MO0901-EA

CASIO®

Module No. 4390

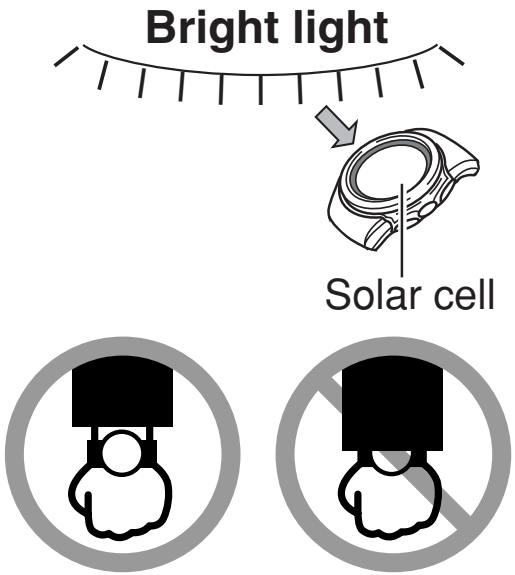
Getting Acquainted

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to read this manual carefully.

- Be sure to keep all user documentation handy for future reference.

- **This watch does not have a city code that corresponds to the UTC offset of –3.5 hours. Because of this, the radio-controlled atomic timekeeping function will not display the correct time for Newfoundland, Canada.**

Keep the watch exposed to bright light

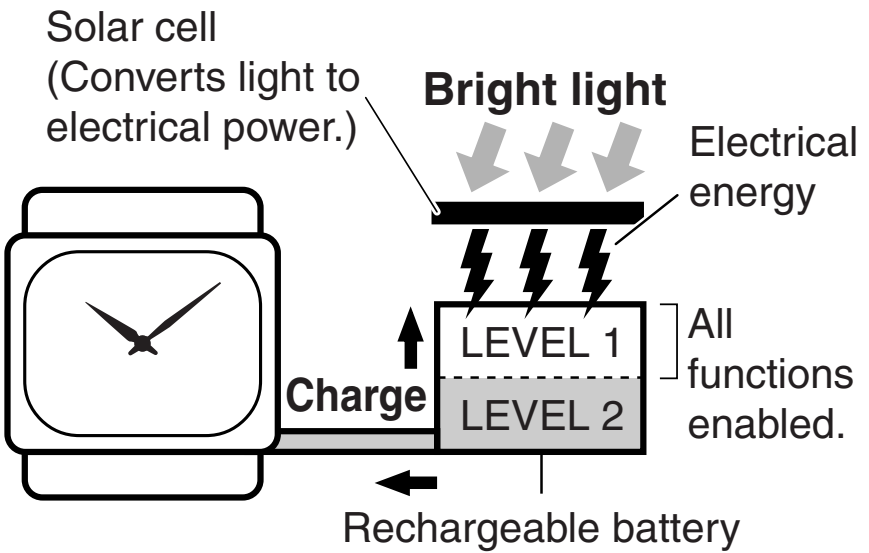


The electricity generated by the solar cell of the watch is stored by a built-in battery. Leaving or using the watch where it is not exposed to light causes the battery to run down. Make sure the watch is exposed to light as much as possible.

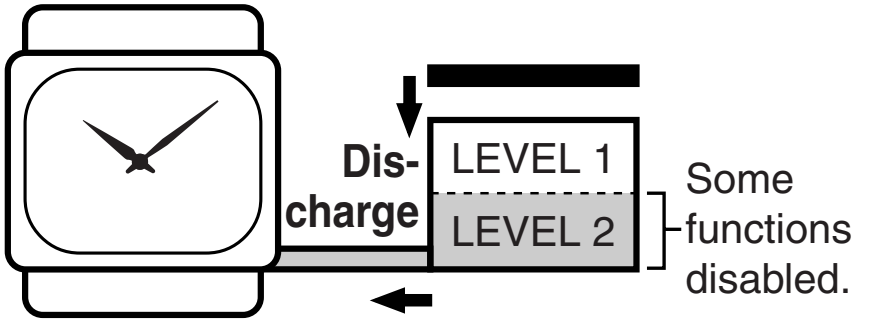
- When you are not wearing the watch on your wrist, position the face so it is pointed at a source of bright light.
- You should try to keep the watch outside of your sleeve as much as possible. Even if the face of the watch is blocked only partially from light, charging will be reduced significantly.

- The watch continues to operate, even when it is not exposed to light. Leaving the watch in the dark can cause the battery to run down, which will result in some watch functions to be disabled. If the battery goes dead, you will have to re-configure watch settings after recharging. To ensure normal watch operation, be sure to keep it exposed to light as much as possible.

Battery charges in the light.



Battery discharges in the dark.



- The actual level at which some functions are disabled depends on the watch model.
- **Be sure to read “Power Supply” (page E-47) for important information you need to know when exposing the watch to bright light.**

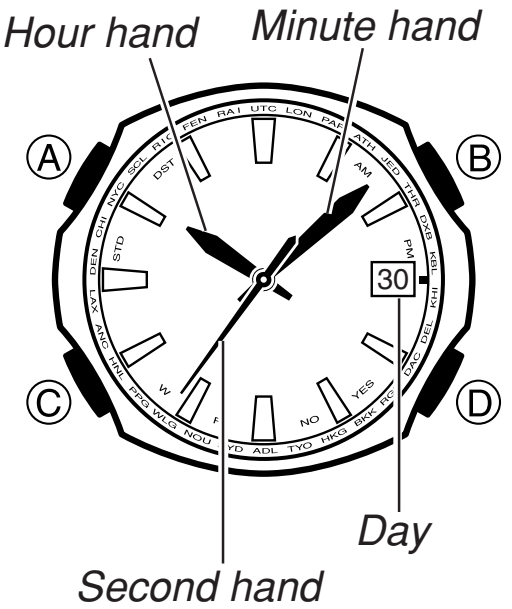
If the analog hands aren’t moving...

If the analog hands aren’t moving, it means that the power saving mode has stopped them to save battery power.

- **See “Power Saving” (page E-56) for more information.**
- The hands also stop when the watch’s battery runs down.

Note that CASIO COMPUTER CO., LTD. assumes no responsibility for any damage or loss suffered by you or any third party arising through the use of this product or its malfunction.

About This Manual



- Button operations are indicated using the letters shown in the illustration.
- Each section of this manual provides you with the information you need in order to perform operations in each mode. Further details and technical information can be found in the “Reference” section.
- To ensure that this watch provides you with the years of service for which it is designed, be sure to carefully read and follow the instructions under “Operating Precautions” and “User Maintenance”.

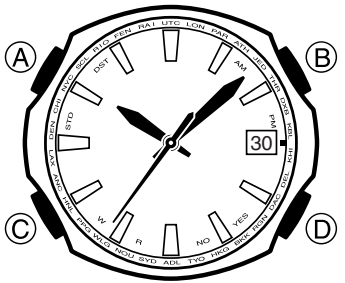
Contents

Procedure Lookup

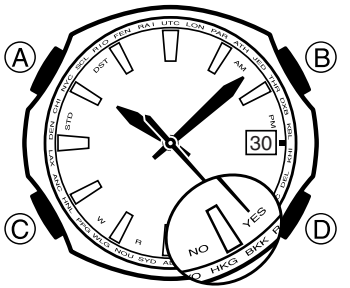
The following is a handy reference list of all the operational procedures contained in this manual.

General Guide

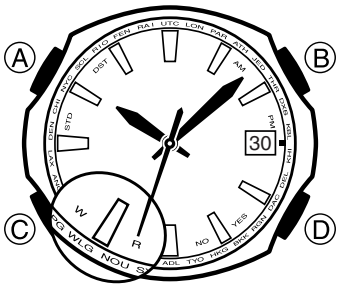
Timekeeping Mode



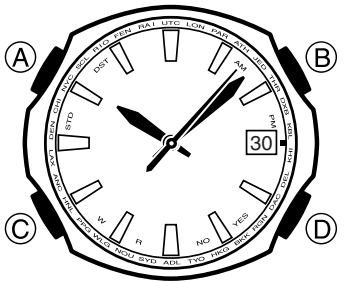
Receive Status Check (page E-30)

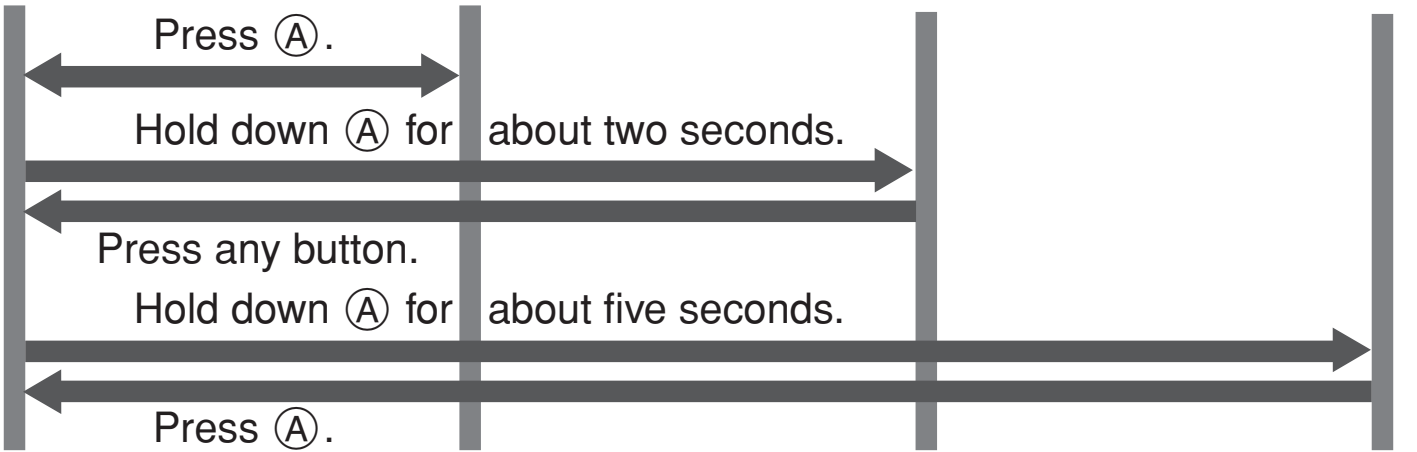


Manual Receive (page E-28)



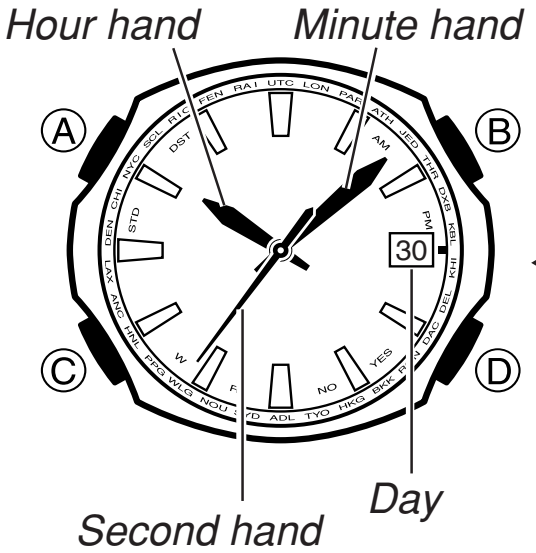
Setting Mode (pages E-12, E-44)





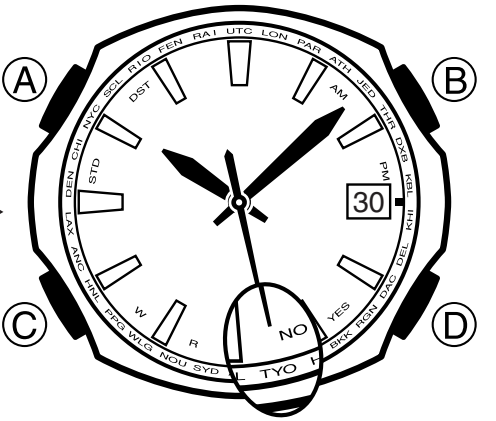
- Press Ⓒ to change the mode.
- Except while the watch is performing auto hand home position correction, holding down Ⓒ for about two seconds will return directly to the Timekeeping Mode.

Timekeeping Mode



Press Ⓒ.

World Time Mode
(page E-33)



Timekeeping Mode Operations

- To check the current Home City setting by pressing Ⓓ (page E-12)
- To check the latest signal reception results by pressing Ⓐ (page E-30)

Radio-controlled Atomic Timekeeping

This watch receives a time calibration signal and updates its time setting accordingly.

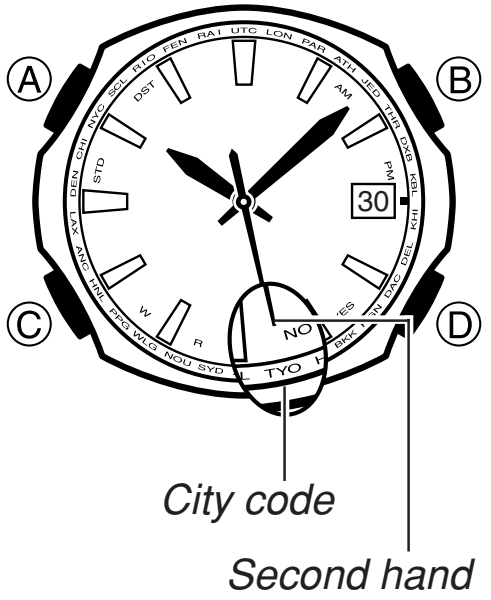
- Supported time calibration signals: Germany (Mainflingen), England (Anthorn), United States (Fort Collins), China (Shangqiu), and Japan (Fukushima or Fukuoka/Saga)
- See the information under “Signal Reception Troubleshooting” (page E-31) if you experience problems with time calibration signal reception.

Current Time Setting

This watch adjusts its time setting automatically in accordance with a time calibration signal. You also can perform a manual procedure to set the time and date, when necessary.

- **The first thing you should do after purchasing this watch is to specify your Home City, which is the city where you normally will use the watch. For more information, see “To specify your Home City” on page E-12.**
- When using the watch outside the areas covered by the time signal transmitters, you will have to adjust the current time setting manually as required. See “Configuring Time and Date Settings Manually” (page E-37) for more information about manual time settings.

To specify your Home City



1. Press Ⓒ to enter the World Time Mode.
2. Use Ⓓ to move the second hand clockwise to the city code you want to use as your Home City.
   - Note that it can take as long as one minute for the hands to move to the applicable time.
   - All operations except for the following are disabled while the watch's hands are moving to the current time for a newly selected city code.
     Ⓓ: City selection
     Ⓒ: Timekeeping Mode
   - For information about the Home City, see "Home City Codes and Transmitters" (page E-14). The watch will receive the time calibration signal of the transmitter of the selected city code.

3. Hold down Ⓐ for about two seconds to toggle the current Home City between standard time (STD) and daylight saving time (DST).
   - See “To change the STD/DST setting of a particular city code” (page E-35) for details.
4. After the settings are the way you want, hold down Ⓑ for about three seconds until the watch returns to the Timekeeping Mode.

- As you hold down Ⓑ, the second hand will move to either **AM** or **PM**, and then the watch will enter the Timekeeping Mode.
- Normally, your watch should show the correct time as soon as you specify your Home City code. If it does not, it should adjust automatically after the next auto receive operation. You also can perform manual receive (page E-28) or you can set the time manually (page E-37).
- Even if the time calibration signal is received correctly, there are some times when the analog hands may not indicate the correct time. If this happens, use the procedures under “Auto Hand Home Position Correction” (page E-41) to check the home positions of the hands, and make adjustments as required.

To check the current Home City STD/DST setting

1. In the Timekeeping Mode, press Ⓓ. This will cause the second hand to move to the current Home City setting.
2. The second hand will move to either **STD** (standard time) or **DST** (daylight saving time) after about two seconds or if you press Ⓓ.
3. The watch will return to the Timekeeping Mode after about two seconds or if you press Ⓓ.

Home City Codes and Transmitters

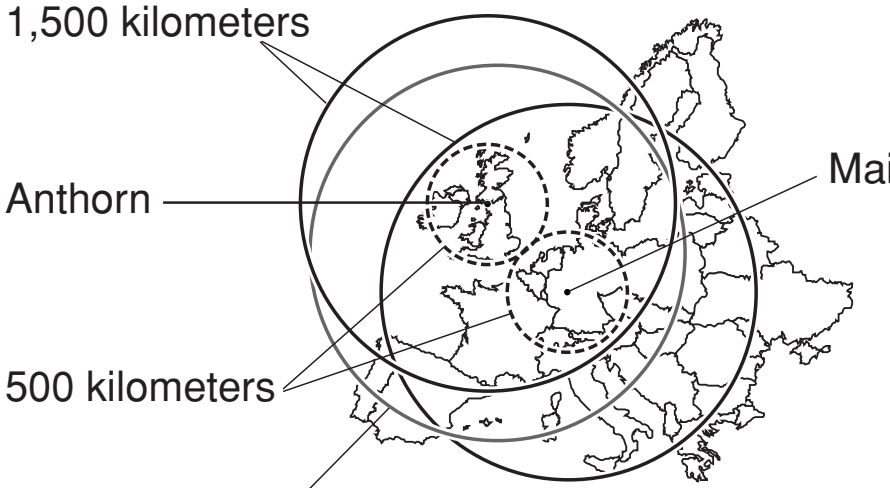
- The time calibration signal the watch will attempt to pick up depends on its current Home City code setting as shown below. If you use the watch in Japan or Europe (each of which has two different transmitter locations), it will try to receive the time calibration signal from one of the transmitters in your current location. If it cannot receive the signal, it will then try to receive the time calibration signal from the other transmitter.

Home City Code	Transmitter	Frequency
LON: London **PAR:** Paris **ATH:** Athens	German/U.K. Signals Anthorn (England) Mainflingen (Germany)	60.0 kHz 77.5 kHz
HKG: Hong Kong	China Signal Shangqiu City (China)	68.5 kHz
TYO: Tokyo	Japan Signals Fukushima (Japan) Fukuoka/Saga (Japan)	40.0 kHz 60.0 kHz
(HNL): Honolulu **(ANC):** Anchorage **LAX:** Los Angeles **DEN:** Denver **CHI:** Chicago **NYC:** New York	U.S. Signal Fort Collins, Colorado (the United States)	60.0 kHz

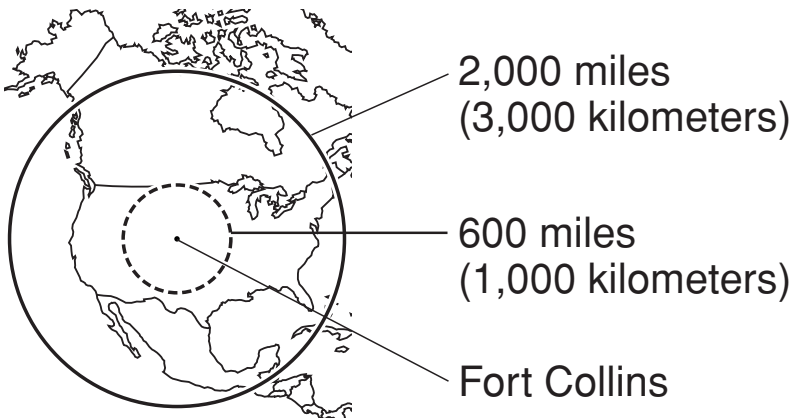
- City codes in parentheses indicate areas where reception may be possible only when conditions are good.
- For full information on city codes, see the “City Code Table” at the back of this manual.
- In addition to the above, you also can select city codes that are outside the ranges of the time calibration signal transmitters supported by this watch.
- Note that this watch does not have a city code that corresponds to Newfoundland.
- The U.S. time calibration signal can be picked up by the watch while in North America. The term “North America” in this manual refers to the area that consists of Canada, the continental United States, and Mexico.

Approximate Reception Ranges

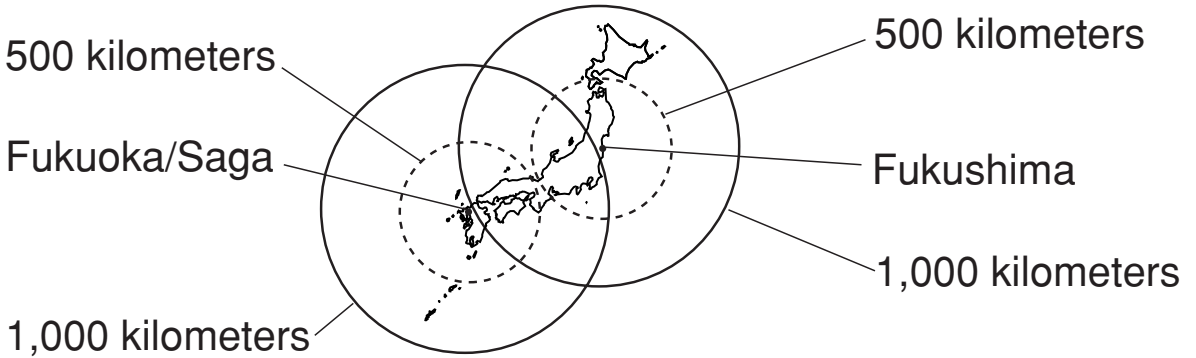
U.K. and German Signals



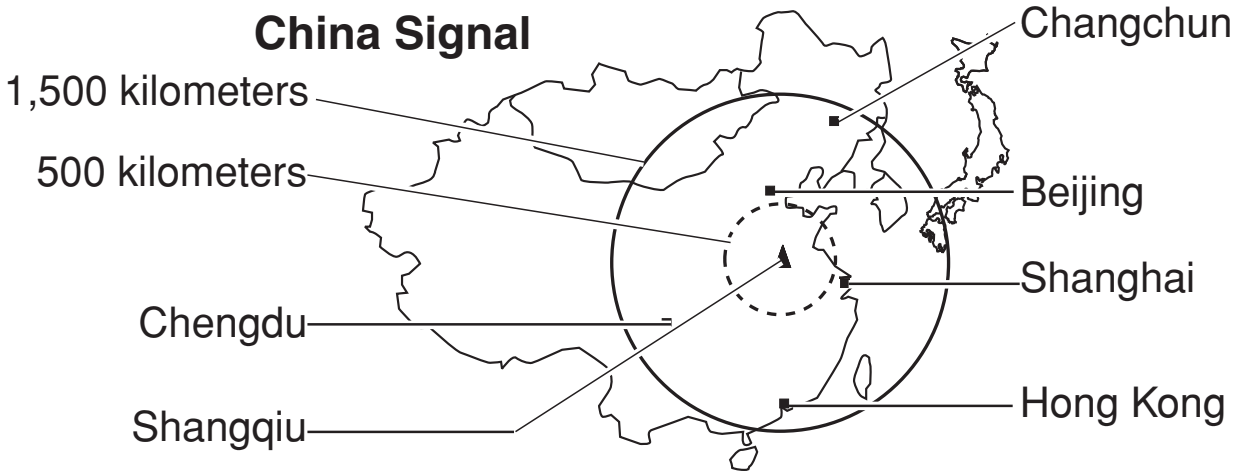
U.S. Signal



Japan Signals



China Signal



- Signal reception may not be possible up to the distances noted below during certain times of the year or day. Radio interference may also cause problems with reception.
  Mainflingen (Germany) or Anthorn (England) transmitters: 500 kilometers (310 miles)
  Fort Collins (United States) transmitter: 600 miles (1,000 kilometers)
  Fukushima or Fukuoka/Saga (Japan) transmitters: 500 kilometers (310 miles)
  Shangqiu (China) transmitter: 500 kilometers (310 miles)
- Even when the watch is within the reception range of the transmitter, signal reception will be impossible if the signal is blocked by mountains or other geological formations between the watch and signal source.
- Signal reception is affected by weather, atmospheric conditions, and seasonal changes.
- See the information under “Signal Reception Troubleshooting” (page E-31) if you experience problems with time calibration signal reception.

Daylight Saving Time (DST)

Daylight Saving Time (summer time) advances the time setting by one hour from Standard Time. Remember that not all countries or even local areas use Daylight Saving Time.

- Note that the start and end of daylight saving time, and whether it is used at all depends on each country and geographic area.
- You can check the current DST setting, which is indicated by the second hand, for your Home City (page E-12) or any World Time City (page E-33).

When the second hand points here:	It indicates this:
STD	Standard time
DST	Daylight saving time

- The watch will adjust the DST setting automatically when it receives a time calibration signal while any one of the following city codes is selected as the Home City.
  LON, PAR, ATH, TYO, ANC, LAX, DEN, CHI, NYC

- The watch will not adjust the DST setting automatically while either of following city codes is selected as the Home City. In this case, you will need to change between standard time and daylight saving time manually.
  HKG, HNL
- As of June 2008, China does not use Daylight Saving Time (DST). If China does go to the Daylight Saving Time system in the future, some functions of this watch may no longer operate correctly.
- If you experience problems receiving the time calibration signal in your area, it probably is best to switch between Standard Time and Daylight Saving Time (summer time) manually.

Time Calibration Signal Reception

There are two different methods you can use to receive the time calibration signal: auto receive and manual receive.

- **Auto Receive**

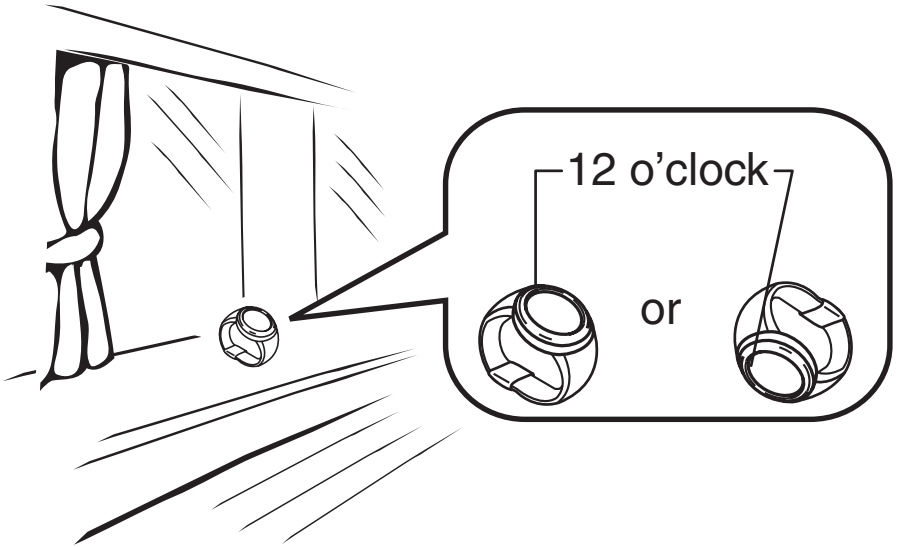
With auto receive, the watch receives the time calibration signal automatically up to six times a day (five times for the China signal). When any auto receive is successful, the remaining auto receive operations are not performed. For more information, see “About Auto Receive” (page E-25).

- **Manual Receive**

Manual receive lets you start a time calibration receive operation with the press of a button. For more information, see “To perform manual receive” (page E-28).

Important!

- When getting ready to receive the time calibration signal, position the watch as shown in the nearby illustration, with its 12 o’clock side facing towards a window. This watch is designed to receive a time calibration signal late at night. Because of this, you should place the watch near a window as shown in the illustration when you take it off at night. Make sure there are no metal objects nearby.



- Make sure the watch is facing the right way.

- Proper signal reception can be difficult or even impossible under the conditions listed below.

Inside or among buildings

Inside a vehicle

Near household appliances, office equipment, or a mobile phone

Near a construction site, airport, or other sources of electrical noise

Near high-tension power lines

Among or behind mountains

- Signal reception normally is better at night than during the day.
- Time calibration signal reception takes from two to seven minutes, but in some cases it can take as long as 14 minutes. Take care that you do not perform any button operations or move the watch during this time.

About Auto Receive

The watch receives the time calibration signal automatically up to six times a day (five times for the China signal). When any auto receive is successful, the remaining auto receive operations are not performed. The reception schedule (calibration times) depends on your currently selected Home City, and whether standard time or Daylight Saving Time is selected for your Home City.

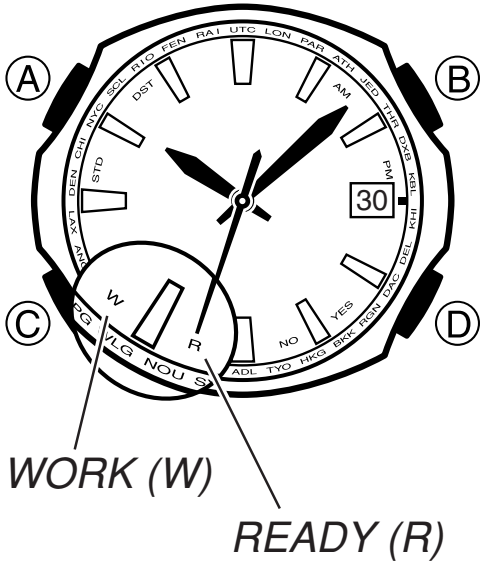
Your Home City		Auto Receive Start Times					
		1	2	3	4	5	6
LON	Standard Time	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am	Midnight*
	Daylight Saving Time	2:00 am	3:00 am	4:00 am	5:00 am	Midnight*	1:00 am*
PAR	Standard Time	2:00 am	3:00 am	4:00 am	5:00 am	Midnight*	1:00 am*
	Daylight Saving Time	3:00 am	4:00 am	5:00 am	Midnight*	1:00 am*	2:00 am*
ATH	Standard Time	3:00 am	4:00 am	5:00 am	Midnight*	1:00 am*	2:00 am*
	Daylight Saving Time	4:00 am	5:00 am	Midnight*	1:00 am*	2:00 am*	3:00 am*
TYO	Standard Time	Midnight	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am
HKG	Standard Time	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am	
HNL, ANC, LAX, DEN, CHI, NYC	Standard Time Daylight Saving Time	Midnight	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am

* Next day

Note

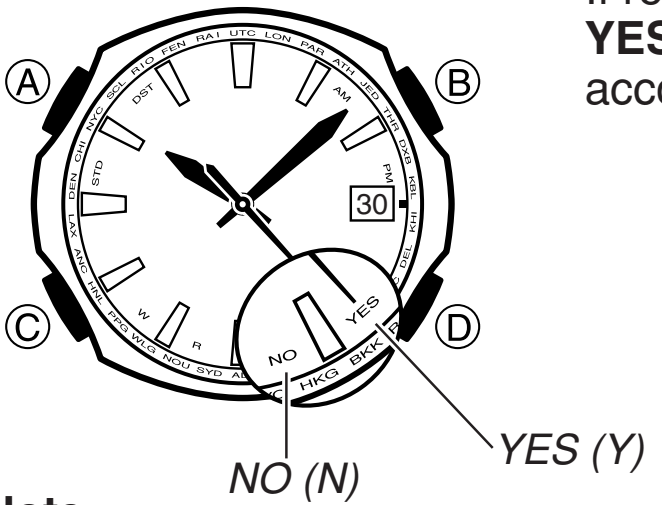
- When a calibration time is reached, the watch will receive the calibration signal only if it is in either the Timekeeping Mode or World Time Mode. Reception is not performed if a calibration time is reached while you are configuring settings.
- Auto receipt of the calibration signal is designed to be performed early in the morning, while you sleep (provided that the Timekeeping Mode time is set correctly). Before going to bed for the night, remove the watch from your wrist, and put it in a location where it can receive the signal easily.
- Remember that reception of the calibration signal depends on the current time in the Timekeeping Mode.

To perform manual receive



1. Place the watch on a stable surface so its 12 o'clock side is facing towards a window (page E-23).
2. In the Timekeeping Mode, hold down Ⓐ for about two seconds.
3. The second hand will move to **READY** (**R**) to indicate that the watch is setting up for time calibration reception.

- The second hand will move to **WORK** (**W**) and stay there while actual reception is in progress.
- If signal reception is unstable during reception, the second hand may move between **WORK** (**W**) and **READY** (**R**).
- The hour and minute hands continue to keep time normally.



- If reception is successful, the second hand will move to **YES** (**Y**), and the date and time settings will be adjusted accordingly. Normal timekeeping will resume after that.

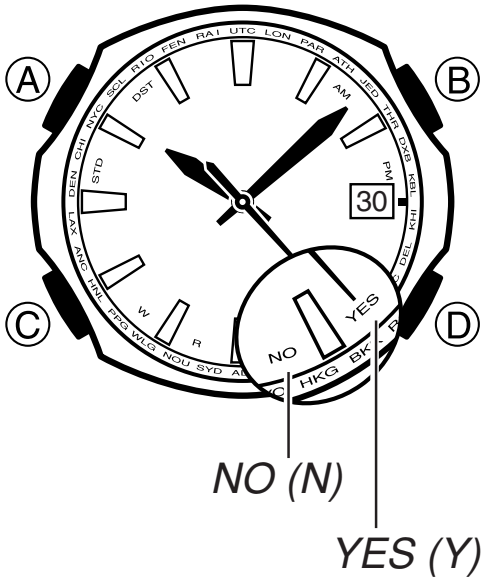
Note

- To interrupt a receive operation and return to the Timekeeping Mode, press any button.
- If reception is not successful, the second hand will move to **NO** (**N**). Five seconds later, the second hand will resume normal operation, without any adjustment of the hand setting.
- If the second hand is pointing to **YES** (**Y**) or **NO** (**N**), you can return to the Timekeeping Mode by pressing Ⓐ.

Viewing the Latest Signal Reception Results

You can use the procedure below to check whether or not the last signal receive operation was successful.

To check the latest signal reception results



In the Timekeeping Mode, press Ⓐ.

- If the watch was able to perform a successful signal receive operation since midnight, the second hand will move to **YES** (**Y**). If the watch has been unable to receive any signal successfully, the second hand will move to **NO** (**N**).
- The watch will return to the Timekeeping Mode after five seconds or when you press Ⓐ.
- The current receive result is cleared when the first auto receive operation is performed on the following day. This means **YES** (**Y**) indicates successful signal reception since the start of the current day.
- If you adjust the time or date setting manually, the second hand will move to **NO** (**N**).

Signal Reception Troubleshooting

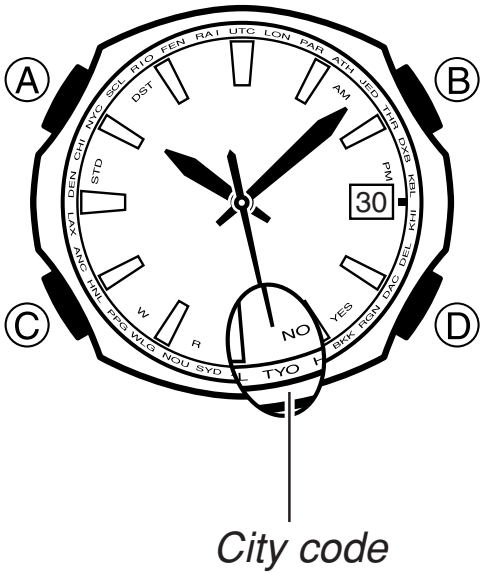
Check the following points whenever you experience problems with signal reception.

Problem	Probable Cause	What you should do
The second hand is pointing at **NO** (**N**).	• You changed the time setting manually. • You performed some button operation during the auto receive operation. • The watch is not in the Timekeeping Mode. • Signal reception results are reset when the first auto receive operation is performed on the following day. • Radio interference is often present during the day time, which can interfere with calibration signal reception.	• Perform manual signal receive at night or wait until the next auto signal receive operation is performed. • Enter the Timekeeping Mode and try again. • Check to make sure the watch is in a location where it can receive the signal (page E-23).

Problem	Probable Cause	What you should do
The time setting is incorrect following signal reception.	• The Home City setting is not correct for the area where you are using the watch. • The home position of the hands is off.	• Select the correct Home City (page E-12). • Enter the home position adjustment mode and adjust the home position (page E-41).

- For further information, see “Important!” (page E-23) and “Radio-controlled Atomic Timekeeping Precautions” (page E-54).

World Time



World time lets you display the current time in any one of 29 cities (29 time zones) around the world.

- If the current time is not correct, check your current Home City settings and make adjustments as required (page E-37).
- For full information on city codes, see the “City Code Table” at the back of this manual.

To search for a city

In the World Time Mode, press Ⓓ to move the second hand (which is pointing at the currently selected city code) clockwise.

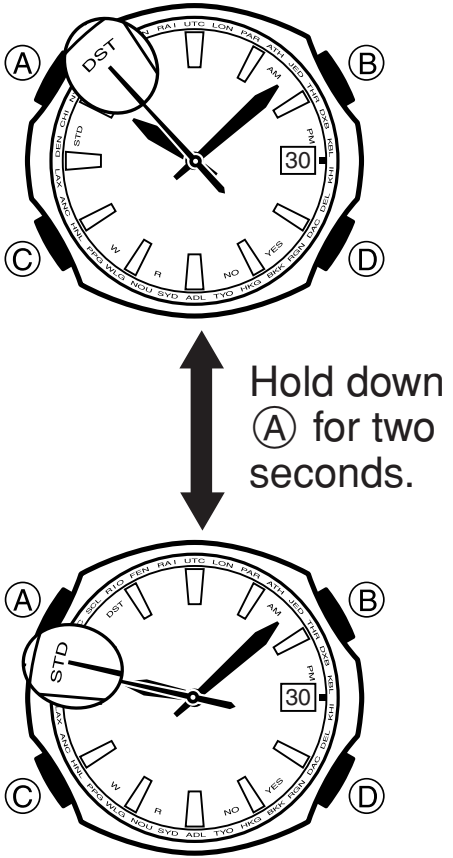
- About one second or so after you release Ⓓ, the hands of the watch will move to the current time in the zone of the city code indicated by the second hand.
- Note that it can take as long as one minute for the hands to move to the applicable time.
- All operations except for the following are disabled while the watch's hands are moving to the current time for a newly selected city code.
  Ⓓ: City selection
  Ⓒ: Timekeeping Mode

To check whether a time zone time is AM or PM

1. In the World Time Mode, use Ⓓ to select the city whose setting you want to check.
2. Press Ⓑ and the second hand will move to either **AM** or **PM**.

- The second hand will return to the city code you selected in step 1 after about five seconds or if you press Ⓑ again.

To change the STD/DST setting of a particular city code



1. In the World Time Mode, use Ⓓ to select the city whose setting you want to change.
2. Hold down Ⓐ for about two seconds to toggle between daylight saving time and standard time.

- Changing the setting will cause the second hand to move to **STD** or **DST**.
- The second hand will return to the city code you selected in step 1 after about five seconds or if you press Ⓐ again.
- If you want to configure other settings, wait until the second hand moves back to the city code before proceeding.
- You can select STD or DST for each World Time city code, except UTC.

To check the STD/DST setting for a World Time Mode city

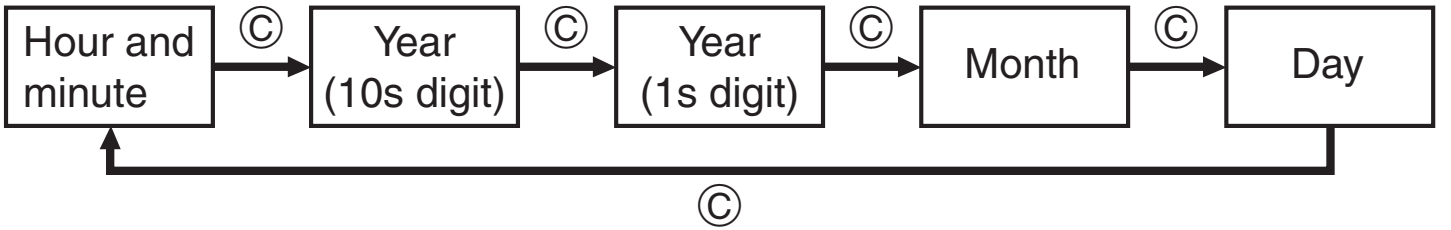
1. In the World Time Mode, use Ⓓ to select the city whose setting you want to check.
2. Press Ⓐ and the second hand will move to either **STD** or **DST**.

- The second hand will return to the city code you selected in step 1 after about five seconds or if you press Ⓐ again.

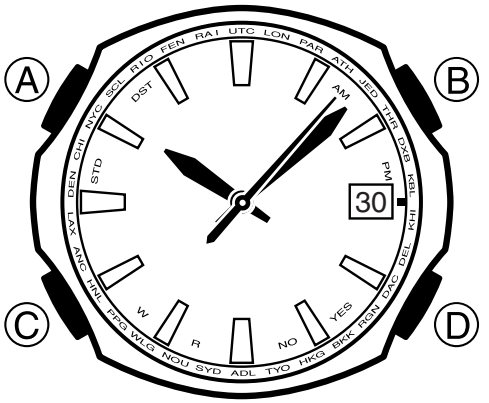
Configuring Time and Date Settings Manually

You can use the following procedures to adjust the time and date settings when the watch is unable to receive a time calibration signal for some reason.

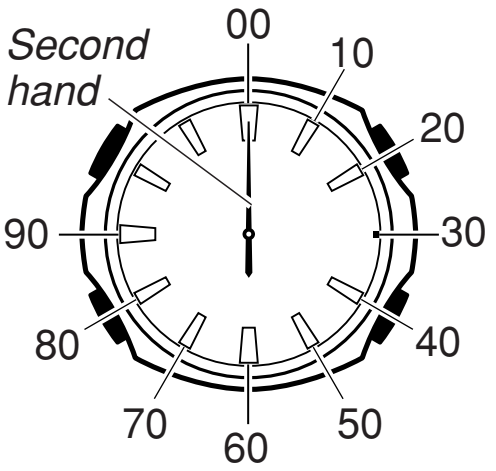
1. In the Timekeeping Mode, keep Ⓐ depressed (for about five seconds) as the second hand moves to the last signal reception result (**Y** or **N**), then to **READY** (or **R** for some models), and then **AM** or **PM**.
2. Use Ⓒ to cycle through available settings in the sequence shown below.



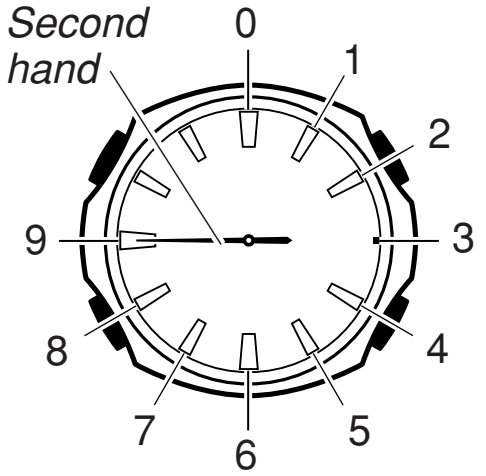
- See “To specify your Home City” (page E-12) for details about selecting a Home City.



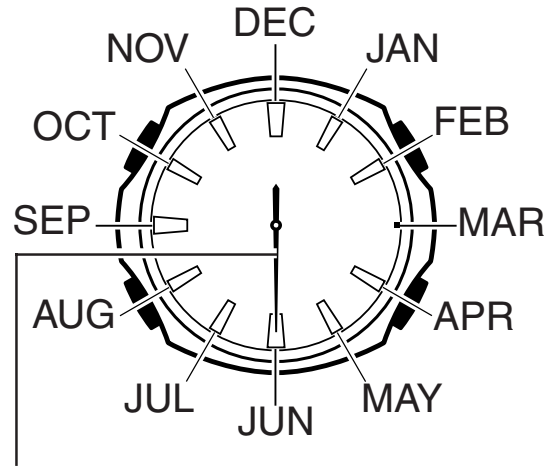
3. Use Ⓓ (+) and Ⓑ (–) to change the time setting in one-minute increments.
4. Press Ⓒ to advance to the year tens digit setting.



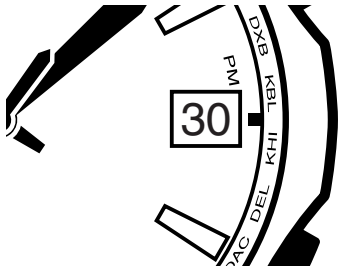
5. Press Ⓓ to increase the year tens digit by one.
6. Press Ⓒ to advance to the year ones digit setting.



7. Press Ⓓ to increase the year ones digit by one.
8. Press Ⓒ to advance to the month setting.



9. Press Ⓓ to move to the next month.
10. Press Ⓒ to advance to the day setting.



11. Use Ⓓ (+) and Ⓑ (–) to change the day setting.
12. When everything is the way you want, press Ⓐ.

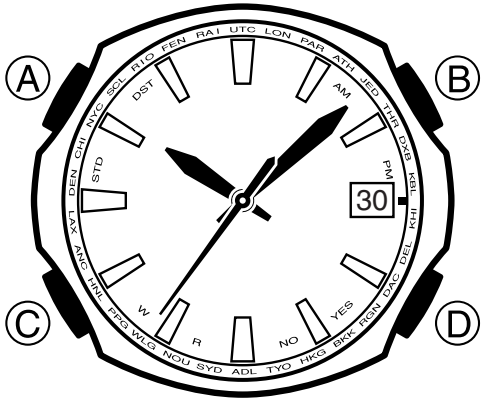
- This will exit the setting procedure and reset the seconds count to zero.
- Press Ⓐ to restart timekeeping on a time signal on the TV or radio.

Auto Hand Home Position Correction

Strong magnetism or impact can cause the hands and/or day setting to be off, even if the watch is able to perform the signal receive operation. Auto hand home position correction corrects the hand position automatically.

- Auto correction is performed in the Timekeeping Mode only.
- The auto correction operation corrects the positions of the second, minute, and hour hands. Home position correction of the day must be performed manually, using the procedure under “Manual Home Position Correction” (page E-44).
- Each hour, the watch performs automatic correction of the hand positions. Correction can be performed for error up to 55 minutes slow or 5 minutes fast.
- You also can trigger the auto hand home position correction operation manually, if you want. See “To trigger the auto hand home position correction operation manually” (page E-42) for more information.
- The auto hand home position correction operation can take up to three and a half minutes to complete.
- If hand positions are off by one hour or more, correct them using the procedure under “To trigger the auto hand home position correction operation manually” (page E-42) or “Manual Home Position Correction” (page E-44).

To trigger the auto hand home position correction operation manually



- Perform the following procedure when the time setting is off.

In the Timekeeping Mode, hold down Ⓑ for about six seconds until the second hand completes one full revolution.

- Though the second hand will stop momentarily about three seconds after you hold down Ⓑ, do not release the button yet. Wait until the second hand completes a full revolution before you release Ⓑ.
- To interrupt an ongoing correction operation and return to the Timekeeping Mode, press Ⓑ again.

- If you release Ⓑ when the second hand stops the first time (after about three seconds) in the above operation, the watch will enter the manual home position correction mode, which is described under “Manual Home Position Correction” (page E-44). If this happens, press Ⓐ to return to the Timekeeping Mode and then perform the above operation again.

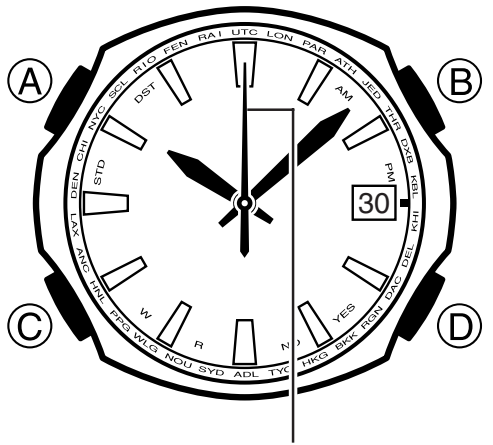
The manually triggered auto home position correction operation performs the following two steps.

1. The hands will move automatically in order to determine the home positions of the watch.
2. After the hand home positions are determined, the watch will return to normal timekeeping automatically. This completes the correction operation.

Manual Home Position Correction

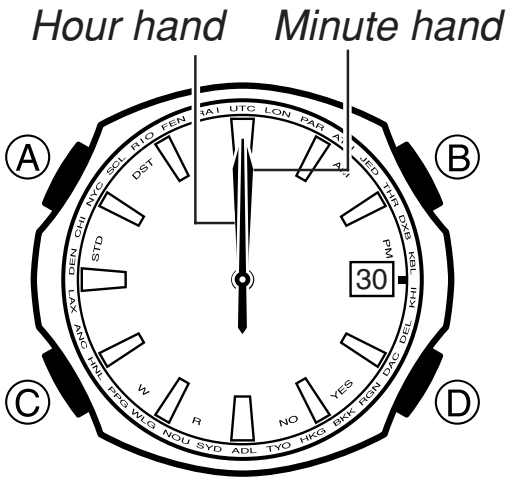
Strong magnetism or impact can cause the hands and/or day setting to be off, even if the watch is able to perform the signal receive operation. If this happens, perform the following home position correction procedure.

- Hand home position correction is not required if the time and day settings are correct.
- You also can use auto hand home position correction (page E-41) to correct the home positions of the second, minute, and hour hands.

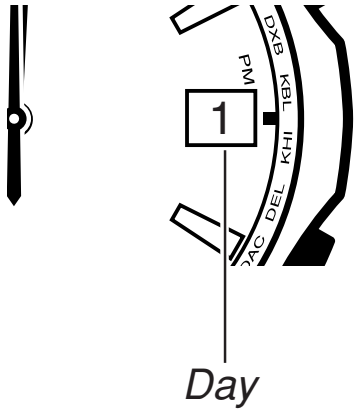


Second hand

1. In the Timekeeping Mode, hold down Ⓑ for about three seconds until the second hand stops. Release Ⓑ at this time.
2. Check the second hand position.
   - Home Position
     Second hand: 12 o'clock
3. If the second hand home position is off, use Ⓓ to move it clockwise to correct it.



4. Press Ⓒ to change to hour and minute hand correction.
   - This will cause the hour and minute hands to their home positions.
   - Home Positions
     Hour hand: 12 o’clock
     Minute hand: 12 o’clock
5. Use Ⓓ (+) and Ⓑ (–) to correct the hour and minute hands.



6. Press Ⓒ to change to day correction.
   - This causes the day to move to its home position.
   - Home Position
     Day: 1
7. Use Ⓓ (+) and Ⓑ (–) to correct the day indication.
   - Each press of Ⓓ or Ⓑ moves the day indicator very slightly. Keep pressing the applicable button until the day is aligned the way you want.
8. Press Ⓐ to exit home position correction and return to normal timekeeping.

- If you press Ⓒ instead of Ⓐ, the watch will return to step 1 (second hand home position adjustment) of this procedure.

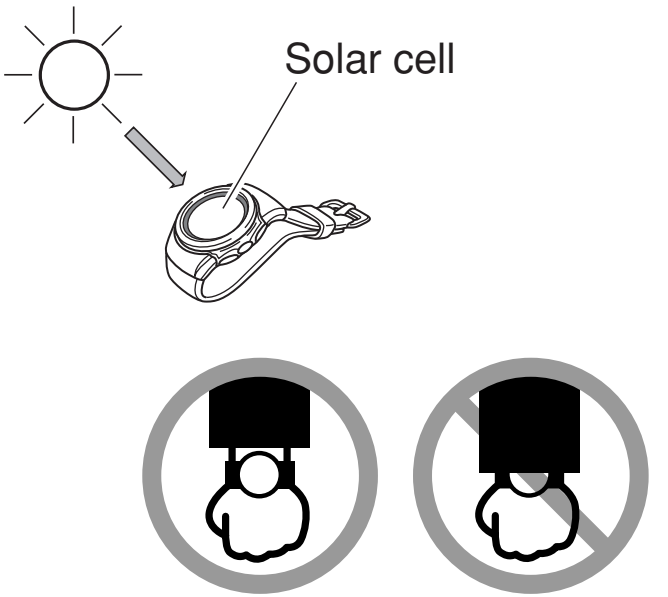
Check to make sure that the time and day are being indicated correctly.

Power Supply

This watch is equipped with a solar cell and a special rechargeable battery (secondary battery) that is charged by the electrical power produced by the solar cell. The illustration shown below shows how you should position the watch for charging.

Example: Orient the watch so its face is pointing at a light source.

- The illustration shows how to position a watch with a resin band.
- Note that charging efficiency drops when any part of the solar cell is blocked by clothing, etc.
- You should try to keep the watch outside of your sleeve as much as possible. Even if the face of the watch is blocked from light only partially, charging will be reduced significantly.

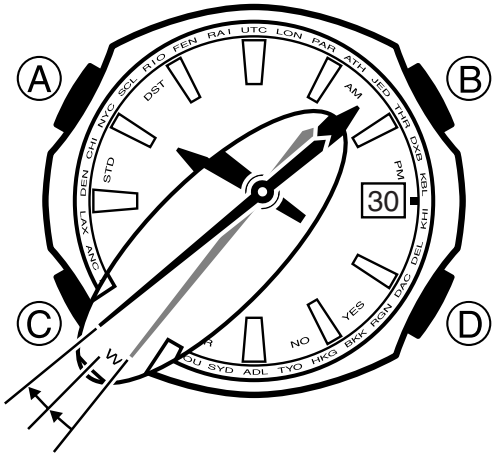


Important!

- Storing the watch for long periods in an area where there is no light or wearing it in such a way that it is blocked from exposure to light can cause rechargeable battery power to run down. Make sure that the watch is exposed to bright light whenever possible.
- This watch uses a special rechargeable battery to store power produced by the solar cell, so regular battery replacement is not required. However, after very long use, the rechargeable battery may lose its ability to achieve a full charge. If you experience problems getting the special rechargeable battery to charge fully, contact your dealer or CASIO distributor about having it replaced.
- The special rechargeable (secondary) battery used by your watch is not intended to be removed or replaced by you. Use of a rechargeable battery other than the special one specified for this watch can damage the watch.
- The current time and all other settings return to their initial factory defaults whenever the watch is left uncharged for about one week after battery power drops to Level 3, and when you have the battery replaced.
- Keep the watch in an area normally exposed to bright light when storing it for long periods. This helps to keep the rechargeable battery from going dead.

Battery Power Levels

The movement of the analog hands indicates the current battery power level.



Jumps two seconds

Level	Hand Movement	Function Status
1	Normal.	All functions enabled.
2	• Second hand jumps every 2 seconds. • Day changes to home position.	Time calibration signal reception disabled.
3	• Second hand stopped. • Hour and minute hands stopped at 12 o'clock.	All functions disabled.

- The second hand jumping every two seconds (Level 2) indicates that battery power is quite low. Expose the watch to light as soon as possible to charge the battery.

- When battery power is at Level 2, time calibration signal reception is disabled.
- When power drops to Level 3, all functions will be disabled but the watch will continue to keep time internally for about one week. If you recharge the battery sufficiently during this period, the analog hands will move automatically to the correct setting and normal timekeeping will resume. If the watch is left uncharged for about one week after battery power drops to Level 3, the current time and all other settings return to their initial factory defaults.

Charging Precautions

Certain charging conditions can cause the watch to become very hot. Avoid leaving the watch in the areas described below whenever charging its rechargeable battery.

Warning!
Leaving the watch in bright light to charge its rechargeable battery can cause it to become quite hot. Take care when handling the watch to avoid burn injury. The watch can become particularly hot when exposed to the following conditions for long periods.

- On the dashboard of a car parked in direct sunlight
- Too close to an incandescent lamp
- Under direct sunlight

Charging Guide

After a full charge, timekeeping remains enabled for up to about five months.

- The following table shows the amount of time the watch needs to be exposed to light each day in order to generate enough power for normal daily operations.

Exposure Level (Brightness)	Approximate Exposure Time
Outdoor sunlight (50,000 lux)	8 minutes
Sunlight through a window (10,000 lux)	30 minutes
Daylight through a window on a cloudy day (5,000 lux)	48 minutes
Indoor fluorescent lighting (500 lux)	8 hours

- For details about the battery operating time and daily operating conditions, see the "Power Supply" section of the Specifications (page E-59).
- Stable operation is promoted by frequent charging.

Recovery Times

The table below shows the amount exposure that is required to take the battery from one level to the next.

Exposure Level (Brightness)	Approximate Exposure Time		
	Level 3 →	Level 2 →	Level 1
Outdoor sunlight (50,000 lux)	2 hours		25 hours
Sunlight through a window (10,000 lux)	6 hours		92 hours
Daylight through a window on a cloudy day (5,000 lux)	9 hours		– – –
Indoor fluorescent lighting (500 lux)	101 hours		– – –

- The above exposure time values are all for reference only. Actual required exposure times depend on lighting conditions.

Reference

This section contains more detailed and technical information about watch operation. It also contains important precautions and notes about the various features and functions of this watch.

Auto Return Features

- If you do not perform any operation for about two or three minutes in the current time setting mode, or in the hand/day home position correction mode, the watch will return to the Timekeeping Mode automatically.
- If you do not perform any operation for about two or three minutes while a setting mode is selected, the watch will exit the setting mode automatically.

High-Speed Movement

- In most cases when configuring settings, holding down a button will start high-speed scrolling of the applicable setting.
- High-speed movement of hands and day will continue until you press any button.

Radio-controlled Atomic Timekeeping Precautions

- Strong electrostatic charge can result in the wrong time being set.
- The time calibration signal bounces off the ionosphere. Because of this, such factors as changes in the reflectivity of the ionosphere, as well as movement of the ionosphere to higher altitudes due to seasonal atmospheric changes or the time of day may change the reception range of the signal and make reception temporarily impossible.
- Even if the time calibration signal is received properly, certain conditions can cause the time setting to be off by up to one second.
- The current time setting in accordance with the time calibration signal takes priority over any time settings you make manually.
- The watch is designed to update the date automatically for the period January 1, 2000 to December 31, 2099. Setting of the date by the time calibration signal will not be performed starting from January 1, 2100.
- This watch can receive signals that differentiate between leap years and non-leap years.
- If you are in an area where proper time calibration signal reception is impossible, the watch keeps time with the precision noted in “Specifications”.

Timekeeping

- The year can be set in the range of 2000 to 2099.
- The watch's built-in full automatic calendar makes allowances for different month lengths and leap years. Once you set the date, there normally should be no reason to change it. Note, however, that if the watch is left uncharged for about one week after battery power drops to Level 3, the current time and all other settings return to their initial factory defaults.
- The date will change automatically when the current time reaches midnight. The date change at the end of the month may take more time than normal.
- The current time for all time zones in the Timekeeping Mode and World Time Mode is calculated in accordance with the Coordinated Universal Time (UTC) offset of each zone, based on your Home Time Zone time setting.
- UTC is the world-wide scientific standard of timekeeping. It is based upon carefully maintained atomic (cesium) clocks that keep time accurately to within microseconds. Leap seconds are added or subtracted as necessary to keep UTC in sync with the Earth's rotation. The reference point for UTC is Greenwich, England.

Power Saving

Power Saving enters a sleep state automatically whenever the watch is left for a certain period in an area where it is dark. The table below shows how watch functions are affected by Power Saving.

- There actually are two sleep state levels: “second hand sleep” and “function sleep”.

Elapsed Time in Dark	Operation
60 to 70 minutes (second hand sleep)	Second hand only is stopped, all other functions are enabled.
6 or 7 days (function sleep)	• All functions, including analog timekeeping, disabled • Internal timekeeping maintained

- Wearing the watch inside the sleeve of clothing can cause it to enter the sleep state.
- The watch will not enter the sleep state between 6:00 AM and 9:59 PM. If the watch is already in the sleep state when 6:00 AM arrives, however, it will remain in the sleep state.

To recover from the sleep state

Perform any one of the following operations.

- Move the watch to a well-lit area.
- Press any button.

Specifications

Accuracy at normal temperature: ± 15 seconds a month (with no signal calibration)
Timekeeping: Hour, minutes (hand moves every 10 seconds), seconds, day
Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099
Other: Home City code (can be assigned one of 29 city codes and Coordinated Universal Time); Daylight Saving Time (summer time) / Standard Time
Time Calibration Signal Reception: Auto receive up to six times a day (5 times a day for the Chinese calibration signal) (Remaining auto receives cancelled as soon as one is successful); Manual receive
Receivable Time Calibration Signals:
Mainflingen, Germany (Call Sign: DCF77, Frequency: 77.5 kHz); Anthorn, England (Call Sign: MSF, Frequency: 60.0 kHz); Fukushima, Japan (Call Sign: JJY, Frequency: 40.0 kHz); Fukuoka/Saga, Japan (Call Sign: JJY, Frequency: 60.0 kHz); Fort Collins, Colorado, the United States (Call Sign: WWVB, Frequency: 60.0 kHz); Shangqiu City, Henan Province, China (Call Sign: BPC, Frequency: 68.5 kHz)

World Time: 29 cities (29 time zones)
Other: Standard Time/Daylight Saving Time (summer time); Home City specification
Other: Power Saving, auto hand home position correction

Power Supply: Solar cell and one rechargeable battery
Approximate battery operating time: 6 months (no exposure to light; one signal reception of approximately 4 minutes per day)

Operating Precautions

Water Resistance

- The following applies to watches with WATER RESIST or WATER RESISTANT marked on the back cover.

		Water Resistance Under Daily Use	Enhanced Water Resistance Under Daily Use		
			5 Atmospheres	10 Atmospheres	20 Atmospheres
Marking	On watch front or on back cover	No BAR mark	5BAR	10BAR	20BAR
Example of Daily Use	Hand washing, rain	Yes	Yes	Yes	Yes
	Water-related work, swimming	No	Yes	Yes	Yes
	Windsurfing	No	No	Yes	Yes
	Skin diving	No	No	Yes	Yes

- Do not use this watch for scuba diving or other types of diving that requires air tanks.

- Watches that do not have WATER RESIST or WATER RESISTANT marked on the back cover are not protected against the effects of sweat. Avoid using such a watch under conditions where it will be exposed to large amounts of sweat or moisture, or to direct splashing with water.
- Even if a watch is water-resistant, do not operate its buttons or crown while it is submersed in water or wet.
- Even if a watch is water-resistant, avoid wearing it in the bath or in areas where detergents (soap, shampoo, etc.) are being used. Such conditions can reduce water resistance.
- After submersion in seawater, use plain water to rinse all salt and dirt from the watch.
- In order to maintain water resistance, have the gaskets of your watch replace periodically (about once every two or three years).
- A trained technician will know how to check your watch for proper water resistance whenever you have its battery replaced. Battery replacement requires the use of special tools. Always request battery replacement from your original retailer or from an authorized CASIO Service Center.
- Some water-resistant watches come with fashionable leather bands. Avoid swimming, washing, or any other activity that causes direct exposure of a leather band to water.

- The inside surface of the watch glass may fog when the watch is exposed to a sudden drop in temperature. No problem is indicated if the fogging clears up relatively quickly. If the fogging does not clear or if water has gotten into the watch, take the watch in for repair immediately.
- Continued use of the watch with water inside can result in damage to electronic and mechanical components, the face of the watch, etc.

Band

- Tightening the band too tightly can cause you to sweat and make it hard for air to pass under the band, which can lead to skin irritation. Do not fasten the band too tightly. There should be enough room between the band and your wrist so you can insert your finger.
- Deterioration, rust, or corrosion of the band can cause it to break, which may result in the watch falling off your wrist and becoming lost. Be sure to take good care of the band and keep it clean. Should you notice any breakage, discoloration, looseness or other problem with the band, immediately contact your original retailer or an authorized CASIO Service Center to have it checked, repaired, or replaced. Note that you will be charged for any repair or replacement of the band.

Temperature

- Never leave the watch on the dashboard of a car, near a heater, or in any other location that is subject to very high temperatures. Do not leave the watch where it will be exposed to very low temperatures, either. Temperature extremes can cause the watch to lose or gain time, to stop, or otherwise malfunction.

Impact

- Your watch is designed to withstand impact incurred during normal daily use and light activity such as playing catch, tennis, etc. Dropping the watch or otherwise subjecting it to strong impact, however, can lead to malfunction.
  Note that watches with shock-resistant designs (G-SHOCK, Baby-G, G-ms) can be worn while operating a chain saw or engaging in other activities that generate strong vibration, or while engage in strenuous sports activities (motocross, etc.).

Magnetism

- The hands of analog and combination (analog-digital) watches are moved by a motor that uses magnetic force. When such a watch is close to a device (audio speakers, magnetic necklace, cell phone, etc.) that emits strong magnetism, the magnetism can cause timekeeping to slow down, speed up, or stop, resulting in the incorrect time being displayed.

Electrostatic Charge

- Exposure to very strong electrostatic charge can cause the watch to display the wrong time. Very strong electrostatic charge even can damage electronic components.

Chemicals

- Do not allow the watch to come into contact with thinner, gasoline, solvents, oils, or fats, or with any cleaners, adhesives, paints, medicines, or cosmetics that contain such ingredients. Doing so can cause discoloration of or damage to the case, resin band, leather band, and other parts.

Storage

- If you do not plan to use the watch for a long time, wipe it thoroughly free of all dirt, sweat, and moisture, and store it in a cool, dry place.

Resin Components

- Allowing the watch to remain in contact with other items or storing it together with other items for long periods while it is wet can cause the color of the other items to transfer to the resin components of the watch. Be sure to dry off the watch thoroughly before storing it and make sure it is not in contact with other items.
- Leaving the watch where it is exposed to direct sunlight (ultraviolet rays) for long periods or failure to clean dirt from the watch for long periods can cause it to become discolored.
- Friction caused by certain conditions (frequent external force, sustained rubbing, impact, etc.) can cause discoloration of painted components.
- If there are printed figures on the band, strong rubbing of the printed area can cause discoloration.
- Failure to clean dirt from the watch for long periods can cause fluorescent color to fade. Wash dirt off with water as soon as possible and then dry the watch.
- Semi-transparent resin parts can become discolored due to sweat and dirt, and if exposed to high temperatures for long periods.
- Contact an authorized CASIO Service Center to have resin components replaced. Note that you will be charged for replacement costs.

Natural Leather and Imitation Leather Bands

- Allowing the watch to remain in contact with other items or storing it together with other items while it is wet for long periods can cause the color of the other items to transfer to the natural leather or imitation leather band of the watch. Be sure to dry off the watch thoroughly before storing it and make sure it is not in contact with other items.
- Leaving a leather band where it is exposed to direct sunlight (ultraviolet rays) for long periods or failure to clean dirt from a leather band for long periods can cause it to become discolored.

Important!

- Subjecting a natural leather or imitation leather band to rubbing or dirt can cause color transfer and discoloration.

Metal Components

- Failure to clean dirt from a metal band can lead to formation of rust, even if the band is stainless steel or plated. If the watch is exposed to sweat or water, wipe it thoroughly with a soft, absorbent cloth and then store it in a well-ventilated location to dry.
- To clean the band, use a soft toothbrush or similar tool to scrub it with a weak solution of water and a mild neutral detergent. Take care to avoid getting solution on the watch case.

Bacteria and Odor Resistant Band

- The bacteria and odor resistant band protects against odor generated by the formation of bacteria from sweat, which ensures good comfort and hygiene. In order to ensure maximum bacteria and odor resistance, keep the band clean. Use an absorbent soft cloth to wipe the band clean of dirt, sweat, and moisture. The bacteria and odor resistant band suppresses the formation of organisms and bacteria. It does not protect against rash due to allergic reaction, etc.

User Maintenance

Caring for Your Watch

- A dirty or rusty case or band can soil the sleeve of your clothing, cause skin irritation, and even interfere with watch performance. Be sure to keep the case and band clean at all times. Rust tends to form easily after the watch is exposed to seawater and then left without cleaning.
- Sometimes a smudge like pattern may appear on the surface of a resin band. This will not have any affect on your skin or clothing. Wipe the band with a cloth to clean it.
- Keep a leather band clean by wiping it with a dry cloth. Both resin bands and leather band can become worn and cracked over time when subjected to normal daily use.
- Should your band become badly cracked or worn, be sure to have it replaced with a new one. Request band replacement from your original retailer or an authorized CASIO Service Center. Note that you will be charged for band replacement costs, even if your watch is still covered by its warranty.
- Remember that you wear your watch next to your skin, just like a piece of clothing. Because of this, you should always keep your watch clean. Use a soft, absorbent cloth to wipe off any dirt, sweat, water, or other foreign matter from the case and band.

Dangers of Poor Watch Care

Rust

- Though the stainless steel used for the watch is highly rust-resistant, rust can form if the watch is not cleaned after it becomes dirty. Failure of oxygen to come into contact with the metal because it is dirty causes breakdown of the oxidization layer on the metal surface, which leads to the formation of rust.
- Even if the surface of the metal appears clean, sweat and rust in crevasses can soil the sleeves of clothing, cause skin irritation, and even interfere with watch performance.

Premature Wear

- Leaving sweat or water on a resin band or storing it an area subject to high moisture can lead to premature wear, cuts, and breaks.

Skin Irritation

- Individuals with sensitive skin or in poor physical condition may experience skin irritation when wearing a watch. Such individuals should keep their leather band or resin band particularly clean, or switch to a metal band. Should you ever experience a rash or other skin irritation, immediately remove the watch and contact a skin care professional.

Battery

- The special rechargeable (secondary) battery used by your watch is not intended to be removed or replaced by you. Use of a rechargeable battery other than the special one specified for this watch can damage the watch.
- The rechargeable battery is charged when the solar cell is exposed to light, and so regular periodic replacement is not required. However, charging and discharging of the battery over the years leads naturally to a loss in its ability to sustain a charge and shortens its operating time. If this happens, contact your original retailer or authorized CASIO Service Center.

City Code Table

City Code Table

City Code	City	UTC Offset/ GMT Differential
PPG	Pago Pago	–11
HNL	Honolulu	–10
ANC	Anchorage	–9
LAX	Los Angeles	–8
DEN	Denver	–7
CHI	Chicago	–6
NYC	New York	–5
SCL	Santiago	–4
RIO	Rio De Janeiro	–3
FEN	Fernando de Noronha	–2
RAI	Praia	–1
UTC		0
LON	London	
PAR	Paris	+1
ATH	Athens	+2

City Code	City	UTC Offset/ GMT Differential
JED	Jeddah	+3
THR	Tehran	+3.5
DXB	Dubai	+4
KBL	Kabul	+4.5
KHI	Karachi	+5
DEL	Delhi	+5.5
DAC	Dhaka	+6
RGN	Yangon	+6.5
BKK	Bangkok	+7
HKG	Hong Kong	+8
TYO	Tokyo	+9
ADL	Adelaide	+9.5
SYD	Sydney	+10
NOU	Noumea	+11
WLG	Wellington	+12

- Based on data as of June 2008.
- The rules governing global times (UTC offset and GMT differential) and summer time are determined by each individual country.