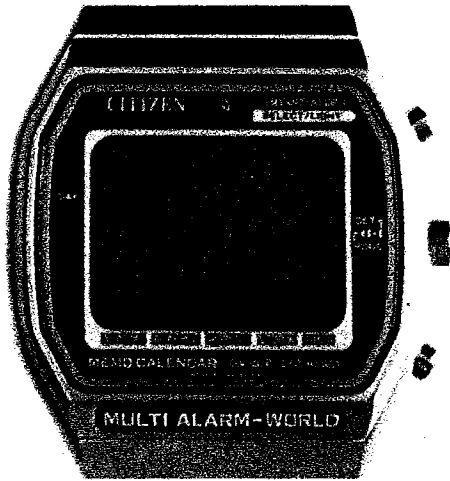


***TECHNICAL
INFORMATION***

**CITIZEN QUARTZ
Cal.No.940 ※※**

§ 1. OUTLINE



This is a digital quartz crystal watch for gentlemen with the liquid crystal display, featuring the multiple functions uniquely including the full 1-month calendar display plus the world-time function.

Furthermore, it includes the alarm (I), alarm (II), stopwatch, timer, illumination lamp, alarm monitor each. Every function of these can be operated in an easy and quick way via two switching mechanisms: the push-buttons and the crown.

§ 2. FEATURES

1) World-time function

The whole world is divided into 27 zones with 22 cities. The call-out of the time in the 27 cities plus the switching between the time of these cities and user's home time are possible.

The name of each city is shown in three letters of the segments in the upper tier of the display part.

2) Full-calendar display

The "year" can be set in the cycle of 1901 ~ 2099 years, and the full 1-month calendar can be displayed during this period with operation of the crown.

With the calendar function of this watch, the date memorization is possible for five months to come. And the memorized date is shown through flashing of the "MEMO" mark in the mode of the normal time display. This unique calendar function is realized via the two-tier LC (liquid crystal) display panel developed by Citizen.

3) Correction system by crown

The digital display is corrected with turn of the crown: the right turn gives the count-up and the left turn the count-down respectively.

4) Power cell life indicator

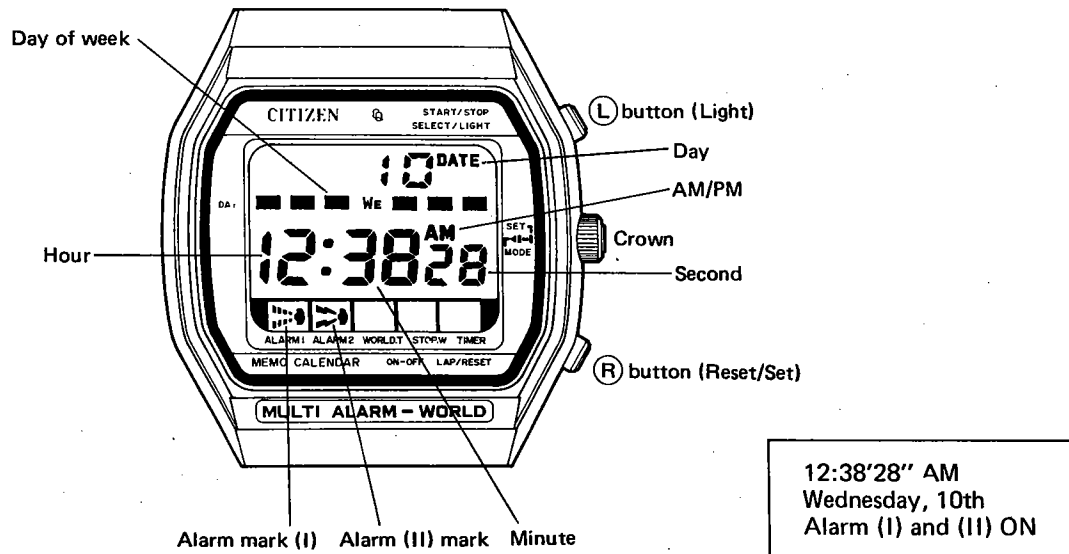
The colon between the "hour" and "minute" display figures has no flashing usually but has the 2Hz-flashing (twice per second) when the life time of the power cell comes near to its end.

§3. SPECIFICATIONS

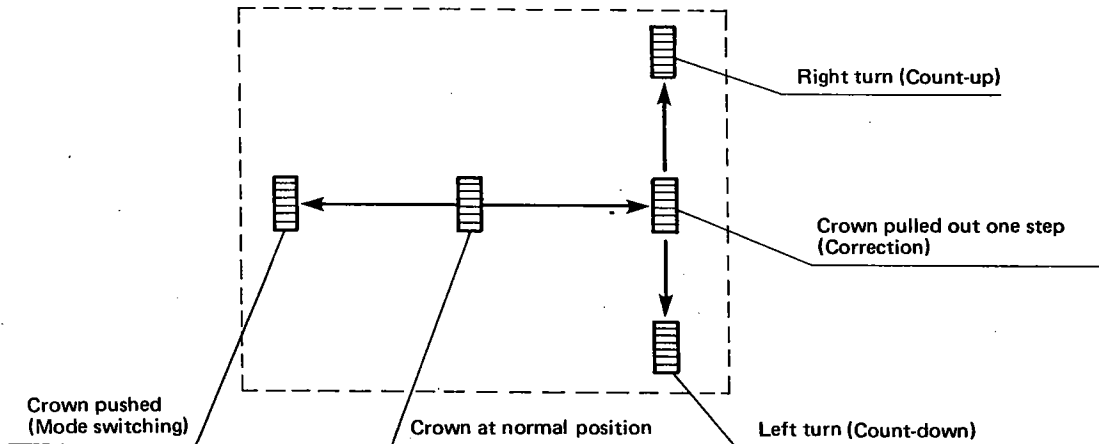
Caliber No.	9400-00A
Module	Outer dia.: 29.9mm ϕ (Maximum dia. 30.0mm ϕ) Thickness: 6.1mm (Power cell part 6.7mm)
Oscillation	32,768Hz
Accuracy	± 10 sec./month at normal temperatures (with temperature compensation)
Digital display part	<ul style="list-style-type: none"> ●Normal time display Hour, minute, second, AM/PM, date and day ●Calendar Month, full 1-month calendar, day and MEMO ●Alarm (I) display Hour, minute, AM/PM and alarm (I) mark ●Alarm (II) display Hour, minute, AM/PM and alarm (II) mark ●World-time display (in 27 zones/22 cities) Names of cities, hour, minute, second, AM/PM, day and world-time mark ●Stopwatch display (Timing possible up to 11H.59'59''99) Hour, minute, second, 1/100 sec. and stopwatch mark ●Timer display (Setting possible up to 11H.59'00'') Hour, minute, second and timer mark
Integrated circuit	C/MOS-LSI (2 units)
Effective temperature range	$\pm 0^{\circ}\text{C} \sim +60^{\circ}\text{C}$ ($+32^{\circ}\text{F} \sim 140^{\circ}\text{F}$)
LC display panel	FE twist nematic liquid crystal
Additional functions	<ul style="list-style-type: none"> ●Illumination lamp ●Power cell life indicator ●Alarm monitor ●Fully automatic calendar (incl. leap years in 1901 ~ 2099 years)
Power cell (Silver oxide)	Parts No. : 280-15, WG-10 Nominal voltage : 1.55V (Ag ₂ O/K) Size : 11.6 ϕ x 3.1mm Capacity : 75mAH Life time : About 2 years (with 5-sec. lamp lighting and 60-sec. alarm ringing per day)

§4. HANDLING INSTRUCTIONS

1) External appearance



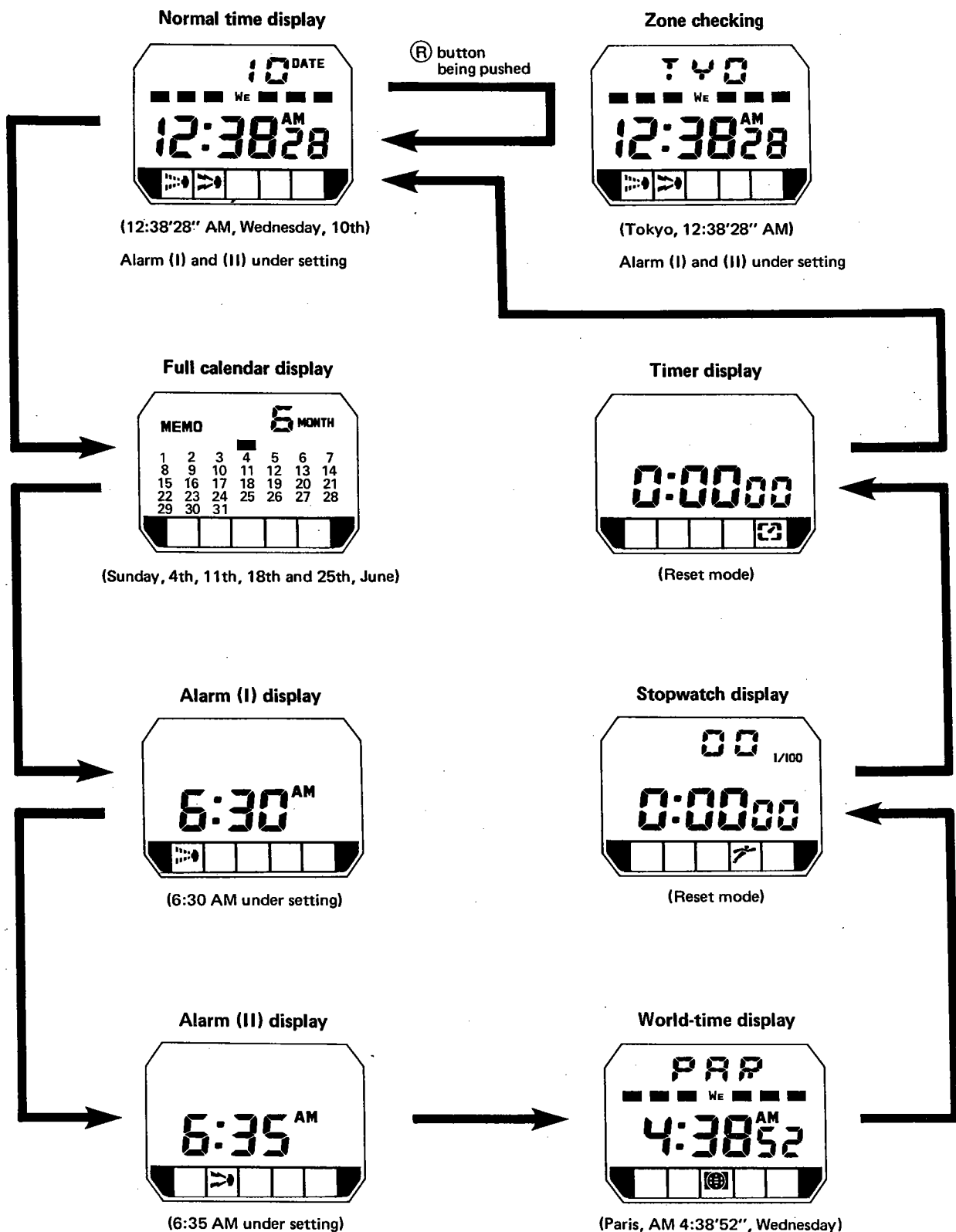
2) Method of operation



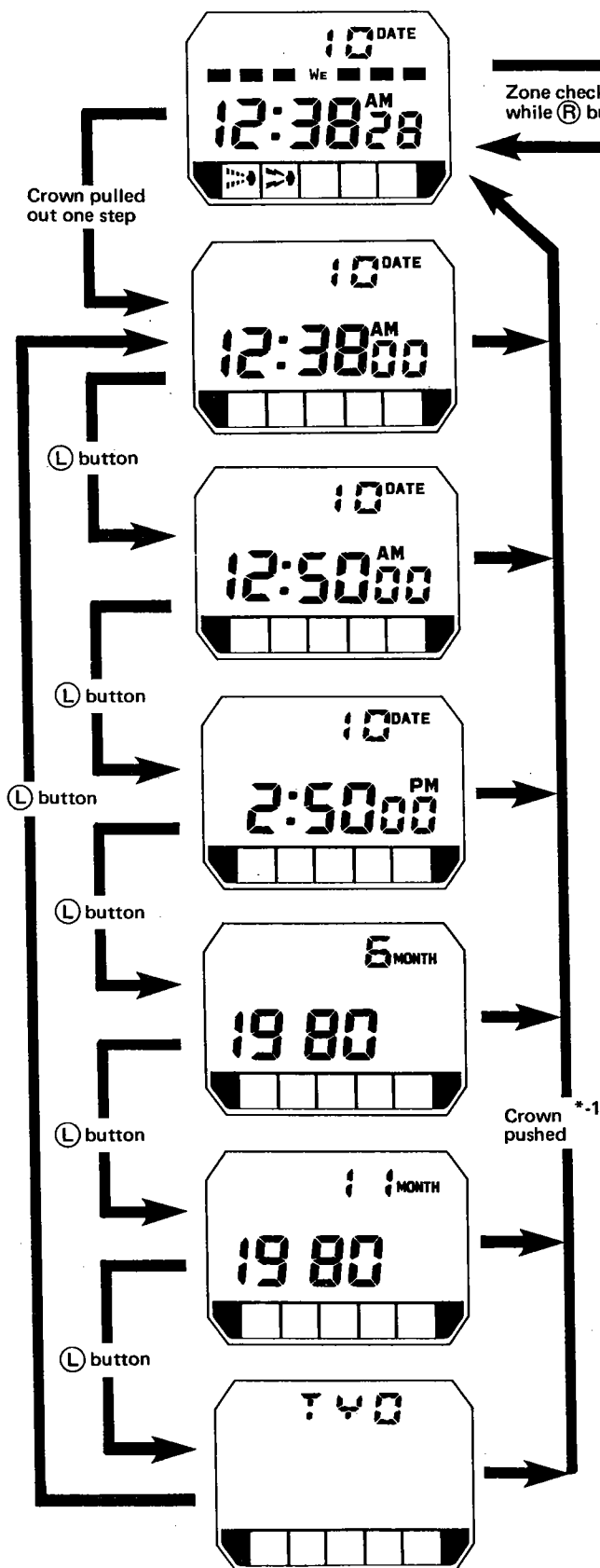
- ① The display mode switches as shown below with every push of the crown.
Normal time display → Full calendar display → Alarm (I) display → Alarm (II) display → World-time display → Stopwatch display → Timer display → Normal time display.
- ② With the crown pulled out by one step, the correcting state is secured for each mode (excluding the stopwatch display).
- ③ The **L** button is used for selection of the digit under each correction state as well as for lighting the illumination lamp (excluding the stopwatch function).
- ④ The **R** button features the different functions according to the display mode.
(Ex.) Normal time display: Checking for zones
Alarm (I) display: ON/OFF of alarm

3) Switching of modes (The flashing areas are shown in the red color.)

The display mode switches with every push of the crown.



4) Setting of time



① 0-second reset and "minute" setting

When the crown is pulled out by one step in the mode of the normal time display, the "second" stays at "00" with the "minute" flashing.

(In that case, the "second" between "00" and "29" is cut down for waiting. While the "minute" is carried when the "second" reads 30 ~ 59.)

The "minute" is set by turning the crown.

- Right turn of crown: count-up
- Left turn of crown: count-down

② "Hour" setting

With push of L button in the setting mode of the "minute", both the "hour" and "AM/PM" have flashing.

The crown is turned to set the "hour" plus the "AM/PM". Never fail to make sure the AM or PM.

③ "Date" setting

With push of L button in the setting mode of "hour", the "date" has flashing. The crown is turned to set the "date".

④ "Month" setting

With push of L button in the setting mode of the "date", the display changes from "hour, minute, second and date" to "year and month" with the "month" flashing. The crown is turned to set the "month".

⑤ "Year" setting

With push of L button in the setting mode "month" the "year" (in A.D.) has flashing. The crown is turned to set the "year".

⑥ "Zone" setting

With push of L button in the setting mode of "year", the display of "year and month" disappears. And the name of the zone city is displayed with flashing in three alphabet letters and on the upper tier of the display part.

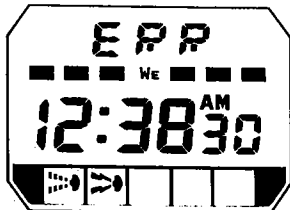
Then the crown is turned to set the time to the desired city (zone).

⑦ Return to normal time display

After setting the "zone" (city), the crown is pushed in to reset the normal time display with start of the "second" counting.

Note:

- (1) The "days" of the week requires no setting because they are set automatically with setting of "year, month and date".
- (2) The stopwatch or timer function under operation can be continued although the crown is pulled out by one step with the "second" showing "00".
- (3) If the non-existing date is set in the display of "year, month and date", the error mark "ERR" is displayed instead of the mark "DATE" when the normal time display is reset. In such case, the setting must be given again in the correct way.

***-1 (Crown pushed)**

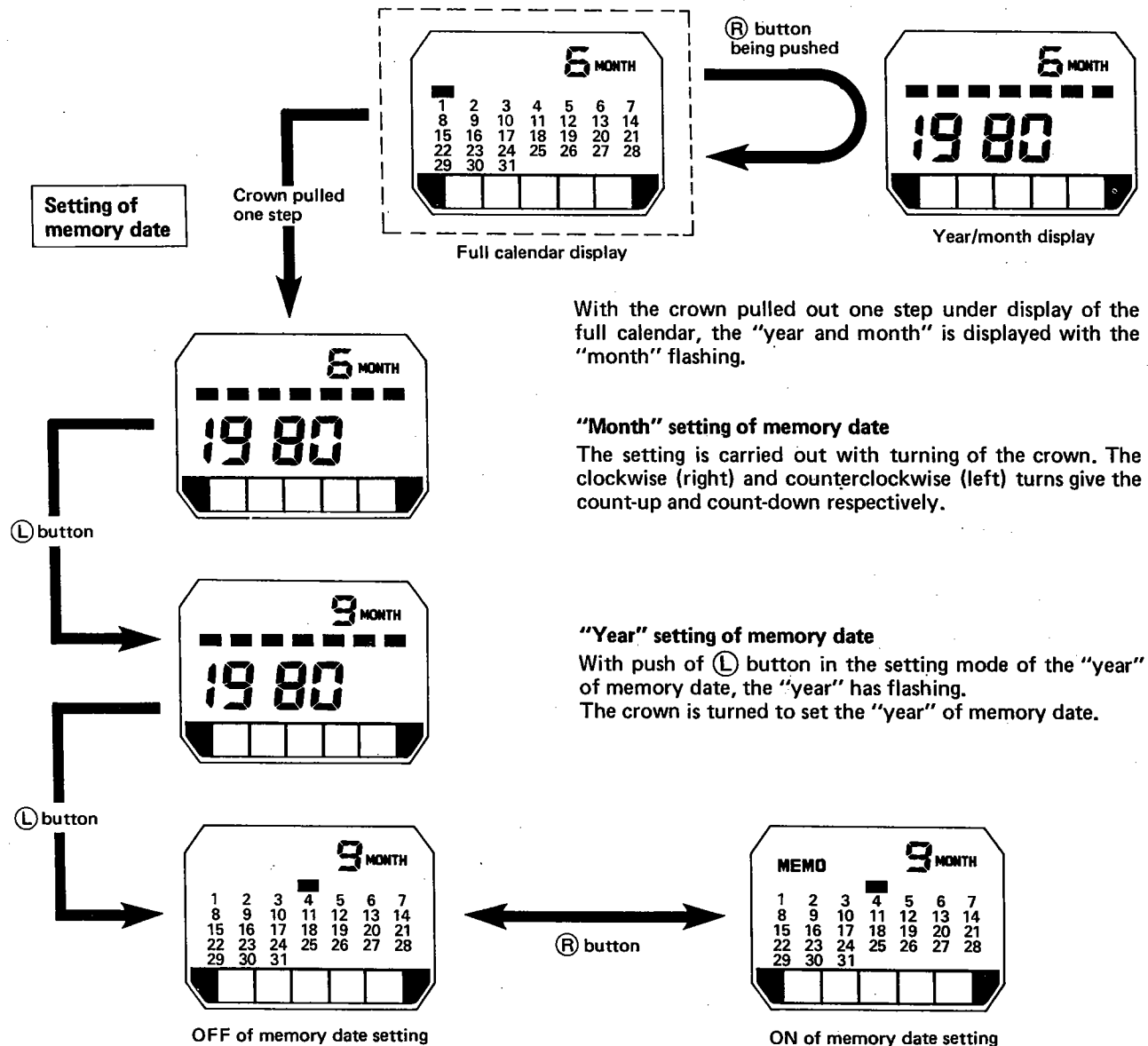
Whenever the crown is returned to its normal position from the 1-step-pulled position in any setting mode, the "second" starts counting to reset the normal time display.

5) Full calendar display and memory date setting

With one push of the crown in the mode of the normal time display, the full calendar display is secured for the "month, day mark and 1-month calendar".

In that case, the "month and day" which was set in the preceding setting is displayed with the "date" set flashing.

The display of the "year and month" is continued while (R) button is pushed in the mode of the full calendar display.



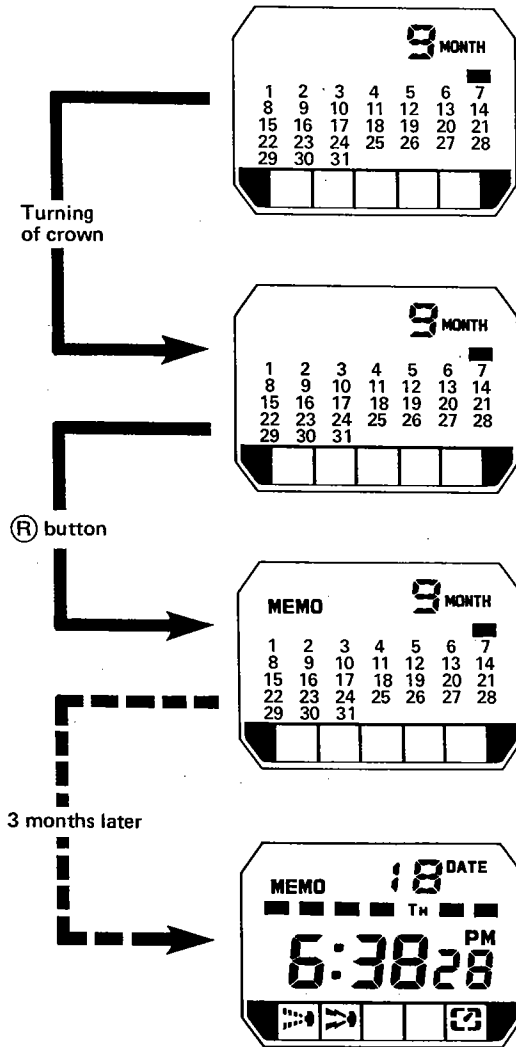
"Date" setting of memory date

With push of (L) button in the setting of the "year" of memory date, the full calendar (equivalent of full one month) is displayed with the first day flashing. Then the crown is turned to call out the date the user wants to memorize.

Then mark "MEMO" glows at the upper left of the display part with push of (R) button to indicate the date to be memorized in the year and month. And with the second push of (R) button, the mark "MEMO" disappears for cancel.

(Ex.)

It is June 10th, 1980 today, and memorization is wanted to September 18th, 1980 for the birthday of someone.



With push of (L) button after setting the memory date of the "year", the first day of the month has flashing.

At the moment of flashing of the first date, the crown is turned. Thus the flashing shifts to the first → second → third day and so on. And the turning of the crown is stopped at the moment when the 18th date has flashing.

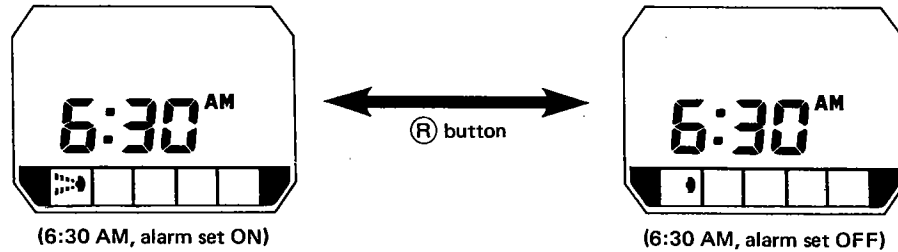
Under these state, the (R) button is pushed. And thus mark "MEMO" glows at the upper left of the display part.

On September 18th, "MEMO" flashes to indicate that today is memorized date. (The mode of normal time display)

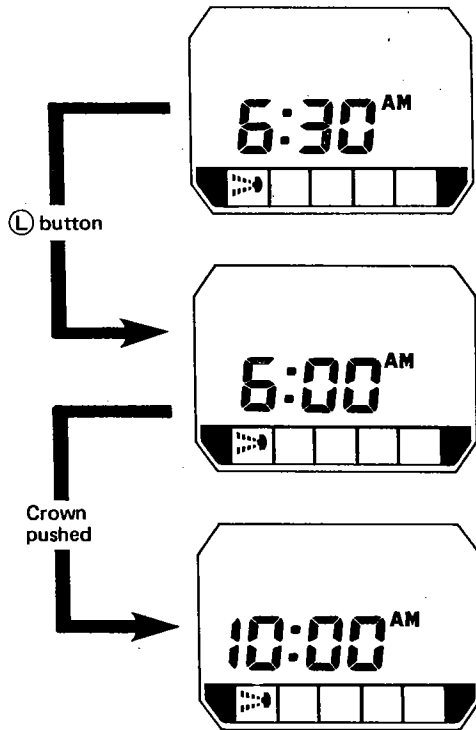
The memorization for the date is possible up to five months to come (for six months in all). If the date is set outside this memorizable period, no flashing is given to the first date of the month and with no reaction secured even with turning of the crown.

6) Function of alarm (I)

With a push of the crown in the calendar display mode, the display of alarm (I) is secured. The ON and OFF of alarm setting is switched alternately with every puch of (R) button (in the setting mode of "minute" or "hour").



•Setting of alarm time



Setting of alarm "minute"

In the mode of "alarm (I) time display (full calendar), the crown is pulled out one step after once pushed. Thus the alarm "minute" has flashing. Then the crown is turned to set the alarm "minute".

- Clockwise turn: count-up
- Counterclockwise turn: count-down

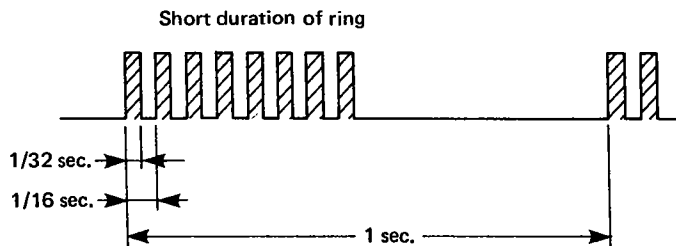
Setting of alarm "hour"

With push of (L) button in the setting mode of the alarm "minute", the alarm "hour" plus "AM/PM" have flashing. Then the alarm "hour" is set by making sure the AM or the PM.

Display of alarm (I) time

When the setting is over for the alarm "hour", the crown must be pushed in one setp.

•Ring of alarm (I)

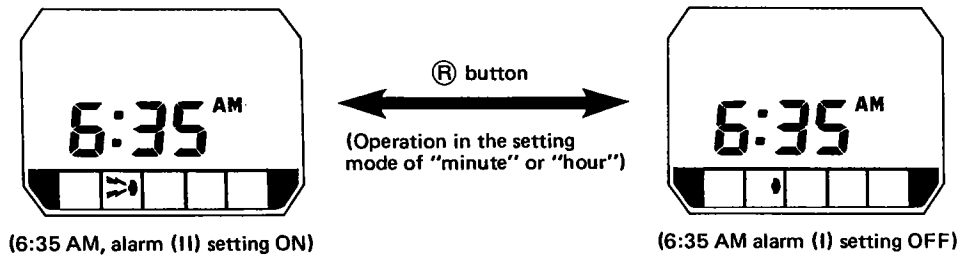


The alarm ring can be stopped by pushing the (L) button, the (R) button or the crown.

At the set time of alarm (I), the alarm rings in the short duration as shown in the above diagram in 8 times per second and for one minute.

7) Function of alarm (II)

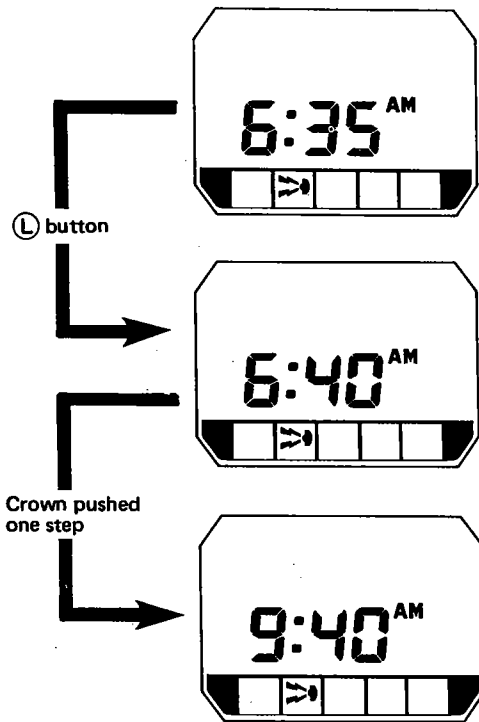
The display of alarm (II) is secured with a push of the crown in the mode of the alarm (I) display. The operation of alarm (II) is identical to alarm (I) but with the different way of ringing.



The ON and OFF of the alarm (II) setting are switched alternately with every push of **R** button. And the marks "➤" and "•" are displayed with flashing at the alarm (II) setting ON and OFF respectively.

In the mode of the normal time display, the mark "➤" is displayed at the alarm (II) setting ON to indicate that the alarm (II) is now under setting.

•Setting of alarm time



Setting of alarm "minute"

With the crown pulled out one step in the mode of "alarm (II) time display", the alarm "minute" has flashing. Then the crown is turned to set the alarm "minute".

- Clockwise turn: count-up
- Counterclockwise turn: count-down

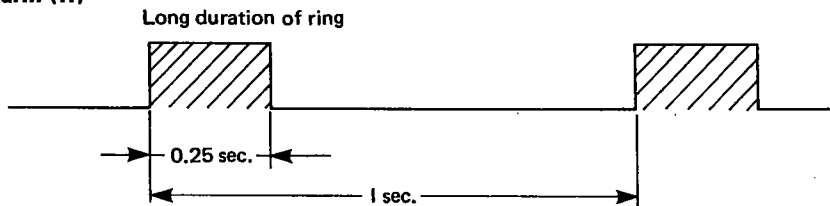
Setting of alarm "hour"

With push of **L** button in the setting mode of the alarm "minute", the alarm "hour" plus "AM/PM" have flashing. The alarm "hour" is set by making sure the AM or the PM.

Display of alarm (II) time

The crown is pushed in by one step when the setting is over for the alarm "hour".

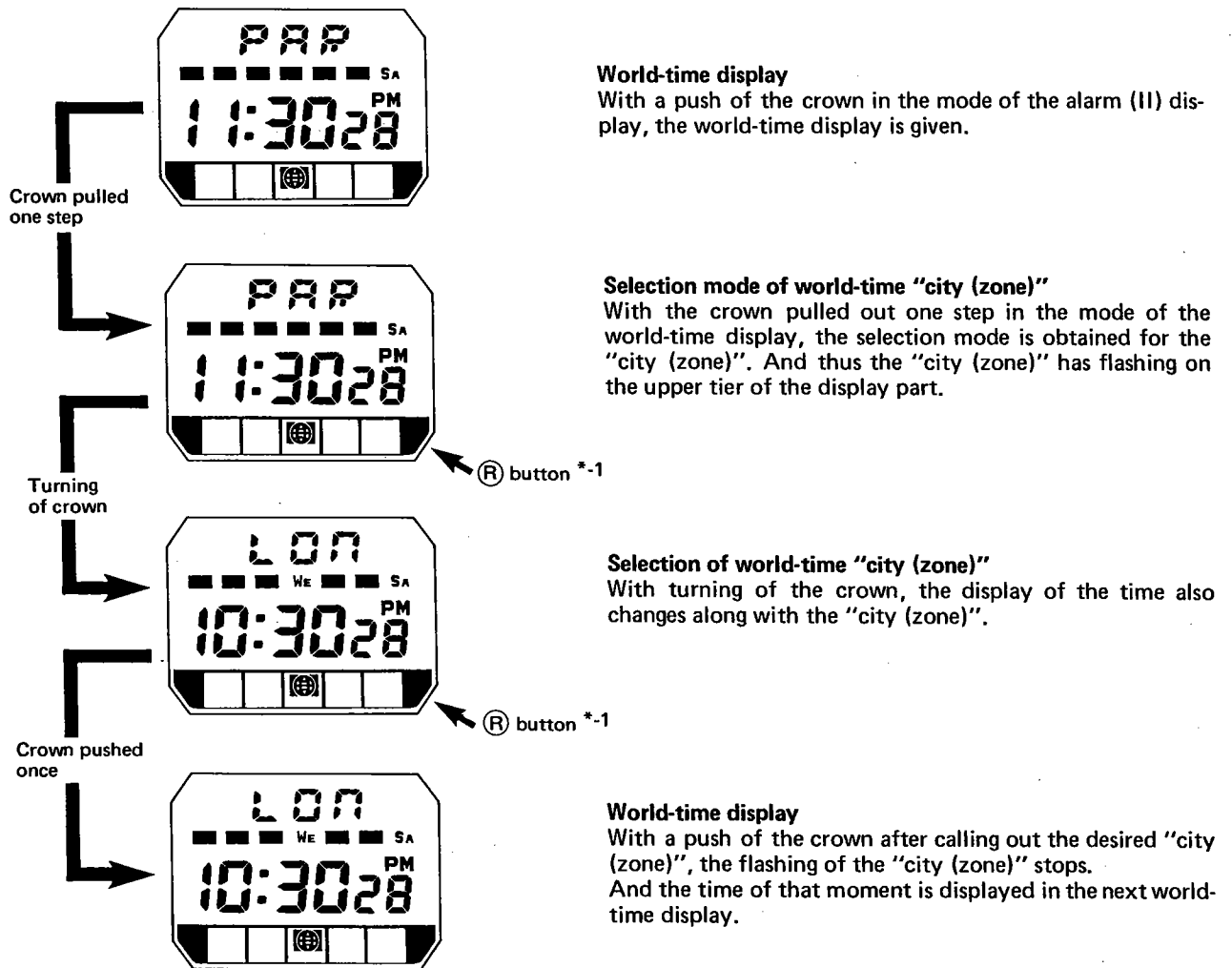
•Ring of alarm (II)



As shown above, the alarm rings in the long duration every second and for one minute at the set time of alarm (II). The alarm ring can be stopped by pushing the **L** button, the **R** button or the crown.

8) World-time function

The world-time display is secured with a push of the crown under the display of the alarm (II). In this case, the called-out city (zone) is given the time of the city (zone) which was called out finally in the previous time.



●Switching of home time

(*-1) With push of (R) button in the selection mode of the world-time "city (zone)", the switching is given between the preceding "city (zone)" and that which was set (or is being set) in the setting mode of the "normal time". And with the second push of (R) button, the display is returned to the "city (zone)" which was set at first.

With switching of the home time, the time of alarms (I) and (II) interlock the switched time display.

(Ex.)

Home time: Paris

Alarm (I) set at 6:00 AM

Home time: London

Ring at 6:00 AM

Display letters or symbols	Time differential	Cities
---	-11	
HNL	-10	Honolulu (USA)
---	-9	
LAX	-8	Los Angeles (USA)
DEN	-7	Denver (USA)
CHI	-6	Chicago (USA)
NYC	-5	New York (USA)
CCS	-4	Caracas (Venezuela)
SAO	-3	São Paulo (Brazil)
---	-2	
---	-1	
LON	±0	London (England)
PAR	+1	Paris (France)
CAI	+2	Cairo (Egypt)

Display letters or symbols	Time differential	Cities
MOW	+3	Moscow (USSR)
THR	+4	Teheran (Iran)
KHI	+5	Karachi (Pakistan)
DEL	+5.5	Delhi (India)
DAC	+6	Dacca (Bangladesh)
RGN	+6.5	Rangoon (Burma)
BKK	+7	Bangkok (Thailand)
SIN	+7.5	Singapore
HKG	+8	Hong Kong
TYO	+9	Tokyo (Japan)
SYD	+10	Australia (Sydney)
---	+11	
WLG	+12	Wellington (New Zealand)

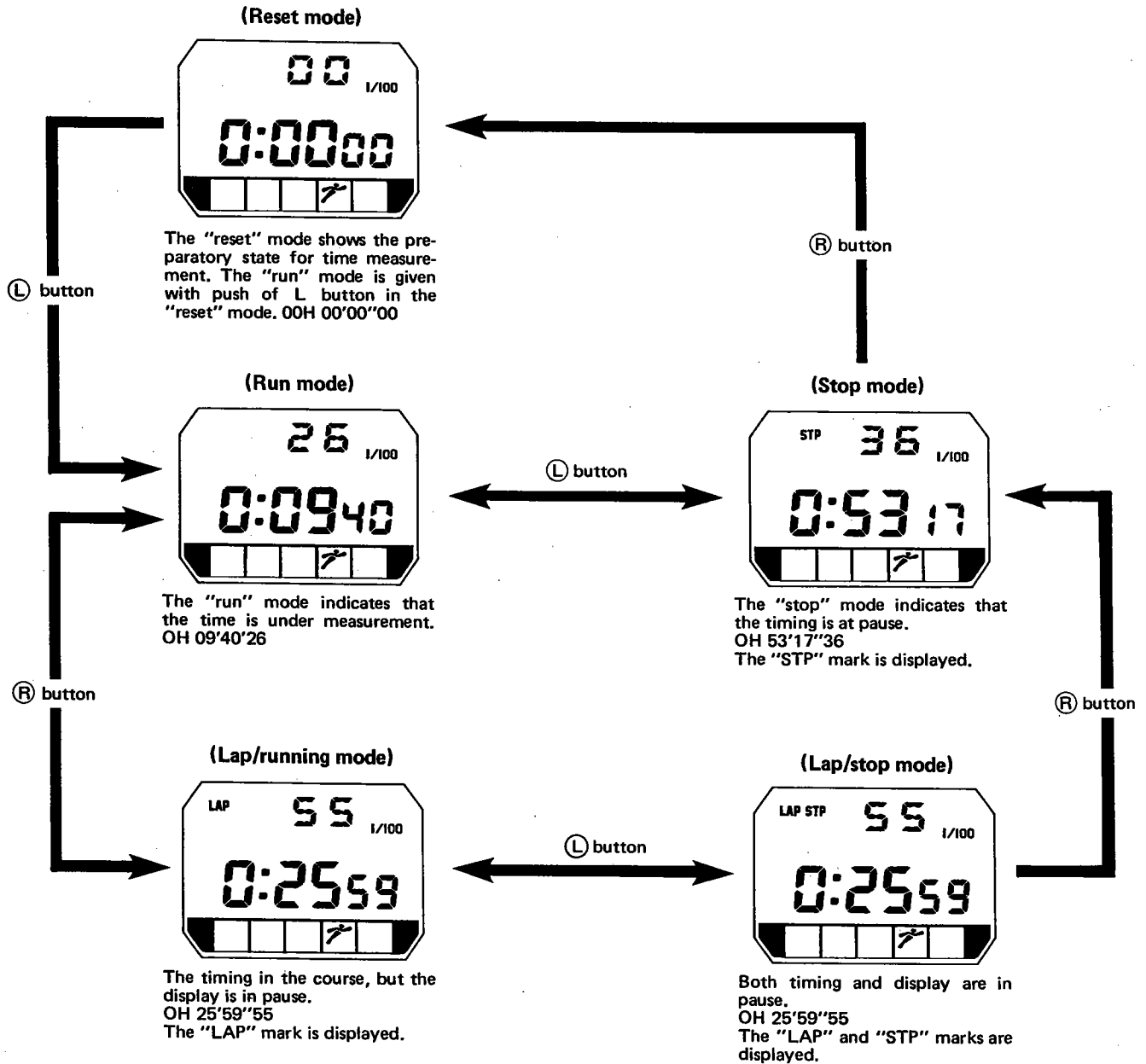
The world-time function displays the time of 22 cities in 27 zones in the world. The cities shown in the upper tier of the display part are the key cities of each zone which are shown in the international city codes as listed below.


HNL: Honolulu	Includes the Hawaii and Anchorage regions.
LAX: Los Angeles	The standard time of USA at the Pacific Ocean area.
DEN: Denver	The standard time of USA at the mountain area.
CHI: Chicago	The standard time of USA at the middle area.
NYC: New York	The standard time of USA at the eastern area.
CCS: Caracas	The capital of Venezuela.
SAO: São Paulo	A city in Brazil and identical to Rio de Janeiro.
LON: London	The international standard time set by the meridian line of zero-long. Passing the Greenwich Royal Observatory in London, England.
PAR: Paris	The capital of France and covers most major cities in Europe such as Rome, etc. (excl. England)
CAI: Cairo	The capital of Egypt.
MOS: Moscow	The capital of USSR.
THR: Teheran	The capital of India and also includes Dubai in the United Arab Emirates.
KHI: Karachi	A city of Pakistan.
DEL: Delhi	The capital of India.
DAC: Dacca	The capital of Bangladesh
BKK: Bangkok	The capital of Thailand and also includes Jakarta of Indonesia.
RGN: Rangoon	The capital of Burma.
SIN: Singapore	Located at the tip of Malay Pen.
HKG: Hong Kong	Peking of China is included in this zone.
TYO: Tokyo	The time in Tokyo is earlier by 9 hours than the international standard time. And Seoul is included in this area.
SYD: Sydney	A port city in Australia, featuring about 1H-time differential with a far distance in terms of the latitude from Tokyo zone.
WLG: Wellington	The capital of New Zealand.

9) Stopwatch function

The display of the stopwatch is obtained with a push of the crown in the mode of the world-time display.

The display features one of the five modes shown below, and the timing is based on the "reset" mode.

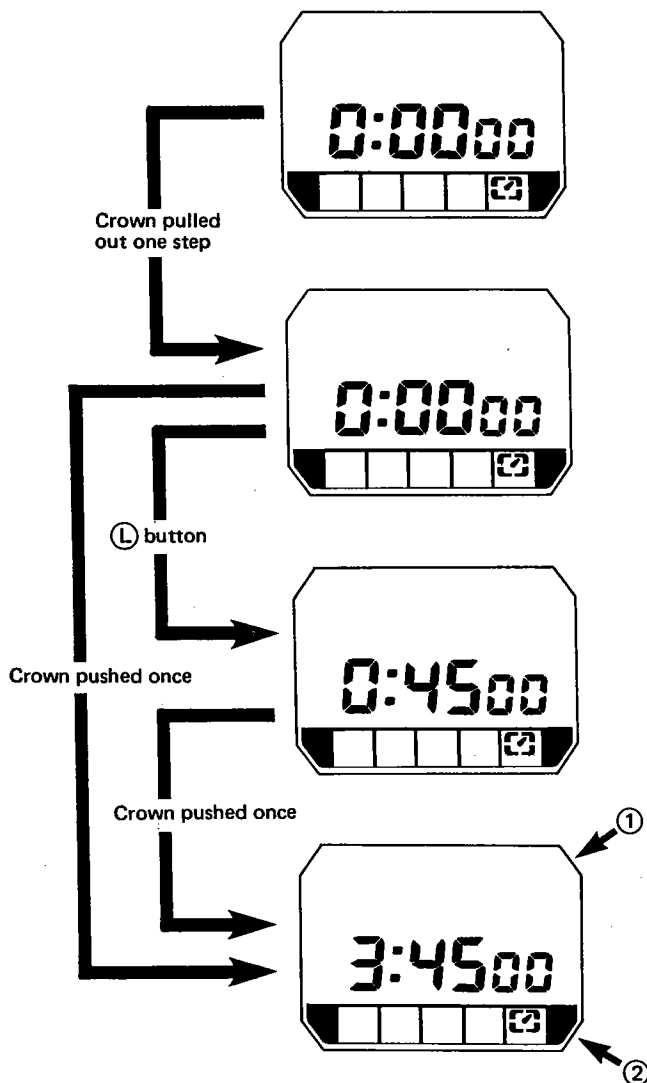


- (1) The mark "  " glows to indicate that the stopwatch function is now under operation in case the normal time display is given in use of the stopwatch ("run" and "lap/running" modes).
- (2) With the soft push of (L) button, the lamp does not glow. The lamp, however, glows if the (L) button is pushed strong.
- (3) With this watch, the alarm confirmation tone is not produced although the (L) button is pushed.

10) Timer function

The timer display is given with a push of the crown in the mode of the stopwatch display.

•Setting of timer time



Timer display

With a push of the crown under the display of stopwatch, the timer display is secured.

Setting of timer "minute"

With pull-out of the crown by one step in the mode of the timer display, the timer "minute" has flashing. Then the crown is turned to set the timer "minute".

- Clockwise turn: count-up
- Counterclockwise turn: count-down

Setting of timer "hour"

With push of (L) button after the setting is over with the timer "minute", the timer "hour" has flashing. Then the crown is turned to set the timer "hour".

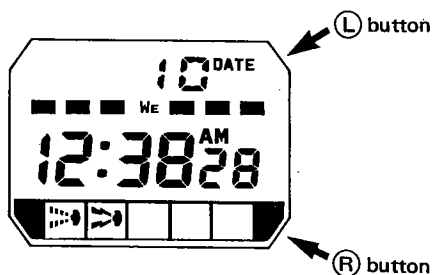
Preparatory state for timer operation

The crown is pushed once after the setting is over with the timer "hour". Thus the flashing of the timer "hour" ceases, and the preparatory state is secured for the timer operation.

- ① The timer starts with push of (L) button and then stops temporarily with the second push of (L) button.
- ② With push of (R) button under operation of the timer, the time set precedingly is displayed regardless of the part-way time, and then the timer function starts again.

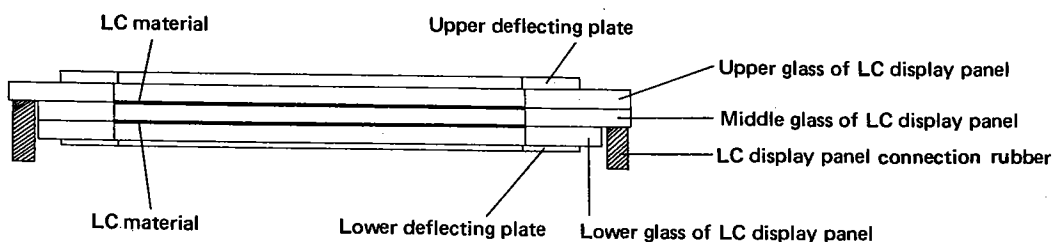
- (1) The alarm rings at the time set by the timer. The alarm ring is same as that of the alarm (I): the short duration of ring is given 8 times in one second and for 1 ~ 2 minutes.
- (2) The ringing of the alarm can be stopped with push of either one of the crown, (L) button or (R) button.
- (3) When the normal time display is reset under operation of the timer, the mark "Ⓜ" is displayed to indicate that the timer is now under operation.
- (4) The simultaneous use is impossible between the stopwatch function and the timer function.
- (5) With a push of the crown in the mode of the timer display, the display is reset to the normal time.

11) Alarm monitor function



With simultaneous push of both (L) and (R) buttons under the normal time display, the alarm confirmation tone can be heard. This confirmation tone is identical to the alarm (I) ring.

*This caliber uses the double-layer LC display panel for the first time in Citizen.



*Correction by clockwise/counterclockwise turn of crown

With turn of the crown, the switch gear intermeshing the square part of the setting stem is turned. This switch gear has projections at four areas to secure the contact to the pattern of the plate complete for the switching action. Therefore, four corrections are possible with a turn of the the crown.

*Notes on power cell replacement

The non-existing display ^{*-1} may rarely be given when the power cell is replaced. In that case, the "all reset" must be given and then the time can be set normally.

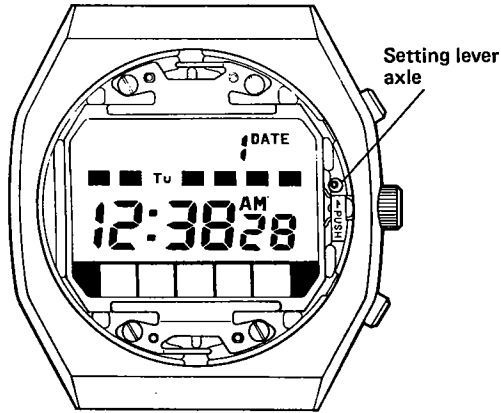
The "all reset" can be given by turning the crown along with (L) and (R) buttons pushed at one time plus the crown pulled out one step.

*-1 Non-existing display

The non-existing display means the display that could not possibly occur. For instance, the normal form of "8" may rarely be displayed in such non-existing form of "H". This is due to the fact that some parts of the segments of the normal display form have no glowing at all.

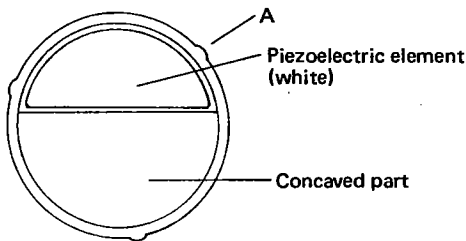
§ 5. DISASSEMBLING AND ASSEMBLING

The movement of this watch is taken out from upper side.



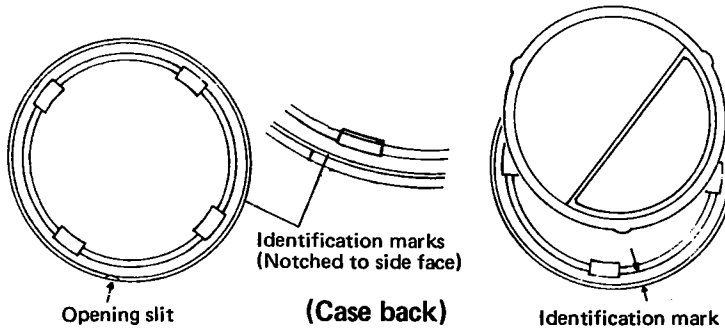
The setting stem is pulled out by removing the glass with bezel and also pressing the setting lever shown in the left diagram.

● Handling of vibrating plate



Be careful of the incorporating direction of the vibrating plate.

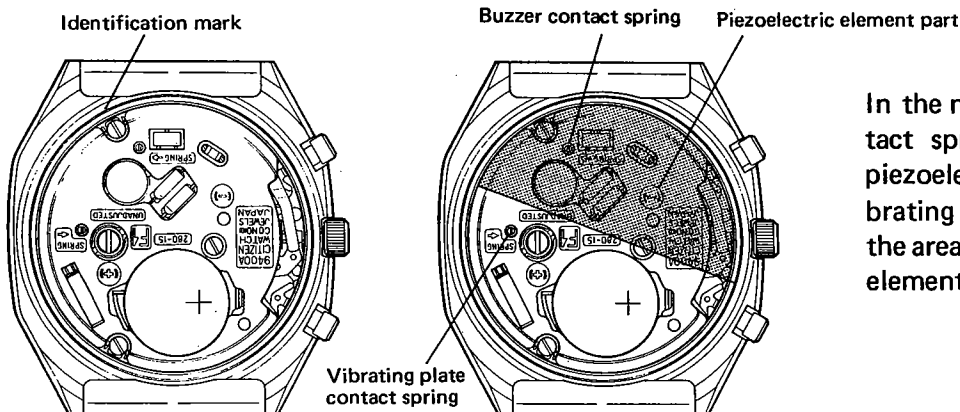
(Vibrating plate)



The vibrating plate has projections at three areas.

When setting the vibrating plate, part A of the plate is matched to the identification mark of the case back as shown in the left diagram.

Under these conditions, the identification marks are matched between the case and the case back. Then the case back is closed tight.

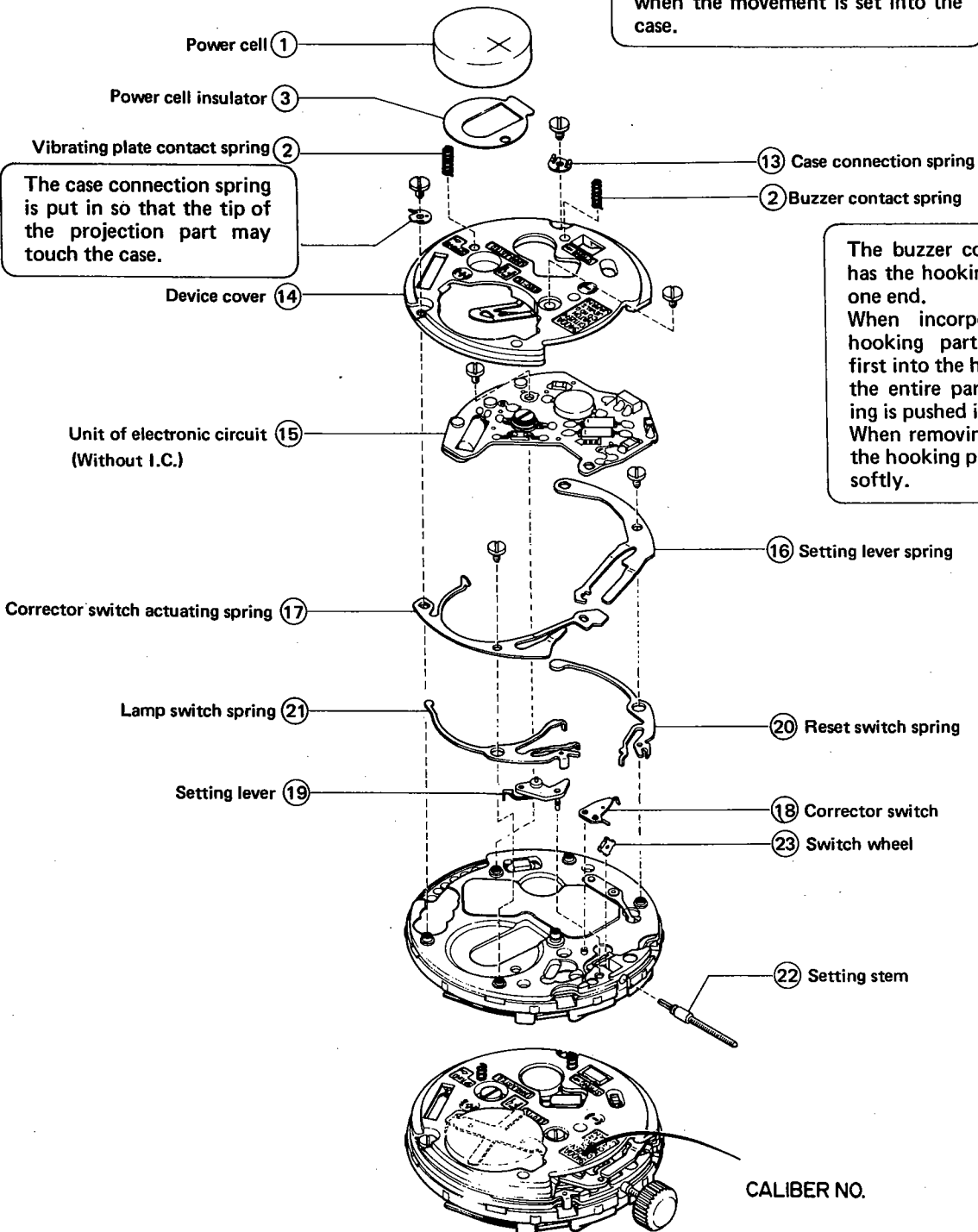


In the normal state, the buzzer contact spring has a contact to the piezoelectric element, and the vibrating plate contact spring touches the areas other than the piezoelectric element to ring the alarm.

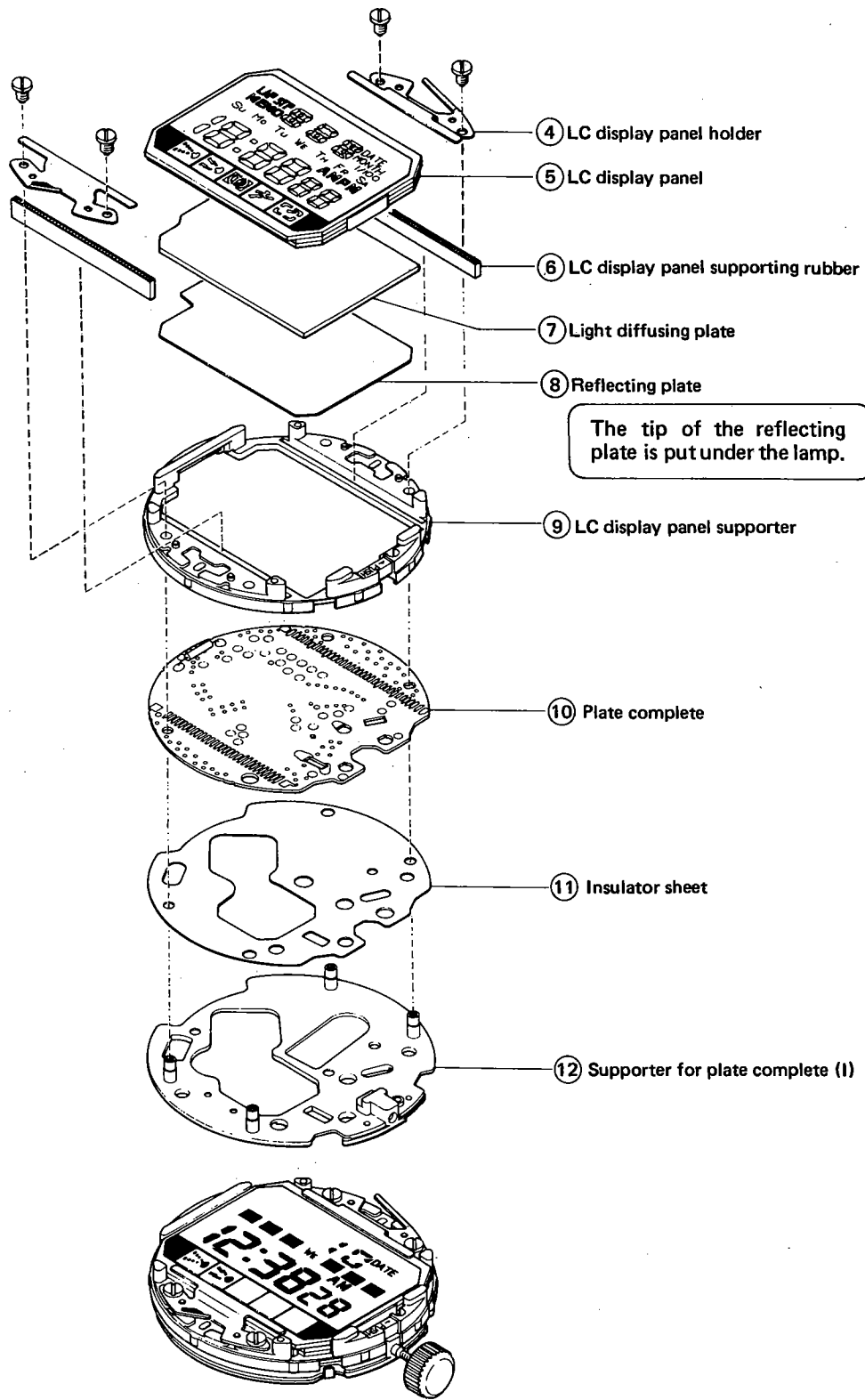
Disassembling sequence: ① → ②③
 Assembling sequence: ②③ → ①



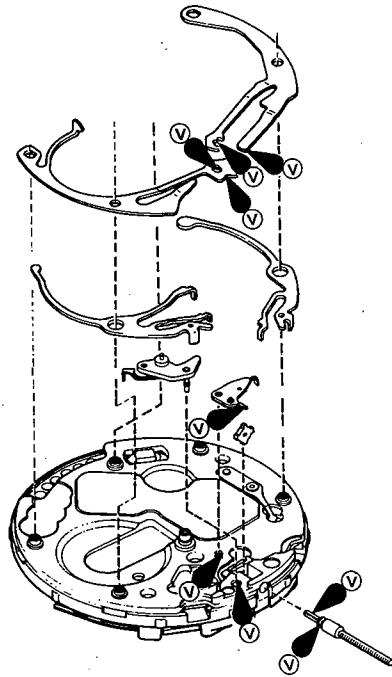
This is the power cell strap for checking and used for checking to avoid floating of the power cell in the case of the single unit of movement.
 •Parts No.: 761-015
 This strap must always be removed when the movement is set into the case.



CALIBER NO.



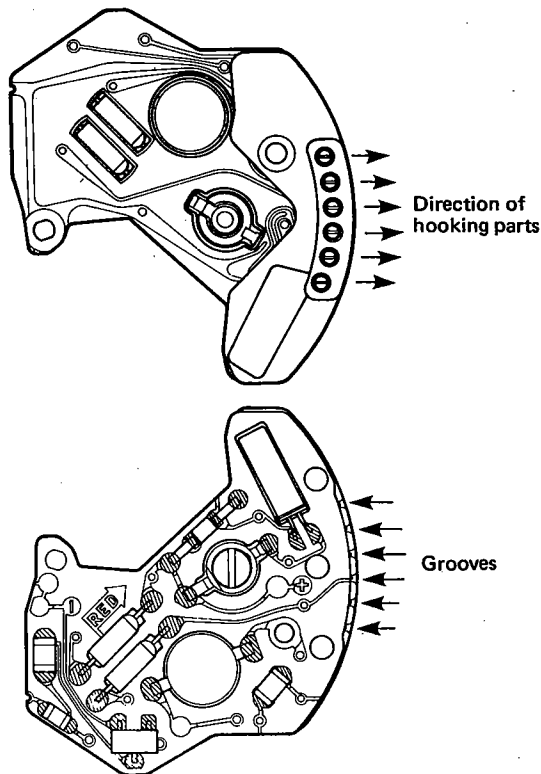
●Lubrication areas



The Synta-V-Lube oil is used for lubrication of all areas.

●Handling of unit of electronic circuit

The unit of electronic circuit contained 6 pieces of coil springs to secure the conduction to the plate complete. Avoid touching the coil spring when handling the unit of electronic circuit.



Like the buzzer contact spring, the coil springs have the hooking part at one end of each.

In case the coil spring comes off, the hooking part is put first into the hole and then the whole part of the spring is pushed into the original place.

(Note)

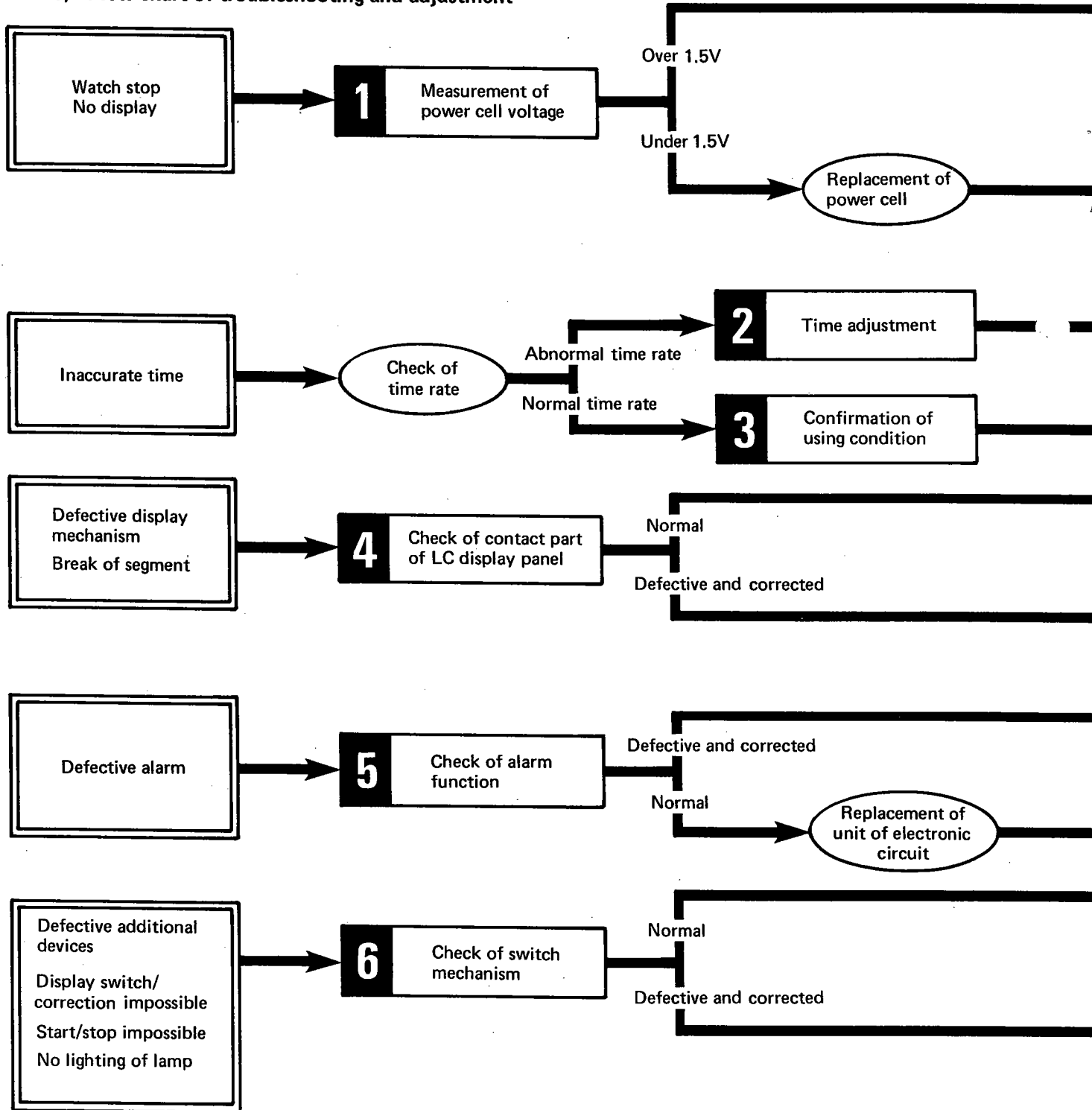
Be careful of the direction of the hooking part.

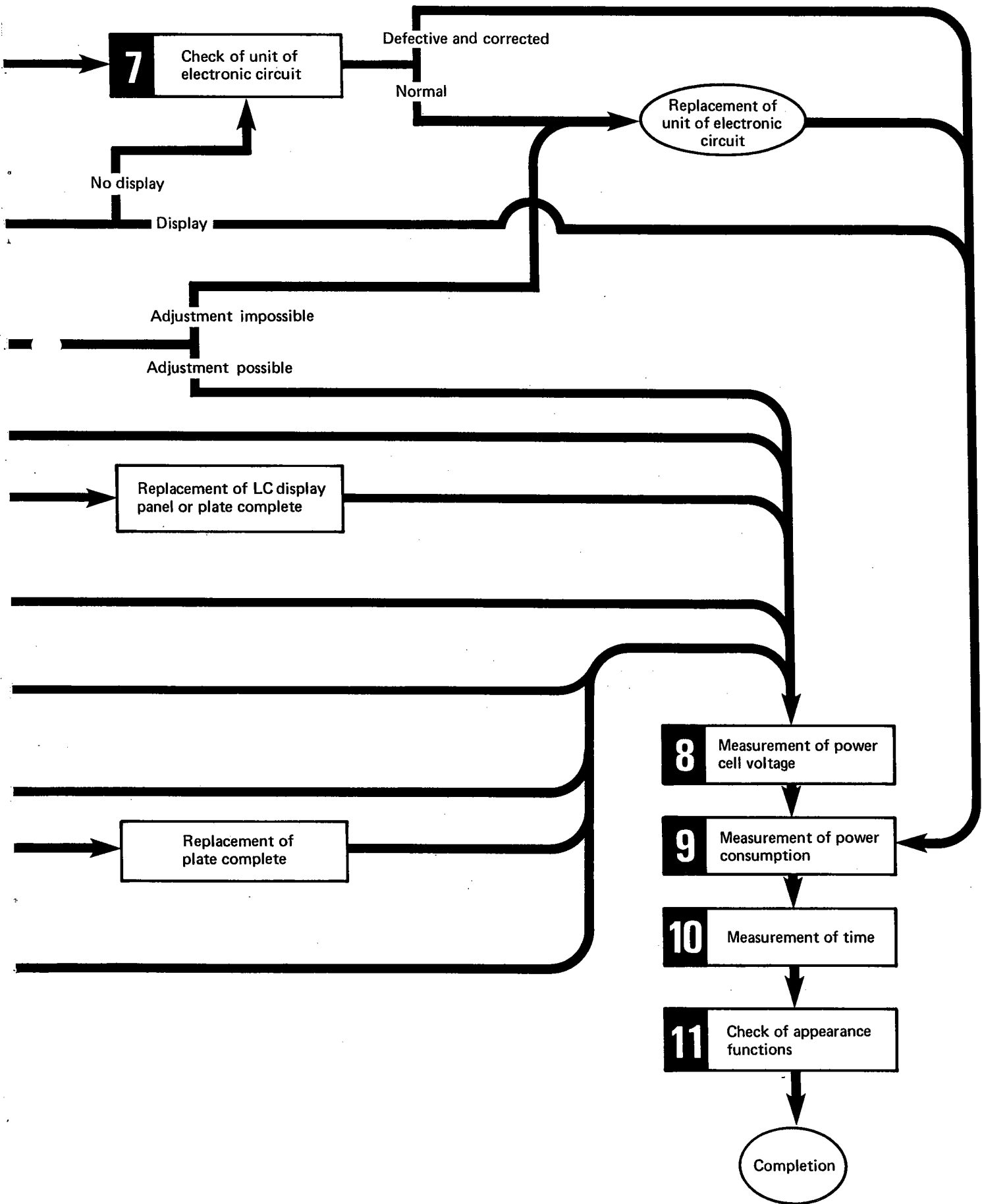
As illustrated left, the grooves are provided at the trimmer condenser side of the unit of electronic circuit. Thus the direction is decided for the hooking part of the coil spring so that it may be put into groove each.

If this setting direction has some shift, the short-circuit may be caused between the patterns of the unit of electronic circuit to result in the disappearance of display or the defective alarm function.

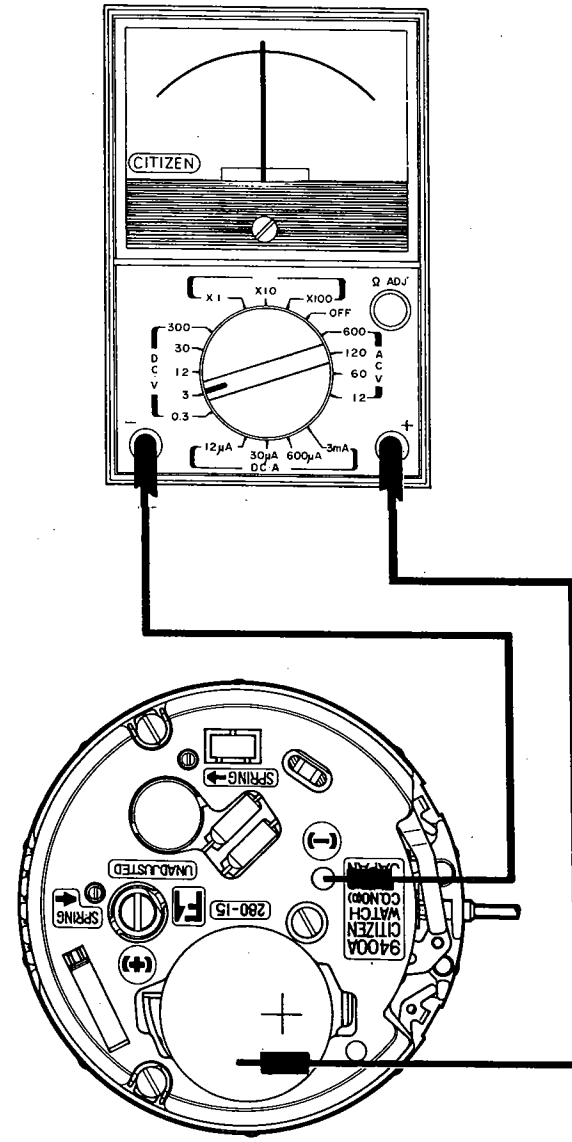
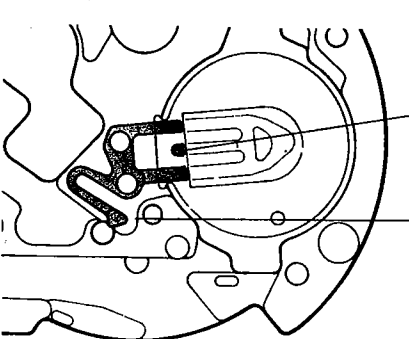
§6. TROUBLESHOOTING AND ADJUSTMENT

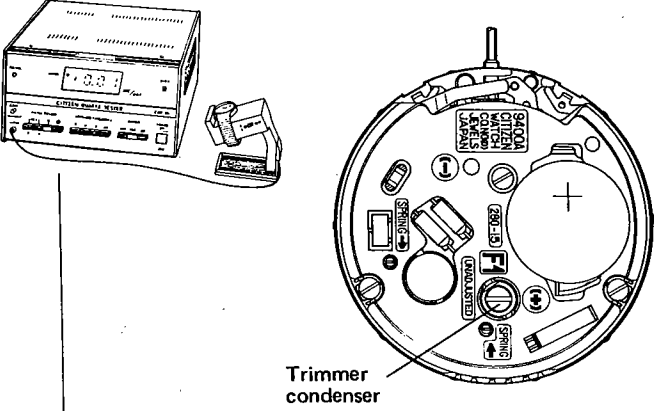
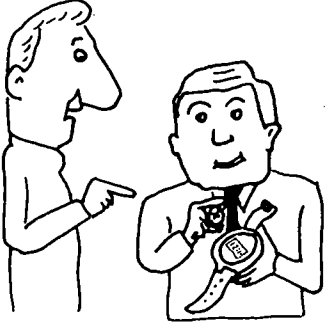
1) Flow chart of troubleshooting and adjustment

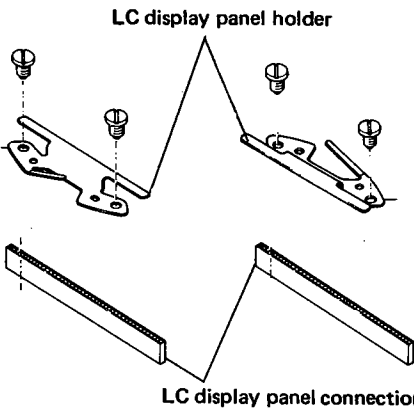
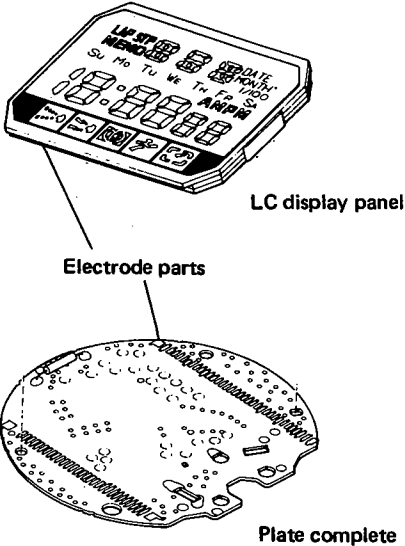




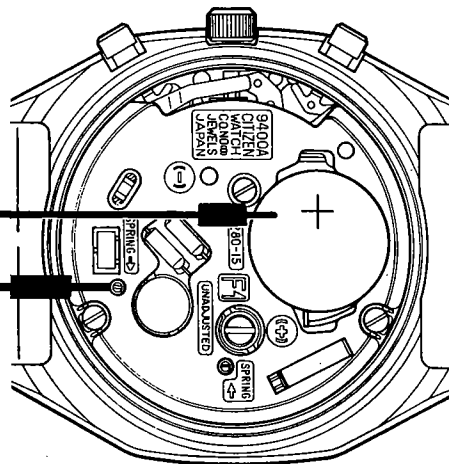
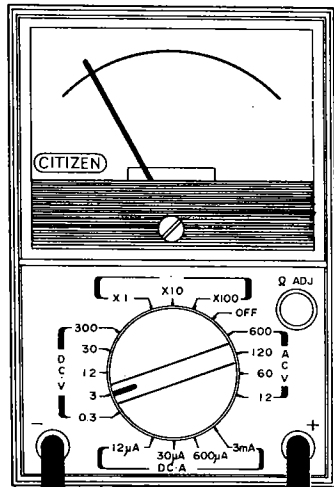
2) Details of troubleshooting and adjustment

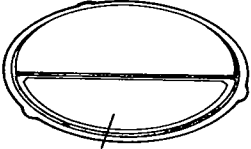
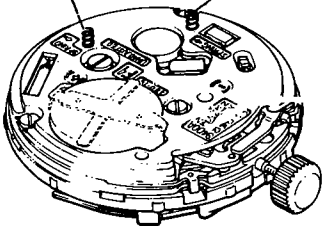
Checking items	How to check	Results & treatment
<p>1 Measurement of power cell voltage</p>	 <p>In case the readings is 1.5V or less with the power cell put into the watch although the power cell itself shows 1.5V or more output, the state of contact must be checked between the power cell connector attached to the device cover and the plate complete as well as the unit of electronic circuit. At the same time, the dirt or the like sticking those parts must also be examined.</p>  <p>Contact to pattern of plate complete</p> <p>Contact to pattern of unit of electronic circuit (The state of contact cannot be viewed with the power cell put into the movement, and so the upward warp is confirmed for the tip of the unit of electronic circuit.)</p>	<p>Power cell voltage:</p> <p>Over 1.5V</p> <p>→ 8 Check of unit of electronic circuit</p> <p>Under 1.5V</p> <p>→ Replacement of power cell</p> <p>No display →</p> <p>Display → 9</p>

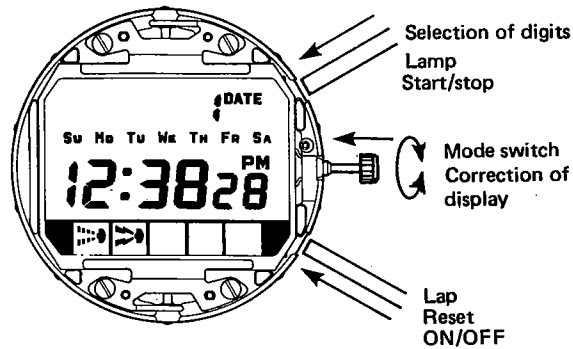
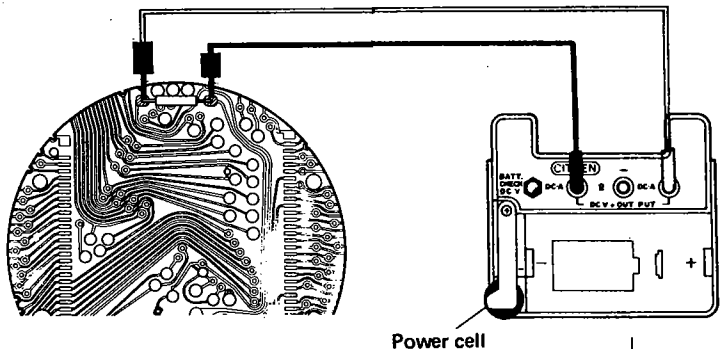

Checking items	How to check	Results & treatment
<p>2 Time adjustment</p>	<p>The time rate is checked through the timing machine. And in case the time is not correct, the trimmer condenser is turned right or left to give adjustment to the time.</p> 	<p>Normal time rate → 4</p> <p>Time adjustment possible → 9</p> <p>Time adjustment impossible → Replacement of unit of electronic circuit</p>
<p>3 Confirmation of using condition</p>	<p>In case no defect is detected through checking of the time rate, the using condition of the watch must be confirmed to the user about the following points along with some actual service tests.</p> <ol style="list-style-type: none"> 1) Whether the watch has been used in the wrong way. 2) Whether the watch has been used in the extreme range of temperature. 3) How many days have passed since the time adjustment was given to the watch? 	

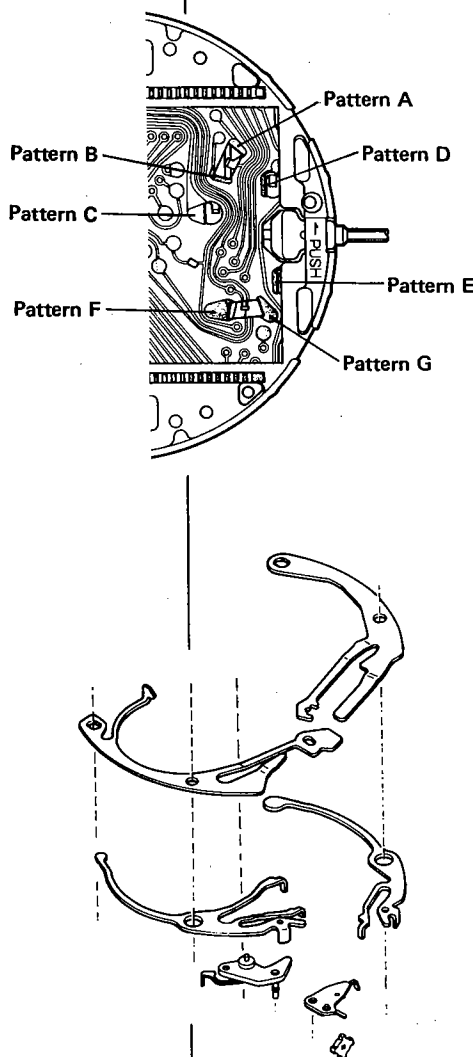
Checking items	How to check	Results & treatment
<p>4 Check of contact part of LC display panel</p>	<p>1. Check of LC display panel holders</p> <ol style="list-style-type: none"> 1) Whether the screws for LC display panel holders are loose. 2) Whether the LC display panel holders have some malformation. 3) Whether the LC display panel supporting rubber is twisted or worn out or has some dust or stains stuck on it.  <p>LC display panel holder</p> <p>LC display panel connection rubbers</p> <p>2. Whether the electrode parts of the LC display panel and the plate complete have some dust or stains stuck or some crack.</p>  <p>LC display panel</p> <p>Electrode parts</p> <p>Plate complete</p> <p>The dust or stains will cause the increment of the power consumption, so that they must be checked meticulously and removed completely with the chamois containing alcohol or the like. If no defect is detected through the above checking, the driving signals for LC display panel must be confirmed to decide whether the defect is caused by the trouble of the LC display panel or the circuit.</p>	<ul style="list-style-type: none"> •Screws loosened → To be tightened •Malformation of LC display panel holder → To be replaced •Supporting rubber twisted or worn out → To be replaced •Dust or stains → To be cleared off •Crack detected → Replacement of Plate complete or LC display panel •Dust or stains → To be cleared off

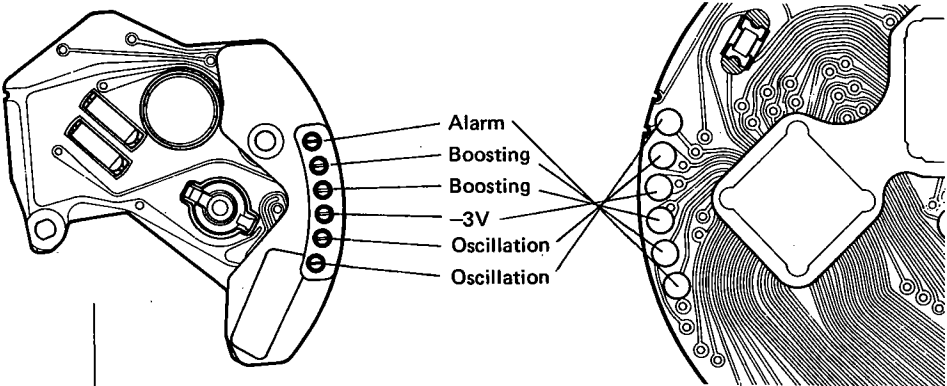
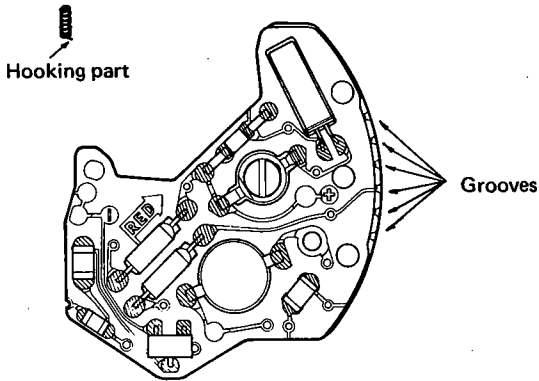
Checking items	How to check	Results & treatment
<p>5 Check of alarm function</p>	<p>1. Confirmation of alarm output</p> <p>1) Confirmation by tester</p> <p>The range of the tester is set to 0.3V.</p> <p>The plus and minus leads are applied to V_{DD} and the buzzer contact spring respectively. (Never be confused the buzzer contact spring with the vibrating plate contact spring.)</p> <p>Under these conditions, both (L) and (R) buttons are pushed.</p> <p>And if the tester's pointer swings, it is decided that the output is delivered.</p> <p>In this method, the pointer shows a fixed amount of readings. However, the pointer swings every second in case the alarm (I) or (II) is set. Both (L) and (R) buttons must be pushed in the mode of the normal time display.</p>	<p>•No output delivered</p> <p>→ 8 Check of unit of electronic circuit</p> <p>•Output delivered</p> <p>→ 2. Check of vibrating plate and its related parts</p>

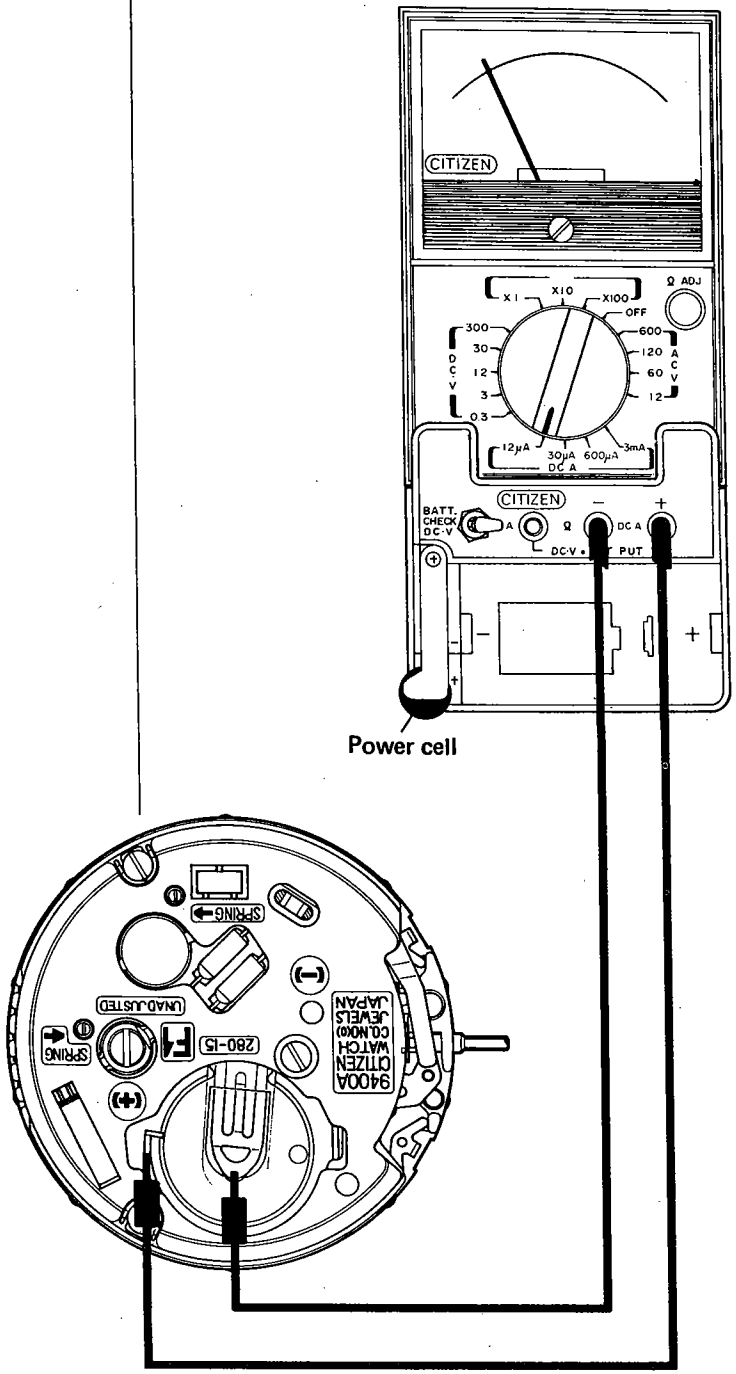


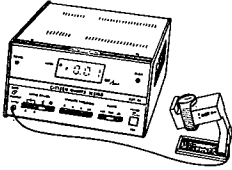
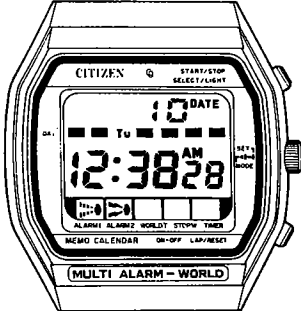
Checking items	How to check	Results & treatment
	<p>2. Check of vibrating plate and its related parts</p> <p>The following checking must be given.</p> <ol style="list-style-type: none"> 1) Whether the piezoelectric element of the vibrating plate has some break or crack. 2) Whether the buzzer contact spring and the vibrating plate contact spring have some malformation and are touching correctly the vibrating plate. 3) Whether the both springs mentioned above plus the pattern have some dirt. <p>The checking must be given also to the vibrating plate about its setting direction.</p> <div style="text-align: center;">  <p>Piezoelectric element</p> </div> <div style="text-align: center;">  <p>Vibrating plate contact spring Buzzer contact spring</p> </div>	<p>Piezoelectric element broken or cracked → To be replaced</p> <p>Malformation of spring → To be replaced</p> <p>Dirt sticking → To be cleared away</p>

Checking items	How to check	Results & treatment
<p>6 Check of switch mechanism</p>	<p>1. Each switch part is pushed in the single state of the movement (display to be set with push of the crown one step) in order to check whether the function of each switch operates in the correct way.</p>  <p>2. Check of lamp As illustrate below, the lighting of the lamp is checked via the adaptor of the Citizen Multi-Tester.</p>  <p>3. Check of push-buttons Each of the push-buttons plus the crown are removed out of the case.</p> <ol style="list-style-type: none"> 1) Whether each push-button has some breakage or malformation. 2) The dust or stains must be cleared away completely from the push-buttons and the crown as well as their positions on the case after removal each. 3) Make sure that the smooth operation is secured after setting the push-buttons and the crown to the case.  <p>The silicone oil must be supplied to the packings of the push-buttons and the crown each.</p>	<ul style="list-style-type: none"> • Normal operation → 3. Check of push-buttons • Defective operation → 4. Check of switch springs • No lighting of lamp → 2. Check of lamp <ul style="list-style-type: none"> • Lamp lighting secured → 3. Check of switch springs • No lighting of lamp → Replacement of plate complete

Checking items	How to check	Results & treatment
 <p>The diagram shows a cross-section of a watch movement with various components labeled as Pattern A through Pattern G. Pattern A is at the top, B and C are on the left, D and E are on the right, and F and G are at the bottom. A 'PUSH' label is also present. Below the main diagram is an exploded view of the same components, showing their relative positions and how they fit together.</p>	<p>4. Check of switch springs</p> <p>1) As illustrated left, the LC display panel supporter is removed to give an inspection between the tip of each switch spring and the plate complete as follows.</p> <ol style="list-style-type: none"> ① The contact must be secured between the tip of the push-button and patterns C and D when the (L) button part is pushed. ② The contact must be secured between the spring tip and pattern A when the crown is pushed in. ③ The contact must be secured between the spring tip and pattern B when the crown is pulled out one step. ④ The contact must be secured between the spring tip and pattern F when the crown is turned clockwise. ⑤ The contact must be secured between the spring tip and pattern G when the crown is turned counterclockwise. ⑥ The contact must be secured between the spring tip and pattern E when the (R) button part is pushed. <p>2) The check is given whether each pattern of the plate complete and each switch part have some dirt or crack.</p> <p>3) Check whether some malformation or breakage is given to the setting lever spring, the setting switch spring, the lamp switch spring, the reset switch spring, the corrector switch and the switch wheel each.</p>	<p>• No defect detected through above checking</p> <p>→ Replacement of plate complete</p>

Checking items	How to check	Results & treatment
<p>7 Check of unit of electronic circuit</p>	<p>The examination is given to the state of the 6 pieces of coil springs provided to the unit of electronic circuit. The coil springs function as the contact parts between each element of the unit of electronic circuit and the IC of the plate. In this connection, if even one of these coil springs becomes defective, the display disappearance or the defective alarm functioning will be caused.</p>  <p>The coil spring has the hooking part shown below at its one end.</p> <ol style="list-style-type: none"> 1. Make sure that each hooking part is set into each groove shown in the below. The tip of the hooking part can be viewed from the directions of arrows. The wrong direction of the hooking part will cause the short circuit to the patterns at the side of the unit of electronic circuit to result in some fault. 2. Check whether the coil spring has some malformation. 3. Check whether some dust or stains stick to the pattern of the plate complete. 	

Checking items	How to check	Results & treatment
<p>8 Measurement of power cell voltage</p>	<p>See 1. When the power cell shows the output of less than 1.5V, it must be replaced with the new one.</p>	
<p>9 Measurement of power consumption</p>	<p>The tester's pointer may sometimes swings large at first, but the swing becomes smaller gradually. The scale of the tester must be read when the pointer gets steady.</p>  <p>The diagram illustrates the connection for measuring power consumption. A power cell is connected to the multimeter's DC A input. The multimeter's range is set to 12µA. The watch movement is connected to the multimeter's DC A input and the power cell. The watch movement is labeled '9400A CITIZEN WATCH MOVEMENT JAPAN'.</p>	<p>● Value of power consumption Under normal display: Under 3µA Power consumption of circuit Under 2.5µA</p> <p>(In case the power consumption value is too large, the check must be given to the dust or stains at the contact part of the LC display panel.)</p>

Checking items	How to check	Results & treatment
10 Time adjustment	<p>The time measurement is carried out via the timing machine, and then the time is adjusted by turning right or left the trimmer condenser.</p> 	
11 Check of appearance functions	<p>The movement is set into the case of check the following points.</p> <ul style="list-style-type: none"> ●Whether the dust or stains are sticking to the function parts. ●Whether the display has some defect. ●Whether each function has the normal operation. 	

CITIZEN WATCH CO., LTD.
Tokyo, Japan