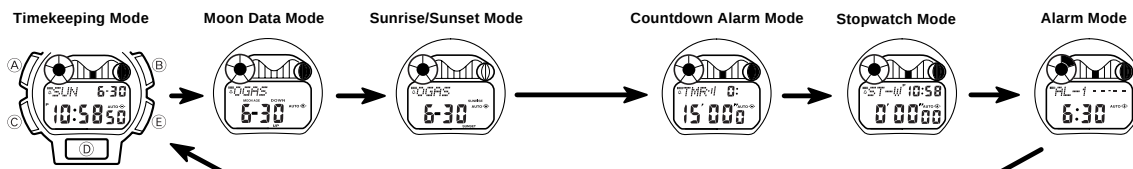


GENERAL GUIDE

- Press **C** to change from mode to mode. After you perform an operation in Countdown Alarm Mode or Stopwatch Mode, pressing **C** returns to the Timekeeping Mode.
- In the Timekeeping Mode, Moon Data Mode, Sunrise/Sunset Mode or Alarm Mode, press **D** to illuminate the display for about two seconds. In the Countdown Mode or Stopwatch Mode, press **D** to illuminate the display for about two seconds.



TIMEKEEPING MODE

The settings you make in the Timekeeping Mode are very important, because they affect the Moon Data, Tide Graph, and Sunrise/Sunset functions.

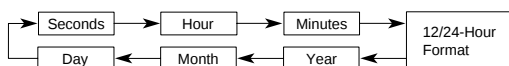
There are three setting screens in the Timekeeping Mode: the Time and Date Setting Screen, DST, GMT Differential, Point Name Setting Screen, and Longitude/Latitude, Lunar Tide Interval Setting Screen.

- For normal timekeeping, you need to set the time, and date, and turn daylight saving time (summer time) on or off.
- To use the Moon Data, Tide Graph, and Sunrise/Sunset functions, you must set the GMT differential, your current longitude and latitude, and the lunar tide interval on your point.
- If you do not operate any button for a few minutes while a selection is flashing, the flashing stops and the watch goes back to the Timekeeping Mode automatically.

To set the time and date

- Use this screen to set the current time and date, to reset the seconds to 00, and to toggle between 12-hour and 24-hour timekeeping.
- In the Timekeeping Mode, check if the DST indicator is displayed, and change the DST setting in accordance with the timekeeping in your area.
- Turn on DST if daylight saving time (summer time) is currently in effect in your area. If daylight saving time is not currently in effect in your area, be sure to turn DST off.
- See "To turn DST on and off" for details about turning DST on and off.
- In the Timekeeping Mode, hold down **A** until the seconds digits start to flash. This is the Time and Date Setting Screen.

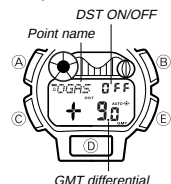
- Press **C** to move the selection around the display in the following sequence.



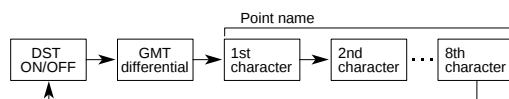
- While the seconds digits are selected (flashing), press **D** to reset the seconds to 00. If you press **D** while the seconds count is in the range of 30 to 59, the seconds are reset to 00 and 1 is added to the minutes. If the seconds count is in the range of 00 to 29, the minutes count is unchanged.
- While any other digits (besides seconds), are selected (flashing), press **D** to increase the number or **B** to decrease it. Holding down either button changes the current number at high speed.
- While the 12/24-hour setting is selected, press **D** to switch between the two formats.
- The day of the week is automatically set in accordance with the date.
- The date can be set with the range of January 1, 1995 to December 31, 2039.
- After you are finished making the settings you want, press **A** to advance to the DST, GMT Differential, Point Name Setting Screen. To return to the normal Timekeeping Mode screen, press **A** three times.

DST, GMT Differential, Point Name Setting Screen

Use this screen to switch DST (daylight saving time or summer time) on and off, to specify the GMT differential from your current location and to input new point names.



GMT differential



To turn DST on and off

While **ON** or **OFF** and the small **DST** mark is flashing on the display, press **D** to toggle DST on and off.

Important!

- Be sure to use this procedure to turn daylight saving time (summer time) on and off. Never manually change the timekeeping setting to adjust for daylight saving time. Doing so will produce incorrect Moon Data, Tide Graph, and Sunrise/Sunset data.
- Use **C** to move the flashing to the GMT differential value.

To set the GMT differential

Note

- The GMT differential is the difference in time between the time zone where you are currently located and Greenwich Mean Time (GMT).
- See "TIME ZONE CHART" at the back of this manual for information about determining the GMT differential in your area.

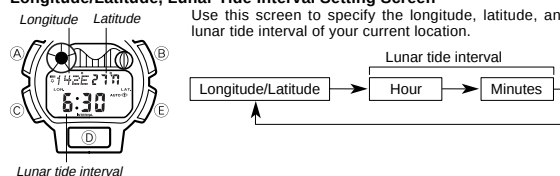
- Press **D** to increase the value or **B** to decrease it. Holding down either button changes the setting at high speed.
- Use **C** to move the flashing to the first character of the point name.

To change a point name

- Press **D** to scroll forward through the characters at the current flashing location, or **B** to scroll backwards. Holding down either button changes the current characters at high speed.
- When the character you want is displayed, press **C** to advance to the next character.
- Repeat steps 1 and 2 for all eight characters of the point name.
- After you are finished making the settings you want, press **A** to advance to the Longitude/Latitude, Lunar Tide Interval Setting Screen.

Longitude/Latitude, Lunar Tide Interval Setting Screen

Use this screen to specify the longitude, latitude, and lunar tide interval of your current location.



To set the longitude and latitude of your current location

- While the Longitude/Latitude is flashing on the display, use **D** to change the longitude value and **B** to change the latitude value. To reverse the direction of the change (from increase to decrease, or from decrease to increase), press **D**.
- After you are finished making the settings you want, press **C** to advance to the Lunar Tide Interval Setting Screen.

To set the lunar tide interval at your current location

- Press **D** to increase the hour value or **B** to decrease it. Holding down either button changes the setting at high speed.
- Press **C** to move to the minutes digits.
- Press **D** to increase the minutes value or **B** to decrease it.
- After you are finished making the settings you want, press **A** to return to the normal Timekeeping Mode Screen.

About the lunar tide interval

The lunar tide interval is the period from the moon's upper transit (moon up) to high tide. If you know the lunar tide interval, tide changes can be determined using the moon age. This watch calculates tide changes according to the current time and the location setting, and displays them graphically.

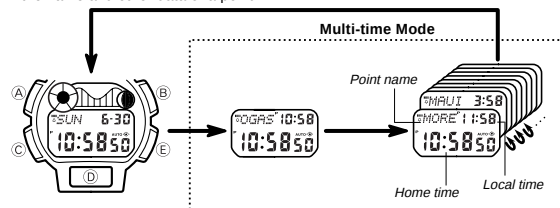
To calculate the lunar tide interval

- Look up the high tide time for the flood tide of the location whose tide changes you want to know.
- Use this watch to look up the moon up time that occurs immediately before this time.
- Subtracting the moon up time from the high tide time produces the lunar tide interval.

MULTI-TIME MODE

To view point data

- In the Timekeeping Mode, press **B** to enter the Multi-time Mode. The first point that appears is the one you selected as your home time point.
- Press **B** to scroll through the data for the 10 points. The watch beeps and returns to the Timekeeping Mode after the tenth point.
- Pressing **C** at any time in the Multi-time Mode immediately returns to the Timekeeping Mode.
- You can use the procedure under "DST, GMT Differential, Point Name Setting Screen" and "Longitude/Latitude, Lunar Tide Interval Setting Screen" to change the name and other data of a point.



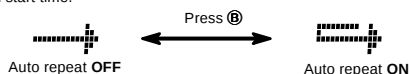
This watch comes pre-programmed with data for 10 dolphin or whale watching points around the world. The data for each point includes an 8-character point name, GMT differential, longitude and latitude, and lunar tide interval. Setting the current time and date for any of the points causes the time and date settings for all other points to be adjusted accordingly. In the case of DST, however, you must make a separate setting for each point. You can use the following procedure to select any one of the ten points as your home time point.

- See the "PRESET LOCATION CHART" at the back of this manual for details on the locations whose data is preset in watch memory when you purchase it.

To select a point for your home time

- While the point you want to use for your home time is displayed in the Multi-time Mode, hold down **D** for about two seconds.
- The watch automatically returns to the Timekeeping Mode if you do not perform any key operation for two or three minutes in the Multi-time Mode.

4. While the auto repeat indicator is flashing, press **(E)** toggle auto repeat on and off. The auto repeat indicator is on the display only while you are setting the countdown start time.



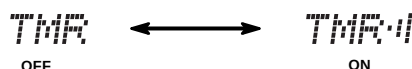
- To set the starting value of the countdown time to 24 hours, set 0:00' 00".
- 5. After you set the countdown start time and auto repeat timing on and off, press **(A)** to return to the Countdown Alarm Mode.

To use the countdown alarm

1. Press **(D)** while in the Countdown Alarm Mode to start the countdown alarm.
2. Press **(D)** again to stop the countdown alarm.
- You can resume countdown alarm operation by pressing **(D)**.
3. Press **(D)** to stop the countdown alarm, and then press **(E)** to reset the countdown time to its starting value.
- When the end of the countdown is reached and auto repeat timing is off, the alarm sounds for 10 seconds or until you stop the alarm by pressing any button. Countdown timing stops and the countdown time is automatically reset to its starting value after the alarm stops.

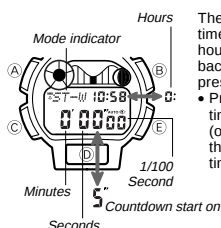
To turn the progress beeper on and off

1. While the Countdown Alarm Mode screen shows its starting value or while a countdown operation is in progress, press **(E)** to toggle the progress beeper on and off.



- When the end of the countdown is reached while auto repeat is on, the alarm sounds, but the countdown restarts from the beginning without stopping. You can stop the countdown by pressing **(D)** and manually reset to the start time by pressing **(E)**.
- If you set a starting time of 10 seconds or less and have Auto Repeat turned on, the countdown alarm tone (which normally sounds for 10 seconds) sounds for only one second.
- When the progress beeper is turned on, the watch beeps as the countdown time passes the 10, 5, 4, 3, 2, and 1-minute marks, and the 50, 40, 30, 20, 10, 5, 4, 3, 2, and 1-second marks.

STOPWATCH MODE



The stopwatch Mode lets you measure elapsed time, split times, and two finishes. The range of the stopwatch is 23 hours, 59 minutes 59.99 seconds. You can use the EL backlight at any time while the stopwatch is operating by pressing **(E)**.

- Pressing **(A)** in the Stopwatch Mode While an elapsed time operation is in progress or while an elapsed time (other than all zeros) is stopped on the display causes the upper right display to alternate between the current time and stopwatch time.

Elapsed time measurement



Split time measurement



Split time and 1st-2nd place times

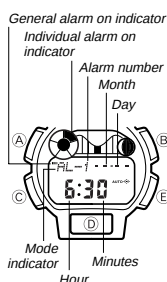


Countdown Start

In addition to the normal instant start at the press of a button, the stopwatch can also be set up to start timing automatically after five seconds have elapsed.

- While the stopwatch is stopped and cleared to all zeros, press **(A)** to toggle countdown start on and off. Turning on countdown start displays 5" in the lower part of the display. 00' 00" 00 is displayed when countdown start is turned off. The upper part of the display always shows the current time.

ALARM MODE



You can set three independent alarms with the hour, minutes, month and day. Use the Alarm Mode to turn the alarm and the Hourly Time Signal on and off.

- When an alarm is turned on, an alarm tone sounds for 20 seconds when the preset time reached.
- When the Hourly Time Signal is turned on, the watch beeps every hour on the hour.

Alarm types

The types of alarm you get depends on the information you set.

• To set a daily alarm

Set the hour and minutes for the alarm time. Set "-" for the month and "-" for the day. This type of setting causes the alarm to sound everyday at the time you set.

• To set a date alarm

Set the month, day, hour and minutes for the alarm time. This type of setting causes the alarm to sound at the specific time, on the specific date you set.

• To set a 1-month alarm

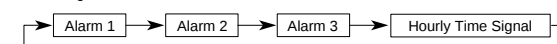
Set the month, hour and minutes for the alarm time. Set "-" for the day. This type setting causes the alarm to sound every day at the time you set, only during the month you set.

• To set a month alarm

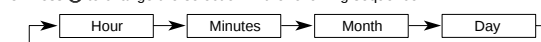
Set the day, hour and minutes for the alarm time. Set "-" for the month. This type of the setting causes the alarm to sound every month at the time you set, on the day you set.

To set the alarm time

1. Press **(E)** while in the Alarm Mode to select Alarm 1 through Alarm 3 and Hourly Time Signal.



2. After you select an alarm, hold down **(A)** until the hour digits start to flash on the display. The hour digits flash because they are *selected*. At this time the Alarm is automatically switched on.
3. Press **(C)** to change the selection in the following sequence.



4. Press **(E)** to increase the number or **(D)** to decrease it. Holding down either button changes the current number at high speed.
- The format (12-hour and 24-hour) of the alarm time matches the format you select for normal timekeeping.
- When setting the alarm time using the 12-hour format, take care to set the time correctly as morning or afternoon.
5. After you set the alarm time, press **(A)** to return to the Alarm Mode.
- If you do not operate any button for a few minutes while a selection is flashing, the flashing stops and the watch goes back to the Alarm Mode automatically.

To stop the alarm

- Press any button to stop the alarm after it starts to sound.

To switch an alarm on and off

General alarm on indicator

Individual alarm on indicator

Alarm number

AL-1

AL-2

AL-3

Individual alarm on indicator

AL-1

AL-2

AL-3

- The general alarm indicator is displayed in all modes.

To switch the Hourly Time Signal on and off

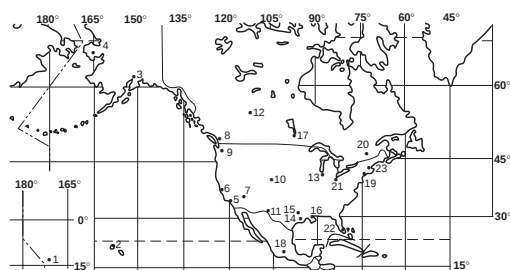
1. In the Alarm Mode, press **(E)** to select the Hourly Time Signal.
2. When Hourly Time Signal is selected, press **(B)** to switch it on and off.
- If Hourly Time Signal is on, the Hourly Time Signal On indicator is shown on the display when you change to another mode.

To test the alarm

Hold down **(E)** while in the Alarm Mode to sound the alarm.

TIME ZONE CHART

North America



NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
1.	PAGO PAGO	-11	171°W	14°N
2.	HONOLULU	-10	158°W	21°N
3.	ANCHORAGE	-9	150°W	61°N
4.	NOME	-9	165°W	65°N
5.	LOS ANGELES	-8	118°W	34°N
6.	SAN FRANCISCO	-8	122°W	38°N
7.	LAS VEGAS	-8	115°W	36°N
8.	VANCOUVER	-8	123°W	49°N
9.	SEATTLE	-8	122°W	48°N
10.	DENVER	-7	105°W	40°N
11.	EL PASO	-7	106°W	32°N
12.	EDMONTON	-7	114°W	54°N
13.	CHICAGO	-6	88°W	42°N
14.	HOUSTON	-6	95°W	30°N

NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
15.	DALLAS/FORT WORTH	-6	97°W	33°N
16.	NEW ORLEANS	-6	90°W	30°N
17.	WINNIPEG	-6	97°W	50°N
18.	MEXICO CITY	-6	99°W	19°N
19.	NEW YORK	-5	74°W	41°N
20.	MONTREAL	-5	74°W	45°N
21.	DETROIT	-5	83°W	42°N
22.	MIAMI	-5	80°W	26°N
23.	BOSTON	-5	71°W	42°N

Add 1 hour to the difference time if DST (Daylight Saving Time) is used. (EX. if difference of standard time is +2, that of DST is +3.)

Central and South America

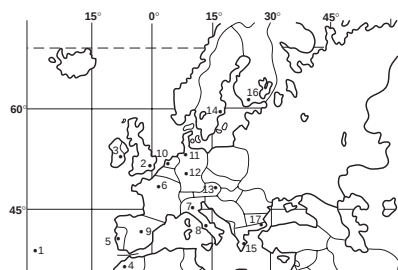


NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
1.	PANAMA CITY	-5	80°W	9°N
2.	LIMA	-5	77°W	12°S
3.	BOGOTA	-5	74°W	5°N
4.	CARACAS	-4	67°W	10°N
5.	LA PAZ	-4	68°W	17°S
6.	SANTIAGO	-4	71°W	33°S
7.	PORT OF SPAIN	-4	61°W	11°N
8.	RIO DE JANEIRO	-3	43°W	23°S
9.	SÃO PAULO	-3	47°W	24°S
10.	BRASILIA	-3	48°W	16°S
11.	BUENOS AIRES	-3	58°W	35°S
12.	MONTEVIDEO	-3	56°W	35°S

NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
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Add 1 hour to the difference time if DST (Daylight Saving Time) is used. (EX. if difference of standard time is +2, that of DST is +3.)

Europe

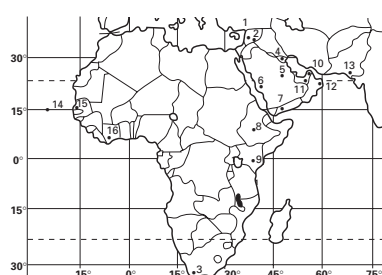


NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
1.	AZORES	-1	25°W	38°N
2.	LONDON	+0	0°E	51°N
3.	DUBLIN	+0	6°W	53°N
4.	CASABLANCA	+0	8°W	34°N
5.	LISBON	+0	9°W	39°N
6.	PARIS	+1	2°E	49°N
7.	MILAN	+1	9°E	45°N
8.	ROME	+1	12°E	42°N
9.	MADRID	+1	4°W	40°N
10.	AMSTERDAM	+1	5°E	52°N
11.	HAMBURG	+1	10°E	54°N
12.	FRANKFURT	+1	9°E	50°N
13.	VIENNA	+1	16°E	48°N
14.	STOCKHOLM	+1	18°E	59°N

NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
15.	ATHENS	+2	24°E	38°N
16.	HELSINKI	+2	25°E	60°N
17.	ISTANBUL	+2	29°E	41°N

Add 1 hour to the difference time if DST (Daylight Saving Time) is used. (EX. if difference of standard time is +2, that of DST is +3.)

Africa and Middle East

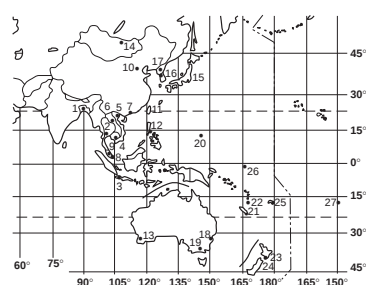


NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
1.	BEIRUT	+2	35°E	34°N
2.	DAMASCUS	+2	36°E	33°N
3.	CAPE TOWN	+2	18°E	34°S
4.	KUWAIT	+3	48°E	29°N
5.	RIYADH	+3	47°E	25°N
6.	JEDDAH	+3	39°E	21°N
7.	ADEN	+3	45°E	13°N
8.	ADDIS ABABA	+3	39°E	9°N
9.	NAIROBI	+3	37°E	1°S
10.	DUBAI	+4	55°E	25°N
11.	ABU DHABI	+4	54°E	24°N
12.	MUSCAT	+4	58°E	23°N
13.	KARACHI	+5	67°E	25°N
14.	PRAIA	-1	23°W	15°N

NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
15.	DAKAR	+0	17°W	15°N
16.	ABIDJAN	+0	4°W	5°N

Add 1 hour to the difference time if DST (Daylight Saving Time) is used. (EX. if difference of standard time is +2, that of DST is +3.)

Asia and South Pacific

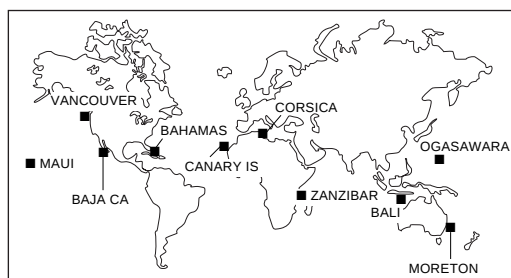


NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
1.	DHAKA	+6	90°E	24°N
2.	BANGKOK	+7	100°E	14°N
3.	JAKARTA	+7	107°E	6°S
4.	PHNOM PENH	+7	105°E	12°N
5.	HANOI	+7	106°E	21°N
6.	VIENTIANE	+7	103°E	18°N
7.	HONG KONG	+8	114°E	22°N
8.	SINGAPORE	+8	104°E	1°N
9.	KUALA LUMPUR	+8	102°E	3°N
10.	BEIJING	+8	116°E	40°N
11.	TAIPEI	+8	122°E	25°N
12.	MANILA	+8	121°E	15°N
13.	PERTH	+8	116°E	32°N
14.	ULANBATOR	+8	107°E	48°N
15.	TOKYO	+9	140°E	36°N

NO.	CITY	THE DIFFERENCE FROM GMT FOR STANDARD TIME	LONGITUDE	LATITUDE
16.	SEOUL	+9	127°E	38°N
17.	PYONGYANG	+9	126°E	39°N
18.	SYDNEY	+10	151°E	34°S
19.	MELBOURNE	+10	145°E	38°S
20.	GUAM	+10	145°E	13°N
21.	NOUMEA	+11	166°E	22°S
22.	PORT VILA	+11	168°E	18°S
23.	WELLINGTON	+12	175°E	41°S
24.	CHRISTCHURCH	+12	173°E	43°S
25.	NADI	+12	178°E	18°S
26.	NAURU ISLAND	+12	166°E	1°S
27.	PAPEETE	-10	150°W	18°S

Add 1 hour to the difference time if DST (Daylight Saving Time) is used. (EX. if difference of standard time is +2, that of DST is +3.)

PRESET LOCATION CHART



Point name	Longitude	Latitude	GMT differential	Lunar Tide Interval
OGASAWARA	142° E	27° N	9	6:30
MORETON	153° E	27° S	10	10:00
MAUI	157° W	21° N	-10	4:00
VANCOUVER	126° W	50° N	-8	1:00
BAJA CA	110° W	24° N	-7	8:50
BAHAMAS	79° W	27° N	-5	7:40
CANARY IS	17° W	28° N	0	0:00
CORSICA	9° E	43° N	1	9:00
ZANZIBAR	39° E	6° S	3	3:30
BALI	115° E	9° S	8	10:50

OGASAWARA	Area around Chichijima Island, which is one of the Ogasawara Islands located about 1,000 kilometers south of Tokyo.
MORETON	Area around Moreton Island, located just off Brisbane, Australia.
MAUI	Area around Maui, located northwest of Hawaii Island.
VANCOUVER	Area around Johnstone Strait, Vancouver, Canada.
BAJA CA	Area around the central part of the Baja Peninsula, located south of California in Mexico.
BAHAMAS	Area around the Little Bahama Bank, located north of the Grand Bahama Island.
CANARY IS	Area around Gomera Island, which is part of the Canary Islands (Spain).
CORSICA	Ligurian Sea, located north of Corsica (France).
ZANZIBAR	Area off of Zanzibar, Tanzania.
BALI	Area around Bali, Indonesia.