

TECHNICAL INFORMATION

CITIZEN QUARTZ

Cal. No. C830

Contents

§1. OUTLINE	1
§2. SPECIFICATIONS	1
§3. NAME OF PARTS	2
§4. EL LIGHT FUNCTION	2
§5. SETTING THE ANALOG TIME	3
§6. SWITCHING DIGITAL FUNCTIONS (MODES)	3
§7. USING DIGITAL FUNCTIONS (MODES)	4
A. Time Mode	4
B. Calendar Mode	5
C. Alarm 1 & Alarm 2 Mode	6
D. Chronograph Mode	7
E. Timer Mode	8
F. Zone Set Mode	9
§8. BATTERY LIFE WARNING FUNCTION	10
§9. ALL RESET FUNCTION	11
§10. DISASSEMBLY AND ASSEMBLY OF MOVEMENT/ TROUBLESHOOTING AND ADJUSTMENT	11

§1. OUTLINE

This is a combination quartz watch with a full range of features such as Time, Calendar, Alarm, Chronograph, Timer and Zone Set (World Time).

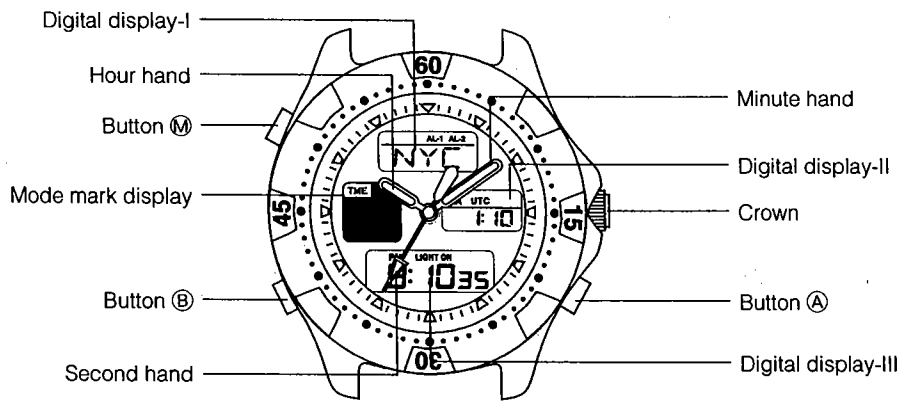
The taplight function, which illuminates EL when you tap the watch face gently, the battery life warning function, which notices the time of battery replacement with the 2-second interval movement of the second hand when the battery voltage of the watch drops, etc. are also added to.

§2. SPECIFICATIONS

Caliber NO.		C830	
Type		Combination quatch watch	
Movement size (mm)		ø30.8 x 6.41t	
Time accuracy (At normal temperature)		Within ±20 sec/month (+5°C ~ +35°C / 41°F ~ 95°F)	
IC		1 unit of C/MOS-LSI	
Operating temperature		0°C ~ +55°C (32°F ~ 131°F)	
Converter		Bipolar step motor	
Time adjustment		No adjustment terminal for in the market	
Measurement gate		10 sec.	
Display function	Analog time		Hour, Minute, Second
	Digital	Time	Hours, Minutes, Second, Normal time/Switch summertime (day-light saving time) AM/PM, Name of city, UTC time (Hours, Minutes, A/P), LIGHT ON
		Calendar	Date, Day, (Year and month are displayed during adjustment), Name of city, Time of selected city (Hours, Minutes, Seconds, AM/PM)
		Alam 1	Hours, Minutes, ON/OFF, AM/PM, Name of city, Time of selected city (Hours, Minutes)
		Alam 2	Hours, Minutes, ON/OFF, AM/PM, Name of city, Time of selected city (Hours, Minutes)
		Chronograph	24-hour measurement (in 1/100 second units), Split Time Measurement, Time of city selected by Time/Calendar (Hours, Minutes, A/P)
		Timer	Remaining timer minutes, Remaining timer seconds, Set minutes Timer setting range: 60minutes (1-minutes increment), Time of city selected by Time/Calendar (Hours, Minutes, A/P)
		Zone Set	UTC + 30 city names display ON/OFF, Summertime ON/OFF, UTC Time (Hours, Minutes, A/P)
Additional funcitons		EL Light Function Tap Switch Function Battery Life Warning Function	
Battery	Parts No. / Code	280-74/SR936W	
	Life time	About 2 yarars. (Based on assumed use of alarm buzzer 15 seconds/day, EL Light 12 seconds/day.	

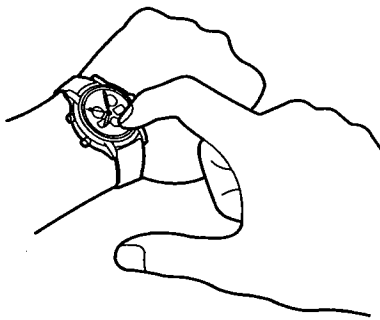
* These specifications are subject to change, for product improvement, without prior notice.

§3. NAME OF PARTS



§4. EL LIGHT FUNCTION

A scientific phenomena of light emission under a voltage, called the electric field light emission, is used. This watch adopts a method to emit light using an EL panel.



[How to Turn on EL]

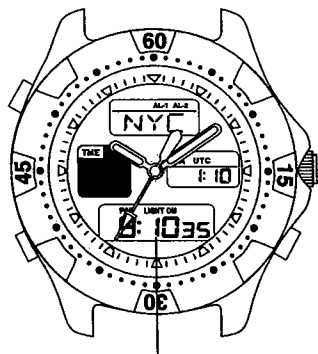
1. How to turn on EL by tap switch (by tapping the watch face gently)

- * When the tap switch is on (with "LIGHT ON" of the digital display-III on), tap the face of the watch (the glass or somewhere else) gently with your fingernail. The EL light is on for 3 seconds.
- ☆ Do not tap on the glass face with any sharp or metallic object as these could scratch or break the glass.
- ☆ If the watch is strapped tightly to your wrist, it may become difficult to switch the tap switch on. For best results, adjust the strap to deep some slack.

How to Switch the Tap Switch "ON" and "OFF"

Switch the tap switch ON and OFF when the watch is in time adjustment mode.

- (1) Under normal Time display, press button (B) for 2 seconds or longer to put the watch in the adjustment mode.
 - "TAP" is displayed on digital display-I and tap switch switch mode sets in.
 - (2) Press button (A) to switch to "ON" and "OFF."
 - (3) Press tap switch ON and press button (M) to return to normal Time display. "LIGHT ON" turns on on the digital display-III.
- ☆ When not using the EL light, turn off the tap switch to avoid any unnecessary battery consumption



Taplight switch ON mark

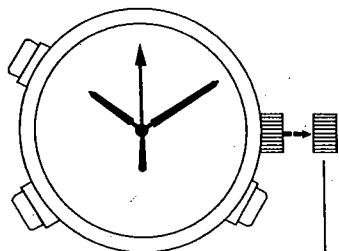
2. How to turn on the EL light by pressing a button

The EL light turns on, whether the tap switch is "ON" or "OFF," when button (A) is pressed in Time, Calendar or Zone Set mode.

In Chronograph mode, the EL light turns on during stop and split operations.

§5. SETTING THE ANALOG TIME

You may also set the analog and digital displays for different times as a dual time display.



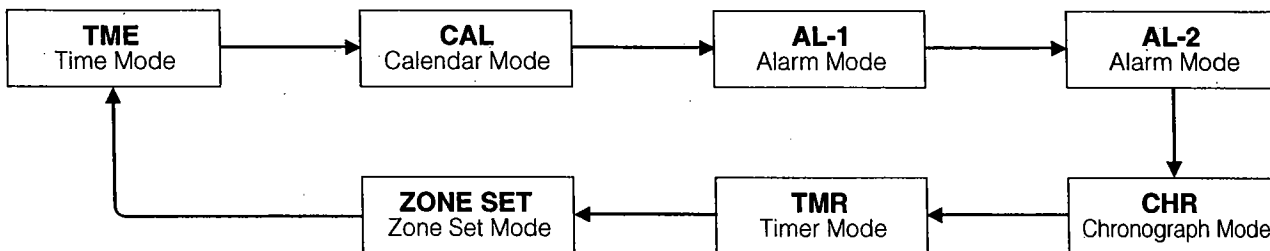
Time Adjustment Position

- (1) Pull the crown out so that the second hand stops at the "0" position.
- (2) Turn the crown and set the hands to the correct time.
- (3) After setting the time, press the crown back in to start the watch.

☆ Stop the second hand at the "0" position and then press the crown when the digital display reaches zero seconds. The second hand will start moving in synchronization with the digital display.

§6. SWITCHING DIGITAL FUNCTIONS (MODES)

In addition to Time mode, this watch has 6 other modes; Calendar, Alarm 1, Alarm 2, Chronograph, Timer and Zone Set. Each time you press button (M), the mode changes.



Auto-Return of Modes

- When the watch is left in normal display of Alarm 1 and 2 for more than 2 minutes without any button operation, the display will automatically return to Time mode.

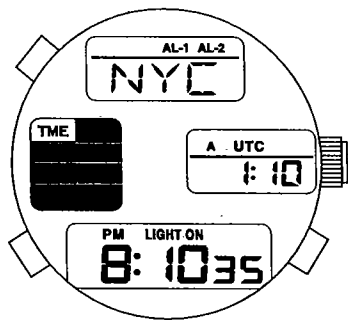
§7. USING DIGITAL FUNCTIONS (MODES)

A. Time Mode

- Press button (A) (or kept pressing) while the watch is in normal Time display to switch the EL light on.
- When the time a city is set, times of other cities, including UTC, are adjusted automatically.

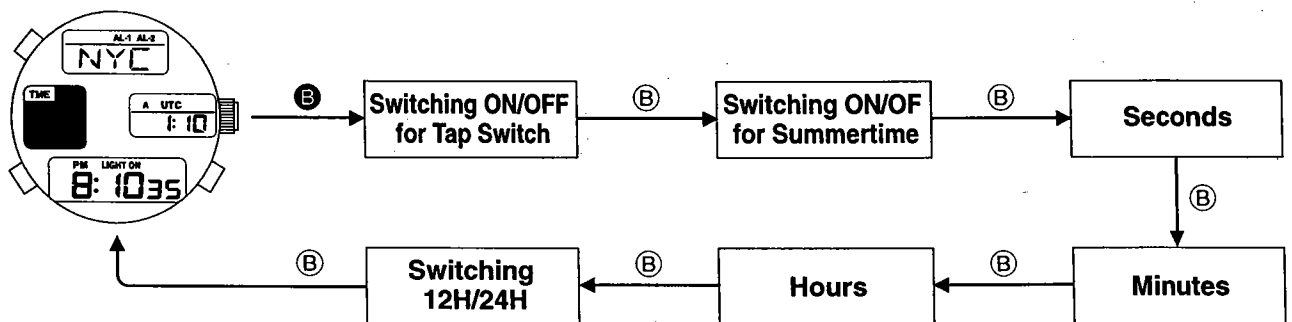
<How to Set Time, Tap Switch and Summertime>

- (1) In normal Time display, press button (B) and display the name of the city for adjustment.
- (2) Press button (B) for 2 seconds or longer to put the watch in the adjustment mode.
 - When button (B) is pressed, the city name is displayed once, but when the button is pressed and held, "TAP" is displayed and the display changes to adjustment mode.
- (3) Press button (A) and switch the tap switch "ON" or "OFF."
- (4) Press button (B) to switch to Summertime setting. "SUMMER" and "ON" or "OFF" flash.
 - "UTC" cannot be set for summertime. To adjust time in "UTC," adjust the tap switch and then move to "second" adjustment.
- (5) Press button (A) and set Summertime "ON" or "OFF."
- (6) When button (B) is pressed in Summertime adjustment, the flashing section changes as "second," "minute," "hour" and "12H/24H" each time the button is pressed. Flash the section to adjust.



- (7) Press button (A) and adjust the flashing section.
 - Press and hold button (A) for rapid advancement.
 - Press button (A) while seconds are flashing, seconds will return to "00" and restart. If seconds show 30 through 59, minutes display will advance one minute.
- (8) Press button (M) to return to normal Time display.

Time Mode Normal Display



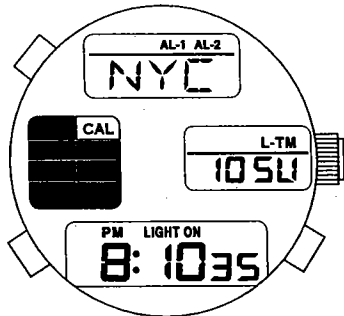
<Button Mark>

- (B) : Press button (B) for 2 seconds or longer.
- (B) : Press button (B) once.

- Make sure that the AM/PM indication is correct when setting the time in the 12-hour display system.
- Auto-Return to the normal Time display will be activated when the watch is left in the adjustment mode for about 2 minutes.
- Instant Manual Return to normal Time display can be made by pressing button (M) in Time adjustment mode. (Instant Manual Return)

B. Calendar Mode

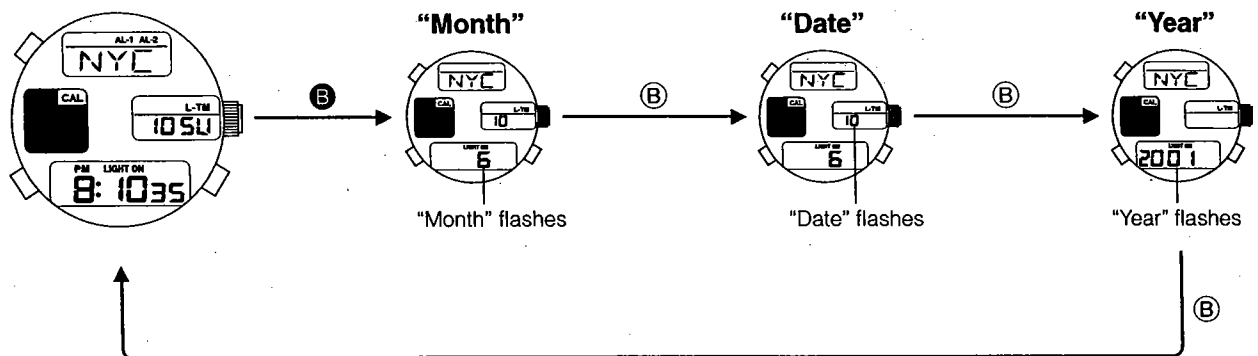
- If you press button **(A)** (or kept pressing) while the watch is in normal Calendar mode, the EL light will turn on.
- When the calendar of a city is set, calendars of other cities, including UTC, are adjusted automatically.



<How to Set the Calendar>

- (1) In normal Calendar mode, press button **(B)** and display the name of the city for adjustment.
- (2) Press button **(B)** for 2 seconds or longer and put the watch in the adjustment mode.
 - When button **(B)** is pressed, the city name is displayed once, but when the button is pressed and held, "Month" flashes and the display changes to adjustment mode.
- (3) Each time you press button **(B)**, flashing position changes as shown below. Flash the part you want to adjust.
- (4) Press button **(A)** to adjust flashing position.
 - Press and hold button **(A)** for rapid advancement.
- (5) Press button **(M)** to return to normal Calendar display.

Calendar Mode Normal Display

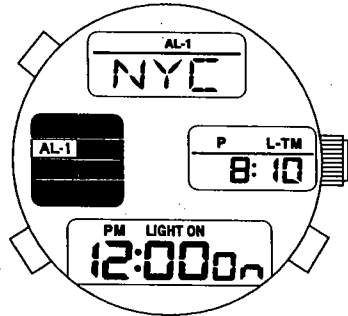


- Calendar can be set from 2000 through 2099.
- Auto-Return to normal Calendar display will be activated when the watch is left in Calendar adjustment mode for about 2 minutes.
- Day of the week is automatically set with adjustment of Year, Month and Day.
- When Calendar is set to a non-existent date (e.g., February 30), display will automatically show the first day of next month when returned to normal mode.
- Month-end adjustments are not necessary since calendar is programmed to set automatically.
- Instant Manual Return to normal Calendar display can be made by pressing button **(M)** in Calendar adjustment mode.

C. Alarm 1 & Alarm 2 Mode

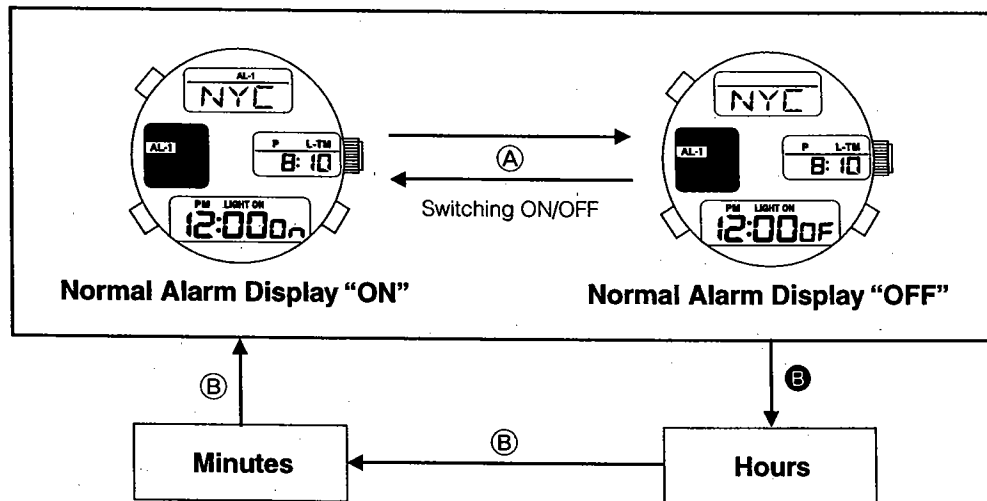
- Alarm 1 and Alarm 2 are different only in sound and operations are all the same.

[Normal Alarm Display]



<To Set Alarm>

- (1) Press button (B) in normal Alarm mode and display the name of the city for adjustment.
- (2) Press and hold button (B) for 2 seconds or longer to put the watch in adjustment mode.
 - When button (B) is pressed, the city name is displayed once, but when the button is pressed and held, "Hour" flashes and the display changes to adjustment mode.
- (3) Each time you press button (B), flashing position changes as shown below.
- (4) Press button (A) to adjust flashing position.
 - Press and hold button (A) for rapid advancement.
- (5) Press button (M) to return to normal Alarm display.
 - If the watch is set to 12-hour display-In Time mode, Alarm will also be set to 12-hour display.



<To Switch Alarm ON/OFF>

- When button (A) is pressed in Alarm mode (normal display), "ON" and "OFF" are changed each time the button is pressed.
- When Alarm is set to "ON," "AL-1 (or 2)" turns on in digital display-I.

<Duration of Alarm Sounding and How to Stop the Alarm Sound>

- Alarm will sound for 15 seconds.
- Press any button to stop Alarm buzzer.

<Alarm Sound Monitor>

- Press and hold button (A) in Alarm mode to make the alarm monitor sound.

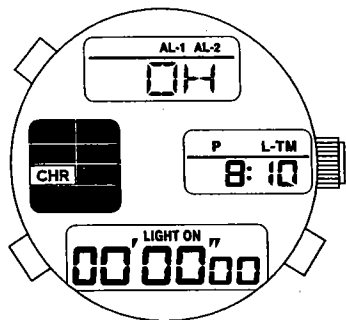
<Instant Manual Return>

- Press button (M) in Alarm adjustment mode to return to Alarm mode (normal display).

D. Chronograph Mode

- Chronograph measures in units of 1/100 of a second, up to “23 hours, 59 minutes 59 seconds”. On reaching 24 hours of elapsed time, it resets to “00 minutes 00 seconds and 00” hundredths and stops.
- When the button is pressed, the confirmation tone will sound.

[Chronograph Reset Position]



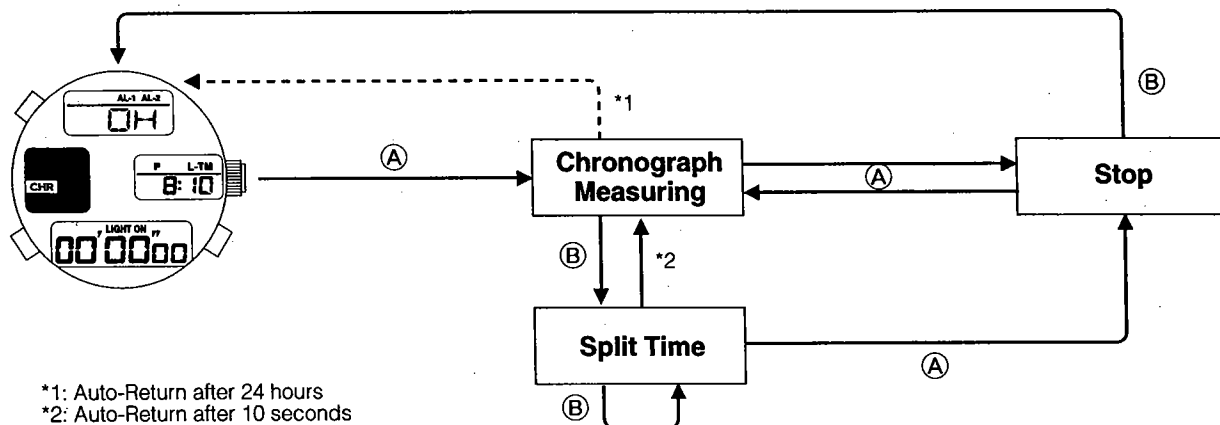
<Elapsed Time Measurement>

- (1) Press button (A) to start/stop Chronograph.
 - ① Each time you press button (A) while in time measurement, start/stop is repeated.
 - ② EL light is turned on for 3 seconds at the time of stop and split time operation.
- (2) Press button (B) when counting is stopped to reset Chronograph.

<Split Time Measurement>

- (1) Press button (A) to start/stop Chronograph
- (2) Press button (B) while in time measurement. Split time will appear for 10 seconds.
 - ① “SPLIT” will flash while split time is displayed.
 - ② EL light is turned on for 3 seconds at the time of split time operation.
- (3) Press button (B) when counting is stopped to reset Chronograph.

[Chronograph Reset Mode]



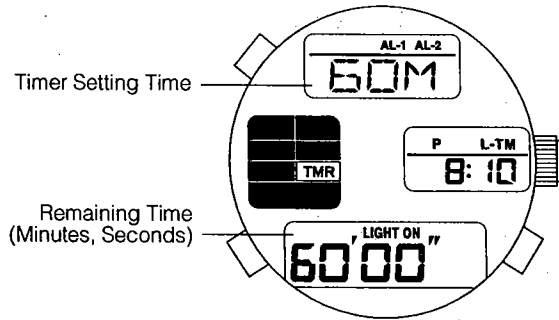
☆ If switched to another mode while Chronograph is running and then returned to Chronograph mode again, the watch will return to the measuring mode before switching. (If switched while Split Time is shown, the watch will return to Chronograph running mode.) However, if Chronograph counting has exceeded 24 hours, the watch will return to initial Chronograph reset display.

☆ When Chronograph mode is changed to another mode, mode mark “CHR” flashes.

E. Timer Mode

- Timer can be set in units of 1 minute up to 60 minutes. When Timer countdown is finished, buzzer will sound for about 5 seconds and return to the Timer set time.
- The confirmation tone will sound at start and stop.

[Initial Timer Setting]



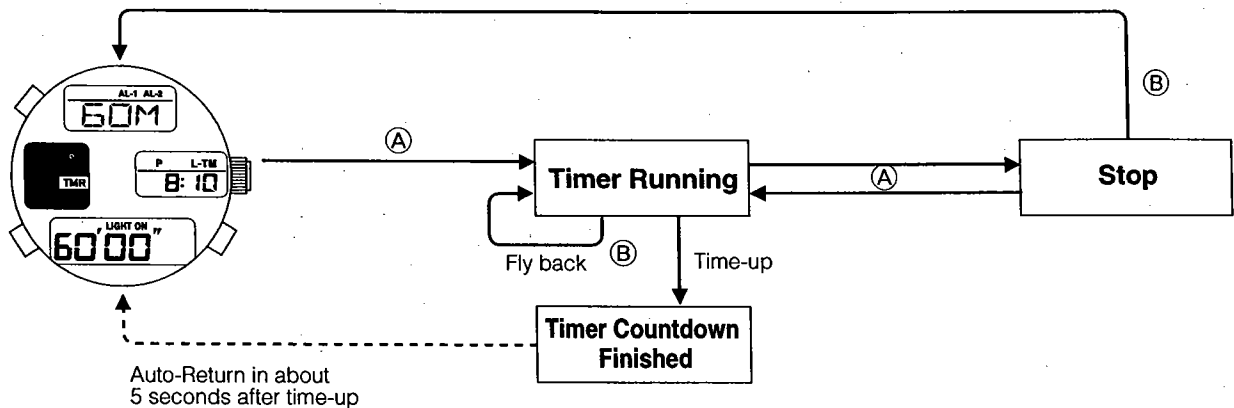
<To Set Timer>

- (1) If you press button (B) while the set time is flashing in timer mode, the set time will be reduced by one minute for each time you press and release the button. Continue until you reach the set time you want. (Press and hold button (B) for rapid advancement.)

<To Use Timer>

- (1) Press button (A). Timer starts countdown from set time.
- (2) Press button (A) to stop Timer during the measurement. Press button (A) to start it again while in the "Stop" position.
 - Press button (B), while Timer is in operation, to return to the initial set time (Fly back), and start the countdown again.
- (3) If you press button (B) while Timer is stopped, Timer will return to the initial set time.

[Initial Timer Setting]



☆ If the watch is switched to another mode while Timer is in operation and then returned to Timer mode again, the watch will return to countdown continuing at the time of switching. However, if countdown has been completed, the watch will return to initial Timer setting.

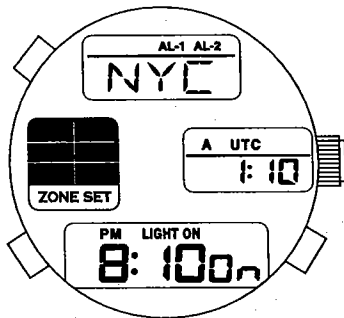
☆ When Timer running mode is changed to another mode, mode mark "TMR" flashes.

F. Zone Set Mode

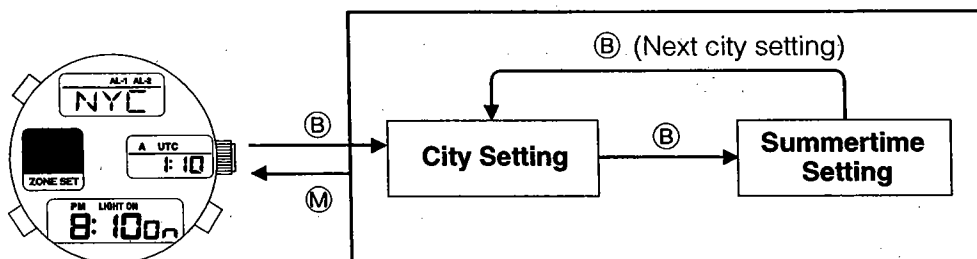
- In the Zone Set (World Time) function, the UTC (Greenwich Mean Time) and 30 city names are set and only the cities set "ON" can easily be called out (displayed). It is also possible to set summertime to each city.

<Zone Setting>

- Press button **(M)** and set Zone Set mode.
- Press button **(B)** and display the name of the city for adjustment.
- Press button **(B)** for 2 seconds or longer to put the watch in the adjustment mode.
 - When button **(B)** is pressed, the city name is displayed once, but when the button is pressed and held, "city name" and "ON/OFF" flash and the display changes to adjustment mode.
- Press button **(A)** and set "ON" or "OF."
- When button **(B)** is pressed, "SUMMER," "city name" and "ON/OFF" flash to set in the Summertime setting mode.
- Press button **(A)** and set "ON" or "OF."
 - If Summertime is set, the hour display will advance one hour.
- Press button **(B)** and you can get the next city name on the display.
- Press button **(M)** to return to the Time mode.
 - Only the cities that ON is set can be called out under Time, Calendar, Alarm 1 or 2 mode.



[City Selection]



<How to Call out the Time, Calendar or Alarm Time of Each City>

- Press button **(M)** and display the Call Out mode.
- When button **(B)** is pressed, the time, calendar or alarm time of a city is displayed in upward direction (the direction along which the time lag increases) each time the button is pressed.
- When button **(A)** is pressed while pressing button **(B)**, the time, calendar or alarm time of a city is displayed in downward direction (the direction along which the time lag decreases) each time the button is pressed.
 - If button **(B)** alone is pressed and held, the watch is put in the adjustment mode.

[Reference: Time Differences of Major World Cities Based on UTC]

Watch display	Name of City	Time Difference	Summer-time	Watch display	Name of City	Time time	Summer-display
UTC	Universal Time Coordinated	±0	-	TYO	Tokyo	+9	×
LON	London	±0	○	SYD	Sydney	+10	○
PAR	Paris	+1	○	NOU	Nouméa	+11	×
ROM	Rome	+1	○	AKL	Auckland	+12	○
CAI	Cairo	+2	○	HNL	Honolulu	-10	×
IST	Istanbul	+2	○	ANC	Anchorage	-9	○
MOW	Moscow	+3	○	LAX	Los Angeles	-8	○
KWI	Kuwait	+3	×	DEN	Denver	-7	○
DXB	Dubai	+4	×	CHI	Chicago	-6	○
KHI	Karachi	+5	×	MEX	Mexico City	-6	×
DEL	New Delhi	+5.5	×	NYC	New York	-5	○
DAC	Dacca	+6	×	YUL	Montreal	-5	×
BKK	Bangkok	+7	×	CCS	Caracas	-4	×
SIN	Singapore	+8	×	RIO	Rio de Janeiro	-3	○
HKG	Hong Kong	+8	×	BUE	Buenos Aires	-3	×
PEK	Beijing	+8	×				



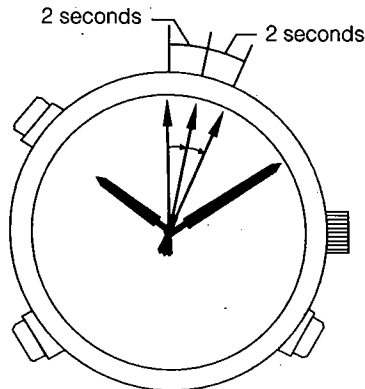
○: City using summertime ×: City not using summertime

* Please note that time difference and summertime for cities are subject to change.

§8. BATTERY LIFE WARNING FUNCTION

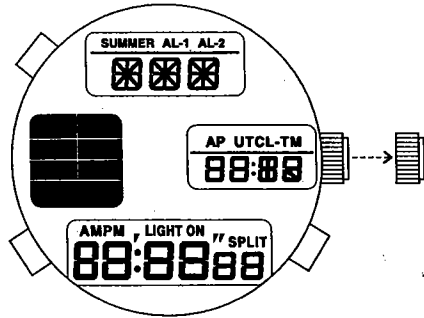
When the battery life is nearly reached, the second hand is carried two graduations (every 2 seconds) at a time. Replace the battery early.

- Even in this case, the watch works normally.
- The EL light function cannot be used.
- Confirm tones of the alarm and chronograph and the time-up sound of the timer do not sound.



§9. ALL RESET FUNCTION

Use All Reset function to reset the watch after replacing the battery or if the watch is showing abnormal operation or display. All Reset function can be performed as follows:



- (1) Pull crown out.
- (2) Press buttons (A), (B) and (M) simultaneously.
 - All digital displays turn on.
- (3) Push crown in. (At this point, buzzer sounds in confirmation.)
This completes the All-Reset operation. Set each mode correctly before using the watch.

§10. DISASSEMBLY AND ASSEMBLY OF MOVEMENT/ TROUBLESHOOTING AND ADJUSTMENT

Basic structure of movement is same to CAL. C810.

Refer to CAL. C810 Technical Information for disassembly and assembly of movement troubleshooting and adjustment.