

Operation Guide 5442 5443

CASIO®

Congratulations upon your selection of this CASIO watch.

ENGLISH

Applications

This watch has built-in sensors that measure direction and temperature. Measurement results are indicated by the watch's hands and displays. These features make this watch useful when hiking, mountain climbing, or when engaging in other such outdoor activities.

Warning!

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

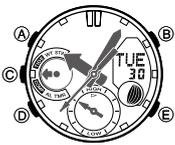
Important!

- Whenever you use the digital compass of this watch for serious trekking, mountain climbing, or other activities, always be sure to take along another compass to confirm readings. If the readings produced by the digital compass of this watch are different from those of the other compass, perform bidirectional 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



Module 5442



Module 5443

- Depending on the model of your watch, display text appears either as dark figures on a light background (Module 5442), or light figures on a dark background (Module 5443). All of the illustrations in this manual show Module 5442.
- 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 Home City and the daylight saving time (DST) setting.

Use the procedure under "To configure Home City settings" (page E-15) to configure your Home City and daylight saving time settings.

Important!

Proper World Time Mode data depends on correct Home City, time, and date settings in the Timekeeping Mode. Make sure you configure these settings correctly.

2. Set the current time.

See "Configuring Current Time and Date Settings" (page E-17).

The watch is now ready for use.

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Mode Reference Guide

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

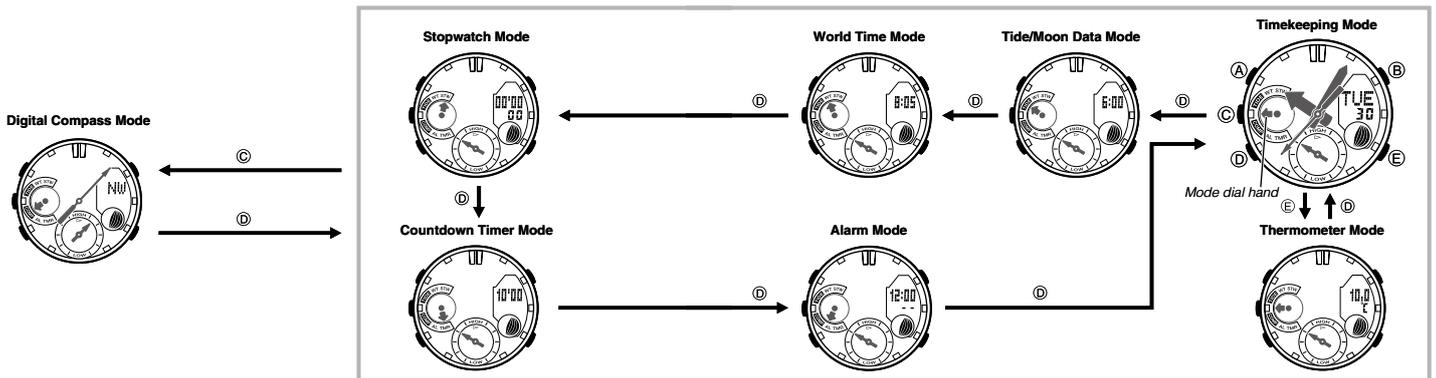
To do this:	Enter this mode:	See:
<ul style="list-style-type: none"> • View the current date in the Home City • Configure Home City and daylight saving time (DST) settings • Configure time and date settings • Display current tide level (Tide Graph) and Moon phase (Moon Graph) information 	Timekeeping Mode	E-13 E-15 E-17 E-38
<ul style="list-style-type: none"> • Determine north and the bearing to a destination • Record a bearing (Bearing Memory) • Determine your current location using the watch and a map 	Digital Compass Mode	E-22
Determine the temperature at your current location	Thermometer Mode	E-34
View the tide level (Tide Graph), and Moon phase (Moon Graph) and Moon age for a specified date and time	Tide/Moon Data Mode	E-38
View the current time in 29 cities (29 time zones) and UTC	World Time Mode	E-51
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<ul style="list-style-type: none"> • Set an alarm time • Turn the hourly time signal on or off 	Alarm Mode	E-58

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Selecting a Mode

- The illustration below shows which buttons you need to press to navigate between modes.
- To return to the Timekeeping Mode from any other mode, hold down (D) for about two seconds.

* The mode dial hand indicates the watch's current mode.



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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 other mode, hold down (D) for about two seconds.

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
Digital Compass	1 minute
Thermometer	1 to 2 minutes
Tide/Moon Data	2 to 3 minutes
Alarm	2 to 3 minutes
Setting screen (digital setting flashing)	2 to 3 minutes

Initial Screens

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

Scrolling

The (E) and (B) 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 scrolls through the data at high speed.

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Moving the Hands Out of the Way for Better Viewing

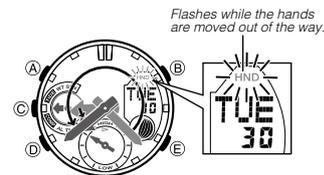
You can use the procedure below to temporarily move the hour and minute hands out of the way to better view what is on the display.

- This operation can be performed in any mode. In the case of a setting mode (setting flashing on the screen), the hands will move out of the way automatically, even if you do not perform the operation below.

1. While holding down (E), press (D).

- This will cause the hour and minute hands to move to a location where they do not block your view of the digital display.

Example: When the current time is 8:23



Flashes while the hands are moved out of the way.

2. Holding down (B) again as you press (D) will cause the hands to return to their normal positions (normal timekeeping).

Note

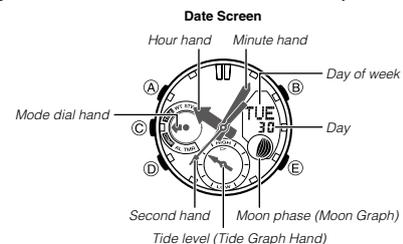
- Watch button functions are the same regardless of whether the hands are moved out of the way or at their normal positions.
- Changing to another mode will cause the hands to move back to their normal positions.
- The hands also will move back to their normal positions automatically if no operation is performed for about one hour.

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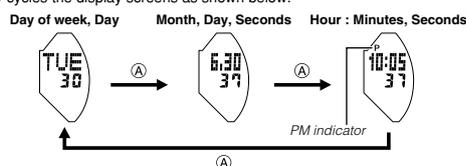
Timekeeping

Use the Timekeeping Mode to view the current time and date, and the day of the week.



Navigating between Display Screens

Each press of (A) cycles the display screens as shown below.



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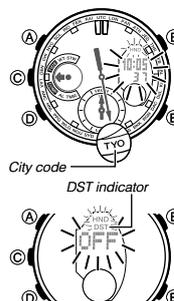
E-15

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 settings

- In the Timekeeping Mode, hold down (A) until ADJ appears on the display.
 - When you release (A) (after ADJ appears), the second hand will be pointing at the currently selected city code. This is the setting mode.
 - The watch will exit the setting mode automatically if you do not perform any operation for about two or three minutes.
- Use (E) (East) and (B) (West) to scroll through the available city codes.
 - For details about city codes, see the "City Code Table" at the back of this manual.
- Press (D).
 - This will cause the DST indicator to appear on the display along with the DST setting of the current selected Home City.
- Press (E) to toggle the DST setting between daylight saving time (ON) and standard time (OFF).
 - Note that you cannot switch between standard time and daylight saving time (DST) while UTC is selected as your Home City.



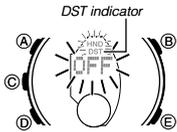
- After all of the settings are the way you want, press (A) to exit the setting screen.
 - The **DST** indicator will be on the display while daylight saving time is turned on.

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.

To change the daylight saving time (summer time) setting

- In the Timekeeping Mode, hold down (A) until **ADJ** appears on the display.
 - When you release (A) (after **ADJ** appears), the second hand will be pointing at the currently selected city code.
- Press (D).
 - This will cause the **DST** indicator to appear on the display along with the DST setting of the currently selected Home City.
- Press (E) to toggle the DST setting between daylight saving time (**ON**) and standard time (**OFF**).
- After all of the settings are the way you want, press (A) to exit the setting screen.
 - The **DST** indicator will be on the display while daylight saving time is turned on.

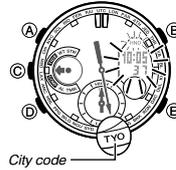


Configuring Current Time and Date Settings

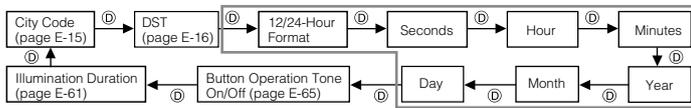
You can use the procedure below to adjust the Timekeeping Mode time and date settings if they are off. Changing the digital Home City data should cause the analog time setting to change accordingly. If the analog time does not indicate the digital time, check the home positions of the hands and make adjustments if necessary (page E-20).

To change the current time and date settings

- In the Timekeeping Mode, hold down (A) until **ADJ** appears on the display.
 - When you release (A) (after **ADJ** appears), the second hand will be pointing at the currently selected city code.



- Press (D) to move the flashing in the sequence shown below to select the other settings.



- The following steps explain how to configure timekeeping settings only.
- When the timekeeping setting you want to change is flashing, use (E) and/or (B) to change it as described below.

Screen	To do this:	Do this:
12H	Toggle between 12-hour (12H) and 24-hour (24H) timekeeping.	Press (E).
37	Reset the seconds to 00 (If the current seconds count is between 30 and 59, one is added to the minute count).	Press (E).
P 10:05	Change the hour or minutes	Use (E) (+) and (B) (-).
20 15	Change the year	
6:30	Change the month or day	

Hand Home Position Adjustment

Strong magnetism or impact can cause the hands of the watch to go out of alignment. Home position adjustment is not necessary when the analog time and digital time are the same time in the Timekeeping Mode.

To adjust home positions



- In the Timekeeping Mode, hold down (A) and keep it depressed for about five seconds until **H.SET** appears on the display.
 - When you release (A) after **H.SET** appears, the second hand will move to 12 o'clock and 00 will flash on the digital display. This indicates the second hand home position adjustment mode.
 - Though **ADJ** will appear on the display about two seconds after you hold down (A), do not release the button yet. Keep it depressed until **H.SET** appears.
 - Home position adjustment is performed in the following sequence: second hand, current time hour and minute hands, Dial Hand 1 (mode hand) and Dial Hand 2 (Tide Graph).

- Use (D) to select the hand (s) you want to adjust.
 - The selected hand (s) will move to 12 o'clock, and the display will show the information below.

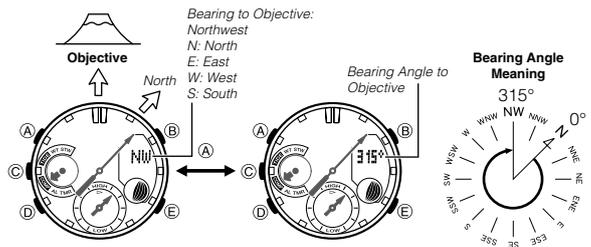
Display	Selected hand
Flashing 00	Second hand
Flashing 0:00	Hour and minute hands
Flashing SUB 1	Dial Hand 1 (Mode Hand)
Flashing SUB 2	Dial Hand 2 (Tide Graph)

Using the Digital Compass

You can use the Digital Compass Mode to determine the direction of north, and to check your bearing to a destination. For information about what you can do to improve digital compass reading accuracy, see "Calibrating the Bearing Sensor" (page E-25) and "Digital Compass Precautions" (page E-32).

To perform a digital compass operation

- 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 you want to check.
- In any mode (except a setting mode), press (C) to perform a digital compass operation.
 - This will cause the mode dial hand to move to **COMP**.
 - After about two seconds, the second hand will point in the direction of magnetic north, and the display will show the direction or the bearing angle that 12 o'clock is pointed.
 - Press (A) to toggle the display between the direction and the bearing angle.



- See "Digital Compass Readings" (page E-24) for information about how direction readings are indicated by the watch.
- To return to the mode you were in immediately before entering the Digital Compass Mode, press (D). To enter the Timekeeping Mode, hold down (D) for at least two seconds.

Digital Compass Readings

- After the first reading is obtained, the watch will continue to take digital compass readings automatically for about one minute. After readings are complete, the watch will return to the mode you were in immediately before entering the Digital Compass Mode.
- Pressing **C** while a digital compass (direction reading) operation is in progress will restart a one-minute digital compass operation.
- Auto light is disabled while a Digital Compass reading operation is in progress.
- The following table shows the meanings of each of the direction abbreviations that appear on the display.

Direction	Meaning	Direction	Meaning	Direction	Meaning	Direction	Meaning
N	North	NNE	North-northeast	NE	Northeast	ENE	East-northeast
E	East	ESE	East-southeast	SE	Southeast	SSE	South-southeast
S	South	SSW	South-southwest	SW	Southwest	WSW	West-southwest
W	West	WNW	West-northwest	NW	Northwest	NNW	North-northwest

- The margin of error for the angle value and the direction indicator is ± 15 degrees while the watch is horizontal (in relation to the horizon). If the indicated direction is northwest (**NW**) and 315 degrees, for example, the actual direction can be anywhere from 300 to 330 degrees.
- Note that performing a digital compass operation while the watch is not horizontal (in relation to the horizon) can result in large error.
- You can calibrate the bearing sensor if you suspect the direction reading is incorrect.

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- Any ongoing digital compass 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 **B**. The digital compass operation resumes for its remaining duration after the operation that caused it to pause is finished.
- See "Digital Compass Precautions" (page E-32) for important information about taking direction readings.
- The direction indicated by the Digital Compass is magnetic north. You can use Magnetic Declination Correction to configure the watch to indicate true north, if you want. For details, see "Magnetic Declination Correction" below, "To perform magnetic declination correction" (page E-28), and "Magnetic North and True North" (page E-32).

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 two different bearing sensor calibration methods: bidirectional calibration or magnetic declination correction.

Bidirectional Calibration

Bidirectional calibration calibrates the bearing sensor in relation to magnetic north. Use bidirectional calibration when you want to take readings within an area exposed to magnetic force. This type of calibration should be used if the watch becomes magnetized for any reason.

Important!

- To ensure correct direction readings by the digital compass, be sure to perform bidirectional calibration before using it. The digital compass may produce incorrect direction readings if you do not perform bidirectional calibration.

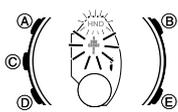
Magnetic Declination Correction

With magnetic declination correction, you select a declination angle direction and 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.

Precautions about bidirectional calibration

- You can use any two opposing directions for bidirectional 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.
- Do not move the watch while calibration of either direction is in progress.
- You should perform bidirectional calibration in an environment that is the same as that where you plan to be taking direction readings. If you plan to take direction readings in an open field, for example, calibrate in an open field.

To perform bidirectional calibration



1. In the Digital Compass Mode, hold down **A**.
 - The second hand will move to 12 o'clock, indicating the bidirectional calibration mode.
 - At this time, the display will show an upward pointing arrow (**↑**) and **1**, indicating that the watch is ready for calibration of the first direction.

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2. Place the watch on a level surface facing any direction you want, and press **C**.
 - This will start calibration of the first direction.
 - -- is shown on the display while calibration is being performed.
 - When calibration of the first direction is successful, **OK** appears on the display. After that, the arrow changes to downward pointing (**↓**) and the display will show **2**, indicating that the watch is ready for calibration of the second direction.

Note

- Watch operations are disabled while the hour and minute hands are moving during a hand shift operation.

3. Rotate the watch 180 degrees.

4. Press **C** again.
 - This will start calibration of the second direction.
 - -- is shown on the display while calibration is being performed.
 - After calibration is successful, **OK** appears on the display and then the watch will start a digital compass operation.
 - **ERR** will appear on the display for a short while if an error occurs. After that, the screen will automatically return to the first direction calibration screen (the one that appears after **A** is held down in step 1).

3. Use **B** and **E** to change the magnetic declination direction and angle setting as required.

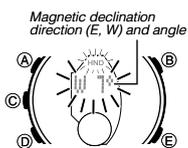
North Setting	Setting
Magnetic North	0° (OFF)
True North	E 90° to W 90° E: East declination (Magnetic north is east of true north.) W: West declination (Magnetic north is west of true north.)

- 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°.
- Holding down **B** or **E** will scroll the setting at high speed.
- You can turn off (**0° (OFF)**) magnetic declination correction by pressing **B** and **E** at the same time.
- The illustration (page E-28) shows the value you should input and the direction setting you should select when the map shows a magnetic declination of 7° West.

4. When the setting is the way you want, press **A** to exit the setting screen.

To perform magnetic declination correction

1. In the Digital Compass Mode, hold down **A**.
 - The second hand will move to 12 o'clock, indicating the bidirectional calibration mode.
2. Press **D**.
 - The watch will enter the magnetic declination correction mode.
 - The display will show the magnetic declination direction (E, W) and angle.



- Note**
- Watch operations are disabled while the hour and minute hands are moving during a hand shift operation.

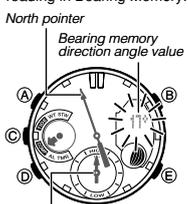
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Using Bearing Memory

You can save the bearing to a particular destination in bearing memory and use it to ensure you are headed in the correct direction.

To store a direction angle reading in Bearing Memory

1. Point the 12 o'clock position of the watch in the direction of your reference bearing.
2. Press **C** to start a digital compass operation (page E-22).
3. During the one minute that digital compass readings are being taken, press **E** to store the current reading in Bearing Memory.
 - The saved direction angle value will flash on the display, and then a one-minute digital compass operation will start.
 - The Dial Hand 2 (at 6 o'clock) indicates the currently saved bearing (Bearing Memory).
 - To reset the recorded bearing angle to north (0 degrees), hold down **E** for about two seconds. This will also trigger a one-minute digital compass operation.



- Note**
- If you navigate to another mode, the Dial Hand 2 (at 6 o'clock) will indicate tide conditions (Tide Graph). When you return to the Digital Compass Mode, it will indicate the last recorded bearing.

Indicates the currently saved bearing (Bearing Memory).

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Example: Advancing to an objective while monitoring your bearing

Even if you lose sight of your objective, you can use a map to store the required bearing in bearing memory and refer to the memorized information to advance to your objective.

1. Set the map.
 - For information about how to set a map, see "Positioning a map in accordance with actual surroundings (setting a map)" below.
2. Place the watch on the map at your current location, and point 12 o'clock at your desired objective on the map.
3. Press **E** to store the direction to your objective in bearing memory. Now you can advance towards your objective while observing the stored direction on the watch display.

Important!

- As you progress, the direction to your bearing will change, so you need to keep updating the information in bearing memory.

Positioning a map in accordance with actual surroundings (setting a map)

You can align a map with the northerly direction indicated by the watch, and then compare what is shown on the map with your actual surroundings. This is helpful for checking your current location and the location of your objective. This process is called "setting a map".

- When setting a map, be sure to align the watch with true north. See "Magnetic North and True North" (page E-32) and "Magnetic Declination Correction" (page E-26).

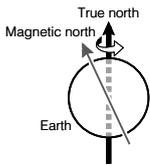
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Digital Compass Precautions Magnetic North and True North



The northerly direction can be expressed either as magnetic north or true north, which are different from each other. Also, it is important to keep in mind that magnetic north moves over time.

- Magnetic north is the north that is indicated by the needle of a compass.
- True north, which is the location of the North Pole of the Earth's axis, is the north that is normally indicated on maps.
- The difference between magnetic north and true north is called the "declination". The closer you get to the North Pole, the greater the declination angle.

Location

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

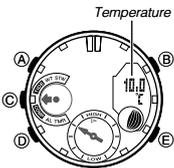
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Taking Temperature Readings

This watch uses a temperature sensor to measure temperature.

To take temperature readings



While in the Timekeeping Mode, press **(E)**.

- **TEMP** will appear on the display and temperature measurement will start. After about one second, the measurement reading will appear on the display.
- The watch will continue to take temperature readings every five seconds for about two minutes.
- The watch will return to the Timekeeping Mode after the reading operation is complete (about two minutes).
- Pressing **(E)** while a temperature reading operation is in progress will restart a two-minute temperature reading operation.
- Pressing **(D)** while a reading operation is in progress will stop the operation and enter the Timekeeping Mode.

Temperature

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

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To calibrate the temperature sensor

1. Take a reading with another measurement device to determine the exact current temperature.
2. With the watch in the Timekeeping Mode, press **(E)** to enter the Thermometer Mode.
3. Hold down **(A)** for about two seconds until the temperature reading disappears from the display. Release **(A)** at this time, which will cause the temperature reading to flash, which indicates the setting mode.



4. Use **(E)** (+) and **(B)** (-) 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 **(E)** and **(B)** at the same time.
 - Holding down **(E)** or **(B)** scrolls the setting at high speed.
5. Press **(A)** to complete calibration and restart the temperature reading operation.

Thermometer Precautions

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.

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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. You can also check information for another city by changing to a different Home City (page E-15).
- Note that the tide and Moon information displayed by this watch is approximate and is intended as general information only. Never try to use it for marine navigation or any other purposes requiring accurate measurements.

Viewing the Current Tide Level, Moon Phase, and Moon Age

To view the current tide level
Dial Hand 2 (at 6 o'clock) shows the current tide level in all modes except for the Digital Compass Mode and Tide/Moon Data Mode.



Tide level (Tide Graph Hand)

E-38

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 bidirectional calibration" (page E-26).

Display Units

You can select either Celsius (°C) or Fahrenheit (°F) for the displayed temperature value. See "To specify the temperature unit" (page E-37).

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.

Specifying Temperature Unit

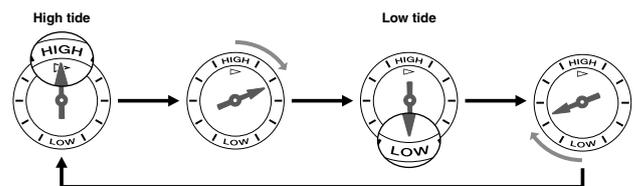
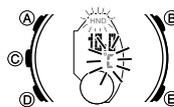
Use the procedure below to specify the temperature unit to be used in the Thermometer Mode.

Important!

When **TOKYO** is selected as the Home City, the temperature unit is set automatically to Celsius (°C). This setting cannot be changed.

To specify the temperature unit

1. In the Timekeeping Mode, press **(E)** to enter the Thermometer Mode.
2. Hold down **(A)** for about two seconds until the temperature reading starts to flash.
 3. Press **(D)** to display the current temperature unit.
 4. Press **(E)** to toggle the temperature unit between °C (Celsius) and °F (Fahrenheit).
 5. After the setting is the way you want, press **(A)** to exit the setting screen.



- The tide level in the Home City is indicated even while the watch is in the World Time Mode.
- 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-46).

To view the current moon phase

Moon Graph shows the current Moon phase in all modes except for the Tide/Moon Data Mode and the setting mode (when a setting is flashing on the display).



Moon phase (Moon Graph):

- Regardless of the watch module (page E-2), the white part of the Moon Graph shows the currently visible (lit) part of the Moon.



Module 5442



Module 5443

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To view the current Moon age



- In the Timekeeping Mode, press (A) to display the Tide/Moon Data Mode Screen.
- Press (B) to display the Moon age for today.

Today's Moon age

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-49).

- 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) or in the vicinity of the equator.
- The margin for error of the Moon age is ± 1 day.
- The Moon Phase and Moon Age of the watch's Home City are shown, even if the watch is in the World Time Mode.
- If Moon Graph indication is not correct, check the Timekeeping Mode time and date settings, and the Home City setting.

E-40

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

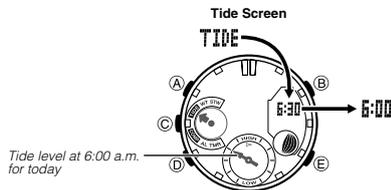
Moon Phase Indicator								
Moon Age	28.7-29.8 0.0-0.9	1.0-2.7	2.8-4.6	4.7-6.4	6.5-8.3	8.4-10.1	10.2-12.0	12.1-13.8
Moon Phase	New Moon				First Quarter (Waxing)			

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)			

E-41

To view the tide level at a different time today

- Use (A) to enter the Tide/Moon Data Mode as shown on page E-9.
 - This displays the Tide Screen, which shows information in the following sequence: **TIDE** → Today's date → 6:00AM.
 - Tide Graph hand indicates the tide at 6 a.m. for today.



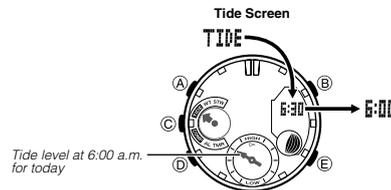
Tide level at 6:00 a.m. for today

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

E-42

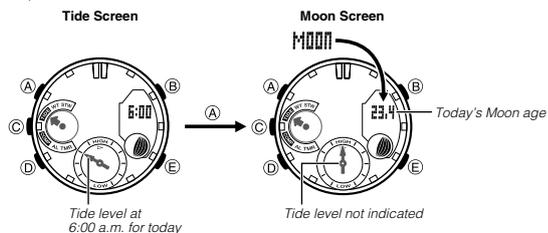
To view the tide level, moon phase, and Moon age for a specific date and time

- Use (A) to enter the Tide/Moon Data Mode as shown on page E-9.
 - This displays the Tide Screen, which shows information in the following sequence: **TIDE** → Today's date → 6:00AM.
 - Tide Graph hand indicates the tide at 6 a.m. for today.



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

- Press (A).
 - This displays the Moon Screen, which shows information in the following sequence: **MOON** → Today's Moon age.
 - The Tide Graph hand moves to 12 o'clock.



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

Tide level not indicated

- Note**
- Tide Graph is disabled while the Moon Screen showing the Moon age is displayed. Note that even if you use the operation to change to another date, Dial Hand 2 always points to 12 o'clock position (HIGH), but this does not mean high tide.

E-44

- Use (E) to specify the date you want.
 - Pressing (E) causes today's date to appear on the digital display. Each press of (E) advances the day by 1.
 - Holding down (E) 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.

- Press (A).
 - This returns to the Tide Screen, which displays information in the following sequence: **TIDE** → 6:00AM.
 - The Tide Graph hand indicates the tide level at 6 a.m. for the specified date.

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

You can use this screen to check tide level for a specified date and time.

E-45

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 another mode clears any time and date you specified.
- In other modes, Tide Graph shows the current tide level and Moon Graph shows the moon phase at noon of today's date.

Calibrating the High Tide Time

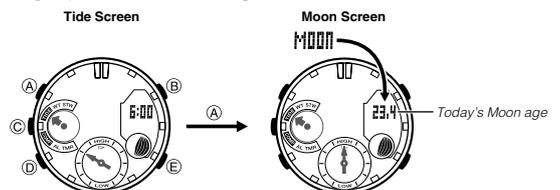
You obtain more accurate tide indications by the watch by calibrating its high tide time with information you can find on the Internet or in a newspaper.

- Note that the high tide time differs according to your location and the current season.
- Use the Moon Screen to calibrate high tide times.

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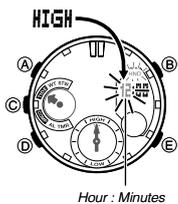
To calibrate the high tide time

- In the Tide/Moon Data 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.



- Use (E) to specify the date you want.
 - Pressing (E) causes today's date to appear on the digital display. Each press of (E) advances the day by 1.
 - Holding down (E) 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.

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3. Hold down (A) for at least two seconds.
 - This will cause the hour digits of the high tide time to flash.
 - If you are using 12-hour timekeeping, the P (p.m.) indicator will also appear on the display.
4. Use (E) (+) and (B) (-) to change the hour setting.
 - Holding down (E) or (B) 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 (B) and (E) 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-16).
5. Press (D).
6. Use (E) (+) and (B) (-) to change the minute setting.
 - Holding down (E) or (B) 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 hand to indicate more accurate tide information.

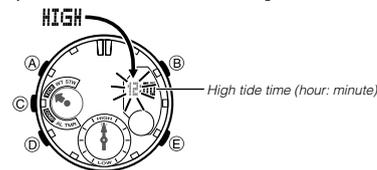
- Tide Graph, Moon Graph, and Moon Age information you can view in the Tide/Moon Data Mode changes in accordance with the date you specify in step 2 of the above procedure. If you want to view the tide level, Moon phase, and Moon age information for a particular date, go back to step 2 and specify the date.
- The calibration setting you make with this procedure is also applied to Tide Graph information indicated in other modes besides the Tide/Moon Data Mode.

Northern Hemisphere View or Southern Hemisphere View Moon Phase

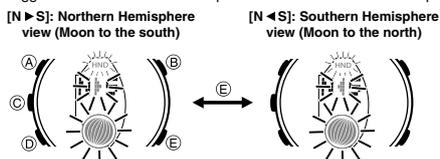
- You can select either of the settings below.
- Northern hemisphere view (Moon to the south)
 - Southern hemisphere view (Moon to the north)

To specify Northern Hemisphere View or Southern Hemisphere View Moon Phase

1. In the Tide/Moon Data Mode, hold down (A) for at least two seconds.
 - This displays the high tide time adjustment screen with the hour flashing



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



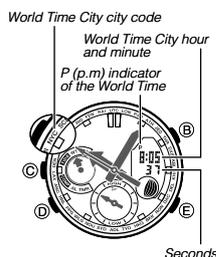
4. Press (A) to exit the setting screen.

Checking the Current Time in a Different Time Zone

You can use the World Time Mode to view the current time in one of 29 time zones (29 cities) around the globe. The city that is currently selected in the World Time Mode is called the "World Time City". You also can swap the current World Time City and Home Time City in the World Time Mode (page E-53).

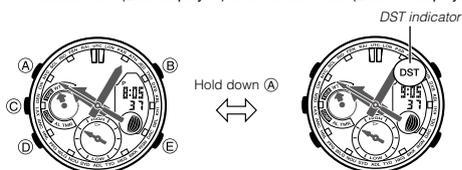
To enter the World Time Mode

- Use (D) to select the World Time Mode as shown on page E-9.
- The mode dial hand will point to WT.
 - The current time (hour, minute) of the selected World Time City will appear on the display.
 - The second hand points to the city code of the current World Time City and the display shows the seconds. The hour hand and minute hand show the current time in the Home Time City.



To configure World Time City and summer time settings

1. In the World Time Mode, use (E) (East) to scroll through city codes.
 - For details about city codes, see the "City Code Table" at the back of this manual.
 - Pressing down (B) and (E) at the same time will jump to the UTC city code.
2. To toggle between summer time (DST displayed) and standard time (DST not displayed), hold down (A).



- 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 city code. Other city codes are not affected.

Swapping the Home City and World Time City

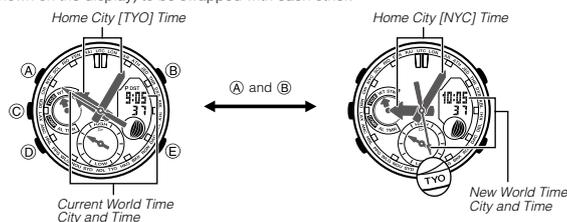
You can use the procedure below to swap your Home Time City with your World Time City. This function comes in handy for those who often travel between two different time zones.

- You need to configure starting Home City and World Time City settings before performing the procedure below.

- To configure Home City settings (page E-15)
- To configure World Time City and summer time settings (page E-52)

To swap your Home Time and World Time Cities

- Press (A) and (B) at the same time.
- This causes the Home City time (indicated by the main hour and minute hands) and the World Time City time (shown on the display) to be swapped with each other.

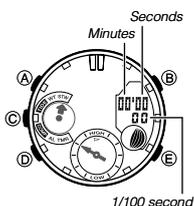


Using the Stopwatch

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

To enter the Stopwatch Mode

Use (D) to select the Stopwatch Mode as shown on page E-8. The mode dial hand will move to STW.



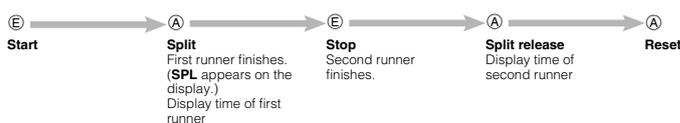
To perform an elapsed time operation



To pause at a split time



To measure two finishes



Note

- The Stopwatch Mode can indicate elapsed time up to 59 minutes, 59.99 seconds.
- Elapsed time returns to zero automatically and timing continues from there when the above elapsed time limit is reached.
- Once started, elapsed time measurement continues until you press the (E) button to stop it, even if you navigate to a different mode and even if the stopwatch reaches the elapsed time measurement limit.
- Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time.

Using the Countdown Timer

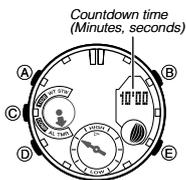
The countdown timer can be configured to start at a preset time and sound an alarm when the end of the countdown is reached.

To enter the Countdown Timer Mode

Use **(D)** to select the Countdown Timer Mode as shown on page E-8.

- The mode dial hand will move to **TMR** and the display will show the current countdown time.

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 **(E)** 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)** until the minute setting of the current countdown start time starts to flash. This is the setting screen.
3. Use **(E)** (+) and **(B)** (-) to change the minute.
 - You can set a countdown start time from 1 to 60 minutes, in one-minute increments.
 - Holding down **(E)** or **(B)** scrolls the minutes at high speed.
4. Press **(A)** to exit the setting screen.

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To perform a countdown timer operation



- Before starting a countdown timer operation, check to make sure that a countdown operation is not already in progress (indicated by the seconds counting down). If it is, press **(E)** to stop it and then **(A)** to reset to the countdown start time.
- An alarm sounds for 10 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 sounds.

To stop the alarm

Press any button.

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Using the Alarm

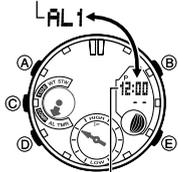
You can set five independent daily alarms.

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.

You can also turn on an Hourly Time Signal, which will cause the watch to beep twice every hour on the hour.

To enter the Alarm Mode

Alarm number or SIG



Alarm time
(Hour : Minutes)

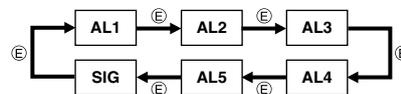
Use **(D)** to select the Alarm Mode as shown on page E-9.

- The mode dial hand will move to **ALM**.
- The display will initially show the currently selected alarm number indicator (**AL1** to **AL5**) or the hourly time signal indicator (**SIG**). Next, the indicator will alternate with the alarm time setting (in the case of an alarm) or **:00** (in the case of the hourly time signal).

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To set an alarm time

1. In the Alarm Mode, use **(E)** to scroll through the alarm screens on the display until the one you want to change is shown.



2. Hold down **(A)** until the hour digits of the alarm setting start to flash on the display.
 - This is the setting screen.



3. Press **(D)** to move the flashing between the hour and minute settings.

4. While a setting is flashing, use **(E)** (+) and **(B)** (-) to change it.
 - Holding down **(E)** or **(B)** scrolls settings at high speed.
 - 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).

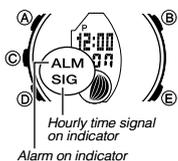
5. Press **(A)** to exit the setting screen.

To test the alarm

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

E-59

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



Hourly time signal
on indicator
Alarm on indicator

1. In the Alarm Mode, use **(E)** to select an alarm or the Hourly Time Signal.
 2. When the alarm or the Hourly Time Signal you want is selected, press **(A)** to turn it on (**on**) and off (**-**).
- The alarm on indicator (when any alarm is on), and the Hourly Time Signal on indicator (when the Hourly Time Signal is on) are shown on the display in all modes.

To stop the alarm

Press any button.

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3. Press **(E)** to toggle the illumination duration between three seconds (**LT3** displayed) and 1.5 seconds (**LT1** displayed).

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

About auto light

While auto light is enabled, illumination will 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 auto light. 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 auto light does not startle or distract others around you.
- When you are wearing the watch, make sure that auto light is disabled before riding on a bicycle or operating a motorcycle or any other motor vehicle. Sudden and unintended operation of auto light can create a distraction, which can result in a traffic accident and serious personal injury.



Wear the watch on the outside of your wrist

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.

- Auto light must be enabled (page E-63) for it to operate.

To illuminate the display manually

Press **(B)** in any mode (except when a flashing setting screen is displayed) to illuminate the display.

- You can use the procedure below to select either 1.5 seconds or 3 seconds as the illumination duration. When you press **(B)**, the display will remain illuminated for about 1.5 seconds or 3 seconds, depending on the current illumination duration setting.
- The above operation illuminates the display regardless of whether auto light is enabled or disabled.



To change the illumination duration

1. In the Timekeeping Mode, hold down **(A)** until **ADJ** appears on the display.
 - When you release **(A)** (after **ADJ** appears), the second hand will be pointing at the currently selected city code.
2. Use **(D)** to cycle through the settings on the display until the current illumination duration (**LT1** or **LT3**) is shown.
 - See the sequence in step 2 of the procedure under "To change the current time and date settings" (page E-17) for information about how to scroll through setting screens.

Note

- Auto light is always disabled, regardless of its enabled/disabled setting, when any one of the following conditions exists.

While an alarm is sounding

While the watch is in the Digital Compass Mode

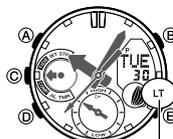
While a hand shift operation is in progress

- If you have auto light enabled, display illumination may be delayed if you angle the watch towards your face while a temperature reading operation is being performed.

To enable or disable auto light

In the Timekeeping Mode, hold down **(B)** for about three seconds to toggle auto light between enabled (**LT** shown on the display) and disabled (**LT** not displayed).

- The auto light enabled indicator (**LT**) is on the display in all modes while auto light is enabled.
- The auto light switch remains enabled for about six hours. After that it becomes disabled automatically.



Auto light enabled
indicator

Illumination Precautions

- 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.

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E-63

Auto light precautions



- 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-61), even if you keep the watch pointed towards your face.
- Static electricity or magnetic force can interfere with proper operation of auto light. 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 auto light, and does not indicate a problem with the watch.

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Button Operation Tone

When enabled, 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, and Countdown Timer Mode alarm all operate normally.

To enable or disable the button operation tone

- In the Timekeeping Mode, hold down (A) until ADJ appears on the display.
 * When you release (A) (after ADJ appears), the second hand will be pointing at the currently selected city code.
- Use (D) to cycle through settings on the display until the current button operation tone setting (MUTE or KEY ♪) is shown.
 * See the sequence in step 2 of the procedure under "To change the current time and date settings" (page E-17) for information about how to scroll through setting screens.
- Press (E) to toggle the button operation tone setting between enabled (KEY ♪) and disabled (MUTE).
- After the setting is the way you want, press (A) to exit the setting screen.



E-65

Low Battery Indication

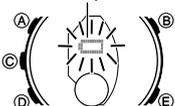
A low battery indicator appears on the display when the power of the batteries is low. Have the batteries replaced as soon as possible.

Note

- For guidelines covering the life of the batteries and supported battery types, see "Specifications" (page E-72).

The conditions below are in effect while the low battery indicator is flashing.

Low battery indicator



- All hands are stopped.
- Except for the low battery indicator, all other display functions are disabled.
- Watch tones are disabled.
- Display illumination is disabled.
- Watch operations are disabled.

Note

- Sequentially or repeatedly performing sensor, light, alarm, and other power intensive operations over a short period can cause a sudden drop in battery power, which will make the low battery indicator flash. Even though the low battery indicator may disappear and watch functions may become re-enabled, battery replacement is recommended.

E-66

Troubleshooting

Time Setting

■ The current time setting is off by a couple of hours.

Your Home City setting may be wrong (page E-15). Check your Home City setting and correct it, if necessary.

■ The current time setting is off by one hour.

You may need to change your Home City's standard time/daylight saving time (DST) setting. Use the procedure under "To change the current time and date settings" (page E-17).

World Time Mode

■ The time for my World Time City is off in the World Time Mode.

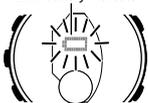
This could be due to incorrect switching between standard time and daylight saving time. See "To configure World Time City and summer time settings" (page E-52) for more information.

E-67

Batteries

■ The low battery indicator is flashing on the digital display.

Low battery indicator



The watch's battery power is low. Have the batteries replaced as soon as possible.

See "Low Battery Indication" (page E-66).

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Direction and Temperature Readings

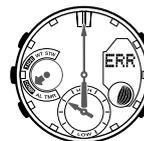
■ The temperature unit setting won't change.

The temperature unit setting is always Celsius (°C) whenever TOKYO is selected as the Home City. In this case, the setting cannot be changed.

■ "ERR" appears while a sensor operation is in progress.

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.

Digital Compass Operation



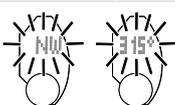
Temperature Measurement



- If ERR appears while a measurement operation is being performed in a sensor mode, restart the measurement. If ERR appears on the display again, it can mean there is something wrong with the sensor.
- If ERR keeps appearing during measurement, it could mean there is a problem with the applicable sensor.

E-69

Direction Readings



■ Abnormal magnetism detection is indicated.

- Move away from any potential source of strong magnetism and try taking a reading again.
- If abnormal magnetism is detected again when you retry, it could mean that the watch itself has become magnetized. If this happens, continue to keep away from the source of strong magnetism, perform bidirectional calibration, and then try taking a reading again. For more information, refer to "To perform bidirectional calibration" (page E-26) and "Location" (page E-32).

■ "ERR" appears on the display following bidirectional calibration.

- If - - appears and then changes to ERR (error) on the calibration screen, it means that there is something wrong with the sensor.
- If ERR disappears after about one second, try performing the calibration again.
 - If ERR keeps appearing, contact your original dealer or nearest authorized CASIO distributor to have the watch checked.

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

E-70

■ Incorrect direction readings.

- Incorrect bidirectional calibration. Perform bidirectional calibration (page E-26).
- Nearby source of strong magnetism, such as a household appliance, a large steel bridge, a steel beam, overhead wires, etc., or an attempt to perform direction measurement on a train, boat, etc. Move away from large metal objects and try again.

■ Different results produced by direction readings taken at the same location.

Magnetism generated by nearby high-tension wires is interfering with detection of terrestrial magnetism. Move away from the high-tension wires and try again.

■ Problems taking direction readings indoors.

A TV, personal computer, speakers, or some other object is interfering with terrestrial magnetism readings. Move away from the object causing the interference or take the direction reading outdoors. Indoor direction readings are particularly difficult inside ferro-concrete structures. Remember that you will not be able to take direction readings inside of trains, airplanes, etc.

E-71

Specifications

Accuracy at normal temperature: ±15 seconds a month

Digital Timekeeping: Hour, minutes, seconds, p.m. (P), 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: 3 display formats (day of week, day; month, day, seconds; hour, minutes, seconds); Home City code (can be assigned one of 29 city codes); standard time / daylight saving time (summer time)

Analog Timekeeping: Hour, minutes (hand moves every 10 seconds), seconds

Digital Compass: Continuous readings for one minute; 16 directions; Angle value 0° to 359°; Hand indication of north; Bearing memory; Calibration (bidirectional); Magnetic declination correction

Thermometer:

Measurement and display range: -10.0°C to 60.0°C (or 14.0°F to 140.0°F)

Display unit: 0.1°C (or 0.2°F)

Measurement timing: Every five seconds in the Thermometer Mode

Other: Calibration; Selectable measurement unit

Bearing Sensor Precision:

Direction angle value: Within ±15°

North indicated by second hand: Within ±3 segments

* Values are guaranteed for a temperature range of 10°C to 40°C (50°F to 104°F).

Temperature Sensor Precision:

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

Tide and Moon Data: Tide level (Tide Graph), Moon phase (Moon Graph), Moon age, Selectable date,

Selectable time (Tide Graph only), High tide time correction

World Time: 29 cities (29 time zones)+ UTC; Home City/World Time City swapping

Other: daylight saving time/standard time

Stopwatch:

Measuring unit: 1/100 second

Measuring capacity: 59' 59.99"

Measuring modes: Elapsed time, split time, two finishes

Countdown Timer:

Countdown unit: 1 second

Countdown range: 60 minutes

Setting ranges: Countdown start time (1 to 60 minutes, 1-minute increments)

Alarms: 5 daily alarms; Hourly Time Signal

Illumination: LED light; Selectable illumination duration (approximately 1.5 seconds or 3 seconds);

Auto light

Other: Button operation tone on/off, Low battery alert; Hand shifting (to view digital display)

Battery: Two silver oxide batteries (Type: SR927W)

Approximate battery operating time: 2 years under the following conditions:

- 1 illumination operation (1.5 seconds) per day

- Alarm: 10 seconds/day

- Direction readings: 20 times/month

- Temperature readings: Once/week

Frequent use of illumination runs down the battery. Particular care is required when using auto light (page E-62).

E-72

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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
LAX	Los Angeles	-8
DEN	Denver	-7
CHI	Chicago	-6
NYC	New York	-5
SCL	Santiago	-4
RIO	Rio De Janeiro	-3
FEN	Fernando de Noronha	-2
RAI	Praia	-1
UTC	-	-
LON	London	0
PAR	Paris	+1
ATH	Athens	+2
JED	Jeddah	+3
THR	Tehran	+3.5

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

* This table shows the city codes of this watch.

(As of December 2014)

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

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