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For the care of your watch, see the Guarantee and Instruction Booklet.

CAL. VF86

PERPETUAL CALENDAR

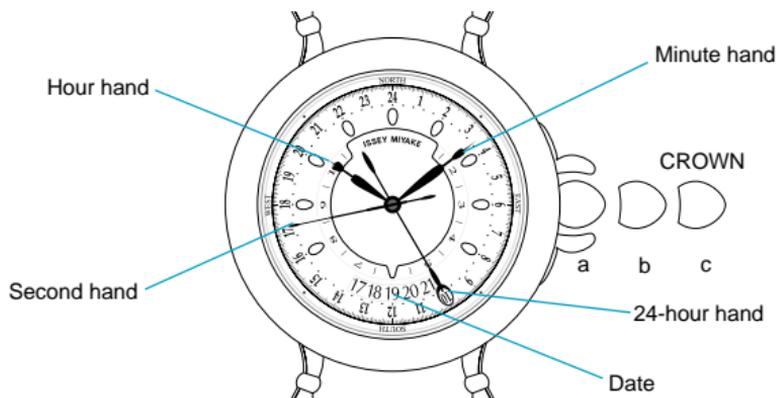
- Once set, the calendar automatically adjusts for odd and even months including February of leap years up to February 28, 2100.
- It indicates the date, month and the number of years since the last leap year.

DUAL TIME DISPLAY

- The time of an area in a different time zone can be displayed. When you travel abroad, the time and date of the place you visit can easily be shown on the watch.

HIGH ACCURACY

- Loss/gain : Annual rate of less than 20 seconds



- a: Normal position
- b: First click
- c: Second click

Before using the watch:

- Because the calendar is preadjusted at the factory, you only need to set the time and date. The calendar will automatically update itself.
- Before using the watch, be sure to read “HOW TO CHECK THE CALENDAR”, and set the time and date correctly following the procedure in “TIME/DATE SETTING”.
 - * In case the calendar indication is not correct after the time/date setting is made, consult the retailer from whom the watch was purchased.

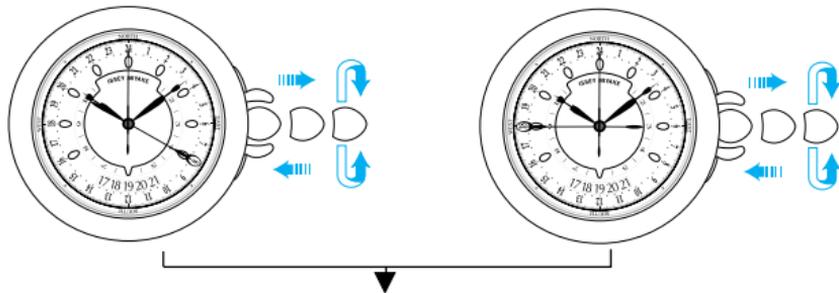
TIME (DUAL TIME) / DATE SETTING

The 24-hour hand can be used either as an AM/PM indicator that turns a full circle in 24 hours, or as a dual time hand that indicates the time of an area in a different time zone.

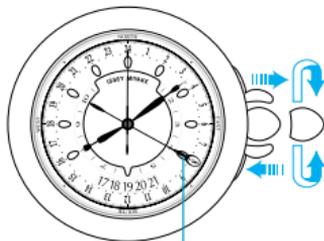
CROWN

Pull out to second click when the second hand is at the 12 o'clock position.

- To use the 24-hour hand as an AM/PM indicator:
Turn to set the minute and 24-hour hands to the current time of your area.
- To use the 24-hour hand as a dual time hand (same procedure):
Turn to set the minute and 24-hour hands to the time of a different area.



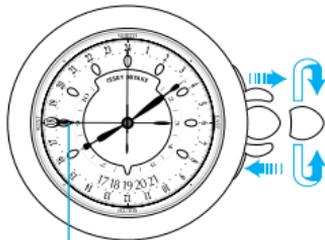
Push back completely in accordance with a time signal.



24-Hour hand
(showing the current time of your area)

Pull out to first click.

Turn to set the current date of your area.



24-hour hand
(showing the time of a different area)

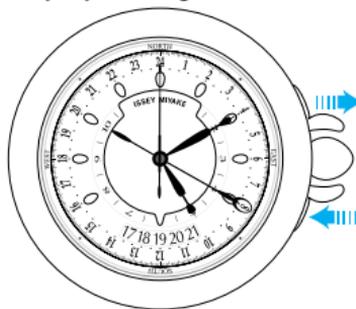
Turn to set the hour hand to the current time of your area.

Push back completely.

- * When setting the minute hand, advance it 4 to 5 minutes ahead of the desired time and then turn it back to the exact time.
- * When setting the date, turn the crown counterclockwise to advance the date and clockwise to move it back. The date changes one day by turning the hour hand two full circles.
- * While the watch is in use, the date changes between 11:45 p.m. and 0:30 a.m. When the date is set by turning the hour hand, however, it will change gradually between 9:00 p.m. and 3:00 a.m.
- * The hour hand moves in one hour increment.
- * When setting the hour hand, check that AM/PM is correctly set.
- * Turn the hour hand past the 12 o'clock marker to determine whether the watch is set for the A.M. or P.M. period. If the date changes, the time is set for the P.M. period. If the date does not change, the time is set for the A.M. period.
- * When adjusting the date and hour hand, turn the crown slowly. In doing so, the other hands may move slightly. However, this is not a malfunction.

TIME DIFFERENCE ADJUSTMENT DURING TRIP

The hour hand can be set independently of the other hands. Therefore, when you are traveling around different time zones, the time and date of the place you visit can easily be shown on the watch only by setting the hour hand.



CROWN

Pull out to first click.

Turn to set the hour hand and date to the time and date of the place you visit.

Push back completely.

* The 24-hour hand keeps indicating the time of the area you have selected in the "TIME (DUAL TIME) / DATE SETTING".

• How to calculate the time difference between two cities

Ex.) When you move from Rome to New York:

[A] Rome time : +1 hour from GMT

[B] New York time : -5 hour from GMT

So the time difference between Rome and New York is:

$$[B] - [A] = (-5) - (+1) = -6 \text{ (hours)}$$

You should move the hour hand back 6 hours.

- * To put back the time, turn the crown clockwise. To advance the time, turn it counterclockwise.
- * When moving back the hour hand past the 12 o'clock marker to set it to a time between 9:00 p.m. and 0:00 a.m., put back the hour hand further past 8:00 p.m., and advance it to the desired hour.

TIME DIFFERENCES

GMT = Greenwich Mean Time

(As of August, 1998)

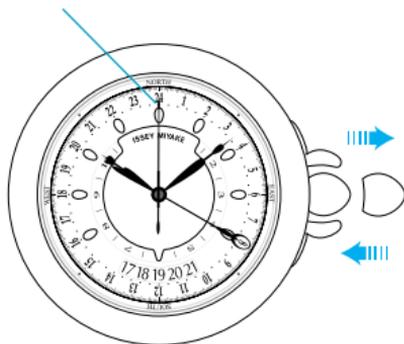
GMT ± (hours)	Major cities in respective time zones	GMT ± (hours)	Major cities in respective time zones
0	London*, Casablanca, Dakar	+12	Wellington*, Fiji Islands, Auckland*
+1	Paris*, Rome*, Amsterdam*, Frankfurt*, Berlin*, Tripoli*	-11	Midway Islands
+2	Cairo*, Athens*, Istanbul*, Kiev*, Cape Town	-10	Honolulu
+3	Moscow*, Mecca, Nairobi	-9	Anchorage*
+4	Dubai	-8	Los Angeles*, San Francisco*, Vancouver*, Dawson (Canada)*
+5	Karachi, Tashkent	-7	Denver*, Edmonton (Canada)*
+6	Dacca	-6	Chicago*, Mexico City*
+7	Bangkok, Phnom Penh, Jakarta	-5	New York*, Washington, D.C.*, Montreal*
+8	Hong Kong, Manila, Beijing, Taipei, Singapore	-4	Caracas, Santiago (Chile)*
+9	Tokyo, Seoul, Pyongyang	-3	Rio de Janeiro*, Buenos Aires
+10	Sydney*, Guam, Khabarovsk*	-2	
+11	Nouméa (New Caledonia), Solomon Islands	-1	Azores Islands*, Cape Verde Islands

The cities marked with "*" (asterisk) use daylight saving time (summer time).

- * The time differences and the use of daylight saving time (summer time) may change in some areas or countries when they are so decided by the countries concerned.

HOW TO CHECK THE CALENDAR

Second hand



CROWN

Pull out to first click, and push back in to normal position within a second.

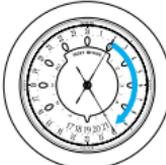
The watch shows the calendar in the following order:

1.
Number of years since the last leap year
(Second hand)
2.
Month (Calendar frame)
3.
Date (Calendar frame)

E

1. Number of years since the last leap year

The second hand moves quickly at five-second intervals and stops to indicate the number of years that have passed since the last leap year. Before pulling out the crown to the first click, check and remember where the second hand is so that you can read how many seconds it has advanced.

	5 seconds	10 seconds	15 seconds	20 seconds
Quick movement of second hand				
Number of years since the last leap year	1 year	2 years	3 years	4 years (leap year)
Year	1997 2001 2005 ⋮ 2093 2097	1998 2002 2006 ⋮ 2094 2098	1999 2003 2007 ⋮ 2095 2099	2000 2004 2008 ⋮ 2096

2. Current month

The current month is shown in the calendar frame for 5 seconds.

- * January is represented by "1", February "2", and so on.

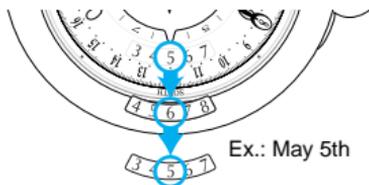


Ex.: November 1st

3. Current date

The numeral in the calendar frame returns to the current date.

- * When the month and date are represented by the same numeral as in the case of "January 1st", "February 2nd" and so on, the numeral in the calendar frame quickly advances and moves back by one to indicate that the month and date numerals are identical.



Ex.: May 5th

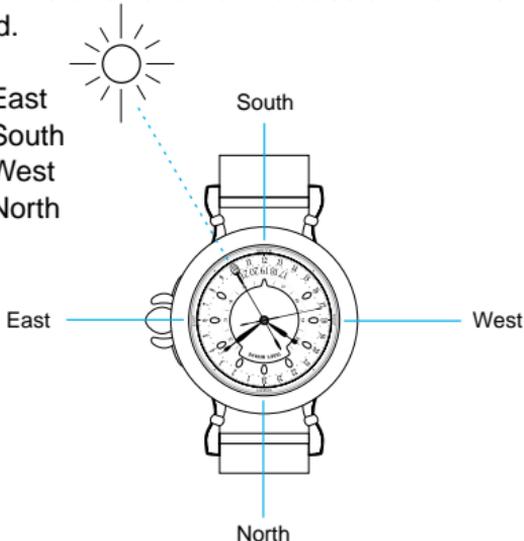
After the calendar has been displayed, the second hand starts moving quickly and resumes normal movement.

- * If the crown is pulled out to the second click instead of the first click and pushed back in to the normal position, the watch will not show the calendar.
- * Do not leave the crown at the first or second click when you use the watch, as this will shorten the battery life.
- * Note on the leap second
One day normally is said to consist of 86,400 seconds. In fact, it can be longer or shorter than this because of irregular changes in the rotation cycle of the earth. When the accumulated fluctuations in the length of a day total plus or minus one second, one second must then be added or subtracted as a correct factor. This is known as a "leap second".
The leap second correction is executed every year or two simultaneously throughout the world on the basis of information collected by astronomical observatories all over the world.
The correction is effected between 11:59'59" p.m. and 0:00'00" a.m. GMT either on December 31 or on June 30, during which one second is added or subtracted.
When this happens, please adjust your watch accordingly.
Please refer to your newspaper for information on the leap second.

HOW TO USE THE SIMPLE COMPASS

Maintaining the watch level, set the direction of the 24-hour hand of the watch toward the sun. The orientation of the case at this time is the orientation that is used.

- 3 o'clock direction: East
- 6 o'clock direction: South
- 9 o'clock direction: West
- 12 o'clock direction: North



- * The simple compass can be used only in the northern hemisphere, and even in the northern hemisphere, it may not be possible to use it low-latitude regions (south of the Tropic of Cancer) depending on the season.
- * The position of the sun must be ascertained in order to use the simple compass.
- * The 24-hour hand must indicate the current time of your area. (See TIME (DUAL TIME)/ DATE SETTING.)
- * This is a simple compass that is not designed to indicate directions with high accuracy.

BATTERY CHANGE

The battery which powers your watch should last approximately 10 years. However, because the battery is inserted at the factory to check the function and performance of the watch, its actual life once in your possession may be less than the specified period. When the battery expires, be sure to replace it as soon as possible to prevent any malfunction. For battery replacement, we recommend that you contact the retailer from whom the watch was purchased and request CR2412 battery.

- * If the watch is left with the crown at the first or second click, if the calendar checking function is used frequently, and/or if the watch is left in temperatures outside the normal temperature range (5°C to 35°C or 41°F to 95°F) for a long time, the battery life may be less than the specified period.

- **Battery life indicator**

When the second hand starts moving at two-second intervals instead of the normal one-second interval, replace the battery with a new one as soon as possible. Otherwise, the watch will stop operating in two weeks.

- * The time accuracy is not affected even if the second hand is moving at two-second intervals.
- * While the second hand is moving at two-second intervals, the date will not change and the watch will not show the calendar even if the crown is pulled out to the first click.
- * If the watch is left in very low temperatures, the second hand may temporarily start moving at two-second intervals and the date does not change to the next. When the watch returns to normal temperature, however, this condition will be corrected and the correct date will be displayed on the next day. If the second hand still moves at two-second intervals and the date does not change properly, replace the battery with a new one.

- Checking and adjustment of the calendar after battery change
The calendar function is not affected by battery changes. However, after the battery is replaced with a new one, be sure to check that the calendar is correct. (See “HOW TO CHECK THE CALENDAR”) If the watch does not indicate the date, month and the number of years since the last leap year correctly, have the watch adjusted by the retailer from whom the watch was purchased.

 **WARNING**

- Do not remove the battery from the watch.
- If it is necessary to take out the battery, keep it out of the reach of children. If a child swallows it, consult a doctor immediately.

 **CAUTION**

- Never short-circuit, heat or otherwise tamper with the battery, and never expose it to fire. The battery may burst, become very hot or catch fire.
- The battery is not rechargeable. Never attempt to recharge it, as this may cause battery leakage or damage to the battery.

TO PRESERVE THE QUALITY OF YOUR WATCH

CARE OF YOUR WATCH

CAUTION

- The case and bracelet touch the skin directly just as underwear. If they are left dirty, the edge of a sleeve may be stained with rust of those who have a delicate skin may have a rash.
- After removing the watch from your wrist, wipe perspiration or moisture with a soft cloth. This will prevent the watch from being soiled, adding to the life of the gasket.

<LEATHER BAND>

- When removing moisture from a leather band, do not rub the band with the cloth as this may discolor it or reduce its gloss. Be sure to blot up the moisture using a soft dry cloth.

<METAL BRACELET>

- Clean the watch bracelet with a soft toothbrush dipped in water or soapy water. If your watch is not water-resistant, be careful not to get the case wet when cleaning.

RASH AND ALLERGY

CAUTION

- Adjust the bracelet or band so that there will be a little clearance between the bracelet or band and your wrist to avoid accumulation of perspiration.
- If you are constitutionally predisposed to rash, the band may cause you to develop a rash or an itch depending on your physical condition.
- The possible causes of the rash are as follows:
 1. Allergy to metals or leathers
 2. Rust, dust or perspiration on the watch or band
- If you develop any skin reactions, take off the watch and consult a doctor immediately.

PRECAUTIONS ON WEARING YOUR WATCH

- In case you tumble and fall or bump into others with the watch worn on your wrist, you may be injured by the reason of the fact that you wear the watch.
- When you make contact with children, especially with infants, they may get injured or develop a rash caused by allergy.
- Be careful not to drop or hit the watch against hard objects. Do not wear the watch when you play active sports. It may stop or move incorrectly.

PLACES TO KEEP YOUR WATCH

- If the watch is left in a temperature below -10°C or above $+60^{\circ}\text{C}$ for a long time, its performance may be impaired or it may stop operating.
- Do not leave the watch in a place where it is subjected to strong magnetism.
- Do not leave the watch where there is strong vibration.
- Do not leave the watch in a dusty place.
- Do not expose the watch to gases or chemicals.
(Ex.: Organic solvents such as benzene and thinner, gasoline, nail polish, cosmetic spray, detergent, adhesives, mercury, and iodine antiseptic solution.)
- Do not leave the watch in a hot spring, or do not keep it in a drawer having insecticides inside.

WATER RESISTANCE



- The watch is 3 bar water resistant, and is designed to withstand accidental contact with water, such as splashes and rain. Do not use it in water.
- Do not turn or pull out the crown when the watch is wet, as water may get inside the watch.

PERIODIC CHECK

- We suggest that you have your watch checked by the retailer from whom the watch was purchased every 2 or 3 years. Depending on how the watch is used, the lubrication of the watch mechanism may become insufficient, parts may become worn due to impurities in the lubricating oil, or the watch may be running noticeably fast or late. Seals, etc., may also become worn and the watch may stop being waterproof. Take your watch to the retailer from whom you purchased it for inspection and adjustment through disassembly/cleaning.
- When replacing the parts, please specify "GENUINE PARTS".
- Be sure to have the gasket and push-pin replaced with new ones by the retailer from whom the watch was purchased when checking the watch.

SPECIFICATIONS

- (1) Frequency of crystal oscillator
..... 196,608 Hz (Hz = Hertz ... Cycles per second)
- (2) Loss/gain (Annual rate)
..... ± 20 seconds when used on the wrist
approximately 12 hours a day, at normal
temperature range (5°C to 35°C) (41°F to
 95°F)
 - * Monthly rate of loss/gain may amount to approximately 4 seconds depending on the condition of use.
- (3) Operational temperature range
..... -10°C to $+60^{\circ}\text{C}$ (14°F to 140°F)
- (4) Driving system Step motor for the time indication
..... Ultrasonic motor for the calendar indication
- (5) Battery CR2412, 1 piece
- (6) Battery life indicator
- (7) IC (Integrated Circuit)
..... C-MOS-LSI, 1 piece
- (8) Magnetic resistance
..... 4,800 A/m (60 gauss)

* The specifications are subject to change without prior notice for product improvement.