© 2016 CASIO COMPUTER CO., LTD.

Operation Guide 5477

CASIO®

Congratulations upon your selection of this CASIO watch.

Applications
The built-in sensors of this watch measure direction, barometric pressure, temperature and altitude. Measured values are then shown on the display. Such features make this watch useful when hiking, mountain climbing, or when engaging in other such outdoor activities.

Warning !
- The measurement functions built into this watch are not intended for taking measurements that require professional or industrial precision. Values produced by this watch should be considered as reasonable representations only.
- When engaging in mountain climbing or other activities in which losing your way can create a dangerous or life-threatening situation, always use a second compass to confirm direction readings.
- Note that CASIO COMPUTER CO., LTD. assumes no responsibility for any damage or loss suffered by you or any third party arising through the use of your watch or its malfunction.


Important!
- The watch's Altimeter Mode calculates and displays relative altitude based on barometric pressure readings produced by its pressure sensor. This means that readings taken at different times at the same location may produce different altitude values due to changes in barometric pressure. Also note that the value displayed by the watch may be different from the actual elevation and/or sea level elevation indicated for the area where you are located.
- When using the watch's altimeter while mountain climbing, be sure to perform regular calibration in accordance with the local altitude (elevation) indications. For more information, see "To specify a reference altitude value" (page E-70).
- Whenever you use the digital compass of this watch for serious trekking, mountain climbing, or other activities, be sure to take always along another compass to confirm readings. If the readings produced by the digital compass of this watch are different from those of the other compass, perform figure 8 calibration or 3-point calibration of the digital compass to ensure more accurate readings.
- The Depth Meter Mode of this watch is intended for use while free diving, snorkeling, etc.
- Direction readings and digital compass calibration will not be possible if the watch is in the vicinity of a permanent magnet (magnetic accessory, etc.), metal objects, high-voltage wires, aerial wires, or electrical household appliances (TV, computer, cellphone, etc.)

About This Manual
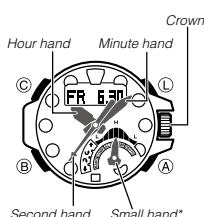
- Depending on the model of your watch, digital display text appears either as dark figures on a light background, or light figures on a dark background. All examples in this manual are shown using dark figures on a light background.
- Button operations are indicated using the letters shown in the illustration.
- Note that the product illustrations in this manual are intended for reference only, and so the actual product may appear somewhat different than depicted by an illustration.
- * In the Timekeeping Mode, the small hand indicates tide conditions (page E-96).

Using the Crown

The crown of this watch is a screw in lock crown. Before using the crown, you must first rotate it towards you to loosen it. After performing crown operations, be sure to press the crown in lightly as you screw it back in.

Important!
- To maintain water resistance and avoid impact damage to the crown, be sure to screw it back in when you are not using it.

The illustrations below show the different crown operations.

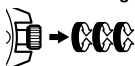| Pull out	Rotate	Push in

---

High-speed Movement
You can use either of the crown operations described below to move watch hands or indicators at high speed.
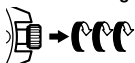HS1: Can be used to move both hands and display indicators.
HS2 (forward only): Can be used when setting the hour and minute manually to move the hands at high speed.

To start HS1 high-speed movement
While the crown is pulled out, rotate it rapidly a number of turns away from you (for forward movement) or towards you (for reverse movement).

To start HS2 high-speed movement (forward only)
While HS1 high-speed forward movement is in progress, rotate the crown rapidly again a number of turns away from you.

To stop high-speed movement
Rotate the crown in the direction that is opposite that of the current high-speed movement or press any button.
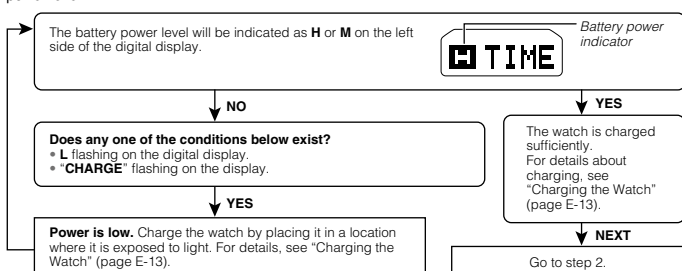
Note
- If you do not perform any operation for more than two minutes after pulling out the crown, the indicator shown below will appear and crown operations will become disabled. If this happens, push the crown back in and then pull it out again to re-enable crown operations.
- Pulling out the crown while the watch is in a mode that does not allow configuration of any settings will cause the indicator shown below to appear. If this happens, push the crown back in and lock it.
- The indicator shown below also appears when performing hand home position adjustment. See "Hand Home Position Adjustment" (page E-40) for more information.
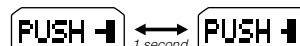
- You can use high-speed movement to perform the following operations: when changing a time and/or date setting; when selecting a city; when performing barometric pressure calibration, magnetic declination angle calibration, altitude calibration, or temperature calibration operations; when calibrating high tide times; when setting a latitude and longitude; when configuring timer settings, when setting an alarm time

---

Things to check before using the watch

1. Check the battery power level.
Hold down Ⓑ (page E-2) for at least two seconds to enter the Timekeeping Mode and display the battery power level.

The battery power level will be indicated as **H** or **M** on the left side of the digital display.

Battery power indicator

NO

YES

The watch is charged sufficiently. For details about charging, see "Charging the Watch" (page E-13).

Does any one of the conditions below exist?
- **L** flashing on the digital display.
- "**CHARGE**" flashing on the display.

YES

Power is low. Charge the watch by placing it in a location where it is exposed to light. For details, see "Charging the Watch" (page E-13).
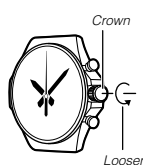
NEXT

Go to step 2.

- When **L** is flashing, the second hand will jump at two-second intervals.
- When **CHARGE** is flashing, all hands will move to and stop at 12 o'clock.

2. Check the Home City and the daylight saving time (DST) setting.
Use the procedure under "To configure Home City and summer time settings" (page E-34) to configure your Home City and daylight saving time settings.

Important!
- Proper time calibration signal reception and World Time Mode data depend on correct Home City, time, and date settings in the Timekeeping Mode. Make sure you configure these settings correctly.

3. Set the current time.
- To set the time using a time calibration signal
See "To get ready for a receive operation" (page E-22).
- To set the time manually
See "Configuring Current Time and Date Settings Manually" (page E-36).

The watch is now ready for use.
- For details about the watch's radio controlled timekeeping feature, see "Radio Controlled Atomic Timekeeping" (page E-20).

Operation Guide 5477

CASIO®

Contents

Charging the Watch

The face of the watch is a solar panel that generates power from light. The generated power charges a built-in rechargeable battery, which powers watch operations. The watch charges whenever it is exposed to light.

Charging Guide

Whenever you are not wearing the watch, leave it in a location where it is exposed to light.
- Best charging performance is achieved by exposing the watch to the strongest light available.
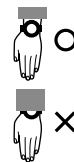
When wearing the watch, make sure that its face is not blocked from light by the sleeve of your clothing.
- The watch may enter a sleep state (page E-19) if its face is blocked by your sleeve even only partially.

Warning!
Leaving the watch in bright light for charging 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 conditions below for long periods.
- On the dashboard of a car parked in direct sunlight
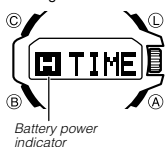- Too close to an incandescent lamp
- Under direct sunlight

Important!
- Allowing the watch to become very hot can cause its liquid crystal display to go blank (totally black or totally white, depending on the watch model). The appearance of the LCD should become normal again when the watch returns to a lower temperature.
- Enable the watch's Power Saving function (page E-19) and keep it in an area normally exposed to bright light when storing it for long periods. This helps to ensure that power does not run down.
- 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 power to run down. Expose the watch to bright light whenever possible.

Power Levels

Hold down Ⓑ for at least two seconds to enter the Timekeeping Mode.
You can get an idea of the watch's power level by observing the battery power indicator on the display.

Battery power indicator

Level	Battery Power Indicator	Function Status
1 (H)	▣ TIME	All functions enabled.
2 (M)	▥ TIME	All functions enabled.

Level	Battery Power Indicator	Function Status
3 (L)	▤ TIME / ▤ BATT	Auto and manual receive, illumination, beeper, tide level indication, Tide/Moon Data Mode functions, Sunrise/Sunset Mode functions, and sensor operation disabled. Second hand jumps every two seconds.
4 (CHARGE)	CHARGE	All hands stopped at 12 o'clock. All functions disabled.
5	– – –	All hands stopped at 12 o'clock. All functions disabled and settings returned to their initial factory defaults.

- The flashing **L** indicator at Level 3 (**L**) tells you that battery power is very low, and that exposure to bright light for charging is required as soon as possible.
- Once the battery reaches Level 2 (**M**) after falling to Level 5, reconfigure the current time, date, and other settings.
- Display indicators reappear as soon as the battery is charged from Level 5 to Level 2 (**M**).

- Leaving the watch exposed to direct sunlight or some other very strong light source can cause the battery power indicator to show a reading temporarily that is higher than the actual battery level. The correct battery level should be indicated after a few minutes.
- All data stored in memory is deleted, and 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. A dark environment while battery power is at Level 4 will cause the level to drop to Level 5. Expose the watch to bright light whenever possible.
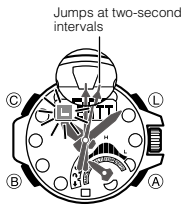
Low battery alert

When battery power reaches Level 3, the second hand of the watch will jump at 2-second intervals in the Timekeeping Mode to let you know that charging is required.

Jumps at two-second intervals

Power Recovery Mode

- Performing multiple sensor, illumination, or beeper operations during a short period may cause the recovery indicator (**RECOVER**) to start flashing on the display. This indicates that the watch is in the power recovery mode. Illumination, alarm, countdown timer alarm, hourly time signal, and sensor operations will be disabled until battery power recovers.
- Battery power will recover in about 15 minutes. At this time, the recovery indicator (**RECOVER**) will stop flashing. This indicates that the functions listed above are enabled again.
- Frequent flashing of the recovery indicator (**RECOVER**) indicates that battery power is low. Expose the watch to bright light as soon as possible.
- Even if battery power is at Level 1 (**H**) or Level 2 (**M**), sensor measurement may be disabled, and Tide/Moon Data Mode and Sunrise/Sunset Mode access may not be possible if there is not enough power available to power it sufficiently. This is indicated when the recovery indicator (**RECOVER**) is flashing.
- Frequent flashing of the recovery indicator (**RECOVER**) probably means that remaining battery power is low. Leave the watch in bright light to allow it to charge.

Charging Times

Exposure Level (Brightness)	Daily Operation *1	Level Change *2				
		Level 5	Level 4	Level 3	Level 2	Level 1
Outdoor sunlight (50,000 lux)	8 min.		2 hours		20 hours	6 hours
Sunlight through a window (10,000 lux)	30 min.		6 hours		74 hours	20 hours
Daylight through a window on a cloudy day (5,000 lux)	48 min.		9 hours		120 hours	32 hours
Indoor fluorescent lighting (500 lux)	8 hours		103 hours		– – –	– – –

*1 Approximate amount of exposure time required each day to generate enough power for normal daily operation.
*2 Approximate amount of exposure time (in hours) required to take power from one level to the next.
- The above exposure times all are for reference only. Actual exposure times depend on lighting conditions.
- For details about the operating time and daily operating conditions, see the "Power Supply" section of the Specifications (page E-129).

Power Saving

When turned on, 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.
- For information about enabling and disabling power saving, see "To enable or disable Power Saving" (page E-115).
- There actually are two sleep state levels: "display sleep" and "function sleep".

Elapsed Time in Dark	Hands and Display	Operation
60 to 70 minutes (display sleep)	Blank display, second hand stopped.	Except for display and second hand, all functions enabled.
6 or 7 days (function sleep)	Blank display, all hands stopped at 12 o'clock.	Except for timekeeping, all functions disabled.

- The watch will not enter a sleep state between 6:00 a.m. and 9:59 p.m.. If the watch is already in a sleep state when 6:00 a.m. arrives, however, it will remain in the sleep state.
- The watch will not enter a sleep state while it is in the World Time Mode, Stopwatch Mode or Countdown Timer Mode.
- The watch will not enter a sleep state while the barometric pressure change indicator is enabled (page E-49).

To recover from the sleep state
Move the watch to a well-lit area, press any button, or angle the watch towards your face for reading (page E-112).

Radio Controlled Atomic Timekeeping

This watch receives a time calibration signal and updates its time setting accordingly. However, when using the watch outside of areas covered by time calibration signals, you will have to adjust the settings manually as required. See "Configuring Current Time and Date Settings Manually" (page E-36) for more information.
This section explains how the watch updates its time settings automatically when the city code selected as the Home City is in Japan, North America, Europe, or China, and is one that supports time calibration signal reception.
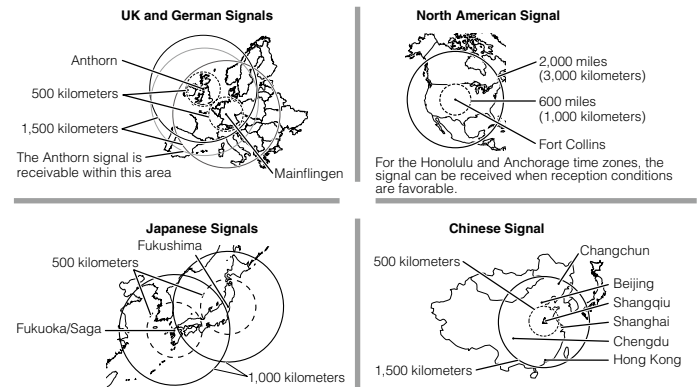
If your Home City Code setting is this:	The watch can receive the signal from the transmitter located here:
LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW	Anthorn (England), Mainflingen (Germany)
HKG, BJS	Shangqiu City (China)
TPE, SEL, TYO	Fukushima (Japan), Fukuoka/Saga (Japan)
HNL, ANC, YVR, LAX, YEA, DEN, MEX, CHI, NYC, YHZ, YYT	Fort Collins, Colorado (United States)

Important!
- The areas covered by **MOW**, **HNL** and **ANC** are quite far from the calibration signal transmitters, so certain conditions may cause reception problems.
- When **HKG** or **BJS** is selected as the Home City, only the time and date are adjusted according to the time calibration signal. You need to switch manually between standard time and daylight saving time (DST) if required. See "To configure Home City and summer time settings" (page E-34) for information about how to do this.

Approximate Reception Ranges

UK and German Signals

Anthorn
500 kilometers
1,500 kilometers
The Anthorn signal is receivable within this area
Mainflingen

North American Signal

2,000 miles (3,000 kilometers)
600 miles (1,000 kilometers)
Fort Collins

For the Honolulu and Anchorage time zones, the signal can be received when reception conditions are favorable.

Japanese Signals

Fukushima
500 kilometers
Fukuoka/Saga
1,000 kilometers

Chinese Signal

Changchun
Beijing
Shangqiu
Shanghai
Chengdu
Hong Kong
500 kilometers
1,500 kilometers

- Even when the watch is within range of a transmitter, signal reception may be impossible due to the effects of geographic contours, structures, weather, the time of day, radio interference, etc. The signal becomes weaker at distances of approximately 500 kilometers, which means that the influence of the conditions listed above becomes even greater.
- 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 Anthorn (England) transmitters: 500 kilometers (310 miles)
  Fort Collins (United States) transmitter: 600 miles (1,000 kilometers)
  Fukushima or Fukuoka/Saga (Japan) transmitters: 500 kilometers (310 miles)
  Shangqiu (China) transmitter: 500 kilometers (310 miles)
- As of January 2016, China does not use Daylight Saving Time (DST). If China does go to the Daylight Saving Time system in the future, some functions of this watch may no longer operate correctly.

To get ready for a receive operation
1. Confirm that the watch is in the Timekeeping Mode. If it isn't, use Ⓑ to enter the Timekeeping Mode (page E-30).
2. The antenna of this watch is located on its 7 o'clock side. Position the watch with 7 o'clock facing towards a window as shown in the nearby illustration. Make sure there are no metal objects nearby.

7 o'clock
or
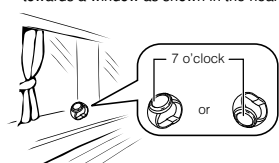
- Signal reception normally is better at night.
- The receive operation takes from two to ten minutes, but in some cases it can take as long as 20 minutes. Take care that you do not perform any button operation or move the watch during this time.

- Signal reception may be difficult or even impossible under the conditions described below.

Inside or among buildings   Inside a vehicle   Near household appliances, office equipment, or a mobile phone   Near a construction site, airport   Near high-tension power lines   Among or behind mountains

3. What you should do next depends on whether you are using auto receive or manual receive.
- Auto receive: Leave the watch over night in the location you selected in step 2. See "Auto Receive" below for details.
- Manual receive: Perform the operation under "To perform manual receive" on page E-24.

Auto Receive
- With auto receive, the watch performs the receive operation each day automatically up to six times (up to five times for the Chinese calibration signal) between the hours of midnight and 5 a.m. (according to the Timekeeping Mode time). When any receive operation is successful, none of the other receive operations for that day are performed.
- When a calibration time is reached, the watch will perform the receive operation only if it is in the Timekeeping Mode. The receive operation is not performed if a calibration time is reached while you are configuring settings.

Operation Guide 5477

CASIO®

• You can use the procedure under "To enable or disable auto receive" (page E-26) to enable or disable auto receive.

To perform manual receive

Receiving

Receiving indicator

1. Use Ⓑ to enter the Receive Mode (**R/C**) as shown on page E-30.
2. Hold down Ⓐ for at least two seconds until **RC** flashes and then **RC!** appears on the digital display.
   • A signal level indicator (**L1**, **L2**, or **L3**, see page E-25) will appear on the display after reception starts. Do not allow the watch to move and do not perform any button operation until **GET** or **ERR** appears on the display.
   • If the receive operation is successful, the reception date and time appear on the display, along with the **GET** indicator.
   • The watch will return to the Timekeeping Mode if you do not perform any button operation for about two or three minutes.

Receive successful

↕ *2 seconds*

Receive failed

Signal Level Indicator

During calibration signal reception, the signal level indicator displays the signal level as shown below.

Weak (Unstable) ⟷ **Strong (Stable)**
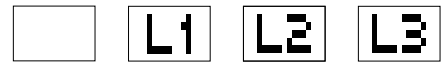
The level indication will change in accordance with reception conditions while reception is being performed.
As you watch the indicator, keep the watch in a location that best maintains stable reception.
• Even under optimum reception conditions, it can take about 10 seconds for reception to stabilize.
• Note that weather, the time of day, surroundings, and other factors all can affect reception.

To check the latest signal reception results
1. Enter the Receive Mode (page E-30).
2. **R/C** will be displayed for about one second, and then the date (month and day) and the time of the last signal reception will alternate on the digital display at two second intervals.
   • Dashes (**- : - -** and **-.- -**) alternating in place of the date and time indicate there has been no successful signal reception yet (since you purchased the watch or had its battery replaced).
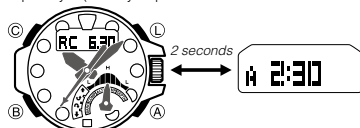
2 seconds

3. To return to the Timekeeping Mode, press Ⓑ.

To enable or disable auto receive
1. Enter the Receive Mode (page E-30).
   • **R/C** will be displayed for about one second, and then the date (month and day) and the time of the last signal reception will alternate on the digital display.
   • Dashes (**- : - -** and **-.- -**) alternating in place of the date and time indicate there has been no successful signal reception yet (since you purchased the watch or had its battery replaced).
2. Pull out the crown. This will cause the current auto receive status (**ON** or **OFF**) to flash on the digital display.
   • Only **AUTORC OFF** is displayed for cities that do not support time calibration signal reception. **AUTORC ON** is not displayed.

3. Rotate the crown to select either auto receive enabled (**ON**) or auto receive disabled (**OFF**).
4. After the setting is the way you want, push the crown back in. This will return to the screen that was displayed in step 1 of this procedure.

Radio-controlled Atomic Timekeeping Precautions
• Strong electrostatic charge can result in the wrong time setting.
• Even if a receive operation is successful, certain conditions can cause the time setting to be off by up to one second.
• The watch is designed to update the date and day of the week automatically for the period January 1, 2000 to December 31, 2099. Updating of the date by signal reception will no longer be performed starting from January 1, 2100.
• If you are in an area where signal reception is not possible, the watch keeps time with the precision noted in "Specifications".
• The receive operation is disabled under any of the conditions below.
   – While power is at Level 3 (**L**) or lower (page E-15)
   – While the watch is in the power recovery mode (page E-17)
   – While a direction, barometric pressure, temperature, water depth, or altitude reading operation is in progress
   – When the watch is in the function sleep state ("Power Saving", page E-19)
   – While barometric pressure change indicator is being measured
   – While a countdown timer operation is in progress (page E-106)
• A receive operation is cancelled if an alarm sounds while it is being performed.
• The Home City setting reverts to the initial default of **TYO** (Tokyo) whenever the battery power level drops to Level 5 or when you have the rechargeable battery replaced. If this happens, change the Home City to the setting you want (page E-34).

Mode Reference Guide

Your watch has 14 "modes". The mode you should select depends on what you want to do.

To do this:	Enter this mode:	See:
• View the current time and date in the Home City • Configure Home City and daylight saving time (DST) settings • Configure time and date settings manually • Enable auto signal reception	Timekeeping Mode	E-33
• View the barometric pressure at your current location • View a graph of barometric pressure readings • Enable alerts (display and beep) for noteworthy changes in barometric pressure	Barometer Mode	E-44
Determine your current bearing or the direction from your current location to a destination	Digital Compass Mode	E-54
• View the altitude at your current location • Determine the altitude differential between two locations (reference point and current location)	Altimeter Mode	E-66
View the temperature at your current location	Thermometer Mode	E-78
Measure water depth	Depth Meter Mode	E-81
Recall data recorded in each mode	Data Recall Mode	E-87
View the current time in 48 cities (31 time zones) and UTC (Coordinated Universal Time)	World Time Mode	E-92
View the Tide Graph and Moon age for the currently specified date and time	Tide/Moon Data Mode	E-96
View the sunrise and sunset times for a specific date	Sunrise/Sunset Mode	E-101
Use the stopwatch to measure elapsed time	Stopwatch Mode	E-104
Use the countdown timer	Countdown Timer Mode	E-106
Set an alarm time	Alarm Mode	E-108

To do this:	Enter this mode:	See:
• Perform a manual time calibration signal receive operation • Check whether the last receive operation was successful • Configure auto receive settings	Receive Mode	E-20

Selecting a Mode
• The illustration below shows which buttons you need to press to navigate between modes.
• To return to the Timekeeping Mode from any other mode, hold down Ⓑ for about two seconds.

• Use the button operations below to navigate between the Timekeeping Mode and the sensor modes.
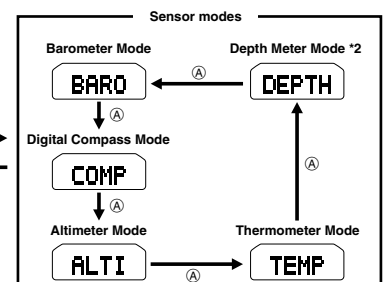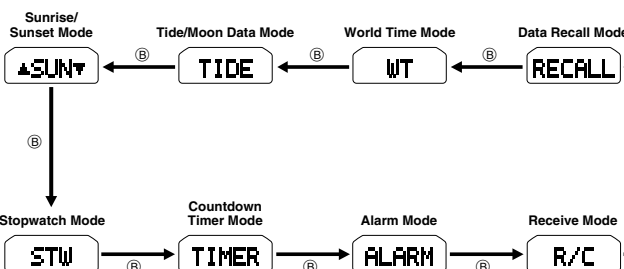
*1 Enters the last used sensor mode.
*2 You will not be able to enter the Timekeeping, Barometer, or Altimeter mode while a dive time measurement operation is in progress. Perform this button operation after dive time measurement is ended.

Operation Guide 5477

CASIO®

General Functions (All Modes)
• The functions and operations described in this section can be used in all of the modes.

Auto Return Features
• The watch automatically returns to the Timekeeping Mode from other modes if the crown is not pulled out or if no button operation is performed for a preset amount of time.

Mode Name	Approximate Elapsed Time
Digital Compass	1 minute
Data Recall, Tide/Moon Data, Sunrise/Sunset, Alarm, Receive	3 minutes
Altimeter	1 hour minimum 12 hours maximum
Barometer, Thermometer	1 hour
Depth Meter (Auto recording in progress)	Approximately 60 minutes
Depth Meter (Except when auto recording in progress)	Approximately 30 minutes

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

Timekeeping

Use the Timekeeping Mode (**TIME**) to set and view the current time and date.
• Each press of Ⓒ in the Timekeeping Mode will change screen contents as shown below.
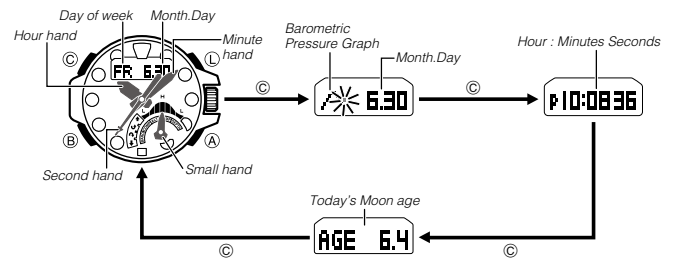
Configuring Home City Settings

There are two Home City settings: actually selecting the Home City and selecting either standard time or daylight saving time (DST).

To configure Home City and summer time settings
1. In the Timekeeping Mode, pull out the crown.
   • **CITY** will appear on the display. After that, the currently selected city code and city name (in English) will scroll on the display.
   • For details about city codes, see the "City Code Table" at the back of this manual.
2. Rotate the crown to change the displayed city code and city name.
3. Press Ⓑ to display the DST setting screen.
4. Rotate the crown away from you to cycle through the DST settings as shown below.

Auto DST (**AUTO**) → DST off (**OFF**) → DST on (**ON**)
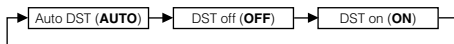
• The Auto DST (**AUTO**) setting will be available only when a city code that supports time calibration signal reception (page E-20) is selected as the Home City. While Auto DST is selected, the DST setting will be changed automatically in accordance with time calibration signal data.
• Note that you cannot switch between standard time and daylight saving time (DST) while UTC is selected as your Home City.
5. After the settings are the way you want, push the crown back in.
   • Daylight Saving Time is turned on when the **DST** indicator is on the display.

Note
• After you specify a city code, the watch will use UTC* offsets in the World Time Mode to calculate the current time for other time zones based on the current time in your Home City.
   * Coordinated Universal Time is the world-wide scientific standard of timekeeping. The reference point for UTC is Greenwich, England.
• Selecting some city codes automatically makes it possible for the watch to receive the time calibration signal for the corresponding area. See page E-20 for details.

Configuring Current Time and Date Settings Manually

You can configure current time and date settings manually when the watch is unable to receive a time calibration signal.

To change the current time and date settings manually
1. In the Timekeeping Mode, pull out the crown.
   • **CITY** will appear on the display. After that, the currently selected city code and city name (in English) will scroll on the display.
2. Press Ⓒ.
   • This causes the hour and minute digits to flash on the display.
   • If you are using 12-hour timekeeping, an **A** (a.m.) or **P** (p.m.) indicator will also be displayed.
   • This is the time setting mode.
   • In the following steps, each press of Ⓑ cycles between settings as shown below.
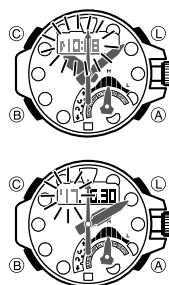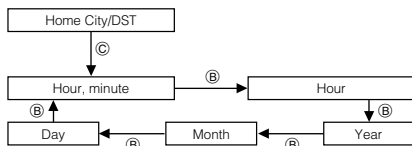
3. Rotate the crown to change the minute setting.
4. Press Ⓑ.
   • This causes the hour digits to flash on the display.
5. Rotate the crown to change the hour setting.
6. Press Ⓑ.
   • This causes the year digits to flash on the display.
7. Rotate the crown to adjust the year setting.
8. Press Ⓑ.
   • This causes the current month setting to flash on the display.
9. Rotate the crown to adjust the month setting.
10. Press Ⓑ.
   • This causes the current day setting to flash on the display.
11. Rotate the crown to change the day setting.
   • Pressing Ⓑ will return to the hour and minute setting screen.
12. After the settings are the way you want, push the crown back in.
   • This will cause timekeeping to start from 0 seconds.

Note
• For information about selecting a Home City and configuring the DST setting, see "Configuring Home City Settings" (page E-34).
• While 12-hour timekeeping is in use, **P** (p.m.) is displayed from noon to midnight (11:59 p.m.) **A** (a.m.) is displayed from midnight to noon (11:59 a.m.) These indicators are not displayed while 24-hour timekeeping (displays times from 00:00 to 23:59) is being used.
• 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 rechargeable battery replaced or after power drops to Level 5 (page E-15).
• The day of the week changes automatically when the date changes.

To switch between 12-hour and 24-hour timekeeping
1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ seven times.
   • This causes the current timekeeping setting (**12H** or **24H**) to flash on the digital display.
3. Rotate the crown to select either 12-hour (**12H**) or 24-hour (**24H**) timekeeping.
4. After the setting is the way you want, push the crown back in.

Recording the Date and Time
You can record the current date and time (month, day, hour, minute, second) for later viewing.

Important!
• The watch has memory that is shared for storage of up to 40 data records, including time and date data. Note that recording new data when there are 40 data records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record the date and time
In the Timekeeping Mode, hold down Ⓐ for at least two seconds.
• The watch will return to the Timekeeping Mode automatically after recording is complete.

Hand Home Position Adjustment

If the watch is exposed to strong magnetism or impact, its hands can go out of alignment with the time on the digital display. This can result in incorrect time indication even though a time calibration signal is being received. The watch periodically corrects hand positions automatically. You can also use the procedure below to trigger hand position adjustment manually when required.

To trigger hand home position adjustment manually

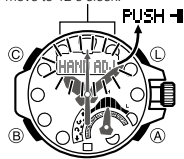*Wait until all of the hands move to 12 o'clock.*

1. In the Timekeeping Mode, pull out the crown.
2. Hold down Ⓐ for at least five seconds until **HAND SET** flashes and then **HAND ADJ** appears on the digital display.
   - This indicates the hand home position adjustment mode.

   Important!
   - Before performing step 3, below, make sure that all hands have returned to the 12 o'clock position. Pushing the crown back in while any hand is not at the 12 o'clock position will not trigger home position adjustment.
3. Push the crown back in.
   - This will cause all of the hands (hour, minute, second) to return to their normal positions.
   - The small hand will also return to tide level indication.

Note

After performing the above steps, enter the Timekeeping Mode and check to make sure that the analog hands and the display indicate the same time. If they do not, trigger home position adjustment again.

To return the hands to their normal positions

Press any one of the following buttons: Ⓐ, Ⓑ or Ⓒ.

Note

- The hands will also return to their normal positions if you do not perform any operation for about 10 seconds.
- If the hands have moved to 2 o'clock because you pulled out the crown,* they will return to their normal positions when you push the crown back in.
  * The hands will not move to 2 o'clock if you pull out the crown while configuring the city code setting (pages E-34, E-93) or the summer time setting (pages E-34, E-93), or while manually configuring time (page E-36).

Auto Hand Shift

If the hour hand and/or minute hand is over the digital display when a barometric pressure, altitude, temperature, or depth measurement is performed, the hand(s) will shift automatically (to 2 o'clock or 10 o'clock) and provide a better view of the displayed information. The hands will return to their normal positions after about three seconds.

Taking Barometric Pressure Readings

This watch uses a pressure sensor to measure air pressure (barometric pressure).

Barometric Pressure Graph

Barometric pressure

To take barometric pressure readings

While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **BARO** appears on the display. See "Selecting a Mode" (page E-30).
- This enters the Barometer Mode and displays a barometric pressure reading after about one second.
- After a barometric pressure reading operation is started, the watch will take readings every five seconds for the first three minutes, and then every two minutes after that.
- The watch will return to the Timekeeping Mode automatically if you do not perform any operation for about one hour after entering the Barometer Mode.

How to interpret the data that appears on the Barometric Pressure Graph is shown below.

Rising barometric pressure indicates that upcoming weather will improve.

Falling barometric pressure indicates that upcoming weather will deteriorate.

Note

- If there are sudden changes in weather or temperature, the graph line of past readings may run off the top or bottom of the display.
- The conditions below cause the barometric pressure reading to be skipped, with the corresponding point on the Barometric Pressure Graph being left blank.
  – Barometric reading that is out of range (260 hPa to 1,100 hPa or 7.65 inHg to 32.45 inHg)
  – Sensor malfunction
- The Barometric Pressure Graph is not displayed while the barometric pressure change indicator is displayed.

Not visible on the display.

Specifying the Barometric Pressure Auto Measurement Interval

You can select either of two barometric pressure auto measurement interval times for drawing the Barometric Pressure Graph.
0:30: 30-minute measurement interval
2:00: 2-hour measurement interval

Moving the Hands for Easy Viewing of the Digital Display

You can use the procedure below to move the analog hands in order to better view a digital display.
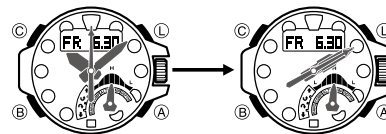
Note

- The analog hands will not move while battery power is low.

To shift the hands and view digital info

While holding down Ⓛ, press Ⓑ.
- This will cause all hands to move to 2 o'clock.

Specifying Altitude, Depth, Barometric Pressure, and Temperature Units

Use the procedure below to specify the units for altitude, depth, barometric pressure, and temperature measurement.
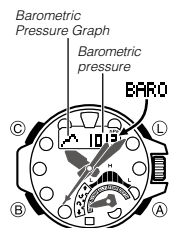

Important!
- When **TYO** (Tokyo) is selected as the Home City, the following measurement units are set automatically: Altitude and Depth: meters (**m**), Barometric Pressure: hectopascals (**hPa**), Temperature: Celsius (°**C**). These settings are fixed and cannot be changed.

To specify altitude, depth, barometric pressure, and temperature units

1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ as many times as necessary until **UNIT** appears on the digital display.
   - Press Ⓑ nine times to display the **UNIT** screen for altitude and depth units. Press Ⓑ 10 times to display the **UNIT** screen for barometric pressure. For temperature, press Ⓑ eleven times.
3. Rotate the crown to change the unit setting.
4. After the settings are the way you want, push the crown back in.

Barometric Pressure

- Barometric pressure is displayed in units of 1 hPa (or 0.05 inHg).
- The displayed barometric pressure value changes to **- - -** if a measured barometric pressure falls outside the range of 260 hPa to 1,100 hPa (7.65 inHg to 32.45 inHg). The barometric pressure value will reappear as soon as the measured barometric pressure is within the allowable range.

Display Units

You can select either hectopascals (hPa) or inchesHg (inHg) as the display unit for the measured barometric pressure. See "To specify altitude, depth, barometric pressure, and temperature units" (page E-43).

Barometric Pressure Graph

Barometric Pressure Graph

Barometric pressure indicates changes in the atmosphere. By monitoring these changes you can predict the weather with reasonable accuracy. Your watch can be configured to take barometric pressure readings automatically every two hours or every 30 minutes. Readings are used to produce Barometric Pressure Graph and to determine the barometric pressure differential pointer position.

Reading the Barometric Pressure Graph

The Barometric Pressure Graph shows a chronological history of pressure readings.

Barometric pressure
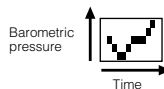
Time

- The horizontal axis of the graph represents time, with each dot standing for either two hours or 30 minutes (depending on the watch settings). The rightmost dot represents the most recent reading.
- The vertical axis of the graph represents barometric pressure, with each dot standing for the relative difference between its value and that of the dots next to it. Each dot represents 1 hPa.

To specify the barometric pressure auto measurement interval

1. In the Barometer Mode, pull out the crown.
   - This will cause the current barometric pressure reading value to flash on the display.
2. Press Ⓑ.
   - This causes **INT** (interval) to appear on the display, with the current setting (**0:30** or **2:00**) flashing.
3. Rotate the crown to select either **0:30** or **2:00**.
4. Push the crown back in.
   - This completes the setting procedure and exits the setting screen.

Barometric Pressure Differential Pointer

This pointer indicates the relative difference between the most recent barometric pressure reading indicated on the Barometric Pressure Graph (page E-45), and the current barometric pressure value displayed in the Barometer Mode (page E-44).

To toggle barometric pressure differential indication on or off

1. Enter the Barometer Mode.
2. Press Ⓒ.
   - This causes the second hand to indicate the barometric pressure differential.

Barometric pressure differential pointer

Operation Guide 5477

CASIO®

Reading Barometric Pressure Differential Pointer

Pressure differential is indicated in the range of ±10 hPa (0.3 inHg), in 1-hPa (0.03 inHg) units.

- The nearby illustration, for example, shows what the second hand would indicate when the calculated pressure differential is approximately − 5 hPa (approximately −0.15 inHg).
- The second hand will point to **+ OVER** or **– UNDER** if the barometric pressure differential is outside the allowable range of the scale.
- The second hand will move to 9 o'clock if a reading is outside the altimeter measurement range, or if a reading error occurs.
- Barometric pressure is calculated and displayed using hPa as the standard. The barometric pressure differential also can be read in inHg units as shown in the illustration (1 hPa ≒ 0.03 inHg).
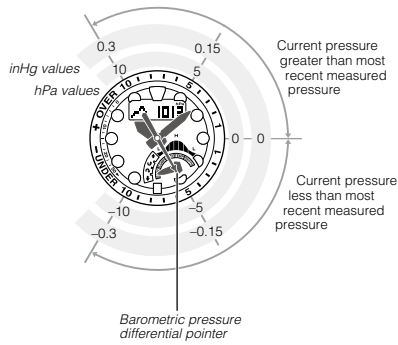- To toggle between barometric pressure differential indication and the current time seconds count on the digital display, press Ⓒ.

inHg values
hPa values
Current pressure greater than most recent measured pressure
Current pressure less than most recent measured pressure
Barometric pressure differential pointer

Barometric Pressure Change Indications

Your watch analyzes past barometric pressure readings and uses a barometric pressure change indication to inform you about changes in pressure. If the watch detects a significant change in barometric pressure, it will beep, a flashing arrow that indicates the direction of the pressure change will be displayed, and the small hand will point to the arrow mark. This means you could start taking barometric pressure readings after reaching a lodge or camp area, and then check the watch the next morning for changes in pressure. You will then be able to plan your day's activities accordingly. Note that you can enable or disable display of the barometric pressure change indicator as desired.
Barometric pressure change is indicated in the Barometer Mode, while the Barometric Pressure Graph is displayed in the Timekeeping Mode (page E-33).

Reading the Barometric Pressure Change indication

Small Hand and Digital Display		Meaning
		Sudden fall in pressure.
		Sudden rise in pressure.
		Sustained rise in pressure, changing to a fall.
		Sustained fall in pressure, changing to a rise.

- Barometric change indication is no performed if there has been no noteworthy change in barometric pressure.

Important!

- To ensure proper results, take barometric readings under conditions where the altitude remains constant.

Example

– In a lodge or campground
– On the ocean

- A change in altitude causes a change in barometric pressure. Because of this, correct readings are impossible. Do not take readings while ascending or descending a mountain, etc.

Enabling or Disabling Barometric Pressure Change Indication

You can enable or disable barometric change indication as desired. When indication is enabled, the watch will take a barometric pressure reading every two minutes, regardless of the mode it is in.

- When **BARO** is shown on the display, it means that barometric pressure change indication is enabled.
- When **BARO** is not on the display, it means that barometric pressure change indication is disabled.

To enable or disable barometric pressure change indication

In the Timekeeping Mode or Barometer Mode, hold down Ⓒ for at least two seconds. Wait until **INFO** appears on the left side of the display and the current setting (**ON** or **OFF**) flashes on the right. Use this screen to enable or disable barometric pressure change indication.

- **BARO** is shown on the digital display while indication is enabled.
- The small hand acts as a barometric pressure change indicator while **ON**, and as a Tide Graph indicator while **OFF**.
- Barometric pressure change indication is not performed when there is no significant barometric pressure change.
- Note that barometric pressure change indication will turn off automatically 24 hours after you turn it on or if battery power goes low.
- Note that time calibration signal reception and power saving (page E-19) are disabled while barometric pressure change indication is enabled.
- Note that barometric pressure change indication cannot be enabled while the watch's battery is low.

Pressure Sensor Calibration

The pressure sensor built into the watch is calibrated at the factory and normally requires no further adjustment. If you notice serious errors in the pressure readings produced by the watch, you can calibrate the sensor to correct the errors.

Important!

- Incorrectly calibrating the barometric pressure sensor can result in incorrect readings. Before performing the calibration procedure, compare the readings produced by the watch with those of another reliable and accurate barometer.

To calibrate the pressure sensor

1. Take a reading with another measurement device to determine the exact current barometric pressure.
2. While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **BARO** appears on the display.
3. Pull out the crown. This will cause the current barometric pressure reading value to flash on the digital display.
4. Rotate the crown to adjust the barometric pressure value.
   - The calibration unit is 1 hPa (0.05 inHg).
   - To return the currently flashing value to its initial factory default setting, press Ⓐ and Ⓒ at the same time. **OFF** will appear at the flashing location for about one second, followed by the initial default value.
5. After you complete calibration, push the crown back in.

Recording Barometric Pressure

You can use the procedure in this section to create a record of your current barometric pressure, along with the date and time of the reading. You can later recall a record to view it.

Important!

- The watch has memory that is shared for storage of up to 40 data records, including barometric pressure data. Note that recording new data when there are 40 data records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record the barometric pressure

While taking barometric pressure readings, hold down Ⓐ for at least two seconds.

- This records the barometric pressure along with the current date and time.
- The watch will return to the Barometer Mode screen automatically after recording is complete.

Barometer Precautions

- The pressure sensor built into this watch measures changes in air pressure, which you can then apply to your own weather predictions. It is not intended for use as a precision instrument in official weather prediction or reporting applications.
- Sudden temperature changes can affect pressure sensor readings. Because of this, there may be some error in the readings produced by the watch.

Taking Direction Readings

You can use the Digital Compass Mode to determine the direction of north, and to check your bearing to a destination.

- For information about what you can do to improve digital compass reading accuracy, see "Calibrating the Bearing Sensor" (page E-57) and "Digital Compass Precautions" (page E-64).

To take a direction reading

The watch's Digital Compass corrects to level automatically when it is difficult to control your posture while mountain climbing, etc. (Auto Level Correction)

- **- - -** is displayed when the angle is too great.

1. Point the 12 o'clock position of the watch in the direction you want to read.
2. While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **COMP** appears on the display.
   - See "Selecting a Mode" (page E-30). A direction reading operation starts automatically when you enter the Digital Compass Mode.
   - Starting a digital compass operation will cause the second hand to move momentarily to the 12 o'clock position. After that, it will indicate magnetic north.

Objective
North
Bearing to objective: Northwest
N: North
E: East
W: West
S: South
Bearing angle to objective

Bearing Indication Meaning
315°
0°
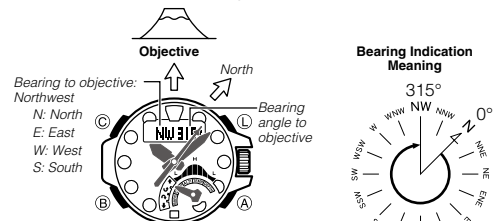
Note
- The watch will return to the Timekeeping Mode about 60 seconds after the direction reading operation is complete.
- Pressing Ⓑ will return to the Timekeeping Mode even if a reading operation is in progress.

Important!
- If the second hand does not point exactly at 12 o'clock after you perform step 2 above, perform the operation under "Hand Home Position Adjustment" (page E-40) to adjust it.
- If the digital display contents start to flash after you perform a reading operation, it means that abnormal magnetism has been detected. Move away from any potential source of strong magnetism and try taking a reading again. If the problem occurs when you try again, continue to keep away from the source of strong magnetism, perform figure 8 calibration or 3-point calibration, and then try taking a reading again. For more information, refer to "To perform figure 8 calibration" (page E-58), "To perform 3-point calibration" (page E-60) and "Location" (page E-65).

Digital Compass Readings
- After the first reading is obtained, the watch will continue to take digital compass readings automatically each second for up to 60 seconds. After that, the reading operation will stop automatically.
- The margin of error for the angle value and the direction indicator is ±11 degrees while the watch is horizontal (in relation to the horizon). If the indicated direction is northwest (**NW**) and 315 degrees, for example, the actual direction can be anywhere from 304 to 326 degrees.
- You can calibrate the bearing sensor if you suspect the direction reading is incorrect.
- Any ongoing direction reading operation is paused temporarily while the watch is performing an alert operation (daily alarm, Hourly Time Signal, countdown timer alarm) or while illumination is turned on (by pressing Ⓛ). The direction reading operation resumes for its remaining duration after the operation that caused it to pause is finished.

Calibrating the Bearing Sensor
You should calibrate the bearing sensor whenever you feel that the direction readings being produced by the watch are off.

• Figure 8 Calibration, 3-point Calibration
You should perform calibration whenever direction readings produced by the watch do not match those of another reliable compass, and before setting off on a trek or climb. Leave the watch on your wrist when performing figure 8 calibration. When performing 3-point calibration, remove the watch from your wrist. Both calibration methods calibrate the bearing sensor. You can use either method for calibration.

Important!
- If the readings produced by the digital compass of this watch are different from those of the other compass, perform figure 8 calibration or 3-point calibration of the digital compass to ensure more accurate readings. Accurate measurements and/or calibration will not be possible in an area exposed to strong magnetic force and indoors (especially inside reinforced concrete structure). In this case, moving outdoors, away from the source of magnetism for measurement and calibration is recommended.

• Magnetic Declination Correction
With magnetic declination correction, you input a magnetic declination angle (difference between magnetic north and true north), which allows the watch to indicate true north. You can perform this procedure when the magnetic declination angle is indicated on the map you are using. Note that you can input the declination angle in whole degree units only, so you may need to round off the value specified on the map. If your map indicates the declination angle as 7.4°, you should input 7°. In the case of 7.6° input 8°. For 7.5° you can input 7° or 8°.

Figure 8 calibration and 3-point calibration precautions
- You should perform figure 8 calibration or 3-point calibration in an environment that is the same as that where you plan to be taking direction readings. If you plan to take direction readings in an open field, for example, calibrate in an open field.

To perform figure 8 calibration
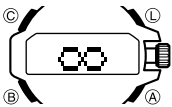
1. In the Digital Compass Mode, pull out the crown.
2. Press Ⓐ.
   - Move your arm in a figure 8 pattern as shown in the illustration.
   - This will cause a figure 8 calibration animation to appear on the watch display. Start moving your hand after confirming that the animation is displayed.

Note
- Allow your wrist to turn as you move your arm.
- Separate your arm from your body as much as possible as you move it.
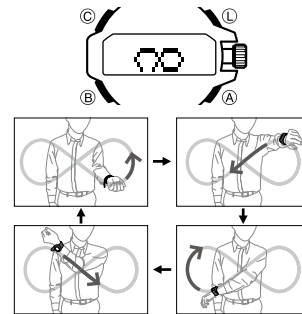
- The calibration measurement result can be confirmed by the sound and display. Move your arm for 15 seconds or more until you understand the result.
- When calibration is successful, a beep will sound. Also **OK** will be displayed.

- If two beeps sound and the display in step 1 appears again, perform the operation from step 2 again.
3. Push the crown back in.
   - This completes the calibration operation.

To perform 3-point calibration

Important!
- Proper declination correction will not be possible if the watch is on a metal surface or a magnetized surface.
- Make sure that you calibrate the first two points carefully so they are pointed 180 degrees away from each other.
- Calibrate the third point by carefully turning the watch over, so the face points 180 degrees from its position when pointed upwards.

1. In the Digital Compass Mode, pull out the crown.
2. Press Ⓑ.
   - This will cause ⬆1 to appear on the digital display, with up arrow (⬆) flashing.
3. As shown in the illustration, as the watch is pointed upwards and parallel with the ground, press Ⓐ.
   - This starts calibration of Point 1.
   - **WAIT** will be shown on the digital display while calibration of Point 1 is in progress. **OK**, **Turn180°** will appear on the digital display if calibration is successful, and then ⬇2 will appear.
   - If ⬆1 is displayed again, press Ⓒ again and re-measure.
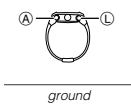
4. Rotate the watch 180 degrees, still pointed upwards.
5. With the watch still pointed upwards and parallel with the ground, press Ⓐ.
   - This starts calibration of Point 2.
   - ⬇**WAIT** is shown on the display while calibration is being performed.
   - When calibration is successful, the words **TURN** and **OVER** will alternate on the display.
   - If ⬇1 is displayed again, perform the operation from step 3 again.

---
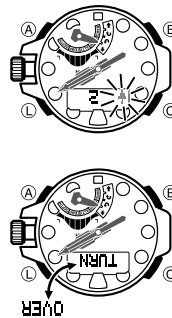
6. Turn over the watch so its face is pointed at the ground.
7. As shown in the illustration, as the watch is pointed downwards and parallel with the ground, press Ⓐ.
   - This starts calibration of Point 3.
   - **WAIT** is shown on the display while calibration is being performed.
   - The watch will beep once when calibration is successful. **OK** will also appear on the display.
   - If the watch beeps twice and ⬆1 is displayed again, perform the operation from step 3 again.
8. Push the crown back in to complete the calibration operation.
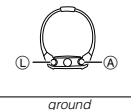
To perform magnetic declination correction

Magnetic declination angle direction value (E, W, or OFF)

Magnetic declination angle value
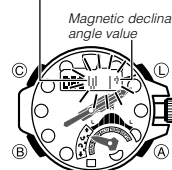
Important!
- While performing the correction operation, keep the watch level without moving it.

1. In the Digital Compass Mode, pull out the crown.
2. Press Ⓑ twice.
   - This will cause **DEC** and the current magnetic declination setting to appear on the digital display.
3. Rotate the crown to change the magnetic declination direction and angle settings as desired.
   - Magnetic declination angle direction settings are described below.

   OFF: No magnetic declination correction performed. The magnetic declination angle with this setting is 0°.
   E: When magnetic north is to the east (east declination)
   W: When magnetic north is to the west (west declination)

   - You can select a value within the range of W 90° to E 90° with these settings.
   - You can disable (**OFF**) magnetic declination correction by pressing Ⓐ and Ⓒ at the same time.
   - The illustration, for example, shows the value you should input and the direction setting you should select when the map shows a magnetic declination of 1° west.
4. After calibration is complete, push the crown back in.

Recording the Bearing to an Objective

You can use the procedure in this section to record a bearing along with the date and time of the reading. You can later recall the reading to view it.

Important!
• The watch has memory that is shared for storage of up to 40 records, including bearing data. Note that recording new data when there are 40 data records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record the bearing to an objective
While taking a direction reading, hold down Ⓐ for at least two seconds.
• This records the bearing along with the current date and time.
• The watch will return to the Bearing Mode screen automatically after recording is complete.

Digital Compass Precautions
Magnetic North and True North

The northerly direction can be expressed either as magnetic north or true north, which are different from each other. Also, it is important to keep in mind that magnetic north moves over time.
• Magnetic north is the north that is indicated by the needle of a compass.
• True north, which is the location of the North Pole of the Earth's axis, is the north that is normally indicated on maps.
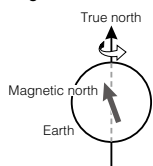• The difference between magnetic north and true north is called the "declination". The closer you get to the North Pole, the greater the declination angle.

Location
• Taking a direction reading when you are near a source of strong magnetism can cause large errors in readings. Because of this, you should avoid taking direction readings while in the vicinity of the following types of objects: permanent magnets (magnetic necklaces, etc.), concentrations of metal (metal doors, lockers, etc.), high tension wires, aerial wires, household appliances (TVs, personal computers, washing machines, freezers, etc.)
• Accurate readings are also impossible indoors, especially inside ferroconcrete structures. This is because the metal framework of such structures picks up magnetism from appliances, etc.
• Accurate direction readings are impossible while in a train, boat, air plane, etc.

Storage
• The precision of the bearing sensor may deteriorate if the watch becomes magnetized. Because of this, you should store the watch away from magnets or any other sources of strong magnetism, including: permanent magnets (magnetic necklaces, etc.), concentrations of metal (metal doors, lockers, etc.), and household appliances (TVs, personal computers, washing machines, freezers, etc.)
• Whenever you suspect that the watch may have become magnetized, perform the procedure under "To perform figure 8 calibration" (page E-58) or "To perform 3-point calibration" (page E-60).

Using the Altimeter Mode

The watch takes altitude readings and displays results based on air pressure measurements taken by a built-in pressure sensor.
• The displayed altitude reading is a relative altitude that is calculated based on measurement of changes in barometric pressure by the watch's pressure sensor. This means that barometric pressure changes can cause readings taken at different times at the same location to be different. Also note that the value displayed by the watch may be different from the actual elevation and/or sea level elevation indicated for the area where you are located. When using the watch's altimeter while mountain climbing, it is recommended that you perform regular calibration in accordance with the local altitude (elevation) indications.

Important!
• See "To specify a reference altitude value" (page E-70) and "Altimeter Precautions" (page E-76) for information about how to minimize differences between readings produced by the watch and values provided by local altitude (elevation) indications.

Getting Ready
Before actually taking an altitude reading you need to select an altitude reading interval.

Selecting the Altitude Reading Interval
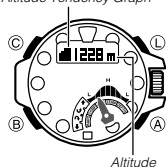You can select either of the two altitude measurement intervals below.
0'05: Readings at one-second intervals for the first three minutes, and then every five seconds for approximately the next hour
2'00: Readings at one-second intervals for the first three minutes, and then every two minutes for approximately the next 12 hours

Note
• If you do not perform any button operation while in the Altimeter Mode, the watch will return to the Timekeeping Mode automatically after 12 hours (altitude reading interval: **2'00**) or after one hour (altitude reading interval: **0'05**).

### To specify the altitude reading interval

1. In the Altimeter Mode (page E-31), pull out the crown.
   • This will cause the current altitude reading value to appear.
2. Press Ⓑ.
   • This will cause **INT** to appear on the digital display, along with the flashing current reading interval setting.
3. Rotate the crown to select either five seconds (**0'05**) or two minutes (**2'00**) as the interval setting.
4. After the setting is the way you want, push the crown back in to exit the setting screen.

Taking Altitude Readings
Use the procedure below to take basic altitude readings.
• See "Using Reference Altitude Values" (page E-69) for information about how to make altimeter readings more accurate.
• See "How does the altimeter work?" (page E-75) for information about how the watch measures altitude.

To take altitude readings

Altitude Tendency Graph

Altitude

While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **ALTI** appears on the display. See "Selecting a Mode" (page E-30).
• This enters the Altimeter Mode and displays an altitude reading after about one second.

Note
• After you are finished, press Ⓑ to return to the Timekeeping Mode and stop altimeter readings.
• The watch will return to the Timekeeping Mode automatically if you do not perform any operation (page E-32).
• The measurement range for altitude is –700 to 10,000 meters (–2,300 to 32,800 feet).

• The displayed altitude value changes to **- - - -** if an altitude reading falls outside the measurement range. An altitude value will reappear as soon as the altitude reading is within the allowable range.
• You can change the unit for displayed altitude values to either meters (m) or feet (ft). See "To specify altitude, depth, barometric pressure, and temperature units" (page E-43).

• The Altitude Tendency Graph shows changes in altitude over the past 6 readings while readings are being taken automatically.

50 meters (10 meters for each block ■)

6 readings ago   *Current reading*
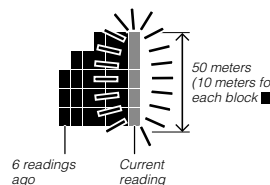
Using Reference Altitude Values
To minimize the chance of reading error, you should update the reference altitude value before setting off on a trek or any other activity where you plan to take altitude readings. During a trek, keep checking the readings produced by the watch against altitude information provided by markers and other information, and update the reference altitude value as required.
• Reading error can be caused by changes in barometric pressure, atmospheric conditions, and elevation.
• Before performing the procedure below, look up the altitude of your current location on a map, the Internet, etc.

To specify a reference altitude value

1. In the Altimeter Mode, pull out the crown.
   • This will cause the current altitude reading value to flash on the digital display.
2. Rotate the crown to change the altitude value in one-meter (five-foot) increments.
   • Change the reference altitude value to an accurate altitude reading that you get from a map or other source.
   • You can set the reference altitude value within the range of –3,000 to 10,000 meters (–9,840 to 32,800 feet).
   • Pressing Ⓐ and Ⓒ at the same time returns to **OFF** (no reference altitude value), so the watch performs air pressure to altitude conversions based on preset data only.
3. After the setting is the way you want, push the crown back in to exit the setting screen.

Recording Altitude
You can use the procedure in this section to create a record of your current altitude, along with the date and time of the reading. You can later recall a record to view it.

Important!
• The watch has memory for storage of up to 40 records of various types of data besides altitude data. Note that recording new data when there are 40 data records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record altitude
In the Altimeter Mode, hold Ⓐ for at least two seconds.
• This records the altitude along with the current date and time.
• The watch will return to the Altimeter Mode screen automatically after the save operation is complete.

Advanced Altimeter Mode Operations
Use the information in this section to obtain more accurate altimeter readings, especially while mountain climbing or trekking.

Note
• To toggle between the altitude differential and current time seconds count, press Ⓒ.

Using an Altitude Differential Value

Altitude differential

If you specify a reference altitude, the second hand of the watch will indicate the difference between the current altitude and the reference altitude. The displayed altitude differential value is updated each time the watch obtains a new altitude reading value.
• Depending on the currently selected display range, the allowable range for the altitude differential value is 100 meters to –100 meters (100 meters = 328 feet), or 1,000 meters to –1,000 meters (1,000 meters = 3,280 feet).
• If a reading value is outside the allowable range, the second hand will point to either **+ OVER** or **– UNDER**.
• The second hand will move to 9 o'clock if a reading is outside the altimeter measurement range (–700 to +10,000 meters), or if a reading error occurs.
• See "Using the Altitude Differential Value While Mountain Climbing or Hiking" (page E-72) for some real-life examples of how to use this feature.

Specifying the Altitude Differential Measurement Range

Altitude differential
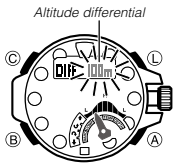
You can use the procedure below to select either ±100 meters or ±1,000 meters as the altitude differential measurement range.

Relative Altitude Measurement Range	Display Unit
±100 meters (±328 feet)	5 meters (16 feet)
±1000 meters (±3280 feet)	50 meters (164 feet)

To specify the altitude differential measurement range
1. In the Altimeter Mode, pull out the crown.
   • This will cause the current altitude reading value to appear.
2. Press Ⓑ twice.
   • This will cause **DIFF** to appear on the digital display, along with the flashing current altitude differential measurement range setting.
3. Rotate the crown to select either 100 meters (**100m**) or 1,000 meters (**1000m**) as the altitude differential measurement range.
4. After the setting is the way you want, push the crown back in to exit the setting screen.

Using the Altitude Differential Value While Mountain Climbing or Hiking
After you specify the altitude differential start point while mountain climbing or hiking, you can easily measure the change in the altitude between that point and other points along the way.

To use the altitude differential value
1. Using the contour lines on a map, determine the altitude difference between your current location and your destination.
2. Take a reading of the altitude at your current location.
3. In the Altimeter Mode, hold down Ⓒ for at least two seconds to specify your current location as the altitude differential start point. Release Ⓒ after **DIFF RESET** and then **RESET** appear on the display.
   • The watch will take an altitude reading, and the second hand will indicate the altitude differential. ±0 (±0 meters) will be indicated as the altitude differential at the reference point.

Current altitude

Altitude differential (Reference location, so ±0 m is indicated.)

4. While comparing the altitude differential you calculated using your map with the altitude differential indicated by the watch's second hand, advance towards your destination.
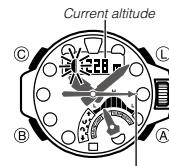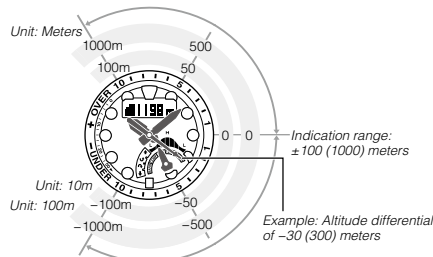   • If the map indicates a differential of +80 meters, you can conclude that you are near your destination when the second hand indicates an altitude differential of +80 meters.

The altitude differential with the reference location is indicated by the second hand (altitude differential indicator) as shown in the illustration below.

Unit: Meters
1000m 500
100m 50
0 – 0 — *Indication range: ±100 (1000) meters*
Unit: 10m
Unit: 100m −100m −50
−1000m −500
Example: Altitude differential of −30 (300) meters

How does the altimeter work?
Generally, air pressure decreases as altitude increases. This watch bases its altitude readings on International Standard Atmosphere (ISA) values stipulated by the International Civil Aviation Organization (ICAO). These values define relationships between altitude and air pressure.
• Note that the conditions below will prevent you from obtaining accurate readings:
   When air pressure changes because of changes in the weather
   Extreme temperature changes
   When the watch itself is subjected to strong impact

There are two standard methods of expressing altitude: absolute altitude, which expresses an absolute height above sea level, and relative altitude, which expresses the difference between the altitudes of two different places. This watch expresses altitudes as relative altitude.

Height of building 130 m (relative altitude)
Rooftop at an altitude of 230 m above sea level (absolute altitude)
**Sea Level**
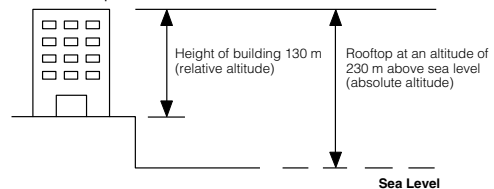
Regular calibration of the watch in accordance with values provided by local altitude (elevation) indications is recommended before taking readings in order to maximize reading accuracy (page E-69).

Altimeter Precautions
• This watch estimates altitude based on air pressure. This means that altitude readings for the same location may vary if air pressure changes.
• Do not use this watch for altitude reading or perform button operations while sky diving, hang gliding, or paragliding, while riding a gyrocopter, glider, or any other aircraft, or while engaging in any other activity where there is the chance of sudden altitude changes.
• Do not use this watch for measuring altitude in applications that demand professional or industrial level precision.
• Remember that the air inside of a commercial aircraft is pressurized. Because of this, the readings produced by this watch will not match the altitude readings announced or indicated by the flight crew.

Precautions Concerning Simultaneous Altitude and Temperature Readings

For the more accurate altitude readings, leaving the watch on your wrist is recommended in order to maintain the watch at a constant temperature.
• When taking readings, keep the watch at as stable a temperature as possible. Changes in temperature can affect readings.

Taking Temperature Readings

This watch uses a temperature sensor to measure temperature.
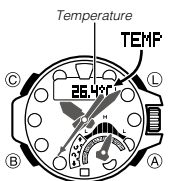
Temperature

To take temperature readings
While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **TEMP** appears on the display. See "Selecting a Mode" (page E-30).
• This enters the Temperature Mode and displays a temperature reading after about one second.
• After a temperature reading operation is started, the watch will take readings every five seconds for the first three minutes, and then every two minutes after that.
• The watch will return to the Timekeeping Mode automatically if you do not perform any operation for about 1 hour after entering the Thermometer Mode.

Temperature
• Temperature is displayed in units of 0.1°C (or 0.2°F).
• The displayed temperature value changes to **- -.-** °C (or °F) if a measured temperature falls outside the range of –10.0°C to 60.0°C (14.0°F to 140.0°F). The temperature value will reappear as soon as the measured temperature is within the allowable range.

Display Units
You can select Celsius (°C) or Fahrenheit (°F) as the display unit for the measured temperature value. See "To specify altitude, depth, barometric pressure, and temperature units" (page E-43).

Temperature Sensor Calibration
The temperature sensor built into the watch is calibrated at the factory and normally requires no further adjustment. If you notice serious errors in the temperature values produced by the watch, you can calibrate the sensor to correct the errors.

Important!
• Incorrectly calibrating the temperature sensor can result in incorrect readings. Carefully read the information below before doing anything.
   – Compare the readings produced by the watch with those of another reliable and accurate thermometer.
   – If adjustment is required, remove the watch from your wrist and wait for 20 or 30 minutes to give the temperature of the watch time to stabilize.

To calibrate the temperature sensor
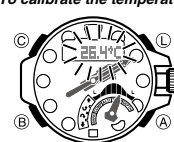
1. Take a reading with another measurement device to determine the exact current temperature.
2. While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **TEMP** appears on the display.
3. Pull out the crown. This will cause the current temperature reading value to flash on the digital display.
4. Rotate the crown to adjust the temperature value.
   • The calibration unit is 0.1°C (0.2°F).
   • To return the currently flashing value to its initial factory default setting, press Ⓐ and Ⓒ at the same time. **OFF** will appear at the flashing location for about one second, followed by the initial default value.
5. After you complete calibration, push the crown back in.

Recording Temperature

You can use the procedure in this section to create a record of the current temperature, along with the date and time of the reading. You can later recall a record to view it.

Important!
• The watch has memory that is shared for storage of up to 40 records, including temperature records. Note that recording new data when there are 40 data records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record the temperature
While taking temperature readings, hold down Ⓐ for at least two seconds.
• This records the temperature along with the current date and time.
• The watch will return to the Temperature Mode screen automatically after recording is complete.

Thermometer Precautions
• Temperature readings are affected by your body temperature, direct sunlight, and moisture. To achieve a more accurate temperature reading, remove the watch from your wrist, place it in a well ventilated location out of direct sunlight, and wipe all moisture from the case. It takes approximately 20 to 30 minutes for the case of the watch to reach the surrounding temperature.

Using the Depth Meter Mode

You can use the Depth Meter Mode to measure water depth and dive time, and automatically store measurements in memory. You can also take direction and temperature readings while measuring depth and dive time.

Important!
• Before diving, enter the Depth Meter Mode while on a boat or in another location outside the water.
• Displayed measurement values are approximate and are intended for general reference only. The Depth Meter Mode of this watch is intended for use while free diving, snorkeling, etc.

Note
• In the Depth Meter Mode, the second hand indicates water depth.
• In the Depth Meter Mode, Auto Light is disabled.

Measurement Data and Ranges

Water Depth Measurement	Measurement unit: 0.1 meter Measuring range: 0 to 50 meters*
Dive Time	Measurement unit: 1 second Measurement range: 59 minutes, 59 seconds

* A measurement outside the allowable range is displayed as **- -.-**.

Measuring Water Depth and Dive Time
While in the Timekeeping Mode or a sensor mode, use Ⓐ to cycle through the sensor modes until **DEPTH** appears on the display. See "Selecting a Mode" (page E-30).
• This enters the Depth Meter Mode and starts depth measurement.

• When you start your dive and reach a depth of 1 meter, the watch will automatically start depth and dive time measurement.

Water depth
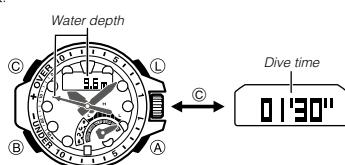
Dive time

• If you ascend to a depth of 1 meter or less, the watch will create a record of your maximum depth and dive time, along with the current date and time, and stop dive time measurement.
  – An auto measurement result is displayed for two to three minutes.

Maximum depth
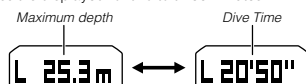
Dive Time

  – Pressing Ⓐ or Ⓒ returns to the normal depth measurement value.
  – While the result is displayed, submerging to a depth greater than one meter will re-start auto measurement.
• Pressing Ⓑ while dive time measurement is in progress will not change to another mode. Perform the button operation after measurement is ended.

• Holding down Ⓑ for two seconds while dive time measurement is in progress will return to the Timekeeping Mode, but measurement values will not be stored in memory at that time.
• If you do not perform any operation for about 60 minutes, the watch will record the depth at that point and return to the Timekeeping Mode.

Taking direction and Temperature Readings while Diving
While depth/diving time measurement is in progress, press Ⓐ to cycle through the sensor modes until the Digital Compass Mode or Temperature Mode screen appears. See "Selecting a Mode" (page E-30).
• Depth/diving time measurement continues to be performed even while the Digital Compass Mode or Temperature Mode screen is displayed.
• This watch will automatically return to the Depth Meter Mode screen if you do not perform any operation for about 10 seconds while the Digital Compass Mode or Temperature Mode screen is displayed.

Important!
• The watch will take approximately five minutes to become acclimatized to sudden temperature changes (difference between air temperature and water temperature, change in the water temperature, etc.) and display the actual water temperature.

Recording Depth and Dive Time
There are two types of recorded Depth Meter Mode data: auto recorded data and manually recorded data. Auto recorded data includes maximum depth and dive time, along with the current date and time. Manually recorded data includes depth, along with the current date and time. Recorded data can be recalled for viewing as required.

Important!
• The watch has memory for storage of up to 40 records of various types besides depth records. Note that recording new data when there are 40 records in memory causes the oldest record to be deleted automatically to make room for the new record. See "Viewing Recorded Data" (page E-87).

To record depth manually
In the Depth Meter Mode, hold down Ⓐ for at least two seconds.
• This records the depth along with the current date and time.

Measurement Error Troubleshooting
Dive measurement start error

Warning mark

If you start a dive without entering the Depth Meter Mode and then enter the Depth Meter Mode at a depth greater than 1.5 meters, the current depth will be displayed using the standard atmosphere 1,013 hPa as the 0-meter depth.
• Since the water surface is not measured as 0 meters, there is large error between the measured depth and the actual depth.
• At this time, a warning mark (**!**) will flash on the display to warn you.
• In this case, measurement starts at a depth of 1.5 meters or greater, so the displayed dive time will be shorter than the actual dive time.

Water Depth Measurement Precautions
Underwater pressure increases along with the depth. In the case of seawater (Specific Gravity: 1.025), water pressure increases one atmosphere (1.03kg/cm^2) with each 10-meter increase in depth. The water depth sensor of your watch detects water pressure, and the watch uses the relationship between water pressure and depth to display a seawater depth value.

Negative water depth error

Negative water depth error

The conditions described below may result in impossible depth readings (−1.0 meter or less).
• Using the watch where abnormal barometric pressure changes occur.
• Entering the Depth Meter Mode while in the water and then surfacing or exiting the water after a dive.

Such conditions will cause a negative depth reading error and cause the warning mark (**!**) to flash on the display. Almost all negative depth errors occur on the water surface. To clear a negative depth error, switch momentarily from the Depth Meter Mode to another mode (Timekeeping Mode, etc.) A flashing warning mark (**!**) indicates that a negative error has occurred, and that there will be large error in displayed data.
• A negative depth error does not indicate malfunction of the watch. The watch will operated normally after the error is cleared. However, any data that was measured prior to the depth error will have large error. Returning to the Timekeeping Mode and entering the Depth Meter Mode again to re-start new measurement is recommended.
• Normal data measurement and log data auto recording will be performed after a negative depth error screen appears, but the warning mark (**!**) will continue to flash.

Sensor error
A sensor error occurs, indicated by display of **ERR** if strong impact or other force damages a sensor, causes faulty sensor connection, etc.

Water depth sensor error

• Even if an error occurs, dive time measurement will continue if it is already started.
• Hold down Ⓑ for about three seconds to enter the Timekeeping Mode.
• Recovering from an error displays the measurement value, but a flashing warning mark (**!**) will also be displayed.

If a sensor error occurs, do not use the watch for diving and contact an authorized CASIO service center as soon as possible for repair.

Troubleshooting when a Flashing Warning Mark (**!**) Appears
A flashing warning mark (**!**) in the Depth Meter Mode means some problem occurred during a measurement, or that there was some operation error. The warning mark also will appear (without flashing) whenever the log data that was recording during the measurement problem or operation error is displayed. Log data for which the warning mark appears should not be used, because it contains large error.

Viewing Recorded Data

You can use the Data Recall Mode to view data that was recorded in the Timekeeping Mode or the sensor modes. You can also view Depth Meter auto recorded data.
• See the following sections for more information: Recording the Date and Time (page E-38), Recording Barometric Pressure (page E-52), Recording the Bearing to an Objective (page E-64), Recording Altitude (page E-70), Recording Temperature (page E-80), Recording Depth and Dive Time (page E-83)

To display a data record
1. In the Timekeeping Mode, press Ⓑ.
   • This will enter the Data Recall Mode.
   • **RECALL** appears on the display for one second, followed by data record that was displayed when the Data Recall Mode was last exited.
2. Use Ⓐ to select the record you want.
   • Records are displayed in the chronological order they were recorded.
   • Manually saved records are assigned numbers in the sequence they are recorded. If you create a new data record (by saving data) while there are already 40 records in memory, record number 01 (the oldest) will be deleted automatically to make room for the new one. The numbers of the other records will also be shifted accordingly.
   • Holding down Ⓐ scrolls records at high speed.

Data Records

Altitude Data

'17. 6.30		P 2:22		1228 m
Year, month, day	*1	Hour, minute	*2	Altitude

Digital Compass Data

'17. 6.30		P 2:22		NW 315°
Year, month, day	*1	Hour, minute	*2	Bearing

Depth Meter Data

'17. 6.30		P 2:22		9.5 m
Year, month, day	*1	Hour, minute	*2	Water depth

Barometer Data

'17. 6.30		P 2:22		1013 hPa
Year, month, day	*1	Hour, minute	*2	Barometric pressure

Temperature Data

'17. 6.30		P 2:22		26.4°C
Year, month, day	*1	Hour, minute	*2	Temperature

Time Data

'17. 6.30		P 2:22 36
Year, month, day	*1	Hour : Minute Second

Depth Meter Mode Auto Recorded Data

'17. 6.30		P 2:22		L 25.3 m
Year, month, day	*1	Hour, minute	*2	Maximum depth

*2 (down arrow) L 20'50" — Dive Time

*1 The display switches after approximately two seconds. After that, you can return to the record number screen by pressing Ⓒ.
*2 The display alternates at an interval of approximately two seconds.

To delete a specific data record
1. In the Data Recall Mode, use Ⓐ to display the data record you want to delete.

   Important!
   • Once a data record is deleted, it cannot be recovered.

2. Hold down Ⓒ. After **CLEAR** starts to flash on the display, keep Ⓒ depressed for another two seconds, and release it as soon as **CLEAR** stops flashing (and remains displayed).
   • Note that holding down Ⓒ for more than five seconds will delete all data records.

To delete all data records
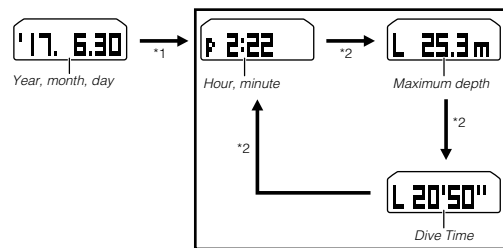Hold down Ⓒ for at least three seconds. After **CLEAR** starts to flash on the display, keep Ⓒ depressed for another two seconds, and release it when **CLEAR ALL** stops flashing (and remains displayed).
• **- : - -** and **- - - -** will alternate on the display.
• This indicates that all data is cleared.

Checking the Current Time in a Different Time Zone

You can use the World Time Mode to display the current time in any one for 31 time zones (48 cities) around the world, and in the UTC (Coordinated Universal Time) time zone. The city that is currently selected in the World Time Mode is called the "World Time City".

Current time in the currently selected World Time City

WT
NYC : NEW YORK
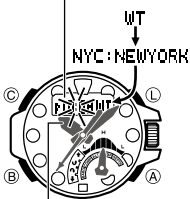
Current Timekeeping Mode time

To enter the World Time Mode
Use Ⓑ to select the World Time Mode (**WT**) as shown on page E-30. **WT** will appear on the display. After that, the currently selected city code and city name (in English) will scroll on the display. Next, the current time in the World Time City will be displayed.
• If you are using 12-hour timekeeping, the **P** (p.m.) and **A** (a.m.) indicators will also appear on the display.
• You can check the city code (English) of the World Time City by pressing Ⓒ.

To configure World Time City and summer time settings

DST indicator

1. In the World Time Mode, pull out the crown.
2. Rotate the crown to select the desired city code and city name (English).
3. Press Ⓑ.
   • This will cause the current DST setting (**ON** or **OFF**) to flash on the display.
4. Rotate the crown to select either on (**ON**) or off (**OFF**) for the DST setting.
   • You cannot switch between standard time/daylight saving time (DST) while **UTC** is selected as the World Time City.
   • Note that the standard time/daylight saving time (DST) setting affects only the currently selected time zone. Other time zones are not affected.
5. After the settings are the way you want, push the crown back in.
   • The display will show the current time in the city you selected.

Swapping the Home City and World Time City

You can use the procedure below to swap your Home City with your World Time City. This function comes in handy for those who often travel between two different time zones. The example below shows what happens when the Home City and World Time City are swapped while the Home City originally is **TOKYO** (**TYO**) and the World Time City is **NEW YORK** (**NYC**).

	Home City	World Time City
Before swapping	Tokyo 10:08 p.m (Standard time)	New York 9:08 a.m. (Daylight saving time)
After swapping	New York 9:08 a.m. (Daylight saving time)	Tokyo 10:08 p.m. (Standard time)

• The procedure below assumes that World Time Mode settings start with the analog hands indicating Tokyo (**TYO**) time and the digital display indicating New York (**NYC**) time.

To swap your Home City and World Time City
In the World Time Mode, hold down Ⓒ for at least three seconds.
• **CITY** (icon) will flash on the display. After that, the analog and digital times will be swapped, so the hour, minute and second hands will indicate the current time in New York (**NYC**).
• With the above example, the digital display will now show the current time in Tokyo (**TYO**).

To access the UTC (Coordinated Universal Time) time zone
In the World Time Mode, hold down Ⓐ for at least three seconds.
• This will cause **UTC** to flash on the display. Next, the current time in the UTC (Coordinated Universal Time) time zone will be displayed.

Checking the Tide Level and Moon Ages (Tide/Moon)

You can use the watch to check the current tide level and Moon age.
• Current tide level and Moon age information is displayed for the currently selected Home Time City. You can also check information for another city by changing to a different Home City (page E-34).
• Note that the tide and Moon information displayed by this watch is approximate and is intended as general information only. Never try to use it for marine navigation or any other purposes requiring accurate measurements.

Viewing the Current Tide Level

In the Timekeeping Mode, the small hand indicates the current tide level.
• The tide level is indicated as one of six levels.
• Besides the Timekeeping Mode, the small hand indicates the tide level in all modes except in the cases below.
  – Each sensor mode
  – When barometric pressure change indication is enabled (**BARO** displayed)
  – While the crown is pulled out
  – In the Tide/Moon Data Mode*
  * The tide level at a specified time is indicated in the Tide/Moon Data Mode.
• The tide in the Home City is indicated even while the watch is in the World Time Mode.
• When barometric change indication (page E-49) is enabled (**BARO** displayed), the small hand acts as the barometric pressure change indicator. You can disable the barometric pressure change indication (**BARO** not displayed) by holding down Ⓒ for at least of two seconds in the Barometer Mode.

Tide (Tide Graph hand)

E-96

• If the Tide Graph hand indication is not correct, check the Timekeeping Mode time and date, and the Home City settings. If this does not correct the problem, refer to "Calibrating the High Tide Time" (page E-99).

Viewing the Current Moon Age

In the Timekeeping Mode, you can view today's Moon age by pressing Ⓒ a number of times. See "Timekeeping" (page E-33).

To view the tide level and Moon age for a specific date and time

1. Use Ⓑ to enter the Tide/Moon Data Mode as shown on page E-30.
   • The display will change as shown below and the tide level at 6:00 a.m. today will be indicated.

TIDE

Tide level at 6:00 a.m. for today

A 6:00
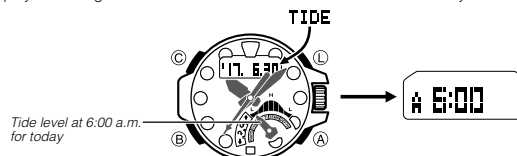
2. Use Ⓐ (+1 hour) to specify the time you want.
   • The Tide Graph changes in accordance with the time setting.
   • Holding down Ⓐ scrolls at high speed.
   • To view tide level and Moon age information for another date, go to step 3 of this procedure.

E-97

3. Press Ⓒ.
   • This displays information in the following sequence: **MOON** → Today's Moon age.

Today's Moon age

MOON

AGE 64

Tide level not indicated
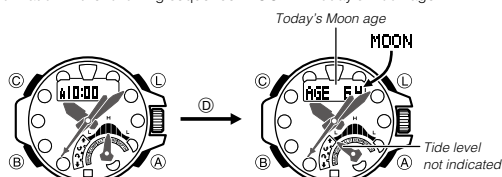
• The Moon age is for noon on the current date, regardless of the indicated time.
• Calculation error for the Moon age is ±1 day.

4. Use Ⓐ to specify the date you want.
   You can use this screen to check the Moon age on the specified date.
   • Pressing Ⓐ will cause today's date to appear on the display. After that, you can use Ⓐ (forward) to scroll the date.
   • Holding down Ⓐ scrolls at high speed.
   • About two seconds after you display the desired date, the Moon age on that date appears.
   • You can select any date through December 31, 2099.
   • To view the tide level for a specified date and time, go to step 5 of this procedure.

E-98

5. Press Ⓒ to return to the tide indication.
   • The tide at 6:00 a.m. on the date you specified in step 4 will be indicated.
   • You can use the same operation as in step 2 of this procedure to specify a time.
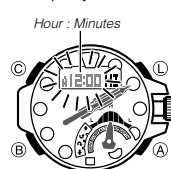
Calibrating the High Tide Time

You obtain more accurate tide indications by the watch by calibrating its high tide time with information you can find on the Internet or in a newspaper.
• Note that the high tide time differs according to your location and the current season.

To calibrate the high tide time

1. Perform steps 1, 3, and 4 under "To view the tide level and Moon age for a specific date and time" and then specify the date whose high tide time you want to calibrate.

Hour : Minutes

2. Pull out the crown.
   • This will cause the hour and minute digits of the high tide time to flash.

3. Rotate the crown to change the minute setting.
   • The hour setting will change in accordance with minute setting changes. To set the hour hand separately, go to step 4 of this procedure.
   • Any time during steps 3 through 5, you can discard your changes and return to the high tide time for the date that was previously selected by pressing Ⓐ and Ⓒ at the same time.

• If there are two high tides on a date, set the time of the first high tide. The watch will automatically calculate the time of the second one.
• If summer time is turned on for your Home Time (**DST** displayed), you should also use summer time when setting the high tide time (page E-34).

E-99

4. Press Ⓑ.
5. Rotate the crown to change the hour setting.
6. Push the crown back in. This completes the calibration operation.
   • Performing the above procedure allows the Tide Graph hand to indicate more accurate tide information.
   • The Tide Graph and Moon Age information you can view in the Tide/Moon Data Mode changes in accordance with the date you specify in step 1 of the above procedure. If you want to view Tide Graph and Moon Age information for a particular date, go back to step 1 and specify the date.
   • The calibration setting you make with this procedure is also applied to Tide Graph information indicated in other modes besides the Tide/Moon Data Mode.

E-100

Looking up Sunrise and Sunset Times

You can use the Sunrise/Sunset Mode to look up the sunrise and sunset times for a particular date (year, month, day) and location.

Current date

▲ SUN
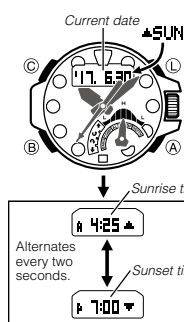
To enter the Sunrise/Sunset Mode

Use Ⓑ to select the Sunrise/Sunset Mode as shown on page E-30.
• **SUN** will appear on the display. After about one second, the date in the currently selected city will appear. After about another two seconds, the sunrise time and sunset time will alternate on the display.
• If you are using 12-hour timekeeping, the **P** (p.m.) and **A** (a.m.) indicators will also appear on the display.
• Before trying to use the Sunrise/Sunset Mode, you need to configure settings for the city code, longitude, and latitude for the location whose sunrise and sunset times you want to view.
• The factory default configuration of the location is: City Code: **TYO** (Tokyo); Latitude: North 35.7 degrees; Longitude: East 139.7 degrees.

Sunrise time

A 4:25 ▲

Alternates every two seconds.

A 7:00 ▼

Sunset time

Note

• If you think that the sunrise and/or sunset times are not correct for some reason, check the watch's city code, longitude and latitude settings.
• The sunrise and sunset times displayed by this watch are times at sea level. Sunrise and sunset times are different at altitudes other than sea level.

E-101

To view the sunrise/sunset time for a particular date

While the sunrise/sunset time is on the display, press Ⓐ and then select a date.
• Pressing Ⓐ causes today's date to appear on the digital display. After that, each press of Ⓐ advances the day by 1.
• The sunrise/sunset times of the selected date will appear when you release the Ⓐ button.
• Holding down Ⓐ scrolls at high speed.
• You can select any date through December 31, 2099.

To look up the sunrise and sunset times for a specific location

Important!
• First, select the city code of the city that is closest to the location whose sunrise/sunset times you want to look up. Next, input the location's latitude and longitude.
• After you are finished looking up the times you want, return the city code to what it was before you changed it. If you input a latitude and longitude without changing the city code, re-input their original settings. Failure to do so will cause the wrong time to be displayed.
• For information about the Home City setting, see "Configuring Home City Settings" (page E-34).

E-102

Latitude

LAT.

35.7 N

Longitude

LON.

139.1 E
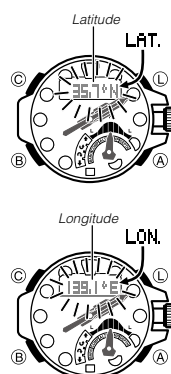
1. In the Timekeeping Mode, pull the crown out.
   • This displays the city code setting screen.
2. Rotate the crown to select the city code nearest the location whose sunrise and sunset times you want to check.
   • If you do not need to specify a longitude and latitude, jump to step 7 here.
3. Press Ⓑ twice to switch to the latitude setting screen.
4. Rotate the crown to adjust the latitude setting.
   • Latitude can be specified in the range shown below.
   65.0°S (65.0 degrees south latitude) to 0°N to 65.0° (65.0 degrees north latitude)
5. Press Ⓑ to switch to the longitude setting screen.
6. Rotate the crown to adjust the longitude setting.
   • Longitude can be specified in the range shown below.
   179.9°W (179.9 degrees west longitude) to 0°E to 180.0°E (180.0 degrees east longitude)
7. Push the crown back in.
8. Use Ⓑ to select the Sunrise/Sunset Mode as shown on page E-30.
   • This displays the sunrise/sunset times of the location you specified.

E-103

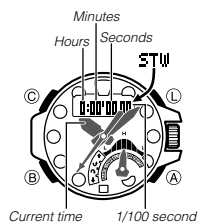# Operation Guide 5477

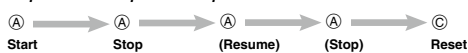**CASIO**®

◼ Using the Stopwatch

The stopwatch measures elapsed time, split times, and two finishes.

Minutes
Hours Seconds
STW
Current time 1/100 second

To enter the Stopwatch Mode
Use Ⓑ to select the Stopwatch Mode (**STW**) as shown on page E-30.

To perform an elapsed time operation

Ⓐ → Ⓐ → Ⓐ → Ⓐ → Ⓒ
Start Stop (Resume) (Stop) Reset

To pause at a split time

Ⓐ → Ⓒ → Ⓒ → Ⓐ → Ⓒ
Start Split Split release Stop Reset
       (**SP** appears on
       the digital
       display.)

To measure two finishes

Ⓐ → Ⓒ → Ⓐ → Ⓒ → Ⓒ
Start Split Stop Split release Reset
       First runner finishes. Second runner Display time of
       (**SP** appears on the finishes. second runner
       digital display.)
   Display time of first
       runner
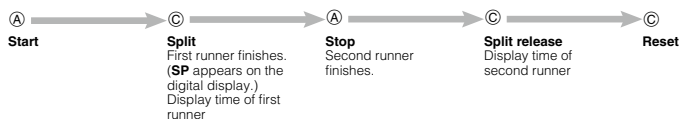
Note
• The Stopwatch Mode can indicate elapsed time up to 23 hours, 59 minutes, 59.99 seconds.
• An ongoing elapsed time measurement operation will continue internally even if you change to another mode. However, if you exit the Stopwatch Mode while a split time is displayed, the split time will not be displayed when you return to the Stopwatch Mode.

◼ Using the Countdown Timer

The countdown timer can be configured to start at a preset time, and sound an alarm when the end of the countdown is reached.

Countdown time
(Minutes, seconds)
TIMER
Current time
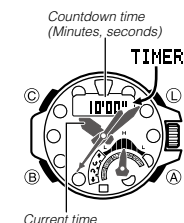
To enter the Countdown Timer Mode
Use Ⓑ to select the Countdown Timer Mode (**TIMER**) as shown on page E-30.
• About one second after **TIMER** appears on the display, the display will change to show the countdown time hours.

To specify the countdown start time
1. Enter the Countdown Timer Mode.
2. Pull out the crown.
   • This will cause the current start time minutes digits to flash on the digital display.
3. Rotate the crown to adjust the minutes setting.
4. After the setting is the way you want, push the crown back in.

To perform a countdown timer operation

Ⓐ → Ⓐ → Ⓐ → Ⓐ → Ⓒ
Start Stop (Resume) (Stop) Reset
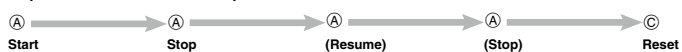
• An alarm sounds for ten seconds when the end of the countdown is reached. This alarm will sound in all modes. The countdown time is reset to its starting value automatically after the alarm ends.
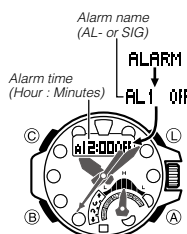
To stop the alarm
Press any button.

◼ Using the Alarm

Alarm name
(AL- or SIG)
ALARM
Alarm time
(Hour : Minutes)
AL1 OFF

You can set five independent daily alarms. When an alarm is turned on, it will sound for about 10 seconds each day when the time in the Timekeeping Mode reaches the preset alarm time. This is true even if the watch is not in the Timekeeping Mode.
You can also turn on an Hourly Time Signal, which will cause the watch to beep twice every hour on the hour.

To enter the Alarm Mode
Use Ⓑ to select the Alarm Mode (**ALARM**) as shown on page E-30.
• About one second after **ALARM** appears on the display, the display will change to show an alarm name (**AL1** through **AL5**) or the **SIG** indicator. The alarm name indicates an alarm screen. **SIG** is shown when the Hourly Time Signal screen is on the display.
• When you enter the Alarm Mode, the data you were viewing when you last exited the mode appears first.

To set an alarm time

Alarm ON/OFF indicator

1. In the Alarm Mode, use Ⓐ to scroll through the alarm screens until the one whose time you want to set is displayed.

AL1 → AL2 → AL3
SIG* ← AL5 ← AL4
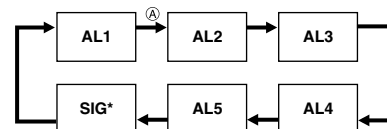
* There is no time setting for the hourly time signal.

2. Pull out the crown.
   • This will cause the hour and minute digits of the alarm time to flash.
3. Rotate the crown to adjust the minute setting.
   • The hour setting will change in accordance with minute setting changes.
4. Press Ⓑ.
5. Rotate the crown to adjust the hour setting.
   • If you are using 12-hour timekeeping, the **P** (p.m.) and **A** (a.m.) indicators will also appear on the display.
6. After the settings are the way you want, push the crown back in.
   • Setting an alarm time causes that alarm to turn on automatically.

To turn an alarm and the Hourly Time Signal on or off
1. In the Alarm Mode, use Ⓐ to select an alarm or the Hourly Time Signal.
2. When the alarm you want or the Hourly Time Signal is selected, press Ⓒ to turn it on and off.

Alarm on indicator
Hourly time signal on indicator
ALM SIG
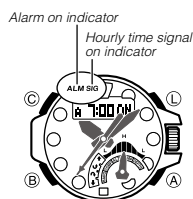
• The alarm on indicator (when any alarm is on), and the Hourly Time Signal on indicator (when the Hourly Time Signal is on) are shown on the display in all modes.

To stop the alarm tone
Press any button.

To test the alarm tone
In the Alarm Mode, hold down Ⓐ to sound the alarm tone.

◼ Illumination

The display of the watch is illuminated for easy reading in the dark.
The watch's auto light switch turns on illumination automatically when you angle the watch towards your face.
• The auto light switch must be enabled (page E-113) for it to operate.

To turn on illumination manually
Press Ⓛ in any mode to illuminate the display.
• Illumination will turn off automatically if an alarm starts to sound or if you perform a crown operation.
• Illumination will not turn on if a calibration signal receive operation or hand movement operation is in progress. Also, illumination may not turn on while a sensor is taking a reading.

To change the illumination duration
1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ six times. This will cause **LIGHT** to appear on the digital display, along with a flashing value (**1** or **3**) indicating the current illumination duration setting.
3. Rotate the crown to select either **1** (1.5 seconds) or **3** (three seconds) for the illumination duration.
4. After the setting is the way you want, push the crown back in.

About the Auto Light Switch

Enabling the auto light switch causes illumination to turn on, whenever you position your wrist as described below in any mode. **Moving the watch to a position that is parallel to the ground and then tilting it towards you more than 40 degrees causes illumination to turn on.**

More than 40°

Wear the watch on the outside of your wrist

Warning!

• **Always make sure you are in a safe place whenever you are reading the display of 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 disabled 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.**

Note

• This watch features a "Full Auto 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.
• The auto light switch is always disabled, regardless of its enabled/disabled setting, when any one of the conditions below exists.
  While any tone (alarm, timer, etc.) is sounding
  While the watch is in the Digital Compass Mode and Depth Meter Mode
  While a receive operation is is in progress
  While a hand movement operation is in progress
• If the auto light switch is enabled, display illumination may be delayed if you angle the watch towards your face while a barometric pressure, altitude, or temperature reading operation is being performed.

To enable or disable the auto light switch

Auto light switch enabled indicator

1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ five times. This will cause **AUTO** to appear on the left of the digital display, along with the flashing current auto light switch setting (**ON** or **OFF**) on the right.
3. Rotate the crown to select either enabled (**ON**) or disabled (**OFF**) for the auto light switch setting.
4. Push the crown back in.
• The auto light switch is automatically disabled whenever battery power drops to Level 4 (page E-15).

Illumination Precautions

• The LED that provides illumination loses power after very long use.
• Illumination may be hard to see when viewed under direct sunlight.
• Illumination turns off automatically whenever an alarm sounds.
• Frequent use of illumination runs down the battery.

Auto light switch precautions

• 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, disable the auto light switch whenever engaging in activities that might cause frequent illumination of the display.
• Note that wearing the watch under your sleeve while the auto light switch is enabled can cause frequent illumination of the display and can run down the battery.

• 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 (page E-111), 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 your face 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.
• 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.

Other Settings

The button operation tone sounds any time you press one of the watch's buttons. You can enable or disable the button operation tone as desired.
• Even if you disable the button operation tone, the alarm, Hourly Time Signal, barometric pressure change indicator, and Countdown Timer Mode alarm all operate normally.

To enable or disable the button operation tone

1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ four times. This will cause the current button operation tone setting (**KEY♪** or **MUTE**) to flash on the digital display.
3. Rotate the crown to select either enabled (**KEY♪**) or disabled (**MUTE**) for the button operation tone setting.
4. Push the crown back in.

To enable or disable Power Saving

1. In the Timekeeping Mode, pull out the crown.
2. Press Ⓑ eight times. This will cause **P.SAVE** to appear on the digital display, along with the flashing current Power Saving setting (**ON** or **OFF**).
3. Rotate the crown to select either enable (**ON**) or disable (**OFF**) for the Power Saving setting.
4. Push the crown back in.

Troubleshooting

Time Setting

See "Radio Controlled Atomic Timekeeping" (page E-20) for information about adjusting the time setting according to a time calibration signal.

■ **The current time setting is off by hours.**
Your Home City setting may be wrong (page E-34). Check your Home City setting and correct it, if necessary.

■ **The current time setting is off by one hour.**
If you are using the watch in an area where time calibration signal reception is possible, see "To configure Home City and summer time settings" (page E-34).
If you are using in the watch in an area where time calibration signal reception is not possible, you may need to change your Home City's standard time/daylight saving time (DST) setting manually. Use the procedure under "To change the current time and date settings manually" (page E-36) to change the standard time/daylight saving time (DST) setting.

Barometric Pressure Readings

■ **Following a relative barometric pressure reading, the watch's second hand points to 9 o'clock.**
• The reading value is outside of the allowable measurement range. See page E-48.
• There may be a problem with the sensor. If **ERR** (error) is on the digital display, refer to "Barometric Pressure, Bearing, Altitude, Temperature, and Depth Readings" (page E-120) for more information.

Taking Direction Readings

■ **Abnormal magnetism detection is indicated.**
• Move away from any potential source of strong magnetism and try taking a reading again.
• If abnormal magnetism is detected again when you retry, it could mean that the watch itself has become magnetized. If this happens, continue to keep away from the source of strong magnetism, perform figure 8 calibration or 3-point calibration, and then try taking a reading again. For more information, refer to "To perform figure 8 calibration" (page E-58), "To perform 3-point calibration" (page E-60), and "Location" (page E-65).

■ **ERR appears on the digital display during sensor reading operations.**
There is something wrong with the sensor. This could be due to nearby strong magnetic force. Move location where magnetism is not present and try again. If, after multiple retries, **ERR** keeps appearing, contact your original retailer or CASIO service center. See "Location" (page E-65).

■ **ERR appears following figure 8 calibration or 3-point calibration.**
If the screen displays hyphens (**- - -**) followed by the **ERR** (error) indicator, it could mean there is something wrong with the sensor.
• Wait for about one second for the **ERR** indicator to disappear from the display, and then calibrate the sensor again.
• If **ERR** continues to appear even after multiple attempts to calibrate, contact your original retailer or authorized CASIO service center.

■ **The direction information indicated by the watch is different from that indicated by a backup compass.**
• Move away from any potential source of strong magnetism, perform figure 8 calibration or 3-point calibration, and then try taking a reading again. For more information, refer to "To perform figure 8 calibration" (page E-58), "To perform 3-point calibration" (page E-60), and "Location" (page E-65).

■ **Direction readings produce different results at the same location.**
• Move away from any potential source of strong magnetism and try taking a reading again. See "Location" (page E-65).

■ **I am having problems taking direction readings indoors.**
• Move away from any potential source of strong magnetism and try taking a reading again. See "Location" (page E-65).

Whenever you have a sensor malfunction, take the watch to your original retailer or nearest authorized CASIO distributor as soon as possible.

Altitude Readings

■ **Altitude readings produce different results at the same location.**

■ **Readings produced by the watch are different from the elevation and/or sea level altitude indications in my area. (Negative sea level altitude values are produced in a location where the indicated elevation is a positive value.)**

■ **I can't get correct altitude readings.**
Relative altitude is calculated based on changes in barometric pressure measurement by the watch's pressure sensor. This means that barometric pressure changes can cause readings taken at different times at the same location to be different. Also note that the value displayed by the watch may be different from the actual elevation and/or sea level elevation indicated for the area where you are located.
When using the watch's altimeter while mountain climbing, you need to be sure to perform regular calibration in accordance with the local altitude (elevation) indications.
For more information, see "To specify a reference altitude value" (page E-70).

■ **Following a relative altitude reading, the watch's second hand points to 9 o'clock.**
• The reading value is outside of the allowable measurement range. See page E-68.
• This could indicate sensor error. If **ERR** (error) is on the digital display, refer to "Barometric Pressure, Bearing, Altitude, Temperature, and Depth Readings" (page E-120) for more information.

Depth Meter Mode

■ **The watch will not enter the Depth Meter Mode.**
LOW or **HML** flashing on the screen indicates that the watch is in the charge recovery state. The watch will not enter the Depth Meter Mode while it is in the charge recovery state.

■ **ERR appears when I try to enter the Depth Meter Mode.**
This indicates that the reference pressure for setting the 0-meter depth is outside of the sensor's allowable measuring range. If the high-altitude limit pressure is 530 hPa or lower, a **ERR** will occur. If the water depth limit pressure is 9,500 hPa or greater, a **ERR** will occur.

Operation Guide 5477

CASIO®

■ **The watch won't enter the Timekeeping Mode.**
If you accidentally enter the Depth Meter Mode while in an aircraft or any other vehicle where there are large changes in air pressure, the watch will interpret the current pressure as being underwater (depth of 1.0 meters or greater). In this condition, the watch will not return to the Timekeeping Mode.
• If this happens, hold down Ⓑ for about two seconds to force the watch to return to the Timekeeping Mode.

■ **The warning mark (!) is flashing on the display.**
Refer to "Troubleshooting when a Flashing Warning Mark (!) Appears" (page E-86).

■ **Depth readings are incorrect.**
When the watch enters the Depth Meter Mode, it sets the current ambient pressure as 0 meters. Because of this, you should always enter the Depth Meter Mode while on the water surface. If you entered the Depth Meter Mode while under water, reset 0 meters on the water surface.

Especially during the summer months, direct sunlight can cause the watch to become abnormally hot. If this happens, leave the watch in the water for two to three minutes to acclimate before using it.

Subjecting the watch to strong shock can affect the accuracy of the depth measurements. If this happens, immediately contact an authorized CASIO service center for inspection and sensor adjustment.

This watch displays sea water depth. Fresh water depth can be obtained by multiplying the displayed depth value by 1.025.

Barometric Pressure, Bearing, Altitude, Temperature, and Depth Readings
■ **ERR appears on the digital display during sensor reading operations.**
This indicates that there is a problem with the sensor, making sensor readings impossible.
• If the error is indicated while a reading operation in progress, restart the operation. If **ERR** appears again, it could mean there is something wrong with the sensor.

• If **ERR** appears frequently, it could mean that the sensor is faulty. Contact your original retailer or CASIO service center.

■ **I can't change the temperature, barometric pressure, and altitude display units.**
When **TYO** (Tokyo) is selected as the Home City, the altitude unit is set automatically to meters (m), the barometric pressure unit to hectopascals (hPa), and the temperature unit to Celsius (°C). These settings cannot be changed.

World Time Mode
■ **The time for my World Time City is off in the World Time Mode.**
This could be due to incorrect switching between standard time and daylight saving time. See "To configure World Time City and summer time settings" (page E-93) for more information.

Charging
■ **The watch does not resume operation after I expose it to light.**
This can happen after the power level drops to Level 5 (page E-15). Keep the watch exposed to light until it recharges sufficiently.

■ **RECOVER is flashing on the digital display.**
The watch is in the charge recovery mode. Wait until the recovery process is complete (about 15 minutes). The watch will recover more quickly if you place it in a brightly lit location.

Note
• Performing repeated illumination and/or sensor reading operations over a short time period can cause a sudden drop in watch's charge. This will cause the watch to enter the charge recovery mode. The watch is in the charge recovery mode when **RECOVER** is flashing on the digital display. The charge recovery mode is the same as a low battery charge state, access to some functions is limited while the watch charge is recovering. Normal operation will resume after recovery is complete. For more information, refer to "Power Recovery Mode" (page E-17).
• A flashing **CHARGE** indicator means that the charge level of the watch has suddenly dropped. Immediately expose the watch to light to charge it.

Time Calibration Signal
The information in this section applies only when **LIS**, **LON**, **MAD**, **PAR**, **ROM**, **BER**, **STO**, **ATH**, **MOW**, **HKG**, **BJS**, **HNL**, **ANC**, **YVR**, **LAX**, **YEA**, **DEN**, **MEX**, **CHI**, **NYC**, **YHZ**, **YYT**, **TPE**, **SEL**, or **TYO** is selected as the Home City. You need to adjust the current time manually when any other city is selected as the Home City.

■ **ERR will be displayed if the manual receive operation fails for some reason.**

Possible Cause	Remedy	Page
• You are wearing or moving the watch, or performing a button operation during the signal receive operation. • The watch is in an area with poor reception conditions.	Keep the watch in an area where reception conditions are good while the signal receive operation is performed.	E-24

Possible Cause	Remedy	Page
You are in an area where signal reception is not possible for some reason.	See "Approximate Reception Ranges".	E-21
The calibration signal is not being transmitted for some reason.	• Check the website of the organization that maintains the time calibration signal in your area for information about its down times. • Try again later.	–

■ **The current time setting changes after I set it manually.**
You may have the watch configured for auto receive of the time calibration signal (page E-23), which will cause the time to be adjusted automatically according to your currently selected Home City. If this results in the wrong time setting, check your Home City setting and correct it, if necessary (page E-34).

■ **The current time setting is off by one hour.**

Possible Cause	Remedy	Page
Signal reception on a day for switching between standard time/daylight saving time (DST) may have failed for some reason.	Perform the operation under "To get ready for a receive operation". The time setting will be adjusted automatically as soon as signal reception is successful.	E-22
	If you are unable to receive the time calibration signal, change the standard time/daylight saving time (DST) setting manually.	E-36

■ **Auto receive is not performed or you cannot perform manual receive.**

Possible Cause	Remedy	Page
The watch is not in the Timekeeping Mode.	Auto receive is performed only while the watch is in the Timekeeping Mode. Enter the Timekeeping Mode.	E-30
Auto Receive is disabled.	Enable Auto Receive.	E-26
Your Home City setting is wrong.	Check your Home City setting and correct it, if necessary.	E-34
There is not enough power for signal reception.	Expose the watch to light to charge it.	E-13
The receive operation is failing for some reason.	Check the causes for receive operation failure and eliminate the problem.	E-27

■ **Signal reception is being performed successfully, but the time and/or day is wrong.**

Possible Cause	Remedy	Page
Your Home City setting is wrong.	Check your Home City setting and correct it, if necessary.	E-34
The DST setting may be incorrect.	Change the DST setting to Auto DST.	E-34

Specifications

Accuracy at normal temperature: ±15 seconds a month (with no signal calibration)
Digital Timekeeping: Hour, minutes, seconds, a.m. (**A**)/ p.m. (**P**), month, day, day of the week, barometric pressure change indication
    Time format: 12-hour and 24-hour
    Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099
    Other: Four display formats (day of the week, month, day; barometric pressure change, month day; hour, minute, second; Moon age); Home City code (can be assigned one of 48 city codes); standard time / daylight saving time (summer time)
Analog Timekeeping: Hour, minutes (hand moves every 10 seconds), seconds
Time Calibration Signal Reception: Auto receive 6 times a day (5 times a day for the Chinese calibration signal) ; Remaining auto receives cancelled as soon as one is successful; Manual receive; Receive Mode
    Receivable Time Calibration Signals: Mainflingen, Germany (Call Sign: DCF77, Frequency: 77.5 kHz); Anthorn, England (Call Sign: MSF, Frequency: 60.0 kHz); Fort Collins, Colorado, the United States (Call Sign: WWVB, Frequency: 60.0 kHz); Fukushima, Japan (Call Sign: JJY, Frequency: 40.0 kHz); Fukuoka/Saga, Japan (Call Sign: JJY, Frequency: 60.0 kHz) ; Shangqiu City, Henan Province, China (Call Sign: BPC, Frequency: 68.5 kHz)

Barometer:
    Measurement and display range:
        260 to 1,100 hPa (or 7.65 to 32.45 inHg)
    Display unit: 1 hPa (or 0.05 inHg)
    Selectable auto measurement interval: 30 minutes or 2 hours
    Barometric Pressure Memory: Up to 40 records total, shared with date/time, bearing, altitude, temperature, and depth data
    Other: Calibration; Barometric Pressure Graph; Barometric pressure differential pointer; Barometric pressure change indicator
Digital Compass: 60 seconds continuous reading; 16 directions; Angle value 0° to 359°; Measurement unit: 1° (digital display)/6° (hand); North indicated by second hand; Auto Level Correction; Compass calibration (figure 8 calibration, 3-point calibration, magnetic declination angle); Bearing Memory (Up to 40 records total, shared with date/time, barometric pressure, altitude, temperature, and depth data)
Altimeter:
    Measurement range: –700 to 10,000 m (or –2,300 to 32,800 ft.) without reference altitude
    Display range: –3,000 to 10,000 m (or –9,840 to 32,800 ft.)
        Negative values can be caused by readings produced based on a reference altitude or due to atmospheric conditions.
    Measurement Unit: 1 m (or 5 ft.)
    Current Altitude Data: Every second for the first 3 minutes, followed by every 5 seconds for approximately 1 hour (**0'05**); every second for the first 3 minutes, followed by every 2 minutes for approximately 12 hours (**2'00**)
    Altitude Memory Data:
        Up to 40 records total, shared with date/time, barometric pressure, bearing, temperature, and depth data

    Other: Reference altitude setting; Altitude differential (–100 to +100m/–1,000 to +1,000m); Altitude measurement interval (**0'05** or **2'00**)
Thermometer:
    Measurement and display range: –10.0 to 60.0°C (or 14.0 to 140.0°F)
    Display unit: 0.1°C (or 0.2°F)
    Temperature Memory: Up to 40 records total, shared with date/time, barometric pressure, bearing, altitude, and depth data
    Other: Calibration
Water Temperature Measurement:
    Measurement Range
    Depth: 0 to 50 meters; Dive time: 59 minutes, 59 seconds
    Measurement Units
    Depth: 0.1 meters; Dive time: 1 second
    Depth Memory
    Recorded data: Up to 40 records total, shared with date/time, barometric pressure, bearing, altitude, and temperature data
Pressure Sensor Precision:
    Measurement accuracy: Within ±3hPa (0.1 inHg) (Altimeter accuracy: Within ± 75m (246 ft.))
    • Values are guaranteed for a temperature range of –10°C to 40°C (14°F to 104°F).
    • Precision is lessened by strong impact to either the watch or the sensor, and by temperature extremes.
Bearing Sensor Precision:
    Direction: Within ±10°
        Values are guaranteed for a temperature range of 10°C to 40°C (50°F to 104°F).
    North indicated by second hand: Within ±2 segments

Temperature Sensor Precision:
±2°C (±3.6°F) in range of −10°C to 60°C (14.0°F to 140.0°F)

Water depth sensor accuracy:
−0.5 to +1.0 m (guaranteed accuracy temperature range: −10°C to 60°C)
Indicated depths are for seawater (Specific Gravity: 1.025)

Tide/Moon Data:
Tide levels (Tide Graph), Moon age; date selection; time selection (Tide Graph only)

Sunrise/sunset:
Sunrise/sunset time display; selectable date

Stopwatch:
Measuring unit: 1/100 second
Measuring capacity: 23:59' 59.99"
Measuring modes: Elapsed time, split time, two finishes

Countdown Timer:
Measuring unit: 1 second
Countdown range: 60 minutes
Setting unit: 1 minute

Alarms: 5 Daily alarms; Hourly time signal

World Time: 48 cities (31 time zones), UTC (Coordinated Universal Time); Home City/World Time City switching; one-touch UTC zone access
Other: Daylight Saving Time/Standard Time

Illumination: LED light (LCD, analog hand area); Selectable illumination duration (approximately 1.5 seconds or 3 seconds); Auto Light Switch (Full Auto Light operates only in the dark)

Other: Battery power indicator; Power Saving; Button operation tone on/off; alarm test; auto hand position adjustment; hand shift feature (to view digital info)

Power Supply: Solar panel and one rechargeable battery
Approximate battery operating time: 6 months (from full charge to Level 4) under the following conditions:
• Alarm: 10 seconds/day
• Light: 1.5 seconds/day
• Time calibration receive: 4 minutes/day
• Display on 18 hours/day, sleep mode 6 hours/day
• Direction reading: 20 times/month (60 seconds continuous reading)
• Barometric Pressure Graph Measurement: 12 times/month
• Mountain Climbing: 0.5 times/month
  (Altitude Measurement: Approximately 1 hour; Barometric Pressure Information Measurement: Approximately 24 hours)
• Depth Meter Measurement: 60 minutes continuous, 0.5 times/month
Approximate battery life can be shortened by more frequent light operation.

Specifications are subject to change without notice.

City Code Table

City Code Table

City Code	City	UTC Offset/ GMT Differential
PPG	Pago Pago	−11
HNL	Honolulu	−10
ANC	Anchorage	−9
YVR	Vancouver	−8
LAX	Los Angeles	−8
YEA	Edmonton	−7
DEN	Denver	−7
MEX	Mexico City	−6
CHI	Chicago	−6
NYC	New York	−5
YHZ	Halifax	−4
YYT	St. Johns	−3.5
BUE	Buenos Aires	−3
RIO	Rio De Janeiro	−3
FEN	Fernando de Noronha	−2
RAI	Praia	−1

City Code	City	UTC Offset/ GMT Differential
UTC		0
LIS	Lisbon	0
LON	London	0
MAD	Madrid	+1
PAR	Paris	+1
ROM	Rome	+1
BER	Berlin	+1
STO	Stockholm	+1
ATH	Athens	+2
CAI	Cairo	+2
JRS	Jerusalem	+2
MOW	Moscow	+3
JED	Jeddah	+3
THR	Tehran	+3.5
DXB	Dubai	+4
KBL	Kabul	+4.5
KHI	Karachi	+5

City Code	City	UTC Offset/ GMT Differential
DEL	Delhi	+5.5
KTM	Kathmandu	+5.75
DAC	Dhaka	+6
RGN	Yangon	+6.5
BKK	Bangkok	+7
SIN	Singapore	+8
HKG	Hong Kong	+8
BJS	Beijing	+8
TPE	Taipei	+8
SEL	Seoul	+9
TYO	Tokyo	+9
ADL	Adelaide	+9.5
GUM	Guam	+10
SYD	Sydney	+10
NOU	Noumea	+11
WLG	Wellington	+12

• This table shows the city codes of this watch. (As of January 2016)
• The rules governing global times (GMT differential and UTC offset) and summer time are determined by each individual country.