

***TECHNICAL
INFORMATION***

**CITIZEN QUARTZ
Cal. No. 919※※**

 **CITIZEN**

§ 1. OUTLINE



This is a digital quartz crystal watch with LC display and equipped with a calculator. In response to the diversified requirements of the users, it features multiple functions including an alarm, stopwatch, illumination lamp as well as the time and calendar displays. As for the calculator incorporated, the push-buttons are collected at one corner area to better the operational performance as well as the overall design of the watch.

§ 2. MAIN FEATURES

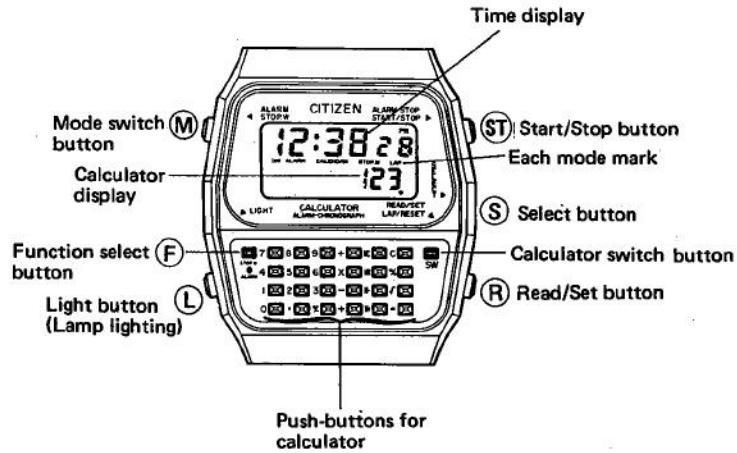
- 1) In addition to the time display (hour, minute, second, AM/PM) and the calendar display (month, date, day), multiple functions are incorporate such as an alarm, stopwatch, illumination lamp, and furthermore a calculator.
- 2) The square push-buttons of the calculator are collected at a corner area, so the operation of the calculator is much facilitated with a betterment in terms of the watch design as a whole.
- 3) An illumination lamp is built into the watch to facilitate an easy reading of the display information even in a dark place.
- 4) The calendar can be set automatically except for the leap-year day (February 29).
- 5) A continuous and accurate operation of the watch and the calculator is ensured about 3 years by just one unit of the small-size silver oxide power cell in spite of the multiple functions incorporated. (5 sec. lamp lighting, 30 sec. alarm sounding and 20 min. calculator operation per day)

§3. SPECIFICATIONS

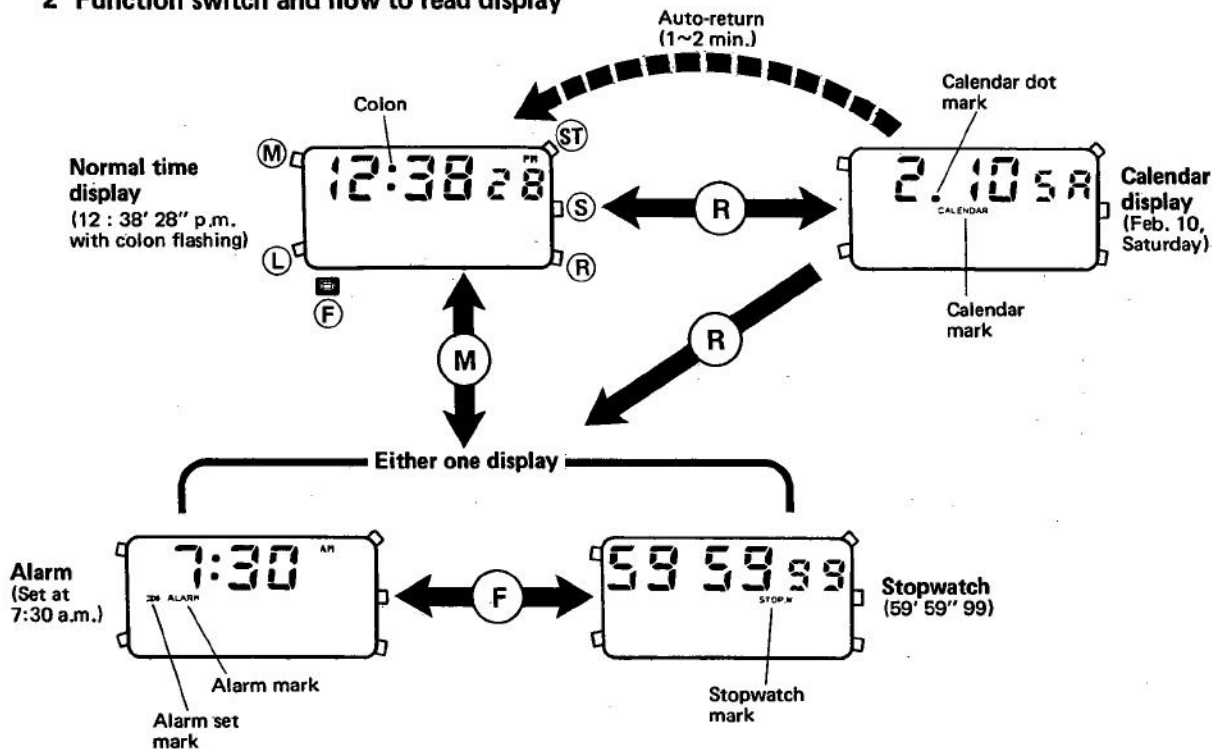
Caliber No.	9190A	
Movement	Diameter: 31.6mm × 31.8mm	
	Thickness: 7.43mm	
Oscillation	32,768Hz	
Accuracy	±10 sec./month (in normal temperatures)	
Display information	Time	"Hour", "minute", "second" and "AM/PM"
	Calendar	"Month", "date" and "day"
	Alarm	"Hour", "minute" and "AM/PM"
	Stopwatch	"Minute", "second" and "1/100 sec."
Correction of display	Independent correction of each digit by operation of push-buttons	
Effective temperature range	0°C ~ +50°C (32°F ~ 122°F)	
Integrated circuit	C/MOS-LSI 3 units (1 for watch, 1 for calculator, 1 for common use)	
Additional mechanisms	<ul style="list-style-type: none"> ●Calculator ●Alarm ●Stopwatch ●Illumination lamp ●Automatic calendar setting device (excluding leap year) 	
Power cell	Small-size silver oxide power cell (1 unit) Parts No. : 280-21 Nominal voltage : 1.55V Capacity : 120mAH Size : 11.6mmφ × 4.2mm Life : About 3 years	

§4. HANDLING INSTRUCTIONS

1 Push-buttons and their functions



2 Function switch and how to read display



*The both of the alarm and the stopwatch functions cannot be used Simultaneously. Either one of the two functions must be selected in use.

(Normal time display \rightleftharpoons Alarm or Normal time display \rightleftharpoons Stopwatch)

The selection between the "Alarm" and "Stopwatch" is performed with push of (F) button. The (F) button is guarded around it, so it must be pushed with something thin at the tip and with good care not to injure the button.

3 How to set time and calendar

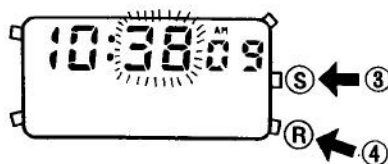


Second setting

- ① With push of **(S)** button under the normal time display, the "second" begins to flash to be set.

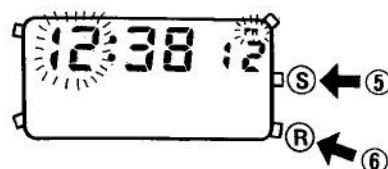


- ② With push of **(R)** button, the "second" is reset to zero to start immediately. (One "minute" is carried when the "second" is within the range of 30~59 seconds.)



Minute setting

- ③ The "minute" begins to flash.
- ④ The "minute" is carried one by one with every push of **(R)** button to be set correctly.



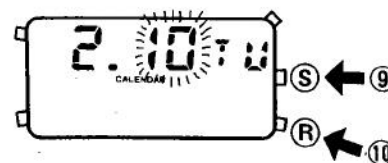
Hour setting

- ⑤ The "hour" plus "AM" or "PM" begin to flash.
- ⑥ The "hour" is set making sure "AM" or "PM".



Month setting

- ⑦ The "month" begins to flash.
- ⑧ The "month" is set.



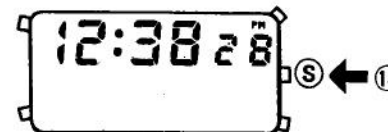
Date setting

- ⑨ The "date" begins to flash.
- ⑩ The "date" is set.



Day setting

- ⑪ The "day" begins to flash.
- ⑫ The "day" is set. (The "day" is displayed in English with the first two letters.)



- ⑬ The normal time display is secured.

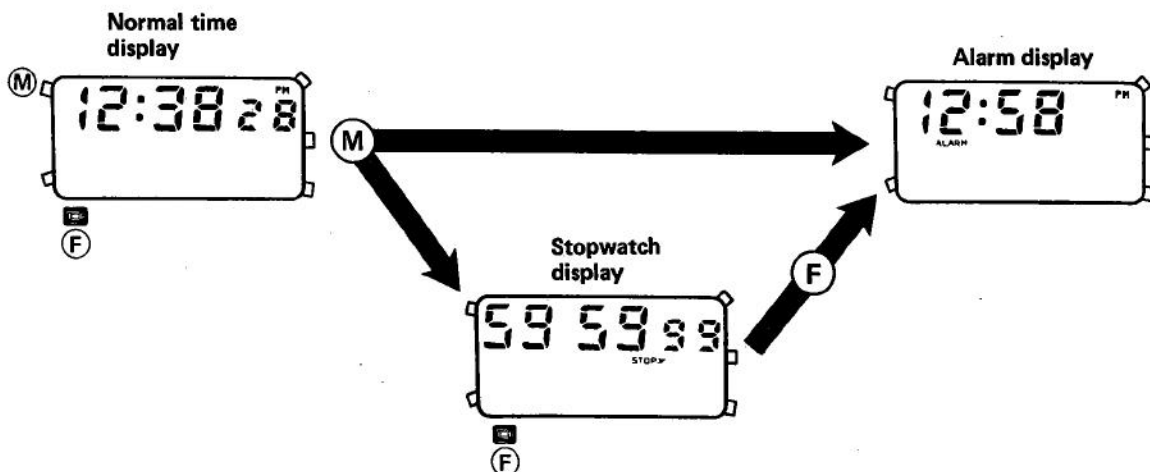
*The colon flashes in the case of ① ~ ⑥ plus ⑬

*The calendar is set automatically after it is once set correctly. The leap-year day (February 29), however, must be set through operation of the push-button.

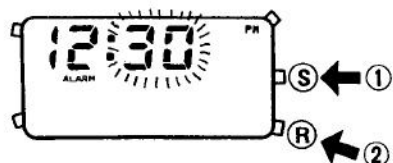
*No switching is possible from the time and calendar setting mode to another function.

4 Operation of alarm

(1) Call-out of alarm display

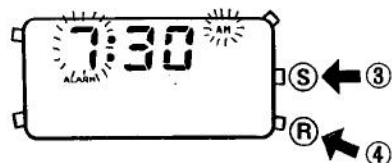


(2) How to set alarm time



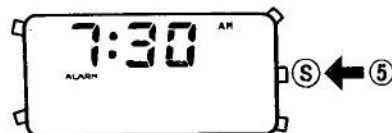
Minute setting

- ① With push of (S) button under the alarm display, the "minute" begins to flash to be set.
- ② The "minute" is set.



Hour setting

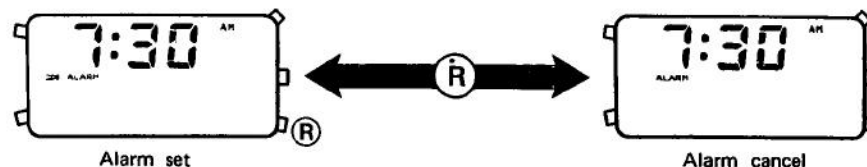
- ③ The "hour" plus "AM" or "PM" begin to flash.
- ④ The "hour" plus "AM" and "PM" is set.



- ⑤ The normal alarm display is secured.

*No colon flashing is given under the alarm display.

(3) Alarm set/cancel



The alarm set mark () appears and disappears with every push of (R) button under the normal alarm display.

The alarm set mark () is displayed when the alarm display is switched to the normal time display in case the alarm is set previously.

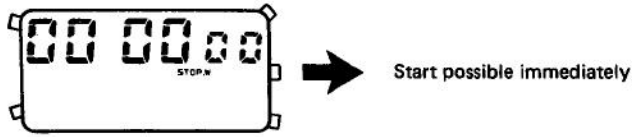
*The alarm sound is stopped with push of (ST) button.

5 Operation of stopwatch

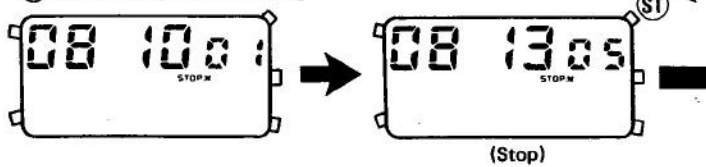
(1) Resetting

The following cases (① ~ ⑤) are presented when the stopwatch function is actuated.

① Resetting state



② Under stopwatch timing



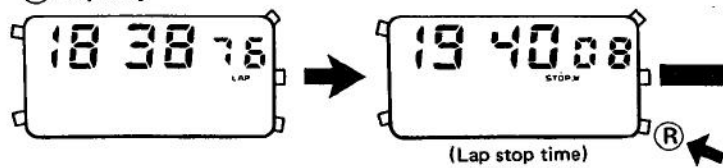
③ Timing Stop



④ Under lap timing



⑤ Lap stop

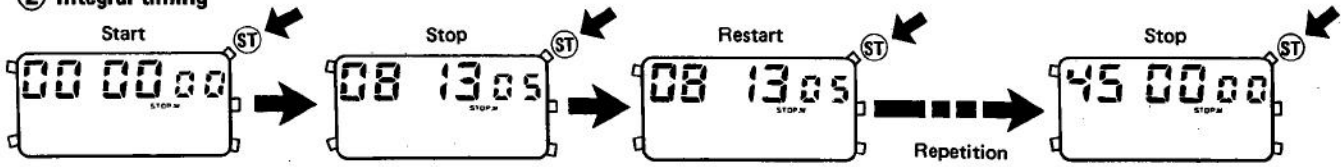


(2) Timing method

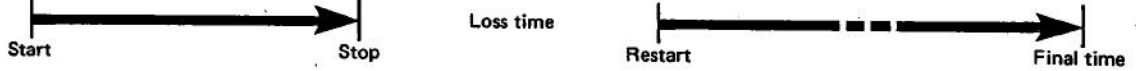
① Simple timing



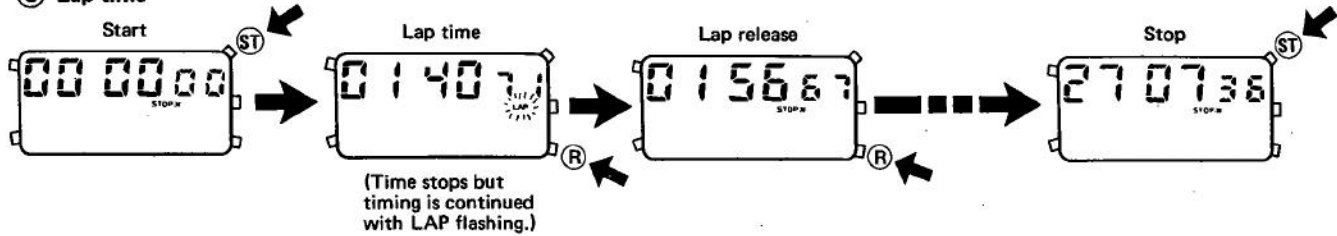
② Integral timing



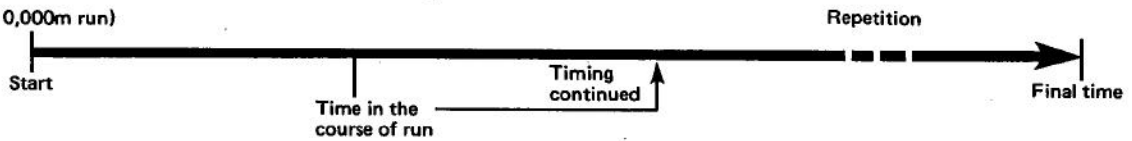
(Ex. Soccer)



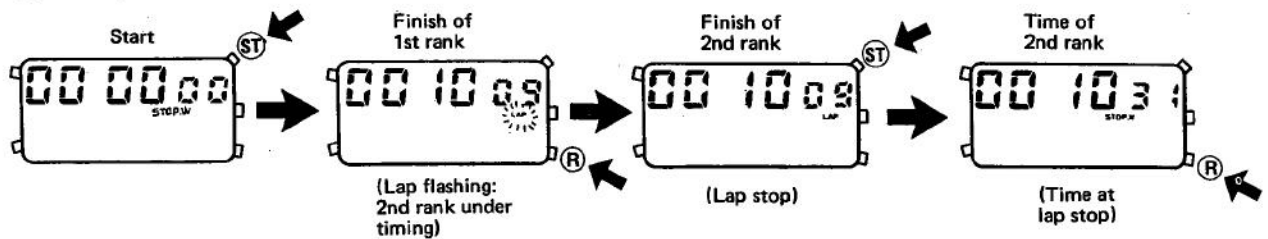
③ Lap time



(Ex. 10,000m run)



④ Timing of 1st and 2nd ranks













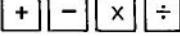
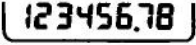





*When the timing exceeds 59':59'':99, the 00':00'':00 is displayed to continue the timing thereafter.



*The timing is continued even though the function is changed to the normal time display in the course of the stopwatch timing.

§ 5. HOW TO USE CALCULATOR

(1) Push-buttons and their functions

	..... Switch button:	Power switch for calculator.
	..... Ten keys	} Register buttons : For register of numerical value into calculator.
	..... Decimal-point button	
	..... (1-push) Clear entry button	For correction when register button is pushed by mistake.
	..... (2-push) Clear button:	To clear calculation order as well as all numerical value except for memory contents.
	..... Sign change button:	To exchange plus (+) and minus (-) for numerical value displayed.
	..... Memory clear button:	To clear contents memorized.
	..... Memory recall button:	To recall numerical value memorized.
	..... Memory plus button:	To add numerical value to memory.
	..... Memory minus button:	To subtract numerical value or calculation result from memory.
	..... Root button:	To obtain square root.
	..... Percent button:	To obtain percentage.
	..... Equal button:	To obtain answer.
	..... Buttons for 4 rules of arithmetic :	To carry out 4 rules of arithmetic.
	Display window:	8-digit display by floating decimal point system.
	Minus sign	
	Memory mark	
	Error mark:	"E." is displayed when operation result exceeds 8 digits (over decimal point) or calculation is impossible to indicate that subsequent calculations are impossible.

2) Notes on calculation

- (1) The push-buttons must be pushed softly. If stronger force than necessary is applied to push the button, some fault may be caused to the calculator.
- (2) The mispush of the buttons for 4 rules of arithmetic can be corrected with subsequent push of the correct buttons.
- (3) When calculations are through, the  button must be pushed to erase the display. (The display is also erased automatically in about 3 minutes after the push of the last button even if the  button is not pushed.)
- (4) It is convenient to use a mechanical pencil (with the lead pushed in) or the like when pushing the buttons. Avoid using a sharp metal substance since it may injure the buttons.