PARTS CATALOGUE / TECHNICAL GUIDE
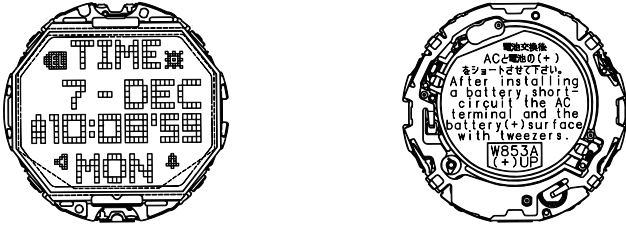## Cal. W850A, W851A
Cal. W853A, W854A

[SPECIFICATIONS]

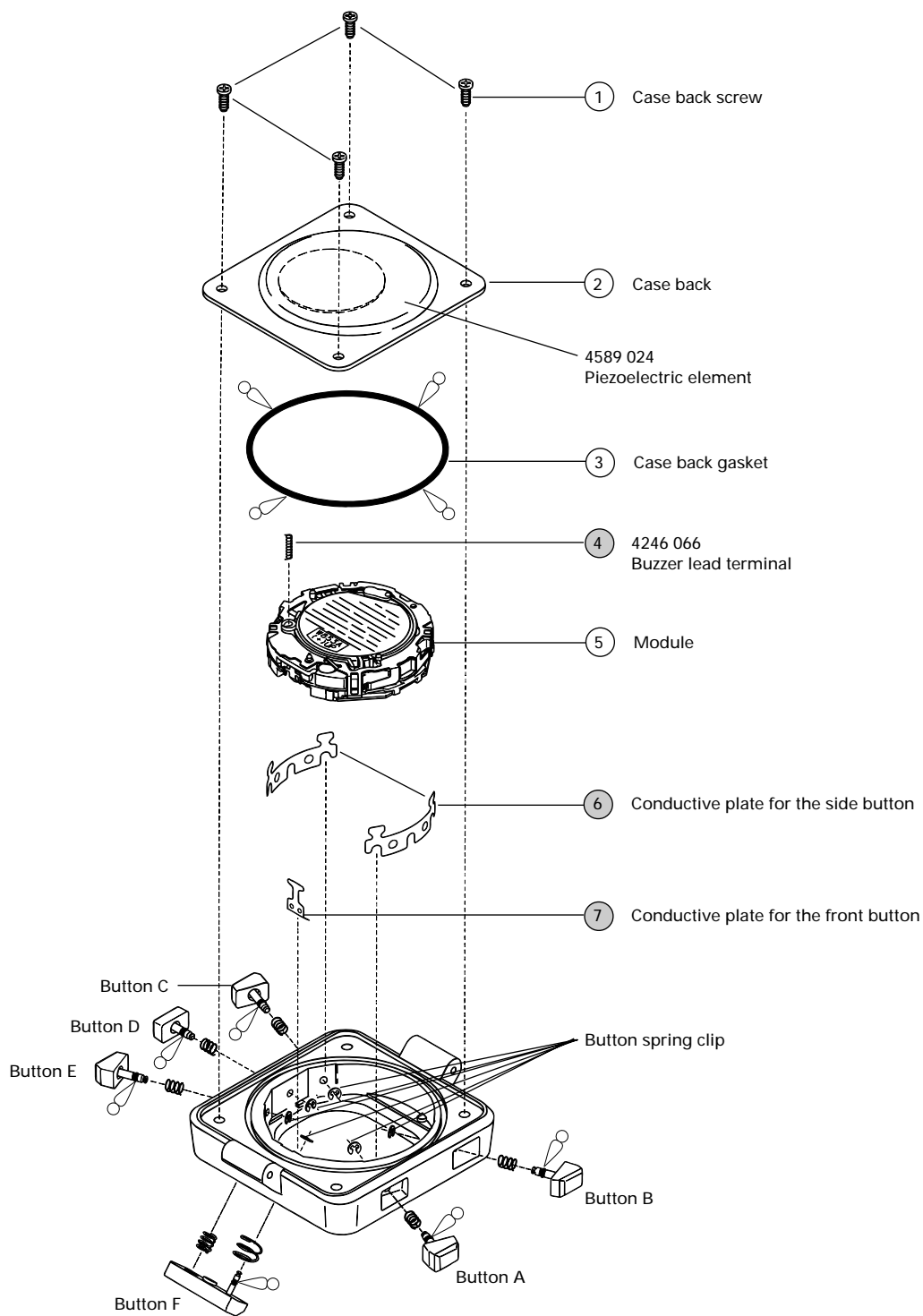| Item Cal. No.		W850A, W851A, W853A, W854A
Module		The illustrations refer to Cal. W853A. (x 1.0)
Module size	Outside diameter	ø29.0 mm
	Casing diameter	–
	Height	6.0 mm (Including the battery portion)
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)
Liquid crystal driving system		Multiplex driving system
Display system		• Time/calendar display • Stopwatch display (Up to 9 hours, 59 minutes and 59.99 seconds in 1/100 seconds) • Alarm display (5-channel daily alarm) • Timer display (Two types of countdown timer: Preset timer with 10 preset times and 10-hour adjustable timer) • World time display (38 cities)
Additional mechanism		• Selection of a desired mode in the menu display • Changeover between the normal and enlarged displays • Quick digits moving function • Graphic display, scroll display and motion graphic demonstration function • Auto illumination function • Electroluminescent panel • Battery life indicator • Sound demonstration • Changeover between 12- and 24-hour indications
Loss/gain		Monthly rate at normal temperature range: less than 20 seconds
Regulation system		Nil
Measuring gate by quartz tester		Any gate can be used.
Battery		SEIKO CR2025, Sony CR2025, Matsushita CR2025 Battery life is approximately 2 years. Voltage: 3.0 V

PARTS CATALOGUE

Disassembling procedures Figs. : ① → ㉓

Reassembling procedures Figs. : ㉓ → ①

Lubricating: **Types of oil**   **Oil quantity**

⊂▷ Silicone oil 500,000   ⊂▷ Normal quantity

① Case back screw

② Case back

4589 024
Piezoelectric element

③ Case back gasket

④ 4246 066
Buzzer lead terminal

⑤ Module

⑥ Conductive plate for the side button

⑦ Conductive plate for the front button

Button C

Button D

Button E

Button spring clip

Button B

Button A

Button F

⬤ ⇨ Please see the remarks on the following pages.

8 0110 196 (Cal. W850A)
0110 197 (Cal. W851A)
0110 211 (Cal. W853A)
0110 132 (Cal. W854A)
Sticker

9 4225 098
Battery clamp

10 Battery
(See the front page.)

11 Switch spring (A)

12 4395 046
Battery guard

13 4408 068
Spacer for switch spring (B)

14 4245 235
Switch spring (B)

(Reversed battery guard)

15 4290 036
Rubber switch

16 4270 118
Battery connection (–)

17 4271 333
Battery connection (+)

18 4003 306 (Cal. W850A)
4003 307 (Cal. W851A)
4003 309 (Cal. W853A)
4003 310 (Cal. W854A)
Circuit block

19 4313 137
Connector

20 4510 394 (Cal. W850A, W851A)
4510 364 (W851A)
4510 402 (Cal. W853A, W854A)
Liquid crystal panel

21 4536 025
Electro-
luminescent
panel

22 4246 085
Electro-
luminescent
lead terminal

23 4512 044
Liquid crystal
panel frame

(Reversed liquid crystal panel frame)

⬤ ⇨ Please see the remarks on the following pages.

PARTS CATALOGUE Cal. W850A, W851A, W853A, W854A

> ### Remarks:

- Conductive spring

    Some models use a conductive spring as a casing part. Check the case number and refer to "SEIKO Parts Catalogue".

- ⑳ Liquid crystal panel

    The type of liquid crystal panel is determined based on the design of cases. Check the case number and refer to "SEIKO Parts Catalogue" to choose a corresponding liquid crystal panel.

TECHNICAL GUIDE Cal. W850A, W851A, W853A, W854A

- The explanation here is only for the particular points of Cal. W850A, W851A, W853A and W854A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

I. STRUCTURE OF THE CIRCUIT BLOCK

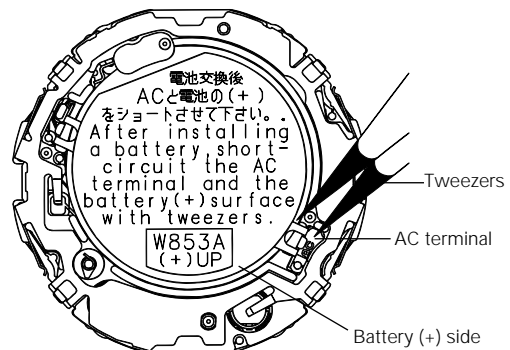Input terminal (+)　　Input terminal (−)　　C-MOS-IC　　Crystal unit
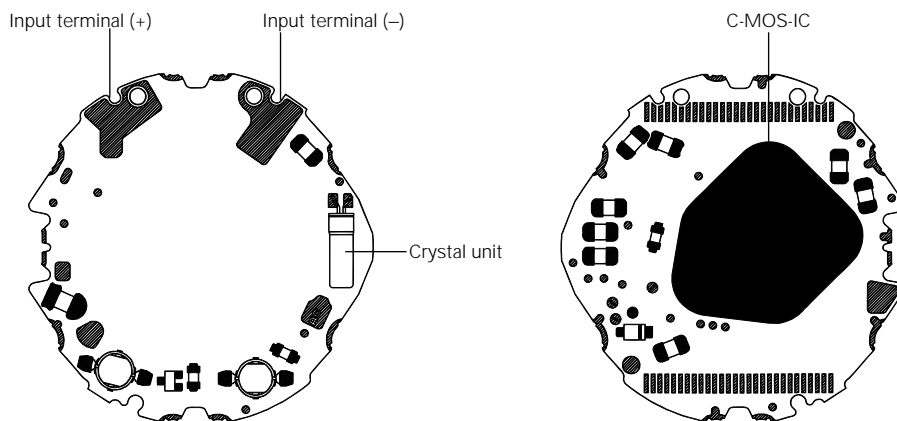
II. REMARKS ON INSTALLING THE BATTERY

After the battery is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to follow either of the two methods below to reset the circuit.

- **METHOD 1**

    To reset the circuit of a module:
    Short-circuit the AC terminal of the circuit block and the battery positive surface with conductive tweezers as illustrated at right.


電池交換後
ACと電池の(+)
をショートさせて下さい。
After installing
a battery, short-
circuit the AC
terminal and the
battery(+)surface
with tweezers.

W853A
(+)UP

Tweezers

AC terminal

Battery (+) side

TECHNICAL GUIDE

• **METHOD 2**

To reset the circuit of a complete watch:
Press and hold buttons "A", "B", "C" and "E" at the same time for 2 to 3 seconds.

* The display will become blank, indicating that the circuit is reset. Then, the display will return to the MENU display.

* After resetting the circuit, be sure to set the time/calendar again as the time/calendar data returns to the initial settings.

Button B

Button C

Button A

Button E
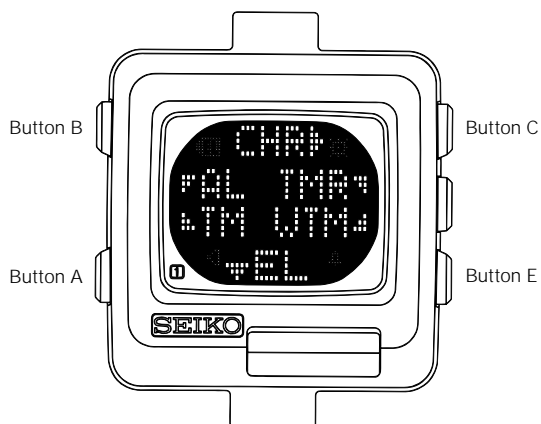
III.   REMARKS ON DISASSEMBLING AND REASSEMBLING

Use the universal movement holder for disassembling and reassembling.

• Piezoelectric element   4589 024

The piezoelectric element, which is adhered to the case back, is available for supply separately from the case back.
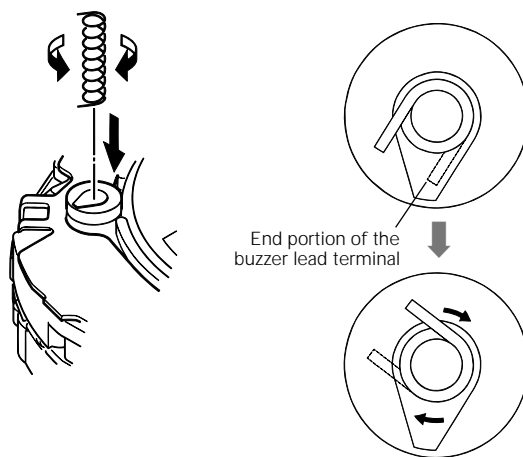
④ Buzzer lead terminal

• **How to remove**

Turn the buzzer lead terminal to release its end portion from the groove of the battery guard, and then remove it.

• **How to install**

Set the end portion of the buzzer lead terminal into the groove of the battery guard, and then turn it to fix it.

End portion of the buzzer lead terminal

⑥ Conductive plate for the side button

⑦ Conductive plate for the front button

• **How to install**

• Insert the conductive plates for the side and front buttons into the gap between the button spring clip and the case middle as shown in the illustrations on the next page.

Conductive plate   Case middle   Conductive plate for the side button   Conductive plate for the front button

Button spring clip

Case back
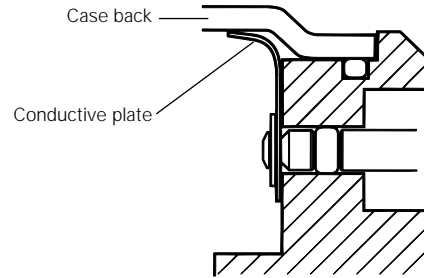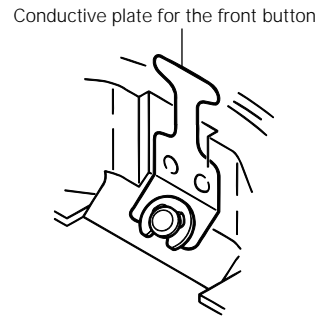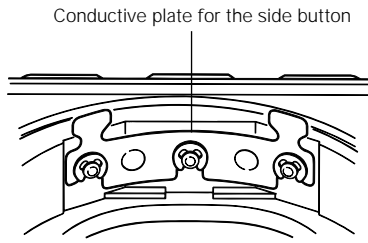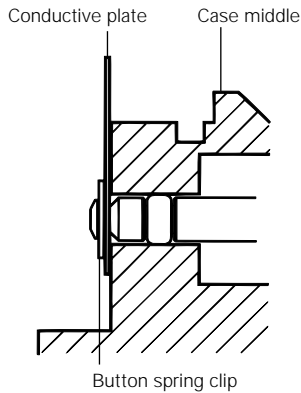
Conductive plate

- When closing the case back, check that the conductive plates are in contact with the case back, being bent by it towards the center of the watch.

- In doing so, the case back may be hard to set in position, as the conductive plates have a repelling force when bent.

⑨ Battery clamp

Tweezers

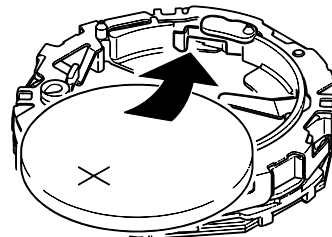Battery clamp

- **How to remove**

  Insert the tip of tweezers into the protrusion of the hooking portion of the battery clamp and pry it up toward the direction of the arrow in the illustration at right to remove it.
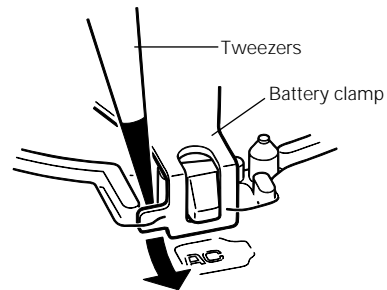
⑩ Battery

- **How to install**

 Set the battery in the direction of the arrow with its (−) side down.

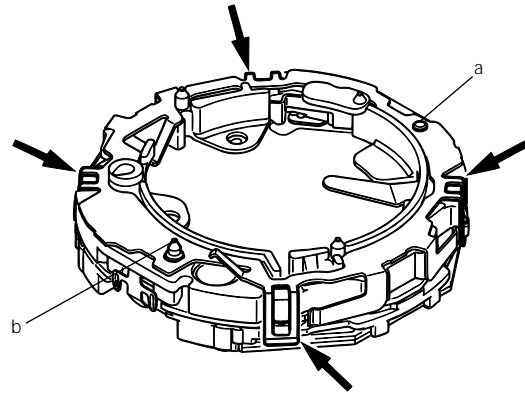⑪ Switch spring (A)

- **How to remove**

  Release the four hooking portions of the switch spring (A) indicated by the arrows in the illustration on the next page, and then, lift it up to remove.

- **How to install**

  Set the switch spring (A) to the guide posts "a" and "b" in the illustration on the next page, and then, have the four hooking portions of the switch spring catch the module securely.
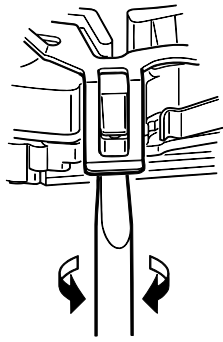
[How to release the hooking portion]

⑬ Spacer for switch spring (B)

⑭ Switch spring (B)

- Do not disassemble the switch spring (B) and its spacer except when they need to be replaced.

- When installing the spacer for switch spring (B), take care not to set it in the wrong direction. (See the exploded view on page 3.)
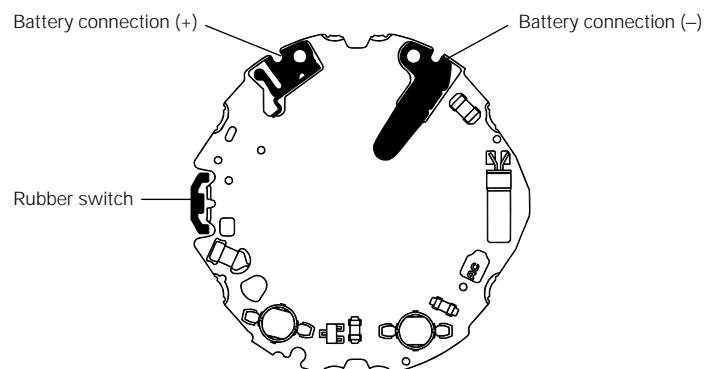
⑮ Rubber switch

⑯ Battery connection (–)

⑰ Battery connection (+)

⑱ Circuit block

- **How to install**

  First, set the rubber switch, battery connection (–) and battery connection (+) to the circuit block in the positions as indicated in the illustration below. Then, install the battery guard from above to fix them securely to the movement. In doing so, take care lest the switch and connections should get out of position.

Battery connection (+)   Battery connection (–)

Rubber switch

㉒ Electroluminescent lead terminal

Electroluminescent lead terminal

Liquid crystal panel frame

- **How to install**

  Set the end portion of smaller diameter to the guide hole of the liquid crystal panel frame.
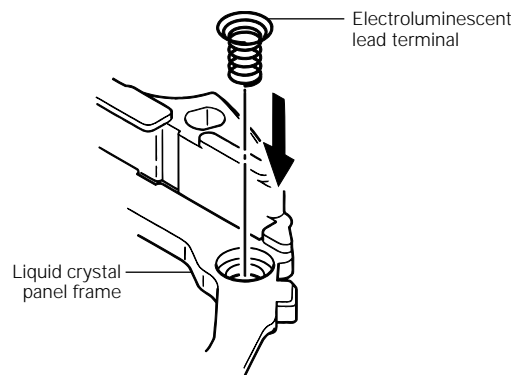
⑳ Liquid crystal panel

㉓ Liquid crystal panel frame

"B" portion

- **How to remove**

  Release the hooking portion of the liquid crystal panel frame ("A" portion in the illustration at right) by moving it in the direction of the arrow with the tip of tweezers, and remove the liquid crystal panel.

- **How to install**

  Slip the liquid crystal panel into the gap under "B" portion of the liquid crystal panel frame, release "A" portion by moving it in the direction of the arrow with the tip of tweezers, and then, set the liquid crystal panel.

"A" portion

Liquid crystal panel
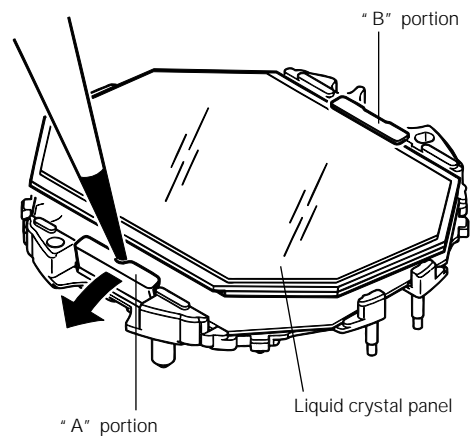
IV. VALUE CHECKING

- **Current consumption**

For the whole module	:	Less than 5.5 μA (with voltage of 3.0 V supplied from a battery)
For the circuit block alone	:	Less than 9.4 μA (with voltage of 3.0 V supplied from a battery)

- **All the segments lit up**

  How to light up all the segments

  In the TIME/CALENDAR mode, press and hold button "B" for 2 to 3 seconds to show the TIME/CALENDAR SETTING display, and then, press buttons "C" and "D" at the same time to light up all the segments of the display.

  - With all the segments lit up, check for abnormal displays, etc.

  - To return to the normal display, press button "A", "B", "C", "D", "E" or "F". (The watch will return to the TIME/CALENDAR mode.)
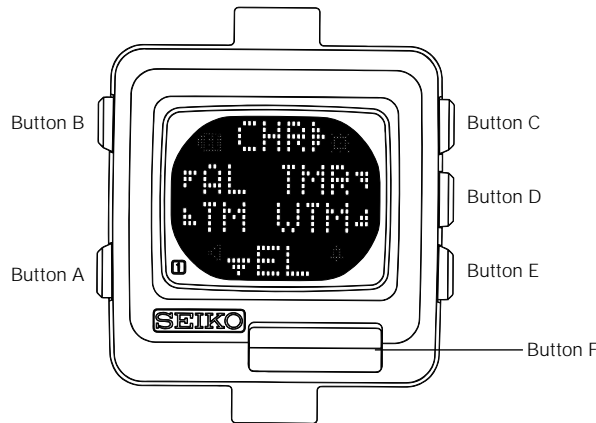
• **Time accuracy**

1) Light up all the segments of the display, following the procedure above.

2) Place the watch on the microphone's mark for placing the watch with the liquid crystal panel facing the mark.

* If a stable measurement cannot be obtained, adjust the level by turning the level adjuster knob.

HOW TO USE

• The functions and operation of the buttons are listed below. For checking or repair of the watch, refer to the table below for guidance.

In the MENU display	In the selected mode					
	Button A	Button B	Button C	Button D	Button E	Button F
Press button "A" to show the TIME/ CALENDAR mode.	Returning to the MENU display	TIME/ CALENDAR SETTING function by pressing for 2 to 3 seconds	–	Changeover between the normal and enlarged displays	One press: Scrolling the name of the selected city / Continuous press for 2 to 3 seconds: Displaying the city name, and then, activating the demonstration function	Turning on the electroluminescent light
Press button "B" to show the ALARM mode.	Returning to the MENU display	ALARM SETTING function by pressing for 2 to 3 seconds	Engagement/ disengagement of the alarm	Changeover between the normal and enlarged displays	Selection of the desired alarm channel (from channel 1 to 5)	Turning on the electroluminescent light
Press button "C" to show the STOPWATCH mode.	Returning to the MENU display	MEMORY RECALL function	Start/stop of the stopwatch	Changeover between the normal and enlarged displays	Resetting the stopwatch	Turning on the electroluminescent light
Press button "D" to show the TIMER mode.	Returning to the MENU display	ADJUSTABLE TIMER SETTING function by pressing for 2 to 3 seconds	Start/stop of the timer	Changeover between the normal and enlarged displays	Resetting the timer / Selection of the preset time	Turning on the electroluminescent light
Press button "E" to show the WORLD TIME mode.	Returning to the MENU display	Changeover between the standard time and daylight saving time	Selection of cities	Changeover between the normal and enlarged displays	Selection of cities	Turning on the electroluminescent light
Press button "F" to illuminate the display.	–	–	–	–	–	–

* By pressing the corresponding button in the MENU display, a desired mode can be selected as shown in the table above.

* The table above covers the basic button operations of the watch only. Use it for the checking after repair.