

***TECHNICAL
INFORMATION***

**CITIZEN QUARTZ
Cal. No. 944※※**

 **CITIZEN**

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§1. OUTLINE







This is a digital watch with quartz crystal oscillation, which has been developed based on the mechanism of Cal. No. 9420/9460-series watches and with addition of a pacemaker.

With this pacemaker newly incorporated, this caliber will be suited especially to the lovers of sports including the jogging and the like.

§2. FEATURES

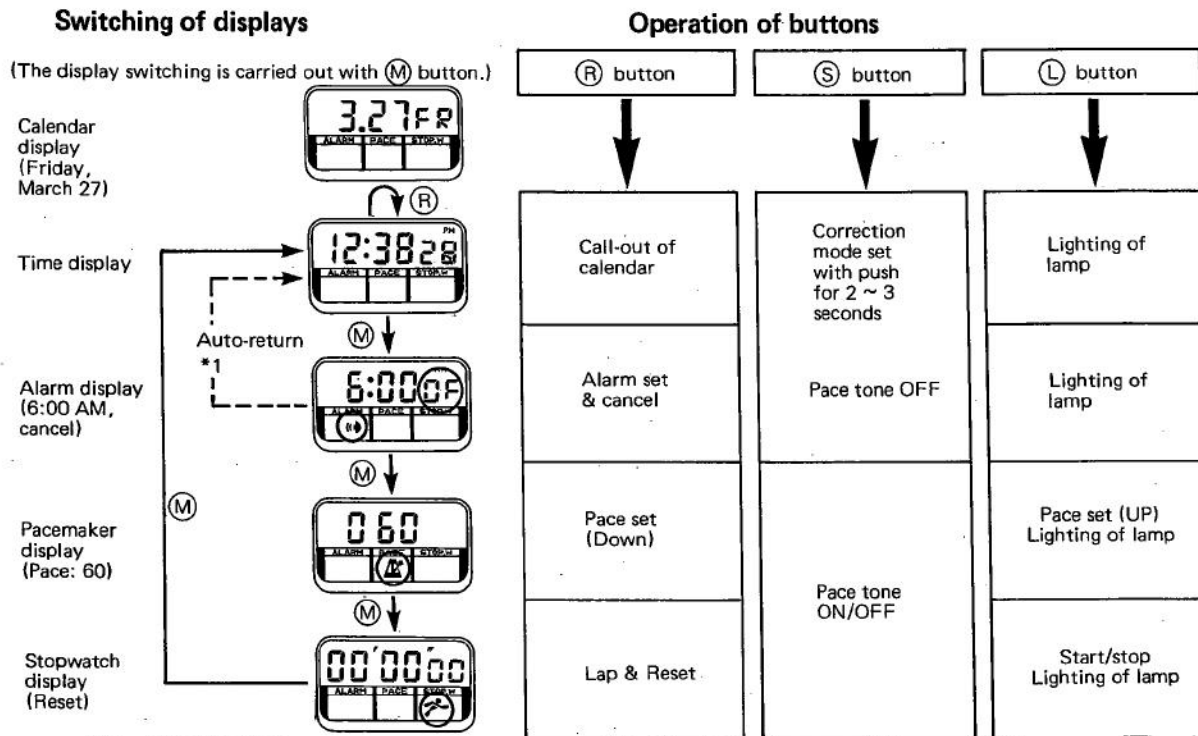
- 1) With addition of pacemaker, the application of this watch will be extended not only to the sports activities including the jogging or the like but to a musical instrument such as a metronome, etc.
- 2) For the stopwatch function, the 5-minute timing is possible through a coaction with the pacemaker.
 This timer function plus the pacemaker and alarm functions will enhance the capacity of the watch in the field of sports activities.

§3. SPECIFICATIONS

Caliber No.		9440A
Size of module		28mmφ (max. 29mmφ) x 5.65 mm ^t
Accuracy		±15 sec./month at normal temperature
Oscillation		32,768Hz
Display system		FE (Field Effect) type nematic LC (Liquid Crystal), 2-division multiplex driving
Integrated circuit		C/MOS-LSI (1 unit)
Effective temperature range		±0 ~ +55°C (+32 ~ +131°F)
Adjustment of time rate		D.F.C.
Setting of time and calendar		Push-button of method
Power cell (Lithium cell) (MnO ₂ /Li)		Parts No.: 280-203 Cell code: CR2316 Nominal voltage: 3V Capacity: 100mAH Size: 23mmφ x 1.6mm ^t Life time: About 5 years (5 sec. lamp 30 sec. alarming per day, 15 min. pacemaker per week)
Additional functions		<ul style="list-style-type: none"> ●12-/24-hour switching function ●Instant manual return function ●Fully automatic calendar function (incl. leap year) ●5-minute timer (Stopwatch) ●Auto-return function ●Illumination lamp
Display functions	Time display	Hour: minute second (12-hour AM/PM display)
	Alarm display	Hour: minute ON/OFF (12-hour AM/PM display) Alarm mode mark & alarm set mark
	Pacemaker display	Pace numbers (000 ~ 239) & pacemaker mode mark
	Stopwatch display	Minute "Sec." 1/100 sec. (less than 60 min.) Hour: minute second (more than 60 min., 12-hour counting) Stopwatch mode mark & lap mark
	Calendar display	Month, date, day (0, 1, 2 and 3 displayed for setting leap year at correction of time)
External view with display		<p>●Display of function</p>  <p> (M) button (Mode switching) (L) button (Lamp) (S) button (Select) (R) button (Calendar display) </p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>Alarm set mark</p>  <p>Alarm mode mark</p> </div> <div style="text-align: center;"> <p>Pace mode mark</p>  <p>Pacemaker mode mark</p> </div> <div style="text-align: center;"> <p>Lap mark</p>  <p>Stopwatch mode mark</p> </div> </div> <p>*The marks other than the above are printed on the light diffusing plate.</p>
Others	Alarm glass vibrating system	

§ 4. HANDLING INSTRUCTIONS

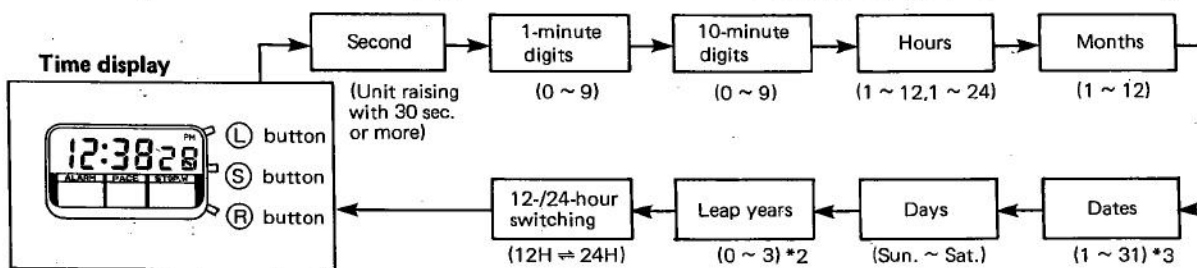
4-1. Display switching method and function of each button (The flashing is shown by ○)



*1) Auto-return

The time display is reset automatically in 1 or 2 minutes.

4-2. Setting of time and calendar ((S) button: For call-out of setting area; (R) button: For setting)



The setting mode is secured with puch of (S) button for 2 ~ 3 seconds under time display.

The setting area shifts as shown in the above diagram with every push of (S) button. The setting is carried out via (R) button.

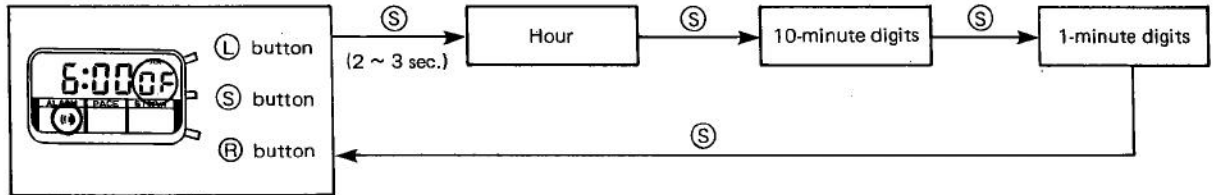
- The setting area is shown with flashes. (The flashing is given only to 0 when setting the leap year.)
- Instant manual return: The time display can be given with push of (L) button in any setting mode.
- Auto-return: The time display is reset automatically in 1 ~ 2 minutes from any setting mode.

*2) Setting of leap year

The leap year is set by the residual which is obtained by dividing the number of the dominical year by 4. For example, the year "1981" is set by "1". And the leap year is set by "0".

*3) If the non-existing date, e.g., "April 31" is set, the date turns automatically into the next day, i.e., May 1.

4-3. Setting of alarm time (The flashing is shown by ○).



- The "set" and "cancel" of the alarm change alternately under the alarm display with every push of (R) button, and are shown by " (ON) ON" and " (OFF) OFF" respectively.
- Both the "instant manual return" and "auto-return" are identical to those in the setting of time and calendar. However, the instant manual return is reset to the alarm display and the auto-return to be reset to the time display respectively.

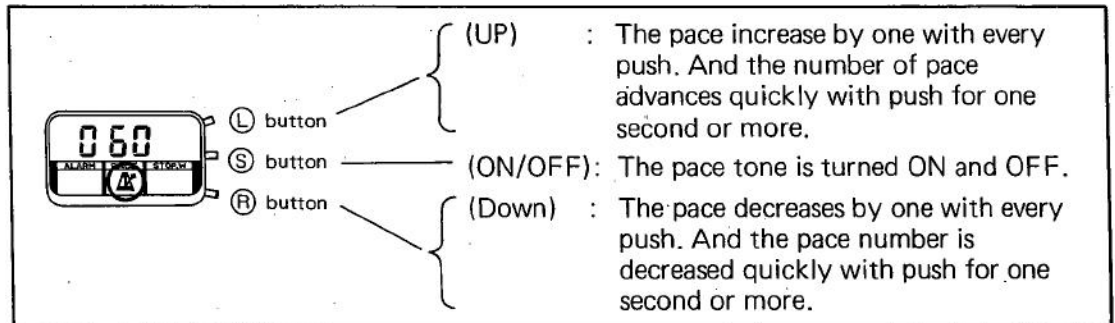
4-4. How to operate pacemaker

The pacemaker function is incorporated into this watch to be applied suitably to the jogging and other sports activities.

For example, the pace is set to 120 when jogging with two steps every second. Thus the pace tone sounds 120 times per minute (twice per second) for making the pace.

Making of pace (Flashing is shown by ○)

The pace can be set to an optional number from 000 to 239.



- The pace tone can be turned ON and OFF even in other modes. (See 4-1.)
- *The pace tone ceases automatically in 10 ~ 20 minutes. (Auto-stop of pace tone)

4-5. How to operate stopwatch

1) Operation of button (See 4-1.)

The operation of button is identical to other conventional watches incorporating the stopwatch function. And the tone of confirmation is heard with every push of (L) button.

2) Coaction with pacemaker (5-minute timer)

When the stopwatch is started under working of the pacemaker, the time split tone (alarm tone) sounds for 0.5 second and every 5 minutes to tell the user a lapse of time.

4-6. Alarm monitor

An alarm tone (continuous) rings when both (L) and (R) buttons are pushed simultaneously under the time display.

4-7. All-lighting

All display elements glow with a simultaneous push of (M), (S) and (R) buttons.

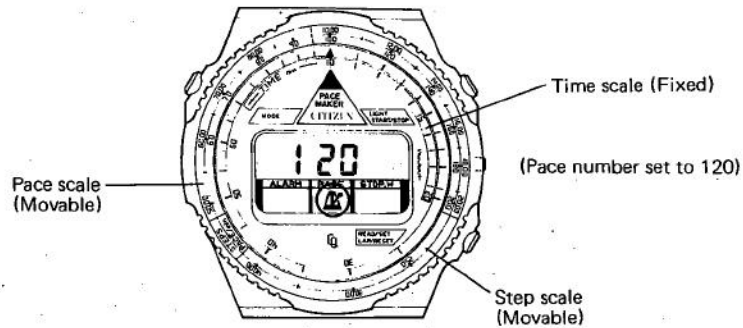


§5. HOW TO USE REGISTER RING

Some models of this caliber incorporate a register ring for calculation which is convenient for practice of the jogging, etc.

5-1. Parts of register ring

(Pace number set to 120)



5-2. Calculation of distance covered

(Example) The runner runs 20 minutes with pace 120 (one step with every pace tone).

Procedure	Remarks
①	The "120" of the pace scale is set at "10" of the time scale.
②	The value of the step scale corresponding to "20" of the time scale reads "2400". This means 2400 steps.
③	The "10" of the time scale is set at "2400" of the step scale.
④	If the step of the runner is 1.5m, the time scale is converted into the space value. Thus the value of the step scale corresponding to "15" reads "3600". It is known that the runner has run 3600m.
⑤	In the case of a step of 2m, the "4800m" is obtained in the same procedure.

In addition to this example, an application is possible as a simple side rule which can be used for a calculation of pace setting and other purposes.