

Operation Guide 3445

CASIO®

Congratulations upon your selection of this CASIO watch.

ENGLISH

Applications

The built-in sensors of this watch measure direction, barometric pressure, temperature, and water depth. Measured values are then shown on the display. Such features make this watch useful when diving 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 diving or other activities in which losing your way can create a dangerous or life-threatening situation, always use a second underwater 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.

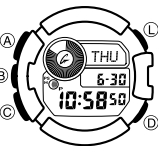
Important!

- The watch's water depth measurement function is intended to be used as a backup depth gauge.
- Whenever you use the digital compass of this watch for serious diving or other activities, be sure to always take along another underwater compass to confirm readings. If the readings produced by the digital compass of this watch are different from those of the other compass, perform directional calibration of the digital compass to ensure more accurate readings.
- 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.)

E

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About This Manual



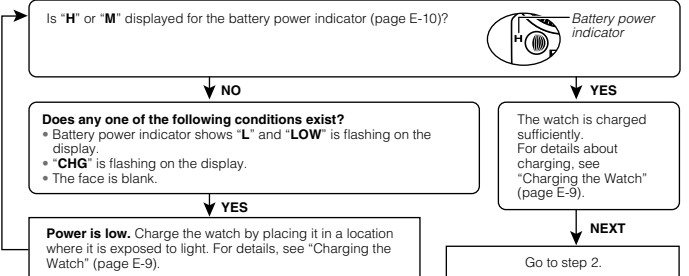
- Button operations are indicated using the letters shown in the illustration.
- Note that the product illustrations in this manual are intended for reference only, and so the actual product may appear somewhat different than depicted by an illustration.

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Things to check before using the watch

1. Check the battery power level.



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-30) 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-16).
- To set the time manually
See "Configuring Current Time and Date Settings Manually" (page E-32).

The watch is now ready for use.

- For details about the watch's radio controlled timekeeping feature, see "Radio Controlled Atomic Timekeeping" (page E-14).

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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-13) 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 following conditions for long periods.

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

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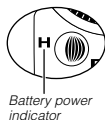
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Important!

- Allowing the watch to become very hot can cause its liquid crystal display to black out. The appearance of the LCD should become normal again when the watch returns to a lower temperature.
- Turn on the watch's Power Saving function (page E-13) 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

You can get an idea of the watch's power level by observing the battery power indicator on the display.



Level	Battery Power Indicator	Function Status
1 (H)		All functions enabled. Before using the Diving Mode, charge the battery at least to Level 2.
2 (M)		All functions enabled. Before using the Diving Mode, charge the battery at least to Level 2.
3 (L)		Auto and manual receive, illumination, beeper, Diving Mode, Digital Compass Mode, Thermometer Mode, and Tide/Moon Mode operation disabled.

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- If all of the battery power indicators (**H**, **M**, **L**) are flashing and the **CHG** (charge) indicator also is flashing, it means the battery level is very low. Expose the watch to bright light as soon as possible.
- Even if battery power is at Level 1 (**H**) or Level 2 (**M**), the Digital Compass Mode, Thermometer Mode, or Diving Mode sensor may be disabled if there is not enough voltage available to power it sufficiently. This is indicated when all of the battery power indicators (**H**, **M**, **L**) are flashing.
- Frequent flashing of all of the battery power indicators (**H**, **M**, **L**) 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)	5 min.	2 hours			14 hours	4 hours
Sunlight through a window (10,000 lux)	24 min.	6 hours			71 hours	19 hours
Daylight through a window on a cloudy day (5,000 lux)	48 min.	11 hours			143 hours	39 hours
Indoor fluorescent lighting (500 lux)	8 hours	142 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-125).

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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-32) for more information.

This section explains how the watch updates its time settings 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.

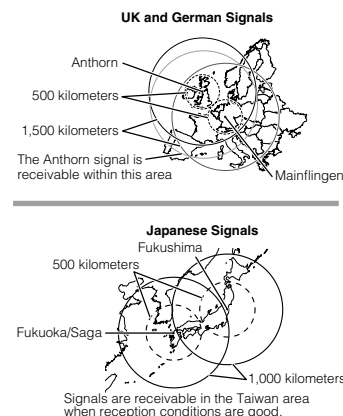
If your Home City Code setting is this:	The watch can receive the signal from the transmitter located here:
LIS, LON, MAD, PAR, ROM, BER, STO, ATH, MOW	Anthorn (England), Mainflingen (Germany)
HKG, BJS	Shanghai City (China)
TPE, SEL, TYO	Fukushima (Japan), Fukuoka/Saga (Japan)
HNL, ANC, YVR, LAX, YEA, DEN, MEX, CHI, NYC, YHZ, YYT	Fort Collins, Colorado (United States)

Important!

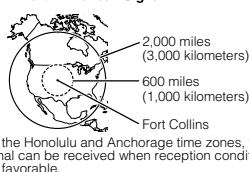
- The areas covered by **MOW**, **HNL** and **ANC** are quite far from the calibration signal transmitters, so certain conditions may cause reception problems.
- When **HKG** or **BJS** is selected as the Home City, only the time and date are adjusted according to the time calibration signal. You need to switch manually between standard time and daylight saving time (DST) if required. See "To configure Home City and summer time settings" (page E-30) for information about how to do this.

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Approximate Reception Ranges

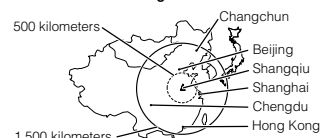


North American Signal



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

Chinese Signal



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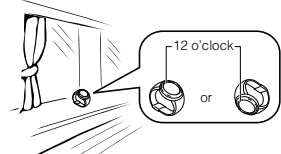
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- Even when the watch is within range of a transmitter, signal reception may be impossible due to the effects of geographic contours, structures, weather, the time of year, the time of day, radio interference, etc. The signal becomes weaker at distances 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

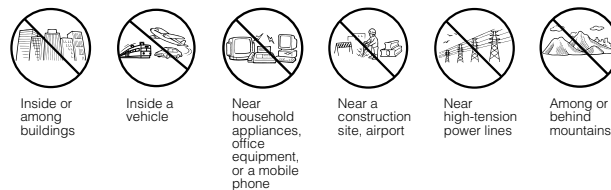
1. Confirm that the watch is in the Timekeeping Mode or World Time Mode. If it isn't, use **©** to enter the Timekeeping Mode or World Time Mode (page E-26).
2. The antenna of this watch is located on its 12 o'clock side. Position the watch with 12 o'clock facing towards a window as shown in the nearby illustration. Make sure there are no metal objects nearby.



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- 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.



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-18.

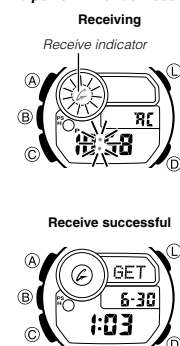
Auto Receive

- 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 or World Time Mode. The receive operation is not performed if a calibration time is reached while you are configuring settings.

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- You can use the procedure under "To turn auto receive on or off" (page E-21) to enable or disable auto receive.

To perform manual receive



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1. Use **©** to select the Receive Mode (R/C) as shown on page E-26.
 - One second after R/C appears on the display, the text **RECEIVED** will scroll across the upper display.
2. Hold down **Ⓐ** until **RC Hold** appears on the display and then disappears.
 - A signal level indicator (**L1**, **L2**, or **L3**, see page E-20) 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 press any button or if you do not perform any button operation for about two or three minutes.

Receive failed



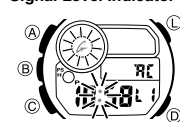
- If the current reception fails but a previous reception (within the last 24 hours) was successful, the display shows the receive indicator and the **ERR** indicator. If the **ERR** indicator only is displayed (without the receive indicator), it means that all of the receive operations over the past 24 hours have failed. The watch will return to the Timekeeping Mode without changing the time setting if you press any button or if you do not perform any button operation for about two or three minutes.

Note

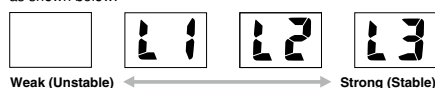
- You can interrupt a time calibration signal reception operation by pressing any button.

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Signal Level Indicator



During manual receive, the signal level indicator displays the signal level as shown below.

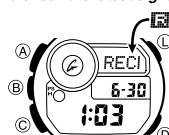


The level indication will change in accordance with reception conditions while reception is being performed. As you watch the signal level indicator, keep the watch in a location that best maintains stable reception.

- 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.

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To check the latest signal reception results



Enter the Receive Mode (page E-26).

- When receive is successful, the display shows the time and date that receive was successful. --- indicates that none of the reception operations were successful.
- To return to the Timekeeping Mode, press **©**.

To turn auto receive on or off



On/Off status

1. Enter the Receive Mode (page E-26).
2. Hold down **Ⓐ** for at least two seconds. First, **SET Hold** will appear on display. After that, **AUTO** will appear in the upper display and the current auto receive setting (**On** or **OFF**) will appear in the lower display. Keep **Ⓐ** depressed until the **AUTO** screen appears. This is the setting screen.
 - Note that the setting screen will not appear if the currently selected Home City is one that does not support time calibration reception.
3. Press **Ⓓ** to toggle auto receive between on (**On**) and off (**OFF**).
4. Press **Ⓐ** to exit the setting screen.
 - A successful receive operation is indicated by a **G** in the center of the graphic dial. Even if a receive operation fails, a **G** will be displayed in the center of the graphic dial if a previous receive operation within the past 24 hours was successful.

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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 following conditions.
 - While the charge level is low (3 or lower) (page E-10), or while the watch is in the power recovery mode (page E-11)
 - When the watch is in the function sleep state ("Power Saving", page E-13)
 - While the watch is in the Diving Mode
 - While a water depth measurement, direction, or temperature reading operation is in progress
 - While a countdown timer operation is in progress (page E-84)
- 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-30).

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Mode Reference Guide

Your watch has 12 "modes". The mode you should select depends on what you want to do.

To do this:	Enter this mode:	See:
• View the current date in the Home City • Configure Home City and daylight saving time (DST) settings • Configure time and date settings manually	Timekeeping Mode	E-29
• Take dive time, water depth, compass, or water temperature readings	Diving Mode	E-35
• Determine your current bearing or the direction from your current location to a destination	Digital Compass Mode	E-64
• Recall dive start time, dive time, maximum depth, low water temperature data	Diving Log Mode	E-59
• Recall time stamp records created in the Timekeeping Mode or in the measurement modes	Time Recall Mode	E-79
• Use the stopwatch to measure elapsed time	Stopwatch Mode	E-82
• Use the countdown timer	Countdown Timer Mode	E-84
• Set an alarm time	Alarm Mode	E-86
• View the current time in one of 48 cities (31 time zones) +UTC around the globe	World Time Mode	E-90
• Display the temperature at your current location • Measure temperature	Thermometer Mode	E-92
• View tide levels (Tide Graph), the Moon shape (Moon phase) and Moon age for a specified date	Tide/Moon Mode	E-95

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To do this:	Enter this mode:	See:
<ul style="list-style-type: none"> Perform a manual time calibration signal receive operation Check whether the last receive operation was successful Configure auto receive settings 	Receive Mode	E-18

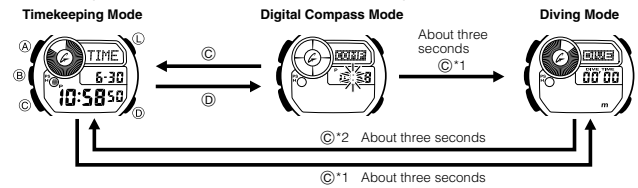
Selecting a Mode

- The illustration below shows which buttons you need to press to navigate between modes.

Use the button operations shown below to navigate between the Timekeeping Mode, Diving Mode, and Digital Compass Mode. For information about navigating to other modes, see page E-26.

Important!

- You can enter the Diving Mode from any mode.
- To enter the Digital Compass Mode, first enter the Timekeeping Mode.

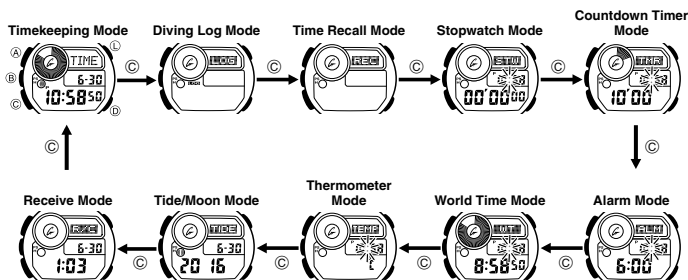


- *1 On a boat or in any other location outside the water, hold down C for about three seconds.
- *2 At a depth of 1.4 meters or less (on a boat, etc.), hold down C for about three seconds.

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Each press of C cycles through modes in the sequence shown below.



General Functions (All Modes)

The functions and operations described in this section can be used in all of the modes.

Direct Timekeeping Mode Access

- To enter the Timekeeping Mode from any mode besides the Diving Mode, hold down C for about one second.

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Auto Return Features

- The watch will automatically return to the Timekeeping Mode if you do not perform any button operation for a particular amount of time in each mode.

Mode Name	Approximate Elapsed Time
Diving Log, Time Recall, Tide/Moon, Alarm, Receive	3 minutes
Thermometer	1 hour
Setting screen (digital setting flashing)	3 minutes
Digital Compass	1 minute
Diving (underwater)	6 hours
Diving (on water surface, before diving)	30 minutes
Diving (on water surface, after diving)	10 minutes

Initial Screens

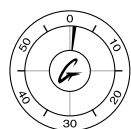
When you enter the Alarm, World Time, or Digital Compass Mode, the data you were viewing when you last exited the mode appears first.

Scrolling

The D and L buttons are used on the setting screen to scroll through data on the display. In most cases, holding down these buttons during a scroll operation will scroll through the data at high speed.

Graphic Dial

The indication of the graphic dial is synced with the minutes and seconds of the current time and time measurements.



- In the Timekeeping Mode and the World Time Mode, segments appear in one-second units. After the 60th second, segments disappear in one-second units.
- During diving log data display, segments appear in one-minute units. After the 60th minute, segments disappear in one-minute units.



- When measuring a dive time in the Diving Mode, and when measuring time in the Stopwatch Mode and Timer Mode, segments flash in one-minute units. After the 60th minute, segments disappear in one-minute units.

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Timekeeping

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

- Each press of A in the Timekeeping Mode will change screen contents as shown below.

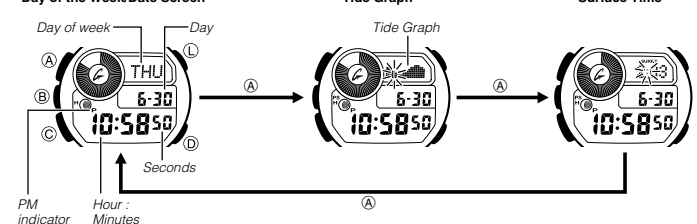
Important!

- Elapsed surface time measurement starts automatically after a dive is complete.
- Elapsed surface time measurement ends 48 hours following dive completion.

Day of the Week/Date Screen

Tide Graph

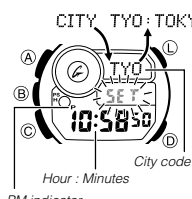
Surface Time*



- * Not displayed after 48 hours following dive completion.

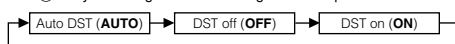
Configuring Home City Settings

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

- In the Timekeeping Mode, hold down A for at least two seconds. SET will flash in the upper display and Hold will flash in the lower display. Next, SET will flash in the middle display and then CITY will appear in the upper display. Keep A depressed until this happens.
 - The city code and the name of the currently selected city will scroll across the display.
 - The watch will exit the setting mode automatically if you do not perform any operation for about two or three minutes.
 - For details about city codes, see the "City Code Table" at the back of this manual.
- Use D (East) and L (West) to scroll through the available city codes.
 - Keep scrolling until the city code you want to select as your Home City is displayed.
- Press C to display the DST setting screen.
- Use D to cycle through the DST settings in the sequence shown below.



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- The Auto DST (AUTO) setting will be available only when a city code that supports time calibration signal reception (page E-14) 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.

- After all of the settings are the way you want, press A to exit the setting screen.
 - 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, 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-14 for details.

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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

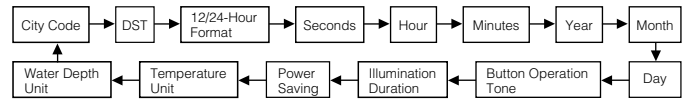
1. In the Timekeeping Mode, hold down (A) for at least two seconds. **SET** will flash in the upper display and **HOLD** will flash in the lower display. Next, **SET** will flash in the middle display and then **CITY** will appear in the upper display. Keep (A) depressed until this happens.

- The city code and the name of the currently selected city will scroll across the display.

City code
Hour : Minutes
PM indicator

E-32

2. Press (C) to move the flashing in the sequence shown below to select the other settings.



- The following steps explain how to configure timekeeping settings only.
- Note that the Water Depth Unit and Temperature Unit settings will not appear when Tokyo is selected as your Home City.

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

Screen	To do this:	Do this:
TYO	Change the city code	Use (D) (East) and (L) (West).
AUTO	Cycle between Auto DST (AUTO), Standard Time (OFF) and Daylight Saving Time (ON).	Press (D).
12H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping.	Press (D).
50	Reset the seconds to 00 (If the current seconds count is between 30 and 59, one is added to the minute count).	Press (D).

E-33

Screen	To do this:	Do this:
10:58	Change the hour or minutes	Use (D) (+) and (L) (-).
2016 6:30	Change the year, month, or day	

4. After all of the settings are the way you want, press (A) to exit the setting screen.

Note

- For information about selecting a Home City and configuring the DST setting, see "Configuring Home City Settings" (page E-30).
- While the 12-hour format is selected for timekeeping, a **P** (PM) indicator will appear for times from noon to 11:59 p.m. No indicator appears for times from midnight to 11:59 a.m. With 24-hour format, time is displayed from 0:00 to 23:59, without any **P** (PM) indicator.
- 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-10).
- The day of the week changes automatically when the date changes.
- Refer to the pages shown below for more information on Timekeeping Mode settings.
 - Button Operation Tone: "To enable or disable the button operation tone" (page E-110)
 - Illumination Duration: "To change the illumination duration" (page E-106)
 - Power Saving: "To enable or disable Power Saving" (page E-111)
 - Temperature Unit, Water Depth Unit (for a city code other than **TYO**): "To specify temperature and water depth display units" (page E-57)

E-34

Using the Diving Functions

Entering the Diving Mode and starting a dive causes the watch to create a log record, and start measuring and recording dive time, water depth, and water temperature automatically. After a dive is complete, the watch also displays the surface time.

Important!

- Charge the battery to at least Level 2 before using it for diving.
- Before diving, enter the Diving Mode while on a boat or in another location outside the water.
- Even if a sensor reading operation results in an error, the current time and dive time will continue to be displayed.
- Low battery power will cause sensor operations to be disabled, but the current time and dive time will continue to be displayed.

Note

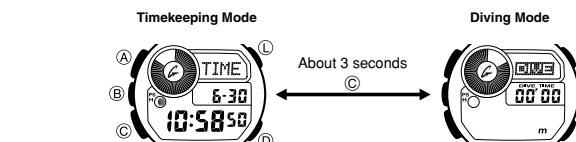
- For details about the type of data that is measured and measuring ranges, see "Diving Function Measurement Data and Ranges" (page E-43).

Before Diving

While on a boat or in any other location outside the water, hold down (C) for about three seconds until **DIVE** appears on the display.

- This enters the Diving Mode. Refer to page E-25 for information about navigating between modes.

E-35



Water Depth Auto 0-meter Reset

Enter the Diving Mode before diving. Ambient pressure at the time the watch enters the Diving Mode is set as the 0-meter depth (page E-41). After that depth, water temperature, and dive time measurements are performed automatically.

Auto Measurement and Log Data Memory During a Dive

While in the Diving Mode, the watch will detect when water depth is 1.5 meters or greater at the start of a dive, and automatically start measuring the elapsed dive time. The dive start time is also recorded in watch memory.

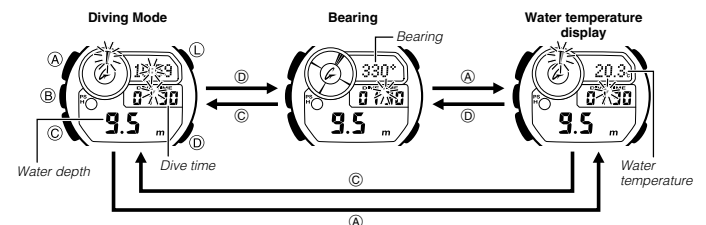
To display water temperature

- Pressing (A) while under water displays the current water temperature for about three seconds.

To take a direction reading

- While in the Diving Mode, pressing (D) will display your bearing for about 20 seconds while measuring water depth.

E-36



Successive Dive Wait State (Depth: 1.4 meters or less)

When the watch detects a depth of 1.4 meters or less while diving, it enters the successive dive wait state described below.

- DIVE TIME** flashes on the display and elapsed dive time measurement (page E-44) is paused.
- Log memory recording is paused.
- The ascent rate alarm (page E-55) is enabled
- Even at a depth of 1.4 meters or less, dive measurement screen remains on the display.

E-37

Entering the successive dive wait state starts measurement of the elapsed surface time.

- If the surface time exceeds 10 minutes, the watch will automatically enter the Timekeeping Mode and stop log memory recording.
- Even though the watch enters the Timekeeping Mode, elapsed surface time measurement continues.

When the watch detects submersion to a depth greater than 1.5 meters, it will exit the successive dive wait state and resume dive time measurement and log memory recording.

- The watch will reset the surface time to zero when it detects resumption of a dive with a depth of 1.5 meters or greater.

Viewing Log Records

While in the successive dive wait state or pre-dive wait state*, press (A).

- This will display the diving log data for your previous dive for about three seconds.
- You can also press (C) while a log record is displayed to exit the log record screen.
- The surface time display will show - - - if more than 48 hours have elapsed.
- The pre-dive wait state is at a depth of 0 to 1.4 meters before a dive starts.

Previous dive maximum depth
Previous dive time

E-38

After Diving

While on a boat or otherwise on the water surface (at a depth of 1.4 meters or less), hold down (C) for three seconds. **HOLD TIME** will appear on the display and then disappear. Keep (C) depressed until it disappears.

- The watch enters the Timekeeping Mode.
- Holding down (C) will not return to the Timekeeping Mode while you are diving (at a depth of 1.5 meters or greater). This prevents unintentional exiting of the Diving Mode while diving.

Repeat diving

- After completing one dive, temporarily enter the Timekeeping Mode and then re-enter the Diving Mode before the next dive.

Auto Timekeeping Mode Return

Before diving

- If you leave the watch in the Diving Mode for about 30 minutes while on the water surface (Depth: 0 meters), it will automatically return to the Timekeeping Mode.
- When on the water surface for a long period in order to move to another location or for some other reason, make sure you confirm that the watch is in the Diving Mode before diving again.

During a Dive

- If a dive time exceeds six hours, the watch will automatically switch to the Timekeeping Mode and record a dive time of 6:00 up to that point.

After diving

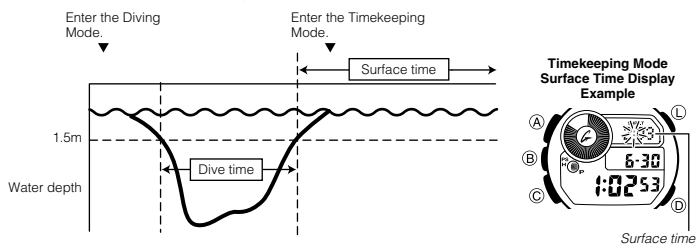
- If more than 10 minutes of surface time elapse at a depth of 1.4 meters or less, the watch will enter the Timekeeping Mode automatically.

E-39

Surface Time Measurement

For repeat diving, your watch has function that automatically measures the time that elapses after a dive ends as surface time. Surface time is measured for up to 48 hours after a dive ends. If you perform a repeat dive while the surface time measurement operation is in progress, the measurement operation will be restarted from after the end of the new dive.

Surface Time Measurement Example



E-40

To display the surface time



In the Timekeeping Mode, press (A).

- Surface time can be displayed only while a surface time measurement operation is in progress.

Useful Functions

To reset 0-meter depth manually

Important!

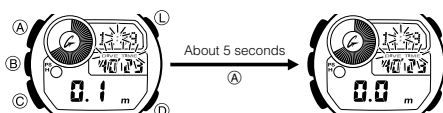
- This function is disabled at depths greater than 1.5 meters in order to avoid operation error.

Normally, the watch uses the barometric pressure it detects immediately after you enter the Diving Mode as the 0-meter depth. If you enter the Diving Mode while in the water (which will result in a wrong auto 0-meter setting), you can use manual 0-meter reset to correct the setting.

In the Diving Mode, hold down (A) for about five seconds.

- This will set the currently detected pressure as the 0-meter depth.

Diving Mode



Dive measurement start error



If you start a dive without entering the Diving Mode and then enter the Diving 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 (I) 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.

E-42

Diving Function Measurement Data and Ranges

Water Depth Measurement

Measurement Data and Ranges

Dive Time	Measurement unit: 1 second Measuring range: 5:59:59* (6 hours)
Water Depth	Measurement unit: 0.1 meter (0.5ft) Measuring range: 0.0 meters to 80 meters (0.0ft~262.5ft)
Digital Compass	Measurement unit: 1° Measuring range: 0 to 359°
Water Temperature	Measurement unit: 0.1°C (0.2°F) Measuring range: -10°C to 60°C (14°F~140°F)
Surface Time	Measurement unit: 1 minute Measuring range: 47:59* (48 hours) * Not displayed after 48 hours following dive completion.

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 to display the actual water temperature.

Display Contents

Display Range	0.0 meters to 80.0 meters (0.0ft~262.5ft) "dEEP" is displayed when the depth reaches or exceeds 80.0 meters. A measurement that is outside the allowable range is displayed as --.
Measuring Interval	1 second* To conserve battery power, measurements at depths up to 0.3 meters are taken at 10-second intervals.

* After the watch enters the Diving Mode, the measuring interval switches to one second when a depth of 0.3 meters or greater is measured.

Water Depth and Water Pressure

Underwater pressure increases along with the depth. In the case of seawater (Specific Gravity: 1.025), water pressure increases one atmosphere (1.03kg/cm²) 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.

Dive Time Measurement

Measurement range (6 hours maximum)

If the dive time exceeds six hours, the watch will automatically enter the Timekeeping Mode and record a dive time of 6:00.

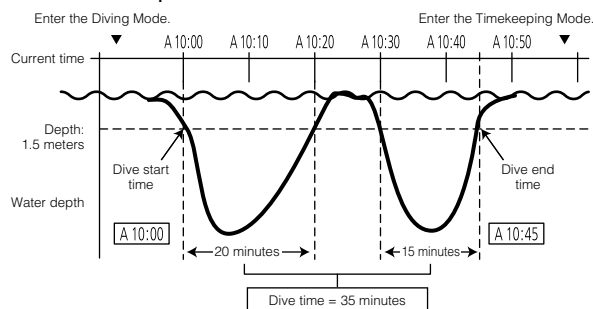
- Less than 180 minutes: minutes, seconds display, measurement in 1-second units
- After 180 minutes: hours, minutes display, 1-minute units

E-44

Dive Time Measurement

Dive time measurement starts and stops automatically at a depth of 1.5 meters. Entering the Diving Mode and then initially submersing to a depth greater than 1.5 meters starts dive time measurement. After that, your dive time will be the cumulative time you spent at depths greater than 1.5 meters during your current dive session. In the example shown below, the total time spent at depths greater than 1.5 meters would be: 20 + 15 = 35 minutes.

Dive Time Measurement Example



E-45

Dive Start

Entering the Diving Mode and then initially submersing to a depth greater than 1.5 meters starts dive time measurement.

Dive End

At the end of a dive, surfacing for the final time (immediately before switching to the Timekeeping Mode) from a depth of 1.5 meters or greater to a depth of 1.4 meters or less (displayed as 0.0 meters) is regarded as the dive end time.

- The dive end time is not recorded.

Dive Time

The dive time displayed by the watch is defined as the cumulative time spent at depths of 1.5 meters and greater following the start of a dive. Resuming a dive (successive dive) within 10 minutes of elapsed surface time is treated as a continuation of the current dive session and its time is added on to the dive time. Refer to the nearby illustration for details (page E-45).

Important!

- Once you enter the Diving Mode, everything measured is considered as part of the same dive until you enter the Timekeeping Mode again.
- To have a subsequent dive recorded in a separate log record, enter the Timekeeping Mode and then re-enter the Diving Mode.
- If during a dive session you repeatedly surface and dive, the time spent on the water surface is not included in the dive time.

Measurement Error Troubleshooting

Negative water depth error

The conditions described below will cause a negative depth reading and cause the warning mark (I) to flash on the display.

- Entering the Diving Mode while in the water (at a depth of 0.1 to 1.4 meters) and then surfacing or exiting the water after a dive.
 - Using the watch where abnormal barometric pressure changes occur.
- Almost all water depth errors occur on the water surface, and are cleared by auto 0-meter reset. A flashing warning mark (I) indicates that a negative water depth 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 Diving Mode again to re-start new measurement is recommended.

Negative water depth error display



- Normal data measurement and log data recording will be performed after a negative depth error is displayed, but the warning mark (I) will continue to flash.

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E-47

Sensor error

A sensor error occurs, indicated by display of **Err** and the flashing warning mark (!) 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 **C** for about three seconds to enter the Timekeeping Mode.

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.

Precautions During Use

Extreme ambient temperature changes

- Your watch measures pressure using a precision pressure sensor. Temperature extremes due to the causes below while using it can make proper measurement impossible.
 - Leaving the watch in direct sunlight
 - Leaving the watch inside a vehicle parked in the sun
 In such cases, leave the watch in the water for two to three minutes to acclimate before using it. A sudden change in temperature while you are using the watch for diving may cause a depth value of 0.1 to 0.3 meters to be displayed while you are on the water surface, or may cause a negative depth error. If a measurement error occurs, refer to page E-47.
- The operating temperature range (accuracy guaranteed) for the watch's water depth sensor and temperature sensor is -10°C to 60°C. The operating temperature range (accuracy guaranteed) for the watch's direction sensor is 10°C to 40°C. Using this watch while ice diving or for other applications that will cause its allowable operating temperature ranges to be exceeded can cause measurement error and/or operation error.

Extreme depth fluctuations

Your watch measures water depth in approximately one-second intervals and displays the result. A sudden change in water depth can cause the displayed depth to be different from the actual depth. In addition, a slow surfacing rate no greater than 10 meters per minute is recommended in the case of sports diving in order to avoid trouble due to lung squeeze, lung problems, the risk of decompression sickness, and other dangerous problems.

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High-altitude and fresh water diving

When you enter the Diving Mode, the watch automatically sets ambient pressure as the 0-meter depth (0-meter reset). This means you can use the watch even when diving in a lake at a high altitude. At a high altitude that exceeds 5,000 meters (Barometric Pressure: 530 hPa or less), **LIMIT ERR** will be displayed, indicating that measurement is not possible.

Note that the watch displays water depth that is converted to seawater depth (Specific Gravity: 1.025). Because of this, your depth when diving in fresh water is actually about 2.5% deeper than the depth displayed by the watch.

Example

Displayed depth: 20 meters × 1.025 = 20.5 (actual depth)

The watch's ascent rate alarm is triggered by ascent of 10 meters per minute or greater. Note that the trigger rate is for seawater diving.

Notice that the higher the altitude you dive at, the lower the barometric pressure compared to that at sea level. This means that there is a greater risk of decompression sickness and other problems than at sea level. Also note that you should engage in high-altitude and fresh water diving only after completing applicable special training.

Diving Mode FAQ

1. What is the meaning of the warning mark (!) on the display?

The warning mark (!) indicates that some problem has occurred in the Diving Mode. Log data produced while a warning mark is on the display is unreliable and should not be used for future dive planning, etc. If a warning mark (!) flashes on the display, refer to page E-62.

E-50

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7. What is the maximum dive time that can be measured?

A dive time of up to six hours can be measured for a single log data record. The watch will return to the Timekeeping Mode if the dive time exceeds six hours. If this happens, log data up to six hours is recorded in memory.

8. In the case of successive diving and repeat diving, how does the watch determine where one dive starts and another dive ends?

The watch applies the criteria below when you return to the water surface (depth of 1.4 meters or less) at the end of a dive.

Successive diving	If you resume your dive (to a depth of 1.5 meters or greater) before 10 minutes of surface time elapse, the current log record is kept open and the new dive is considered as part of the current dive.
Repeat diving	Hold down C for about three seconds to enter the Timekeeping Mode. (The watch will also return to the Timekeeping Mode automatically if the surface time exceeds 10 minutes.) Now if you re-enter the Diving Mode, a separate log record will be started.

9. Can I operate buttons while under water?

The buttons of the watch can be operated while submerged. **L** turns on illumination, **A** displays water temperature, **D** takes a direction reading, and **B** registers a time stamp.

10. What happens if I forget to enter the Diving Mode before starting a dive?

If you enter the water and then enter the Diving Mode while under water (at a depth of 1.5 meters or less), the watch will not be able to perform 0-meter reset correctly, which will cause a dive measurement start error (page E-42). The warning mark (!) will flash on the display, or dive time measurement will start from the point when the Diving Mode is entered. Water depth measurement and log data recording will be performed, but it should be remembered that data in this case is unreliable.

E-52

E-53

15. Are there any precautions when taking the watch on an airplane?

Entering the Diving Mode while flying will display a depth value based on your current surrounding air pressure, which will cause the watch to mistakenly interpret that you are currently under water. While diving, the watch will not return to the Timekeeping Mode if you hold down **C** for about three seconds. This is a safety feature to avoid accidental switching to the Timekeeping Mode from the Diving Mode during a dive. If you are not diving, you can override the safety feature by holding down **C** for about 10 seconds to force the watch to return to the Timekeeping Mode. It is important to note, however, that you should never use this override operation while diving.

16. Does this watch support saturation diving?

No. Never use this watch while saturation diving. Doing so creates the risk of accident and damage to the watch.

17. What should I do if the watch detects abnormal magnetism during a bearing reading operation, which is indicated by the flashing figures in the illustration below?



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 or 3-point calibration, and then try taking a reading again. See "To perform figure 8 calibration" (page E-70), "To perform 3-point calibration" (page E-72), and "Location" (page E-78).

2. What happens if the watch battery goes dead during a dive?

The **H**, **M**, and **L** marks will flash on the display to indicate a battery error. If this happens during a dive, the dive time measurement and the current timekeeping will continue, but water depth measurement, water temperature measurement, and direction detection operations will be disabled. Also note that log data stored before the battery error will be retained, but there will be no log data recorded following the error.

3. Why does data recording start as soon as I enter the water?

Forcefully entering the water can cause you to reach a depth of 1.5 meters or greater immediately after entry, which will cause data recording to start. If you surface to 1.4 meters or less, dive time measurement will pause. Then when you resume your dive, dive time measurement will restart.

4. What should I do if log memory becomes full?

Log memory has a maximum capacity of 20 log records. If log memory already has 20 log records, recording a new log record in the Diving Mode will automatically delete the oldest log record to make room for the new one.

5. What is the maximum water depth that can be measured?

Water depth can be measured up to 80 meters. Exceeding a depth of 80 meters causes **dEEP** to appear on the display. Normal display of the water depth value will resume after you return to a depth of 80 meters or less. In the above case, the maximum depth log data will also show **dEEP**.

6. What is the maximum temperature (water temperature) that can be measured?

Temperature can be measured within the range of -10°C to 60°C. --°C is displayed when a measured value is outside the allowable range.

11. What happens to log data and/or surface time measurement if I change the current time or date setting?

Log data and/or surface time measurement is unaffected if you change the current time or date setting.

12. What happens if I use display illumination too much while diving?

Overuse of illumination, the compass, or other functions that require high power can cause a battery error, which will limit further availability of illumination and sensors. When a battery error occurs, the display will continually show only the current time and dive time (up to six hours).

13. How can I maximize operation provided by a battery charge?

A pressure sensor is activated while the watch is in the Diving Mode, which means that the Diving Mode consumes large amounts of power. Frequent use of the Diving Mode will shorten the life between charges of the chargeable battery. To maximize battery life, be sure to enter the Diving Mode just before you are ready to dive, and exit it as soon as possible after completing the dive.

14. Can I use the watch for high-altitude diving?

When you enter the Diving Mode, the watch automatically sets ambient pressure as the 0-meter depth (0-meter reset). This means you can use the watch even when diving in a lake at a high altitude. At a high altitude that exceeds 5,000 meters (Barometric Pressure: 530 hPa or less), **LIMIT ERR** will appear on the display indicating that measurement is not possible. Note that depth values displayed by this watch are based on seawater depth (Specific Gravity: 1.025), and that your depth when diving in fresh water is actually 2.5% deeper than the displayed depth.

Fresh water depth = Displayed Depth × 1.025
The watch's ascent rate alarm is triggered by ascent of 10 meters per minute or greater. Note that the trigger rate is for seawater diving. Notice that the higher the altitude you dive at, the lower the barometric pressure compared to that at sea level. This means that there is a greater risk of decompression sickness and other problems than at sea level. Make sure that you complete the special applicable training before diving at high altitude or in fresh water.

Ascent Rate Alarm

The ascent rate alarm displays a flashing warning whenever you ascend from a scuba dive (using a self-contained underwater breathing apparatus) at a rate of 10 meters per minute or faster.

- The rate of ascent is a general rule of thumb that indicates the speed at which excessive bubble formation is avoided.
- Breaking this general rule of ascent can lead to decompression sickness. Because of this, the ascent rate alarm of the watch cannot be disabled by you.
- Note that 10 meters per minute is ascent rate setting for diving in seawater, not fresh water.

Notice that the higher the altitude you dive at, the lower the barometric pressure compared to that at sea level. This means that there is a greater risk of decompression sickness and other problems than at sea level.

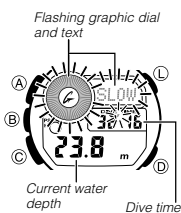
Important!

- Your watch is not a precision measuring instrument. The alarm function is intended for general reference only. Be sure to use this watch together with special-purpose equipment.

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E-55

How is an ascent rate alarm warning indicated?



The watch will sound a Rapid Ascent Alarm for five seconds, and the graphic dial and the text **SLOW** will flash on the display.

- After the alarm stops sounding, **SLOW** and the graphic dial will continue to flash for an additional five seconds (10 seconds total).
- To stop the alarm tone, press any button.

E-56

Specifying Temperature and Water Depth Display Units

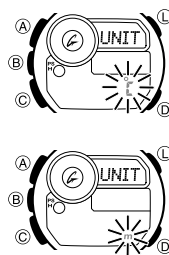
Use the procedure below to specify the temperature and water depth display units to be used in the Thermometer Mode and the Diving Mode.

Important!

- When **TYO** (Tokyo) is selected as the Home City, the water depth unit is set automatically to meters (**m**) and the temperature unit to Celsius (**°C**). These settings cannot be changed.

To specify temperature and water depth display units

1. In the Timekeeping Mode, hold down **(A)** for at least two seconds.
 - First, **SET Hold** will flash on the display, and then **CITY** will appear in the upper display. Keep **(A)** depressed until **CITY** is displayed. After that, the currently selected city code and city name will scroll across the upper display.
2. Press **(C)** as many times as necessary until **UNIT** appears on the display.
 - See the sequence in step 2 of the procedure under "To change the current time and date settings manually" (page E-32) for information about how to scroll through setting screens.



3. Press **(D)** to change the unit settings as shown below.

To specify this unit:	Press (D) to toggle between these settings:
Temperature	°C (Celsius) and °F (Fahrenheit)
Water depth	m (meters) and ft (feet)

4. After all of the settings are the way you want, press **(A)** to exit the setting screen.

Viewing Diving Log Records

You can use the Diving Log Mode to view the dive start date and time, dive time, maximum depth, and low water temperature data that is recorded in the Diving Mode.

To view log records

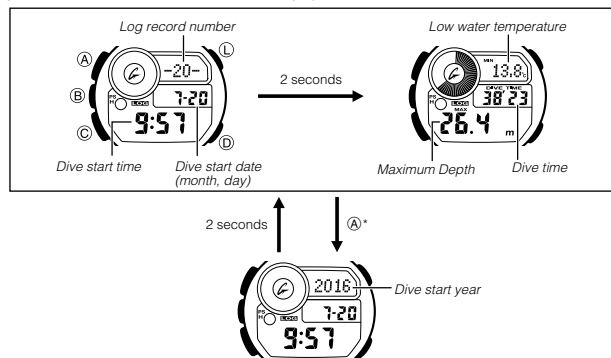
1. In the Timekeeping Mode, press **(C)** once.
 - This enters the Diving Log Mode. **LOG** appears on the display for two seconds, followed by the newest log record.
 - Refer to page E-26 for information about navigating between modes.



E-58

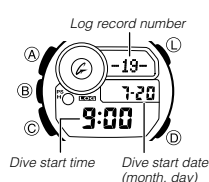
E-59

The figure below shows how a record's data is displayed.



* Pressing **(A)** displays the recorded dive start date (year, month, day) and time for two seconds.

E-60



2. Use **(D)** to select the record you want.
 - Each press of **(D)** scrolls through log records in sequence, from newest (record number **-01-**) to the oldest (record number **-20-**). If there are already 20 log records in memory, the oldest log record is deleted automatically to make room for the new one.
 - Pressing **(D)** displays the previous record, pressing again displays the record before that one, and so on.
 - Holding down **(D)** scrolls the records at high speed.
 - Log record numbers are lower for older data.

To delete a specific log record

1. Enter the Diving Log Mode.
2. Use **(D)** to display the log record you want to delete.

Important!

- Note that holding down **(A)** for more than five seconds in step 3 will delete all log records.
- Once a record is deleted, it cannot be recovered.

3. Hold down **(A)** for about two seconds. First, **CLEAR Hold** will flash on the display. After that, **CLEAR** will stop flashing and remain display. Release **(A)** as soon as **CLEAR** stops flashing.
 - Deleting a record displays the record that comes after it.
 - If the record you delete is the last one stored in memory, the message **NO-DATA** will scroll on the display.

To delete all log records

1. Enter the Diving Log Mode.
2. Hold down **(A)** for about five seconds. First, **CLEAR ALL Hold** will flash on the display. After that, **CLEAR ALL** will stop flashing and remain display. Release **(A)** when **CLEAR ALL** stops flashing.
 - The message **NO-DATA** will scroll on the display to indicate that all log records have been deleted.

Troubleshooting when a Flashing Warning Mark (!) Appears

A flashing warning mark (!) in the Diving 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 for dive planning or other purposes because it contains large error. Also, data that is stored in the Diving Mode while the warning mark is flashing is assigned a CAUTION number (which also appears in the log data record), which identifies the type of problem that occurred.

For details about each type of problem, refer to the pages in the table below.

CAUTION Number	Description	Possible Cause	Page
C-1	Water depth measurement start error	Diving Mode entered while under water (Depth: 1.5 meters or greater).	E-42
C-2	Negative water depth error	• Surfacing after Diving Mode was entered while at a depth of 1.4 meters or less • Extreme temperature or pressure change after entering the Diving Mode	E-47
C-3	Battery error (H , M , L flashing)	• Battery is low so measurement is impossible.	E-10

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CAUTION Number	Description	Possible Cause	Page
C-4	Water depth measurement start error + Negative water depth error	C-1 and C-2 compound error	E-42
C-5	Water depth measurement start error + Battery error	C-1 and C-3 compound error	E-42
C-6	Negative water depth error + Battery error	C-2 and C-3 compound error	E-47
C-7	Water depth measurement start error + Negative water depth error + Battery error	C-1, C-2, and C-3 compound error	E-42
Err-1	Water depth sensor error	• Sensor malfunction or faulty connection making measurement impossible • Detected pressure outside of the sensor's allowable range, etc.	E-48

- Frequent appearance of **Err-1** can indicate watch malfunction. Contact an authorized CASIO service center.
- Appearance of **C-1** through **C-7** indicates an operation error. Refer to the applicable pages for information.

E-63

Taking Direction Readings

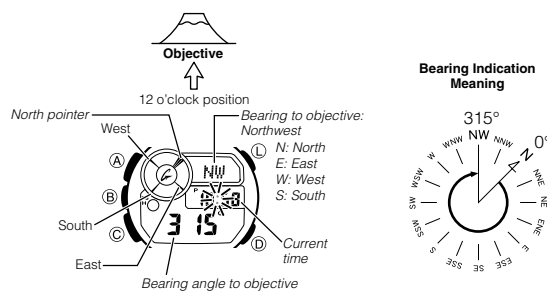
You can use the digital compass to determine the direction to a specific objective, as well as your current position.

- For information about what you can do to improve digital compass reading accuracy, see "Calibrating the Bearing Sensor" (page E-68) and "Digital Compass Precautions" (page E-77).

To take a direction reading

You can enable a Digital Compass auto level correction function if you are having difficulty positioning the watch correctly while diving. If it is, the angle value will show --- to indicate too much of a tilt. In that case, even if a bearing is measured, correct angle display is possible.

- Make sure the watch is in the Timekeeping Mode.
- Place the watch on a flat surface. If you are wearing the watch, make sure that your wrist is horizontal (in relation to the horizon).
- Point the 12 o'clock position of the watch in the direction whose reading you want to take.
- Press **(D)** to start.
 - COMP** will appear in the upper display to indicate that a digital compass operation is in progress.
 - About one second after you press **(D)**, graphic indicators for north, south, east, and west will appear on the graphic dial. The bearing to your objective will also be indicated by literal indications and a bearing angle.



Note

- If the four pointers (north, south, east, west) and the literal direction indication do not appear when you press **(D)**, it could mean that the watch is displaying bearing memory information. If this happens, press **(A)** to delete the current bearing memory contents. For more information, see "Using Bearing Memory" (page E-76).
- To return to the Timekeeping Mode, press **(C)**. Also press **(C)** to return to the Timekeeping Mode when you want to stop a reading operation part way through.

E-64

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Digital Compass Readings

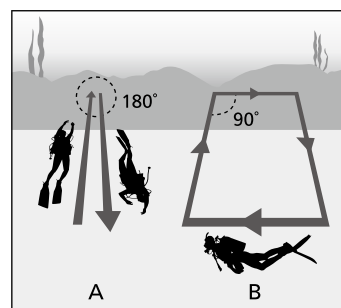
- To restart a reading operation from the beginning, press **(D)**.
- The watch will return to the Timekeeping Mode after the reading operation (which takes about 60 seconds) is complete.
- Pressing **(D)** while a reading operation is in progress will return to the Timekeeping Mode.
- The auto light switch is disabled during the 60 seconds that digital compass readings are being taken.
- Note that taking a direction reading while the watch is not horizontal (in relation to the horizon) can result in large direction reading error.
- 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 **(L)**). The direction reading operation resumes for its remaining duration after the operation that caused it to pause is finished.
- See "Digital Compass Precautions" (page E-77) for important information about taking direction readings.

Example of Compass Use Under Water

While diving where there is poor illumination, where there are no reference marks, or under other conditions where it is difficult to advance directly to an objective, there is the possibility that you may lose track of your current location or the direction from which you have come. Examples of using the Digital Compass Mode for underwater navigation is shown below. Before using the watch for such an application, be sure to complete applicable underwater navigation training.

Underwater navigation

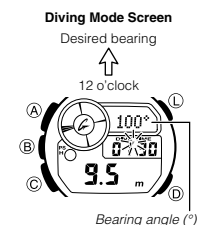
Example: Using your fin kick count or some other means travel a specific distances as shown below



E-66

E-67

A: Diving straight down and then straight back up



- With 12 o'clock of the watch pointed in the direction of your desired bearing, press **(D)** to display the bearing angle in degrees (°).
 - The watch continues to measure water depth even while it is taking a direction reading.
- If the resulting desired bearing angle is 100°, for example, dive straight downwards as you keep the bearing angle reading around 100° and you count your number of fin kicks.
- After you reach your destination, prepare to return to your starting point by changing your bearing by 180°. This should make the return bearing angle your original desired bearing angle plus or minus 180°.
- If the return bearing angle is 280° (100°+180°) as in this example, dive straight as you keep the bearing angle reading around 280° for the required number of fin kicks.

B: Diving in a rectangular pattern with 90° turns that take you back to your original starting point

- Perform the same general steps as in example A, but each time you turn add (for a clockwise rectangle) or subtract (for a counterclockwise rectangle) 90° at every turn.

Calibrating the Bearing Sensor

You should calibrate the bearing sensor whenever you feel that the direction readings being produced by the watch are off. You can use any one of three different bearing sensor calibration methods: figure 8 calibration or 3-point calibration or magnetic declination correction. 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 dive. Leave the watch on your wrist when performing figure 8 calibration. When performing 3-point calibration, remove the watch from your wrist.

E-68

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

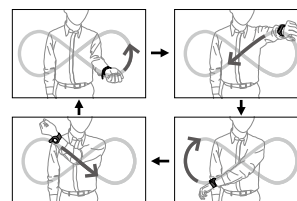
With magnetic declination correction, you input a magnetic declination angle (difference between magnetic north and true north), which allows the watch to indicate true north. You can perform this procedure when the magnetic declination angle is indicated on the map you are using. Note that you can input 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 can use any two opposing directions for figure 8 calibration and 3-point calibration. You must, however, make sure that they are 180 degrees opposite each other. Remember that if you perform the procedure incorrectly, you will get wrong bearing sensor readings.
- 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.

Note

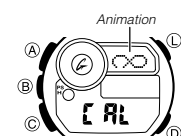
- Allow your wrist to turn as you move your arm.
- Separate your arm from your body as much as possible as you move it.



- When calibration is successful, **OK** will appear on the display and then the watch will start taking direction readings. This indicates that calibration is complete.
- If **ERR** appears on the display, press **(D)** and then perform the procedure from step 2 again.

To perform figure 8 calibration

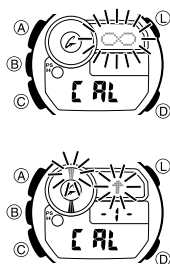
- In the Digital Compass Mode, hold down **(A)** for at least two seconds.
 - SET Hold** will flash on the display and then **CAL** will appear. Keep **(A)** depressed until **CAL** appears.
- Press **(D)**.
 - Move your arm in a figure 8 pattern as shown in the illustration.
 - This will cause a figure 8 calibration animation to appear on the display. After confirming that the animation is displayed, move your arm.



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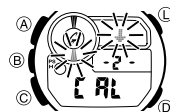
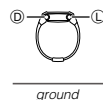
E-71

To perform 3-point calibration



Important!

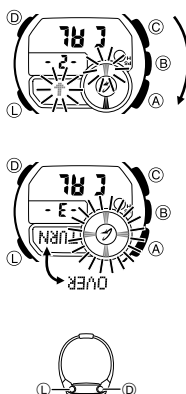
- Proper declination correction will not be possible if the watch is on a metal surface or a magnetized surface.
 - When setting Point 2, properly point the watch in the direction that 180° opposite that of Point 1.
 - When setting Point 3, properly turn the watch over 180°.
1. In the Digital Compass Mode, hold down (A) for at least two seconds.
 - SET Hold will flash on the display and then CAL will appear. Keep (A) depressed until CAL appears.
 2. Press (C).
 - This will cause ↑ -1- CAL to appear on the digital display, with an up arrow (↑) flashing.



3. With the watch pointed upwards and parallel with the ground as shown in the illustration, press (D).
 - WAIT will be shown on the digital display while calibration of Point 1 is in progress. Turn 180° will appear on the digital display if calibration is successful, and then ↓ -2- will appear.
 - If calibration fails for some reason, return to step 2 of this procedure and try again.

E-72

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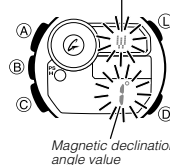


4. Leaving the watch pointed upwards, rotate it as precisely as possible 180 degrees from point 1.
5. Keeping the watch parallel to the ground, press (D) to calibrate Point 2.
 - WAIT is shown on the display while calibration is being performed.
 - When calibration is successful, the words TURN and OVER will alternate on the display. After that, -3- will appear on the display.
 - If calibration fails for some reason, return to step 2 of this procedure and try again.
6. Turn over the watch so its face is pointed at the ground.
 - In this case, it makes no difference what direction the 12 o'clock position of the watch is pointed.
7. With the watch pointed downwards and parallel with the ground as shown in the illustration, press (D).
 - This starts calibration of Point 3.
 - WAIT is shown on the display while calibration is being performed.
 - If calibration is successful, the watch will beep once. Also, the watch will display OK and start taking a direction reading. This indicates that calibration is complete.
 - If the watch beeps three times and displays ERR, perform the procedure from step 3 again.

To perform magnetic declination correction

- Keep the watch level and don't move it during the calibration process.
- For information about magnetic declination, see "Magnetic North and True North" (page E-77).

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

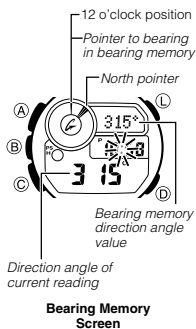


1. In the Digital Compass Mode, hold down (A) for at least two seconds. SET Hold will flash on the display and then CAL will appear. Keep (A) depressed until CAL appears.
2. Press (C) twice.
 - DEC will appear on the display and then the current magnetic declination angle setting will flash on the display.
3. Use (D) (East) and (L) (West) to change the settings.
 - The following explains magnetic declination angle direction settings.
 - 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 turn off (OFF) magnetic declination correction by pressing (D) and (L) 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. When the setting is the way you want, press (A) to exit the setting screen.

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Using Bearing Memory



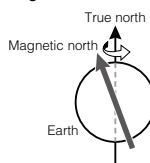
Bearing Memory lets you temporarily store and display a direction reading so you can use it as a reference as you take subsequent digital compass readings. The Bearing Memory screen displays the direction angle for the stored reading, along with a pointer that indicates the stored reading. When you take digital compass readings while the Bearing Memory screen is displayed, the direction angle of the current digital compass reading (as read from the 12 o'clock position of the watch) and the stored Bearing Memory direction reading will both be shown.

To store a direction angle reading in Bearing Memory

1. Press (D) to start a digital compass reading operation (page E-64).
 - This will take an initial reading and then take readings every second for 60 seconds.
 - If a bearing memory direction angle value is already displayed, it means that there is a reading already stored in Bearing Memory. If this happens, press (A) to clear the Bearing Memory reading and exit the bearing memory screen before performing the above step.

2. During the 60 seconds that digital compass readings are being taken, press (A) to store the current reading in Bearing Memory.
 - The Bearing Memory direction angle is displayed for about one second as it is stored in Bearing Memory. After that, the Bearing Memory screen (which shows the bearing memory direction angle and pointer) will appear, and a new 60-second direction reading operation will start.
 - You can press (D) at any time while the Bearing Memory screen is displayed, to start a new 60-second direction reading operation. Doing so will display the direction angle for the direction that the 12 o'clock position of the watch is pointed. The direction angle of the current reading will disappear from the display after the 60-second direction reading operation is complete.
 - During the first 60 seconds after you display the Bearing Memory screen or during a 60-second direction reading operation you triggered by pressing (D) while the Bearing Memory screen is on the display, the direction stored in memory is indicated by a Bearing Memory pointer.
 - Pressing (A) while the Bearing Memory screen is displayed will clear the reading currently in Bearing Memory and start a new 60-second direction reading operation.

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.

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E-77

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 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 also 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-70) or "To perform 3-point calibration" (page E-72).

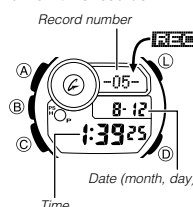
Viewing Time Stamp Records (Time Recall)

You can use the Time Recall Mode to view time stamp records you created in the Timekeeping Mode and other modes.

To create a time stamp record

- To create a time stamp record, hold down (B) for about one second in any mode until the watch beeps.
- REC will appear on the display, indicating that a record of the current date and time was created.

To view time records

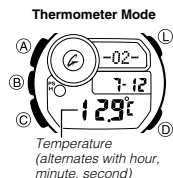
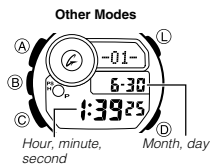
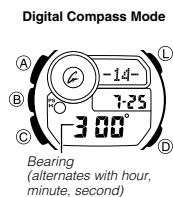
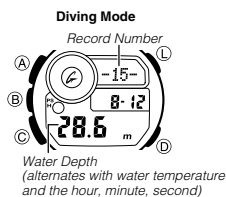


1. In the Timekeeping Mode, press (C) twice.
 - This enters the Time Recall Mode. REC appears on the display for one second, followed by the newest time record.
 - Refer to page E-26 for information about navigating between modes.
 - Pressing (D) displays the date (year, month, day) and time for about two seconds.
2. Use (D) to select the record you want.
 - Each press of (D) scrolls through log records in sequence, from newest (record number -01-) to the oldest (record number -20-).
 - Pressing (D) displays the previous record, pressing again displays the record before that one, and so on.
 - Holding down (D) scrolls log records at high speed.
 - Records are numbered so an older record has a lower number.

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Display of Time Stamp Records Created in Each Mode



* Pressing (A) displays the date (year, month, day) and time for about two seconds.

E-80

To delete a specific time stamp record

1. Enter the Time Recall Mode.
2. Use (D) to display the record you want to delete.

Important!

- * Note that holding down (A) for more than about five seconds in step 3 will delete all time stamp records.
- * Once a record is deleted, it cannot be recovered.

3. Hold down (A) for about two seconds. First, **CLEAR Hold** will flash on the display. After that, **CLEAR** will stop flashing and remain display. Release (A) as soon as **CLEAR** stops flashing.
 - * Deleting a record displays the record that comes after it.
 - * If the time record you delete is the last one stored in memory, the message **NO-DATA** will scroll on the display.

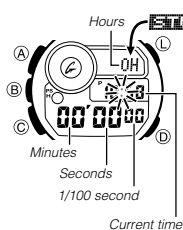
To delete all time stamp records

1. Enter the Time Recall Mode.
2. Hold down (A) for about five seconds. First, **CLEAR ALL Hold** will flash on the display. After that, **CLEAR ALL** will stop flashing and remain display. Release (A) as soon as **CLEAR ALL** stops flashing.
 - * The message **NO-DATA** will scroll on the display to indicate that all time stamp records have been deleted.

E-81

Using the Stopwatch

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



To enter the Stopwatch Mode

Use (C) to select the Stopwatch Mode (STW) as shown on page E-26.

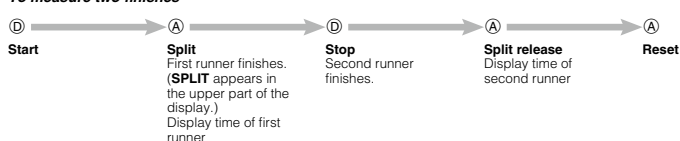
To perform an elapsed time operation



To pause at a split time



To measure two finishes



Note

- * The Stopwatch Mode can indicate elapsed time up to 99 hours, 59 minutes, 59.99 seconds.
- * Once started, stopwatch timing continues until you press (D) to stop it, even if you exit the Stopwatch Mode to another mode and even if timing reaches the stopwatch limit defined above. A paused timing operation will remain paused until you press (D) to restart it or (A) to reset.
- * Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.

E-82

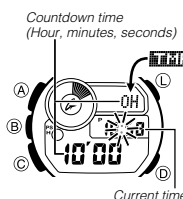
E-83

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.

Note

- * The time up alarm will sound even if the watch is in the Diving Mode. Perform the start operation before entering the Diving Mode.



To enter the Countdown Timer Mode

1. Use (C) to select the Countdown Timer Mode (TMR) as shown on page E-26.
 - * About one second after TMR 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.
 - * If a countdown is in progress (indicated by the seconds counting down), press (D) to stop it and then press (A) to reset to the current countdown start time.
 - * If a countdown is paused, press (A) to reset to the current countdown start time.
2. Hold down (A) for at least two seconds.
 - * **SET Hold** will flash on the display and then the current start time setting will start to flash. Keep (A) depressed until the start time setting starts to flash.
3. Press (C) to move the flashing between the hour and minute settings.

4. Use (D) (+) and (L) (-) to change the flashing item.

- * To set the starting value of the countdown time to 24 hours, set **0H 00'00**.

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

To perform a countdown timer operation



- * Before starting a countdown timer operation, check to make sure that a countdown operation is not in progress (indicated by the seconds counting down). If it is, press (D) to stop it and then (A) to reset to the countdown start time.
- * An alarm will sound and the graphic dial will flash 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 stops sounding.

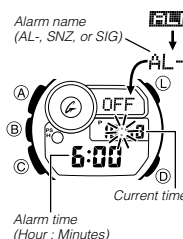
To stop the alarm

Press any button.

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E-85

Using the Alarm



You can set five independent daily alarms. When an alarm is turned on, an alarm 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. One of the daily alarms is a snooze alarm. The snooze alarm will sound every five minutes up to seven times or until it is turned off. You can also turn on an Hourly Time Signal, which will cause the watch to beep twice every hour on the hour.

Note

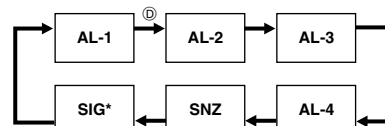
- * The alarm will sound even if the watch is in the Diving Mode.
- * Set the time before entering the Diving Mode.

To enter the Alarm Mode

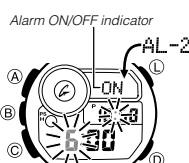
1. Use (C) to select the Alarm Mode (ALM) as shown on page E-26.
 - * About one second after ALM appears on the display, the display will change to show an alarm name (**AL-1** to **AL-4**, or **SNZ**) or the **SIG** indicator. The alarm name indicates an alarm screen. **SIG** is shown when the Hourly 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

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



* There is no time setting for the hourly time signal.



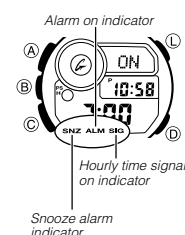
2. Hold down (A) until **SET Hold** appears on the display and then the current settings start to flash.
 - * This is the setting screen.
3. Press (C) to move the flashing between the hour and minute settings.
4. While a setting is flashing, use (D) (+) and (L) (-) to change it.
 - * When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (no indicator) or p.m. (P indicator).
5. Press (A) to exit the setting screen.
 - * Setting an alarm time causes that alarm to turn on automatically.

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To turn an alarm and the Hourly Time Signal on and off

- In the Alarm Mode, use **(D)** to select an alarm or the Hourly Time Signal.
- When the alarm or the Hourly Time Signal you want is selected, press **(A)** to turn it on and off.



- The alarm on indicator (when any alarm is on), snooze alarm indicator (when the snooze 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

Press any button.

Note

- The snooze alarm sounds up to seven times at intervals of about five minutes.
- After the snooze alarm first sounds, **SNZ** will flash on the display until the snooze alarm sounds all seven times or until it is canceled.
- The snooze alarm will be canceled when any of the following occurs while the **SNZ** indicator is flashing on the display.
 - If you turn off the snooze alarm
 - If you display the snooze alarm setting screen
 - If you display the Timekeeping Mode setting screen
 - If your Home City and World Time City are the same city, and you use the World Time Mode to change the summer time setting of your Home City

To test the alarm

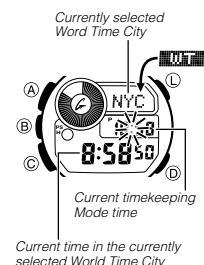
- In the Alarm Mode, hold down **(D)**. The alarm will sound as long as **(D)** is depressed.

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Checking the Current Time in a Different Time Zone

You can use the World Time Mode to view the current time in one of 31 time zones (48 cities and the UTC time zone) around the globe. The city that is currently selected in the World Time Mode is called the "World Time City".



To enter the World Time Mode

- Use **(C)** to select the World Time Mode (**WT**) as shown on page E-26.
- One second after **WT** appears on the display, the city code of the currently selected World Time City will scroll once in the upper display. After that, the World Time City's city code will be displayed in the upper display.

To view the time in another time zone

In the World Time Mode, use **(D)** to scroll through city codes.

To specify standard time or daylight saving time (DST) for a city

- In the World Time Mode, use **(D)** to scroll through the available city codes.
 - Keep scrolling until the city code whose Standard Time/Daylight Saving Time setting you want to change is displayed.
- Hold down **(A)** for at least two seconds.
 - Keep **(A)** depressed until **DST Hold on** or **DST Hold OFF** starts to flash on the display.
 - DST Hold on** means that summer time is enabled, and that the current time is advanced accordingly. **DST Hold OFF** means that summer time is disabled, and that the current time shows standard time.
 - This toggles the city code you selected in step 1 between Daylight Saving Time (**DST** indicator displayed) and standard time (**DST** indicator not displayed).
 - Using the World Time Mode to change the DST setting of the city code that is selected as your Home City also will change the Timekeeping Mode time DST setting.
 - Note that 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.

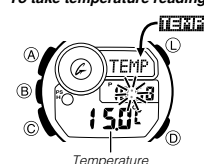
E-90

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Taking Temperature Readings

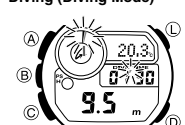
Your watch can measure air temperature during normal daily use, and water temperature while diving.

To take temperature readings



- Use **(C)** to select the Thermometer Mode (**TEMP**) as shown on page E-26.
- TEMP** will appear in the upper display and temperature measurement will start. After about one second, the measurement reading will appear in the lower display.
- The watch will continue to take temperature readings every second for 60 minutes.
- The watch will return to the Timekeeping Mode after the reading operation is complete (60 minutes).
- Press **(D)** to restart temperature readings.
- Pressing **(C)** while a reading operation is in progress will stop the operation and enter the Tide/Moon Mode.

Diving (Diving Mode)



Pressing **(A)** while under water displays the current water temperature for about three seconds.

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 either Celsius (°C) or Fahrenheit (°F) for the displayed temperature value. See "To specify temperature and water depth display units" (page E-57).

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 readings produced by the watch, you can calibrate the sensor to correct the errors.

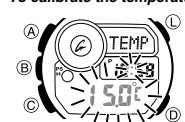
Important!

- Incorrectly calibrating the temperature sensor can result in incorrect readings. Carefully read the following 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.
- Best temperature sensor calibration results are achieved when performed in water with a stable temperature.

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To calibrate the temperature sensor



- Take a reading with another measurement device to determine the exact current temperature.
- With the watch in the Timekeeping Mode, press **(C)** to enter the Thermometer Mode.
- Hold down **(A)** for at least two seconds.
 - SET Hold** will flash on the display and then the temperature will flash. Keep **(A)** depressed until °C flashes.
- Use **(D)** (+) and **(L)** (-) to calibrate the temperature value with the reading of another instrument.
 - Each press of a button changes the temperature value in units of 0.1°C (0.2°F).
 - To return the temperature to its uncalibrated value (**OFF** setting), press **(D)** and **(L)** at the same time.
- Press **(A)** to complete calibration and restart the temperature reading operation.

Thermometer Precautions

Air temperature measurements are affected by your body temperature (while you are wearing the watch), direct sunlight, and moisture. To achieve a more accurate temperature measurement, 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 actual surrounding temperature.

Water Temperature Measurement Precautions

Your body temperature has almost no effect on water temperature measurements. However, sudden changes in water temperature can take up to about five minutes to be reflected in temperature readings by the watch.

E-94

Checking the Tide Level, Moon Phase, and Moon Age (Tide/Moon)

You can use the watch to check the current tide level, Moon phase, and Moon age.

- The above information is displayed for the currently selected Home Time City (page E-30).
- 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.

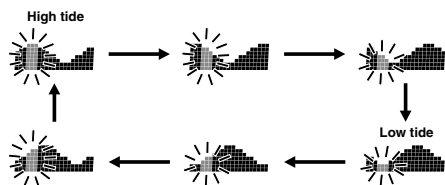
To view the current tide level

Tide level (Tide Graph)



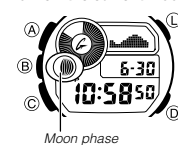
In the Timekeeping Mode, press **(A)** to display the Tide Graph.

E-95



- * Tide Graph readings are based on average values*.
- * 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-102).
- * The average tide graph uses a period of 12 hours 25 minutes from high tide to the next high tide, assuming that low tide is between.

To view the current moon phase

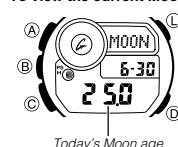


In the Timekeeping Mode, the display shows the current date's Moon phase.

- * The Moon phase is indicated by the white part.



To view the current Moon age



1. Use **(C)** to enter the Tide/Moon Mode as shown on page E-26.
2. Press **(A)** to display the Moon age for today.

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Moon Phases and Moon Age

The Moon goes through a regular 29.53-day cycle. During each cycle, the Moon appears to wax and wane as the relative positioning of the Earth, Moon, and Sun changes. The greater the angular distance between the Moon and the Sun,* the more we see illuminated.

* The angle to the Moon in relation to the direction at which the Sun is visible from the Earth.

See "Northern Hemisphere View or Southern Hemisphere View Moon Phase" (page E-104).

- * Your watch shows the Moon phase and Moon age at noon of a date, regardless of the time displayed by the watch.
- * The Moon phase is based on the northern hemisphere view, with the Moon to the south. Note that the Moon phase form will be reversed in the case of the southern hemisphere view (Moon to the north).
- * The margin for error of the Moon age is ± 1 day.
- * The Tide Graph and Moon phase are displayed in the Timekeeping Mode and Tide/Moon Mode only.
- * If Moon phase indication is not correct, check the Timekeeping Mode time and date settings, and the Home City setting.

(Part you cannot see) Moon phase (part you can see)

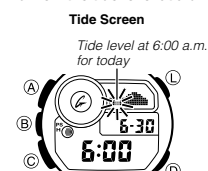
Moon Phase Indicator								
Moon Age	28.7-29.8 0.0-0.9	1.0-2.7	2.8-4.6	4.7-6.4	6.5-8.3	8.4-10.1	10.2-12.0	12.1-13.8
Moon Phase	New Moon				First Quarter (Waxing)			

Moon Phase Indicator								
Moon Age	13.9-15.7	15.8-17.5	17.6-19.4	19.5-21.2	21.3-23.1	23.2-24.9	25.0-26.8	26.9-28.6
Moon Phase	Full Moon				Last Quarter (Waning)			

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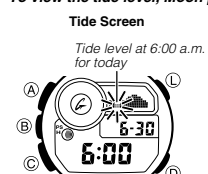
E-99

To view the tide level at a different time today



1. Use **(C)** to enter the Tide/Moon Mode as shown on page E-26.
 - * This displays the Tide Screen, which shows information in the following sequence: After **TIDE** appears on the display, the Tide Graph will display the tide level at 6:00 a.m. on the current day.
2. Use **(D)** to specify the time you want.
 - * Each press of **(D)** advances the time by one hour, causing the Tide Graph to change accordingly.
 - * Holding down **(D)** scrolls the time at high speed.
 - * If you are using 12-hour timekeeping, the **P** (p.m.) indicator will also appear on the display.

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



1. Use **(C)** to enter the Tide/Moon Mode as shown on page E-26.
 - * This displays the Tide Screen, which shows information in the following sequence: After **TIDE** appears on the display, the Tide Graph will display the tide level at 6:00 a.m. on the current day.
2. Press **(A)**.
 - * This displays the Moon Screen, which shows information in the following sequence: **MOON** appears on the display, along with the Moon age at noon on the specified date.

3. Use **(D)** to specify the date you want.

- * Holding down **(D)** scrolls the day at high speed.
- * About one second after you display the desired date, the Moon age on that date appears.
- * You can select any date between January 1, 2000 and December 31, 2099.
- * You can use this screen to check the Moon phase and the Moon age on the specified date.
- * To view the tide level for a specified date and time, go to step 4 of this procedure.

4. Press **(A)**.

- * This displays **TIDE** and shows the tide at 6:00 a.m. on the specified day.

5. Use **(D)** to specify the time you want.

- * Each press of **(D)** advances the time by one hour, causing the Tide Graph to change accordingly.
- * Holding down **(D)** scrolls the time at high speed.
- * If you are using 12-hour timekeeping, the **P** (p.m.) indicator will also appear on the display.

Note

- * Navigating from the Moon Screen to the Tide Screen clears any time you specified.
- * To view the tide level for a specified date and time, first specify the date (steps 2 and 3).
- * Navigating to the Timekeeping mode clears any time and date you specified.
- * In the Timekeeping mode, Tide Graph shows the current tide level and Moon phase shows the moon phase at noon of today's date.

E-100

E-101

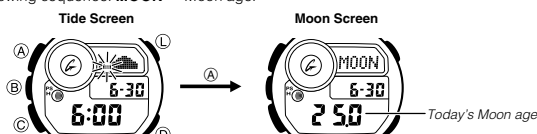
Calibrating the High Tide Time

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.

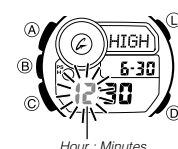
To calibrate the high tide time

1. In the Tide/Moon Mode, display the Moon Screen.
 - * If the Tide Screen is displayed, press **(A)** to change to the Moon Screen, which shows information in the following sequence: **MOON** → Moon age.



2. Use **(D)** to specify the date you want.

- * Each press of **(D)** advances the day by 1.
- * Holding down **(D)** scrolls the date at high speed.
- * About one second after you display the desired date, the Moon age on that date appears.
- * You can skip this step if you do not want to change the date setting.



3. Hold down **(A)** for at least two seconds. **SET Hold** will flash on the display, and then the high tide time hour digits will flash. Keep the button depressed until the hour digits flash.

- * If you are using 12-hour timekeeping, the **P** (p.m.) indicator will also appear on the display.

4. Use **(+)** and **(-)** to change the hour setting.

- * Holding down **(D)** or **(L)** scrolls the hour at high speed.
- * Any time during steps 4 through 6, you can discard your changes and return to the high tide time for the date that was previously selected by pressing **(D)** and **(L)** 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-30).

5. Press **(C)**.

6. Use **(D)** (+) and **(L)** (-) to change the minute setting.

- * Holding down **(D)** or **(L)** scrolls the minutes at high speed.

7. Press **(A)**.

- * The Tide Screen reappears after calibration is complete.
- * Performing the above procedure allows the Tide Graph to indicate tide information more accurately.

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Northern Hemisphere View or Southern Hemisphere View Moon Phase

You can select either of the settings below.

- Northern hemisphere view (Moon to the south)
- Southern hemisphere view (Moon to the north)

To specify Northern Hemisphere View or Southern Hemisphere View Moon Phase

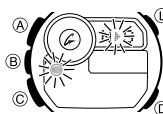


High tide time (hour: minute)

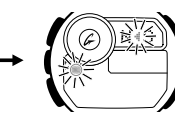
1. In the Tide/Moon Mode, hold down (A) for at least two seconds. **SET Hold** will flash on the display, and then the high tide time hour digits will flash. Keep the button depressed until the hour digits flash.

2. Press (C) twice.
 - This displays a screen for selecting Northern Hemisphere view or Southern Hemisphere view for the Moon phase.
3. Press (D) to toggle between Northern Hemisphere view and Southern Hemisphere view.

[N ▶ S]: Northern Hemisphere view (Moon to the south)



[N ◀ S]: Southern Hemisphere view (Moon to the north)



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

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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-108) for it to operate.

To turn on illumination manually

- Press (L) in any mode to illuminate the display.
- You can use the procedure below to select either 1.5 seconds or three seconds as the illumination duration. When you press (L), the display will remain illuminated for about 1.5 seconds or three seconds, depending on the current illumination duration setting.
 - The above operation turns on illumination regardless of the current auto light switch setting.
 - If the display is illuminated, illumination will turn off automatically if an alarm starts to sound.
 - After you turn on illumination once in the Diving Mode, you will not be able to turn it on again until depth measurement is complete.

To change the illumination duration

1. In the Timekeeping Mode, hold down (A) for at least two seconds. **SET Hold** will flash on the middle display, and then **CITY** will appear in the upper display. Keep (A) depressed until this happens.
 - The city code and the name of the currently selected city will scroll across the display.

2. Use (C) to cycle through the setting screens until **LIGHT** appears in the upper display.
 - The current illumination duration setting (1 or 3) will be flashing in the lower display.
 - See the sequence in step 2 of the procedure under "To change the current time and date settings manually" (page E-32) for information about how to scroll through setting screens.
3. Press (D) to toggle the illumination duration between three seconds (3 displayed) and 1.5 seconds (1 displayed).
4. After all of the settings are the way you want, press (A) to exit the setting screen.

About the Auto Light Switch

Turning on the auto light switch causes illumination to turn on, whenever you position your wrist as described below in any mode. **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.**



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.

E-106

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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 on/off setting, when any one of the following conditions exists.
 - While an alarm is sounding
 - While a compass reading operation is in progress
 - While calibrating in the Digital Compass Mode
 - While a receive operation is in progress in the Receive Mode
 - While measuring Tide/Moon values
- While in a sensor mode, an auto light switch operation is performed after a sensor reading

To enable or disable the auto light switch



Auto light switch enabled indicator

- In the Timekeeping Mode, hold down (L) for at least three seconds to toggle the auto light switch between enabled (LT displayed) and disabled (LT not displayed).
- The auto light switch enabled indicator (LT) is on the display in all modes while the auto light switch is enabled.
 - The auto light switch becomes disabled automatically whenever battery power drops to Level 4 (page E-10).

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-106), 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.

E-108

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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, Rapid Ascent Alarm, and Countdown Timer Mode alarm all operate normally.

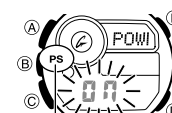
To enable or disable the button operation tone



Mute indicator

1. In the Timekeeping Mode, hold down (A) for at least two seconds. **SET** will flash in the upper display and **Hold** will flash in the lower display. Next, **SET** will flash in the middle display and then **CITY** will appear in the upper display. Keep (A) depressed until this happens.
 - The city code and the name of the currently selected city will scroll across the display.
 2. Use (C) to cycle through settings on the display until the current button operation tone (**MUTE** or **KEY**) is displayed.
 - See the sequence in step 2 of the procedure under "To change the current time and date settings manually" (page E-32) for information about how to scroll through setting screens.
 3. Press (D) to toggle the button operation tone between enabled (**KEY**) and disabled (**MUTE**).
 4. After all of the settings are the way you want, press (A) to exit the setting screen.
- Note**
- **MUTE** is displayed in all modes when the button operation tone is disabled.

To enable or disable Power Saving



Power saving enabled indicator

1. In the Timekeeping Mode, hold down (A) for at least two seconds. **SET** will flash in the upper display and **Hold** will flash in the lower display. Next, **SET** will flash in the middle display and then **CITY** will appear in the upper display. Keep (A) depressed until this happens.
 - The city code and the name of the currently selected city will scroll across the display.
2. Use (C) to cycle through the setting screens until the current power saving setting (**On** or **OFF**) is displayed.
 - **POWER SAVING** will scroll across the upper display at this time.
 - See the sequence in step 2 of the procedure under "To change the current time and date settings manually" (page E-32) for information about how to scroll through setting screens.
3. Press (D) to toggle Power Saving between enabled (**On**) and disabled (**OFF**).
4. After all of the settings are the way you want, press (A) to exit the setting screen.

Note

- The Power Saving on indicator (**PS**) is on the display in all modes while Power Saving is enabled.

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E-111

Troubleshooting

Diving Mode

■ The watch will not enter the Diving Mode.

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

■ LIMIT ERR appears when I try to enter the Diving 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 **LIMIT ERR** will occur. If the water depth limit pressure is 9,500 hPa or greater, a **LIMIT ERR** will occur.

■ The watch won't enter the Timekeeping Mode.

If you accidentally enter the Diving 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 1.5 meters or greater). In this condition, the watch will not return to the Timekeeping Mode.

* If this happens, hold down **Ⓢ** for about 10 seconds to force the watch to return to the Timekeeping Mode.

Important!

Do not use the above operation to force the watch into the Timekeeping Mode while diving.

■ The warning mark (I) is flashing on the display.

Refer to "Troubleshooting when a Flashing Warning Mark (I) Appears" (page E-62).

E-112

■ The depth reading does not show 0.0 meters, even when I am on the water surface.

- * If there is a major change in barometric pressure (due to weather) between the start of the dive and the end of the dive, or if the barometric pressure on the water surface where the watch is being used is greater than the standard atmosphere, the water depth value may not return to 0.0 meters at the end of the dive.
- * Entering the Diving Mode while in the water (water pressure equivalent to a depth of 1.5 meters or less) will cause a water depth of 0 meters to be displayed at the standard atmosphere of 1,013 hPa.

■ Display illumination will not light.

Frequent use of illumination over a short period will cause the **HML** marks to flash (indicating the charge recovery state) and disable illumination.

The watch may have been subjected to strong shock, causing malfunction of illumination. If this happens, contact an authorized CASIO service center.

Once you use illumination in the Diving Mode, it will become disabled until you complete your dive.

Taking Direction Readings

■ ERR appears following figure 8 calibration.

ERR will appear on the display and calibration may not be possible indoors or in other areas where strong or weak magnetism is present.

- * Move away from any potential source of strong magnetism and try taking a reading again. If **ERR** continues to be displayed, the problem may be due to a previous successful calibration operation, and calibration under current conditions that will not improve the calibration result.
- * Take a direction reading and check if it is correct.
- * If the direction reading is wrong and if **ERR** continues to appear even if you move away from the source of strong magnetism, contact an authorized CASIO service center.

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■ Abnormal magnetism detection, indicated by the flashing figures on the display.

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. See "To perform figure 8 calibration" (page E-70), "To perform 3-point calibration" (page E-72), and "Location" (page E-78).

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

Temperature Readings

■ I can't change the temperature and water depth display units.

When **TYO** (Tokyo) is selected as the Home City, the water depth unit is set automatically to meters (m) and the temperature unit to Celsius (°C). These settings cannot be changed.

■ Temperature readings are incorrect.

Since the temperature sensor is inside the watch, temperatures displayed by the watch are watch body temperatures.

- * When measuring air temperature, readings can be affected if you are wearing the watch, by exposure to direct sunlight, by water splashing onto the watch, etc. For accurate air temperature measurements, remove the watch from your wrist, wipe away any water on the watch, and place the watch in the shade in a well-ventilated location.
- * It takes about 20 to 30 minutes before the temperature of the watch becomes the same as the air temperature.
- * When measuring water temperature, your body temperature has almost no effect on measurements. However, sudden changes in water temperature can take up to about five minutes to be reflected in temperature readings by the watch.

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- * There is something wrong with the sensor. This could be due to nearby strong magnetic force. If **ERR** continues to appear even after multiple attempts to calibrate after moving away from the source of the magnetism, contact your original retailer or CASIO service center. See "Location" (page E-78).

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-10). Continue exposing the watch to light until the battery power indicator shows "H" or "M".

■ H, M, and L are all flashing on the 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 **H**, **M**, and **L** are all flashing on the 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 Levels" (page E-10).
- * Flashing **H**, **M**, **L** indicators or a flashing **CHG** indicator means that the charge level of the watch is extremely low. Immediately expose the watch to light to charge it.

Time Setting

See "Radio Controlled Atomic Timekeeping" (page E-14) for information about adjusting the time setting according to a time calibration signal.

E-118

■ Depth readings are incorrect.

When the watch enters the Diving Mode, it sets the current ambient pressure as 0 meters. Because of this, you should always enter the Diving Mode while on the water surface. If you entered the Diving Mode while under water, reset 0 meters on the water surface. Refer to "To reset 0-meter depth manually" (page E-41).

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. See "Precautions During Use" (page E-49).

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.

■ Log data is not being recorded.

Log data is recorded only while the watch is measuring a depth of 1.5 meters or less. Immediately after entering the Diving Mode, the watch measures water depth every 10 seconds. If you suddenly dive into the water from a boat or other location, measurement timing may cause a delay in the start of memory recording. When water depth is 0.3 meters or less, measurements are taken every second. Because of this, it is recommended that, while on the water surface, you lower your wrist for about 10 seconds to start timing.

If a battery error occurs (indicated by **HML** flashing) or if a sensor error occurs during a dive, data up to the point that the error occurred will be recorded, but subsequent log data will not be recorded. For more information, refer to "Charging the Watch" (page E-9) and "Power Levels" (page E-10). If a sensor malfunction occurs, contact an authorized CASIO service center.

■ While performing 3-point calibration, the watch returns to standby for calibration of Point 1.

The calibration procedure needs to be restarted because an error occurred during calibration or for some other reason.

- * Perform calibration of Point 1 again.

■ ERR appears after 3-point calibration is complete.

If **ERR** appears, it could mean there is something wrong with the sensor or that there is a strong source of magnetism nearby.

- * Move away from any potential source of strong magnetism and try calibrating again.
- * If **ERR** continues to appear even after multiple attempts to calibrate, contact your original retailer or 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 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-70), "To perform 3-point calibration" (page E-72) and "Location" (page E-78).

■ 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-78).

■ I am having problems taking direction readings indoors.

- * Indoors, strong and/or weak magnetic force and other factors can create a magnetic field that cannot exist in geomagnetism. Because of this, correct measurement may not be possible indoors. See "Location" (page E-78).

If the temperature displayed by the watch is very different from temperature readings by another reliable measuring device, you can adjust readings to correct for errors.

- * See "To calibrate the temperature sensor" (page E-94).

Sensor Measurement

■ "ERR" appears on the display while I am using a sensor.

Subjecting the watch to strong impact can cause sensor malfunction or improper contact of internal circuitry. When this happens, **ERR** (error) will appear on the display and sensor operations will be disabled.

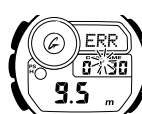
Water Depth Reading



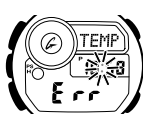
Direction Measurement



Bearing Reading in the Diving Mode



Temperature Reading



- * If **ERR** appears while a reading operation is being performed in a sensor mode, restart the operation. If **ERR** appears on the display again, it can mean there is something wrong with the sensor.
- * Even if battery power is at Level 1 (**H**) or Level 2 (**M**), the Digital Compass Mode, Thermometer Mode, or Diving Mode sensor may become momentarily disabled if there is not enough voltage available to power it sufficiently. In this case, **ERR** will appear on the display. This does not indicate malfunction, and sensor operation should resume once battery voltage returns to its normal level.
- * If **ERR** keeps appearing during a reading operation, it could mean there is a problem with the applicable sensor.

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■ The current time setting is off by hours.

Your Home City setting may be wrong (page E-30). 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-30).

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-32) to change the standard time/daylight saving time (DST) setting.

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.

■ The display shows the ERR indicator when I check the result of the latest receive operation.

Possible Cause	Remedy	Page
Performing a button operation while a receive operation is ongoing will cancel it. Also, moving the watch during a receive operation will interfere with reception.	Keep the watch in an area where reception conditions are good while the signal receive operation is performed.	E-16

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Possible Cause	Remedy	Page
Alarm starts to sound while calibration signal receive is in progress.	An ongoing receive operation is canceled if an alarm starts to sound.	–
You are in an area where signal reception is not possible for some reason.	See "Approximate Reception Ranges".	E-15
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-17), 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-30).

■ 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-16
	If you are unable to receive the time calibration signal, change the standard time/daylight saving time (DST) setting manually.	E-32

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Specifications

Accuracy at normal temperature: ±15 seconds a month (with no signal calibration)

Timekeeping: Hour, minutes, seconds, p.m. (P), year, month, day, day of the week
Time format: 12-hour and 24-hour
Calendar system: Full Auto-calendar pre-programmed from the year 2000 to 2099
Other: Three display formats (Day of the week/Date screen, Tide Graph, Surface Time); Home City code (can be assigned one of 48 city codes); Standard Time / Daylight Saving Time (summer time) Year display on setting screen only.

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
Receiveable 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)

Diving Functions:

Water depth measurement range: 0.0 meters to 80.0 meters (0.0ft~262.5ft)
Water depth measurement unit: 0.1 meter (0.5ft)
Water depth measurement: 6 hours (in seconds up to 180 minutes, in minutes thereafter)
Diving Mode: Auto measurement start/stop at a depth of 1.5 meters
Log Record Memory 20 log records (dive start date and time, dive time, maximum depth, water temperature low for each record)
Surface time display: Up to 48 hours
Ascent Rate Alarm: 5-second alarm

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Stopwatch:

Measuring unit: 1/100 second
Measuring capacity: 99:59:59.99"
Measuring accuracy: ±0.0006%
Measuring modes: Elapsed time, split time, two finishes

Countdown Timer:

Measuring unit: 1 second
Countdown range: 24 hours
Setting unit: 1 minute
Timer alert time: 10 seconds

Alarms: 5 Daily alarms (with one snooze alarm); Hourly time signal

World Time: 48 cities (31 time zones)

Other: Daylight Saving Time/Standard Time

Illumination: LED light; 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; Alarm test; Button operation tone on/off

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

Possible Cause	Remedy	Page
The watch is not in the Timekeeping Mode or World Time Mode.	Auto receive is performed only while the watch is in the Timekeeping Mode or World Time Mode. Switch to either of these two modes.	E-26
Your Home City setting is wrong.	Check your Home City setting and correct it, if necessary.	E-30
There is not enough power for signal reception.	Expose the watch to light to charge it.	E-9

■ 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-30
The DST setting may be incorrect.	Change the DST setting to Auto DST.	E-30

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 specify standard time or daylight saving time (DST) for a city" (page E-91) for more information.

Digital Compass: Bearing angle measurement range 0° to 359°; 16 directions (Not displayed in the Diving Mode); direction calibration (figure 8, 3-point); magnetic declination correction; 60-second continuous readings (Diving Mode: 20 seconds); bearing memory (Disabled in the Diving Mode.); auto level correction; east, west, north, south indication (4-direction graphic pointer)

Water/Air Temperature Measurement:

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)
Other: Calibration; Manual reading (button operation)

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)

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 pointer: Within ±2 digital segments

Temperature Sensor Precision:

±2°C (±3.6°F) in range of –10°C to 60°C (14.0°F to 140.0°F)

Time Stamp:

20 records (year, month, day, hour, minute, second); additional information (water depth, bearing, temperature)

Tide/Moon:

Tide level (Tide Graph), Moon phase, Moon age date selection
Selectable time (Tide Graph only)

Power Supply: Solar panel and one rechargeable battery

Approximate battery operating time: 7 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)
 - Diving: 50 dives/year
 - Water depth measurement: 73 minutes (60 minutes diving)/dive
 - Light: 3.0 seconds (two 1.5-second operations)/dive
 - Rapid Ascent Alarm: 5 seconds/dive
- Approximate battery life can be shortened by more frequent light operation.

Specifications are subject to change without notice.

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City Code Table

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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
SCL	Santiago	-3
RIO	Rio De Janeiro	-3
FEN	Fernando de Noronha	-2
RAI	Praia	-1

City Code	City	UTC Offset/ GMT Differential
UTC		
LIS	Lisbon	0
LON	London	0
MAD	Madrid	0
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	+7
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.