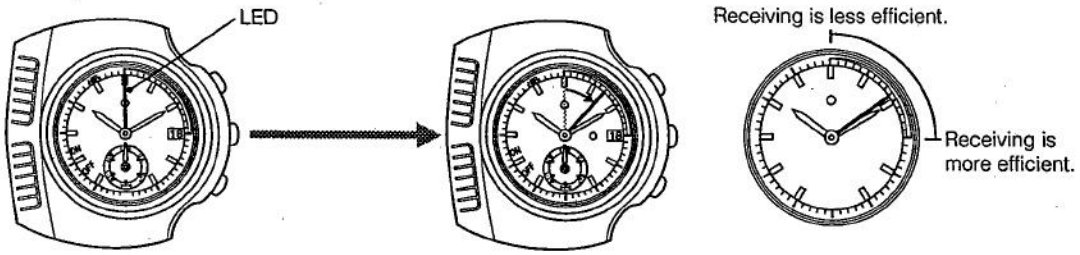


Odd-number days of each month
AM 4:00

(3) A while after the watch starts receiving, the "directivity check function" works. Then, the second hand stops at a position between 0 second and 15 seconds.
If the watch receives the radio wave more efficiently, the second hand moves to the right more.

* If the summer time changed to the winter time after it automatically received the radio wave, receive the radio wave again or correct the time manually.

Function to find out the most efficient direction for receiving – Directivity check function
It is necessary to set the antenna of this watch in the best direction for receiving the radio wave to use the receiving function the most efficiently.
This function is used to find out the best direction for receiving.



- After the receiving is stabilized, it may become unstable and receiving may be stopped for some reasons.
  In this case, find out a place again where the radio wave can be received efficiently.
- In a place where the radio wave cannot be received at all, even the directivity check function does not work and receiving is turned off.
- Do not widely change the direction of the antenna while receiving, for stable receiving.
- This watch takes 2 - 8 minutes to receive the radio wave each time. It indicates the time normally again after receiving is finished, regardless of the result of receiving.

(4) Find out the best place and direction to receive the radio wave with the forced receiving function in the daytime.

Then, place the watch on that place for secure receiving.

Even if the watch fails in receiving the radio wave, it indicates the time and calendar before it started receiving.

2) Forced receiving function

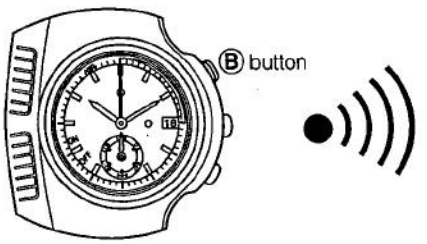
- Even if the watch failed in receiving the radio wave at the automatic receiving time, you can receive the radio wave in a better place.

How to use

(1) This function is effective in the EUR, UK or JPN modes. Press the Ⓜ button to select the correct area.

(2) Turn on the forced receiving function. Press and hold the Ⓑ button until a confirmation pip sound comes out, then release it.

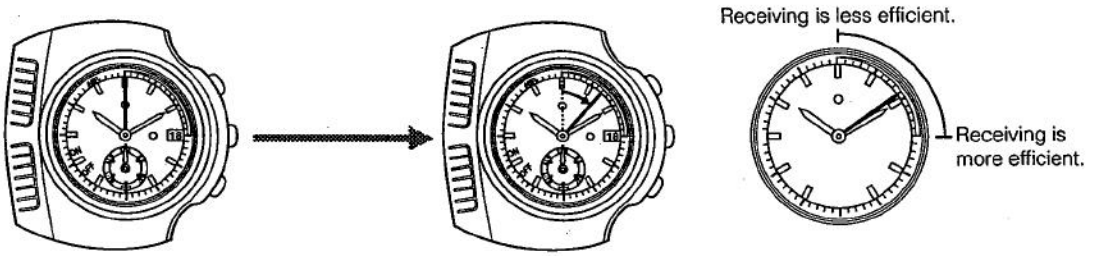
The second hand stops at the 0 second position.



(3) A while after the watch starts receiving, the "directivity check function" works as in the forced receiving operation. Then, the second hand stops at a position between 0 second and 15 seconds.

If the watch receives the radio wave more efficiently, the second hand moves to the right more.

Directivity check function
It is necessary to set the antenna of this watch in the best direction for receiving the radio wave to use the receiving function the most efficiently.
This function is used to find out the best direction for receiving.



- After the directivity check function is executed, if the receiving condition is stabilized, the LED flashes at the interval of 3 seconds.
  After the receiving is stabilized, it may become unstable and receiving may be stopped for some reasons.
  In this case, find out a place again where the radio wave can be received efficiently.
- If receiving is finished normally, some confirmation pip sounds come out to notify finish of receiving.
- In a place where the radio wave cannot be received at all, even the directivity check function does not work and receiving is turned off. If the watch fails in receiving the radio wave, one confirmation pip sound comes out.
- Do not widely change the direction of the antenna while receiving, for stable receiving.
- This watch takes 2 - 8 minutes to receive the radio wave each time. It indicates the time normally again after receiving is finished, regardless of the result of receiving.

(4) Find out the best place and direction to receive the radio wave with the forced receiving function in the daytime.

Then, place the watch on that place for secure receiving.

Even if the watch fails in receiving the radio wave, it indicates the time and calendar before it started receiving.

3) Reset of receiving

- The automatic receiving or forced receiving operation in each receiving mode can be reset by changing the mode with the Ⓜ button or by pressing and holding any button for 1 second.

4) Function to confirm receiving result

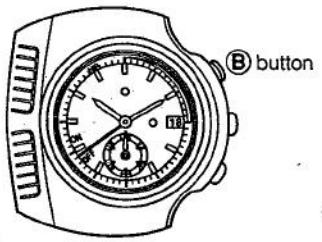
- The results of the latest automatic receiving and forced receiving can be confirmed.

How to use

(1) The receiving results can be confirmed only in the EUR, UK or JPN mode.

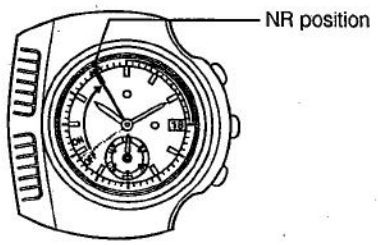
(2) Press the Ⓑ button.

②



(3) If receiving failed, the second hand indicates NR.
NR: No Reception

③



If receiving succeeded, the second hand is between 0 second and 15 seconds and the result of the directivity check is indicated and the LED flashes.

5) Precautions for receiving in Japan

- This watch receives the Japanese standard time radio wave transmitted from an experimental station by the General Communication Study Institute of the Ministry of Posts and Telecommunications for experiments. Accordingly, it is not assured that this radio wave will be transmitted permanently as it is.

  Even if the above radio wave is stopped or its form or contents are changed in the future, however, this watch can be used as a common quartz watch (Accuracy: 15 sec/month). Since this watch can receive the standard time radio waves of the Middle Europe and United Kingdom, it can be used as a radio wave watch in those areas.

Precautions for receiving

The Japanese standard time radio wave can be received basically at any time through 24 hours. It cannot be received, however, for 1 minute each after 15 minutes and 45 minutes after every hour because of transmission of JG2AS call sign. In addition, it is interrupted occasionally since it is transmitted from the experimental station.

When the standard time radio wave is received in Japan, this watch is set to the correct time but its calendar is not set. Accordingly, set the calendar manually. If the watch is set by receiving the radio wave or by manual operation in another receiving area, however, the calendar is set automatically.

6) Places where receiving is difficult

Avoid receiving the radio wave in a place where the watch may receive radio wave noises. To be concrete, the watch may not receive the radio wave normally.

① In a building or between buildings

② In a car, train or airplane

③ Near high-tension lines or train line

④ Near electric appliances in your home or an office, such as a television, refrigerator, personal computer, facsimile, etc.

Do not receive the radio wave in the above places.

7) Rough borders of areas where receiving is possible

The rough borders of the areas where this watch can receive the standard time radio wave are shown in the following table. They depend on the time and season, however.

Receiving mode	Standard time radio wave transmitting station	Address of transmitting station	Rough borders of areas where receiving is possible
EUR (Middle Europe)	DCF77	MAINFLINGEN, Germany (25 km South east of Frankfurt)	Radius of 900 km (Radio wave may not be received normally near the Lake Léman.)
UK (United Kingdom)	MSF	RUGBY, United Kingdom	Radius of 500 km
JPN (Japan)	JG2AS	Sanwa-cho, Ibaragi-ken	Radius of 500 km

8) Tips for receiving satisfactorily

Since the radio wave is blocked by metallic items, receive it by a window when in a reinforced concrete building.
Do not widely change the direction of the antenna while receiving, for stable receiving.

(Example)

For automatic receiving: Place the watch on a place where the receiving condition seems better before going to bed.

For forced receiving: Take off the watch or keep its antenna in one direction while receiving the radio wave.

§6. SUMMER TIME FUNCTION

This watch can be set for the summer time in the EUR, UK, JPN and LTM modes.

Summer time monitor

- This function is used to see if the watch is set for summer time at present.

(1) Press the Ⓐ button in the EUR, UK, JPN or LTM mode.

(Meaning of flash of LED)

LED flashes once: The watch is indicating the standard time.
LED flashes twice: The watch is indicating the summer time.

How to set for summer time

(1) Press the Ⓜ button to select EUR, UK, JPN or LTM mode to be set for the summer time.

(2) Press and hold the Ⓐ button for 2 seconds, then release it. At this time, the LED flashes once or twice and the summer time is set or reset.

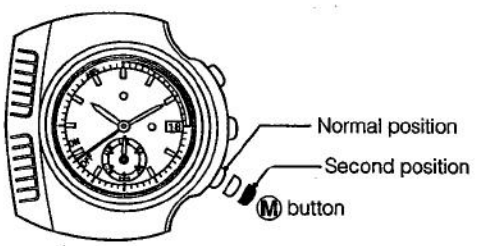
(Meaning of flash of LED)
LED flashes once: The watch is set for the summer time.
LED flashes twice: The watch is set for the standard time.

§7. MANUAL TIME CORRECTION METHOD

This watch can be set to the correct time manually, even if it cannot receive the radio wave.

How to set time

(1) Pull out the Ⓜ button to the second position. ①

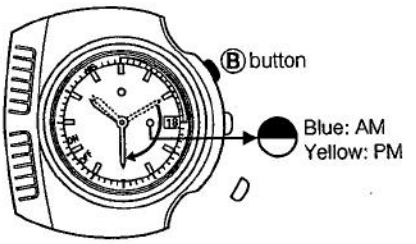


(2) Press the Ⓐ button to set the second hand. ②

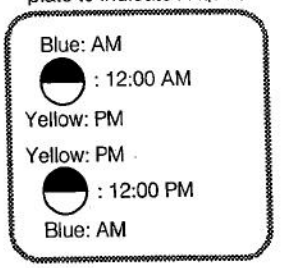
(3) Press the Ⓑ button to set the hour and minute hands.

- The hour and minute hands can be turned clockwise (to the right) only.
- When setting the time, take care of the picture plate to indicate AM/PM.

③



* How to read picture plate to indicate AM/PM



(4) After setting the time, push in the Ⓜ button to the normal position.

§8. MANUAL CALENDAR CORRECTION METHOD

The calendar of this watch can be set manually, even if it cannot receive the radio wave.

How to set calendar

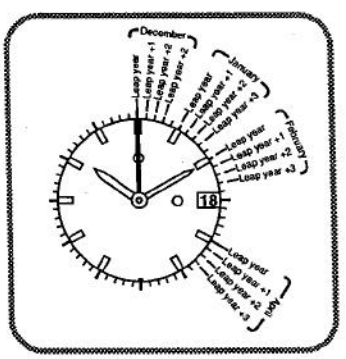
(1) Pull out the Ⓜ button to the first position.

①

(2) Press the Ⓐ button to set the watch to the number of years after the last leap year.

- Referring to the figure below, set the second hand to the position of the number of years after the last leap year in the section of the current month.

Example
If it is December of a leap year, set the second hand to the 12 o'clock position.

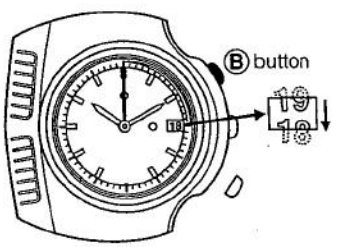


②

(3) Press the Ⓑ button to set the date.

- The calendar can be turned clockwise (to the right) only.

③



(4) After setting the calendar, push in the Ⓜ button to the normal position.

§9. HOW TO USE LOCAL TIME

This watch can be set to the times of the three areas (EUR/UK/JPN) and one additional local time. In the local time mode, however, the standard time radio wave cannot be received.

The time difference of the local time can be set by 1 hour.

How to use the local time watch

(1) Press the Ⓜ button to set the watch in the LTM mode.

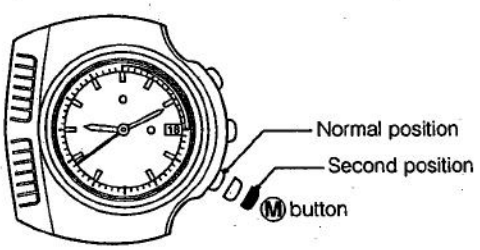
①

How to set local time

(1) Press the Ⓜ button to set the watch to the LTM mode.

(2) Pull out the Ⓜ button to the second position.

②

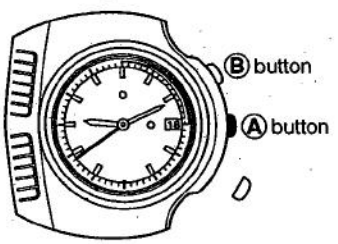


(3) Press the Ⓐ button to set the hour and minute hands counterclockwise (to the left).

Press the Ⓑ button to set the hour and minute hands clockwise (to the right).

- The time is corrected by 1 hour in the local time mode.
- The second hand and calendar cannot be corrected.

③



(4) After setting the local time, push in the Ⓜ button to the normal position.

§10. HOW TO USE THE ALARM

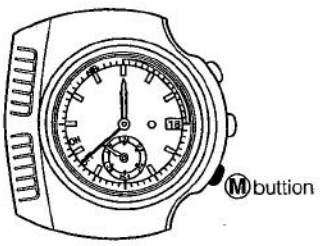
If this alarm is set, it sounds for about 15 seconds at the set time every day. Accordingly, you can use this watch as an alarm watch.

The alarm sounds at the time of the indicated area.

How to set the alarm

(1) Press the Ⓜ button to set the watch to the ALM mode.

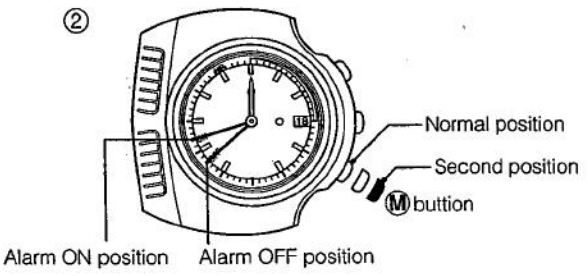
①



(2) Pull out the Ⓜ button to the second position.

- If the Ⓜ button is pulled out, the alarm is automatically turned on.

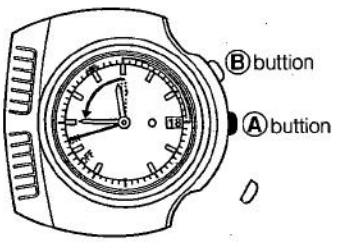
②



(3) Press the Ⓐ button to set the hour and minute hands counterclockwise.

Press the Ⓑ button to set the hour and minute hands clockwise.
When setting the alarm time, take care of the picture plate to indicate AM/PM.

③

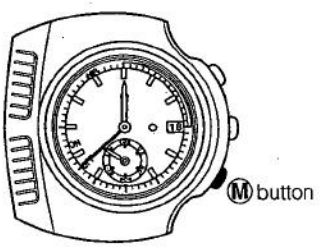


(4) After setting the alarm, push in the Ⓜ button to the normal position.

How to reset the alarm

(1) Press the Ⓜ button to set the watch to the ALM mode.

①

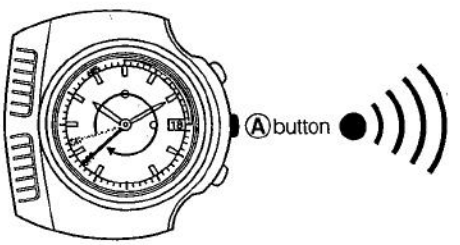


(2) Press the Ⓐ button, and the confirmation pip sound comes out and the second hand is changed from ON to OFF indication, and the alarm is reset.

If the Ⓐ button is pressed again, the alarm is turned on.

- The alarm can be turned ON and OFF while the hour and minute hands are moving for a change the mode.

②



§11. ZERO POSITION CHECK MODE

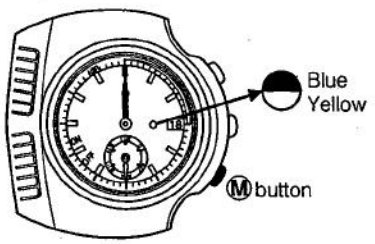
After the power cell is replaced or a large shock is given to the watch, be sure to check the standard positions of the hands (zero position) in this mode.

How to check

(1) Press the Ⓜ button to set the watch to the ▶0◀ mode.

- Confirm that each hand, picture plate and date dial are at the following positions.

• Second hand: 0 second • Hour and minute hands and picture plate of AM/PM interlocked with them: 12: 00 AM • Date dial: Mark of ◀



(2) If each hand is at the normal position, set the time and calendar by hand or by receiving the radio wave.

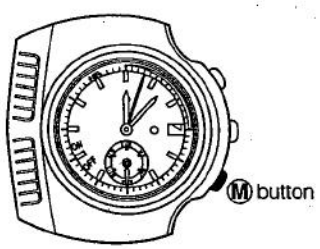
— If the watch is not at the zero position, correct it by the method described below. —

How to set the watch to the zero position

If the watch is not at the zero position when it is checked for the zero position, correct it according to the following procedure.

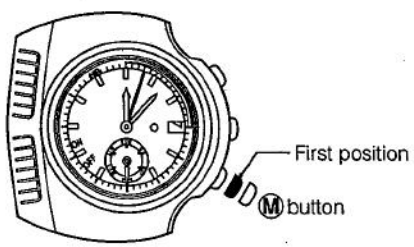
(1) Press the Ⓜ button to set the watch to the ▶0◀ mode.

①



(2) Pull out the Ⓜ button to the first position.

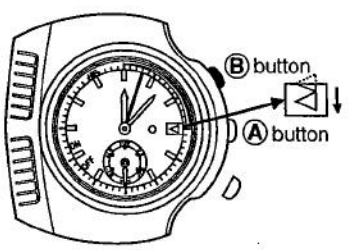
②



(3) Press the Ⓐ button to set the date dial counterclockwise to the zero position.

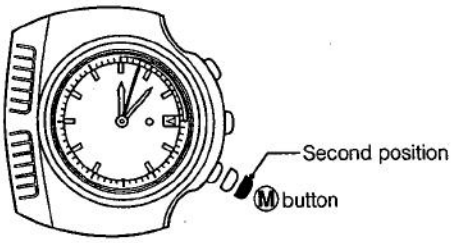
Press the Ⓑ button to set the date dial clockwise to the zero position.

③



(4) Pull out the Ⓜ button to the second position.

④



(5) Press the Ⓐ button to set the second hand to the zero position.

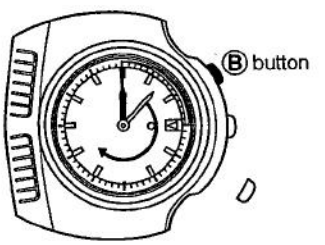
- The second hand can be turned clockwise (to the right) only.

⑤

(6) Press the Ⓑ button to set the hour and minute hands to the zero position.

- The hour and minute hands can be turned clockwise (to the right) only.

⑥



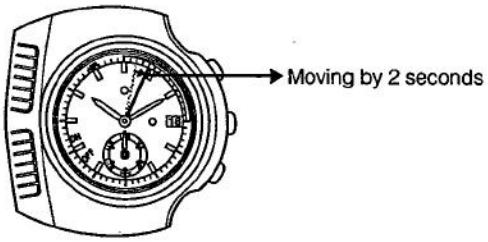
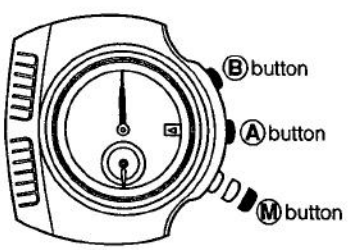
(7) After setting the watch to the zero position, push in the Ⓜ button to the normal position.

After the above setting, press the Ⓜ button to set the watch to a desired area mode, then perform the forced receiving.

If you are in a place where you can receive the standard time radio wave, the watch indicates the present time and date several minutes after.

If you are in Japan, however, the date is not set automatically.

If you are in a place where you cannot receive the radio wave, set the time and calendar by hand.

Trouble	Checkpoints	Countermeasures
The watch does not receive radio wave.	See if the second hand moves as shown below.  	If the second hand moves as shown at left, the power cell is almost dead. Consult the shop from which you bought your watch or a shop which sells CITIZEN quartz watches.
Radio wave cannot be received.	• Is the correct area mode selected? • Are you in the area where receiving is possible?	• Press the Ⓜ button to select the correct area mode. • See "Rough borders of areas where receiving is possible" in this manual.
Radio wave cannot be received (in a place where it was received before).	• Check for items which block radio wave or generate noises.	• See "places where receiving is difficult" and "tips for receiving satisfactorily" in this manual. • Check for change of receiving condition caused by change of arrangement of furniture, etc.
The watch received radio wave but does not indicate the correct time.	• See if each hand is at the zero position in the zero position check mode. • Check for items which block radio wave or generate noises. • See if you are on a border of the area where receiving is possible.	• Set each hand to the zero position in the zero position check mode explained in this manual. • See "places where receiving is difficult" and try again to receive radio wave.
The watch moves or indicates abnormally.	• The hands dose not stop moving. • The watch stopped without any symptom. • Push buttons do not work. • The watch moves abnormally (Except movement of the second hand for notifying the power cell lifetime).  	(1) Press the Ⓜ button to set to ▶0◀ mode. (2) Pull out the Ⓜ button to the second position. (3) Press and hold the Ⓐ and Ⓑ buttons simultaneously for 2 seconds, then release them. (4) Return the Ⓜ button to the normal position. A confirmation sound comes out and the LED flashes once. Then, the hour, minute, second and date dial move for demonstration (All-reset operation is finished). **Precaution !** After the above operation, set each hand to the zero position, then set the time and calendar.