

***TECHNICAL
INFORMATION***

**CITIZEN QUARTZ
Cal. No. 942 ※ ※**

 **CITIZEN**

§1. OUTLINE



This is a quartz crystal electronic watch for gentlemen with the liquid crystal display, which has been developed with a view to realizing a big reduction of the cost. It incorporates such multiple functions, in spite of a very compact design, as the alarm function of the glass-vibrating method plus the chime and stopwatch functions. Thus this watch will surely contribute much to develop the new field of the market for the Citizen brands.

§2. FEATURES

- 1) The liquid crystal watch for gentlemen developed to realize a big reduction of the cost.
- 2) The trimmer condenser is omitted since the time rate of this caliber is already adjusted enough at the factory. Thus no adjustment is generally given to the time rate at the market.
- 3) Digital Frequency Control (DFC)
The DFC method is adapted to this caliber, and thus the measurement unit time (MEASURE TIME) must be set to "10 sec." or its integer-fold value for measurement of the time rate. This is due to the fact that the frequency is corrected within the circuit every 10 seconds. And no correct measurements is obtained with the unit time "2 sec."
- 4) The power cell life of over 5 years
The non-stop operation of over 5 years is attained for the digital watch thanks to the low power consumption of both the circuit and the liquid crystal (LC) display panel as well as application of the lithium cell.

§3. SPECIFICATIONS

Caliber No.	9420A-00
Module	Outer dia. 28.0 mm ϕ Thickness 5.65 mm (Power cell part 6.05 mm)
Frequency	32,768 Hz
Accuracy	± 15 sec./month at normal temperatures
Digital display part	<ul style="list-style-type: none"> ● FE twist nematic liquid crystal ● 2-division multiplex driving ● Normal time display <ul style="list-style-type: none"> – Hour, minute, second and AM/PM ● Display with button operation <ul style="list-style-type: none"> – Month, date and day ● Display with switching operation <ul style="list-style-type: none"> – Alarm function ● Display with switching operation <ul style="list-style-type: none"> – Chime function ● Display with switching operation <ul style="list-style-type: none"> – Stopwatch function <ul style="list-style-type: none"> a) Minute, second and 1/100 sec. (0'00''00 ~ 19'59''99) b) Hour, minute and second (0:20'00'' ~ 11:59'59'')
Integrated circuit	C/MOS-LSI
Effective temperature range	$\pm 0^{\circ}\text{C} \sim +60^{\circ}\text{C}$ (32 $^{\circ}\text{F} \sim 140^{\circ}\text{F}$)
Additional functions	<ul style="list-style-type: none"> ● Illumination lamp ● Fully automatic calendar (incl. leap years) ● Alarm monitor ● Function marks
Power cell (lithium cell)	Parts No. : 280-201 Manufacturer No. : BR2320 Nominal voltage : 3V Size : 23.0 ϕ x 2.0 mm Capacity : 100 mA H Life time : 5 years or more

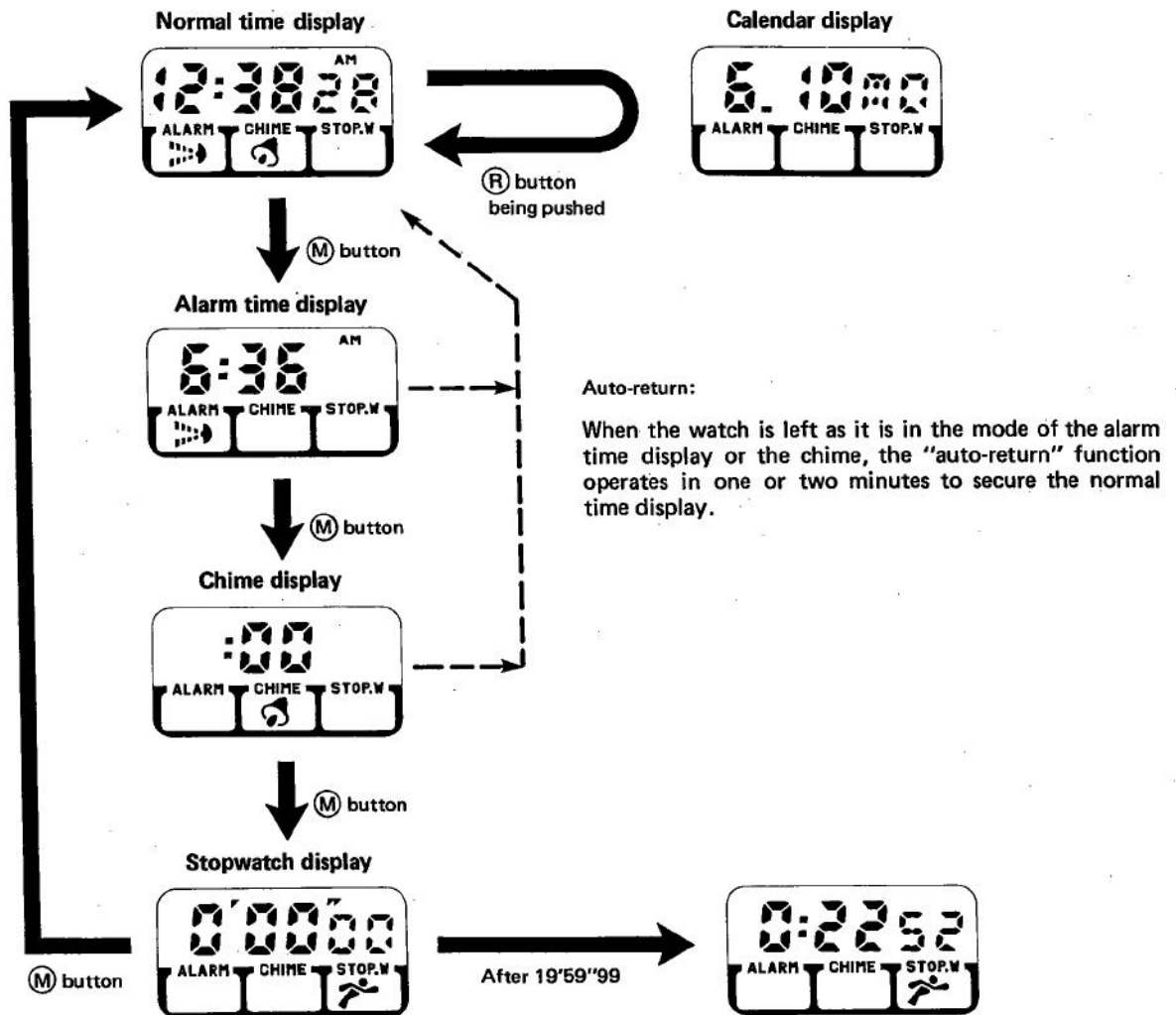
§4. HANDLING INSTRUCTIONS (The flashing areas are shown in the red color)

1) Push-buttons and functions

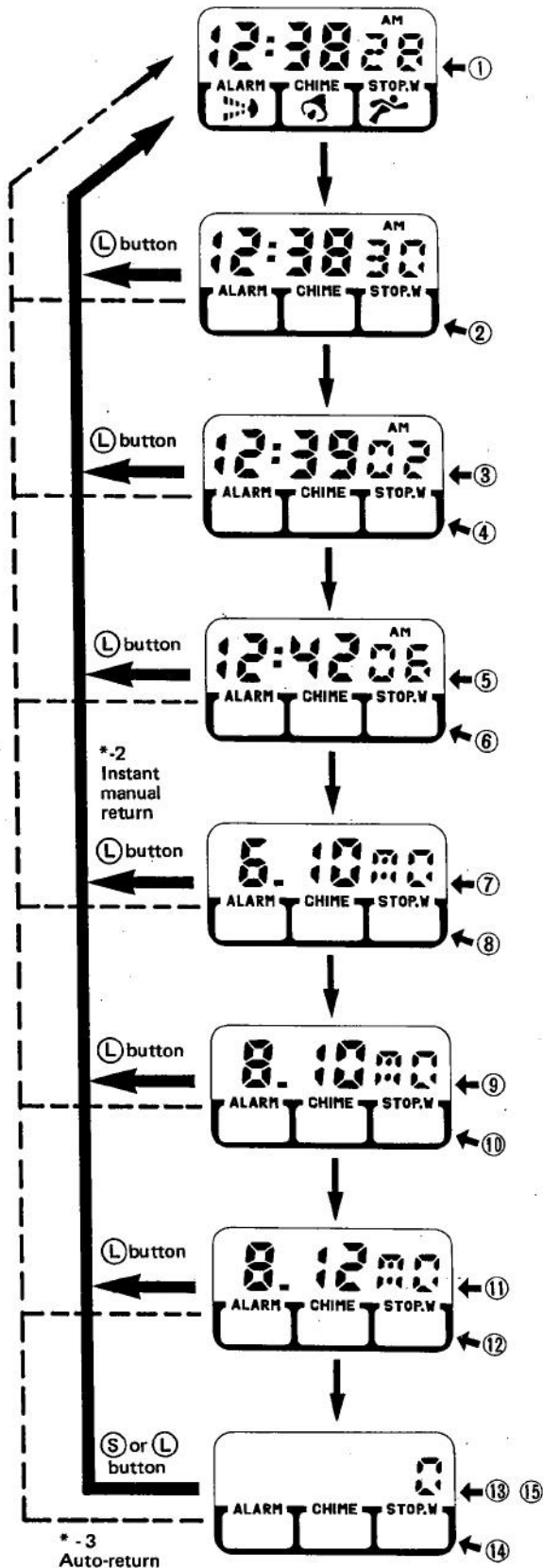


12:38'28'' AM (Alarm ON, Chime ON)

2) Mode switching



3) Time setting



Normal time display

- ① With push of (S) button about two seconds in the mode of the normal time display, the second has flashing.

Setting of second

- ② With push of (R) button, the "second" resets to zero when the "second" reads 00 ~ 29. While in case the "second" reads 30 ~ 59, the "minute" is carried by one.

Setting of minute

- ③ With push of (S) button in the mode of the "second" setting, the "minute" has flashing.
- ④ The "minute" is set with push of (R) button.

Setting of hour

- ⑤ With push of (S) button in the mode of the "minute" setting, the "hour" plus "AM/PM" have flashing.
- ⑥ The "hour" is set with push of (R) button, making sure of AM or PM.

Setting of month

- ⑦ With push of (S) button in the mode of the "hour" setting, the "month" has flashing.
- ⑧ The "month" is set with push of (R) button.

Setting of date

- ⑨ With push of (S) button in the mode of the "month" setting, the "date" has flashing.
- ⑩ The "date" is set with push of (R) button.

Setting of day

- ⑪ With push of (S) button in the mode of the "date" setting, the "day" has flashing.
- ⑫ The "day" is set with push of (R) button.

Setting of year *-1

- ⑬ With push of (S) button in the mode of the "day" setting, the "year mark" is displayed.
- ⑭ The "year" is set with push of (R) button.
- ⑮ With the second push of (S) button, the display is reset to the normal time.

***-1 Setting of year**

The year divisible by 4 is set to 0. Thus the "year mark" is set to 0 for 1980 since if the year can be divided by 4. The "year mark" varies in the order of 0, 1, 2, 3, 0, 1 and so on.

***-2 Instant manual return**

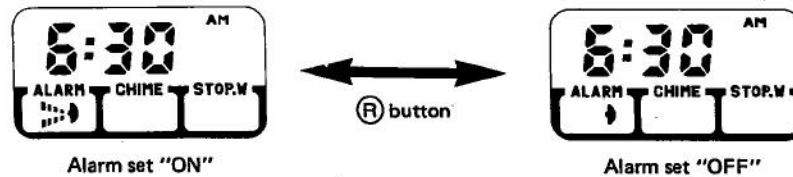
In the time setting, the setting modes change usually in that order of "Second → Minute → Hour → Month → Date → Day → Year". However, the normal time display, if desired, can be reset instantly with push of (L) button in any one of the setting modes mentioned above.

***-3 Auto-return**

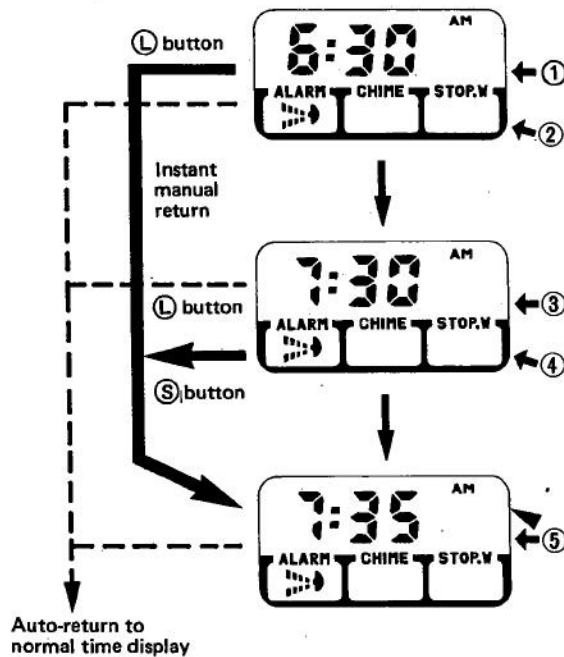
When the watch is left as it is in any one of the setting modes, the "auto-return" function operates to reset the normal time display automatically in one or two minutes.

4) Function of alarm

The normal time display is changed to the alarm time display with push of (M) button. The ON and OFF of the alarm function are switched by pushing (R) button.



Setting of alarm time



Setting of alarm "hour"

- ① With push of (S) button about 2 seconds in the mode of the alarm time display, the "hour" plus "AM/PM" have flashing.
- ② The "hour" is set with push of (R) button, making sure the AM or PM.

Setting of alarm "minute"

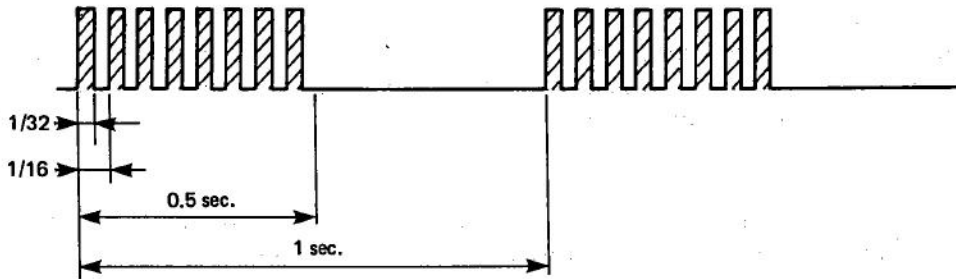
- ③ With push of (S) button in the mode of the "hour" setting, the "minute" has flashing.
- ④ The "minute" is set with push of (R) button.


Alarm time display

- ⑤ With the second push of (S) button, the flashing of "minute" ceases. And the alarm time display is secured.

• Ringing way of alarm

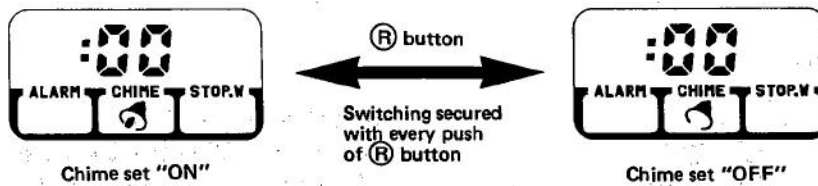
The alarm rings at the set time in the short duration and in 8 times per second for 30 seconds.



- (1) The alarm ring can be stopped at any time by pushing any one of the push-buttons.
- (2) When the alarm is set, the  mark is displayed when the normal time display is reset in order to indicate the alarm being set.

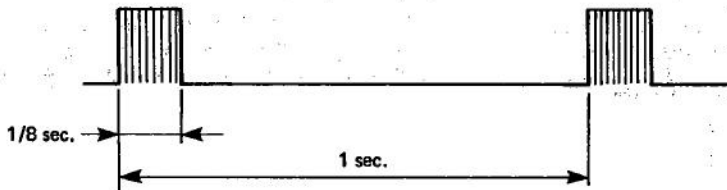
5) Function of chime

The chime display is given with push of (M) button in the mode of the alarm time display.



• Ringing way of chime

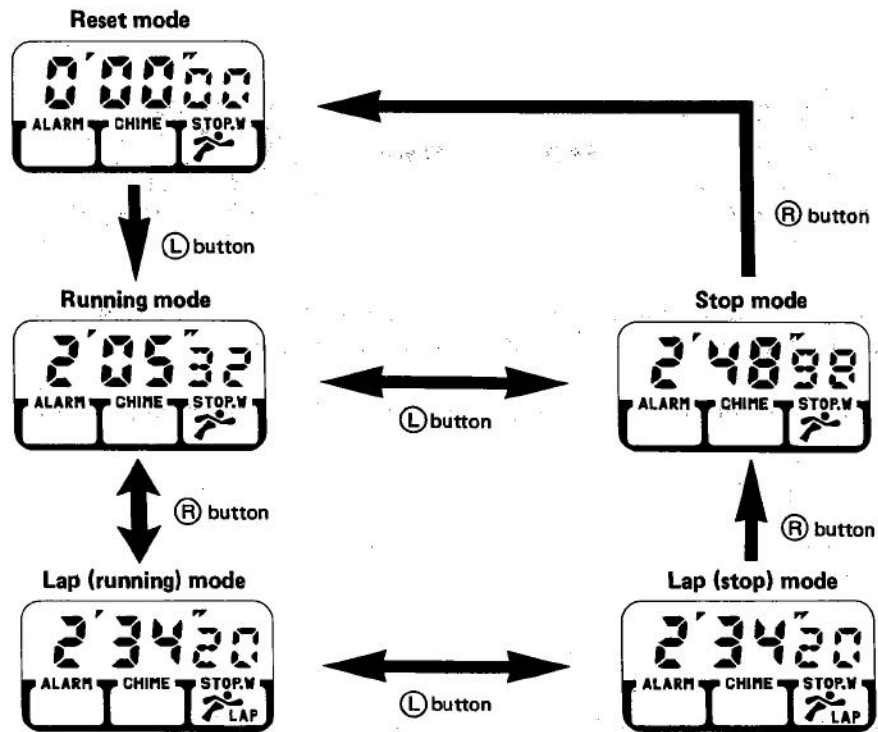
The short duration of sound rings twice every hour on the hour after the chime is set ON.



After the chime is set ON, the  mark is displayed when the normal time display is reset to indicate the chime being set.

6) Function of stopwatch

The chime display is switched to the stopwatch display with push of (M) button.



One of the five modes shown above is given under the stopwatch display. The operation of the stopwatch function starts by securing the present mode via the operation of (L) and (R) button as follows.

1 Reset mode

The 0'00'00 is displayed to indicate the preparatory state for measurement of the time. With push of (L) button then, the running mode is secured.

2 Running mode

This mode shows that the time is being measured with flashing of ' ' mark.

3 Stop mode

The ' ' mark ceases flashing to indicate that the time measurement is discontinued. With push of (R) button under these conditions, the reset mode is secured again.

4 Lap (running) mode

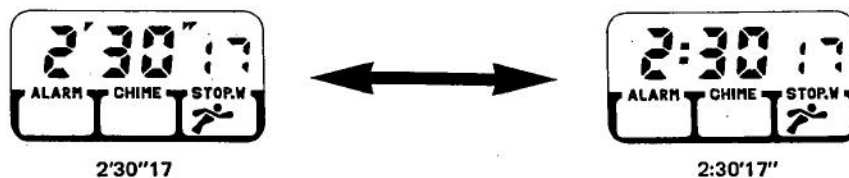
In this mode the part-way time can be obtained under the running mode. The display is discontinued but the time measurement is continued yet. With push of (R) button then, the running mode is reset again. And with push of (L) button, the time measurement is stopped. The ' ' mark is still flashing.


5 Lap (stop) mode

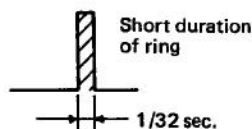
In this mode the 1st and 2nd place time can be obtained. With push (L) button in the lap (running) mode, the lap (stop) mode is secured. And with push of (R) button then, the lap (stop) mode is switched to the stop mode. However, the time value accumulated from the run mode is under display.

(1) Change of display

The "minute, second and 1/100 sec." are displayed with the stopwatch display from 0'00'00 to :9'59'99. But the "hour, minute and second" are displayed during the time from 0:20'00 to :59'59.



- (2) In the running and lap (running) modes of the stopwatch, the  mark is displayed when the normal time display is reset to indicate the time being measured.
- (3) With push of (L) button, the confirmation tone is heard in a short duration with every start/stop.

**Alarm monitor**

The alarm tone is produced with simultaneous push of (L) and (R) buttons in the mode of the normal time display or the calendar display. This alarm tone features a long and continuous duration as long as the both buttons are pushed.

***Note on replacement of power cell:**

When the power cell is replaced with the new one, the non-existing figure may sometimes be displayed. In such case, the four push-buttons are pushed all at the same time to secure the normal display. After this, the time setting is carried out.