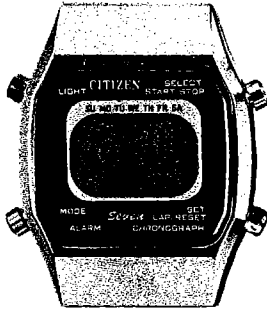


***TECHNICAL
INFORMATION***

**CITIZEN QUARTZ
Cal. No. 483※※**

 **CITIZEN**

■1. OUTLINE



This is a ladies' compact and thin-gage type digital quartz watch with multiple functions. It is developed to comply with the market demand for a digital watch for ladies with an inexpensive price.

■2. FEATURES

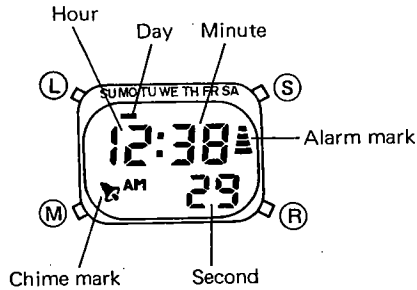
- (1) A compact and thin-gage digital quartz watch for ladies:
A unique and fascinating design is possible with a compact and thin-gage structure of module.
- (2) Multiple functions of display:
"Hour", "minute", "second", "AM/PM", "day", "alarm mark" plus "chime mark" are displayed on a display screen of a limited space. And these displays can be got at a look with no operation of buttons.
- (3) Alarm monitor:
An alarm sound can be heard at any moment by an alarm monitor function. At this moment, all display elements glow up on a display screen to contribute to a "full-segment checking"
- (4) Fully automatic calendar:
The calendar is automatically corrected and set for "month" and "date" excepting February 29 of a leap year.
- (5) Instant manual return:
The ordinary time display mode is secured in any mode of correction with a manual operation of a mode button.
- (6) 12/24-hour switching function:
The switching is possible between the 12-hour and 24-hour display modes according to the mode of living of the user. The alarm display mode is also switched in coupling to the 12/24-hour mode switching.
- (7) Stopwatch of 1/100 sec. timing:
The stopwatch is capable of timing down to 1/100 second. The timing changes to the 60-minute count along with a switch of display among "hour", "minute" and "second" after the timing of 30 minutes.
- (8) Illumination lamp:
An illumination lamp is incorporated to facilitate an easy readout of time even in a dark place.
- (9) Easy disassembly and assembly of module:
The disassembly and assembly of the module is facilitated since the number of component parts is extremely decreased with the grouping of these parts into blocks.
- (10) Nonstop working of about 2 years by a single unit of the silver oxide power cell:
The watch works continuously about 2 years by a single unit of the silver oxide cell thanks to the low power consumption of the electronic circuit.

■3. SPECIFICATIONS

Caliber Nos.	4830A-00	
Type	Digital quartz watch	
Size of module (mm)	18φ x 5.15 ^t	
Accuracy	±20 sec./month at normal temp.	
Oscillation	32,768Hz	
Method of display	FE twist-type nematic LC (liquid crystal) display	
Integrated circuit	C/MOS-LSI (1 unit)	
Effective temp. range	0°C ~ +55°C (32°F ~ 131°F)	
Adjustment of time rate	By trimmer condenser	
Functions of display	Time	Hour, minute, second, AM/PM & day
	Calendar	Month, date, day
	Alarm	House, minute, A/P & set mark
	Stopwatch	Minute, second & 1/100 sec. (hour, minute & second after 30-min. timing)
	Chime	Set mark
Additional functions	Instant manual return	
	Fully automatic calendar (Feb. 28)	
	12/24-hour switching function	
	Alarm monitor	
Power cell (Silver oxide)	Illumination lamp	
	Code : SR920W (Ag ₂ O/KOH)	
	Size (mm) : 9.5φ x 2.1 ^t	
	Nominal voltage : 1.55V	
	Nominal capacity : 39mAH	
	Maker : Hitachi Maxel	
	Parts No. : 280-51 (1 unit)	
Lifetime : About 2 years (20 sec. alarm actuation, 24 hourly chimes & 3 sec. lamp lighting per day)		

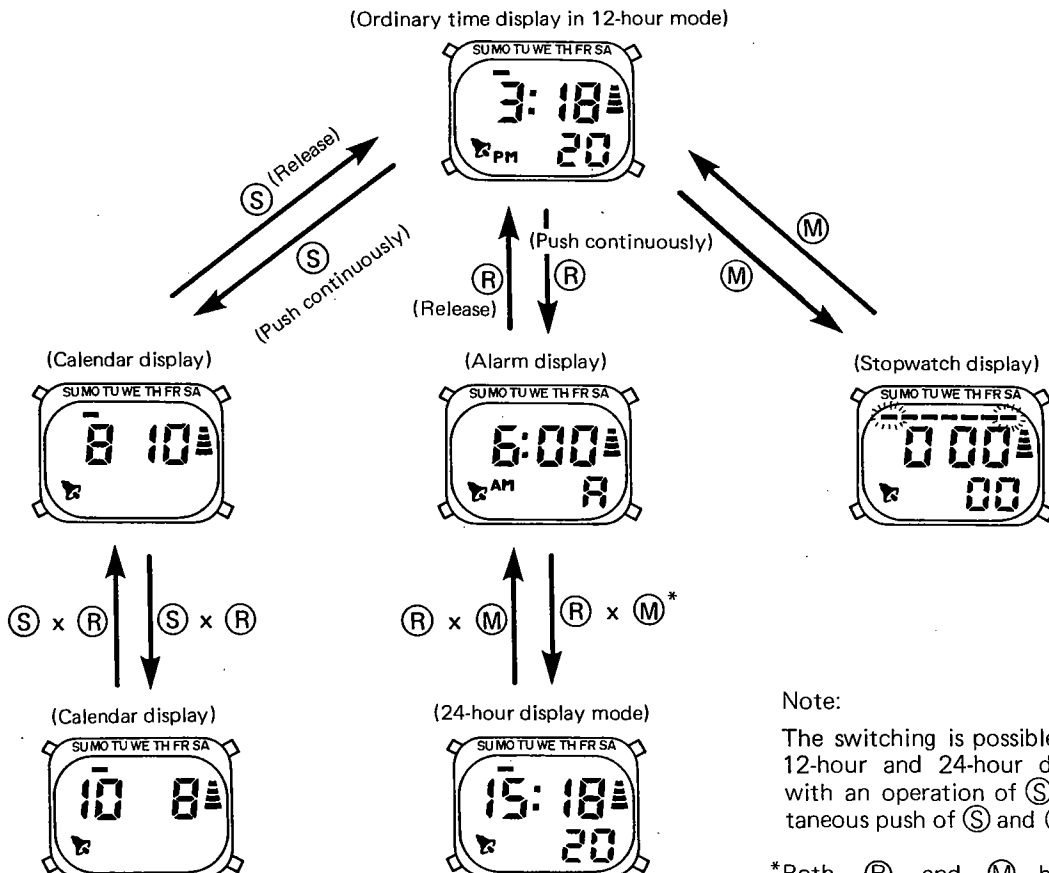
4. HANDLING INSTRUCTIONS

4-1. Nomenclature and functions of push-buttons



- Ⓢ button (Selection button):
Selection of correcting digit; Calendar display; ON/OFF of alarm and chime; Start/stop of stopwatch
- Ⓡ button (Read set button):
Time setting; Alarm display; Alarm stop; Lap/reset of stopwatch
- Ⓜ button (Mode button):
Switching of mode; Shift of correcting digit; Instant manual return
- Ⓛ button (Light button):
Illumination button

4-2. Switching of display



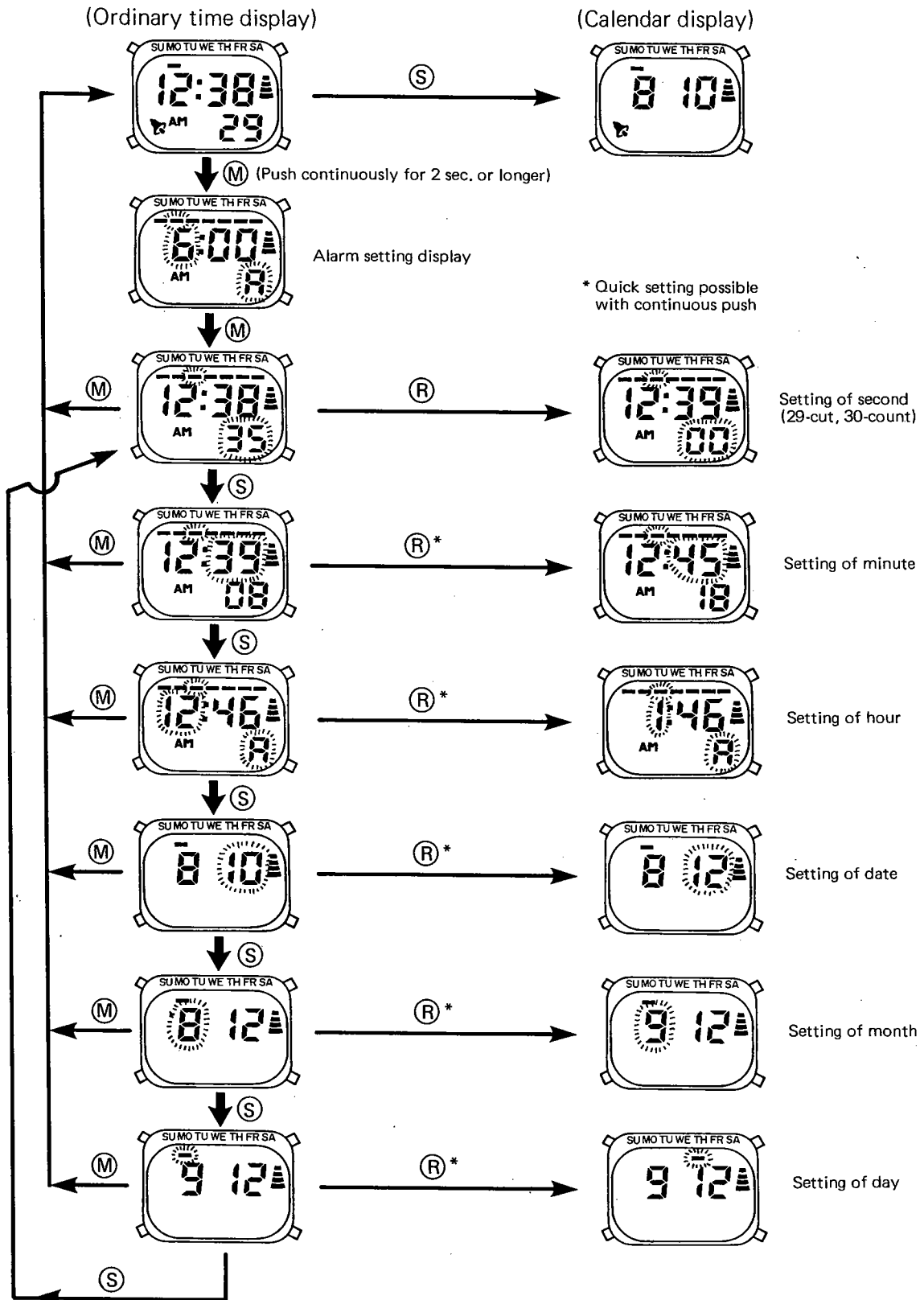
Note:

The switching is possible between the 12-hour and 24-hour display modes with an operation of Ⓢ x Ⓜ (simultaneous push of Ⓢ and Ⓜ buttons).

*Both Ⓡ and Ⓜ buttons are released after setting the alarm to the 24-hour display mode.

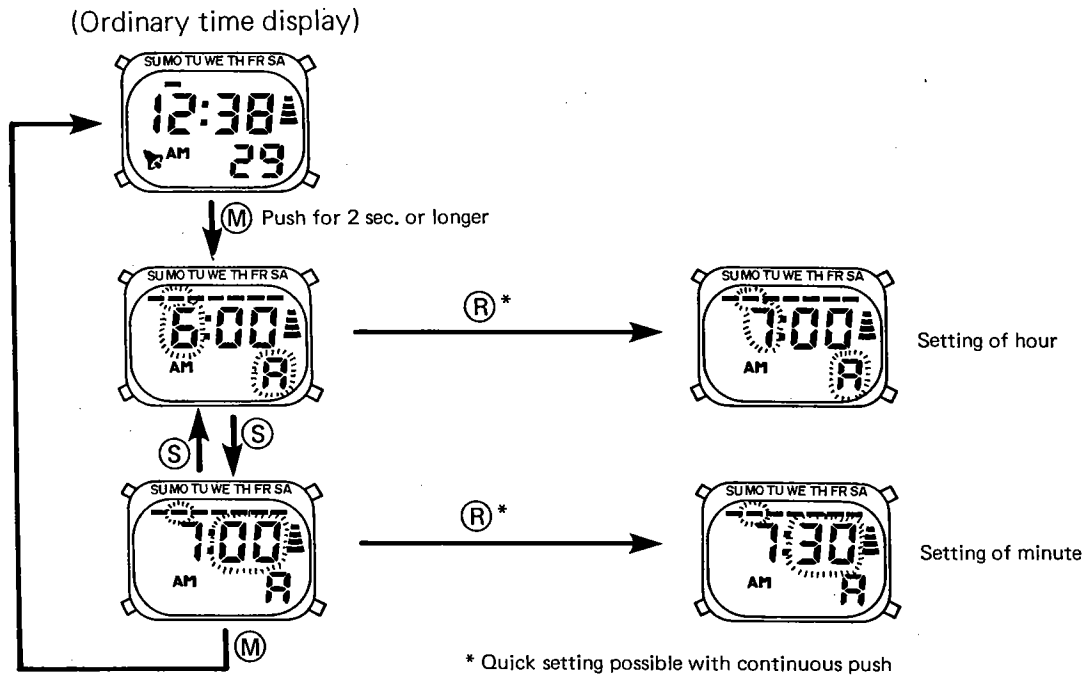
4-3. Setting method

(a) Correction/setting of time and calendar

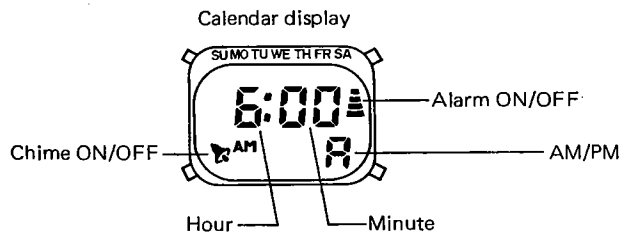


Note: Setting order of month-date calendar: Date → Month
 Setting order of date-month calendar: Month → Date

(b) Correction/setting of alarm



4-4. Setting of alarm and chime

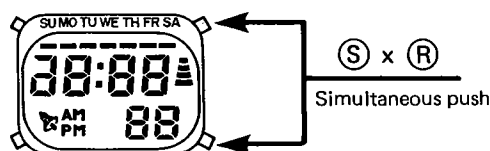


- The ordinary time display is switched to the alarm display with a continuous push of (R) button.
- The alarm and chime can be set with an operation of (S) button while pushing (R) button continuously.

S button	ALARM	CHIME
One push	OFF	OFF
Two pushes	OFF	ON (🔔)
Three pushes	ON (🔔)	ON (🔔)
Four pushes	ON (🔔)	OFF

- * The alarm sound is stopped with a push of (R) button.
- * The alarm rings for 20 seconds.

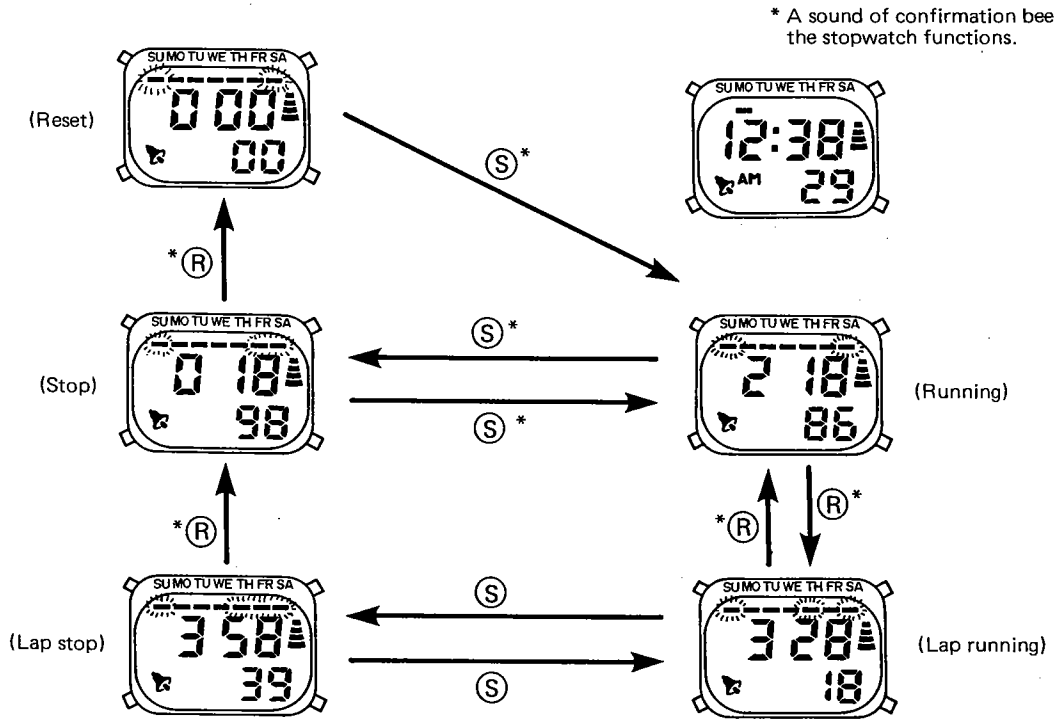
4-5. Alarm monitor



- With a simultaneous push of (S) and (R) buttons in the mode of ordinary time display, all display elements glow up on the display screen (fullsegment checking mode) for the monitor of the alarm sound.

4-6. Operation of stopwatch

(Ordinary time display)



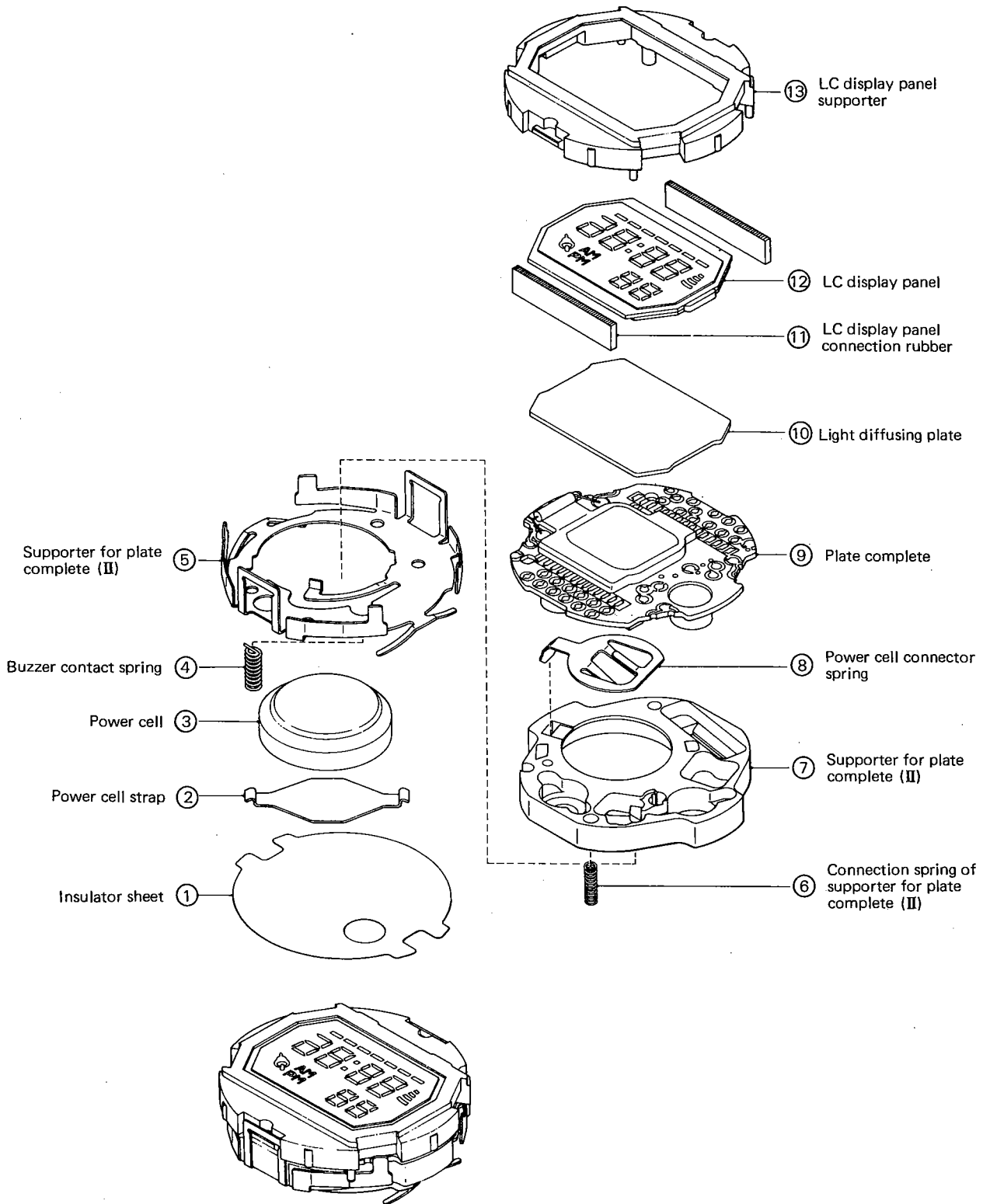
* A sound of confirmation beeps while the stopwatch functions.

Note: The above diagrams show the timing states changing from 0'00''00/100'' to 29'59''99/100''. The displays after 0 30'00/100'' are shown below.

• Running mode	Flashing of Sunday; Glowing of colon	Reset	0' 00'' 00/100''
• Lap running mode	Flashing of Sunday & Thursday; Glowing of colon	Start	0' 00'' 01/100''
• Lap stop mode	Flashing of Sunday, Thursday & Friday; Glowing of colon		0' 59'' 99/100''
• Stop mode	Flashing of Sunday & Friday; Glowing of colon		1' 00'' 00/100''
			29' 59'' 99/100''
			0H: 30' 00''
			23H: 59' 59''
			0H: 00' 00'' (Per day)

■5. DISASSEMBLY/ASSEMBLY OF MODULE

Disassembling procedure : ① → ⑬
 Assembling procedure : ⑬ → ①



■6. NOTES ON DISASSEMBLY/ASSEMBLY

1) Handling of supporter for plate complete (II)

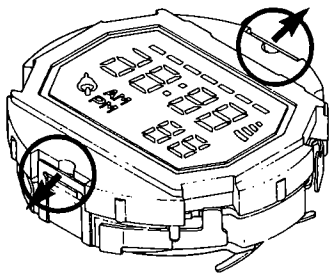


Fig. 1

- The LC display panel supporter is hooked and fixed at two areas of a supporter for plate complete (II).

The supporter for plate complet (II) is unset by using a tweezers or the like to pry the supporter toward the arrow marks from the side of the LC display panel. (Fig. 1)

2) Handling of power cell strap

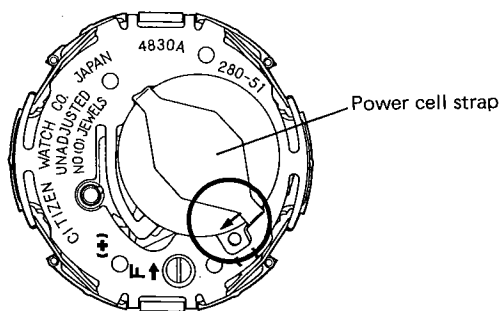


Fig. 2

- As illustrated in Fig. 2, the power cell strap is unset by sliding it toward an arrow mark.

3) Connection spring of supporter for plate complete (II)

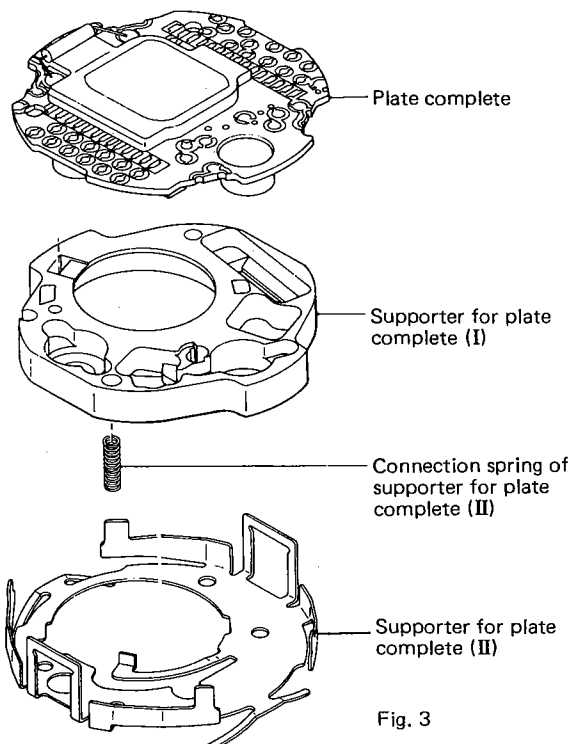


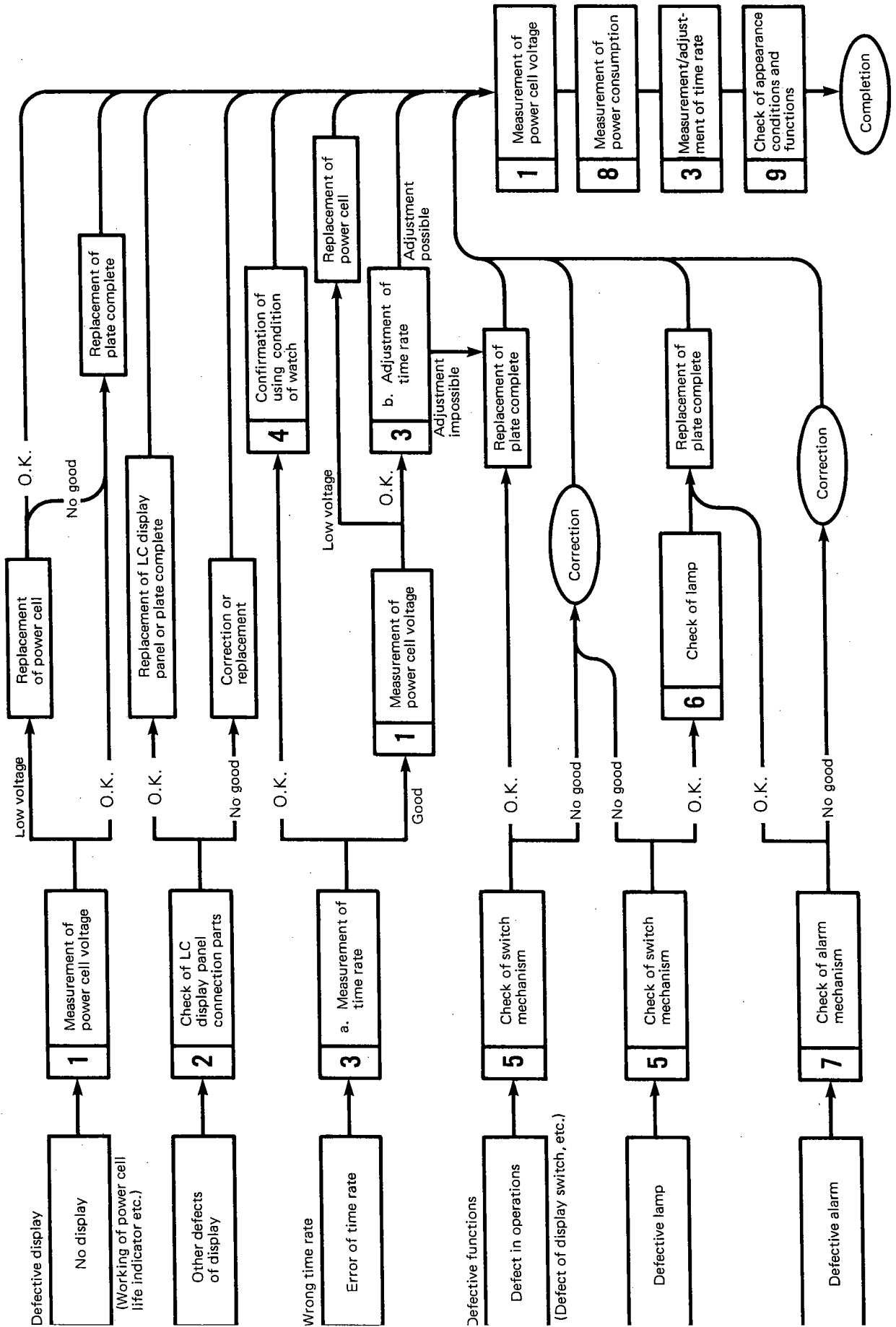
Fig. 3

- The connection spring of supporter for plate complete (II) functions to apply the plus (+) side of a power cell to the plate complete.

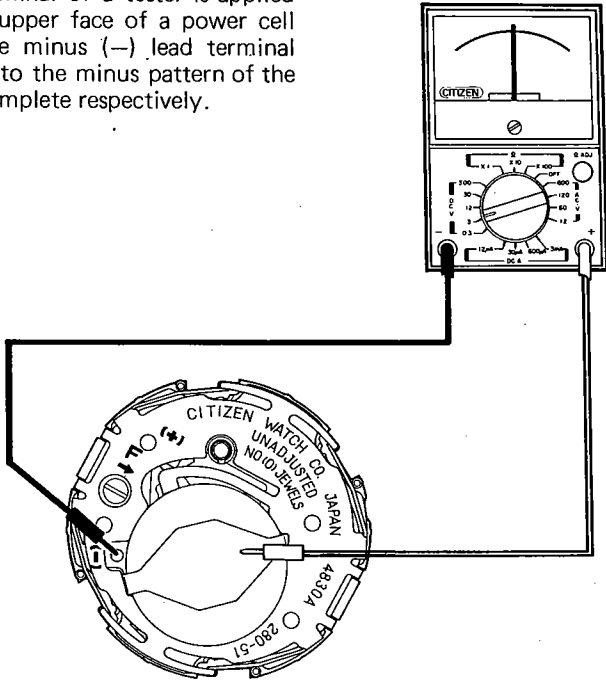
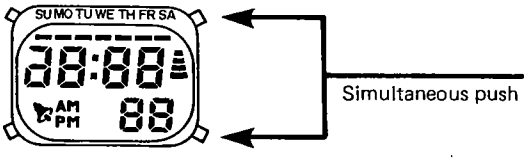
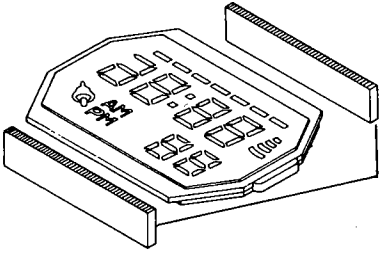
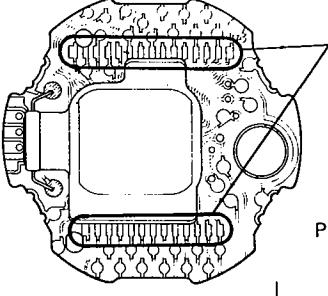
In this connection, the spring is put into a hole of the supporter for plate complete (I) to secure the conduction between the plate complete and the supporter for plate complete (II).

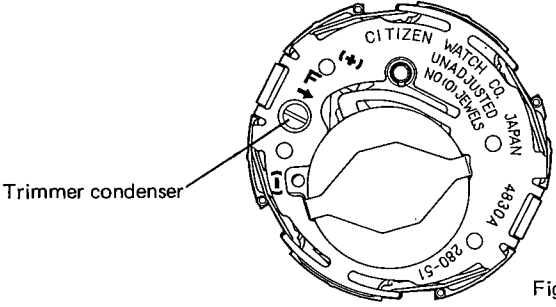
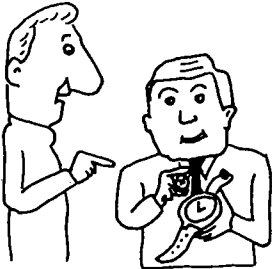
Thus good care must be paid when handling this connection spring.


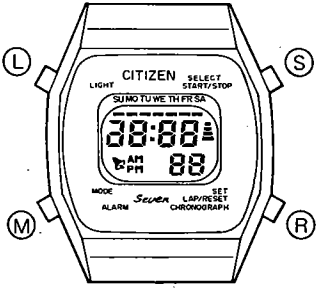
7. TROUBLESHOOTING AND ADJUSTMENT

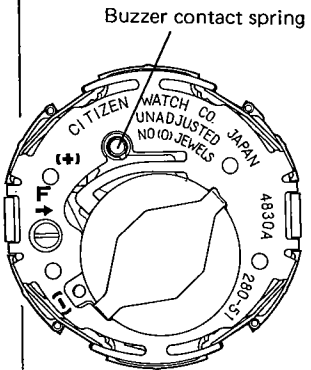
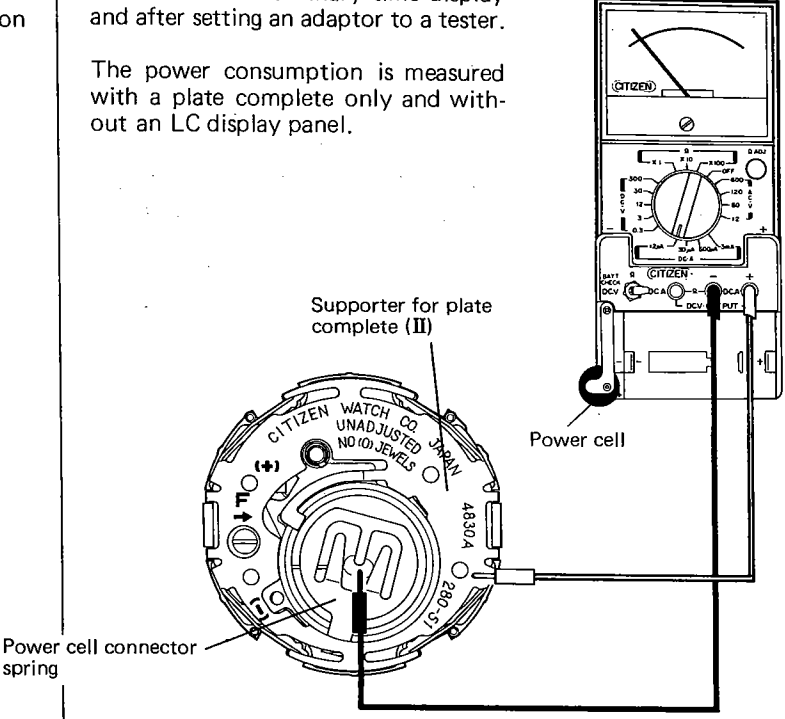



2) Details of troubleshooting and adjustment

Checking items	How to check	Results and treatment
<p>1 Measurement of power cell voltage</p>	<p>As illustrated in Fig. 4, the plus (+) lead terminal of a tester is applied to the upper face of a power cell with the minus (-) lead terminal applied to the minus pattern of the plate complete respectively.</p>  <p style="text-align: center;">Fig. 4</p>	<p>Over 1.5V → Nondefective</p> <p>Under 1.5V → Replacement of power cell</p>
<p>2 Check of connection part of LC display panel</p>	<p>All display elements on the display screen glow up with a simultaneous push of both (S) and (R) buttons in the mode of ordinary time display.</p> <p>Under such conditions, an inspection is given to the defective segment.</p> <p>Make sure that the LC display panel connection rubber is set in a correct way with no wear at all.</p> <p>Make sure that each of the contact point (between a pattern of the plate complete and the LC display connection rubber as well as between the LC display panel and the LC display panel connection rubber) is completely free from the dust, stains, cracks, flaws and the like negative factors.</p>    <p style="text-align: center;">Fig. 5</p> <p style="text-align: center;">Fig. 6</p>	<p>Dust, stains, etc. → To be removed away</p> <p>Cracks, flaws, etc. → Replacement of connection rubber</p> <p>Plate complete</p>

Checking items	How to check	Results and treatment
<p>3 Measurement/ Adjustment of time rate</p>	<p>Measurement of time rate Set the unit time of measurement at 2 sec. with a Quartz Tester.</p> <p>Adjustment of time rate Turn the trimmer condenser right and left to adjust the time rate.</p>  <p>Trimmer condenser</p> <p>Fig. 7</p>	
<p>4 Confirmation of using condition of watch</p>	<p>The using condition of a watch is examined with the user of the watch as follows.</p> <ol style="list-style-type: none"> 1) Check whether or not the user handled his or her watch in a wrong way. 2) Check whether or not the user used his or her watch outside its effective temperature range. 3) How long does it pass since the time rate was adjusted last? 	

Checking items	How to check	Results and treatment
<p>5 Check of switch mechanism</p>	<p>At the outset, have an inspection in the single unit of a module to discriminate whether the push-button or the module is defective.</p> <p>1) Check of module An inspection is given to the switch function by pressing the switch part of the supporter for plate complete (II) with a tweezers or the like to secure a contact with the connection part of the plate complete.</p> <p>Check whether or not the switch part of the supporter for plate complete (II) has some malformation.</p> <p>2) Check of push-buttons Check whether or not the push-buttons or a case has some malformation, stains or the like defects.</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	

Checking items	How to check	Results and treatment
<p>7 Check of alarm mechanism</p>	<p>The movement is put into a case, and both (S) and (R) buttons are pushed simultaneously to secure an alarm monitor mode. Then the output of alarm is checked.</p> <p>(Range of tester: DC.V 0.3)</p> <ul style="list-style-type: none"> • Tester pointer swinging in a range of about 0.05 ~ 0.08V → Nondefective module; Inspection to be given to vibrating plate and connection part • No swinging of tester pointer → Replacement of plate complete • Crack or break of piezoelectric element at contact part of buzzer contact spring → Replacement of case • Malformation or breakage of buzzer contact spring → Correction or replacement 	
<p>8 Measurement of power consumption</p>	<p>The power consumption is measured in the mode of ordinary time display and after setting an adaptor to a tester.</p> <p>The power consumption is measured with a plate complete only and without an LC display panel.</p>  <p>Note: The measurement will be defective if the connection spring of supporter for plate complete (II) is not set at a correct position since this spring functions to secure the conduction between the plate complete and the supporter for plate complete (II).</p>	<p>Under 2.0μA → Nondefective</p> <p>Over 2.0μA → Measurement of power consumption with plate complete only</p> <p>Over 1.6μA → Replacement of plate complete</p> <p>Under 1.6μA → Replacement of LC display panel</p>
<p>9 Check of appearance and functions</p>	<p>The following points are checked with a finished watch.</p> <ol style="list-style-type: none"> 1) The display has no malfunction at all. 2) Each push-button has no defect. 3) The display screen of the LC display panel is completely free from the dust, stains and other defects. 	

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