

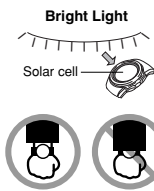
# Operation Guide 3090

CASIO®

## 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.

### Keep the watch exposed to bright light

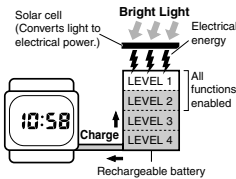


The electricity generated by the solar cell of the watch is stored by a built-in battery. Leaving or using the watch where it is not exposed to light causes the battery to run down. Make sure the watch is exposed to light as much as possible.

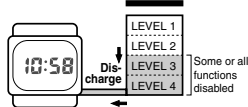
- When you are not wearing the watch on your wrist, position the face so it is pointed at a source of bright light.
- You should try to keep the watch outside of your sleeve as much as possible. Charging is reduced significantly if the face is only partially covered.

- 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.



## General Guide

- Press (C) to change from mode to mode.
- In any mode (except when a setting screen is on the display), press (B) to illuminate the display.

### Timekeeping Mode



Press (C).

### World Time Mode



### Stopwatch Mode



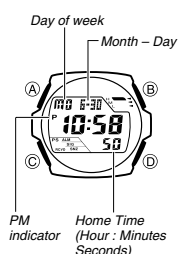
### Alarm Mode



### Countdown Timer Mode



## Radio-controlled Atomic Timekeeping



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

- Supported time calibration signals: Germany (Mainflingen), England (Rugby), United States (Fort Collins), Japan.

### Current Time Setting

This watch adjusts its time setting automatically in accordance with a time calibration signal. You can also 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 (the city where you normally will use the watch). For more information, see "To specify your Home City".

- 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 "Timekeeping" for more information about manual time settings.
- 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.

### To specify your Home City



1. In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
2. Press (D) (east) and (B) (west) to select the city code you want to use as your Home City.
  - Time calibration signal reception is supported when any one of the city codes shown in the table below is selected as your Home City.

German/U.K. Signal				Japan Signal			U.S. Signal				
City Code	City Name	City Code	City Name	City Code	City Name	City Code	City Name	City Code	City Name	City Code	City Name
LIS	Lisbon	ATH	Athens	HKG	Hong Kong	HNL	Honolulu	YWG	Winnipeg		
LON	London	MOW	Moscow	BJS	Beijing	ANC	Anchorage	CHI	Chicago		
MAD	Madrid			TPE	Taipei	YVR	Vancouver	MIA	Miami		
PAR	Paris			SEL	Seoul	LAX	Los Angeles	YTO	Toronto		
ROM	Rome			TYO	Tokyo	YEA	Edmonton	NYC	New York		
BER	Berlin					DEN	Denver	YHZ	Halifax		
STO	Stockholm					MEX	Mexico City	YYT	St. Johns		

3. Press (A) to exit the setting screen.

- The actual level at which some functions are disabled depends on the watch model.
- Frequent display illumination can run down the battery quickly and require charging. The following guidelines give an idea of the charging time required to recover from a single illumination operation.
  - Approximately 5 minutes exposure to bright sunlight coming in through a window
  - Approximately 50 minutes exposure to indoor fluorescent lighting
- Be sure to read "Power Supply" for important information you need to know when exposing the watch to bright light.

### If the display of the watch is blank...

If the display of the watch is blank, it means that the watch's Power Saving function has turned off the display to conserve power.

- See "Power Saving Function" for more information.

### About This Manual

- Depending on the model of your watch, display text appears either as dark figures on a light background, or light figures on a dark background. All sample displays in this manual are shown using dark figures on a light background.
- Button operations are indicated using the letters shown in the illustration.
- Each section of this manual provides you with the information you need to perform operations in each mode. Further details and technical information can be found in the "Reference" section.



### Important!

- Normally, your watch should show the correct time as soon as you select your Home City code. If it does not, it should adjust automatically after the next auto receive operation (in the middle of the night). You can also perform manual receive or you can set the time manually.
- The watch will receive the time calibration signal automatically from the applicable transmitter (in the middle of the night) and update its settings accordingly. For information about the relationship between city codes and transmitters, see "Home City Codes and Transmitters".
- Under factory default settings, auto receive is turned off for all of the following city codes: MOW (Moscow), HKG (Hong Kong), BJS (Beijing), HNL (Honolulu), and ANC (Anchorage). For details about turning on auto receive for these city codes, see "To turn auto receive on and off".
- You can disable time signal reception, if you want. See "To turn auto receive on and off" for more information.
- See the maps under "Reception Ranges" for information about the reception ranges of the watch.
- If you are in an area that does not use Daylight Saving Time (summer time), turn off the DST setting.

### 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

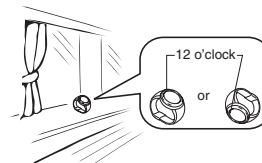
With auto receive, the watch receives the time calibration signal automatically up to six times a day. When any auto receive is successful, the remaining auto receive operations are not performed. For more information, see "About Auto Receive".

#### 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. 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.



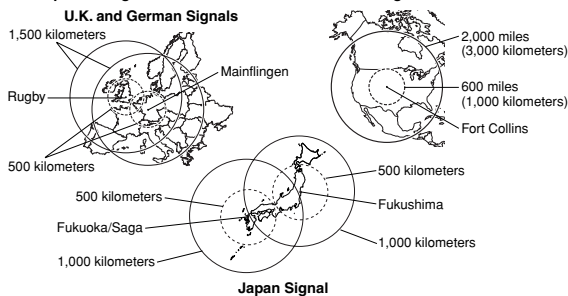
- Signal reception normally is better at night than during the day.
- Time calibration signal reception takes from one to seven minutes, but in some cases it can take as long as 13 minutes. Take care that you do not perform any button operations or move the watch during this time.
- The time calibration 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
LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW*	Rugby (England) Mainflingen (Germany)	60.0 kHz 77.5 kHz
HKG*, BJS*, TPE, SEL, TYO	Fukushima (Japan) Fukuoka/Saga (Japan)	40.0 kHz 60.0 kHz
HNL*, ANC*, YVR, LAX, YEA, DEN, MEX, YWG, CHI, MIA, YTO, NYC, YHZ, YYT	Fort Collins, Colorado (the United States)	60.0 kHz

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

### Reception Ranges



- Signal reception may not be possible at the distances noted below during certain times of the year or day. Radio interference may also cause problems with reception. Mainflingen (Germany) or Rugby (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)
- 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" if you experience problems with time calibration signal reception.

### 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.

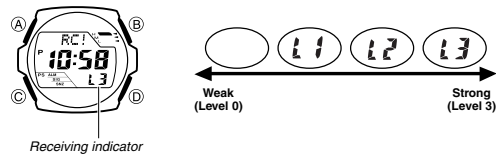
Your Home City		Auto Receive Start Times					
		1	2	3	4	5	6
LIS, LON	Standard Time	1:00 am	2:00 am	3:00 am	4:00 am	5:00 am	Midnight next day
	Daylight Saving Time	2:00 am	3:00 am	4:00 am	5:00 am	Midnight next day	1:00 am next day
MAD, PAR, ROM, BER, STO	Standard Time	2:00 am	3:00 am	4:00 am	5:00 am	Midnight next day	1:00 am next day
	Daylight Saving Time	3:00 am	4:00 am	5:00 am	Midnight next day	1:00 am next day	2:00 am next day
ATH	Standard Time	3:00 am	4:00 am	5:00 am	Midnight next day	1:00 am next day	2:00 am next day
	Daylight Saving Time	4:00 am	5:00 am	Midnight next day	1:00 am next day	2:00 am next day	3:00 am next day
MOW	Standard Time	4:00 am	5:00 am	Midnight next day	1:00 am next day	2:00 am next day	3:00 am next day
	Daylight Saving Time	5:00 am	Midnight next day	1:00 am next day	2:00 am next day	3:00 am next day	4:00 am next day
HKG, BJS, TPE, SEL, TYO	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

### 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 receive 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 one to five minutes everyday when the time in the Timekeeping Mode reaches each of the calibration times. Avoid performing any button operation within five minutes before or after any one of 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. The receive operation will be performed whenever the display shows any one of the calibration times, regardless of whether or not the displayed time actually is the correct time.
- Calibration signal reception is disabled while a countdown timer operation is in progress.

### About the Receiving Indicator

The receiving indicator shows the strength of the calibration signal being received. For best reception, be sure to keep the watch in a location where signal strength is strongest.



- Use the receiving indicator as a guide for checking signal strength and for finding the best location for the watch during signal receive operation.
- Even in an area where signal strength is strong, it takes about 10 seconds for signal reception to stabilize enough for the receiving indicator to indicate signal strength.

### RCVD Indicator

The RCVD indicator appears as soon as any time calibration signal receive operation is complete.



- The RCVD indicator remains on the display for the rest of the day.
- Following reception of the time calibration signal and calibration of the watch's time setting, the RCVD indicator will remain on the display in all modes. The RCVD indicator will not be displayed after you adjust the current time setting manually.
- The RCVD indicator turns off automatically at the start of the first auto receive operation of a new day. The time of the first auto receive operation of a new day depends on your currently selected Home City.

### To perform manual receive

- Enter the Timekeeping Mode.
  - Place the watch on a stable surface so its 12 o'clock side is facing towards a window.
  - Hold down (D) for about two seconds until RC! appears on the display.
- Time calibration signal reception takes from one to five minutes. Take care that you do not perform any button operations or move the watch during this time.
  - If the receive operation is successful, the reception date and time appear on the display, along with the GET indicator.
- The watch will enter the Timekeeping Mode if you press (D) or if you do not perform any button operation for about two or three minutes.
- If the current reception fails but a previous reception was successful, the display shows the previous reception's date and time, and the ERR indicator.
  - indicates that none of the reception operations were successful.
- The watch will enter the Timekeeping Mode without changing the time setting if you press (D) or if you do not perform any button operation for about two or three minutes.

### To turn auto receive on and off

- In the Timekeeping Mode, press (D) to display the Last Signal screen.
  - Press (A) so the current auto receive setting (on or OFF) is flashing. This is the setting screen.
    - Note that the setting screen will not appear if the currently selected Home City is one that does not support time calibration reception.
  - Press (D) to toggle auto receive on (on) and off (OFF).
  - Press (A) to exit the setting screen.
- For information about city codes that support signal receive, see "To specify your Home City".

### To check the latest signal reception results

- In the Timekeeping Mode, press (D) to display the Last Signal screen.
- When receive is successful, the display shows the time and date that receive was successful. --- indicates that none of the reception operations were successful.
  - To return to the Timekeeping Mode, press (D).

## Signal Reception Troubleshooting

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

Problem	Probable Cause	What you should do
Cannot perform manual receive.	<ul style="list-style-type: none"> <li>The watch is not in the Timekeeping Mode.</li> <li>Your current Home City is not one of the following: LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW, HKG, BJS, TPE, SEL, TYO, HNL, ANC, YVR, LAX, YEA, DEN, MEX, YWG, CHI, MIA, YTO, NYC, YHZ, or YTT</li> </ul>	<ul style="list-style-type: none"> <li>Enter the Timekeeping Mode and try again.</li> <li>Select LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW, HKG, BJS, TPE, SEL, TYO, HNL, ANC, YVR, LAX, YEA, DEN, MEX, YWG, CHI, MIA, YTO, NYC, YHZ, or YTT as your Home City.</li> </ul>
Time setting is incorrect following signal reception.	<ul style="list-style-type: none"> <li>If the time is one hour off, the DST setting may be incorrect.</li> <li>The Home City code setting is not correct for the area where you are using the watch.</li> </ul>	<ul style="list-style-type: none"> <li>Change the DST setting to Auto DST.</li> <li>Select the correct Home City code.</li> </ul>

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

## World Time



The World Time Mode shows you the current time in 48 cities (29 time zones) around the world.

- If the current time shown for a city is wrong, check your Home City time settings and make the necessary changes.
- All of the operations in this section are performed in the World Time Mode, which you enter by pressing (C).

### To view the time in another city

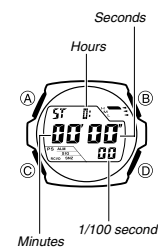
- In the World Time Mode, press (D) to scroll eastward through the city codes (time zones).
- For full information on city codes, see the "City Code Table".

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



- In the World Time Mode, use (D) to display the city code (time zone) whose Standard Time/Daylight Saving Time setting you want to change.
- Hold down (A) to toggle Daylight Saving Time (DST indicator displayed) and Standard Time (DST indicator not displayed).
- The DST indicator will appear whenever you display a city code for which Daylight Saving Time is turned on.
- Note that the DST/Standard Time setting affects only the currently displayed city code. Other city codes are not affected.

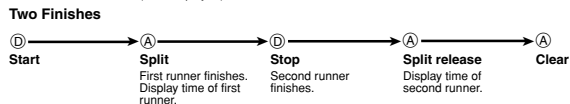
## Stopwatch



The stopwatch lets you measure elapsed time, split times, and two finishes. It also includes Auto-Start.

- The display range of the stopwatch is 999 hours, 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.
- All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing (C).

### To measure times with the stopwatch



### About Auto-Start

With Auto-Start, the watch performs a 5-second countdown, and stopwatch operation starts automatically when the countdown reaches zero. During the final three seconds of the countdown, a beeper sounds with each second.

### To use Auto-Start



- While the stopwatch screen is showing all zeros in the Stopwatch Mode, press (A).
  - This displays a 5-second countdown screen.
  - To return to the all zeros screen, press (A) again.
- Press (D) to start the countdown.
  - When the countdown reaches zero, a tone sounds and a stopwatch timing operation starts automatically.
  - Pressing (D) while the Auto-Start countdown is in progress starts the stopwatch immediately.

## Countdown Timer



You can set the countdown timer within a range of one to 60 minutes. An alarm sounds when the countdown reaches zero.

- All of the operations in this section are performed in the Countdown Timer Mode, which you enter by pressing (C).

### To set the countdown start time

- While the countdown start time is on the display in the Countdown Timer Mode, hold down (A) until the current countdown start time starts to flash, which indicates the setting screen.
  - If the countdown start time is not displayed, use the procedure under "To use the countdown timer" to display it.
- While a setting is flashing, use (D) (+) and (B) (-) to change it.
- Press (A) to exit the setting screen.

### To use the countdown timer

- Press (D) while in the Countdown Timer Mode to start the countdown timer.
- When the end of the countdown is reached, the alarm sounds for 10 seconds or until you stop it by pressing any button. The countdown time is reset automatically to its starting value after the alarm stops.
- Press (D) while a countdown operation is in progress to pause it. Press (D) again to resume the countdown.
- To stop a countdown operation completely, first pause it (by pressing (D)), and then press (A). This returns the countdown time to its starting value.

## Alarms



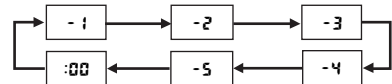
You can set five independent Daily Alarms. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. One of the alarms can be configured as a snooze alarm or a one-time alarm, while the other four are one-time alarms.

- You can also turn on an Hourly Time Signal that causes the watch to beep twice every hour on the hour.
- There are five alarm screens numbered 1 through 5. The hourly time signal screen is indicated by :00.
- When you enter the Alarm Mode, the screen you were viewing when you last exited the mode appears first.
- All of the operations in this section are performed in the Alarm Mode, which you enter by pressing (C).

### To set an alarm time



- In the Alarm Mode, use (D) to scroll through the alarm screens until the one whose time you want to set is displayed.



- You can configure Alarm 1 as a snooze alarm or a one-time alarm. Alarms 2 through 5 can be used as one-time alarms.
- The snooze alarm repeats every five minutes.
- After you select an alarm, hold down (A) until the hour setting of the alarm time starts to flash. This indicates the setting screen.
  - This operation turns on the alarm automatically.
- Press (C) to move the flashing between the hour and minute settings.
- While a setting is flashing, use (D) (+) and (B) (-) to change it.
  - When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (P indicator).
- Press (A) to exit the setting screen.

### Alarm Operation

The alarm sounds at the preset time for about 10 seconds. In the case of the snooze alarm, the alarm operation is performed a total of seven times, every five minutes, or until you turn the alarm off or change it to a one-time alarm.

### Note

- Pressing any button stops the alarm tone operation.
- Performing any one of the following operations during a 5-minute interval between snooze alarms cancels the current snooze alarm operation.
  - Displaying the Timekeeping Mode setting screen
  - Displaying the Alarm 1 setting screen

### To test the alarm

In the Alarm Mode, hold down (D) to sound the alarm.

### To turn Alarms 2 through 5 on and off

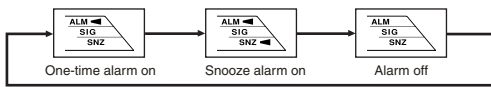


- In the Alarm Mode, use (D) to select a one-time alarm (alarm number 2 through 5).
- Press (A) to toggle the displayed alarm on and off.
  - Turning on a one-time alarm (2 through 5) displays the one-time alarm on indicator on its screen.
  - The one-time alarm on indicator is displayed in all modes.
  - If any alarm is on, the one-time alarm on indicator is shown on the display in all modes.

### To select the operation of Alarm 1

- In the Alarm Mode, use (D) to select Alarm 1.
- Press (A) to cycle through the available settings in the sequence shown below.

#### Snooze alarm on indicator and one-time alarm on indicator



- The applicable alarm on indicator is displayed in all modes when an alarm is turned on.
- The snooze alarm on indicator flashes during the 5-minute intervals between alarms.
- Displaying the Alarm 1 setting screen while the snooze alarm is turned on automatically turns off the snooze alarm (making Alarm 1 a one-time alarm).

### To turn the hourly time signal on and off

- In the Alarm Mode, use (D) to select the Hourly Time Signal (:00).
- Press (A) to toggle it on and off.
  - Turning on the Hourly Time Signal displays the hourly time signal on indicator on its screen.
  - The hourly time signal on indicator is displayed in all modes when the Hourly Time Signal is turned on.



Hourly time signal on indicator

### Illumination



Auto light switch indicator

The watch has an EL (electro-luminescent) panel that causes the entire display to glow for easy reading in the dark. The watch's auto light switch illuminates the display automatically when you angle the watch towards your face.

- The auto light switch must be turned on (indicated by the auto light switch indicator) for it to operate.
- See "Illumination Precautions" for other important information.

#### To turn on illumination manually

- In any mode press (E) to illuminate the display.
- The above operation turns on illumination regardless of the current auto light switch setting.

### About the Auto Light Switch

Turning on the auto light switch causes illumination to turn on whenever you position your wrist as described below in any mode. Note that this watch features a "Full Auto EL Light," so the auto light switch operates only when available light is below a certain level. It does not illuminate the display under bright light.

- Moving the watch to a position that is parallel to the ground and then tilting it towards you at more than 40 degrees causes illumination to turn on.
- Wear the watch on the outside of your wrist.



### Warning!

- Always make sure you are in a safe place whenever you are reading the watch using the auto light switch. Be especially careful when running or engaged in any other activity that can result in accident or injury. Also take care that sudden illumination by the auto light switch does not startle or distract others around you.
- When you are wearing the watch, make sure that its auto light switch is turned off before riding on a bicycle, or operating a motorcycle or any other motor vehicle. Sudden and unintended operation of the auto light switch can create a distraction, which can result in a traffic accident and serious personal injury.

### To turn the auto light switch on and off

In Timekeeping mode (except when a setting screen is on the display), hold down (E) for about three seconds to toggle the auto light switch on (auto light switch indicator displayed) and off (auto light switch indicator not displayed).

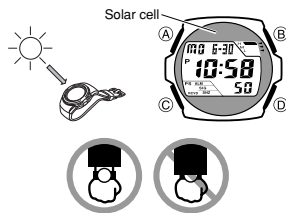
- The auto light switch indicator remains in all modes while the auto light switch is turned on.

### 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. Charging is reduced significantly if the face is only partially covered.



### 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.
- Never try to remove or replace the watch's special battery yourself. Use of the wrong type of battery can damage the watch.
- The current time and all other settings return to their initial factory defaults whenever battery power drops to Level 5 and when you have the battery replaced.
- Turn on the watch's Power Saving function and keep it 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 Indicator and Recover Indicator

The battery power indicator shows you the current power level of the rechargeable battery.

Level	Battery Power Indicator	Function Status
1	H M L	All functions enabled.
2	H M L	All functions enabled.
3	(Charge Soon Alert)	Alarm, hourly time signal, illumination and time calibration signal reception disabled.
4	(CHG) (Charge Soon Alert)	All functions, including auto light switch, disabled.
5	H M L	All functions, including timekeeping, disabled and initialized.

Battery power indicator



- The **LOW** flashes on the display in the Timekeeping Mode when battery is at Level 3.
- The **LOW** at Level 3 and the flashing charge indicator (**CHG**) at Level 4 tell you that battery power is very low, and that exposure to bright light for charging is required as soon as possible.
- At Level 5, all functions are disabled and settings return to their initial factory defaults. Functions are enabled once again after the rechargeable battery is charged, but you need to set the time and date, after the battery reaches Level 4 (indicated by the flashing charge indicator (**CHG**)) from Level 5. You will not be able to configure any of the other settings until the battery reaches Level 3 (no charge indicator) after dropping to Level 5.
- Leaving the watch in direct sunlight or some other very strong light source can cause the battery power indicator to show a reading that is momentarily higher than the actual battery level. The correct battery power indicator should appear after a few minutes.
- If you use the illumination or alarms a number of times during a short period, the charge indicator (**CHG**) flashes and the following operations become disabled until battery power recovers.
  - Illumination**
  - Beeper tone**
  - Time calibration signal reception**
 After some time, battery power will recover and the charge indicator (**CHG**) will disappear, indicating that the above functions are enabled again.

### 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. Also note that allowing the watch to become very hot can cause its liquid crystal display to black out. The appearance of the LCD should become normal again when the watch returns to a lower temperature.

### 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 8 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)	5 minutes
Sunlight Through a Window (10,000 lux)	24 minutes
Daylight Through a Window on a Cloudy Day (5,000 lux)	48 minutes
Indoor Fluorescent Lighting (500 lux)	8 hours

Since these are the specs, we can include all the technical details.

- Display on 18 hours per day, sleep state 6 hours per day
- 1 illumination operation (1.5 seconds) per day
- 10 seconds of alarm operation per day
- 10 minutes of signal reception per day
- Stable operation is promoted by frequent exposure to light.

### 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 5	Level 4	Level 3	Level 2	Level 1
Outdoor Sunlight (50,000 lux)		2 hours		44 hours	12 hours
Sunlight Through a Window (10,000 lux)		6 hours		167 hours	46 hours
Daylight Through a Window on a Cloudy Day (5,000 lux)		11 hours		270 hours	75 hours
Indoor Fluorescent Lighting (500 lux)		127 hours		---	---

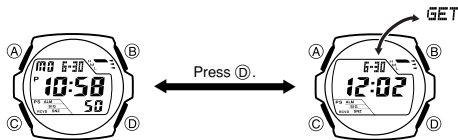
• The above exposure time values are all for reference only. Actual required exposure times depend on lighting conditions.

### Timekeeping

Use the Timekeeping Mode to set and view the current time and date.

• When setting the time, you can also configure settings for the 12/24-hour format, and power saving on/off, and you can specify the screens that are displayed in the Timekeeping Mode.

• Pressing (D) in the Timekeeping Mode will display the Last Signal screen.

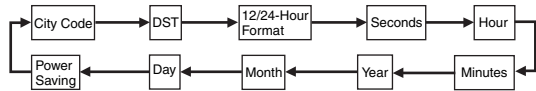


### Setting the Time and Date

Make sure you select your Home City code before you change the current time and date settings. World Time Mode times are all displayed in accordance with the Timekeeping Mode settings. Because of this, World Time Mode times will not be correct if you do not select the proper Home City code before setting the time and date in the Timekeeping Mode.

#### To set the time and date

1. In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
2. Press (C) to change the flashing contents in the sequence shown below to select other settings.



3. When the setting you want to change is flashing, use (B) and/or (D) to change it as described below.

Screen:	To do this:	Do this:
TYO	Change the city code	Use (D) (east) and (B) (west).
AT DST	Cycle between auto DST (AT), Standard Time (OFF), and Daylight Saving Time (ON)	Press (D).
12H 50	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping Reset the seconds to 00	Press (D).
P 10:58	Change the hour or minutes	Use (D) (+) and (B) (-).
6-30 20 08	Change the year, month, or day	
ON PS	Toggle Power Saving on (ON) and off (OFF)	Press (D).

- See "City Code Table" for a complete list of available city codes.
- Auto DST (AT) can be selected only while LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW, HKG, BJS, TPE, SEL, TYO, HNL, ANC, YVR, LAX, YEA, DEN, MEX, YWG, CHI, MIA, YTO, NYC, YHZ, or YTT is selected as the Home City code. For more information, see "Daylight Saving Time (DST)" below.
- For information about settings other than the time and date, see the following.  
Power Saving: Power Saving Function

4. Press (A) to exit the setting screen.

### 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.

The time calibration signals transmitted from Mainflingen (Germany), Rugby (England), or Fort Collins (the United States) include both Standard Time and DST data. When the Auto DST setting is turned on, the watch switches between Standard Time and DST (summer time) automatically in accordance with the signals.

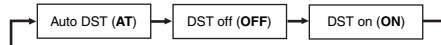
• The time calibration signals transmitted from Fukushima and Fukuoka/Saga (Japan) do not include summer time data.

• The default DST setting is Auto DST (AT) whenever you select LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW, HKG, BJS, TPE, SEL, TYO, HNL, ANC, YVR, LAX, YEA, DEN, MEX, YWG, CHI, MIA, YTO, NYC, YHZ, or YTT as your Home City code.

• 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.

#### To change the Daylight Saving Time (summer time) setting

1. In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
2. Press (C) and the DST setting screen appears.
3. Use (D) to cycle through the DST settings in the sequence shown below.



4. When the setting you want is selected, press (A) to exit the setting screen.
- The DST indicator appears to indicate that Daylight Saving Time is turned on.

### 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.

#### Button Operation Tone



The button operation tone sounds any time you press one of the watch's buttons. You can turn the button operation tone on or off as desired.

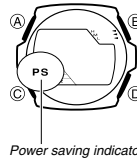
• Even if you turn off the button operation tone, the alarm, Hourly Time Signal, and Countdown Timer Mode alarm all operate normally.

#### To turn the button operation tone on and off

In any mode (except when a setting screen is on the display), hold down (C) to toggle the button operation tone on (MUTE indicator not displayed) and off (MUTE indicator displayed).

- Since the (C) button is also the mode change button, holding it down to turn the button operation tone on or off also causes the watch's current mode to change.
- The MUTE indicator is displayed in all modes when the button operation tone is turned off.

#### Power Saving Function



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

Elapsed Time in Dark	Display	Operation
60 to 70 minutes	Blank, with Power Saving indicator (PS) flashing	All functions enabled, except for the display
6 or 7 days	Blank, with Power Saving indicator (PS) not flashing	Beeper tone, illumination, and display are disabled.

- 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.
- Angle the watch towards your face for reading.

#### To turn Power Saving on and off

On/Off status



1. In the Timekeeping Mode, hold down (A) until the city code starts to flash, which indicates the setting screen.
  2. Press (C) nine times until the Power Saving on/off screen appears.
  3. Press (D) to toggle Power Saving on (ON) and off (OFF).
  4. Press (A) to exit the setting screen.
- The Power Saving indicator (PS) is on the display in all modes while Power Saving is turned on.

#### Auto Return Features

- If you leave the watch in the Alarm Mode for two or three minutes without performing any operation, it returns to the Timekeeping Mode automatically.
- If you leave the watch with a flashing setting on the display for two or three minutes without performing any operation, the watch exits the setting screen automatically.

#### Scrolling

The (B) and (D) are used in various modes and setting screens to scroll through data. In most cases, holding down these buttons during a scroll operation scrolls through the data at high speed.

#### Initial Screens

When you enter the World Time or Alarm Mode, the data you were viewing when you last exited the mode appears first.

### Radio-controlled Atomic Timekeeping Precautions

- Strong electrostatic charge can result in the wrong time being set.
- The time calibration signal is bounced 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.
- 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 a time calibration signal cannot 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.
- Normally, the signal reception date shown by the Last Signal screen is the date data included in the received time calibration signal. When only time data is received, however, the Last Signal screen shows the date as kept in the Timekeeping Mode at the time of signal reception.
- If you are in an area where proper time calibration signal reception is impossible, the watch keeps time within  $\pm 15$  seconds a month at normal temperature.
- If you have problems with proper time calibration signal reception or if the time setting is wrong after signal reception, check your current city code, DST (summer time), and auto receive settings.

### Timekeeping

- Resetting the seconds to **00** while the current count is in the range of 30 to 59 causes the minutes to be increased by 1. In the range of 00 to 29, the seconds are reset to **00** without changing the minutes.
- The day of the week is displayed automatically in accordance with the date (year, month, and day) settings.
- 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 5.
- The times for the Timekeeping Mode and all the city codes of the World Time Mode are calculated in accordance with each city's UTC differential.
- The UTC differential is a value that indicates the time difference between a reference point in Greenwich, England and the time zone where a city is located.
- The letters "UTC" is the abbreviation for "Universal Time Coordinated", which 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.

### 12-hour/24-hour Timekeeping Formats

The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is also applied in all other modes.

- With the 12-hour format, the PM indicator (**P**) appears on the display for times in the range of noon to 11:59 p.m. and no indicator appears for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, without any indicator.

### Illumination Precautions

- The electro-luminescent panel that provides illumination loses power after very long use.
- Illumination may be hard to see when viewed under direct sunlight.
- The watch may emit an audible sound whenever the display is illuminated. This is due to vibration of the EL panel used for illumination, and does not indicate malfunction.
- Illumination turns off automatically whenever an alarm sounds.
- Frequent use of illumination runs down the battery.

### Auto light switch precautions

- The auto light switch is turned off automatically whenever battery power is at Level 4.
- Wearing the watch on the inside of your wrist, movement of your arm, or vibration of your arm can cause frequent activation of the auto light switch and illumination of the display. To avoid running down the battery, turn off the auto light switch whenever engaging in activities that might cause frequent illumination.
- Note that wearing the watch under your sleeve while the auto light switch is turned on can cause frequent illumination of the display and can run down the battery.

More than 15 degrees too high



- Illumination may not turn on if the face of the watch is more than 15 degrees above or below parallel. Make sure that the back of your hand is parallel to the ground.
- Illumination turns off after the preset illumination duration (1.5 seconds), even if you keep the watch pointed towards your face.
- Static electricity or magnetic force can interfere with proper operation of the auto light switch. If illumination does not turn on, try moving the watch back to the starting position (parallel with the ground) and then tilt it back towards you again. If this does not work, drop your arm all the way down so it hangs at your side, and then bring it back up again.

- Under certain conditions, illumination may not turn on until about one second after you turn the face of the watch towards you. This does not necessarily indicate malfunction of the auto light switch.
- You may notice a very faint clicking sound coming from the watch when it is shaken back and forth. This sound is caused by mechanical operation of the auto light switch, and does not indicate a problem with the watch.

### City Code Table

City Code	City	GMT Differential	Other major cities in same time zone
PPG	Pago Pago	-11.0	
HNL	Honolulu	-10.0	Papeete
ANC	Anchorage	-09.0	Nome
YVR	Vancouver	-08.0	San Francisco, Las Vegas, Seattle/Tacoma, Dawson City, Tijuana
LAX	Los Angeles		
YEA	Edmonton	-07.0	El Paso, Edmonton, Culiacan
DEN	Denver		
MEX	Mexico City		
YWG	Winnipeg	-06.0	Houston, Dallas/Fort Worth, New Orleans
CHI	Chicago		
MIA	Miami		
YTO	Toronto	-05.0	Montreal, Detroit, Miami, Boston, Panama City, Havana, Lima, Bogota
NYC	New York		
CCS	Caracas	-04.0	La Paz, Santiago, Port Of Spain
YHZ	Halifax		
YYT	St. Johns	-03.5	
RIO	Rio De Janeiro	-03.0	Sao Paulo, Buenos Aires, Brasilia, Montevideo
RAI	Fraia	-01.0	
LIS	Lisbon		
LON	London	+00.0	Dublin, Casablanca, Dakar, Abidjan
MAD	Madrid		
PAR	Paris		
ROM	Rome	+01.0	Milan, Amsterdam, Algiers, Hamburg, Frankfurt, Vienna
BER	Berlin		
STO	Stockholm		
ATH	Athens		
CAI	Cairo	+02.0	Helsinki, Istanbul, Beirut, Damascus, Cape Town
JRS	Jerusalem		
MOW	Moscow	+03.0	Kuwait, Riyadh, Aden, Addis Ababa, Nairobi
JED	Jeddah		
THR	Tehran	+03.5	Shiraz
DXB	Dubai	+04.0	Abu Dhabi, Muscat
KBL	Kabul	+04.5	
KHI	Karachi	+05.0	Male
DEL	Delhi	+05.5	Mumbai, Kolkata, Colombo
DAC	Dhaka	+06.0	
RGN	Yangon	+06.5	
BKK	Bangkok	+07.0	Jakarta, Phnom Penh, Hanoi, Vientiane
HKG	Hong Kong		
BJS	Beijing	+08.0	Singapore, Kuala Lumpur, Manila, Perth, Ulaanbaatar
TPE	Taipei		
SEL	Seoul		
TYO	Tokyo	+09.0	Pyongyang
ADL	Adelaide	+09.5	Darwin
GUM	Guam	+10.0	Melbourne, Rabaul
SYD	Sydney		
NOU	Nourmea	+11.0	Port Vila
WLG	Wellington	+12.0	Christchurch, Nadi, Nauru Island

• Based on data as of December 2006.