

Operation Guide 5028

Getting Acquainted

Congratulations upon your selection of this CASIO watch. To get the most out of your purchase, be sure to read this manual carefully and keep it on hand for later reference when necessary.

Warning!

- The longitude, lunital interval, Moon phase indicator and tide graph data that appear on the display of this watch are not intended for navigation purposes. Always use proper instruments and resources to obtain data for navigation purposes.
- This watch is not an instrument for calculating low tide and high tide times. The tide graph of this watch is intended to provide a reasonable approximation of tidal movements only.
- CASIO COMPUTER CO., LTD. assumes no responsibility for any loss, or any claims by third parties that may arise through the use of this watch.

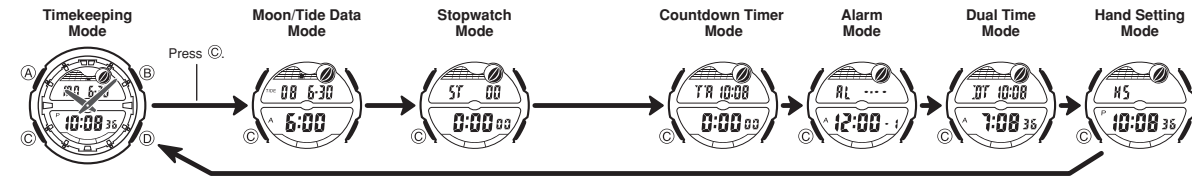
About This Manual



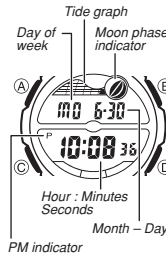
- Button operations are indicated using the letters shown in the illustration.
- For the sake of simplicity, the sample displays in this manual do not show the analog hands of the watch.
- Each section of this manual provides you with the information you need to perform operations in each mode. Further details and technical information can be found in the "Reference" section.

General Guide

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



Timekeeping



This watch features separate digital and analog timekeeping. The procedures for setting the digital time and analog time are different.

- The Moon phase indicator shows the current Moon phase in accordance with the current date as kept in the Timekeeping Mode.
- The tide graph shows tidal movements for the current date in accordance with the current time as kept in the Timekeeping Mode.

Important!

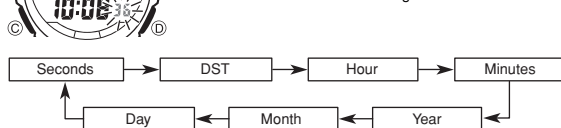
- Be sure to configure the current time and date, and your Home Site data (data for the site where you use the watch) correctly before using the functions of this watch. See "Home Site Data" for more information.

Digital Time and Date

Use the Timekeeping Mode to set and view a digital display of the current time and date. When setting the digital time, you can also configure settings for summer time (Daylight Saving Time or DST).

To set the digital time and date

1. In the Timekeeping Mode, hold down (A) until the seconds start to flash, which indicates the setting screen.
2. Press (C) to move the flashing in the sequence shown below to select the other settings.



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

Screen	To do this:	Do this:
36	Reset the seconds to 00	Press (D).
DST 0F	Toggle between Daylight Saving Time (0F) and Standard Time (0F)	Press (D).
P 10:00	Change the hour or minutes	Use (D) (+) and (B) (-).
2000	Change the year	
6:30	Change the month or day	

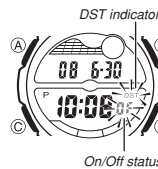
4. Press (A) twice to exit the setting screen.
- The first press of (A) displays the UTC differential setting screen. Pressing (A) again exits the setting screen.
- Resetting the seconds only (without changing the DST, hour, or minute setting) causes the analog minute hand setting to be adjusted automatically.
- See "Digital Time Daylight Saving Time (DST) Setting" below for details about the DST setting.
- The day of the week is displayed automatically in accordance with the date (year, month, and day) settings.

Digital Time Daylight Saving Time (DST) Setting

Daylight Saving Time (summer time) advances the digital time setting by one hour from Standard Time. Remember that not all countries or even local areas use Daylight Saving Time.

To toggle the Timekeeping Mode digital time between DST and Standard Time

1. In the Timekeeping Mode, hold down (A) until the seconds start to flash, which indicates the setting screen.
 2. Press (C) once to display the DST setting screen.
 3. Press (D) to toggle between Daylight Saving Time (0F displayed) and Standard Time (0F displayed).
 4. Press (A) twice to exit the setting screen.
- The DST indicator appears on the Timekeeping, Moon/Tide Data, Alarm, and Hand Setting Mode screens to indicate that Daylight Saving Time is turned on. In the case of the Moon/Tide Data Mode, the DST indicator appears on the tide data screen only.



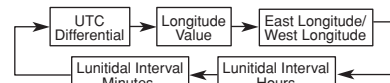
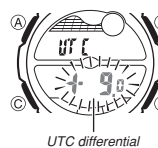
Home Site Data

Moon phase, tide graph data, and Moon/Tide Data Mode data will not be displayed properly unless Home Site data (UTC differential, longitude, and lunital interval) is configured correctly.

- The UTC differential is a value that indicates the time difference between a reference point in Greenwich, England and the time zone where a city is located.
- The letters "UTC" is the abbreviation for "Coordinated Universal Time", which is the world-wide scientific standard of timekeeping. It is based upon carefully maintained atomic (cesium) clocks that keep time accurately to within microseconds. Leap seconds are added or subtracted as necessary to keep UTC in sync with the Earth's rotation.
- The lunital interval is the time elapsing between the Moon's transit over a meridian and the next high tide at that meridian. See "Lunital Interval" for more information.
- This watch displays lunital intervals in terms of hours and minutes.
- The "Site/Lunital Interval Data List" at the back of this manual provides UTC differential and longitude information around the world.
- The following is the initial factory default Home Site data (Tokyo, Japan) when you first purchase the watch, and whenever you have the batteries replaced. Change these settings to match the area where you normally use the watch.
UTC differential (+9.0); Longitude (East 140 degrees); Lunital interval (5 hours, 20 minutes)

To configure Home Site data

1. In the Timekeeping Mode, hold down (A) until the seconds start to flash, which indicates the setting screen.
2. Press (A) again to display the UTC differential setting screen.
3. Press (C) to move the flashing in the sequence shown below to select other settings.



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

Setting	Screen	Button Operations
UTC Differential	00 ± 9.0	Use (D) (+) and (B) (-) to change the setting. • You can specify a value in the range of -12.0 to +14.0, in 0.5-hour units.
Longitude Value	140° E	Use (D) (+) and (B) (-) to change the setting. • You can specify a value in the range of 0° to 180°, in 1-degree units.
East Longitude/ West Longitude		Use (D) to switch between east longitude (E) and west longitude (W).
Lunital Interval Hours, Minutes	5:20	Use (D) (+) and (B) (-) to change the setting.

- When the digital time DST setting is on, the UTC differential can be set in a range of -11.0 to +15.0 in 0.5-hour units.
5. Press **(A)** to exit the setting screen.

To toggle between 12-hour and 24-hour timekeeping

In the Timekeeping Mode, press **(D)** to toggle between 12-hour timekeeping and 24-hour timekeeping.

- With the 12-hour format, the **P** (PM) indicator appears to the left of the hour digits for times in the range of noon to 11:59 p.m. and the **A** (AM) indicator appears to the left of the hour digits for times in the range of midnight to 11:59 a.m.
- With the 24-hour format, times are displayed in the range of 0:00 to 23:59, without any indicator.
- The 12-hour/24-hour timekeeping format you select in the Timekeeping Mode is applied in all other modes.
- The **A** and **P** indicators are not displayed with the Timekeeping Mode time on the Countdown Timer Mode and Dual Time Mode screens.

Setting the Analog Time

Perform the procedure below when the time indicated by the analog hands does not match the time of the digital display.

To adjust the analog time



1. In the Timekeeping Mode, press **(C)** six times to enter the Hand Setting Mode.
2. Hold down **(A)** until the current digital time starts to flash, which indicates the analog setting mode.
3. Press **(D)** to advance the analog time setting by 20 seconds.
• Holding down **(D)** advances the analog time setting at high speed.

- If you need to advance the analog time setting a long way, hold down **(D)** until the time starts advancing at high speed, and then press **(B)**. This locks the high-speed hand movement, so you can release the two buttons. High-speed hand movement continues until you press any button. It will also stop automatically after the time advances 12 hours or if an alarm (multi-function alarm, Hourly Time Signal, or countdown beeper) starts to sound.
4. Press **(A)** to exit the setting mode.
- The watch will automatically adjust the minute hand slightly to match its internal second count when you exit the setting mode.
 - To return to the Timekeeping Mode, press **(C)**.

Moon/Tide Data

Moon/tide data lets you view the Moon age and Moon phase for a particular date, and tidal movements for a particular date and time at your Home Site.

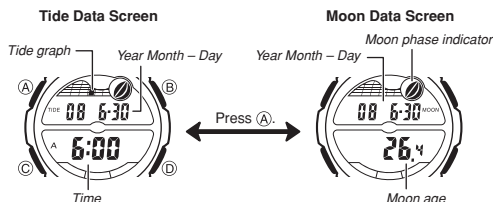
- If you suspect that the current Moon/tide data is wrong for some reason, check the current Timekeeping Mode settings (time, date, and Home Site), and correct them if required.
- See "Moon Phase Indicator" for information about the Moon phase indicator and "Tide Graph" for information about the tide graph.
- All of the operations in this section are performed in the Moon/Tide Data Mode, which you enter by pressing **(C)**.

Tide Data Screen

To view the current Moon/Tide Data Mode data

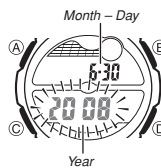
In the Moon/Tide Data Mode, press **(A)** to toggle between the tide data screen and the Moon data screen.

- The tide graph shows the tide for the currently displayed time. The initial tide data screen shows the level for 6:00 a.m. The Moon data screen shows the Moon age and Moon phase for the current date.



- While the tide data screen is displayed, press **(D)** to advance to the next hour.
- While the Moon data screen is displayed, press **(D)** to advance to the next day.
- You can also specify a particular date (year, month, day) to view its tide data and Moon data. See "To specify a date" for more information.
- When you enter the Moon/Tide Data Mode, the screen (Tide Data Mode, the screen (Tide Data Mode, the screen (Tide Data Mode, the screen (Tide Data Mode) that was displayed the last time you exited the mode appears first.

To specify a date



1. In the Moon/Tide Data Mode, hold down **(A)** until the year setting starts to flash, which indicates the setting screen.
2. Press **(C)** to move the flashing in the sequence shown below to select the other settings.



3. While a setting is flashing, use **(D)** (+) or **(B)** (-) to change it.
• You can specify a date in the range of January 1, 2000 to December 31, 2099.
4. Press **(A)** to exit the setting screen.
5. Use **(A)** to display either the tide data screen or the Moon data screen.

Stopwatch



The stopwatch lets you measure elapsed time, split times, and two finishes.

- The display range of the stopwatch is 23 hours, 59 minutes, 59.99 seconds.
- The stopwatch continues to run, restarting from zero after it reaches its limit, until you stop it.
- The stopwatch measurement operation continues even if you exit the Stopwatch Mode.
- Exiting the Stopwatch Mode while a split time is frozen on the display clears the split time and returns to elapsed time measurement.
- All of the operations in this section are performed in the Stopwatch Mode, which you enter by pressing **(C)**.

To measure times with the stopwatch

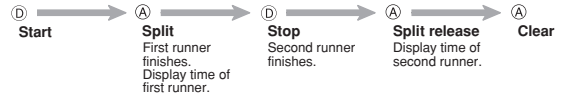
Elapsed Time



Split Time

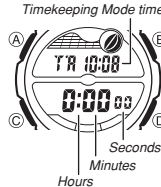


Two Finishes



Countdown Timer

Timekeeping Mode time



You can set the countdown timer within a range of one minute to 24 hours. An alarm sounds when the countdown reaches zero.

- You can also select auto-repeat, which automatically restarts the countdown from the original value you set whenever zero is reached.
- All of the operations in this section are performed in the Countdown Timer Mode, which you can enter using **(C)**.

To use the countdown timer

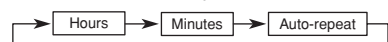
Press **(D)** while in the Countdown Timer Mode to start the countdown timer.

- When the end of the countdown is reached and auto-repeat is turned off, the alarm sounds for 10 seconds or until you stop it by pressing any button. The countdown time is automatically reset to its starting value after the alarm stops.
- When auto-repeat is turned on, the countdown will restart automatically without pausing when it reaches zero. The alarm sounds in order to signal when the countdown reaches zero.
- The countdown timer measurement operation continues even if you exit the Countdown Timer Mode.
- Press **(D)** while a countdown operation is in progress to pause it. Press **(D)** again to resume the countdown.
- To completely stop a countdown operation, first pause it (by pressing **(D)**), and then press **(A)**. This returns the countdown time to its starting value.

To set up the countdown timer



1. While the countdown start time is on the display in the Countdown Timer Mode, hold down **(A)** until the hour setting of the countdown start time starts to flash, which indicates the setting screen.
• If the countdown start time is not displayed, use the procedure under "To use the countdown timer" to display it.
2. Press **(C)** to move the flashing in the sequence shown below to select other settings.

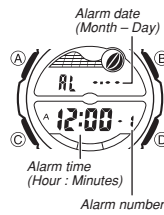


3. While a setting is flashing, use **(D)** and **(B)** to change it as described below.

Screen	To do this:	Do this:
0:00	Change the hours or minutes	Use (D) (+) and (B) (-).
00	Toggle auto-repeat on (00) and off (0F)	Press (D) .

- To specify a countdown start time of 24 hours, set **0:00**.
4. Press **(A)** to exit the setting screen.
- The auto-repeat indicator (00) is displayed on the Countdown Timer Mode screen while this function is turned on.
 - Frequent use of auto-repeat and the alarm can run down batteries power.

Alarms



You can set up to three independent multi-function alarms with hour, minutes, month, and day. When an alarm is turned on, the alarm tone sounds when the alarm time is reached. One of the alarms can be configured as a snooze alarm or a one-time alarm, while the other two are one-time alarms.

You can also turn on an Hourly Time Signal that causes the watch to beep twice every hour on the hour.

- There are three alarms numbered 1 through 3. You can configure Alarm 1 as a snooze alarm or a one-time alarm. Alarms 2 and 3 can be used as one-time alarms only.
- All of the operations in this section are performed in the Alarm Mode, which you enter by pressing C.

Alarm Types

The alarm type is determined by the settings you make, as described below.

• Daily alarm

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

• 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.

• 1-Month alarm

Set the month, hour and minutes for the alarm time. This type of setting causes the alarm to sound everyday at time you set, only during the month you set.

• Monthly alarm

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

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.



- To set a one-time alarm, display one of the screens indicated by alarm number 2 or 3. To set the snooze alarm, display the screen indicated by 1.
- 2. After you select an alarm, hold down A until the hour setting of the alarm time starts to flash, which indicates the setting screen.
 - This operation automatically turns on the alarm.

3. Press C to move the flashing in the sequence shown below to select other settings.



4. While a setting is flashing, use D (+) and B (-) to change it.
- To set an alarm that does not include a month (daily alarm, monthly alarm), set - for the month. Use D and B until the - mark appears (between 12 and 1) while month setting is flashing.
 - To set an alarm that does not include a day (daily alarm, 1-month alarm), set - for the day. Use D and B until the - mark appears (between the end of the month and 1) while the day setting is flashing.
 - When setting the alarm time using the 12-hour format, take care to set the time correctly as a.m. (A indicator) or p.m. (P indicator).
5. Press A to exit the setting screen.

Alarm Operation

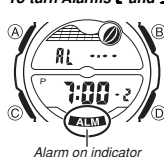
The alarm tone sounds at the preset time for 10 seconds, regardless of the mode the watch is in. In the case of the snooze alarm, the alarm operation is performed a total of seven times, every five minutes, until you turn the alarm off or change it to a one-time alarm.

- To stop the alarm tone after it starts to sound, press any button.
- Performing any one of the following operations during a 5-minute interval between snooze alarms cancels the current snooze alarm operation.
 - Displaying the Timekeeping Mode setting screen
 - Displaying the alarm 1 setting screen

To test the alarm

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

To turn Alarms 2 and 3, and the Hourly Time Signal on and off



- In the Alarm Mode, use D to select a one-time alarm (alarm number 2 or 3) or the Hourly Time Signal (:00).
- Press A to toggle it on and off.
 - Turning on a one-time alarm (2 or 3) displays the alarm on indicator on its screen.
 - Turning on the Hourly Time Signal displays the hourly time signal on indicator.
 - The alarm on (ALM) indicator and Hourly time Signal on (SIG) indicator are displayed in all modes.



To select the operation of Alarm 1

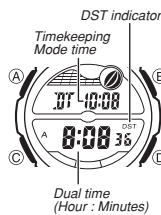
- In the Alarm Mode, use D to select Alarm 1.
- Press A to cycle through the available settings in the sequence shown below.



- The applicable alarm on indicator (SNZ ALM) is displayed in all modes when an alarm is turned on.

- SNZ indicator flashes during the 5-minute intervals between alarms.
- Displaying the Alarm 1 setting screen while the snooze alarm is turned on automatically turns off the snooze alarm (making Alarm 1 a one-time alarm).

Dual Time



The Dual Time Mode lets you keep track of time in a different time zone. You can select Standard Time or Daylight Saving Time for the Dual Time Mode time.

- In the Dual Time Mode, the seconds count is synchronized with the seconds count of the current digital time.

To set the Dual Time

- Press C to enter the Dual Time Mode.
- In the Dual Time Mode, hold down A until the DST setting starts to flash, which indicates the setting screen.
- Press C to move the flashing in the sequence shown below to select the other settings.



4. When the setting you want to change is flashing, use B and D to change it as described below.

Screen	To do this:	Do this:
DST DST	Toggle between Daylight Saving Time (DST) and Standard Time (DST)	Press D.
A 8:00	Change the hour or minutes	Use D (+) and B (-).

5. Press A to exit the setting screen.

- The DST indicator on the Dual Time Mode screen indicates that DST is turned on for the Dual Time Mode time.

Illumination



This watch has an EL (electro-luminescent) panel that causes the entire display to glow for easy reading in the dark.

- See "Illumination Precautions" for more important information.

To illuminate the face of the watch

In any mode (except when a setting screen is on the display), press B to illuminate the face of the watch.

- You can use the procedure below to select either 1.5 seconds or 3 seconds as the illumination duration. When you press B, the illumination will remain on for about 1.5 seconds or 3 seconds, depending on the current illumination duration setting.

To specify the illumination duration



- In the Timekeeping Mode, hold down A until the seconds start to flash, which indicates the setting screen.
- While the seconds are flashing, press B to toggle the illumination duration between 1.5 seconds (-) and 3 seconds (3).
- Press A twice to exit the setting screen.

Reference

This section contains more detailed and technical information about watch operation. It also contains important precautions and notes about the various features and functions of this watch.

Moon Phase Indicator

The Moon phase indicator of this watch indicates the current phase of the Moon as shown below.

	(part you cannot see)			(Moon phase (part you can see))			
Moon Phase Indicator							
Moon Age	0.0 - 1.8 27.7 - 29.5	1.9 - 5.5	5.6 - 9.2	9.3 - 12.9	13.0 - 16.6	16.7 - 20.2	20.3 - 23.9 24.0 - 27.6
Moon Phase	New Moon		First Quarter (Waxing)		Full Moon		Last Quarter (Waning)

- The Moon phase indicator shows the Moon as viewed at noon from a position in the Northern Hemisphere looking south. Note that at times the image shown by the Moon phase indicator may differ from that of the actual Moon in your area.
- The left-right orientation of the Moon phase is reversed when viewing from the Southern Hemisphere or from a point near the equator.

Moon Phases and Moon Age

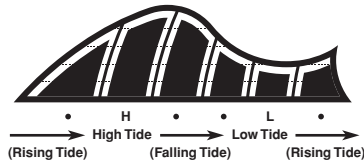
The Moon goes through a regular 29.53-day cycle. During each cycle, the Moon appears to wax and wane as the relative positioning of the Earth, Moon, and Sun changes. The greater the angular distance between the Moon and the Sun, the more we see illuminated.

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

This watch performs a rough calculation of the current Moon age starting from day 0 of the moon age cycle. Since this watch performs calculations using integer values only (no fractions), the margin for error of the displayed Moon age is ±1 day.

Tide Graph

The Tide Graph has six graphic segments, each of which indicates a different tide level. The current tide level is indicated by the displayed graphic segment.



Tidal Movements

Tides are the periodic rise and fall of the water of oceans, seas, bays, and other bodies of water caused mainly by the gravitational interactions between the Earth, Moon and Sun. Tides rise and fall about every six hours. The tide graph of this watch indicates tidal movement based on the Moon's transit over a meridian and the lunital interval. The lunital interval differs according to your current location, so you must specify a lunital interval in order to obtain the correct tide graph readings.

- The tide graph displayed by this watch is based on the current Moon age. Remember that the margin for error of the Moon age displayed by this watch is ± 1 day. The greater the error in a particular Moon age, the greater the error in the resulting tide graph.

Lunital Interval

Theoretically, high tide is at the Moon's transit over the meridian and low tide is about six hours later. Actual high tide occurs somewhat later, due to factors such as viscosity, friction, and underwater topography. Both the time differential between the Moon's transit over the meridian until high tide and the time differential between the Moon's transit over the meridian until low tide are known as the "lunital interval". When setting the lunital interval for this watch, use the time differential between the Moon's transit over the meridian until high tide.

Button Operation Tone



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

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

To turn the button operation tone on and off

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

- Holding down **C** to turn the button operation tone on or off also causes the watch's current mode to change.
- The ☼ indicator is displayed in all modes when the button operation tone is turned off.

Auto Return Features

- If you leave a screen with flashing digits on the display for two or three minutes without performing any operation, the watch automatically exits the setting screen.
- If you leave the watch in the Moon/Tide Data, Alarm or Hand Setting Mode for two or three minutes without performing any operation, it automatically changes to the Timekeeping Mode.

Scrolling

The **B** and **D** buttons are used in various modes and setting screens 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.

Timekeeping

- Resetting the seconds to **00** while the current count is in the range of 30 to 59 causes the minutes to be increased by 1. In the range of 00 to 29, the seconds are reset to **00** without changing the minutes.
- The year can be set in the range of 2000 to 2099.
- The watch's built-in full automatic calendar makes allowances for different month lengths and leap years. Once you set the date, there should be no reason to change it except after you have the watch's batteries replaced.

Illumination Precautions

- Illumination may be hard to see when viewed under direct sunlight.
- Illumination automatically turns off whenever an alarm sounds.
- Frequent use of illumination runs down the batteries.

Site/Lunital Interval Data List

Site	UTC Differential		Longitude	Lunital Interval
	Standard Time	DST/Summer Time		
Anchorage	-9.0	-8.0	149°W	5:40
Bahamas	-5.0	-4.0	77°W	7:30
Baja, California	-7.0	-6.0	110°W	8:40
Bangkok	+7.0	+8.0	101°E	4:40
Boston	-5.0	-4.0	71°W	11:20
Buenos Aires	-3.0	-2.0	58°W	6:00
Casablanca	+0.0	+1.0	8°W	1:30
Christmas Island	+14.0	+15.0	158°W	4:30
Dakar	+0.0	+1.0	17°W	7:40
Gold Coast	+10.0	+11.0	154°E	8:30
Great Barrier Reef, Cairns	+10.0	+11.0	146°E	9:40
Guam	+10.0	+11.0	145°E	7:40
Hamburg	+1.0	+2.0	10°E	4:50
Hong Kong	+8.0	+9.0	114°E	9:10
Honolulu	-10.0	-9.0	158°W	3:40
Jakarta	+7.0	+8.0	107°E	0:00
Jeddah	+3.0	+4.0	39°E	6:30
Karachi	+5.0	+6.0	67°E	10:10
Kona, Hawaii	-10.0	-9.0	156°W	4:00
Lima	-5.0	-4.0	77°W	5:20
Lisbon	+0.0	+1.0	9°W	2:00
London	+0.0	+1.0	0°E	1:10
Los Angeles	-8.0	-7.0	118°W	9:20
Maldives	+5.0	+6.0	74°E	0:10
Manila	+8.0	+9.0	121°E	10:30
Mauritius	+4.0	+5.0	57°E	0:50
Melbourne	+10.0	+11.0	145°E	2:10
Miami	-5.0	-4.0	80°W	7:30
Noumea	+11.0	+12.0	166°E	8:30
Pago Pago	-11.0	-10.0	171°W	6:40
Palau	+9.0	+10.0	135°E	7:30
Panama City	-5.0	-4.0	80°W	3:00
Papeete	-10.0	-9.0	150°W	0:10
Rio De Janeiro	-3.0	-2.0	43°W	3:10
Seattle	-8.0	-7.0	122°W	4:20
Shanghai	+8.0	+9.0	121°E	1:20
Singapore	+8.0	+9.0	104°E	10:20
Sydney	+10.0	+11.0	151°E	8:40
Tokyo	+9.0	+10.0	140°E	5:20
Vancouver	-8.0	-7.0	123°W	5:10
Wellington	+12.0	+13.0	175°E	4:50

*Based on data as of 2003.

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