

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

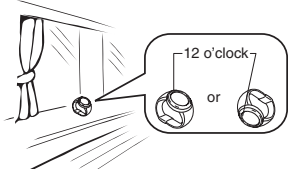
With auto receive, the watch receives the time calibration signal automatically up to six times a day. When any auto receive is successful, the remaining auto receive operations are not performed. For more information, see "About Auto Receive".

• 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".

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.
- 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.

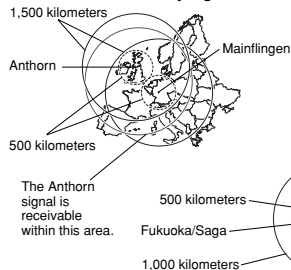
Home City Codes and Transmitters

Home City Code	Transmitter	Frequency
LON, PAR, ATH	Anthorn (England) Mainflingen (Germany)	60.0 kHz 77.5 kHz
HKG*, TYO	Fukushima (Japan) Fukuoka/Saga (Japan)	40.0 kHz 60.0 kHz
HNL*, ANC*, LAX, DEN, CHI, NYC	Fort Collins, Colorado (the United States)	60.0 kHz

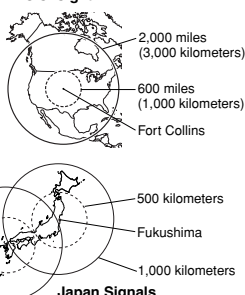
* The areas covered by the HKG, HNL, and ANC city codes are quite far from the time calibration signal transmitters, and so certain conditions may cause problems with signal reception.

Approximate Reception Ranges

U.K. and Germany Signals



U.S. Signal



Japan Signals

- Even when the watch is within the reception range of a transmitter, signal reception may be impossible at times due to the effects of geographic contours, structures, weather, the season of the year, the time of day, radio interference, etc. Note that the signal becomes weaker at distances of approximately 500 kilometers from the transmitter, which means that the influence of the conditions listed above becomes even greater.

About Auto Receive

The watch receives the time calibration signal automatically up to six times a day. 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*
HKG, TYO	Standard Time	Midnight	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am
HNL, ANC, LAX, DEN, CHI, NYC	Standard Time	Midnight	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am
	Daylight Saving Time	Midnight	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am

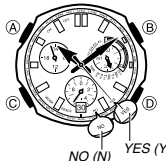
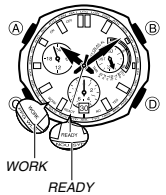
* Next day

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.
- The watch receives the calibration signal for two to 14 minutes every day when the time in the Timekeeping Mode reaches each of the calibration times. Do not perform any button operation within 14 minutes before or after the calibration times. Doing so can interfere with correct calibration.
- Remember that reception of the calibration signal depends on the current time in the Timekeeping Mode.

To perform manual receive

- Place the watch on a stable surface so its 12 o'clock side is facing towards a window.
 - In the Timekeeping Mode, hold down (A) for about two seconds until the watch beeps.
 - The stopwatch second hand will move to **READY** to indicate that the watch is setting up for time calibration reception.
- The stopwatch second hand will move to **WORK** and stay there while actual reception is in progress.
 - If signal reception is unstable during reception, the stopwatch second hand may move between **WORK** and **READY**.
 - The hour and minute hands continue to keep time normally.
 - 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.
 - If reception is successful, the stopwatch second hand will move to **YES (Y)**. Five seconds later, the hands will move to the correct time.



Note

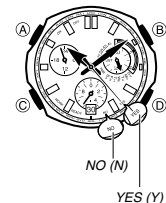
- To interrupt a receive operation and return to the Timekeeping Mode, press any button.
- If reception is not successful, the stopwatch second hand will move to **NO (N)**. Five seconds later, the stopwatch second hand will resume normal operation, without any adjustment of the hand setting.
- If the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

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 (A).
- If the watch was able to perform a successful signal receive operation since midnight, the stopwatch second hand will move to **YES (Y)**. If the watch has been unable to receive any signal successfully, the stopwatch second hand will move to **NO (N)**.
- The watch will return to the Timekeeping Mode after five seconds or when you press (A).
- 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 stopwatch second hand will move to **NO (N)**.



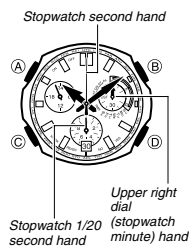
Signal Reception Troubleshooting

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

Problem	Probable Cause	What you should do
The stopwatch second hand is pointing at NO (N) .	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
The time setting is incorrect following signal reception.	<ul style="list-style-type: none"> The Home City setting is not correct for the area where you are using the watch. The home position of the hands is off. 	<ul style="list-style-type: none"> Select the correct Home City. Enter the home position adjustment mode and adjust the home position.

- For further information, see "Important!" under "Time Calibration Signal Reception" and "Radio-controlled Atomic Timekeeping Precautions".

Stopwatch



- The stopwatch lets you measure elapsed time.
- When you enter the Stopwatch Mode, the stopwatch 1/20 second hand and the upper right dial hand move to 0.
 - You can start elapsed time measurement with the stopwatch while the watch is in the Stopwatch Mode or the Timekeeping Mode.
 - The display range of the stopwatch is 59 minutes, 59.95 seconds.
 - The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
 - You cannot switch to another mode while a stopwatch elapsed time operation is in progress.

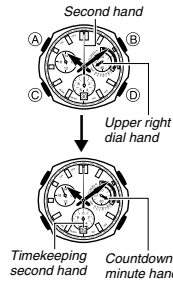
To start an elapsed time operation while in the Stopwatch Mode

1. In the Timekeeping Mode, press **(D)** to enter the Stopwatch Mode.
2. In the Stopwatch Mode, press **(B)** to start elapsed time measurement.
3. Press **(B)** to stop elapsed time measurement.
 - You can restart and stop elapsed time measurement as many times as you like by pressing **(B)**.
 - The 1/20 second hand rotates during the first 60 seconds only, and then stops. Whenever elapsed timing is stopped (by pressing **(B)**), the 1/20 second hand jumps to the 1/20 second indication (which is kept internally).
4. Check the elapsed time.
 - After you are finished measuring elapsed time, press **(D)** to reset the stopwatch to all zeros. The stopwatch will reset to all zeros even if you press **(D)** while elapsed time measurement is in progress.
 - To return to the Timekeeping Mode, press **(D)** while the stopwatch is reset to all zeros.

To start an elapsed time operation while in the Timekeeping Mode

1. In the Timekeeping Mode, press **(B)** to start elapsed time measurement.
 - Elapsed time measurement will start internally when you press **(B)**, but timing will not appear for about one second.
 - The elapsed time operation will not start if you press **(B)** in the Timekeeping Mode while either of the following conditions exists.
 - While an alarm is sounding
 - While the watch is changing from one date to the next (at midnight)
2. Press **(B)** to stop elapsed time measurement.
 - You can restart and stop elapsed time measurement as many times as you like by pressing **(B)**.
 - The 1/20 second hand rotates during the first 60 seconds only, and then stops. When elapsed time measurement is stopped (by pressing **(B)**), the 1/20 second hand jumps to the 1/20 second indication (which is kept internally).
3. Check the elapsed time.
 - After you are finished measuring elapsed time, press **(D)** to reset the stopwatch to all zeros. The stopwatch will reset to all zeros even if you press **(D)** while elapsed time measurement is in progress.
 - To return to the Timekeeping Mode, press **(D)** while the stopwatch is reset to all zeros.

Countdown Timer



- You can set the countdown start time within a range of one minute to 30 minutes. The watch has a preset "reset time" of five minutes. Pressing a button resets the countdown start time to five minutes. A progress beeper keeps you informed of the progress of the countdown. An alarm sounds when the timer reaches zero, and a count up elapsed time operation starts. All of this makes the countdown timer a useful tool for yacht racing.
- Whenever you enter the Countdown Timer Mode, the upper right dial hand initially will move to the **TMR** position. After about one second, the upper right dial hand will move to the countdown start time (minutes) and stop there.
 - In the Countdown Timer Mode, the timekeeping second hand points straight down (6 o'clock position).

- When you enter the Countdown Time Mode, the upper right dial hand initially will point to the currently set countdown start time.
- The initial factory default setting for the countdown start time is 10 minutes.
- For details about the progress beeper, see "Progress Beeper".
- All of the operations in this section are performed in the Countdown Timer Mode.

Countdown Timer Beeper Operations

The watch beeps at various times during a countdown so you can keep informed about the countdown status without looking at the display. The following describes the types of beeper operations the watch performs during a countdown.

Countdown End Beeper

The watch beeps each second of the final 10 seconds before a countdown reaches zero, and at zero. The first five beeps (seconds 10 through 6) are lower pitched than the final five beeps (seconds 5 through 1). The watch emits a longer beep to signal when the countdown reaches zero.

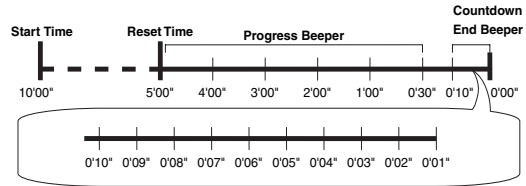
- The countdown end beeper always sounds and cannot be turned off.

Progress Beeper

- The progress beeper sounds at the 5, 4, 3, 2, and 1-minute point, and 30-second point of the countdown.
- If you set a countdown start time of 2 to 5 minutes, the progress beeper will start to sound after the first minute is counted down. If you set a countdown start time of 3 minutes, for example, the progress beeper will start to sound when the countdown reaches the 2-minute point.
 - If you set a countdown start time of 1 minute, the progress beeper will sound once when the countdown reaches the 30-second point.
 - The progress beeper always sounds and cannot be turned off.

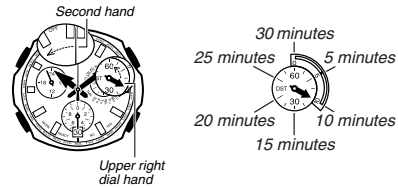
Countdown Timer Examples

Countdown start time: 10 minutes



Using the Countdown Timer

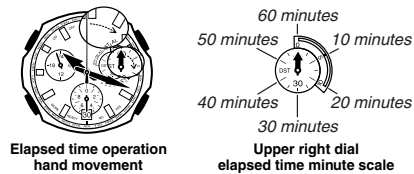
- The upper right dial and second hands move counterclockwise during a countdown operation. The upper right dial hand moves every 30 seconds of the countdown, and one revolution represents 30 minutes.



Hand movement during a countdown

Upper right dial countdown minute scale

- When the countdown reaches zero, the watch starts a count up elapsed time operation in one-second increments. The upper right dial and second hands move clockwise during an elapsed time operation. The upper right dial hand moves every minute of the elapsed time operation, and one revolution represents 60 minutes.



Elapsed time operation hand movement

Upper right dial elapsed time minute scale

- The elapsed time operation will continue until you stop it. Note, however, that only minutes are indicated by the upper right dial hand. There is no indication of the hour to let you know how many revolutions the upper right dial hand has made.

To use the countdown timer



- Press **(B)** while in the Countdown Timer Mode to start the countdown timer.
- Press **(B)** while a countdown operation is in progress to pause it. Press **(B)** again to resume the countdown.
 - To stop a countdown operation completely, first pause it (by pressing **(B)**), and then press **(D)**. This will return the countdown time to its starting value.
 - You also can perform the above operations to pause and restart the elapsed time operation after it starts.
 - You will not be able to switch to another mode while a countdown is in progress.

To set the countdown start time

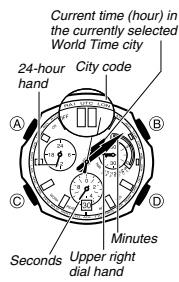


1. In the Countdown Timer Mode, press **(D)** to reset to the initial countdown start time (indicated by the upper right dial hand).
2. Press **(A)** to advance the hand by one minute.
 - Keep pressing **(A)** until it is at the start time you want.
 - Holding down **(A)** at this time will move the hand at high speed. To stop high-speed hand movement, press any button.
 - When setting the countdown start time, remember that one revolution of the upper right dial hand represents 30 minutes.
 - To set a countdown start time of 30 minutes, move the upper right dial hand to **0** (or **60**).
 - See the following section for information about resetting the countdown start time to 5 minutes while a countdown is in progress.

To reset the countdown to the reset time (5 minutes)

- While a countdown is in progress or paused in the Countdown Timer Mode, press **(A)** once.
- This will cancel the ongoing countdown and cause the upper right dial hand to move to **5** and stop there. This will also cause the stopwatch second hand to move to **0**.
 - At this time you could use the procedure under "To set the countdown start time" to change the start time setting.

World Time



The World Time Mode shows you the current time in 29 cities (29 time zones) around the world. A simple operation swaps your Home City with the currently selected World Time city.

- When you enter the World Time Mode, the stopwatch second hand will move automatically to the city code that is currently selected as the World Time city. At the same time, the hour and minute hands will move to the current time in that city.
- The upper right dial hand shows whether or not Daylight Saving Time (summer time) is turned off for the currently selected city code.
- If the current time shown for a city is wrong, check your Home City settings and make the necessary changes.
- All of the operations in this section are performed in the World Time Mode.

To view the time in another city

In the World Time Mode, use (D) to move the stopwatch second hand to the city code of the city you want to select as the World Time city.

- The hour hand, minute hand, 24-hour hand, and date display will change automatically to the applicable settings for the currently selected city code.
- All buttons (except for (C) for changing modes) are disabled while the hands and date display are changing.
- The watch will beep if the city code you select is your current Home City.
- For full information on city codes, see the "City Code Table".

To toggle a city code time between Standard Time and Daylight Saving Time

1. In the World Time Mode, use (D) to select the city code whose Standard Time/Daylight Saving Time setting you want to change.

2. Hold down (A) for about three seconds until the watch beeps. This will cause the upper right dial hand to toggle between ON (Daylight Saving Time) and OFF (Standard Time).

- Note that you cannot switch between Standard Time and Daylight Saving Time while UTC is selected as the city code.
- Note that the Standard Time/Daylight Saving Time setting affects only the currently displayed city code. Other city codes are not affected.
- The Standard Time/Daylight Saving Time setting of your Home City can be changed in the Timekeeping Mode only. See "To set the time and date manually" for more information.

Swapping your Home City and World Time City

You can use the procedure below to swap your Home City and World Time city. This changes your Home City to your World Time city, and your World Time city to your Home City. This capability can come in handy when you travel frequently between two cities in different time zones.

- If your current World Time city supports receipt of a time calibration signal, making it your Home City enables calibration signal reception.

To swap your Home City and World Time city

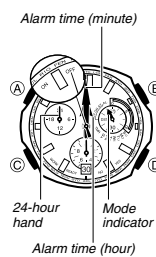
1. In the World Time Mode, use (D) to select the World Time city you want.

2. Hold down (B) for about three seconds until the watch beeps.

- This will make the World Time city (which you selected in step 1), your Home City. At the same time, it will change the Home City you had selected prior to step 2 to your World Time city.

After swapping the Home City and World Time city, the watch stays in the World Time Mode with the city that was selected as the Home City prior to step 2 now displayed as the World Time city.

Alarm



When the alarm is turned on, the alarm sounds when the alarm time is reached.

- The upper right dial hand points to AL while the watch is in the Alarm Mode. The stopwatch second hand points to the current alarm on (ON)/off (OFF) setting, while the hour, minute, and 24-hour hands indicate the current alarm time setting.
- All of the operations in this section are performed in the Alarm Mode.

To set an alarm time

1. In the Alarm Mode, hold down (A) for about three seconds until the watch beeps. This indicates it is in the setting mode.

- The stopwatch second hand will move to ON (alarm on) at this time.

2. Use (D) (+) and (B) (-) to change the alarm time setting.

- Each press of either button moves the hands one-minute.

3. After setting the alarm time, press (A) to exit the setting mode.

- Setting the alarm time causes the alarm to turn on automatically.
- As you set the alarm time, take care to ensure that the 24-hour hand also is at the correct position.

Alarm Operation

The alarm tone sounds at the preset time for 10 seconds, regardless of the mode the watch is in.

- Alarm operations are performed in accordance with the Timekeeping Mode time.
- Pressing any button stops the alarm tone operation.

To toggle an alarm on and off

In the Alarm Mode, press (A) to toggle the alarm ON and OFF.

Adjusting the Home Positions

If the time and date settings are wrong even after the time calibration signal is received normally, use the following procedure to adjust their home positions.

To adjust the home positions

1. In the Timekeeping Mode, as you hold down (A), hold down (C) for about three seconds until the watch beeps.

- This indicates that the watch is in the time and date home position adjustment mode.
- First is timekeeping second hand and stopwatch second hand home position adjustment.
- If the timekeeping second hand moves to "0", it is in the correct home position. If it doesn't, use (D) to move the timekeeping second hand to "0".
- The stopwatch second hand is also in the proper home position if it moves to 12 o'clock. If it doesn't, press (B) to move it to 12 o'clock.

2. After confirming that the timekeeping second hand and stopwatch second hand are both at the proper home positions, press (C).

This will switch to hour hand and minute hand home position adjustment.

- The hour hand and minute hand are at their proper home positions if they both move to 12 o'clock, and if the 24-hour hand is pointing at hour 24. If the hands are not positioned correctly, use (D) (+) and (B) (-) to move all three hands to their proper home positions.
- The 24-hour hand moves in accordance with the hour, minute, and second settings. As you set the time, take care to ensure that the 24-hour hand also is at the correct position.

3. After confirming that the hour and minute hands are in the correct home positions, press (C). This will advance to upper right dial hand home position adjustment.

- The upper right dial hand is in the correct home position if it is pointing at 0 (or 60). If it isn't, use (D) (+) and (B) (-) to move the hand to 0 (or 60).

4. After confirming that the upper right dial hand is in the correct home position, press (C). This will advance to date home position adjustment.

- The date is in the correct home position if it shows "1". If it doesn't, use (D) (+) and (B) (-) to change the date to "1".
- Pressing (C) here will return to the timekeeping second hand and stopwatch second hand home position adjustment in step 1 of this procedure.

5. Press (A) to return to the Timekeeping Mode.

- After you complete the home position adjustment procedure, place the watch in a location that allows good time calibration signal reception, and then perform a manual receive operation. See "To perform manual receive" for more information.

Timekeeping

Use the Timekeeping Mode to set and view the current time and date. This section also explains how to set the current date and time manually.

- All of the operations in this section are performed in the Timekeeping Mode.

To set the time and date manually

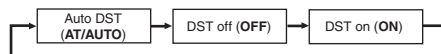
1. In the Timekeeping Mode, hold down (A) for about five seconds until the watch beeps twice.

- The stopwatch second hand will move to the city code of the currently selected Home City. This is the city code setting mode.
- The second hand will stop at "0".
- * Some models show "60" instead of "0".

2. Use (D) to change the Home City setting.

- For full information on city codes, see the "City Code Table".

3. Use (B) to cycle through the DST settings in the sequence shown below.



- Auto DST (AT/AUTO) can be selected only while LON, PAR, ATH, HNL, ANC, LAX, DEN, CHI, NYC, HKG, or TYO is selected as the Home City code. For more information, see "Daylight Saving Time (DST)".
- Even after you change the DST setting, you can still use (D) to select a different Home City code if you want.

4. After the Home City and DST settings are the way you want, press (C).

- This will cause the watch to beep, and the stopwatch second hand and upper right dial hand to move to their 12 o'clock positions. This is the time setting mode.

5. Use (D) (+) and (B) (-) to change the time (hour and minute) setting.

- As you set the time, take care to ensure that the 24-hour hand also is at the correct position.

6. After the time setting is the way you want, press (C).

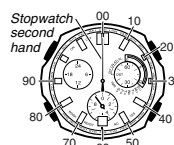
- This will cause the watch to beep and change to the year setting mode.

7. Use (D) and (B) to change the year setting.

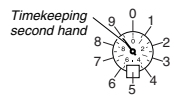
- Each press of (B) will move the stopwatch second hand and change the year setting in 10-year units.
- Each press of (D) will move the timekeeping second hand and change the year setting in one-year units.

8. After the year setting is the way you want, press (C).

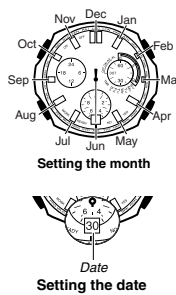
- This will cause the watch to beep and change to the month setting mode.



Setting the year (10-year units)



Setting the year (1-year units)



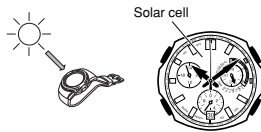
9. Use (D) to move the stopwatch second hand to the month setting you want.
10. After the month setting is the way you want, press (C).
 - This will cause the watch to beep and change to the date setting mode.
11. Use (D) (+) and (B) (-) to change the date setting.
 - Pressing (C) will return to the time setting mode.
12. After all the settings are the way you want, press (A) to return to the Timekeeping Mode.
 - Pressing (A) any time during the above procedure will return to the Timekeeping Mode, where the timekeeping second hand will resume timekeeping from second 0.
 - The day of the week is displayed automatically in accordance with the date (year, month, and day) settings.

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 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	<ul style="list-style-type: none"> • Second hand jumps every 2 seconds. • Date changes to home position. 	<ul style="list-style-type: none"> • Beeper and time calibration signal reception disabled.
3	<ul style="list-style-type: none"> • 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.
- At Level 3, all functions are disabled and settings return to their initial factory defaults. The watch will continue to keep time internally for about one month after the battery drops to Level 3. If you recharge the battery sufficiently during this period, the analog hands will move automatically to the correct setting and normal timekeeping will resume.
- Alarm operation can cause hand movement to stop due to a sudden temporary drop in battery power. This does not indicate malfunction, and normal operation will resume when the watch is exposed to light. Though hand movement stops, timekeeping continues internally, and the hands will be adjusted to the correct setting when normal operation returns.

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.
- 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)	1 hour	20 hours	
Sunlight through a window (10,000 lux)	2 hours	73 hours	
Daylight through a window on a cloudy day (5,000 lux)	4 hours	---	
Indoor fluorescent lighting (500 lux)	34 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 leave the watch in the Alarm Mode or home position adjustment mode for two or three minutes without performing any operation, it returns 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

- The (D) and (B) buttons are used to change the hand setting in various setting modes. In most cases, holding down these buttons will start high-speed movement of the applicable hand(s) and day.
- High-speed movement of hands and day will continue until you press any button, or until the moving hand(s) and day finishes one complete cycle.
 - One complete cycle for the hands is one revolution (360 degrees) of the hour hand, or 24 hours.
 - One complete cycle for the day is 31 days.
- High-speed hand movement also is triggered by changing from one mode to another, changing a World Time Mode setting (changing the World Time city in the World Time Mode, swapping the World Time city and Home city), etc.
- All buttons (except for the (C) button for changing modes) are disabled during a high-speed hand or date operation. You will be able to perform button operations again after high-speed operation is stopped.

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 and day of the week 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.
- Though this watch is designed to receive both time data (hour, minutes, seconds) and date data (year, month, day), certain signal conditions can limit reception to time data only.
- 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 should be no reason to change it except after you have the watch's battery replaced or when battery power drops to Level 3.
- 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)	<ul style="list-style-type: none"> • 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: ± 20 seconds a month (with no signal calibration)

Timekeeping: Hour, minutes (hand moves every 10 seconds), seconds, 24-hour, day, day of the week

Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099

Other: Home City code (can be assigned one of 30 city codes); Daylight Saving Time (summer time) / Standard Time

Time Calibration Signal Reception: Auto receive up to six times a day (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)

World Time: 29 cities (29 time zones)

Other: Standard Time/Daylight Saving Time (summer time); Home City/World Time City swapping

Stopwatch: Measuring capacity: 59'59.95"

Measuring unit: 1/20 second

Measuring mode: Elapsed time

Countdown Timer:

Measuring unit: 1 second

Input range: 1 to 30 minutes (1-minute increments)

Other: Progress beeper; One-touch reset of countdown start time to 5 minutes

Alarm: Daily alarm

Other: Power Saving

Power Supply: Solar cell and one rechargeable battery

Approximate battery operating time: 5 months (from full charge to Level 3) under the following conditions:

- Watch is not exposed to light
- Internal timekeeping
- Analog hands operational 18 hours per day, sleep state 6 hours per day
- 10 seconds of alarm operation per day
- 6 minutes of signal reception per day

City Code Table

City Code	City	UTC Offset/ GMT Differential	City Code	City	UTC Offset/ GMT Differential
PPG	Pago Pago	-11.0	JED	Jeddah	+03.0
HNL	Honolulu	-10.0	THR	Tehran	+03.5
ANC	Anchorage	-09.0	DXB	Dubai	+04.0
LAX	Los Angeles	-08.0	KBL	Kabul	+04.5
DEN	Denver	-07.0	KHI	Karachi	+05.0
CHI	Chicago	-06.0	DEL	Delhi	+05.5
NYC	New York	-05.0	DAC	Dhaka	+06.0
SCL	Santiago	-04.0	RGH	Yangon	+06.5
RIO	Rio De Janeiro	-03.0	BKK	Bangkok	+07.0
FEN	Fernando de Noronha	-02.0	HKG	Hong Kong	+08.0
RAI	Praia	-01.0	TYO	Tokyo	+09.0
UTC			ADL	Adelaide	+09.5
LON	London	+00.0	SYD	Sydney	+10.0
PAR	Paris	+01.0	NOU	Noumea	+11.0
ATH	Athens	+02.0	WLG	Wellington	+12.0

- Based on data as of March 2008.

• The rules governing global times (UTC offset and GMT differential) and summer time are determined by each individual country.

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