TECHNICAL INFORMATION

INFORMACION TECNICA

CITIZEN QUARTZ

Cal. No. C720

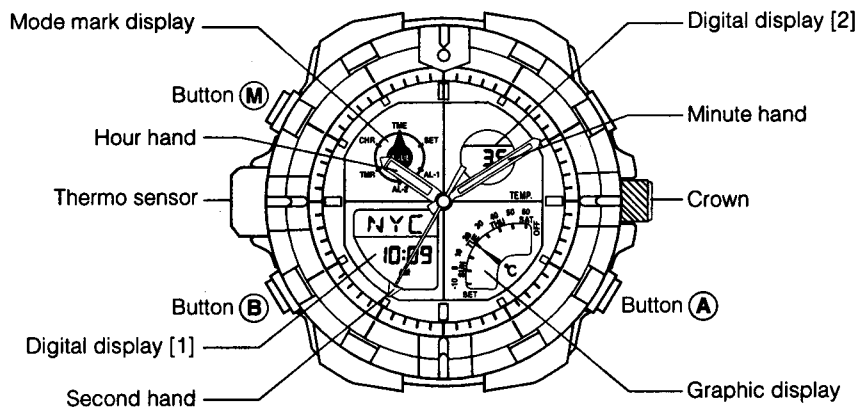●CITIZEN

ENGLISH

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ESPAÑOL

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§1. OUTLINE

This watch is a combination quartz watch with a world time function, which displays the time in 30 world cities and the UTC (Coordinated Universal Time), and a thermometer function. It also includes an EL (electroluminescence) light function.

§2. SPECIFICATIONS

Caliber No.			C720
Type			Combination quartz watch
Movement size (mm)			ϕ 30.8 x 5.45t
Accuracy (At normal temperature)			±20 sec/month (+5°C to +35°C / 41°F to 95°F)
IC			2 units of C/MOS-LSI
Operating temperature			−10°C to +60°C (14°F to 140°F)
Converter			Bipolar step motor
Time adjustment			No adjustment terminal for in the market
Measurement gate			10 sec.
Display functions		Analog time	Hour, Minute, Second
	Digital functions	Time/Calendar	Hour, Minute, Second, Month, Day, Day of the week, City, Temperature
		Zone set	SET/OFF settings, and summer time settings
		Alarm 1/Alarm 2	Hour, Minute, ON/OFF, City
		Timer	100-minute timer (1 minute unit)
		Chronograph	24-hour measurement (1/1000 second unit), Split time measurement
Additional functions			• World time function • EL light function • Thermometer function • Low battery indicator function
Battery	Parts No. / Code		280-44 / SR927W
	Normal voltage / Capacity		1.55V / 60mAH
	Life time		Approx. 2 years. (Alarm sound: 30 sec./day, Timer sound: 5 sec./day, EL illuminate: 3 sec,/day)

§3. NAME OF PARTS

Mode mark display
Button Ⓜ
Hour hand
Thermo sensor
Button Ⓑ
Digital display [1]
Second hand

Digital display [2]
Minute hand
Crown
Button Ⓐ
Graphic display

§4. SETTING THE HANDS

Second hand

Setting position
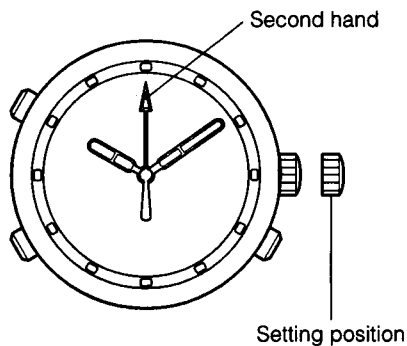
(1) Pull the crown out to stop the second hand.

(2) Turn the crown to set the correct time.

(3) Press the crown back in to restart.

Analog and digital time can be set individually as a dual-time watch.

§5. CHANGING MODES (FUNCTIONS)

This watch has the modes (functions) listed below.

Each time button Ⓜ is pressed, the mode changes. The current mode is indicated by the mode mark. For details on how to use each mode, see the appropriated section.
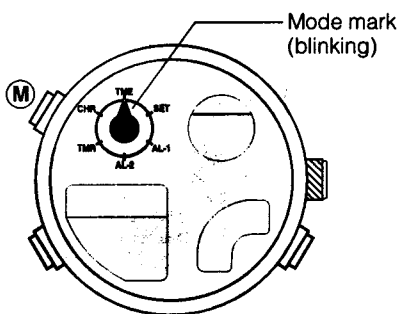
Mode mark
(blinking)

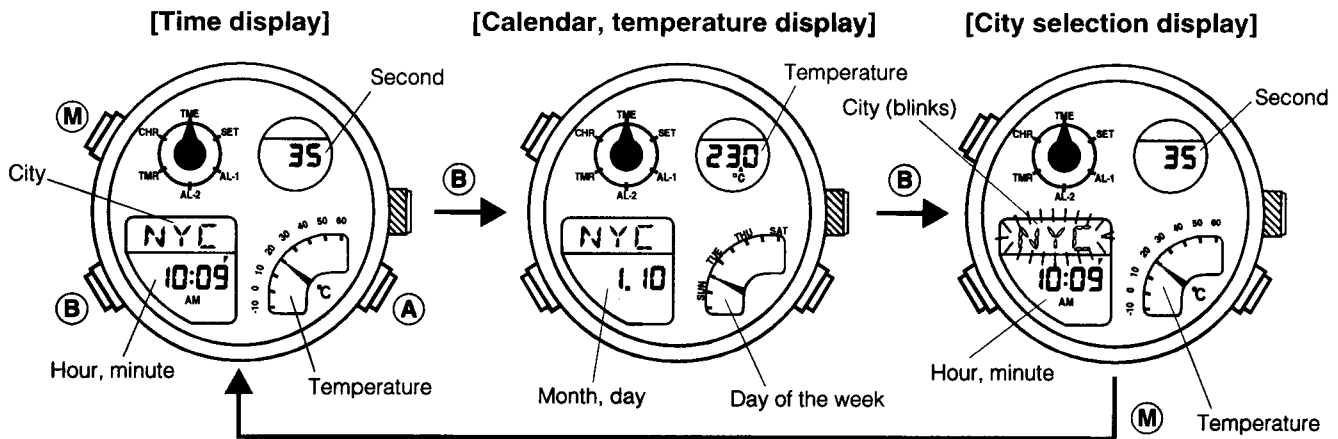| Mode mark	Mode (function)
TME	Time/Calendar
SET	Zone Set*1
AL-1	Alarm 1
AL-2	Alarm 2
TMR	Timer
CHR	Chronograph

*1: Zone Set mode
This mode ables to set, for each of 30 world cities and the UTC (Coordinated Universal Time), a display (SET)/non-display (OFF) setting and a summer time setting.

* If the watch is left in the Zone Set mode, Alarm 1 or Alarm 2 mode for approximately 2 minutes, it will automatically return to Time/Calendar mode.

§6. USING EACH FUNCTION (MODE)

A. TIME/CALENDAR MODE

[Time display]　　　**[Calendar, temperature display]**　　　**[City selection display]**

Second

City

Hour, minute　　Temperature

Temperature

City (blinks)

Month, day　　Day of the week

Second

Hour, minute

Temperature

1. Changing the display

- The "time display" changes to "calendar, temperature display" when button Ⓑ is pressed.
- The "calendar, temperature display" changes to "city selection display" when button Ⓑ is pressed.
- The "city selection display" changes to "time display" when button Ⓜ is pressed.
- When you change to "calendar, temperature display", the temperature will be measured and displayed at 2-second intervals for approximately 2 minutes. (Temperature measurement by button operation)
- The graphic display in "time display" and "city selection display" is an approximate indication of the latest measured temperature.
- In each of the displays, the EL light goes on when button Ⓐ is pressed.

2. Change the displayed city

- During the "city selection display" (city name blinks), every time button Ⓑ is pressed, the displayed city will change according to the sequence shown in the chart on the next page.
- If button Ⓐ is pressed while button Ⓑ is being pressed, the displayed city will change in the opposite order.
- * After changing the displayed city, press button Ⓜ to return to time display.
- * A city for which OFF has been selected in the Zone Set mode will not be displayed.
- * In the charg, cities (regions) with summer time system are indicated by O, X without summer time system.
- * Time difference and summer time for cities, are subject to change. (The chart shows the situation in 1997.)

<The time difference between the cities and UTC time>

No.	Indication	City	Time difference	Summer-time	No.	Indication	City	Time difference	Summer-time
1	UTC	Universal time coordinated	±0	—	17	TYO	Tokyo	+9	X
2	LON	London	±0	O	18	SYD	Sydney	+10	O
3	PAR	Paris	+1	O	19	NOU	Nouméa	+11	X
4	ROM	Rome	+1	O	20	AKL	Auckland	+12	O
5	CAI	Cairo	+2	O	21	HNL	Honolulu	−10	X
6	IST	Istanbul	+2	O	22	ANC	Anchorage	−9	O
7	MOW	Moscow	+3	O	23	LAX	Los Angeles	−8	O
8	KWI	Kuwait	+3	X	24	DEN	Denver	−7	O
9	DXB	Dubai	+4	X	25	CHI	Chicago	−6	O
10	KHI	Karachi	+5	X	26	MEX	Mexico City	−6	X
11	DEL	New Delhi	+5.5	X	27	NYC	New York	−5	O
12	DAC	Dacca	+6	X	28	YUL	Montreal	−5	O
13	BKK	Bangkok	+7	X	29	CCS	Caracas	−4	X
14	SIN	Singapore	+8	X	30	RIO	Río de Janeiro	−3	O
15	HKG	Hong Kong	+8	X	31	BUE	Buenos Aires	−3	X
16	PEK	Beijing	+8	X					

3. Adjusting the time and calendar

If the time and calendar settings for any of the 30 cities or the UTC are adjusted, those for all of the other cities will automatically be adjusted.

[Normal time display]
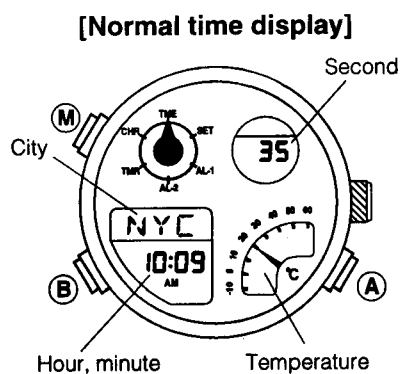
(1) Display the adjusting city.

(2) Press button Ⓑ continuously for more than 2 seconds in time or calendar/temperature display. It will then become possible to adjust the figures. The blinking figures can be adjusted.

(3) Each time button Ⓑ is pressed, the blinking figures will change according to the following sequence: summer time → second → minute → hour → 12-hour/24-hour → month → day → year.

(4) Press button Ⓐ to adjust the figures. By continuously pressing button Ⓐ, the figures change quickly.

- Each time button Ⓐ is pressed when SUMMER is blinking, the summer time setting will alternatively switch on (ON) or OFF.

- The seconds will return to 00 and start again if button Ⓐ is pressed. (Moreover, if the seconds are between 30 and 59, the minutes will increase by 1.)

- 12-hour/24-hour system will alternately switch, each time button Ⓐ is pressed.

(5) Press button Ⓜ to return to normal display.

* After the summer time setting is switched ON, "SUMMER" and a time one hour ahead of the regular time (the time when the summer time setting was OFF) will be displayed. (This only applies to cities with summer time settings ON.)

* Be careful to set AM and PM correctly in 12-hour system.

* The year can be set from 2000 to 2099. (The year is only displayed at time of adjustment.)

* Setting the year, month and day automatically sets the day of the week.

* If a non-existent date (for example, February 30) is set, the first day of the next month is displayed automatically be returning to the normal display.

* This watch has an automatic calendar, so it is not necessary to make adjustments for the ends of months, even in leap years.

* When the watch is left for approximately 2 minutes in the adjustment mode (blinking display), it will automatically return to normal display.

* If button Ⓜ is pressed in the adjustment mode, the watch will immediately return to normal display.

B. ZONE SET MODE

For each of the 30 cities and the UTC this watch displays, it is possible to set a display/non-display setting, as well as a summer time setting (except for UTC).

Only cities with a SET setting will be displayed in Time/Calendar mode and Alarm modes.

[Zone setting display]
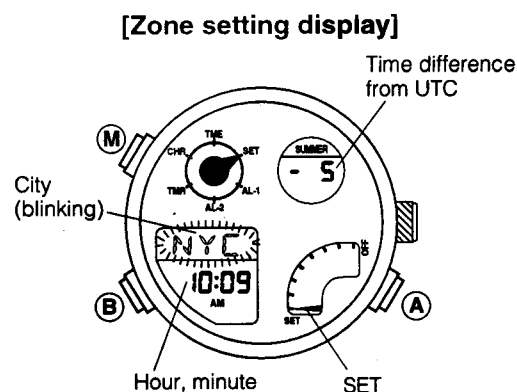
* When button Ⓐ is pressed during the normal display, the EL light goes on.

1. How to set the zone

(1) Press button Ⓑ to display the zone setting city.

(2) Press button Ⓑ continuously for more than 2 seconds. In the graphic display, SET (display) or ·OFF (non-display) will blink.

(3) Press button Ⓐ and select SET or OFF for the displayed city.

(4) Press button Ⓑ. "SUMMER" and ON or OFF will blink.

(5) Press button Ⓐ and select ON or OFF for the summer time setting.
  * If you wish to input settings for other cities, press button Ⓑ again. The watch will enter the adjustment mode for the next city. Then carry out in order, the same steps, selecting SET (display) or OFF (non-display) and a summer time setting.

(6) After completing the settings, press button Ⓜ to return to normal display

* If the watch is left in the adjustment mode for approximately 2 minutes, it will automatically return to normal display (the city blinks).

* If button Ⓜ is pressed in adjustment mode, the watch will immediately return to normal display.

C. ALARM 1 & 2 MODES

Alarm 1 and Alarm 2 differ only in the sounds they make. They are used and set in exactly the same way. When the alarm is set (ON) once, it sounds for 20 seconds same time everyday. The alarm sounds stop by pressing any button.
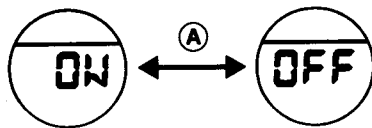
[Normal alarm setting display (ON)]

ON or OFF

Ctiy (blinking)

Alarm time (Hour, minute)
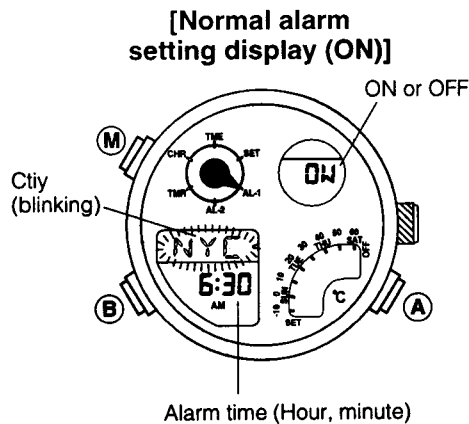
1. How to set the alarms

When you set an alarm time for one city, the same alarm time will automatically be set for every other city.

(1) Press button ⓑ to display the alarm setting city.

(2) Press button ⓑ continuously for more than 2 seconds. The "Hours" will blink.

(3) Press button Ⓐ to set the "Hours". By continuously pressing button Ⓐ, the figures change quickly.

(4) Press button ⓑ. The "Minutes" figure will blink.

(5) Press button Ⓐ to set the "Minutes".

(6) Press button Ⓜ to return to normal display.

* When Time/Calendar mode is on 12-hour system, alarms operate on the same system. Please pay attention to AM/PM when setting alarm times.

* After alarm is set, the alarm time will not change even if Time/Calendar mode is set to summer time.

* If the watch is left in adjustment mode for approximately 2 minutes, it will automatically return to normal display (the city blinks).

* If button Ⓜ is pressed in adjustment mode, the watch will immediately return to normal display.

2. Alarm ON/OFF and alarm monitor

Each time button Ⓐ is pressed during the normal alarm display, alarm setting switches alternately between ON and OFF. Also, the alarm sound can be confirmed by continuously pressing button Ⓐ.

D. TIMER MODE

The timer can be set, in increments of 1 minute, for up to 100 hours. After a set time elapses, a time-up signal sounds for approximately 5 seconds. The timer then returns to the set time and stops.
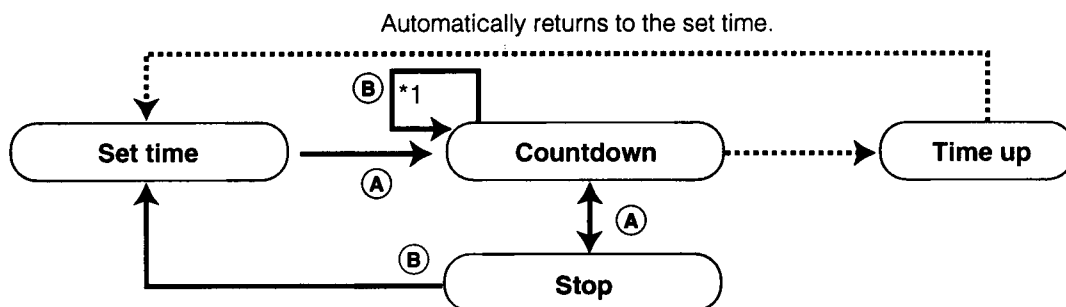
[Timer setting display]

Temperature

Timer time
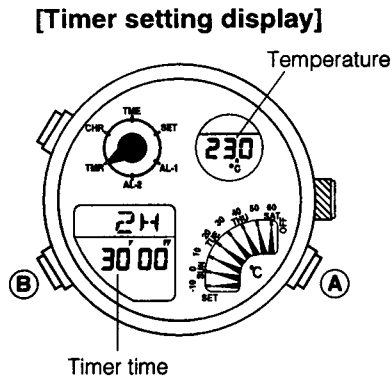
1. How to set the timer

(1) Press button Ⓑ. The "Minutes" will blink.

(2) Press button Ⓐ to set the "Minutes". By continuously pressing button Ⓐ the figures changes quickly.

(3) Press button Ⓑ. The "Hours" will blink.

(4) Press button Ⓐ to set the "Hours".

(5) Press button Ⓜ to return to the timer setting display.

2. Timer countdown

(1) Press button Ⓐ to start the timer at the set time.

(2) If button Ⓐ is pressed during timer countdown, the timer stops. If button Ⓐ is pressed again, the timer restarts.

(3) If button Ⓑ is pressed when the timer stops, the display returns to the timer set time.

Automatically returns to the set time.

*1: Timer restart function
If button Ⓑ is pressed during timer countdown, the mode immediately changes to timer set time display and restarts.

<Confirmation sound>

At the time of start, stop, reset or timer restart operation in timer mode, a confirmation sound is heard.

<Changing modes during timer countdown>

If button Ⓜ is pressed in timer mode to change the mode, the time countdown is continued internally. If the mode is changed again to timer mode, the time continuously counted down by the timer is displayed. However, if the timer time is up, the display returns to timer set time.

E. CHRONOGRAPH MODE

[Chronograph reset display]

Measured time (milliseconds)
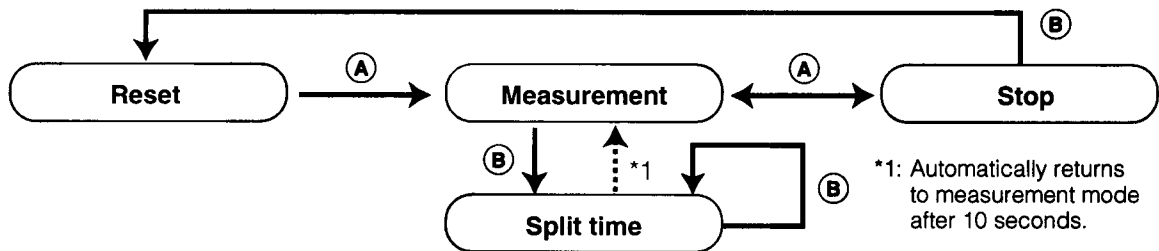
Measured time (hours, minutes, seconds)
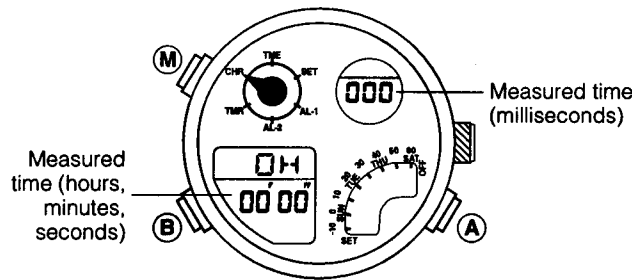
The chronograph is capable of measuring and indicating a maximum of 23 hours, 59 minutes, 59 seconds and 999 milliseconds in increments of 1/1000 second. After 24 hours, it stops with a reset display of "00°00'00"000". The chronograph can also measure split time (elapsed time).

1. Total elapsed time measurement

(1) The chronograph starts or stops each time button Ⓐ is pressed.

(2) To reset the chronograph, press button Ⓑ after it is stopped.

2. Split time measurement

(1) The chronograph starts or stops each time button Ⓐ is pressed.

(2) Press button Ⓑ during a time measurement, and the watch shows a split time for 10 seconds. While a split time is shown, "SPLIT" will blink.
Each time button Ⓑ is pressed, the chronograph shows the latest split time.

(3) To reset chronograph, press button Ⓑ after it is stopped.

Reset —Ⓐ→ Measurement ←Ⓐ→ Stop

Ⓑ↓ ↑*1 Ⓑ Split time

*1: Automatically returns to measurement mode after 10 seconds.

## <Changing the mode during time measurement in chronograph mode>

Even if button Ⓜ is pressed during a time measurement in chronograph mode and mode is changed, time measurement is continued internally. The measured time is shown when the mode is returned to chronograph again. However, if the time measurement is continued for more than 24 hours, the chronograph stops at the reset state.

* Confirmation sound and EL light

At the time of start, stop, split time check or reset operation in chronograph mode, a confirmation sound is heard.
At the time of stop or a split time measurement, the EL light is turned on with the sound.

Split time: Elapsed time from start point

Split time

Split time

Start point   Goal

8
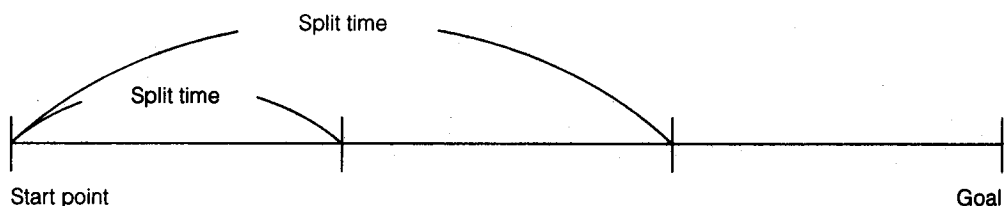
§7. THERMOMETER

A. METHODS OF MEASUREMENT

As described below, there are two methods of measuring temperature.
The most recently measured temperature is displayed in the Time mode (approximate temperature is graphically displayed in both the "time display" and the "city selection display") and in the Time mode. Also switching between Celsius display (°C) and Fahrenheit (°F) display is possible.

<Automatic temperature measurement>
Temperature is automatically measured every hour on the hour, with the temperature display then being updated. However, measurement will not be carried out if the Chronograph mode or Time/Calendar mode is in the adjustment mode (blinking display) at measurement time.

<Temperature measurement by button operation>
If you change to the "calendar, temperature display" in the Time/Calendar mode, the temperature will be measured at 2-second intervals for 2 minutes.

B. TEMPERATURE MEASUREMENT RANGE AND ACCURACY

	In Celsius (°C)	If Fahrenheit (°F)
Temperature display range	–9.9°C to +59.9°C	14°F to 139°F
Measurement unit	0.1°C	1°F
Measurement accuracy	20°C to 30°C: ±1°C –5°C to +40°C: ±2°C	68°F to 86°F: ±2°F 23°F to 104°F: ±4°F

(Note)
- If the watch is worn on the wrist durning temperature measurement, the body temperature affects measurement.
  For accurate temperature measurement, take the watch off and leave it in the measuring evnironment at least for 20 to 30 minutes. The influence of body temperature depends on environmental conditions such as difference between atmospheric temperature and body temperature before taking the watcfh off, etc.

- Do not use the termometer out of the display range. Extremely hot or cold temperature may cause malfunction of the watch.

C. SWITCHING BETWEEN CELSIUS/FAHRENHEIT DISPLAY

Celsius display / Fahrenheit display
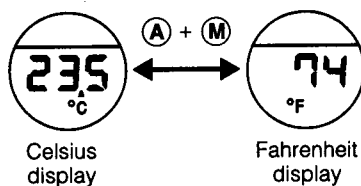
In the Time mode's "Date, calendar display", by pressing button Ⓜ for more than 2 seconds while button Ⓐ is pressed, the temperature display will switch from Celsius (°C) to Fahrenheit (°F) or vice versa.

If button Ⓜ is pressed first, however, the display will not change.

<About the graphic display of approximate temperature>
Approximate temperature is graphicaliy displayed in the Time mode's "time display" and "city selection display."
The graphic display always shows Celsius temperature, even when the numerical display has been set to Fahrenheit.

§8. LOW BATTERY INDICATOR

When the battery gets weak, the low battery indicator function appears in the display as shown below.

* The second hand moves at 2-second intervals (moves by 2 increments every seconds).

* The temperature display starts to blink "– – –" continuously.

Even when the watch falls into such condition, it still displays the time but the EL light, thermometer and alarm will not function.
Immediately replace the battery with new one.

Blinking

2 seconds
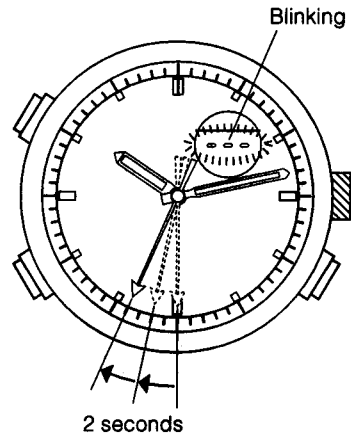
§9. ALL RESET

After replacement of the battery, be sure to perform the all reset operation as shown below.

If the watch melfunctions or shows an abnormal display as a result of an excessive shock or static electricity (for example, the watch indicates nothing, continuously sounds alarm, etc.). Perform the all reset operation.
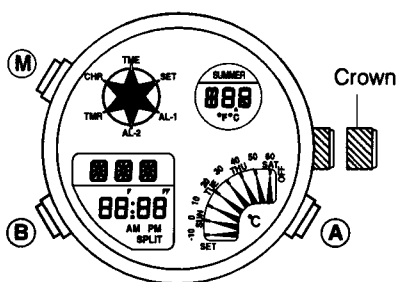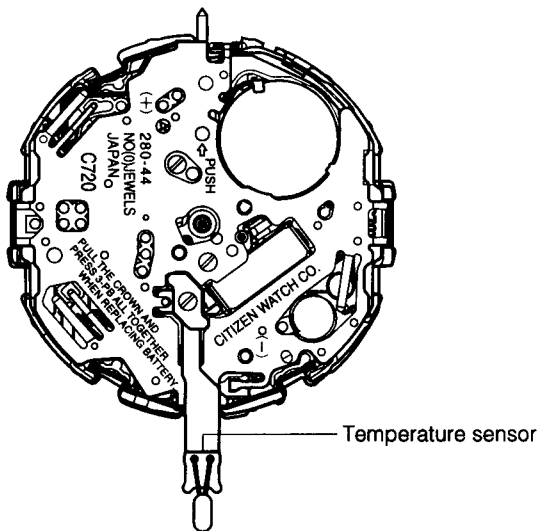

Crown

(1) Pull the crown out.

(2) Simultaneously press buttons Ⓐ, Ⓑ and Ⓜ.

(3) Release the three buttons.

(4) Press the crown back. (A confirmation sound is heard.)

All reset operation is complete.

Before use, reset the watch for the correct time in all modes.

§10. PRECAUTIONS FOR HANDLING TEMPERATURE SENSOR

Temperature sensor

When disassembling and reassembling the watch or when removing and installing the movement, take care not to bend the terminals of the temperature sensor sharply. If those terminals are bent badly, the temperature sensor may have a trouble in measurement or may be broken.

Since the temperature sensor is sensitive to static electricity, too, handle it with special care.

<Note>

The temperature sensor and electronic circuit unit are adjusted as a set for high accuracy. Accordingly, when either of them needs to be replaced, do not replace only that one but replace them with a set of a new temperature sensor and a electronic circuit unit.

§11. TROUBLE SHOOTING AND ADJUSTMENT

Basic structure of movement is same to CAL. C700.

Refer to CAL. C700 Technical Information for disassembly and assembly of movement, troubleshooting and adjustment.